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The Birth of Modern Europe

Culture and Economy, 1400-1800
Essays in Honor of Jan de Vries

EDITED BY LAURA CRUZ & JOEL MOKYR

BRILL

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Novus XVII Inferioris Germaniæ Provinciarum typus (New picture of the 17 Provinces of Lower Germany) from "Theatrum Orbis Terrarum, sive Atlas Novus in quo Tabulæ et Descriptiones Omnium Regionum, Editæ a Guiljel et Ioanne Blaeu" (1645) (Source: Wikipedia Commons)

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INTRODUCTION: JAN DE VRIES AND HIS CONTRIBUTIONS

Joel Mokyr

One of the pleasures of writing a retrospective essay such as this is to go back many years, and dig up memories from one's own past. Over three decades ago, I was asked by *Business History Review* to review de Vries's *Barges and Capitalism*.[1] A book on canal barges (*trekschuiten*) in the hands of a lesser scholar could turn out to be rather dull, but I already knew Jan at that time, and expected a reasonably interesting book. All the same, I was not quite prepared to be so enthralled by the book as I was. Being young and impetuous, I praised the book quite lavishly: "the best work in economic history usually falls into one of two categories: it is either 'pathbreaking' (i.e., it says something about a subject that has hitherto not been touched by others) or 'definitive' (i.e., it says something about a subject that from now on will not be touched by others). In this book, de Vries has managed to be both pathbreaking and definitive—a rare achievement."[2] As I look back at *Barges*, I see no reason to take back any of those youthful words. Now, moreover, I recognize more clearly one of the less obvious ingredients of the enormous respect and admiration that de Vries's work has generated, namely his uncanny ability to take what may seem a "small" subject and turn it into something big and fascinating to a large audience by exploring its ramifications in a full way. This gift can be found in such eminent and diverse scholars as Natalie Zemon Davis, Carlo Ginzburg, Emmanuel Leroy-Ladurie, and Avner Greif. *Barges* has material in it to interest a wide array of scholars, from the analysis of a regulated monopoly to the estimation of a gravity model. The predictions of the estimated model are compared to the actual volume of passengers to measure the decline in demand for transport services, which proxied for a measure of economic activity in

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[1] Jan De Vries, *Barges and Capitalism: Passenger Transportation in the Dutch Economy: 1632–1839*. Published in *AAG Bijdragen* Vol. 78 (1978).

[2] Joel Mokyr, review of *Barges and Capitalism*, in *Business History Review* Vol. 53 (Autumn 1979), 445–47.

the United Provinces. This led de Vries to penetrating questions about pre-industrial economic cycles and similar questions. Decades after its publication, it remains a gem of innovative and sparkling scholarship, far too little known in my view.

Barges was de Vries's third book. It was preceded by his doctoral dissertation and, oddly enough for a scholar barely in his thirties, a textbook on European economic history in the "early modern" era.[3] I have a special affinity for *Rural Economy*, largely because our dissertation advisor, Bill Parker, used to waive de Vries's dissertation in front of me and advise me to do something "just like that." In it, de Vries, as he himself put it, brought together the skills of the development economist and that of the Dutch historian. The Dutch Golden Age was, until then, primarily viewed as an urban phenomenon, in which shipping, commerce, manufacturing, and finance were the entire story. De Vries would have none of that. He pointed out the importance of progressive and productive agriculture in the Netherlands, and especially its integration with other sectors within an *open* economy. It is this integration of domestic production with foreign trade, he explained, that accounts for the success of the Dutch economy. This book, too, shows the ability to take a fairly small region (much of the original research focused on the northern provinces of Friesland and Groningen) and make them look significant and important by showing their role in the emergence of a world economic power. Having rescued the Dutch rural sector from an undeserved obscurity, de Vries could now turn to cities with a clear conscience.

De Vries once told me that while working on these three books he had made a habit of writing down in a little notebook the population size of every town he encountered in his extensive work in libraries and archives. He must have visited a lot of them, because in his next book that came out a mere seven years after *Barges*, he presented the scholarly world with a gift of a database of urban population statistics in a pre-statistical age that has never been matched.[4] Its importance is especially striking because in the absence of better data on income, scholars have often used the proportion living in cities as a

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[3] Jan De Vries, *The Dutch Rural Economy in the Golden Age* . New Haven and London: Yale University Press, 1974; Jan De Vries, *The Economy of Europe in an Age of Crisis, 1600–1750*. Cambridge: Cambridge University Press, 1976.

[4] Jan de Vries, *European Urbanization: 1500–1800* . London: Methuen and Cambridge Mass., Harvard University Press, 1984).

proxy for income per capita or the overall level of economic development.[5] Beyond the truly magnificent database in this book, however, it contains a great deal of sophisticated analysis, displaying a deep understanding of many aspects of urban economics and urban history, much as one would have to come to expect. It discusses many of the standard issues on the size distribution of cities, but also proposes a "European urban system," an innovative and sophisticated notion that in my view is deeper than superficial constructs such as I. Wallerstein's *World System* with its "core" and its "periphery,"which de Vries, incidentally, deconstructed in an elegant but devastating critique.[6] *European Urbanization* sees the evolution of this system as an important prelude to the sustained economic growth that followed the Industrial Revolution, and nothing that has been written since has in any sense cast doubt on that; indeed recent work in economic history by "full-time" economists has rediscovered this point in spades.[7] A more urban society, de Vries argued, will be beneficial to innovation by both creating an environment in which creative minds can flourish and communicate, and by generating the kind of demand patterns necessary for highly-skilled artisans to exercise their competence and benefit from their training.

De Vries's largest and possibly best-known book is the massive *First Modern Economy* co-authored with the late Ad van der Woude.[8] It is his most ambitious undertaking, a magisterial synthesis of what is known about the Dutch economy in its Golden Age and years of decline, written by two mature and erudite scholars, with an amazing familiarity with a huge literature, endless original sources, and a balanced judgment on many aspects of the "rise and fall" of the Dutch Golden Age. It is also, inevitably, the least "definitive" of de Vries's books, and one that has raised considerable controversy. Most reviewers expressed admiration for the scholarly work that went into this tome, but many had some misgivings about its interpretations, especially the deep

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[5] For example, Karl Gunnar Persson, *Pre-Industrial Economic Growth: Social Organization and Technological Progress in Europe* . New York: Basil Blackwell, 1988.

[6] Jan de Vries, "Het Wereldmodel van Wallerstein," *Theoretische Geschiedenis* Vol. 3 (1976), 105–22.

[7] Daron Acemoglu, Simon Johnson, and James Robinson, "The Rise of Europe: Atlantic Trade, Institutional Change, and Economic Growth." *American Economic Review*, Vol. 95, No. 3 (June 2005), 546–79.

[8] Jan de Vries and Ad van der Woude, *The First Modern Economy: Success, Failure, and Perseverance of the Dutch Economy from 1500 to 1815* . Cambridge: Cambridge University Press, 1997.

questions of how the Netherlands emerged in the first place as such a prosperous place in the seventeenth century and why and how it fell back into its "natural" place in the eighteenth century.[9] What exactly was meant by "modern" here (or anywhere) will remain controversial, as will the matter of why the Netherlands did not lead Europe into an Industrial Revolution. As another reviewer pointed out, the Dutch "Embarrassment of Riches" may have been neither a "first modern economy" nor the last of the traditional ones, but an interim sort, different from what came before in the Middle Ages but also different from the pattern of economic change that would follow in Europe and the rest of the world.[10] All the same, no reviewer failed to employ superlatives such as "monumental" and "brilliant" in their reviews of this work, and deservedly so. It stands as a landmark in the literature, the one work that nobody working in the field will be able to ignore for many decades to come.

Even before *First Modern Economy* appeared in its Dutch version in 1995, de Vries was already working on a new project, which, like *Urbanization*, was in part inspired by his knowledge of the Netherlands but transcended its boundaries. In two widely-discussed essays he introduced the concept of an "Industrious Revolution," a deliberate pun on the Industrial Revolution.[11] A decade and a half later—much too long a wait, many felt—de Vries published his *Industrious Revolution* book.[12] The idea of an Industrious Revolution is the economic and historical analysis of the rise and fall of the very long working day. At some point around 1700, de Vries argues, more and more people discovered that money could buy a large number of goods that had not been available before: some non-durables such as tobacco, tea,

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[9] Jan Luiten van Zanden, "The 'Revolt of the Early Modernists' and the 'First Modern Economy': An Assessment." *Economic History Review*, New Series, Vol. 55, No. 4 (Nov., 2002), 619–641. For a critical review of the earlier version (in Dutch) of the book, see Arthur van Riel, "Rethinking the Economic History of the Dutch Republic: The Rise and Decline of Economic Modernity Before the Advent of Industrialized Growth," *Journal of Economic History*, Vol. 56, No. 1 (March, 1996), 223–229.

[10] Richard Unger, review of *The First Modern Economy*, in *The Journal of Modern History*, Vol. 72, No. 1, (Mar., 2000), 239–241.

[11] Jan De Vries, "Between Purchasing Power and the World of Goods: Understanding the Household Economy in Early Modern Europe." In John Brewer and Roy Porter, eds., *Consumption and the World of Goods*. London: Routledge.1993, 85–132. "The Industrial Revolution and the Industrious Revolution" [presidential address] *Journal of Economic History*, Vol. 54, No. 2, (June 1994), 249–270.

[12] Jan de Vries, *The Industrious Revolution: Consumer Behavior and the Household Economy, 1650 to the Present*. Cambridge: Cambridge University Press, 2008.

and sugar, and some durables, such as chinaware, fancy furniture, and harpsichords. These goods all shared one property: they could not be made by the household itself (unlike, say, bread or home repairs) and required money to be bought. It is this "desire" for money income that then determined that households would work more and harder in exchange for cash. In this sense, de Vries argued, household preferences were endogenous to new opportunities provided by technology and trade. Reviewers have praised the book as "a tremendous accomplishment: it is staggeringly erudite, insightful, stimulating, and on all the main points, convincing."[13]

These are the books published to date;[14] economic historians, as in every dimension, pay their dues twice: to historians by publishing books and their dues to economists by publishing articles. De Vries is no exception: I count over 70 articles on his CV. Some of those inevitably overlap with the books, yet it is surprising how much more there is. One of my favorite examples is a paper that has not had the impact it deserves, perhaps because it was published in French and not translated into English, his paper on the history of climate.[15] It contains an ingenious application of data he collected for his *Barges* book to show changes in climate over the long haul using unexpected sources, following the example set by Leroy Ladurie. It occurred to him that by counting the number of days that canals were closed because of frost could be used as a proxy for winter temperatures. De Vries identified a long cycle (60–100 years) in climate, but could not find much evidence that temperature and weather did much to affect the economy.

Those who know de Vries would have find it difficult to picturing him as a rebel or a troublemaker of any kind, and yet in his presidential address to the economic history association in Tucson in 1993, he raised the flag of the Revolt of the Early Modernists.[16] Economic growth, he felt, was not entirely driven by technological breakthroughs, and it may have started earlier and the process may have been more gradual than the fundamentalist supporters of the Industrial Revolution as the

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[13] Hans-Joachim Voth, review of *The Industrious Revolution* EH.Net, May 27, 2009.

[14] A book on the markets for bread in Europe in the long run is currently in preparation.

[15] Jan de Vries, "Histoire du climat et économie : des faits nouveaux, une interprétation différente," *Annales: Économies, Sociétés, Civilisations*, Année 1977, Volume 32, Numéro 2, 198–226.

[16] De Vries, "The Industrial Revolution," 253.

"great discontinuity" supposed. Having spent a lifetime studying the Dutch economy, it would be simply impossible for de Vries to accept the notion advanced today by economists and economic historians that economic growth before the Industrial Revolution was simply impossible because Malthusian mechanisms prevented it. In his recent review of Gregory Clark's *Farewell to Alms*—which advocated this claim—he explicitly rejected this view as "unpersuasive."[17] Without necessarily rejecting the usefulness of Malthusian insights altogether, he proudly held up the revolutionary flag of the early modernists. Having studied the first "modern economy," which had its start at least two centuries before the Industrial Revolution, Malthusian fundamentalism and the "iron law of wages" do not pass muster. Economic progress before the Industrial Revolution is alive and well in the hands of custodians such as Jan de Vries.

Unlike the abortive attempt to ban the term "Industrial Revolution" from our vocabulary, de Vries's point about this Revolt was hardly a call to the barricades. He uncontroversially called for a removal of the platitudes of modernization theory and the linear historical models, but, he added, kicking open already unlatched doors is not the stuff of high drama. He came not to "bury the Industrial Revolution but to improve it." His idea, that purchasing power could increase even in the face of stagnant wages if household labor supply shifted out was a large step toward explaining early economic growth even if it did not go the full way in explaining the Industrial Revolution. De Vries scholarship has rarely been revolutionary, and there are few instances of him dismissing others' work in order to draw attention to his own. Instead, he continuously re-examines our concepts and assumptions, sees in them things we may have missed, and in a gentle but powerful way manages to persuade us that his way of looking at the problem makes our views richer and more nuanced, without having necessarily to jettison everything that we hitherto believed. Yet when he sees a grievous error or pretentious charlatanry, de Vries will call a spade a spade, even if he invariably manages to do so while maintaining a civilized and polite style.

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[17] Jan de Vries, review of Gregory Clark, *A Farewell to Alms: a Brief Economic History of the World* . In *Journal of Economic History* Vol. 68, No. 4 (Dec. 2008), 1180–82.

All in all, this is an enviable record of one of the leading scholars of his generation, not just in the field of economic history but among all historians and social scientists. De Vries's research combines the skills of the quantitative economic historians with the patience and diligence of the professional historian, the ultimate successful marriage of the archive and the computer. He has been honored for his work by the Economic History Association (president, 1991–93) and editor of the *Journal of Economic History* (1998–2002). He is a member of the American Academy of Arts and Science, the British Academy, the Dutch *Koninklijke Nederlandse Academie van Wetenschappen.* and assorted other honorific organizations. Yet "leadership" has always meant more to de Vries than just publishing first-rate research. Having been a Professor at Berkeley since 1973, de Vries quite characteristically felt he should "give something back" to his institution and became Dean of Social Sciences in 1999 and Vice Provost for Academic Affairs between 2000 and 2007.

All in all, this volume is honoring an intellectual and scholarly giant who has done a huge amount to keep economic history a respectable discipline. This has become less and less easy in a History Department, in which de Vries has spent his career. Economic history over the past decades has increasingly been located in Economics departments, and professional academic historians on the whole have become less and less friendly to numerate but prozaic counters and quantifiers as the discipline took its cultural and linguistic turns, and forgot to ask the questions economists keep asking: "how often? how large? how representative." But even the most far-out gender-class-and-race historian must respect de Vries's good sense, breadth, respect for sources, and thoroughness. To be sure, in some ways Jan de Vries is a conservative scholar. He has brought to all his endeavors the hard-nosed Dutchman's approach: theory and abstractions are nice and good, but please leave your politics out of it and show me the evidence. It is a conservative attitude worth preserving, for the sake of scholarship and for the sake of the next generations of young economic historians that I hope will spring up at institutions like UC Berkeley and Northwestern.

THE BIRTH OF MODERN EUROPE: DETERMINING THE MARGINS OF THE WORK OF JAN DE VRIES

Laura Cruz

Predestination as a guiding force can be a difficult concept to convey to the uninitiated. When I teach early modern Europe to my students, I explain the basic concept but then I steer the conversation towards its implications. If your fate has been pre-determined, I ask them, why be good? Why not sit back and wallow in sin, allow the debauched world to unfold around you, and do nothing? I have taught the class several times and each time the conversation has followed a similar pattern. The students chew on the question for a while, exploring different answers that involve some kind of rational calculation, all of which founder on the finality of absolute predestination. As the class period passes, they grow increasingly frustrated and increasingly fantastical in their attempts to find an answer until finally a lone voice, usually the person from the back of the room, says quietly, shouldn't you just be good because it's the right thing to do? In a rare moment of idle conversation with my then thesis advisor, Jan de Vries, I told him that I thought this message, not necessarily adorned with its Weberian baggage, underlay much of his written work. Convinced I had uncovered a bit of his private self in his work, I tactlessly persisted in my analysis despite his protestations, until we discussed the subject in some depth. As I saw it, the question of predestination, in its most abstract/philosophical form (rather than religious), is one that contends with the historical forces of choice versus constraint, of structure versus agency, and of success versus failure. Confirming my theory, the work of his colleagues and students shows that these are the same questions that animate economic history as it has been redefined and reconceptualized by Jan de Vries.

As the central concept in early modern Calvinism, predestination has played an historiographical role in much of Dutch history. Contemporaries of the Dutch Revolt compared themselves to the Israelites, the chosen people of God; nineteenth century historians of the Dutch Revolt attributed the results of the long war of independence to the

God's intervention,[1] and more recently scholars have suggested a metaphorical affinity between the long struggle against the water in the appropriately named Low Countries and acceptance of the hand of God as fateful force.[2] What is perhaps most interesting, though, about this 'moral geography', though, is that the Dutch did not simply let their geographical predicament wash over them.[3] Despite the enduring threat of the water, the intrepid settlers of the northern corner of Europe persevered and worked to contain and control the watery forces of fate, whether through dikes, dams, or barges. If the threat of flood could be tamed, than it stands to reason that other seemingly immutable forces could also be channeled through hard work and virtue into productive activities. It is with this in mind that the Dutch approached the emerging market system, a confrontation that is described by the first three contributors to this volume.

In an essay about the Dutch experiences in the Atlantic, de Vries described how the Dutch persevered despite continued setbacks in their 'Atlantic dream'.[4] Each time they bumped up against an obstacle, rather than quitting, they reinvented their economic goals to meet the changed circumstances. In other words, they continued to plug the leaks in the proverbial dike with their fingers. The case of the Dutch trade in tobacco, Wim Klooster notes, displays similar dynamics. In the early seventeenth century, political circumstances led to the opening up of trade with the English colonies, the Dutch entered the tobacco trade. Though they would eventually be shut out of that trade by the Navigation Acts, the presence of English tobacco magnates and workers in Dutch cities such as Rotterdam allowed the Dutch to copy their practices, including the making of clay pipes which became a thriving local industry in the nascent republic. The transnational experiment in

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[1] See for example G. Groen van Prinsterer, *Handboek der Geschiedenis van het Vaderland* (Leiden: Luchtmans, 1846).

[2] This idea is discussed in A.Th. van Deursen, *Plain Lives in a Golden Age: Popular Culture, Religion and Society in Seventeenth-Century Holland* (Cambridge; Cambridge University Press, 1991), 260–279. This book was originally published in Dutch as *Het Kopergeld van de Gouden Eeuw* (Assen: Van Gorcum, 1978).

[3] For the use of the term moral geography, see Simon Schama, "Moral Geography," in *The Embarrassment of Riches: An Interpretation of Dutch Culture in the Golden Age* (Los Angeles and Berkeley: University of California Press, 1987), 15–50.

[4] Jan de Vries, "The Dutch Atlantic Economies" in *The Atlantic Economy during the Seventeenth and Eighteenth Centuries: Organization, Operation, Practice and Personnel* ed. Peter Coclanis (Columbia, SC: University of South Carolina Press, 2005), 1.

tobacco may have failed in the long run, but it is in making the most out of failure that the Dutch often found success.

In *The First Modern Economy* , de Vries and his co-author, Ad van der Woude, present the geography of the Netherlands not as a static structure but rather as a dynamic agent in economic change.[5] As their account suggests, geographical circumstances both shaped and were shaped by the growing success of the seven northern provinces during their Golden Age. In his contribution, Maarten Prak examines this inter-relationship through the lens of the building industry. In modern times, construction tends to be a sensitive barometer to the winds of economic fortune, and the same was the case in early modern Europe. As the Dutch economy prospered, the size of cities grew and so, therefore, did the need for housing and the need for people to build those houses. Job opportunities for traditional professions such as stone-masons increased as they constructed more and more houses for the burgeoning population and that led to innovative changes in building techniques, design, and materials, whose emphasis on conservation of space would be adopted elsewhere. As has been noted with Dutch painting as well, much of the source of artistic innovation came not from the celebrated structures and the much-photographed elite houses and grand halls, but rather from the conspicuously ordinary, the bread and butter of the growing trade.[6] Physical built space certainly expanded during the Golden Age, but economic space expanded as well.

Scholars have spent much time pouring over the secrets of Dutch success in the seventeenth century. The period has almost become a litmus test for the universal claims of economic theories; a historical laboratory of sorts for market conditions. Although De Vries and van der Woude labeled this period 'the first modern economy', they did so by emphasizing its underlying, emerging infrastructure. This structural base did not, however, provide sufficient cause for the emergence of the modern economy—that took the actions of the actors who enlivened it. As Laura Cruz notes, those actions did not always follow the

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[5] Jan de Vries and Ad van der Woude, *The First Modern Economy: Success, Failure, and Perseverance of the Dutch Economy, 1500–1815* (Cambridge: Cambridge University Press, 1997), 10.

[6] Jan de Vries, "Art History" in *Art in History/History in Art: Studies in Seventeenth Century Dutch Culture* ed. David Freedberg and Jan de Vries (Los Angeles: Getty Press), 249–82.

rules of the market as it might operate in a perfect world. Dutch booksellers exchanged books through both formal market mechanisms and through informal social networks, created not from traditional ties of kinship, but through shared economic goals. The connections made, in turn, served market expansion by facilitating the exchange of information and ameliorating risk. These informal networks, in a sense, filled up economic space as much as the housing boom filled up the streets of the growing Dutch towns.

As a principle, this delicate, nuanced balance between structure and agency that De Vries and others saw as characteristic of the Dutch economy applied elsewhere as well. For example, in *The Economy of Europe in an Age of Crisis* , De Vries described the crisis of the seventeenth century as a reshuffling of the cards that were dealt to Western Europe. What mattered, he argues, was not just the cards that were dealt to the respective economic regions of Europe, but how they parlayed those new hands, through careful strategy, into success, particularly as Dutch success was imitated in other countries across the long eighteenth century.[7] This phenomenon is the focus of the next section of the volume. In their piece on Hoare's Bank, Peter Temin and Hans Joachim Voth analyze the strategies that enabled a British bank to weather the financial vicissitudes of the early modern European economy. The strategies employed by the various members of the Hoare family who were not made of the innovative daring-do conventionally associated with entrepreneurial capitalism, but rather were marked by a more conservative, risk-averse strategies that permitted it remarkable longevity. The male heirs of the Hoare bank employed sophisticated modern business strategies despite being firmly entrenched in a very different historical milieu.

Such strategic sophistication was not limited to the elite. While the United Provinces of the Netherlands was perhaps unique in Europe for the participation of a broader range of its citizens in political and economic life, it provides potential insight into the economic mentalities that characterized those at the lower end of the socio-economic scale. It is one of the characteristics of De Vries' work that he saw agency in the smallest of economic and political units and that he placed particular agency at the level of the household. Rather than

[7] Jan de Vries, *The Economy of Europe in an Age of Crisis, 1600–17* 50 (Cambridge: Cambridge University Press, 1976).

seeking a single engine of economic change, he looked to the collective decisions made by tens of thousands of average working people as the secret to economic transformation. In her piece, culled from the records of an Amsterdam orphanage, Ann McCants argues that responsiveness to changes in economic incentives trickled down to even the lowest levels of societies, including penniless orphans. As De Vries does, McCants looks at probate records from the orphanage as evidence of changing patterns of consumption, particularly in the flow of goods through often meager households.[8] Utilizing a 'strategy of consumer presentation', Dutch households at all levels changed not only the types and categories of textiles on hand, but also increased the variation within them.[9]

Textiles were not the only goods that transformed and were transformed in this way. For De Vries (and McCants), the significance was not in the consumption of such goods in and of themselves, but for what changing consumption patterns revealed about changing market relationships. The presence of increasing amounts of goods, no matter what their quality, obtained through the market carried it with a host of implications. Maxine Berg's contribution to the volume discusses the infiltration of another good, Chinese porcelain, into European markets. While porcelain lacked the glamour and economic sway of luxury goods such as tea and spices, it nevertheless carried transformative power. In an interesting twist on the proto-industrialization story, Berg notes how this trade transformed Chinese business practices and economic organization in significant ways as they both adjusted to and created new demand patterns emanating from Europe. In a sense, Chinese practices paved the way for European entrance into the market, as porcelain became 'demystified' as an object of production and Chinese practices became 'useful knowledge' to entrepreneurs such as the potters of Staffordshire.[10]

Changing patterns in consumption providing the necessary backdrop to changes in production is a central part of the 'industrious

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[8] Jan de Vries, "Peasant Demand Patterns and Consumer Development: Friesland 1550–1750," *European Peasants and their Markets* ed. W.N. Parker and E.L. Jones (Princeton: Princeton University Press, 1975), 205–66.

[9] Ann McCants, "Modest Households and Globally Traded Textiles: Evidence from Amsteram Household Inventories," ed. Joel Mokyr and Laura Cruz (Leiden: Brill, 2008).

[10] Maxine Berg, "Britain's Asian Century: Porcelain and Global History in the Long Eighteenth Century," ed. Joel Mokyr and Laura Cruz (Leiden; Brill, 2010).

revolution' hypothesis, as many of the authors in this volume attest. In many ways, the industrious revolution is a synthesis of De Vries' varied interests, including consumption, demand, labor, and trade, over the course of his career and marks the expansion of his vision to a potentially broad strata of economic history. The eponymous revolution in work and consumption patterns began in the sixteenth and seventeenth centuries, but the effects continue to be felt in the present day. Aptly, *The Industrious Revolution* ends with two full chapters on modern, and possibly future, manifestations of patterns begun in the early modern period. This volume, too, ends with the modern rather than the early modern and with exploration of the industrious revolution hypothesis beyond northern Europe.

In *The First Modern Economy* , de Vries and van der Woude cite flexible labor markets as one of the key 'modern' foundations of Dutch economic infrastructure. The fact that labor was willing and able to travel to those areas of greatest economic need allowed the Dutch economy to be more nimble than her contemporaries and to respond to changes in market conditions with limited disruption. Drew Keeling notes a similar phenomenon taking shape in Atlantic labor markets of the nineteenth century. His perceptive reading of immigration records uncovers a far greater incidence of repeat migration, i.e. crossing the Atlantic multiple times, than had before been suspected. The incidence of repeat migration encouraged by more convenient transportation and the increased availability of information through social networks, also circumstances that would be familiar in abstract form to the seventeenth century Dutchman poling his goods by barge down the Maas or swapping goods with fellow merchants in other cities.

While de Vries did not place strict chronological limitations on his industrious revolution hypothesis, he did suggest that the phenomenon was, at least initially, geographically limited, largely to the confines of northern Europe. In their contribution to the volume, George Grantham and Franque Grimard explore the possible application of the hypothesis to rural France in the mid-nineteenth century. De Vries suggests that the industrious revolution had important consequences for the history of women, as a greater reliance on the market for goods freed women for work outside of the home. Grantham and Grimard find that the records of female labor in rural France neither confirm nor deny this possibility, but their exploration does raise important questions about women's participation that have not been raised

before. French women, they tentatively suggest, may have employed a number of strategies in the face of flat income growth, that include not only working outside of the home but also limiting childbirth. While Drew Keeling's analysis suggests an affinity with the conditions found in the early modern Netherlands, Grantham and Grimard's analysis suggests a process of permutation of which historians have only begun to scratch the surface.

Similarly, the application of the industrious revolution to American history suggests both close affinities and new venues of exploration. As Gavin Wright argues, unlike the Low Countries (and much of northern Europe), the colonial United States was neither crowded nor land-poor, circumstances which change the factors of the industrious revolution equation in complex ways. In particular, the American economy was characterized by a degree of labor mobility that even the precociously modern Dutch could never achieve. Land abundance and high mobility did not, however, diminish the intensity of effort in comparison to their European contemporaries; if anything, the de Vries effects were accentuated." American workers did exhibit growing industriousness and the role of the household (as well as womens' place in that household) was similarly fundamental to social, economic, and political change. As Grantham and Grimard suggest for France, Wright's analysis shows that the Industrious Revolution hypothesis is likely to be as robust, as flexible, and as productive as the laborers it describes.

When Jan de Vries accepted the Heineken prize for history in 2000, he gave a speech entitled 'Toward a History that Counts" in which he characterized his approach to history as "working a margin.' The phrase works both historically and historiographically and this volume aims to reflect both meanings. The collective body of his work, he attests, explores the margins between the ordinary household and the greater structures in which it is embedded as well as the margins between the universalizing methodologies of social science and the more particularistic approaches of history. Spiritually speaking, John Calvin also worked with a similar idea of epistemological middle ground, in which the believer should grasp both the certainty of grace and the uncertainty of election. The mental landscape in both instances is one that is inherently messy, frought with multiplicities, discrepancies, and complications, but that does not diminish from its ability to enlighten and enrich our understanding of our world and ourselves.

THE TOBACCO NATION: ENGLISH TOBACCO DEALERS AND PIPE-MAKERS IN ROTTERDAM, 1620–1650

Wim Klooster

Jan de Vries and fellow author Ad van der Woude note in *The First Modern Economy* that little is known about the production of clay pipes, "perhaps because it involved a cheap, simple article of mass consumption. The clay pipe was the quintessential throwaway product—the Bic lighter of the seventeenth and eighteenth century."[1] This paper intends to shed some new light on pipe-making and tobacco dealing in the Dutch Republic in the first half of the seventeenth century, especially in Rotterdam. Archival sources will be used to show the extent to which English natives dominated both sectors. At the same time, as we will see, tobacco produced in the English colonies, in particular the Chesapeake, was often carried to Europe not by English merchants but Dutchmen.

Anglo-Dutch Trade

Englishmen first entered Dutch territory in large numbers primarily for military reasons. The bilateral Treaty of Nonesuch, signed in 1585, stipulated that the English Crown would help the Dutch war effort against Habsburg Spain with money and troops, in compensation for which Queen Elizabeth I received as pawns the towns of Vlissingen (Flushing) and Den Briel (Brill) as well as the fortress of Rammekens, all in the province of Zeeland. At these places, groups of English soldiers, each under the command of a governor, were garrisoned for the next three decades, until the Dutch finally paid off their debt in 1616.[2] These soldiers were joined by countrymen in the first decades of the

[1] Jan de Vries and Ad van der Woude, *The First Modern Economy: Success, failure and perseverance of the Dutch economy, 1500–1815* (Cambridge: Cambridge University Press, 1997), 309.

[2] Victor Enthoven, *Zeeland en de opkomst van de Republiek: handel en strijd in de Scheldedelta, c. 1550–1621* (Ph.D. dissertation, University of Leiden, 1996), 107, 293.

seventeenth century, when scores of men and women moved from the British Isles to the Low Countries for religious and economic reasons. By 1631, there were seventeen English and Scottish congregations in the Dutch Republic.[3]

The commercial ties between the two countries were strengthened shortly after the signing of the Treaty of Nonesuch, when a Habsburg army captured Antwerp, the commercial hub where the Merchant Adventurers had established a foothold on the European mainland. The Spanish occupation of Antwerp meant that England lost an important outlet for its main export item: semi-finished cloth. The bulk of the cloth exports was conducted by the Merchant Adventurers, who moved their seat first from Antwerp to Hamburg, and by 1598 relocated their "Court" to Middelburg in Zeeland. Recognizing the importance of this move, the Dutch Estates General exempted the Adventurers from paying import duties on English cloth, kerseys, and bays. The arrival of the Adventurers greatly stimulated Anglo-Zeeland trade, as wool and white unfinished cloth were increasingly carried via Middelburg to Leiden and other textile towns in the province of Holland, where these products was dyed and finished.

In 1635, the Court relocated again, now to Rotterdam, a city with rapidly expanding commercial connections to English colonies in the West Indies and North America. Contacts between Rotterdam and the English islands date back to the early years of English settlement. In the 1630s and 1640s, regular shipments of tobacco arrived in Dutch home ports from the English colony on St. Christopher (established in 1624),[4] while tobacco from Barbados (settled in 1627) was traded in Rotterdam as early as January 1630, less than two years after Barbadians had started selling their crop.[5] After 1635, commercial contacts with these foreign colonies were facilitated by the decision of the

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[3] A.Th. van Deursen, *Mensen van klein vermogen. Het 'kopergeld' van de Gouden Eeuw* (Amsterdam: Bert Bakker, 1992), 46.

[4] Gemeentearchief Rotterdam (GAR), Oud Notarieel Archief (ONA) 167: 65/101 (September 27, 1634), 94: 40/75 (December 19, 1634). The English colony on tiny St. Christopher (sixty-five square miles) was sandwiched between two French settlements. Although the French and English jointly defended their colonies against Carib and Spanish attacks, they could not prevent the destruction of their colonies by a Spanish fleet in 1629.

[5] GAR ONA 141: 140/212 (June 22, 1630). The first tobacco seeds on Barbados had been procured from Dutch settlers in Guiana: Anne Pérotin-Dumon, "French, English and Dutch in the Lesser Antilles: from privateering to planting, c. 1550-c. 1650," in: P.C. Emmer and Germán Carrera Damas, eds., *General History of the Caribbean*, vol.

Dutch Estates General to open up trade with the entire Caribbean sea to all residents of the United Provinces. Among the beneficiaries was the Rotterdammer Aelbrecht Cockx, who conducted a brisk trade not only with Barbados and St. Christopher, but also Virginia.[6]

Throughout the seventeenth century, Virginia remained the foremost supplier of tobacco to the United Provinces. Zeeland merchants were well-placed to absorb the Virginia crop, benefiting from the official limit on tobacco exports from Virginia and Bermuda issued by King James I in 1621. The two companies involved in tobacco imports, the Somers Isles Company and the London Company, agreed that the former ship to England the fifty-five thousand pounds to which the two colonies were limited, while the latter was to consign the remainder to Vlissingen and Middelburg.[7]

Dutch merchants soon did the shipping themselves. Dutch tobacco shipments rapidly forged close ties between Rotterdam and Amsterdam, on the one hand, and Virginia, as can be gleaned from the indebtedness of Virginia planters to merchants in those ports.[8] The leading Amsterdam merchants present in the Chesapeake were the brothers Dirck Corsten Stam (b. 1608) and Arent Corsten Stam (1615–1646). They were originally in the service of Killiaen van Rensselaer, the patroon of Rensselaerswijck in New Netherland, Dirck as commissary at Fort Orange; both sailed to Virginia on behalf of the patroon to conduct trade. By the late 1630s, they settled in Virginia and bought 860 acres

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II: *New Societies: The Caribbean in the Long Sixteenth Century* (London: UNESCO Publishing, Macmillan Education, 1999), 114–158: 124.

[6] GAR ONA 95, 205/332 (August 4, 1643), 96, 23/34 (March 17, 1645), 96: 144/232 (January 31, 1648). R. Bijlsma, "Rotterdam's Amerika-vaart in de eerste helft der 17de eeuw," *Bijdragen voor Vaderlandsche Geschiedenis en Oudheidkunde* , 5th series no. 3 (1916), 97–142: 129, 132. W.G.D. Murray, "De Rotterdamsche toeback-coopers," *Rotterdamsch jaarboekje*, 5th series, 1 (1943), 18–83: 33.

[7] Philip Alexander Bruce, *Economic History of Virginia in the Seventeenth Century. An Inquiry into the Material Condition of the People, based upon original and Contemporaneous Records* (New York and London: MacMillan, 1907), 264–266.

[8] Beverley Fleet, ed., *Virginia Colonial Abstracts*, Vol. XXIV (York County) (Baltimore: Genealogical Publishing Co.): 82. In 1645, the captain of the Dutch ship *de Medea* ceded to the contractors the tobacco debts of these Virginians: Jan Gibbs, Willem Laurear, Richard Kemp. Willem Russen, Jan Gerby, Thomas Bourbage, Debts contracted in preceding year. Act of August 14, 1645. In 1646, Dominicus Cryger commissioned boatswain Egbert Theunissen to reclaim from Francoys Farley 110 pounds of tobacco, from Robert Mason and Patrick Jackson jointly 110 pounds, and from William Carter 20 pounds. Jan Kupp, "Calendar to Amsterdam and Rotterdam Notarial Acts relating to the Virginia Tobacco Trade," <<http://gateway.uvic.ca/spcoll/Kupp/Virginia_Tobaccol.pdf>>.

of land in Elizabeth City County, as well as a parcel of land in James Island.[9] These investments laid the foundation for a very advantageous trade between Virginia and Amsterdam in the years to come, when the Stam brothers shipped more tobacco to Europe than any English firm. In the year 1641 alone, they transferred over 100,000 pounds.[10]

The exact Dutch share of the tobacco export from the Chesapeake cannot be established, but there are indications that it was, at least at times, substantial. The estimate made in an anonymous English pamphlet that Dutch vessels made up half of all European ships at anchor in Virginia to buy tobacco, was however an exaggeration.[11] But the Dutch role was large enough for the authorities in England to require as early as 1627 that all vessels leaving the colony sail first to London, a first harbinger of the Navigation Acts. In the years 1637, 1638, and 1641, the English government ordered the governor and council of Virginia to curb the trade with the Dutch, except for times of serious economic problems. One Dutch ship that defied the embargo and purchased tobacco was forced to state in an affidavit that it was to sail first to London and pay toll. Only then could the voyage be continued.[12]

After the Navigation Act of 1660 was introduced, most Dutch natives in the Chesapeake had themselves naturalized as Englishmen. The best-known among them, Simon Overzee, had died by then. Born in Rotterdam, he had been a tobacco trader before settling in Maryland in the middle years of the century. The 550 acres of land he purchased he called "Rotterdam," a name that survived well into the eighteenth century.[13]

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[9] Nell Marion Nugent, *Cavaliers and Pioneers: Abstracts of Virginia Land Patents and Grants, 1623–1666* (Baltimore: Genealogical Pub. Co., 1963), 98, 104–105.

[10] Jaap Jacobs, *Een zegenrijk gewest: Nieuw-Nederland in de zeventiende eeuw* (Amsterdam: Prometheus-Bert Bakker, 1999), 203. John R. Pagan, "Dutch maritime and commercial activity in mid-seventeenth century Virginia," *The Virginia Magazine of History and Biography* 90 (1982), 485–501: 487–488.

[11] Bruce, *Economic History*, 290–291. Pagan, "Dutch activity," 491.

[12] Murray, "Toeback-coopers," 34.

[13] "The Randolph Manuscript," *Virginia Magazine of History and Biography* 17 (1909): 225–248: 243–244. Philip Alexander Bruce, *Social Life of Virginia in the Seventeenth Century: An Inquiry into the Origin of the Higher Planting Class, together with an Account of the Habits, Customs, and Diversions of the People* (Richmond, Va.: Whittet & Shepperson, 1907), 260–261. *Archives of Maryland LI: Proceedings of the Court of Chancery of Maryland 1669–1679, Court Series (5)*, ed. J. Hall Pleasants (Baltimore: Maryland Historical Society, 1934), 12. *Archives of Maryland: Proceedings of the Council of Maryland, August 10, 1753–March 20, 1761: Letters to Governor*

The English Nation in Rotterdam

Seen from the New World, then, Dutch trade with the English colonies, and Virginia especially, thrived. From the perspective of the Dutch republic, however, a different picture emerges. In the tobacco business, native Dutchmen were eclipsed by resident English merchants. Englishmen, at home in Rotterdam and other towns, were deeply involved in the Dutch economy. They were not the only foreigners, as one historian has explained:

> For each economically active person, born in the Republic, there was another, a foreigner… What all the migrants had in common was this: they spent the most productive years of their lives working in the Netherlands or in its overseas empire. Their labour productivity was exceptionally high, for they neither lived their unproductive youth in the Netherlands, nor, at least the majority, their unproductive old age.[14]

It is not clear who introduced the use of tobacco in the United Provinces. French and English students at the University of Leiden smoked as early as 1590, but Spanish troops may also have been responsible for the new fad.[15] Some English immigrants came with the specific aim to stimulate tobacco cultivation in the Netherlands. After production had been banned in England in 1604, English tobacco growers arrived in Amersfoort in the province of Utrecht, where they set up an industry. A notarial act from 1625 suggests that one Christoffel Parre, or Perry, may have been the chief pioneer.[16] It was not as tobacco growers, though, that English immigrants were to make a name for themselves, but as tobacco merchants and, as we will see, pipe-makers. The Merchant Adventurers sent their first ship from Middelburg

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Horatio Sharpe, 1754–1765, ed. William Hand Browne (Baltimore: Maryland Historical Society, 1911), 394.

[14] Jan Lucassen, "Labour and early modern economic development," in: Karel Davids and Jan Lucassen, eds., *A miracle mirrored. The Dutch Republic in European Perspective* (Cambridge: Cambridge University Press, 1995), 367–409: 370.

[15] Georg A. Brongers, *Nicotiana Tabacum: The history of tobacco and tobacco smoking in the Netherlands* (Amsterdam: H.J.W. Becht's Uitgeversmaatschappij, 1965), 19–20. Johannes Jacobus Herks, *De geschiedenis van de Amersfoortse tabak* ('s-Gravenhage: Martinus Nijhoff, 1967), 17–18.

[16] D.H. Duco, "De Kleipijp in de Zeventiende Eeuwse Nederlanden," in: Peter J. Davey, ed., *The Archaeology of the Clay Tobacco Pipe* , 2 vols. (Oxford: B.A.R., 1981), II: 111–367:114–115, 170. Herks, *Amersfoortse tabak*, 65–66.

to Virginia as early as the late 1610s.[17] The same years saw English residents of Amsterdam involving themselves in the tobacco trade,[18] although they met with competition from Portuguese Jews. By 1620, Amsterdam already had two Jewish tobacco brokers, and before long the Sephardim branched out into tobacco cutting and spinning, one of the few trades from which they were not excluded by the city's burgomasters in 1632.[19] Englishmen dealing in Virginia leaf in Amsterdam included Isaack Ellis, Jan Webster, Jan Tracy, and Hercules Eyders,[20] and a prominent merchant named Richard Glover. In the 1640s, Glover, whose attorney in Virginia was Richard Lee, had a business connection with none other than William Berkeley, the later governor. A list of bills and debts due to Glover in 1646 included Wm Berkeley, George Ludlowe, Samuel Abbott, Francis Ceeley, Capt Bridges Freeman, Augustine Warner, Robert Holte, Capt Ralph Wormley, Steephen Gills, Francis Coole, Robert Kinsey, George Saughier, John Chew, William Light, Richard Lee, Rowland Vauhan, Nicholas Brooke Junior, Wm Brooke Senior and Junior, Henry Brooke, Mrs Mary Minifee, and Wm Hinde.[21] English tobacco dealers were also found in other Dutch ports[22] and in the southern garrison town of Bergen op Zoom, where the army was their chief customer. Only as the century advanced were these merchants outnumbered by native Dutch tobacco traders, and that is not even certain.[23]

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[17] Jan Kupp, "Dutch Notarial Acts Relating to the Tobacco Trade of Virginia, 1608–1653," *The William and Mary Quarterly* , 3rd ser. Vol. 30, No. 4 (Oct., 1973), 653–655: 653.

[18] GAA NA 645B, fols. 1120–123 (November 16, 1620). In: "Notarial Acts," *Studia Rosenthaliana* 17:2 (July 1983): 217.

[19] Herks, *Amersfoortse tabak*, 194–195.

[20] Eyders: GAR ONA 103, 38/63 (July 30, 1621). Ellis (1630), Webster (1632), Tracy (1646): Kupp, "Calendar."

[21] The total debt was 57,094 pounds of tobacco. Fleet, *Virginia Colonial Abstracts*, 24: 66. Richard Glover may have moved from Zeeland to London in the late 1630s. In 1639, he was described as a 'merchant of London': GAA NA 1609: 43–46 (June 29, 1639).

[22] Willem Mandevijl was in Delft, Herri Corckers in Vlissingen, and Gillis Langle in Dordrecht: GAR ONA 78, 58 (June 11, 1621), 78, 71/143 (June 30, 1621), 138, 405/623 (March 23, 1640).

[23] Tobacco merchant 'Edwardt Akeres' lived in Bergen op Zoom from at least 1638 until his death in 1669. His will strongly suggests that he was English. Regionaal Historisch Centrum (RHC), Bergen op Zoom (BOZ) 10/J. Van Wesel, 52: 185–188 (March 17, 1638). Death: RHC BOZ 119/A. Van der Creke Jr., 114 (November 20, 1669). Other English tobacco traders in this town included Humpfrij Hockly: RHC BOZ 25/ Van Wesel, 179: 415–418 (October 21, 1630); Isaacq Gilbanck and Valentyn Buck: RHC BOZ 26/Van Wesel, 149: 511–512 (October 10, 1631); Christoffel Carter: RHC

Zeeland-based Richard Glover and his brother John part-owned several ships in the Virginia trade. Richard sailed to Virginia himself, buying tobacco and shipping the cargo back.[24] John was even better placed to obtain the latest information about Virginia, since he resided in Rotterdam, which soon challenged Amsterdam's dominance of the Dutch tobacco trade.

Originally a fairly small port, Rotterdam expanded continuously after 1585, when scores of merchants and thousands of textile workers arrived in the city following the Habsburg capture of Antwerp.[25] The town's commerce and industry kept growing after 1600 as the population more than doubled from 13,000 to 30,000 in 1647. While Rotterdam had long had close commercial ties with France, trade with England did not assume large proportions until the 1610s. The products exported included herring, rye, salt, and French wine, which were exchanged in London, Yarmouth, and some smaller ports for smoked herring, malt, coal, and lead.[26] The intensification of trade with England coincided with English migration to the city on the Maas river. Not all immigrants from the British Isles were merchants. Among the Scots and English in Rotterdam, it was probably soldiers who initially predominated. In 1611, the city's regents allowed them to appoint a preacher to preach in the English language, and in 1632, the English church obtained leave to appoint a second minister. Like Leiden and Amsterdam, but at a later date, Rotterdam began to receive English religious refugees. It was in 1636 that an unknown number of refugees arrived from Norfolk, many of whom returned six years later after the Puritans had risen to power in their native country.[27]

Although the move of the Merchant Adventurers from Middelburg to Rotterdam in 1635 must have stimulated commerce with England and its colonies,[28] Englishmen in Rotterdam had been active in the

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BOZ 63/de Witte, 175 (October 16, 1636); Willem Buck: 77/Stempel, 179 (December 30, 1653); Willem Pinder and Johan Baker: 77/Stempel, 46 (August 3, 1653); and Willem Benslij: RHC BOZ 181/Scheurlingh 11 (May 4, 1665).

[24] Bijlsma, "Rotterdam's Amerika-vaart," 134.

[25] Arie van der Schoor, *Stad in aanwas: Geschiedenis van Rotterdam tot 1813* (Zwolle: Waanders Uitgevers, 1999), I: 171–176.

[26] Ibid., 206, 231.

[27] Charles Jewson, "The English Church at Rotterdam and its Norfolk connections," *Norfolk Archaeology* 30 (1952), 324–337: 324, 330, 333, 334.

[28] Immediately after the move to Rotterdam, Merchant Adventurers Eduard Teringem and Gemaliel Warne received a tobacco cargo sent from London: GAR ONA 150, 456/722 (August 24, 1635).

tobacco trade, both leaf tobacco and tobacco rolls, long before that date. John Shephard (Jan Cheppert) may have led the way. He was first mentioned as a tobacco merchant in 1619, buying a cargo from a colleague in Amsterdam.[29] In the year 1620, he awaited three overseas shipments to the value of 1,304 guilders. Shephard founded a company along with two Amsterdam merchants and cultivated contacts with England, Brussels, The Hague, and Leiden. After his death in 1622, his widow, Aller Anneken Robbrechtsdr., continued the tobacco business. Cheppert's estate was quite substantial, including tobacco worth almost seven thousand guilders.[30]

Anna remarried to William Harris (or Willem Herris), another substantial English tobacco importer in Rotterdam.[31] Harris dealt in both Virginia and Barinas tobacco[32] and occupied himself with many other trades as well. In 1644, he bought the *Boxtey*, an English ship, for £1,100, dispatched it to Falmouth and the Strait of Gibraltar, only to lose it to privateers that sided with English Parliament in the civil war.[33] In addition, he was part-owner of the *Hasewint*, a ship of 150 tons, and for 1/32nd owner of *St. Pieter*.[34] Until 1639, Harris also possessed lands in New England where he pastured cows and sheep.[35] William Atkinson teamed up with Harris in importing Barinas tobacco from Venezuela, but mainly dealt in English cloth and kerseys.[36] Like Harris and Atkinson, most of Rotterdam's English traders dealt in tobacco by the side. In an age without specialized portfolios, merchants and dealers drifted into and out of the tobacco trade. Still, as a group they

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[29] He was born either in 1575 or 1576: GAR ONA 91, 40/98 (January 11, 1619), 91, 113/260 (December 10, 1619). See also GAR ONA 91, 41/100 (January 11, 1619). One of the rare Scottish residents active in the tobacco trade was James Morin (in 1654): Douglas Catterall, *Community without Borders. Scots Migrants and the Changing Face of Power in the Dutch Republic, c. 1600–1700* (Leiden: Brill, 2002), 57.

[30] GAR ONA 91, 225/553 (December 14, 1621), 98, 46/133 (January 28, 1622). Murray, "Toeback-coopers," 22.

[31] Anna's second marriage: GAR ONA 98: 76/216 (January 26, 1623). Harris was born ca. 1587: 142, 178/282 (July 20, 1638). He was still alive in 1663: 130, 362/1025 (February 8, 1663).

[32] In 1649, Harris was given power of attorney to collect long outstanding debts from Virginia: Kupp, "Calendar." Together with William Atkinson, he imported Barinas leaf: GAR ONA 152, 173/247 (August 14, 1640), 152, 191/267 (September 4, 1640).

[33] GAR ONA 142, 243/371 (November 24, 1644), 138, 483/724 (November 29, 1644).

[34] GAR ONA 80, 266/931 (March 25, 1627), 138, 181/299 (July 12, 1635).

[35] In 1639, Harris authorized 'Jan Herber' (John Harper?) to sell his lands in New England: GAR ONA 138, 365/568 (March 8, 1639).

[36] GAR ONA 94, 179/315 (November 27, 1637).

dominated the local tobacco business, although not for lack of competition from the Dutch. Native importers of Virginia leaf included Burger Wesselsz, Adriaen Michielsz, Pieter van Haeren, Davidt Smals, Arien Ariensz, Jan Gerritsz, Michiel van der Heyde, Cornelis Cornelisz, Arien Jansz and Arij Willemsz.[37] In addition, Heynrick van der Briel, Hans Pietersz Verbeeck, and Leendert Fransz are mentioned in 1621 as buying tobacco from Amsterdam.[38]

Some Englishman married Dutch women and assimilated, but in general the English remained a nation apart. An institution that encouraged the English in Rotterdam to hold on to their identity was the local Anglican Church, which provided a venue for the English community to meet at least once a week. Several of the English tobacco dealers were active in the Church, Willem Debdin as lay reader and William Atkinson and William Harris as churchwardens.[39] Hugh Peter (1598–1660), a clergyman who arrived in the Dutch Republic in 1629, was pastor at Rotterdam's Anglican Church until 1635. He left from there for Massachusetts, preached in Salem, returned to England in 1641, and served in the civil war as chaplain with Puritan forces. He was executed during the Restoration. Peters left his imprint on Rotterdam's Anglican congregation, which lost many members after his departure for New England in 1635. Five years later, only ten or twelve members were left and the rest had either joined the Dutch Reformed church or the Anglican Church in Delft.[40] During these years, the strife that would mark England in the civil war cast its shadow before in Rotterdam. On one occasion, an English traveler branded as Puritans

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[37] Burger Wesselsz: GAR ONA 78, 153/319 (August 5, 1624), Adriaen Michielsz: 61, 65/213 (July 16, 1624), Pieter van Haeren: 105, 149/210 (December 15, 1625), Davidt Smals: 93, 16/21 (April 4, 1631), Arien Ariensz, Jan Gerritsz, Michiel van der Heyde, Cornelis Cornelisz, Arien Jansz and Arij Willemsz: 143, 14/28 (October 21, 1623). Jan Quakelbeen's nationality is unclear, while Andries Fernandes was probably Portuguese: GAR ONA 84, 352/882 (September 7, 1626); 67, 89/318 (March 22, 1630).

[38] GAR ONA 78, 106/219 (August 26, 1621); 78, 105/218 (August 26, 1621); 78, 110/232 (August 31, 1621).

[39] Debdin: 79, 87/326 (April 10, 1621); Atkinson: 147, 51/128 (February 28, 1628); Herris: 167, 180/295 (December 2, 1636). Two other tobacco merchants were members of the Merchant Adventurers' Court church: Simon Clerck as deacon and Lawrence Crowhurst as lay reader: Clerck: 167, 280/295 (December 2, 1636); Crowhurst: 167, 280/295 (December 2, 1636).

[40] GAR ONA 169: 58/86 and 60/90, 169: 59/88, acts of February 20 and 21, 1640. Raymond Phineas Stearns, *The Strenuous Puritan: Hugh Peters, 1598–1660* (Urbana, Illinois: University of Illinois, 1954).

various of his compatriots in Rotterdam, including Hugh Peter and William Harris.[41]

On weekdays and perhaps after church on the Sabbath, Englishmen found comfort in each other's company in the inn kept by Henry Custis (ca. 1596-ca. 1661), whom Virginia resident Colonel Norwood characterized in his diary as a man who "kept a victualling house in that town [Rotterdam], lived in good repute and was the general host of our nation there."[42] Henry's youngest son John would later settle in Virginia, while his oldest son, Edmund, moved to London, where he was active in the tobacco trade with Maryland.[43] The close-knit character of the local English community is also suggested by the practice of English boardinghouse keepers to host fellow nationals. English sailors and soldiers in Rotterdam frequently boarded with ship's captain Jan Eecken (John Aking) and his wife Neelken Jansdr, while others preferred tobacco seller John Hamilton and his wife Grietge Jacobsdr. Hamilton was also known as the Scots' boardinghouse keeper.[44] Another popular couple were pipe maker Robert Bon and his wife Elsken.[45]

Equally significant was the custom of Englishmen and Scots to board out their sons and daughters to English pipe makers and spinners. Cobbler Willem Jemsz boarded out his nine-year old son Hendrick to learn the trade from Willem Willemsz, another English pipe maker (despite his dutchified name), and George Rider entrusted his son Niclaes to pipe maker Morgen Joons (Morgan Jones).[46] Willem

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[41] GAR ONA 141: 348/530, act of April 21, 1633.

[42] James B. Lynch, Jr., *The Custis Chronicles*, 2 vols. (Camden, Maine: Picton Press, 1992), I: 45, 220. Ralph T. Whitelaw, *Virginia's Eastern Shore: A History of Northampton and Accomack Counties* (Gloucester, Mass.: Peter Smith, 1968, repr. of 1951), 289.

[43] In 1664, sixty-four prominent Maryland planters owed bills of sale to Edmund Custis & Co, London, Robert Custis, Rotterdam, and a merchant from Hull. http://www.hdhdata.org/roots/d3011.shtml. *Archives of Maryland LII: Proceedings of the County Court of Charles County 1658–1666 and Manor Court of St. Clements Manor 1659–1672*, Court Series (6), ed. J. Hall Pleasants (Baltimore: Maryland Historical Society, 1936), 466–476, 516–518.

[44] See for those boarding with Eecken and wife: GAR ONA 203, 238/370 (July 1, 1642), 206, 126/196 (September 6, 1644).

[45] GAR ONA 128, 219/582 (January 6, 1629), 191, 257/342 (September 25, 1631), 42, 192/304 (July 5, 1632), 42, 193/306 (July 6, 1632), 42, 214/336 (November 3,1632), 42, 223/350 (December 23, 1632), 44, 85/153 (December 3, 1635), 111, 184/347 (June 30, 1636), 201, 19/21 (February 1, 1638), 199, 60/111 (May 2, 1639), 202, 100/138 (June 5, 1641), 202, 206/258 (August 11, 1641).

[46] GAR ONA 200, 100/133 (March 12, 1640), 202, 94/130 (June 3, 1641).

Willemsz was also engaged in spinning tobacco, a process whose final product was sold unpackaged in the shape of a sausage, roll, or the number eight. The consumer was supposed to carve the tobacco himself in small slivers and make it ready for smoking by rubbing it with his hands.[47] Willemsz hired ten-year old Jan Tomasz, son of an English barrow-man, for a period of five years to teach him how to spin.[48] The aforementioned Robert Bon, perhaps Rotterdam's leading pipe maker, also hired fellow nationals. In 1624, he apprenticed Heyndrick Philips Hil for a period of five years, and in the following year, he signed contracts with George Brocke and Nelken Pullard. Brocke would be his apprentice for two years, while Pullard was to do housework and learn pipe-making.[49] Many others would follow, not a few of whom had fathers in the army.[50] Bon himself also had a military past, having come to the Netherlands as a musketeer in an English army company.[51] Soldiers not only supplied their sons as apprentice pipe-makers, they were among the major consumers of tobacco. Bon's temporary residence in 's-Hertogenbosch (Bois-le-Duc) in 1629, for instance, must be related to the presence of Dutch troops that captured the town from their Habsburg enemy in September of that year.[52]

Pipe-Making

English soldiers are known to have been instrumental in the creation of the Dutch tobacco pipe industry. Within a decade after the new

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[47] Murray, "Toeback-coopers," 57.

[48] GAR ONA 203, 190/305 (May 27, 1642). Other examples of English spinning apprentices were Israel Fort, boarded out to Tobias Riddeclift for four years, and Robbrecht Hammelton from Prestonpans in Scotland, boarded out to Jan Sampsonsz. GAR ONA 268, 98/162 (September 13, 1634), 86, 79/150 (January 5, 1638).

[49] GAR ONA 178, 11/214 (November 2, 1624), 178, 102/197 (June 2, 1625), 178, 101/196 (June 2, 1625).

[50] GAR ONA 143, 36/80 (July 15, 1624): Scottish soldier Jan Henricxz boards out his son Monge Henricxz for five years as pipe maker apprentice; 143, 86/167 (January 9, 1626): Bon hires Abram Abberkrome, the fifteen-year old son of sergeant Jan Abberkrome; 143, 89/173 (January 29, 1626): Bon hires the eighteen-year old apprentice Dirck Aeltwel. Others apprenticed to Bon were Jan Claesz (143, 180/361, April 4, 1627), Robbert Eeston (143, 189/379, May 4, 1627), and Adolphus Bartholomeeusz (143, 190/380, May 4, 1627). The apprentices of pipe maker Richard Carter included Davidt Jons (178, 115/215A, August 30, 1624) and Franchois Bel (178, 114/214A, September 30, 1624).

[51] GAR ONA 84, 139/367 (January 4, 1622).

[52] GAR ONA 190, 31/44 (December 2, 1629).

industry had sprung up (around 1600) in English port cities such as Boston and London, imitating Mexican pipes, English soldiers in the army of Dutch *stadhouder* Maurits set up business as pipe-makers in various towns in the Netherlands. Pipe-making may have been their profession before entering the army, a trade they returned to after the Twelve Year Truce was signed between the Dutch and their Spanish foes in 1609. Among the refugee English, some artisans may also have taken up pipe-making, which in the early years was not very demanding yet.

In Amsterdam, where Englishman William Boseman pioneered pipe-making in 1607, and Gouda, whose first well-known pipe-maker was Englishman and Tudor partisan William Baernelts in 1617, the industry soon flourished. In the seventeenth century alone, at least 443 men in Gouda and 247 in Amsterdam practiced this trade.[53] The small factories that Englishmen set up usually divided the labor between boys, women, and men. Boys rolled the clay into dummies, women finished and glazed, and men were moulders and gave the pipes their definitive shape.[54] Although Rotterdam was no center of the Dutch pipe-making industry—its 33 pipe-makers in the seventeenth century pale in comparison with the numbers active in Gouda and Amsterdam (see Appendix 2)—the Estates General in 1627 granted a patent for the monopoly of the sale of pipe-clay in the Republic to an English surgeon in Rotterdam, Francis George Davis, for the duration of eight years.[55]

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[53] Duco, "De Kleipijp," 116, 144, 306–313, 316–328. Brongers, *Nicotiana Tabacum*, 33.

[54] Duco, "De Kleipijp," 185. It is likely that the English not only introduced smoking and pipe-making. They may also have taught the Dutch to add certain substances to tobacco. A study of seventeenth-century clay pipes in Stratford-upon-Avon found residues of more than nicotine alone: cocaine, vanillin, several forms of camphor, and plants from India and East Asia with hallucinogenic and medicinal properties. J.F. Thackeray, N.J. van der Merwe, and T.A. van der Merwe, "Chemical analysis of residues from seventeenth-century clay pipes from Stratford-upon-Avon and environs," *South African Journal of Science* 97:1 (2001), 19–21.

[55] Brongers, *Nicotiana Tabacum*, 31–32. Davis signed as "Dawes." GAR ONA 143, 165/334 (January 30, 1627). He was either born ca. 1577 or ca. 1583: GAR ONA 142, 170/271, act of March, 6, 1638; 51, 87/153, act of September 12, 1629. Davis was one of the English Rotterdammers who moved to Yarmouth in 1641 or 1642. He died there in 1643: GAR ONA 125, 15/33, act of January 15, 1642; 86, 298/566, act of August 15, 1643. It seems that Davis procured the clay from Yarmouth: GAR ONA 144, 16/36 (January 31, 1630). Edinburgh was an alternative source of pipe clay: GAR ONA 132, 83/200 (April 16, 1627).

By the third decade of the seventeenth century, the number of English pipe-makers in the Netherlands rivaled that in England. Hull, Chester, Newcastle, and Gateshead, the four main English centers of pipe making outside London and Bristol, had only seven pipe makers in the 1630s, a number that would grow to eighteen in the 1640s. In London, for that matter, conditions in the 1640s were detrimental for the pipe-making business. Close to one thousand poor men who made a living in this industry petitioned King James I to end the monopolies he had granted, claiming that they had been reduced to beggary.[56]

Although it was a trade that took at least four years to master, local Dutchmen learned the techniques so quickly that their production exceeded that of the English residents of Gouda by 1637. Gouda pipes were soon exported to the surrounding countries, as well as Norway, Prussia, Russia, the East Indies, and the New World. Encouraged by this success, the Dutch artisans requested the town council in 1641 for permission to found a guild, which would have excluded Englishmen. Their attempt was thwarted by the protest of the wives of the Englishmen, who convinced the magistrates to decline the request. The English masters were still too important for the industry.[57]

The End of Transnationalism

This essay has revealed the transnational character of the tobacco trade between Virginia and Rotterdam in the first half of the seventeenth century. While Dutch merchants played an important role buying tobacco and transporting it from the English colony to Europe, English merchants handled a large part of tobacco sales in Rotterdam and other towns. In the process, Dutchmen and Englishmen developed different survival strategies in their new environments. Unlike the Dutch settlers of Virginia's Eastern Shore who rapidly assumed an English identity, the English in Rotterdam remained aloof from mainstream Dutch society. The tobacco merchants there rarely collaborated with Dutch importers and their pipe makers usually apprenticed fellow nationals.

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[56] Jordan Goodman, *Tobacco in History: The Cultures of Dependence* (London and New York: Routledge, 1993), 65. Duco, "De Kleipijp," 153.

[57] Herks, *Amersfoortse tabak*, 33–34. D.A. Goedewaagen, *De geschiedenis van de pijpmakerij te Gouda* (Gouda: n.n., 1942), 1.

There was ultimately a limit to the transnationalism that marked Anglo-Dutch relations. As native Dutch pipe production in Gouda came of age, the city fathers finally allowed native pipe makers in 1660 to form their own guild, rendering the English specialists redundant. In Rotterdam, Dutch pipe-makers also came to outnumber their English colleagues, although the latter were not completely ousted.[58] Likewise, English tobacco sellers in Rotterdam lost more ground to their Dutch counterparts with every passing year. The roles were reversed in Virginia. Although Governor William Berkeley and the colony's Assembly acknowledged that the Dutch had rescued Virginia during the English civil war, their protests could not stop the implementation of the Navigation Acts. Still, these mercantilist restrictions did not immediately end Dutch commercial success in Virginia. After an initial attempt to rigorously enforce the Acts had led to a sharp drop in the price of local tobacco, Dutch traders were welcomed back. In the late 1650s and early 1660s, Dutch ships, with perhaps some token English sailors on board, still sailed directly to home ports such as Rotterdam, depriving the English treasury annually of an estimated £10,000.[59] However, as more and more Dutchmen were naturalized and as metropolitan Dutch merchants gradually preferred other, less risky trades, the tobacco trade was left to Englishmen and Scotsmen. Tobacco's transnational moment had passed.

[58] Goedewaagen, *Geschiedenis van de pijpmakerij* , 1. Herks, Amersfoortse tabak, 34.

[59] Bruce, *Economic History*, 354–359.

Appendix 1

Table 1. English Tobacco Traders in Rotterdam, 1619–1649[60]

Name	First mentioned	Biographical data
Jan Shephard/Cheppert	1619	Lived 1575–ca. 1621
Willem Debdin	1621	
Aller Anneken Robbrechtsdr	1622	Took over from her husband Jan Cheppert after his death.
Jan Sampsonsz	1623	In 1638 listed as tobacco pipe maker and tobacco spinner.
George Woolson	1623	Born ca. 1583.
Willem Harris	1623	Ca. 1587–ca. 1663. Invested in cargoes of ocean-going ships.
Hendrick Tillney	1623	Ca. 1594–ca. 1629.
William Atkinson/ Ackens	1625	Ca. 1588–after 1653.
Franchois Gremling	1626	Ca. 1580 or 1583–ca. 1666.
Leeuwijs Reis	1627	Born ca. 1583.
Nicolaes Waly	1628	Originally from Essex. Listed as 'tobacco dryer' in 1630; moved later to Bois-le-Duc.
Heyndrick Robbertsz		1628
Simon Clerck		1628
Heynrick Gremes	1629	Ca. 1596–after 1650. Had previously lived in Yarmouth.
John Berrio/Jan Berrou	1630	Born ca. 1596, had a military past.
John Norwood		1633
Tobias Riddeclift		1634
Davet Canence		1637
Jacob Gedis	1638	Born ca. 1610.
Jan Twisselton	1640	Born ca. 1617.
Abraham Shephard	1642	

[60] The names are listed as they appear in the records. Sources: GAR ONA; Duco, "De Kleipijp."

Table 1 (*cont.*)

Name	First mentioned	Biographical data
Theophilis Bynam/ Baynham	1644	Ca. 1609–1646.
John Glover	1644	1616–ca. 1665.
Jan Hammelton	1645	Also boardinghouse keeper of Scottish sailors and soldiers.
Willem Presten	1649	Still alive in 1655.

Appendix 2

Table 2. English Tobacco Pipe-Makers in Rotterdam, 1621–1644

Name	First mentioned	Biographical data
Richard Pugmore	1621	
Robbert Bon(n)	1624	Moved temporarily to Bois-le-Duc around 1629.
Richard Carter	1624	
Jan Chepper	1625	
Richard Hill/Ritsart Hil	1625	
Roger Lincolne	1626	
Ritsert Beijle	1627	
Francois Bijrd	1627	
Jacobse Black	1627	
Richard Carter	1627	
Lawrence Crowhurst/ Laurens Croost	1627	
William Colman Willem Coolman	1627	Seems to have moved to Cologne, where he continued his tobacco business.
Laurens Beyle	1627	
Francis Byre/ Franchois Bord	1627	
Richard Hill	1627	
Thomas Bayly	1628	
Rogier Lincolne	1630	
Robbert Muijs	1632	
George Saburm/ Joris Sebrant	1633	
Jems Tijssen	1635	
Nathaniel Jansz.	1637	

Table 2 (*cont.*)

Name	First mentioned	Biographical data
Jorijs Nicoll	1638	
Jan Sampsonsz	1638	Also listed as 'tobacco spinner.'
Willem Willemsz	1640	
Morgen Joons	1641	Kept a boardinghouse with his wife in the 1630s for sailors and soldiers.
Benjamin Possell	1644	

THE MARKET FOR ARCHITECTURE IN HOLLAND, 1500–1815*

Maarten Prak

Introduction

In the last twenty-five years or so, the study of the arts in the early modern Low Countries has been revolutionised by an infusion of economic and social history.[1] Not only have economic historians broadened the agenda, by including such new topics as output measurement, marketing, and innovation, their research has also helped to provide new interpretations of the changing faces of sixteenth- and seventeenth century art. As a result of this work we now know, for instance, that the number of paintings produced in the Dutch Republic during the seventeenth and eighteenth century was simply enormous, an observation that has fundamentally altered our appreciation of the balance between what has been preserved and what is lost, and also

* This paper was read to audiences at the Institute for Historical Research in London, the Department for History and Art History in Utrecht, Columbia University in New York, and a Posthumus workshop at Leiden Universty. I received particularly helpful suggestions from Josine Blok, Bruno Blondé, Lex Heerma van Voss, Merlijn Hurx, Derek Keene, Wijnand Mijnhardt, Patrick Wallis, and Jan Luiten van Zanden. I am especially indebted to John Shovlin from NYU for an exceptionally helpful comment, and to my Utrecht colleague Koen Ottenheym, Professor of the History of Architecture, for our stimulating conversations over many years and the specific suggestions he made for this chapter. The chapter was written as part of a project, funded by the Dutch National Research Council NWO, on Dutch Cultural Industries, and I also like to thank the team members Michael Deinema, Robert Kloosterman, Mariangela Lavanga, and Claartje Rasterhoff for their discussion of the chapter. Any remaining errors are entirely my own responsibility.

[1] It would seem fair to say that this process started with the publication, in 1982, of John Michael Montias, *Artists and artisans in Delft: A socio-economic study of the seventeenth century* (Princeton: Princeton University Press, 1982). For historiographical accounts: John Michael Montias, 'Socio-Economic Aspects of Netherlandish Art from the Fifteenth to the Seventeenth Century: A Survey', *Art Bulletin* 72 (1990), 359–73, and Marten Jan Bok, 'De schilder in zijn wereld. De sociaal-economische benadering van de Nederlandse zeventiende-eeuwse schilderkunst', in: F. Grijzenhout, H. van Veen (eds.), *De Gouden Eeuw in perspectief: Het beeld van de Neder landse zeventiende-eeuwse schilderkunst in later tijd* (Nijmegen: SUN 1992), 330–359. A survey of the results of this type of work is Michael North, *Art and commerce in the Dutch Golden Age* (New Haven/London: Yale University Press, 1997).

highlighted the fact that the majority of Dutch painters were not Rembrandts or Vermeers, but rather poor craftsmen, struggling to make ends meet.[2] Work on art markets in the Low Countries has demonstrated the extent to which this art reached far beyond the borders of the Low Countries, to find customers in the rest of Europe, as well as in Latin America.[3] It has demonstrated, in other words, how, during the sixteenth and seventeenth centuries, but continuing into the eighteenth, painting developed into a veritable export industry. And rather than the traditional focus on "genre", i.e. the scenes from everyday life deemed typical of the Holland School, we can now see how Dutch painters actually developed a whole range of new topics, designed to target a variety of niche markets.[4]

This chapter hopes to make a contribution to a similar transformation in the study of architecture.[5] As in the visual arts, many studies of architecture concentrate on the personality of the architect and

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[2] John Michael Montias, 'Estimates of the number of Dutch master-painters, their earnings, and their output in 1650', *Leidschrift* 6 (1990), 59–74; Ad van der Woude, 'The volume and value of paintings in Holland at the time of the Dutch Republic', in: David Freedberg, Jan de Vries (eds), *Art in history. history in art. Studies in seventeenth-century Dutch culture* (Santa Monica: Getty Center for the History of Art and the Humanities, 1991), 285–329.

[3] Neil De Marchi, Hans Van Miegroet, 'Art, Value, and Market Practices in the Netherlands in the Seventeenth Century', *The Art Bulletin* 76 (1994), 451–64; id., 'Exploring Markets for Netherlandish Paintings in Spain and Nueva Espana', in: Reindert Falkenburg et al. (eds), *Kunst voor de markt / Art for the market 1500–1700* Nederlands Kunsthistorisch Jaarboek vol. 50, 1999 (Zwolle: Waanders, 2000), 81–111; id., (eds.), *Mapping markets for paintings in Europe, 1450–1750* Studies in European Urban History vol. 6 (Turnhout: Brepols, 2006); Marten Jan Bok, 'Pricing the unpriced. How Dutch 17th-century painters determined the selling price of their work', in: Michael North, David Ormrod (eds.), *Markets for art, 1400–1800* Twelfth International Economic History Association vol. D3 (Seville, 1998), 101–10; ead., 'The rise of Amsterdam as a cultural center: the market for paintings, 1580–1680', in: Patrick O'Brien et al. (eds), *Urban achievement in early modern Europe: Golden Ages in Antwerp, Amsterdam and London* (Cambridge: Cambridge University Press, 2001), 186–209; Everhard Korthals Altes, *De verovering van de internationale kunstmarkt door de zeventiende-eeuwse schilderkunst: Enkele studies over de verspreiding van Hollandse schilderijen in de eerste helft van de achttiende eeuw* (Leiden: Primavera Pers, 2003).

[4] John Michael Montias, 'Cost and Value in Seventeenth-Century Dutch Art', *Art History* 10 (1987), 455–66; ead., 'Works of art in seventeenth-century Amsterdam: An analysis of subjects and attributions', in: Freedberg, de Vries (eds), *Art in history*, 331–72.

[5] In many ways the benchmark work still is Richard A. Goldthwaite, *The building of Renaissance Florence: An Economic and Social History* (Baltimore: Johns Hopkins University Press, 1980).

his—very rarely her—works. Next to that, there is a substantial body of work on so-called anonymous architecture, buildings of which the designer is unknown, either because there was no single designer, or because the sources are too incomplete to establish his name.[6] The relatively new topic of Construction History has added another dimension, by paying far more attention to the technical sides of the building process.[7] Taken together, the research agenda of the historians of architecture is limited by a focus on the buildings, and a handful of builders. Social and economic historians working on the building industry, meanwhile, have been limited by a narrow focus on the wage data provided by public building projects, and the attendant social position of workers in the industry. They paid scant attention to the development of the market for buildings, which was more or less taken for granted, or to the formation of human capital in the building industry.[8] This chapter is an attempt to unite the research agenda's of the two types of inquiry by raising quantitative issues about the size and composition of the building market. More specifically, I want to relate the rise and decline of seventeenth-century Dutch architecture—and its specific style Dutch Classicism, to the changes in scale and composition of the market for buildings. At the same time, the chapter seeks to contextualise the contributions of architects to the building industry, by also looking at two other major types of actors, the stone-mason, and the brick-mason and carpenter. The focus of our investigation will be especially the design elements of the building process.

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[6] For a brief discussion of this type of architecture in the Netherlands, see K.A. Ottenheym, D.J. de Vries 'Bespreking *Huizen in Nederland*', *Bulletin KNOB* 99 (2000), 250–51.

[7] Surveys are provided in A. Becchi, M. Corradi, F. Foce, O. Pedemonte (eds.), *Construction History: Research Perspectives in Europe* (Fucecchio: Kim Williams Books, 2004).

[8] The single most famous work using wage data from the building industry is E.H. Phelps Brown and Sheila V. Hopkins, 'Seven Centuries of the Price of Consumables, compared with Builders' Wage-rates', *Economica* 23 (1956), 296–314. See also the more recent Donald Woodward, *Men at work: labourers and building craftsmen in the towns of northern England, 1450–1750* Cambridge Studies in Population, Economy and Society in Past Time (Cambridge: Cambridge University Press, 1995). Following in the footsteps of Phelps Brown and Hopkins, Jan de Vries and Ad van der Woude have also relied mainly on wage data from the building industry in their *The First Modern Economy: Success, Failure, and Perseverance of the Dutch Economy, 1500–1815* (Cambridge: Cambridge University Press, 1997), 609ff.

To achieve our aims, the chapter will first look at a number of quantitative dimensions of the building market. On the basis of published tax records, we will be able to sketch a general picture of the expansion of the number of houses in the towns of Holland between 1500 and 1815. These can be supplemented with evidence on the numbers of public buildings erected during these three centuries, and estimates of rural building activities. In a next step we will try to enrich these general trends with more detailed figures on building in Amsterdam, Gouda and Rotterdam, which will also allow us to get a sense of repair and replacement building.

The second part of the chapter deals with the people designing and constructing these buildings. We will first look at the workforce in the building industry, again to get a sense of its size and composition. Then we move on to the various building professions, asking which part of the market was serviced by architects, what other professions were engaged in these design activities, and can we say something about the kind of knowledge they brought to the job? Obviously, the answers to these questions will have to remain tentative, given the state of current research and the space allotted to this chapter. Nonetheless it is hoped that its contents can make a contribution to the new type of architectural history that is currently emerging.

1. *The development of the market for buildings in Holland, 1500–1815*

The number of houses in Holland

According to the government's own tax registers, the urban housing stock in Holland increased from 23,158 in 1514 to 86,608 in 1732 (table 1a). Figures for a handful of towns suggest that, if anything, that number had dropped slightly by 1795. Much of the increase had been realised by 1632, when the number of houses in Holland's large towns had already increased three times compared to a century earlier; the small towns had doubled in size during the same period.[9] Having

[9] Following De Vries (fn. 11) we have defined 'large towns' as those that had at any one time during the period of investigation a population of at least 10,000. The small towns included in the sample are Asperen, Beverwijk, Edam, Gorinchem, 's-Gravenzande, Haastrecht, Heenvliet, Heukelum, Medemblik, Monnickendam, Mui-

said that, another substantial increase was realised during the rest of the seventeenth century.

For obvious reasons, these increases in the housing stock reflected changes in population sizes. Holland's urban population increased by 417 percent between 1514 and 1732, the large towns by 577 percent. Clearly, population increase outpaced the expansion of the housing stock. This implies that individual homes must have become more crowded. As we will see below, this was indeed one of the distinctive developments of the seventeenth century.

Population increases, and therefore increases in the housing stock, were general throughout Holland, i.e. the western part of the Dutch Republic.[10] We can observe, however, marked variations between large and small towns, as well as between individual towns. Amsterdam outpaced all others. During this period it became one of Europe's metropoles, perhaps not quite competing with Paris and London, but at the head of the pack that followed behind these two leaders.[11] The Hague and Rotterdam also expanded more than the other towns. Enkhuizen, on the other hand, experienced a dramatic turn for the worse; having outpaced most other towns up to 1632, it actually lost a substantial amount of its population and housing stock in the subsequent century. None of this is especially surprising. The point of this exercise is not to demonstrate once more the various trends, but to get a sense of the number of houses built during these three centuries. On the basis of the figures in table 1a we can conclude that between 1514 and 1732 on average 291 houses were built in Holland's towns every year.

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den, Naarden, Purmerend, Oudewater, Schiedam, Schoonhoven, Vlaardingen, Weesp, Woerden.

[10] On urban planning in this period, Ed Taverne, *In 't land van belofte: in de nieue stadt—Ideaal en werkelijkheid van de stadsuitleg in de Republiek 1580–1680* (Maarssen: Gary Schwartz, 1978), as well as ead. and Irmin Visser (eds), *Stedebouw: De geschiedenis van de stad in de Nederlanden van 1500 tot heden* (Nijmegen: SUN, 1993), pt. 1: De koopmansstad.

[11] For detailed data on Europe's urban populations, see Jan de Vries, *European Urbanization, 1500–1800* (London: Methuen, 1984), 269–87.

Table 1a. Numbers of houses in Holland towns, 1514–1732

	1514	1632	1732
Alkmaar	889	2,795	2,817
Amsterdam	2,532	16,051	26,035
Delft	2,616	4,019	4,341
Dordrecht	1,500	3,386	3,954
Enkhuizen	720	3,830	2,605
Gouda	1,94	2,452	3,974
Haarlem	2,714	6,490	6,163
The Hague	1,198	3,160	6,163
Hoorn	1,118	2,715	2,817
Leiden	3,017	8,374	10,891
Rotterdam	1,137	5,048	6,621
Large towns	17,635	54,934	74,227
excl. A'dam	15,103	38,883	48,192
Small towns	5,526	10,688	12,381
All towns	23,158	65,617	86,608
Countryside*	10,954	29,559	35,266

Table 1b. Indices

	1514	1632	1732
Alkmaar	100	314	317
Amsterdam	100	634	1,028
Delft	100	154	166
Dordrecht	100	226	237
Enkhuizen	100	532	362
Gouda	100	145	235
Haarlem	100	239	293
The Hague	100	264	514
Hoorn	100	243	252
Leiden	100	278	361
Rotterdam	100	444	582
Large towns	100	312	421
excl. A'dam	100	257	319
Small towns	100	201	233
All towns	100	283	374
Countryside	100	269	322

Source: Piet Lourens, Jan Lucassen, *Inwoneraantallen van Nederlandse steden ca. 1300–1800* (Amsterdam: NEHA, 1997), 54–70, 100–122; * estimated on the basis of Van der Woude, *Noorderkwartier*, 622–23 (see fn. 24).

In actual fact, of course, building activities varied across time. As Ad Knotter has been able to demonstrate for Amsterdam, the building industry was subject to distinct cycles.[12] Similar figures for seventeenth- and eighteenth-century Gouda and Rotterdam likewise suggest significant fluctuations. In Gouda between 1632 and 1654 the numbers wavered between 3 in 1633 and 1653, and a record 43 in 1648. In most years between 7 and 13 new houses were registered.[13] In Rotterdam 53 new houses were built in 1740, but only 6 ten years later. In the 1740s between 11 and 19 houses were normally built, in the second half of the 1750s this slipped to less than 10, whilst in the 1770s and '80s 7–16 houses were built annually.[14]

Obviously, it is impossible to say how many of these newly built homes were designed by architects. It would be a fair guess to say that this was most likely to be the case along the major streets and canals, and much less likely in the lower middle class and proletarian districts of the towns. Thanks to a detailed study of one such major canal, the Leiden Rapenburg, we can at least test the first half of the hypothesis.[15] One of the main buildings on the Rapenburg canal was a former abbey chapel which after 1575 was used as the university main building. Among the house owners along the canal were therefore many professors. Also much in evidence were members of the town council, and wealthy entrepreneurs, most famously the De la Court family who owned several houses along the Rapenburg.[16] At number 25, moreover, was one of the seventeenth century's landmark buildings in the Dutch classicist style, the Bibliotheca Thysiana, designed by Leiden's most famous architect, Arend van 's-Gravesande. He and his successor as town-architect Willem van der Helm designed a handful of other houses along the Rapenburg, but the more active builder *and* designer seems to have been a stone-mason and building entrepreneur, Willem

[12] Ad Knotter, 'Bouwgolven in Amsterdam in de 17e eeuw', in: P.M.M. Klep, J.Th. Lindblad, A.J. Schuurman, P. Singelenberg, Th. Van Tijn (eds), *Wonen in het verleden, 17e–20e eeuw: Economie, politiek, volkshuisvesting, cultuur en bibliografie* (Amsterdam: NEHA, 1987), 25–37.

[13] Regional Archive Midden-Nederland, location Gouda, Oud-archief Gouda, 1917: Register van de nieuw-getimmerde huizen en schuren etc. sedert den jaare 1632.

[14] Municipal Archive Rotterdam, Oud-archief der stad Rotterdam, 4094: register van nieuwe en verbeterde gebouwen 1740–1804.

[15] See the seven volume series Th. Lunsingh Scheurleer, C.W. Fock, A.J. van Dissel (eds), *Het Rapenburg: De geschiedenis van een Leidse gracht* (Leiden: Repro Holland, 1986–1992).

[16] On these residents, M. Prak, 'Aanzienlijke huizen, aanzienlijke bewoners: het Rapenburg ten tijde van de Republiek', in: ibid., vol. IIIa (1988), 3–36.

Wijmoth, who built at least thirteen houses on the Rapenburg during the mid-seventeenth century.[17] For the majority of houses along the Rapenburg, the designer or builder is unknown. This then seems to imply also that the second half of our suggestion must be true. If even in the most prestigious areas of a town like Leiden not all homes were designed by architects, it is highly unlikely that they were active in the 'lesser' neighbourhoods, either here or in other towns.

Public building in Holland

A second source of demand were public buildings. These could be subdivided into buildings with military purposes, infrastructural building (canals, quays, and so on), and civic buildings housing public activities. Although the first two must have been substantial in terms of volume, we have at present only data about the third type of building. These data are supplied by a series of books produced in the mid-eighteenth century, called *Tegenwoordige Staat van Holland* (Present State of Holland), which contain detailed town-by-town descriptions.[18] Data were collected for Delft, Dordrecht, Gouda, Haarlem, and Rotterdam, as well as Amsterdam. In terms of population these towns constituted 60–75 percent of the urban population in Holland.[19]

Table 2. Public buildings in Amsterdam, Delft, Dordrecht, Gouda, Haarlem, Leiden and Rotterdam, 1500–1750

	1500–49	1550–99	1600–49	1650–99	1700–49	unknown
A'dam N		4	23	21	1	9
A'dam I		5	16	9	1	20
Delft N			2	2		2
Delft I	1		2	3	3	
Dordt N	4	3	3	3	1	1
Dordt I		3	3	1		3
Gouda N	1	1	1	1		1
Gouda I		3	3	3	1	

[17] Numbers 29–31, 41–57, and 34–36; on Wijmoth see ibid., vol. IIIa, 220–27.

[18] Jan Wagenaar, *Hedendaagsche historie, of tegenwoordige staat van alle de volkeren, vervolgende de beschryving der Vereenigde Nederlanden etc.* vols 4–8 (Amsterdam: Isaac Tirion, 1742–44). The fact that these data stem from the mid-eighteenth century has almost certainly produced 'under-reporting' for the earlier period, especially 1500–1550.

[19] Sixty percent in 1514, 75 percent in 1732, according to figures in Lourens, Lucassen, *Inwoneraantallen*.

Table 2 (*cont.*)

	1500–49	1550–99	1600–49	1650–99	1700–49	unknown
HaarlemN		1	4	1	1	2
Haarlem I		2	1	1		
Leiden N		1	2	1	3	
Leiden I	1	7	5	3		
R'dam N		2	2	11	2	2
R'dam I		4	6	5	3	4
Total N&I	7	36	73	65	16	44

N = newly built, I = improvements of existing building
Source: Wagenaar, *Hedendaagsche historie*, vols. 4–5

We have distinguished between newly built, and the reconstruction of existing buildings. For instance, substantial numbers of so-called hidden Roman Catholic churches were built into existing structures. Unfortunately, the dates are not supplied by the source (they are therefore listed as 'unknown'). During the 1570s, Dutch municipal authorities confiscated many Catholic monasteries and chapels, and gave these a new lease of life as hospitals, or even universities. At the same time, many new public buildings were created, especially during the seventeenth century. The most spectacular of these building projects was Amsterdam town hall, which was started in 1648, and took more than twenty years to complete.[20]

Table 2 suggests several things. Between 1500 and 1749 a total of 119 new public buildings arose in the seven towns we investigated, whilst another 122 underwent major improvements. Sometimes these were the same buildings. Dordrecht, for instance, built a new town hall in 1544, but its interior was altered substantially again in 1680. Gouda town hall was upgraded in 1603, and again in 1690–91. But it is not such details we are after, but rather the general picture. On the basis of population figures we should assume that the grand total of public buildings and improvements during these two-and-a-half centuries must have been in the order of 310 and 385.[21] Obviously, the great majority (about two-thirds) of these were created in the seventeenth

[20] On the building process, Pieter Vlaardingerbroek, Het stadhuis van Amsterdam: De bouw van het stadhuis, de verbouwing tot koninklijk paleis en de restauratie (PhD thesis Utrecht University, 2004).

[21] Table 2 produces a total of 231 public buildings; depending on the percentage (60 in 1514, 75 in 1732) of the combined towns in Holland's urban population this then leads to the numbers mentioned in the text.

century. In purely quantitative terms, the number of these public building projects was dwarfed, however, by the number of newly built homes.

Replacements and reconstructions

This imbalance between public and private building is further reinforced when we return for a moment to the private sector. Because there too we have to take into account reconstructions and improvements as a source of demand—an element that is often overlooked by both architectural and economic historians.[22] Especially in the eighteenth century, when the market for new buildings became very slow, refurbishing must have constituted a significant percentage of all building activities. How significant is visible in data that have survived for Rotterdam for the years 1740–1805.[23]

Table 3. Building in Rotterdam, 1740–1804, in 5-year periods

	New homes	New façade	Improved	Commercial
1740–44	117	51	7	22
1745–49	60	64	15	17
1750–54	54	96	17	34
1755–59	55	39	16	22
1760–64	42	81	7	20
1765–69	65	55	20	23
1770–74	58	52	9	23
1775–79*	39	48	8	13
1780–84	53	45	8	#8
1785–89	49	30	32	7
1790–94	26	29	33	10
1795–99	18	22	17	7
1800–04	11	35	18	10
Total	647	647	207	216

* 1776 is missing from the records; # includes a Roman Catholic church
Source: Municipal Archive Rotterdam, Oud-archief der stad Rotterdam, 4094: register van nieuwe en verbeterde gebouwen 1740–1804

[22] The importance of maintenance is underlined in David Edgerton, *The shock of the old: Technology and global history since 1900* Oxford: Oxford University Press, 2007), ch. 4.

[23] Municipal Archive Rotterdam, Oud-archief der stad Rotterdam, 4094: register van nieuwe en verbeterde gebouwen 1740–1804. These data are different in detail, but not in overall pattern, from those supplied by Hans Bonke, *De kleyne mast van de Hollandse coopsteden: Stadsontwikkeling in Rotterdam 1572–1795* Amsterdamse Historische Reeks, kleine serie vol. 32 (Amsterdam: Historisch Seminarium, 1996), 104, who used a different source.

Almost a quarter of the houses registered for the real estate tax were 'improved', rather than newly built. The number of new façades is even more impressive; it balances the number of new houses. Combining the façades and 'improved' houses suggests an amount of activity that may have actually come quite close to the work created by the building of completely new homes. The same source incidentally points us to another, and often overlooked, type of building, created for commercial purposes. The Rotterdam register lists stables and warehouses in particular. The numbers were substantial.

Rural building

Even though Holland was urbanised to a level unknown in other European regions, it still had a significant rural population. These people too required roofs over their heads, churches to worship in, and so on. Unfortunately, it is at this point difficult to say how much rural building was going on, and at exactly what time. The best available data are those collected by Ad van der Woude for the Noorderkwartier area, to the north of Amsterdam. The total number of homes recorded in 1514, 1630 and 1731 was 3,834, 10,328, and 12,343 respectively.[24] The Noorderkwartier was home to about 35 percent of Holland's rural population,[25] so this suggests an increase of approximately 45 percent on top of the urban numbers of new homes we established for 1632, and 41 percent for 1732 (see table 1).

We also know that public buildings were created in that same area during our period. For instance, villages to the north of Amsterdam like Barsingerhorn, Graft, De Rijp, Groet, Jisp, Noordschermer, Oosthuizen, Ransdorp, Schoorl, Spanbroek, and Zuidschermer all built new 'town' halls, invariably with a strong urban flavour in their design, during the seventeenth century.[26] Another significant development during the seventeenth century was the rise of country homes (*buitenplaats*

[24] A.M. van der Woude, *Het Noorderkwartier: Een regionaal historisch onderzoek in de demografische en economische geschiedenis van westelijk Nederland van de late Middeleeuwen tot het begin van de 19e eeuw* (Utrecht: Hes publishers, 1983; orig. *AAG-bijdragen* 16, 1972), appendix 4, 622–23. I have deducted the numbers for Alkmaar, Beverwijk, Edam, Monnickendam, and Purmerend from Van der Woude's totals, because these were considered to be urban communities.

[25] Calculated on the basis of A.M. van der Woude, 'Demografische ontwikkeling van de Noordelijke Nederlanden 1500–1800', in: D.P. Blok et al. (eds), *Algemene geschiedenis der Nederlanden* vol. 5 (Bussum: Unieboek, 1980), 131.

[26] C. Boschma-Aarnoudse, *'Een huijs om te vergaderen ende tgerecht te houden': Renaissance-raadhuizen boven het IJ* (Zutphen: Walburg Pers, 1992), 79–97.

in Dutch), built by townites who wanted to escape the summer heat and smell of the towns. Around Amsterdam alone, some 500 had been erected by the early eighteenth century.[27] A rough estimate leads us to assume that there were at least one thousand such buildings created in all of Holland.

2. *The builders of early modern Holland*

Numbers of builders

Unfortunately, there are no data covering the workforce in the building industry in quite the same way as they exist for the number of buildings. Instead, we have to make do with more fragmented source material. However, tax registers for various Holland towns do provide some detail about the size and composition of the workforce in the building industry. The best data are those for Amsterdam. The 1806 registers for the French 'patente' taxation on occupations give an unusually detailed picture.[28]

These figures are very suggestive in that they demonstrate that architects cut a negligible figure against the masons and carpenters in par-

Table 4. Amsterdam building occupations in 1806

Architect	1
Wall-paperer	70
Glazier	130
Pile-driver	3
Plumber	55
Brick-mason	119
Plasterer	27
Carpenter	298
Journeyman (unspecified)	1,813
Total	2,516

Source: H. Diederiks, *Een stad in verval: Amsterdam omstreeks 1800* Amsterdamse Historische Reeks vol. 4 (Amsterdam: Historisch Seminarium, 1982), 160.

[27] Marc Glaudemans, *Amsterdams Arcadia: De ontdekking van het achterland* (Nijmegen: SUN, 2000), 184–85.

[28] The absence of stone-masons is somewhat puzzling, but it is possible that they were counted under the Arts.

ticular, who together constituted almost sixty percent of the known occupations, a percentage that would only increase if we could have taken the journeymen into account. In 1806, the Amsterdam building industry accounted for fourteen percent of the industrial workforce.[29] That figure is on the one hand a reflection of the significance of the industry, but at the same time testimony to the impoverished state of many of Amsterdam's other industries at the time. In earlier times, the percentage was substantially lower. Among the grooms registered in Amsterdam between 1601 and 1700, carpenters made up 8.9, and masons 4.4 percent of the industrial workforce, and together 4.8 percent of all grooms. Together with the tailors, builders were, nonetheless, among the most numerous industrial workers in seventeenth-century Amsterdam.[30] Knotter was able to demonstrate, on the basis of these same marriage data, that the number of builders closely followed the building cycle in the industry. As a result, the number of builders fluctuated significantly across time.[31]

In Leiden in the middle of the eighteenth century we cannot expect to find a flourishing building industry, because the town was in deep economic trouble. Its textiles industry had entered a stage of freefall in the late seventeenth century and swept along the local economy as a whole. Leiden's population had decreased by at least a third as a result, slowing down the demand for buildings to a considerable extent, one must assume. Some of Leiden's well-off did bring the façades of their canal-side homes up to date with the latest fashion,[32] but that was hardly enough to keep many hands busy. Against this gloomy background it is surprising to nonetheless find 7.0 percent of all heads of households listed as builders. After the still very significant textile

[29] Diederiks, *Stad in verval*, 151 (table 58). These figures have been disputed by Ad Knotter, who suggested that the Amsterdam industrial workforce was underestimated by Diederiks; see the debate in *Tijdschrift voor sociale geschiedenis* 10 (1984), 197–208.

[30] Calculated on the basis of Ad Knotter, Jan Luiten van Zanden, 'Immigratie en arbeidsmarkt in Amsterdam in de 17e eeuw', *Tijdschrift voor sociale geschiedenis* 13 (1987), 414 (table 3); repr. in Jan Luiten van Zanden, *The rise and decline of Holland's economy: Merchant capitalism and the labour market* (Manchester: Manchester University Press, 1993), 53.

[31] Knotter, 'Bouwgolven'.

[32] This rebuilding can be observed in great detail in Lunsingh Scheurleer, Fock, Van Dissel (eds), *Het Rapenburg*.

industry, building constituted the second largest industry in town.[33] In Delft, in 1600, 4.9 percent of heads of households were builders; both textiles and food production were significantly larger in terms of job opportunities.[34] In Leiden, in 1581, 115, or 3.8 percent of all heads of households were builders. This amounted to 9.4 percent of the industrial workforce. After the inevitable textile industry, and the more surprising leather production, building shared third place with food in the rank-size order of industrial production in late sixteenth-century Leiden.[35]

Taken together, these figures suggest that building was never a leading industry, but everywhere one of the larger industrial occupations nonetheless. The size of its workforce was roughly 4–7 percent of the total professional population, and 10–15 percent of the industrial workforce. It shared this position with such other 'service industries' as food and clothing.[36]

Architects

By far the most famous members of the building profession are, no doubt, the architects. Many of them are known to us by name, the best-known even have biographies and oeuvre-catalogues devoted to them. As a profession, the architect in Holland was a creation of the seventeenth century. As we will discuss in greater detail below, before 1600 architectural designs were usually made by stone-masons, and in the sixteenth century also by sculptors. The first use of the word 'architect' in the seventeenth century, in the context of the building of Amsterdam town-hall, refers to the supervisor of the building process, rather than the designer. It was only in the second half of the century that the word actually began to refer to those responsible for the

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[33] H.A. Diederiks, 'Beroepsstructuur en sociale stratificatie in Leiden in het midden van de achttiende eeuw', in: ead, D.J. Noordam, and H.D. Tjalsma (eds), *Armoede en sociale spanning: Sociaal-historische studies over Leiden in de achttiende eeuw* Hollandse Studiën vol. 17, (Hilversum: Verloren, 1985), 49 (table 3.7).

[34] A.Ph.F. Wouters, *Nieuw en ongezien: kerk en samenleving in de classis Delft en Delfland 1571–622* vol. 1: De nieuwe kerk (Delft: Eburon, 1994), 296–302.

[35] F. Daelemans, 'Leiden 1581: Een socio-demografisch onderzoek', *A.A.G. Bijdragen* 19 (1975), 172 (table 17) and 213 (appendix 7).

[36] The term 'service industries' refers to a distinction made by Ad Knotter, *Economische transformatie en stedelijke arbeidsmarkt: Amsterdam in de tweede helft van de negentiende eeuw* (Zwolle: Waanders, 1991), 23–27, between dynamic, i.e. export industries, and service industries, necessary to support any urban population.

design.[37] However, the shape of 'architecture' as we now understand it, was already emerging in earlier decades.

Architects' biographies provide three essential pieces information about their contribution to the building industry. The first is that their output was not particularly large. Pieter Post, who was court-architect to the Orange dynasty and designed many landmark public buildings in the seventeenth century, including Huis ten Bosch, the present residence of the Queen of the Netherlands, was active between 1633 and 1668, a year before he died. From those 35 years we know 44 designs of buildings, of which 39 were actually executed.[38] This is 1.1 building per annum. Philips Vingboons, who was the most popular private architect in Amsterdam during his lifetime, designed 45 known buildings, mostly expensive homes in Amsterdam and country retreats in Amsterdam's hinterland, during the 35 years of his career (1637–1672).[39] This amounts to 1.3 per annum. These figures are almost certainly an underestimate of the real productivity of these architects. But if we double, or even triple the figure, Post and Vingboons between them cannot have designed more than 200 or at most 300 buildings, or 100–150 per architect.

In the recent textbook of Dutch architecture, we hear about 28 architects active between 1500 and 1800.[40] The great majority of these were working during the seventeenth century, when the profession really came into its own. If we accept the above productivity figures as typical, these 28 architects together may have designed something between 2,800 and 4,200 buildings between them. Not all of these were located in Holland, but it would be reasonable to assume that at least three-quarters were. These included the majority of public buildings,

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[37] Konrad Ottenheym, 'The rise of a new profession: The architect in 17th-century Holland', in: G. Beltramini, H. Burns (eds), *L'architetto: Ruolo, volto, mito* (Venice: Marsilio, 2009), 199–219. On the earlier development in Italy: Michael Lingohr, 'Architectus: Überlegungen zu einem vor- und frühneuzeitlichen Berufsbild', *Architectura* 35 (2005), 47–68.

[38] J.J. Terwen, K.A. Ottenheym, *Pieter Post (1608–1669), Architect* (Zutphen: Walburg Pers, 1993), 243–44.

[39] Koen Ottenheym, *Philips Vingboons (1607–1678), Architect* (Zutphen: Walburg Pers, 1989), 178–79.

[40] K.A. Ottenheym, 'Architecten en architectvormen', in: Koos Bosma, Aart Mekking, Koen Ottenheym, Auke van der Woud (eds), *Bouwen in Nederland, 600–2000* (Zwolle: Waanders, 2007), 240–57.

at least in the towns,[41] as well as many of the urban and rural dwellings for the upper crust of society.

A second interesting thing about the seventeenth-century architects is that they were artists, rather than constructors. Post was the son of a glass painter, and himself apprenticed as a painter in the renowned guild of St. Luke in Haarlem.[42] His brother Frans Post was also a painter, and became famous for his work in Brazil. In fact, Pieter was quite a distinguished painter in his own right. Like Post, Vingboons came from a painter's family; his father, painter David Vinckboons, had emigrated from Malines to the North, arriving in Amsterdam in 1590. Possibly, Vingboons worked after his apprenticeship in the Haarlem studio of Jacob van Campen, by whom Pieter Post had also been introduced to the arts of painting and architecture.[43] Van Campen himself, whose claim to fame is the Amsterdam town hall, was a master in both arts, and combined architecture and the visual arts throughout his career.[44]

It has been argued that the combination of painting and architecture was unusual, and that these three stood out from the pack in this respect.[45] Be that as it may, it is still striking that the three most influential and innovative architects of the Dutch Golden Age were designers rather than engineers. As the foremost expert on Dutch architecture states it: these were 'the first group of professional designers, that is to say architects who lived from their designs and advice alone, without direct attachments to a craft or building firm'.[46] In this they mirror a distinction between modern routine architects, who have to work within the constraints of strict budgets and time schedules, and the famous avant-garde architects, who produce stunning designs but are

[41] On the absence of architects designing village halls, see Boschma-Aarnoudse, '*Een huijs*', 59–61.

[42] Terwen, Ottenheym, *Pieter Post*, 9, 12–18. About the Haarlem guild, Ed Taverne, 'Salomon de Bray and the reorganization of the Haarlem guild of St. Luke in 1631', *Simiolus* 6 (1972), 50–69, and Hessel Miedema (ed.), *De archiefbescheiden van het St. Lucasgilde te Haarlem 1497–1798* (Alphen a/d Rijn: Canaletto, 1980).

[43] Ottenheym, *Vingboons*, 13, 20–21.

[44] Jacobine Huisken, Koen Ottenheym, Gary Schwartz (eds), *Jacob van Kampen: Het klassieke ideaal in de Gouden Eeuw* (Amsterdam: Architectura & Natura Pers, 1995).

[45] Koen Ottenheym, 'Inleiding: de schilder-architect', in Huisken, Ottenheym, Schwartz (eds), *Jacob van Campen*, 9.

[46] Ottenheym, 'Architecten en architectuurvormen', 248.

less impressive as constructors.[47] Seventeenth-century architects like Van Campen, Vingboons and Post, were all great innovators of style in their own right. Together they were the most influential developers of what became known as Dutch Classicism, a style copied in other parts of Europe, and in the Baltic area in particular.[48] In terms of time, however, their role was mainly limited to the seventeenth century. Vingboons, whose first work has been dated to 1637, has been called the 'first professional architect' in the Netherlands, because uniquely, his income was more or less completely derived from his drawings.[49] Around 1700, moreover, architects became so rare again, that the eighteenth century has been characterised as an 'era without architects'.[50]

The third element is that the emergence of the architect in Holland, and indeed his decline, only superficially coincided with the building boom. This occurred between roughly 1580 and 1625, but most of the famous works of Dutch Classicism were produced when the expansion of the building stock was past its prime. Although, clearly, the architects as a profession benefited from the boom, there must also have been a separate process that explains their rise to prominence. During the middle decades of the seventeenth century ideas about the urban built environment were clearly shifting. Whereas the expansion of the Holland towns around 1600 had been a scramble, new plans highlighted sophisticated designs, usually produced by architects. In Haarlem, Pieter Post was on a committee of three charged with designing a plan for a new residential district in 1642, while a later committee included painter Salomon de Bray.[51] The Haarlem plans were never executed, but when the city of Amsterdam decided to expand its eastern perimeter during the 1660s, the town's official architect Daniel

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[47] Cf. Niels L. Prak, *Architects: the Noted and the Ignored* (Chichester: John Wiley & Sons, 1984).

[48] Badeloch Noldus, *Trade in good taste: Relations in architecture and culture between the Dutch Republic and the Baltic World in the Seventeenth Century* Architectura Moderna, vol. 2 (Turnhout: Brepols, 2004); Konrad Ottenheym, 'Dutch Contributions to Classicist Architecture in Sweden and Northern Europe in the 17th Century', *Biblis* 38 (2007), 57–66.

[49] R. Meischke et al, *Huizen in Nederland: Amsterdam—Architectuurhistorische verkenningen aan de hand van het bezit van de Vereniging Hendrick de Keyser* (Zwolle: Waanders, 1995), 63.

[50] Ibid., 76; also Freek Schmidt, 'Het architectenloze tijdperk: Ambachtslieden en amateurs in de achttiende eeuw', *KNOB Bulletin* 104 (2005), 138–161; reprinted in expanded version in Freek Schmidt, *Paleizen voor prinsen en burgers: Architectuur in Nederland in de achttiende eeuw* (Zwolle: Waanders, 2006), ch. 1.

[51] Taverne, *In 't land van belofte*, ch. 7.

Stalpaert was put in charge. It was, moreover, well understood that the architecture of the homes to be built along the stately canals was to reflect the dignity of the city, and this stimulated the demand for quality designs.[52] These were also the decades when local history, and the description of local highlights, especially remarkable buildings, were becoming fashionable, as was a new type of paintings, the so-called town-scape.[53] Employing an architect, in other words, was not merely a private fashion statement, but also implied making a contribution to the embellishment of the city and could thus be perceived as a civic statement.[54] When Constantijn Huygens built a new, palatial home in central The Hague in the 1630s, he possibly felt that his studies of Vitruvius and other classical authors qualified him to make his own designs, so he merely called on Van Campen for advice. But he did make the point of civic duty in a Latin treatise that he wrote to accompany the building in 1639, when he argued that "one who is born in a significant place and fails to improve it [architecturally], belongs in an insignificant community and should be deprived of his citizenship".[55]

Likewise, their disappearance from the industry during the first half of the eighteenth century cannot, perhaps, be totally ascribed to the economic slow-down and the de-urbanisation of Holland, which brought the ambitious building projects of the Golden Age to a halt. Even the more specific slump in public buildings, as table 2 clearly demonstrates, can only partially account for the problems of the profession. One additional factor may well have been a saturation of the market;[56] with their newly built premises, local institutions could abstain from commissions during subsequent decades. Because public commissions provided a very substantial proportion of architectural commissions—if not in volume, then at least in prestige and visibility—this would have seriously undermined the anyway precarious architectural profession. But in some sense, architects also made

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[52] Jaap Evert Abrahamse, *De grote uitleg van Amsterdam: Stadsontwikkeling in de zeventiende eeuw* (Amsterdam: Toth, 2010), 145–52.

[53] On the rise of local history: E.O.G. Haitsma Mulier, 'De eerste Hollandse stadsbeschrijvingen uit de zeventiende eeuw', *De Zeventiende Eeuw* 9 (1993), 97–116. On the painted townscapes: Leonore Stapel, *Perspectieven van de stad: Over bronnen, populariteit en functie van het zeventiende-eeuwse stadsgezicht* Zeven Provinciën Reeks vol. 18 (Hilversum: Verloren, 2000).

[54] I owe this idea to John Shovlin.

[55] F.R.E. Blom, H.G. Bruin, K.A. Ottenheym, *Domus: Het huis van Constantijn Huygens in Den Haag* (Zutphen: Walburg Pers, 1999), 17, 65.

[56] For a parallel argument on painting: Montias, 'Cost and value', 463–64.

themselves superfluous, as we will see, by making knowledge about architectural design available in printed form, allowing other builders, as well as amateur architects,[57] to substitute for the architects themselves.[58] Their position was further weakened by their concentration on the aesthetics, rather than the construction side of the building industry. This put their direct competitors, the stone masons, in an excellent position to catch up on the aesthetics, and combine it with their own longstanding technical expertise.

Stone-masons

Instead of continuing to create new objects, our figures have suggested that during the eighteenth century the building industry focussed on repairs and improvements of existing buildings. As a result, we observe after 1700 the re-emergence of an older specialist, the stone-mason. During the late Middle Ages and the sixteenth centuries stone-masons dominated the industry and were its most significant source of innovation.[59] They were the inventors of new designs, and in charge of major building projects. Many of them originated from the areas where building stone was quarried, i.e. in the Southern Netherlands and to a lesser extent Germany.[60] Thus, the Keldermans family from Malines were involved in many significant building projects in the second half of the fifteenth and first half of the sixteenth centuries.[61] Likewise, the Van Neurenberg family from the Liège area played a major part in stone building during the sixteenth and seventeenth centuries.[62] Both families were at one and the same time responsible for supplying the stone and supervising the building process. This could include providing the designs as well. It is quite obvious that their pivotal position in the building process

[57] For the amateur architect of the 18th century: Schmidt, *Paleizen*, 42–47.

[58] On architectural publications of the era: K.A. Ottenheym, 'Architectuurtraktaten', in: Bosma et al. (eds), *Bouwen in Nederland*, 258–69.

[59] R. Meischke, *De gothische bouwtraditie* (Amersfoort: Bekking, 1988); see also Klaus Jan Philipp, '"Eyn Huys in Maniere van eynre Kirchen": Werkmeister, Parliere, Steinlieferanten, Zimmermeister und die Bauorganisation in den Niederlanden vom 14. bis zum 16. Jahrhundert', *Wallraf-Richartz Jahrbuch* 50 (1989), 69–113.

[60] See map in H. Janse, D.J. de Vries, *Werk en merk van de steenhouwer: Het steenhouwersambacht in de Nederlanden voor 1800* (Zwolle: Waanders, 1991), 21.

[61] J.H. van Mosselveld (ed.), *Keldermans: Een architectonisch netwerk in de Nederlanden* (The Hague: Staatsuitgeverij, 1987).

[62] Gabri van Tussenbroek, *The Architectural Network of the Van Neurenberg Family in the Low Countries (1480–1640)* Architectura Moderna vol. 4 (Turnhout: Brepols, 2006).

was based on an intimate knowledge of how to work the raw materials. This also allowed them to work in many different places; they simply went after the demand for their product. The most important innovator in Dutch architecture in the late sixteenth century, Hendrick de Keyser from Amsterdam, was trained as a sculptor. He was especially noteworthy for his innovative façade designs and for his original use of ornamentation.[63]

Stone-masons had, in all probability, continued their contributions during the seventeenth century but became more prominent again during the eighteenth. In the absence of single-authored designs, the contributions of the various parties involved in building projects is difficult to establish, but stone-masons definitely had a role to play in the embellishment of façades, the replacement of which became an important activity for the industry. The chance survival of the business records of one such firm from the eighteenth century allows a closer look at the activities of a local stone-mason. The Van Traa firm was active in Rotterdam, on the Wijnhaven, where it operated a stone-yard. In 1778 customers were offered a choice from a range of stone types, including marble, Bentheim stone, and flagstones from Bremen. The firm could provide ready-made mantle-pieces, as well as many other types of stone objects. The total value of the stock was put at 12,512 guilders in that year. Among the tools, valued at 455 guilders, were 26 saw blades, and a cart horse aged twelve. It had claims of 5,498 guilders, plus another 1,000 or so that would probably never be recovered.[64] The accounts show that it was doing business mainly in Rotterdam itself, and most of the work was executed on private homes. This work consisted mainly of repairs and embellishments. For example, in 1765 the firm delivered and installed a marble fire place, marble tiles, blue columns and their bases in the home of one mrs. De Visser. Hendrik Meesing had major works executed on the façade at the back of his house.[65]

Stone-masons like the Van Traa firm utilised published works for inspiration.[66] In their business library we find works such as Serlio's treatises on classical architecture from the sixteenth century, Bosboom's

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[63] Meischke et al., *Huizen in . . . Amsterdam*, 52–55.

[64] Municipal Archive Rotterdam, archive 264: Steenhouwerij en tegelbakkerij Van Traa, 277 (probate inventory 1778).

[65] Ibid., 1 (*Memoriael*, or Account book), 1765.

[66] In this they were not alone; see José de Kruif, *Liefhebbers en gewoontelezers: Leescultuur in Den Haag in de achttiende eeuw* (Zutphen: Walburg Pers, 1999), 250–51.

and Dancker's interpretations of Scamozzi from the seventeenth century, as well as more recent works like the *Vignoble moderne, ou Traité Elementaire d'Architecture* by Lucotte in an edition from 1777.[67] The designs offered by these authors were, however, often combined in novel ways to suit customers' specific tastes and desires to produce original designs.[68] Thus, even though the stone-masons of the eighteenth century were not quite as cutting-edge as their sixteenth-century predecessors had been, they still continued to carry the torch of innovation.

Carpenters and Brick-masons

By far the most numerous workers in the building industry were carpenters and brick-masons. In seventeenth-century Amsterdam, the former were about twice as numerous as the latter. This was due to the particular role of the wooden frame in the construction of houses at the time. Bricks were used to fill in the spaces created by these frames. Because of the importance of the wooden frame, carpenters usually acted as the master builders. Partly due to limitations of the sources, partly because of the prejudices of art historians, this most numerous group of builders is also the least known.[69] The majority of them must have worked individually, but some firms were actually capable of undertaking substantial projects. Especially Amsterdam builders were active in a large area, which also included the countryside of North-Holland.[70] Subcontracting was standard practice in the building industry. Public works were normally handled by the *stadsfabriek*, the municipal office responsible for buildings as well as infrastructural and defence works.[71]

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[67] Municipal Archive Rotterdam, archive 264: Steenhouwerij en tegelbakkerij Van Traa, 262–274 (library), esp. 262–264, and 267; on Bosboom's significance for artisan-builders, see also Schmidt, *Paleizen*, 53–55.

[68] Schmidt, *Paleizen*, 22, 36–42.

[69] A helpful survey of the 19th-century building industry and its workforce is provided by W.R.F. van Leeuwen, 'Woning- en utiliteitsbouw' in: H.W. Lintsen et al. (eds), *Geschiedenis van de techniek in Nederland: De wording van een moderne samenleving 1800–1890* vol. Iii (Zutphen: Walburg Pers, 1993), 197–231.

[70] See R. Meischke et al., *Huizen in Nederland: Friesland en Noord-Holland—Architectuurhistorische verkenningen aan de hand van het bezit van de Vereniging Hendrick de Keyser* (Zwolle: Waanders, 1993), ch's 4, 5 and 9.

[71] The most recent work on these municipal building offices is Geert Medema, 'In zo goede order als in eenige stad in Holland': het stedelijk bouwbedrijf in Holland in de achttiende eeuw, PhD dissertation Utrecht University 2008.

Artisan builders seem to have worked without paper designs or wooden models. Their work was determined by the 'constructive traditions',[72] or conventions of their trade. It would, however, be wrong to assume that they were unable to change their ways. Significant changes in house construction were introduced during the three centuries under consideration.

The most important of these can be observed in concentrated form in seventeenth-century Amsterdam.[73] While the city expanded, building density increased in two ways. Firstly, houses were no longer built as separate units, but in rows. As a result, they started to share side-walls, which were also more often constructed completely in brick. Houses also became taller, by adding floors for storage, or extra apartments as sub-letting became more significant in the housing market. However, these developments were part of a much more extended process transforming the construction of homes in pre-industrial Holland between the fourteenth and the eighteenth centuries.

In general, even the simpler types of houses became much more sophisticated in their design during the early modern period, than they had been in the Middle Ages. Early house types consisted of one, at best two spaces. The hall encompassed sections for cooking, living and sleeping. These functions were allocated separate spaces in the course of time, by building extra rooms as it were into that larger hall space, or as outbuildings. Relatively early additions were the separate kitchen, very often as a second kitchen, the creation of a separate reception room into which the front door would open, and, in the seventeenth and eighteenth centuries, another division between the area into which the front door opened and the actual reception room, to better keep out the draught.

Construction-wise, the most significant development was of course the transition from wood and mud construction to one of wood and brick, or wood, brick and stone. This process started in the fourteenth century, and by the mid-fifteenth century several Holland towns required newly built houses to be made of brick. In Amsterdam in

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[72] Chr. J. Kolman, '*Naer de eisch van 't werck': De organisatie van het bouwen in Kampen 1450–1650* (Utrecht: Matrijs, 1993), 132.

[73] Due to a lack of research on this group of builders, this section has to rely heavily on Meischke et al., *Huizen in Nederland: Amsterdam* , on ead., *Huizen in Nederland: Friesland en Noord-Holland* , and on R. Meischke, *Het Nederlandse woonhuis van 1300–1800: Vijftig jaar vereniging 'Hendrick de Keyser'* (Haarlem: Tjeenk Willink, 1969), 95–125, 424–39.

1452, exactly eight days after a ruinous fire, the Amsterdam authorities ruled 'that nobody shall build new homes, other than with stone [i.e. brick] walls and a hard roof'.[74] In the eighteenth century, the design of house windows was changed from one consisting of many small glass panes into one which had only two, much larger panes.[75] This obviously improved the influx of natural light into the rooms. Lighting was likewise improved by another innovation of the eighteenth century: plastered ceilings. Before their introduction, the ceiling consisted basically of the floor boards of the next storey. Plaster, usually executed in white, helped carry the light around the room.

Still different types of improvements were made to homes that also served as business premises. From the fifteenth century, but especially in the seventeenth, merchants' homes were executed with special doors in the top of the façade, to provide easy access to the storage space in the attic. The design of the hoist was also improved. In the Middle Ages shop porches had roofs sloping towards the street. As a result, rainwater would drip onto the street and by implication onto customers trying to reach the shop's front door. Around 1600 a new design was introduced, sloping away from the street towards the façade; rainwater was carried off by a special drainpipe.

All those changes may look insignificant by themselves, but taken together they helped to fundamentally change the outlook of the Holland towns between 1400 and 1800. But their time-frame suggests incremental, rather than revolutionary changes. This is perfectly compatible with the normal pattern in pre-industrial crafts, where innovation was common, but usually of the slow, piecemeal type.[76] Many of them had been first developed in expensive homes, sometimes designed by architects. Through a trickle-down effect—which, however, at the same time implied adaptation to new conditions of size, materials, and budget—they reached a much wider market. In

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[74] Quoted in Meischke, *Nederlandse woonhuis*, 111.

[75] H. Janse, *Vensters* (Nijmegen: Koninklijke Drukkeij Thieme, 1971), 57–61. On the development of the sash window, where builders from England, France and the Dutch Republic all made significant contributions, see Hentie Louw, 'The origin of the sash window', *Architectural History* 26 (1983), 49–72; ead., 'A constructional history of the sash window, c. 1650–c. 1725', *Architectural History* 41 (1998), 82–130 and 42 (1999), 173–239; the role of the Dutch esp. on 84 and 190, 197–98 respectively.

[76] An elaboration of this argument in S.R. Epstein, Maarten Prak, 'Introduction: Guilds, innovation, and the European economy, 1400–1800', in ead. (eds), *Guilds, innovation, and the European economy, 1400–1800* (Cambridge: Cambridge University Press, 2008), 1–24.

that transfer and transformation, building workers like carpenters and brick-masons played a key role.

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As De Vries and Van der Woude observed in their survey of the Dutch economy, there still is a noticeable, and regrettable, discrepancy between the economic importance of the construction trades and our knowledge of their development during the early modern period.[77] De Vries and Van der Woude used records of the tax on building materials (the excise on *grove waren*) to reconstruct general trends in the building industry between 1650 and 1790. In this paper we have attempted to expand that picture, by covering a longer period—including the building boom of the first half of the seventeenth century, by estimating the production of various types of buildings, and by looking at the role of three types of actors in the building sector. Our conclusions may be unsurprising, but seem to be significant nonetheless.

First and foremost, in terms of numbers the market for building was completely dominated by private homes. Between 1500 and 1815 the housing stock expanded by an estimated 357 percent. This was less than the population increase, suggesting that crowding may have increased. During the eighteenth century, when as much as half the industry may have been busy replacing or renovating existing buildings, house construction was in fact even more significant than the stock figures suggest. The great majority of these homes were not designed by architects, nor did they involve fancy stonework. Rather, they were the products of the industry's craft producers, especially carpenters and brick masons. These worked according to more or less standardised designs, which were not even put on paper as far as we can tell. This part of the industry might be called 'traditional', but only if we understand that word to refer to a relatively slow pace of change. As we have seen, house construction evolved significantly, especially during the seventeenth century, if only to produce the larger homes necessary to house a rapidly expanding population.

Next to the voluminous expansion of house building, the seventeenth century in particular was a period in which many new public buildings were constructed. This boom in the construction of public buildings was obviously connected to the expansion of Holland's

[77] De Vries, Van der Woude, *First Modern Economy*, 330.

towns, necessary to accommodate the influx of immigrants. It also provided the economic foundation for the rise of what was, in the northern Netherlands at least, essentially a new profession: the architect. Seventeenth-century Dutch architects were artists rather than builders. They helped launch a new style, Dutch Classicism, which was successful as an export product, especially in Scandinavia and the Baltic countries. But its rise was as short as it was sweet. By 1680 the great innovators were all dead. The heyday of the architects—roughly between 1630 and 1680—was bracketed by those of the stone-masons. During the three centuries covered by this chapter, they were in charge of major building products. In the sixteenth century the introduction of innovative, Renaissance forms happened mainly through stonework and was, by implication, the work of stone-masons. As with the architects, this type of innovation was primarily connected to public buildings and the top end of the housing market. Looking at the history of architecture in this particular way, does not in any way diminish the achievements of the famous architects. It does, however, set these achievements in the wider framework of the expansion of the construction industry, and more particularly in the context of specific segments of that industry's markets.

FROM SHELF TO MAPS: RECONSTRUCTING BOOKSELLING NETWORKS IN THE SEVENTEENTH CENTURY NETHERLANDS

Laura Cruz

On September 28, 1673, Felix Lopez de Haro held a book sale auction at his house. According to the advertisement he placed in a local newspaper, buyers interested in purchasing books from the library of the recently deceased city physician of Gouda could request a catalogue prior to the sale from Lopez de Haro himself or from his colleague in Amsterdam, Johannes Jansonius van Waesbergen, his colleague in Rotterdam, Arnout Laers, or his colleague in Haarlem, Abraham Casteleyn.[1] On the surface, this sale may not seem remarkable. Lopez de Haro held over thirty such auctions. Leiden booksellers, perhaps because of their proximity to the main University in the United Provinces, specialized in auctioning off libraries of dearly departed notables. Booksellers across Holland placed hundreds, perhaps even thousands, of similar advertisements over the course of the century. Taken collectively, on the other hand, these advertisements reveal an emergent social network established by individual Dutch booksellers that supplied information, goods, and services across the fluid borders of the nascent republic, thus forming a crucial part of the 'first modern economy'.

In European history, the seventeenth century often plays the role of the red-headed stepchild, neglected and thought to not properly belong to the family. In typical survey courses, instructors scarcely mention the entire period, moving from Renaissance to Enlightenment without any apparent bumps in the road. Indeed, the period is frought with minor wars, religious squabbling, inconsequential state-building, population stagnation, and economic troubles; hardly the good lecture fodder historians usually gravitate toward. One of the

[1] D.H. Couveé, "Van Couranten en Courantiers uit de Zeventiende en de Achtiende Eeuw" (1951), p. 9. reproduced at http: home.wxs.nl/~jhelwig (available through) by J. Helwig. The on-line database was supplemented by the holdings at the Koninglijke Bibliotheek in the Hague. Advertisement n. 6730926.3.

major exceptions to this age of doom and gloom is the experiences of the United Provinces of the Netherlands, who rose to pre-eminence on the shoulders of others to achieve their shining moment in history, a true Golden Age. Dutch history has a tendency to be contrary. They established a republic in the Age of Absolutism, a monarchy in the Age of Democracy, and had a Golden Age in an Age of Crisis.[2] This vision of Dutch exceptionalism, though, belies the subtlety and complexity of the social and economic mechanisms under which the citizens of the watery republic operated.

The historiography of Dutch studies may be replete with recipes for Dutch success in this inauspicious time and tips for how to avoid the stagnation and decline that follow, but recent scholarship has challenged that vision. In *The European Economy in an Age of Crisis* , Jan de Vries portrayed the seventeenth century as a necessary focal point for apportioning economic development unequally across the European continent, creating a system, to put it crudely, of winners and losers that would fuel the future growth of the world economy in crucial ways. In his depiction the crisis acted as historical agent, squeezing out inefficient producers with deflation and rewarding efficient and/or innovative producers through increased market share.

On a small scale, the career of Felix Lopez de Haro bears out this process. The number of booksellers in Leiden grew explosively over the course of the seventeenth century and Lopez de Haro faced a highly competitive environment when he chose his profession. Though he enjoyed the position of official printer to the Walloon and States Colleges of the University of Leiden beginning in 1683, he found that he could not prosper on the profits from printing and bookselling alone. Instead, he and others like him, turned to book auctions as a means to supplement their income. In the sixteenth century, Louis Elsevier, another immigrant to the United Provinces, had pioneered the use of the book sale auction, and its accompanying catalogue, as a means of selling books, especially used books, to previously underserved markets. Facing shrinking national and international markets for their goods in the seventeenth century, Dutch booksellers such as Lopez de Haro chose to capitalize on this innovation in order to maintain the

[2] For a good overview of the crisis historiography, see Geoffrey Parker and Lesley M. Smith, *The General Crisis of the Seventeenth Century* (New York and London: Routledge, 1978).

high standards of living enjoyed in the Dutch cities.[3] Through widely advertised book auctions, booksellers could reach more potential customers for specialized books.

The secret to Dutch success, it would seem, was increased market efficiency. Efficiency could not work alone, however, and in a later text, de Vries (with co-author Ad van der Woude) proclaimed that the seventeenth-century Dutch created the first modern economy. Most likely, they did not do so entirely deliberately, de Vries and van der Woude argue, but the drive for efficiency in an age of crisis pushed the Dutch to establish a particular, even precocious, infrastructure, including open markets for land, labor, and capital, that bore a striking resemblance to those touted in the present day. From this infrastructure emerged a pattern of specialization and centralization of functions, particularly among the different cities in the province of Holland, that contributed to rising efficiency and, therefore, the flowering of the Golden Age.[4]

At first glance, Dutch bookselling does not seem to fit into a larger pattern of division of labor. In most other European countries, the price scissors pushed small printers and booksellers out of the market, as they found themselves unable to match the profitability of firms that could exercise economies of scale.[5] Across Europe, profit margins for printed texts became razor thin and investment in the production of new books increasingly risky, with many firms falling back on established works with guaranteed audiences. The opposite was the case in the United Provinces, at least at first. In the sixteenth century, book shops proliferated at nearly exponential rates. By 1600, the ratio of printers to residents in the Netherlands was approximately three per ten thousand with the European average closer to three in one hundred thousand.[6] This disparity would only grow wider in the seventeenth century, as the Dutch book trade continued to support small to medium sized enterprises over larger consolidated ones, though the

[3] For more information on the development of the book-sale auction, see Laura Cruz, *The Paradox of Prosperity: The Booksellers of Leiden in an Age of Crisis* (New, Castle, DE: Oak Knoll, 2007).

[4] Jan de Vries and Ad van der Woude, *The First Modern Economy: Success, Failure and Perseverance of the Dutch Economy, 1500–181* . (Cambridge: Cambridge University Press, 1997), 179.

[5] Lucien Paul Victor Febrve, *The Coming of the Book: The Impact of Printing 1450–1800* (London: NVB, 1976).

[6] de Vries and van der Woude, 317.

growth of new establishments slowed.[7] Their European counterparts dwarfed even the largest Dutch establishments and a sizable portion of the smallest Dutch towns had a resident bookseller throughout the seventeenth century. As de Vries and van der Woude note but do not otherwise explain, this persistence was highly exceptional.

The relatively static ratio of booksellers to book buyers also belies the changing spatial economy of the provinces. Population growth, fueled in no small part by immigration, characterized the Netherlands throughout its Golden Age. In an age of population stagnation, even decline, in other parts of Europe, the cities of the republic (some more than others) teemed with new citizens.[8] David Lopez de Haro, an immigrant with familial ties to Spain, settled in the industrial town of Leiden, perhaps attracted by the presence of the University.[9] As the grandson of Matthijs Elsevier, Lopez de Haro drew upon family connections to establish himself as one of the leading booksellers in his newly-adopted home. He enjoyed an economic environment, however, that his son Felix would not.

Population growth could be both a boon and a bane to aspiring booksellers. Quite simply, more people meant more potential customers but it also meant more potential competitors as well. The number of booksellers established in early seventeenth-century Leiden outstripped its population growth. To remain afloat, Felix Lopez de Haro would need not only to innovate, but also to increase his efficiency as a bookseller, i.e. to better match the books that he was selling to customers that would buy them. A crucial part of this process was information, particularly information on where potential customer could be reached and what books would be well received by the discerning buyer with available cash. In his father's age, this function had been served largely by the international book fairs, held annually at Frankfurt and Leipzig.[10] In the fair catalogues from Frankfurt from 1630–39,

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[7] Willem Frijhoff and Marijke Speis, *Dutch Culture in a European Perspective: Hard Won Unity, 1650* (London: Palgrave Macmilllan 2004), 268.

[8] Cle Lesger, "Migrantenstromen en economische ontwikkeling in vroegmoderne steden: Nieuwe burgers in Antwerpen en Amsterdam, 1541–1655," *Stadsgeschiedenis* 1 (2006), 101.

[9] Gertrud van Loon, "Genealogie en biografie van een Leidse boekverkopersfamilie," in *David and Felix Lopez de Haro (1627–1694): Boekverkopers op het Rapenburg over de Academie: Vijf Bijdragen* ed. P.G. Hoftijzer (Leiden: Bibliotheek der Rijsuniversiteit te Leiden en Sir Thomas Browne Institute, 1985), 13.

[10] A.H. Laeven, "The Frankfurt and Leipzig Book Fairs and the History of the Dutch Book Trade in the Seventeenth and Eighteenth Centuries," in *Le Magasin d'Univers:*

for example, Dutch booksellers presented the largest numbers of books. Through contacts there, booksellers could find out about the availability of texts and provide them for clients both inside and outside the borders of the United Provinces. The Thirty Years War profoundly disrupted the fair system, however, and Felix and his colleagues needed to replace this hub with an internal information network.[11]

The recent Short Title Catalogue Netherlands (completed in July 2009) provides a useful compilation of the production of books in the Netherlands and is the culmination of decades of bibliographic work on the Dutch book trade. While exhaustive, the entries do not give much indication of the nature of the internal trade in books. As De Vries and van der Woude note, surprisingly little work has been done on all forms of internal trade within the republic, much less books.[12] From scattered mentions in bookseller accounts, it would appear that books that did not sell in one place could be exchanged with stocks from other booksellers, a system called the *ruil*. The *ruil* likely helped to distribute risk, by getting desired books to customers more efficiently and possibly prevented precious capital from being tied up in slow-moving stock. The problem is that books exchanged through the system were not recorded in the accounts. While we know of the existence of the *ruil*, we simply do not know how it worked or its scope or magnitude.

It is curious to note that Felix Lopez de Haro's advertisement mentioned that interested buyers could obtain his sale catalogue in other cities, from designated booksellers. This was a common practice and most of the book sale notices in the Haarlem paper contain similar references. From these, it would seem possible to reconstruct the internal networks of exchange and information forged by these booksellers. This study utilizes a database of over two hundred such advertisements, culled from the *Oprechte Haarlemscher Courant* in the period from 1660 to 1671 in order to approximate the flows of information in the seventeenth century Dutch book trade.[13]

The Dutch Republic as the Centre of the European Book Trade , ed. C. Berkvens-Stevelinck and others (Leiden and New York: E.J. Brill, 1992), 193.

[11] In 1624, for example, Dutch booksellers Thomas Basson and Bonaventura Elsevier were detained by the prince of Neuberg so that he might exchange them for some of his own subjects being held as prisoners by the Republic. Bögels, *Govert Basson*, 78.

[12] de Vries and van der Woude, 179.

[13] The history of the paper was fairly typical. Abraham Castelyn had worked with one of the earliest and most prominent Amsterdam gazetteers, Jan van Hilten. After

The Dutch had developed the commercial potential of newspapers early in the century and used the well-established Dutch postal system to solicit and deliver newspapers to customers. Beginning in 1630, most of the major newspapers began accepting advertisements to help cover their costs and booksellers were among the first to realize the potential of the new medium.[14] The advent of the newspaper provided them with an opportunity for reaching an even wider community of readers with disposable income.[15] Some advertisements contained full catalogues of new or used books, but for economy's sake most only made short references to the nature of the books for sale and let potential buyers know where full catalogues might be obtained. Felix Lopez de Haro's, published in the *Oprechte Haerlemsche Courant*, was fairly typical of the time:

> Tot Leyden, ten Huyse van Felix Lopes, Boeckverkooper, over de Academie, sal op den 28 September 1673. verkocht werden een schone Bibliotheecq, naer gelaeten van D. Gualtherus Immerzeel, in sijn Leven Stadts Doctor tot Gouda, bestaende in veel treffelijcke Boecken, meest Medici en Literatores: waer van de Catalogus te bekomen sullen zijn tot Amsterdam by Johannes Iansonius van Waesbergen, tot Haerlem by A: Casteleyn, tot Rotterdam by A: Laers.
>
> [In Leiden, at the house of Felix Lopez, bookseller by the Academy, a lovely library will be sold on September 28, 1673, left behind by D. Gualtherus Immerzeel, in his life the city doctor of Gouda. The library consists of many striking books, the most in Medicine and Literature. The Catalogue will be in available in Amsterdam from Johannes Jansonius van Waesbergen, in Haarlem from A. Casteleyn and in Rotterdam from A. Laers. [1]][16]

Hilten's death in the 1620's, Castelyn left Amsterdam, moved to Haarlem, and founded a paper originally titled the *Weeckelijcke Courante van Europa*. He changed the name twice, first to the *Haerlemmer Courante* and finally, in 1664, to the *Oprechte Haerlemse Courant*. D.H. Couvee believes that the reason for the final change was to differentiate the paper from its competitors and to show that it would be the last one still standing, hence the term 'oprechte', or upright. In 1738, the publication of the paper was taken over by the well-known printing firm of Enschede.

[14] D.H. Couveé, "Van Couranten en Courantiers uit de Zeventiende en de Achtiende Eeuw" (1951), p. 9. reproduced at http: home.wxs.nl/~jhelwig (available through) by J. Helwig. The on-line database was supplemented by the holdings at the Koninglijke Bibliotheek in the Hague. Advertisement #6730926,3.

[15] For an interesting report of other advertisements in the paper, see D. Kranen, *Advertenties van kwakzalvers & meesters in de oprechte Haerlemse Courant, (1656–1733)*. Ede: Kranen, 2008.

[16] All translations done by the author. Any mistakes are her own.

In subsequent advertisements, Lopez de Haro continued to ply his catalogues with the three colleagues mentioned above, but added T. Duurkant of Utrecht (1671), J. Sommerlin of Amsterdam (1671), and finally Cornelis van Heusden of Delft (1672) to his repertoire.

Sociologist Julia Adams deemed the Dutch government a "familial state" because of the degree to which political functions were superimposed over family networks.[17] In bookselling, this did seem to be a contributing factor, though one that seemed to grow weaker over time. While David Lopez de Haro made great use of his marital connections to the Elsevier and van Sambix (printers in Delft) families, Felix drew upon a mixture of explicit familial connections (Waesbergen was a relative) and new partnerships with other booksellers. The considerable genealogical and prospographical attention that booksellers as a group have received does indicate that some printing and bookselling firms in the Netherlands were family affairs. In most major Dutch cities, membership in booksellers' guilds could be inherited (as Felix likely inherited his from his father) and by the eighteenth century, an increasing number of booksellers were legacies. Also, it was not uncommon for family enterprises to span several cities. The Elsevier press, for example, included four print shops, in Leiden, The Hague, Amsterdam, and Utrecht, each of relatively modest size. Though using a common name, these shops were more independent than interdependent. By the middle of the century, however, it would appear that the linkage between family networks and economic networks began to loosen, so the question remains of how booksellers continued to find each other and forge new connections.[18]

Another possible source of networking was immigration networks. In the late sixteenth century, massive numbers of refugees from the war-torn southern Netherlands entered the northern provinces. For the most part, the immigrants did not come to work in traditional Dutch industries, such as fishing or bulk shipping, but rather to establish new industries and commercial enterprises based on their previous experiences and connections in the relatively advanced economy of

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[17] Julia Adams, *The Familial State; Ruling Families and Merchant Capitalism in Early Modern Europe* (Ithaca; Cornell University Press), 2005.

[18] For an exhaustive overview of information gathered on these printers and booksellers, see J.C. Gruys and Jan Bos, *Het Adresboek: Nederlandse Drukker en Boekverkopers tot 1700*, ed (The Hague: Koninklijke Bibliotheek, 1999).

the southern Low Countries.[19] One such industry, developed largely by immigrants, was printing. The arrival of large numbers of immigrants from the Southern provinces in the late sixteenth century profoundly changed the spatial economy of the Dutch book trade. From 1570 to 1630, more than two hundred printers from the Southern Netherlands set up shop in the north, largely in the major cities of Holland and Zeeland.[20] With the common bond of immigration and often religious belief as well, there may have been opportunities for contact among the refugee printers and booksellers. In a study of who bought paintings at auction, John Michael Montias tentatively concludes that this was one of the most important factors in determining patterns in the sale of art, so perhaps the same is true for books.[21]

Historically, such ties are difficult to reconstruct. The period under study, is of the latter part of the century and most of the booksellers were second generation, like Felix Lopez de Haro, or third generation. Further, the shared Calvinist faith of many immigrants blended into a mixed religious landscape of confessed Calvinists, *liefhebbers* (supporters but not full members of the Calvinist church), Jews, Catholics, and even Erasmian libertines. If such chains existed, their traces are largely lost in the growing complexity of Dutch society and the vagaries of the historical record.

A recent body of theoretical literature suggests another possible tool for bridging this gap. In the 1990s, a pair of graduate students at the University of Virginia popularized a game known as the Oracle of Kevin Bacon. The program they created claimed to be able to link nearly any actor or film to actor Kevin Bacon in six degrees or less. Their well-known exploits brought popular attention to the embryonic field of network economics. The literature in the field is still pretty thin, but the gurus of the approach have frequently admonished historians for not seeing the value in their work and using the theories and equations to shed light on the historical development of social and economic networks. The Dutch booksellers may offer an interesting case study to see if the gurus are justified in their admonition.

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[19] Jonathan Israel, *Dutch Primacy in World Trade 1585–1740* (Oxford: Clarendon Press, 1989), 42.

[20] J.C.A. Briels, *Zuidnederlandse boekverkopers en boekdrukkers in de Republiek 1570–1630*. Bibliotheca Bibliographica Neerlandica 6 (Nieuwkoop: De Graaf, 1974), 23.

[21] John Michael Montias, *Art at Auction in 17th Century Amsterdam* (Amsterdam: Amsterdam University Press, 2002), 57–76.

Cornell mathematicians Duncan Watts and Steve Strogatz, studied the 'small-world' phenomenon, i.e. the idea that just about anyone in the world can be connected to anyone else, and created the means to represent these networks spatially as well as to develop mathematical tools for explaining and predicting how social networks establish themselves Among their fundamental conclusions is the idea that social networks emerge in distinctive patterns that are characterized by "an unusual pattern with chaos mingling in equal balance order."[22] The chaos of the system comes from the importance of random social connections. Researchers conclude there simply might not be an overarching explanation for the people we run into part of life.

As Mark Buchanan states:

> Loosely speaking, we might refer to strong ties as those between family members or good friends or between colleagues who spend a lot of time together, whereas weak ties link people who are just acquaintances. And, paradoxically, when it comes to the number of degrees of separation, the crucial links are the weak ones, especially a certain kind of weak link called a social bridge. These connections are the crucial ties that sew social networks together.[23]

In other words, what they have found is that it is precisely these random encounters that create the backbone of networks.

If the patterns of acquaintance are indeed random, then there would appear to be not much left for the historian to reconstruct. Felix Lopez de Haro could have run into his colleagues on the street, in a coffee shop, or some other random place, and simply struck up a conversation that would be unrecoverable. That being said, network economics suggests that spatial analysis can be insightful. In other words, although the links themselves may not be explicable, the patterns of connection can be mapped. Historians have been tentatively, but increasingly, exploring the uses of Geographic Information Systems (GIS) in mapping historical spaces.[24] One of the most celebrated applications was Boyer and Nissenbaum's pioneering reconstruction of the

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[22] Mark Buchanan, *Nexus: Small Worlds and the Groundbreaking Science of Networks* (New York, Norton, 2002), 14.

[23] Buchanan, 43.

[24] See for example, Anne Kelly Knowles, ed. *Past Time, Past Place: GIS for History* (Redlands, CA: ESRI Press, 2002) and Steven J. Steinberg and Sheila L. Steinberg, *GIS: Geographical Information Systems for the Social Sciences: Investigating Time and Place* (Thousand Oaks, CA: Sage, 1994).

geographical patterns among accusers and accused during the Salem Witch trials, a study which significantly reinvigorated an old historical chestnut.[25] Most of these types of studies define space in a relatively straightforward way, but as one handbook points out "GIS can play a role in analyzing concepts that are less evidently spatial", including the recreation of social networks.[26] With this function, GIS can map strong and weak ties between groups of people, identifying key individuals as nodes or bridges, and these connections may or may not be mapped onto physical space.

Through the prism of GIS, the seemingly insignificant mentions at the bottom of Felix Lopez de Haro's newspaper advertisement take on new meaning. In September of 1667, Felix was listed for the first time as holding a catalogue for a colleague, Johannes Ribbius, concerning a sale to be held in Utrecht. Ribbius also listed Johannes van Waesbergen of Amsterdam in his advertisement. This now creates a social connection between the three men. [See Map 1]. Felix next appears in October of 1667 as a catalogue holder for a massive sale of books by Theodore Duurkant, a bookseller at the Hague. The catalogues for this sale extend to far flung places such as Enkhuizen, Groningen, Franeker, Leeuwarden, Arnhem, Leuven and Antwerp [See Map 2]. Though there is no overlap between the two networks, it would seem that Felix may serve as a social bridge of sorts, because Ribbius next appears in the records in February of 1668 as a catalogue holder for an Amsterdam bookseller with whom he was not otherwise connected, but with whom he shares three catalogue holders in common with Duurkant's 1667 sale. [See Map 3] Similarly, Felix continues to be a catalogue holder for more of Duurkant's sales until he decides to hold his own sale in 1671. In that advertisement, he lists Duurkant, but also two other booksellers (in Amsterdam and Rotterdam) with whom he shared catalogues from Duurkant's earlier sales. The six degrees of separation indeed become apparent.

With each step of this spatial reconstruction, more pieces of the *ruil* fall into place and larger patterns emerge from the mundane relationships of everyday life. [See Map 4]. This process is painstaking and still incomplete, but already has yielded some potentially interesting questions and tentative conclusions.

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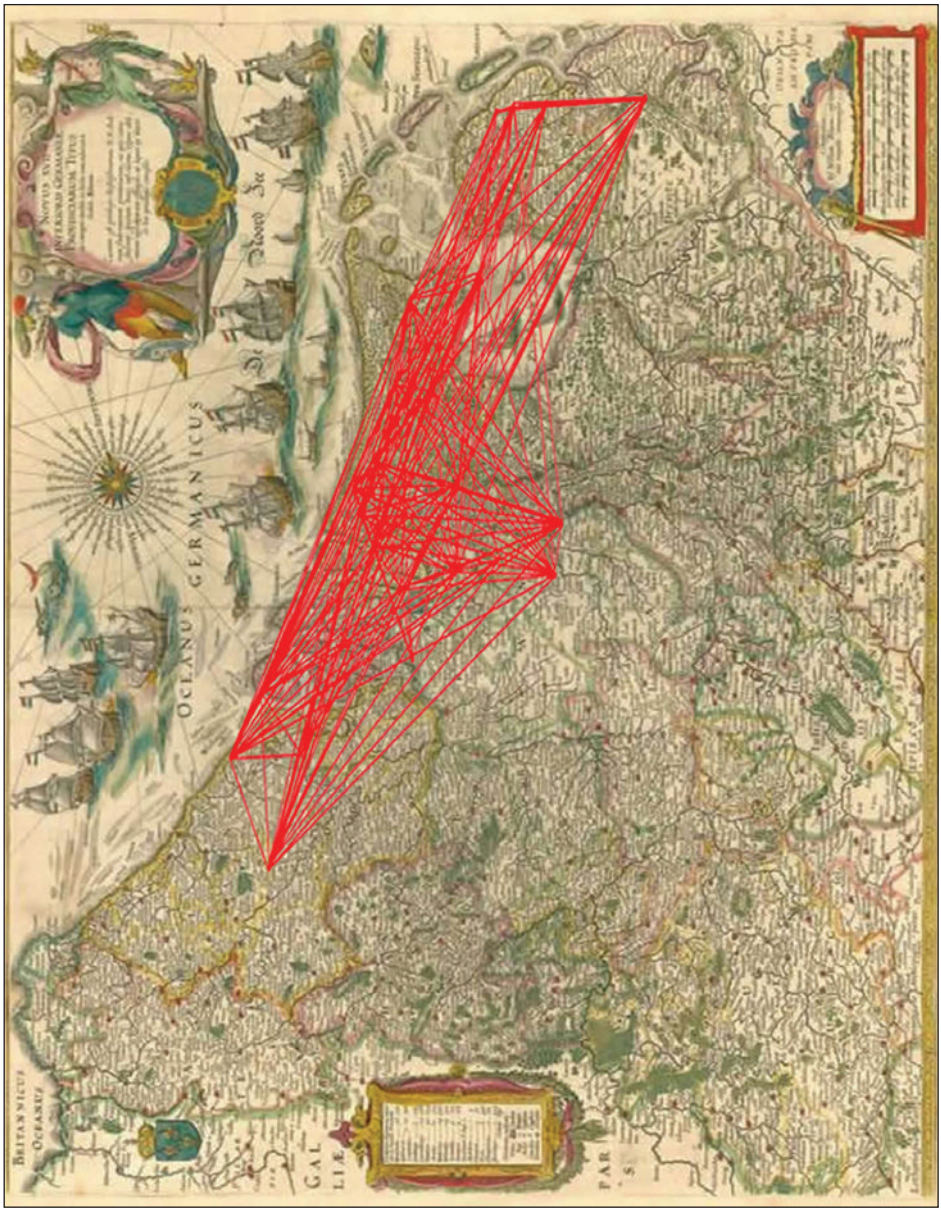
[25] Paul Boyer and Stephen Nissenbaum, *Salem Possessed* (Cambridge, MA: Harvard University Press, 1974), 34.

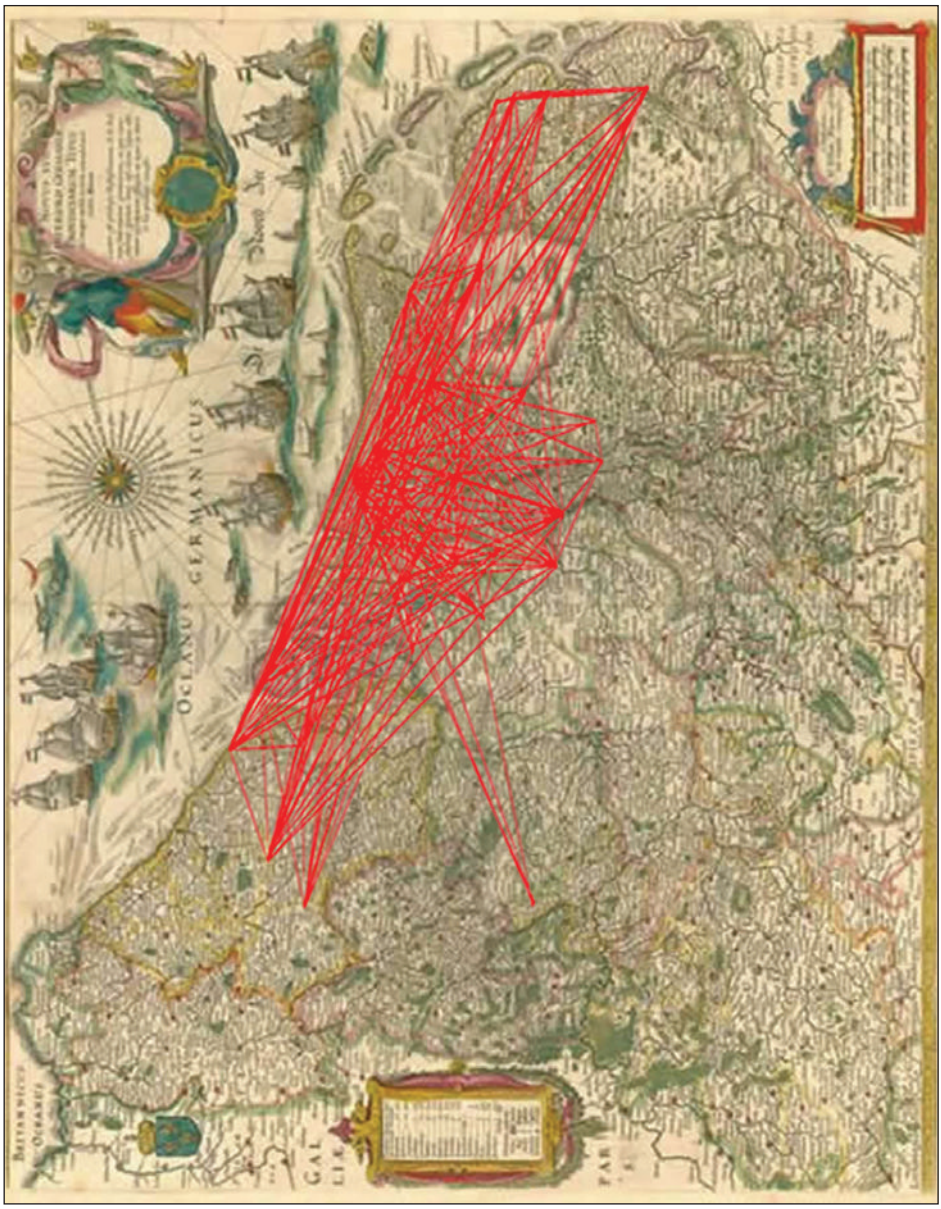
[26] Steinberg, 170.

Map 1. Book Sale Auction of Felix Lopez de Haro, Catalogue Holders, September 1667



Map 2. Book Sale Auction of Theodore Duurkant, Catalogue Holders, October 1667

Map 3. Book Sale Auction of Pluymer, Catalogue Holders, February 1668



Map 4. Book Sale Auction Catalogue Holders, 1660–1671

Conventionally, social networks have served as important conduits for information sharing and that function may explain some of the shifts in the production of the printed text. If nothing else, the subjects of this study had one thing in common: they spoke some form of Dutch (or Flemish, a Dutch dialect), and the book industry began increasingly to reflect this. By the mid-seventeenth century, the use of vernacular printing languages was on the rise across Europe. It is a common misconception that this was a significant disadvantage to Dutch booksellers and printers because the Dutch linguistic area was so small. That may be true in modern Europe, but in the early modern world, the differences between Dutch and other languages were not as large. The country was still, of course, quite small but it was densely populated. In 1600, there were approximately 2.5 million Dutch speakers, versus an English-speaking population of five million, a number reached only if Ireland and Scotland are included.[27] The persistence of local and regional bookselling might not have been possible without the consummate rise in Dutch-language titles combined with a precociously literate population. It seems likely that the exchange of information through increased internal trade and information networks may have provided a means to make the transition to vernacular printing, and indirectly, literacy, function more smoothly.

De Vries and van der Woude mention the importance of information networks as part of the 'first modern economy' and imply that they played a role in the development of internal trade, but the exact nature of the relationship has hitherto remained largely unexplored. If their text is read more broadly, their accounts suggests that many of the structures and patterns of the Dutch economy came, as historians like to say, from below. In the absence of a centralized state mechanism, Dutch merchants had to respond to the changing economic conditions of the seventeenth century individually or in small groups. Network theorists refer to such phenomenon as emergent, in which the adaptive decisions made by multiple agents at one level lead to patterns of behavior at another. As one specialist puts it, "ants create colonies, urbanites create neighborhoods, simple pattern recognition

[27] In the late twentieth century, the difference is much larger-approximately 20 million Dutch speakers versus over 500 million English!

software learns to recommend new books."[28]In this case, booksellers may have inadvertently created new patterns of bookselling through individual responses.

For de Vries and van der Woude, one of the largest benefits of an increase in internal trade is the creation of internal divisions of labor and the resulting increases to efficiency. Through studies of occupational distribution, it might appear that bookselling was an outlier in that process, but this belies the growing complexity in the internal market for printed texts. Despite the small scale of enterprises, a division of labor did emerge in the Dutch bookselling trade with various cities specializing in print services, such as binding in the port city of Rotterdam, and types of books, such as used scholarly books in the University town of Leiden. The interconnectedness of the various parts of the book trade, particularly in the area now commonly known as the Randstad, is apparent from looking at the composite network in Figure 4. An interesting counter-example is the town of Leuven, in the Southern Low Countries.[29] Like Leiden, it was home to major University, yet by the seventeenth century it was no longer a major international center for bookselling or printing. Leuven was, literally and figuratively, out of the information loop (see Map 4).

One is left to speculate how the booksellers in each place chose their particular areas of specialization and the answer seems to be that they had access to information, through these networks, that enabled them to make those decisions within an acceptable degree of risk. In his study of Amsterdam, Cle Lesger argues that Dutch economic success came as a result of that city becoming a hub of information, or in contemporary terms, "a staple of news."[30] The flow of information, either informally through teachers, foreign contact, letters, or more formally in the form of newspapers and other printed texts, Lesger argues, contributed to the development of a body of expertise that gave Dutch merchants the ability to address inequalities of supply and demand more efficiently than their competitors.[31] In other words,

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[28] Steven Johnson, *Emergence: The Connected Lives of Ants, Brains, Cities, and Software* (New York: Scribner, 2001), 18.

[29] For an interesting study of the politics of bookselling in the Habsburg Netherlands, see Paul Arblaster, "Publishing and Policy in the Habsburg Netherlands, 1585–1690" in Brendan Maurice Dooley, et al. *The Politics of Information in Early Modern Europe* (London: Routledge, 2001), 179–198.

[30] Lesger, 10.

[31] Clé Lesger, *Handel in Amsterdam ten tijde van de Opstand. Kooplieden, commerciëlle expansie en veranderingen in de ruimtelijke economie van de Nederlanden ca.*

the Dutch republic was also a republic of letters that centered on the exchange of economic information. This study suggests that the benefits of that flow of information extended well beyond the fortified walls of Amsterdam.

De Vries and van der Woude tout the occupational interdependence of the Dutch cities with the surrounding countryside as a mark of modernity. Using central place theory, they analyze the range of services provided by a large number of Dutch towns and find strong evidence that this interdependence not only existed, but thrived up until the last quarter of the seventeenth century, when centrifugal tendencies began to appear.[32] As they point out, "around 1650 it seemed as though the process of occupational differentiation could support even book printers and sellers in rural areas, but after 1670 this proved unsustainable, and these specialists concentrated themselves in larger cities, and especially in Amsterdam."[33] There are limitations to this approach, however, and the theory of central places does not always accurately depict the processes by which the Dutch economy changed.

In the case of the book trade, the idea that Amsterdam would inevitably come to dominate the book trade is thrown into question by the results of this study. If one were to look again at Figure 4, it is interesting to see which cities in the system served as social bridges, connecting different parts of the network together. Should Amsterdam be removed from the system (see Figure 5 below), the geographic scope of the networks would not be significantly altered. While Amsterdam may have led the pack in quantity or even quality, they were not the critical links in the information chain, as channels existed that could have circumvented the capital city. Instead, smaller and less-heralded cities, such as Utrecht, Haarlem, and Middelberg, take on new importance. Should they be removed from the network, the scope of information sharing would be considerably diminished. These cities served as vital connectors between the constituent parts, a testament to the continued interdependence of the broader Dutch domestic economy even after 1650. Consolidation would occur in the latter half of the century, but it took the form of a broad front, incorporating many cities rather than just one.[34]

1550–ca. 1630 (Amsterdam, 2002), 209–249. For an example of how such information sharing worked in practice, see Montias, 57–76.

[32] de Vries and van der Woude, 512–6.

[33] de Vries and van der Woude, 523.

[34] Frijhoff and Spies, 269.

Despite the importance of these lesser known places to the system, the networks are most concentrated and varied around the major cities of Holland, including Rotterdam, Leiden, The Hague and Amsterdam. One of the more curious phenomenon of the Dutch book selling world is how many bookshops in a given city would set up shop right next to each other. In sixteenth century Leiden, for example, most of the more prestigious printers and booksellers established their shops along the Rapenburg, closest to the University grounds, and the more mid-level shops nearby on the Kloksteeg. Even after the bookselling business ceased to focus on the University, this pattern continued. As late as 1674, the majority of printer/booksellers in the town of Leiden still had their shops in two of the city's tax districts, *Over 't Hof* and *Zevenhuizen*, both located just to the east of the university.[35] David Lopez de Haro, for example, began his career in a small shop on the Kloksteeg, which he received with help from his Elsevier relatives. As he prospered, rather than branch out, he purchased more luxurious premises on the Rapenburg from a colleague who had gone bankrupt. Despite the example set by the former tenant, Lopez de Haro placed himself in the midst of his closest competitors.[36]

This would appear, at least at first, to be economically irrational behavior, the triumph of community and status over profit. Recently, though, a handful of economists have suggested that perhaps such clustering can produce positive organizational and technological externalities.[37] By literally working so closely together, the booksellers could collaborate by pooling suppliers for input goods (such as paper), by generating customers for each other, and by lowering search and information costs. The same proximity engendered competition, which drove booksellers to innovate and to seek out more outlets for the goods in other places, thus perhaps providing a motive for the creation of such an extensive network system. On a broader scale, the information

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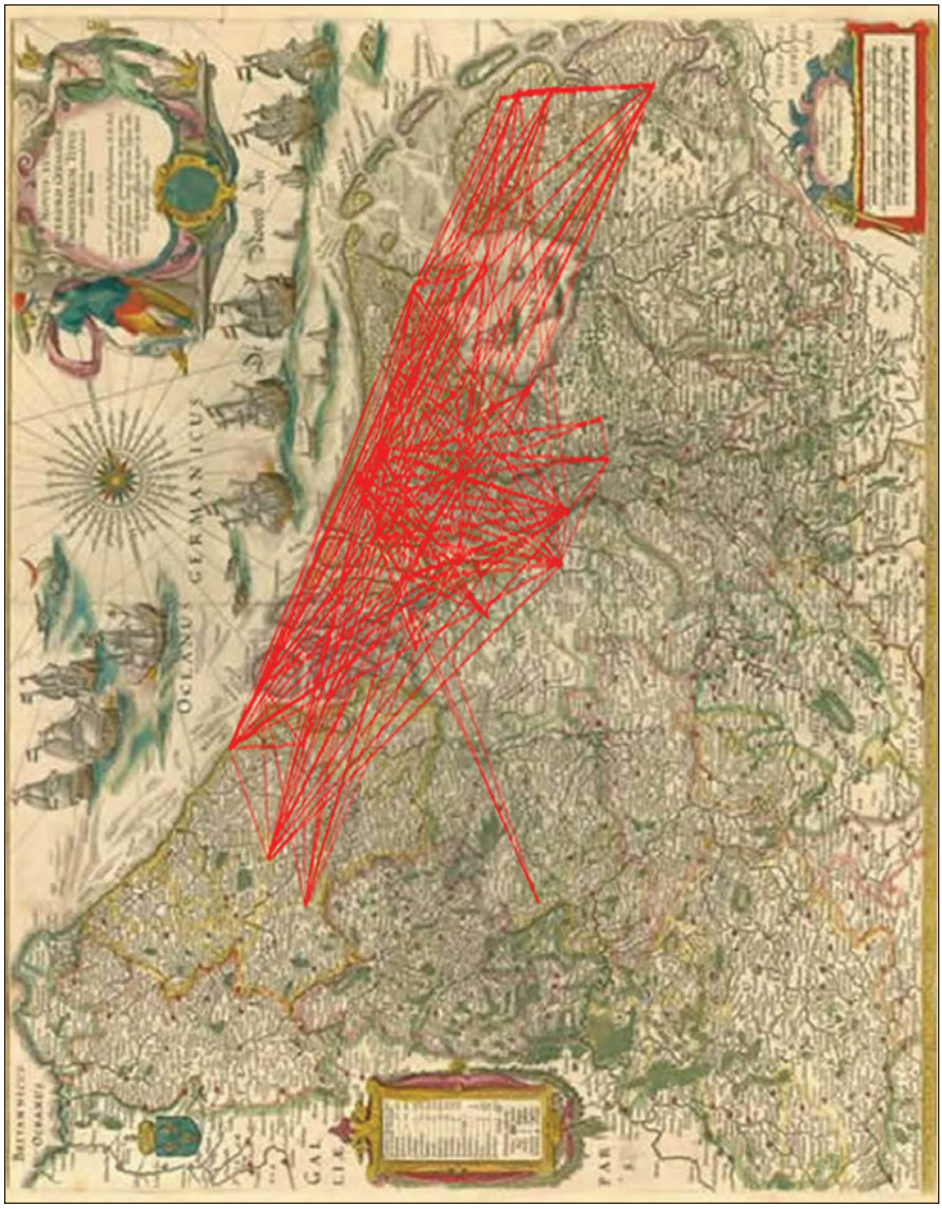
[35] Gerrit Jan Peltjes, *Leidse Lasten: Twee Belastingskohieren uit 1674* (Leiden: Nederlandse Historisch Data Archief, 1995). Ten were located in *Over 't* Hof, eight in Zevenhuizen. The other eighteen were scattered throughout 12 other districts.

[36] Theo Bogels and Paul Hoftijzer, *David and Felix Lopez de Haro (1627–1694): Boekverkopers op het Rapenburg over de Academie* (Leiden: Leiden University Library and Sir Thomas Browne Institute, 1985), 8.

[37] S.R. Epstein, "Craft Guilds, Apprenticeship, and Technological Change in Preindustrial Europe," *Journal of Economic History* v. 58 n. 3 (1998), 701. For new ideas about guild functions in the Netherlands in particular, see Maarten Prak, Catharina Lis, Jan Lucassen, and Hugo Soly,ed. *Craft Guilds in the Early Modern Low Countries: Work, Power, and Representation* (Aldershot: Ashgate, 2006).



Map 5. Book Sale Auction Catalogue Holders, 1660–1672 (Amsterdam removed)

benefits of clustering might explain the persistence and apparent prosperity of so many middling to small firms such as Lopez de Haro's in such a wide dispersion across the very small world of the early modern Netherlands.

Finally, there exists a tantalizing, but unproven and perhaps unprovable, potential for this network system to explain much more. The term social capital describes the benefits that accrue from social interaction and engagement including social trust, civic engagement, enforcement of values, and democratic processes. If the Dutch could create such fluid networks for sharing information and exchanging books, could they also not create networks for all of these things as well? The ability to create complex, interlocking social networks might even be an important step in explaining why the Dutch economy, and even Dutch society and government, functioned so cohesively throughout the early modern period, despite the near-total lack of a centralized government. As Wayne Te Brake suggests in *Shaping History*, political decision making in the early modern Netherlands, perhaps not unlike economic decision making, was the result of hundreds or thousands of smaller, face-to-face negotiations.[38]

Social networks, as Paul McClean points out, are neither static nor self-sustaining, and require continuous and strategic management to bear fruit.[39] This study suggests a society and a culture that fostered not only their development but their continuous and creative utilization, a dimension that GIS-generated network maps do not and likely cannot supply. Even a more nuanced understanding of the function and existence of such networks will not provide a panacea that explains all of the complexities and questions that arise in the history of this remarkable place, but it would seem that the plucky Dutch purveyors of books exchanged more than just books along the black lines of the GIS maps and that the theories developed by network economists provide a potentially useful explanatory bridge in reconstructing the social, mental, and economic worlds of the early modern Netherlands.

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[38] Wayne te Brake, *Shaping History: Ordinary People in European Politics 1500–1700* (Berkeley: University of California Press, 1998), 5.

[39] Paul McClean, *The Art of the Network: Strategic Interaction and Patronage in Renaissance Florence.* (Durham, NC: Duke University Press, 2007), 226.

HOARE'S BANK IN THE EIGHTEENTH CENTURY

Peter Temin and Hans-Joachim Voth[1]

England's "Financial Revolution" after 1688 has been analyzed largely from the perspective of public finance. At the same time a number of firms made the mythical transition from goldsmith to banker. Only a few of them prospered and survived for a long time. This paper describes the actions of a successful London bank, providing information as well on the operation of the London financial market in the eighteenth century.

This paper builds on the foundations laid by fundamental contributions of Jan de Vries. Two central questions of his work have been the success of Holland in its Golden Age and the subsequent Industrial Revolution in England. We draw on both. The financial innovations that are the basis of our study were imported to England from Holland after the accession of William to the English throne. Hoare's Bank developed in the context of English adaptations of Dutch banking practices. Our story continues into the late 18th century, providing an alternative view into the Industrial Revolution that Jan has illuminated for us.

Hoare's Bank was and is a private bank just steps from the Strand and the London School of Economics. It was founded by Richard Hoare, a goldsmith who moved to Fleet Street in 1690 to complete the transition from all-purpose jeweler to banker he had started earlier. Hoare's Bank today is an independent private bank operating from the same Fleet Street address and serving a selected group of customers, some of whom have been with the bank for many generations, even if not since 1700. This paper chronicles the first century of the bank's life and tries to explain its almost unique success.

These were tumultuous years for Londoners involved in finance. The Glorious Revolution of 1688 brought a new level of fiscal reliability and government credibility to England that provided a base on

[1] We thank the partners at Hoare's Bank for their generosity in allowing us access to their well-kept archives. All data come from the archives, as does the ledger page. The other pictures come from Fleet Street and the company history.

which the London financial market could grow. King William brought with him continental military ambitions that involved England in a series of expensive wars. He also brought with him Dutch bureaucrats who introduced practices they knew about before 1688 to allow William to finance his martial ambitions.

Authors from Ashton to Ferguson have noted the apparent high elasticity of savings in 18th century England.[2] The government was able to borrow to finance its military adventures without causing interest rates to rise excessively and without causing French-style crises—or without the crippling effects of war finance seen in Italy and the Netherlands. While the literature has tended to focus on the government's ability to borrow, it contains the corollary that individuals could borrow as well. Particularly when the country was at peace, the financial market that furnished resources to the government must have been able to supply financial resources to private individuals. Joslin articulated this position in a survey of private banks in London, arguing that the private banks loaned domestically, while quite separate merchant houses provided credit for trade.[3]

We argue that Hoare's Bank succeeded where most fledgling banks of the early eighteenth century failed for several reasons. The Hoare family spent a long time learning the business, capped by making a killing in the South Sea Bubble of 1720. After this investment of time and foregone earnings, the bank began to grow in a very conservative way. Hoare's chose its clientele with care to reduce the risk of lending, and it kept very high cash reserves to reduce risk even more. The bank's conservative strategy increasingly consigned it to a niche of the banking market and made it impossible for the Hoares' to rival the Rothschilds, but it did ensure the continuation of the bank. The ability of the family to generate new partners of the Hoare's line ensured that the bank would remain, as it is today, Hoare's Bank.

Richard Hoare began his goldsmith and banking activities in 1672. He moved to Fleet Street, quite near the Strand, in 1690 to concentrate on banking to a West End clientele. Banking was and is done at 37

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[2] T.S. Ashton, *The Industrial Revolution* (London: Oxford University Press, 1948); Niall Ferguson, *The Cash Nexus: Money and Power in the Modern World, 1700–2000* (New York: Basic Books, 2001).

[3] D.M. Joslin, "London Private Bankers, 1720–85," *Economic History Review* 7 (1954): 167–86.

Merchant banks are described in Larry Neal, *The Rise of Financial Capitalism* (Cambridge: Cambridge University Press, 1990).

Fleet Street at the sign of the golden bottle (Figure 1), which advertised the bank's presence in the days before streets were numbered. The first banking balance sheet that has survived dates from 1702, by which time Hoare's transition from goldsmith to banker was almost complete.[4] If there was a separate goldsmith operation, it kept separate books that have not survived, and it is not considered further here.

Richard Hoare appears in his portrait as a fine Jacobean gentleman (Figure 2). He ran a full-service jewelry store which involved rendering many services to the aristocracy and other rich Londoners in addition to selling and repairing jewelry. In 1694, for example, Hoare billed the Earl of Derby for various services, including new coloring for and mending a coronet, lining a cap with fur, six pounds of coffee berries, and a "crooked wooden handle." Foreshadowing his nascent career as a banker, Hoare also charged the Earl interest on a one-month loan.[5]

Richard took one of his sons, Henry, into partnership in 1702, at the time of the first extant balance sheet. He represented the City of London in Parliament as a Tory from 1709 to 1713 and was elected Lord Mayor of London in the latter year.[6] He continued active in the bank until his death in 1718, when he was replaced as partner by a younger son, Benjamin. Henry died in 1725, and he was replaced by one of his sons, also named Henry, and—after five years—by another, younger son named Richard. These few members of the Hoare family ran the bank for the first half of the eighteenth century.[7]

As noted already, the Glorious Revolution of 1688 set in motion far-reaching changes in the English financial system. Prior to this, English banks exclusively dealt with foreign trade, lending to the tight community of international merchants, and the needs of royalty. At the end of the seventeenth century, goldsmiths began to offer credit to ordinary citizens of London, but their history was uneven. There were fewer than 25 of them by 1725 and not even 50 by mid-century. The total number of London banks appears to have fluctuated around fifty for the rest of the century with a high degree of turnover. Outside of London, banks were rare for most of the eighteenth century, although

[4] Henry P.R. Hoare, *Hoare's Bank, A Record 1672–1955: the Story of a Private Bank* (London: Collins, 1955).

[5] Hoare, *Hoare's Bank*, p. 9.

[6] Hoare, *Hoare's Bank*, p. 19.

[7] They also had a "salaried partner" after 1725, John Arnold, a son of one of the first Richard's journeymen. Hoare, *Hoare's Bank*, p. 5.

Figure 1. The Sign of the Golden Bottle

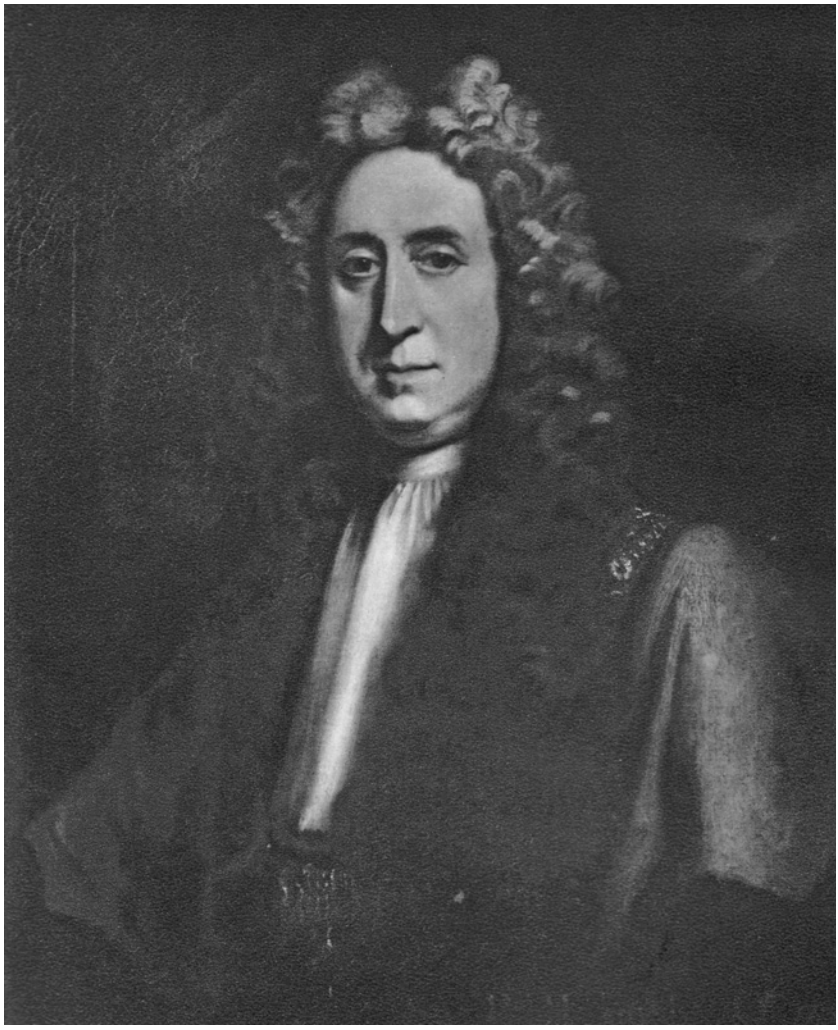

Figure 2. Richard Hoare

several merchants provided banking services. Only at the end of the eighteenth century is it possible to talk of English banks spreading outside London to any substantial degree.[8]

These goldsmith-bankers needed to learn how to operate as banks, an activity that differed quite sharply from being a goldsmith. This was not an easy process, which may account for the high rate of turnover among these banks. Hoare's was one of the most successful: As Joslin said, "It rapidly became one of the great banks for the aristocracy and gentry." It was joined by Child's Bank which operated quite similarly, albeit more closely with the government as a Whig bank. Gosling's Bank, Coutts Bank, Herries Bank, and others also began operations in the early eighteenth century, but less information about them has survived.[9]

The presence of even a few banks appears to have made London a more advanced credit market than Paris, where domestic finance was dominated by notaries, but the difference is not at all clear. English usury rates prevented London banks from using a potent tool, different interest rates, to provide flexible credit. Usury laws restricted the maximum rate of interest that could be charged in England to five percent for the rest of the century after the usury limit was reduced from six percent in 1714. Usury laws in France imposed the same five percent limit. A recent study of the Paris notaries describes the French credit market as a priceless market—meaning without variable prices rather than very expensive—and the London credit market was similar. Faced with a risky prospective borrower, a London banker or a Paris notary could only decide to arrange a loan or not; he could not raise the interest rate in response to the added risk.[10]

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[8] Joslin, "London Private Bankers," p. 173; L.S. Pressnell, *Country Banking in the Industrial Revolution* (Oxford: Clarendon Press, 1956); Liam Brunt, "Rediscovering Risk: Country Banks as Venture Capital Firms in the First Industrial Revolution," *Journal of Economic History*, 66: 74–102 (March 2006).

[9] Joslin, "London Private Bankers," pp. 176–79 (quote on 176); Peter Temin and Hans-Joachim Voth, "Banking as an Emerging Technology: Hoare's Bank, 1702–1742," *Financial History Review*, 13 (October 2006), 149–78; Stephen Quinn, "The Glorious Revolution's Effect on English Private Finance: A Microhistory, 1688–1705," *Journal of Economic History*, 61 (September 2001), 593–615.

[10] "From 29th Sept. 1714 Interest upon Loan of Money, &, at above the Rate of 5l. per Cent per Ann. Not to be taken." An Act to reduce the Rate of Interest without any Prejudice to Parliamentary Securities. 13 Anne c. 15. *The Statutes of the Realm: printed by command of His Majesty King George the Third* (London: Dawson's, 1963), vol. 9, p. 928; Philip T. Hoffman, Gilles Postel-Vinay, and Jean-Laurent Rosenthal. *Priceless Markets: The Political Economy of Credit in Paris, 1660–1870.* (Chicago: University of Chicago Press, 2000); Peter Temin and Hans-Joachim Voth, "Private Borrowing during the Financial Revolution," *Economic History Review*, 61 (August 2008), 541–64.

The effect of the English usury law appears even in aggregate data. When England went to war, as it did frequently during the eighteenth century, banks could not raise their interest rates to compete with government bonds. Depositors transferred their funds to government bonds in an early case of financial disintermediation. The government thus periodically crowded out domestic investment. The most important and possibly devastating example came at the end of the century during the contemporaneous occurrence of the Industrial Revolution and Napoleonic wars.[11]

Hoare's Bank therefore grew during its first century in a restricted and regulated environment. The bank had first of all to learn how to operate a new activity, providing domestic credit, in competition with other fledgling goldsmith-bankers. The bank then had to contend with the restrictions imposed on banking activities by the usury laws. Hoare's Bank flourished in this setting by adopting a clear business strategy that is evident in its loan policies. This plan was to operate conservatively, as shown in the bank's investment strategy as well as its loan policies. The result was a steady expansion through most of the 18th century, after an initiation period ending with the South Sea bubble of 1720.

Loans

Hoare's Bank held deposits and extended loans, as banks do. While merchant banking was an old trade, there were almost no banks holding deposits of private individuals—that is, people who were neither merchants nor kings—and extending loans to other ordinary people around 1700. Richard Hoare started out life as a goldsmith and then tried his hand at this new activity. This was a time of great ferment in the London financial market, and Richard Hoare was only one of several putative bankers in the early 18th century.

The bank recorded all its transactions in a day book. This sequential list of actions did not differentiate between the various financial transactions performed by the bank. For example, the bank regularly cashed bills for people, some of whom had deposits already and some

[11] T.S. Ashton, *Economic Fluctuations in England, 1700–1800* (Oxford: Clarendon Press, 1959); Peter Temin and Hans-Joachim Voth, "Credit Rationing and Crowding Out during the Industrial Revolution: Evidence from Hoare's Bank, 1702–1862," *Explorations in Economic History*, 42 (July 2005), 325–48.

of whom did not. If the bank gave bank notes for the bill, then this was a completed transaction. If the bank delayed providing the cash until the customer needed it, then the bank held a deposit from this customer. Such deposits were totaled only once a year in conjunction with the depositor, and it is hard to identify the depositors at any moment of time. The resources of the bank were used to make loans, which were copied into a separate loan register. This register provides information that can be used to track the bank's progress and clientele on the asset side of its balance sheet.

The bank reported loans in its register using two pages at a time. Debits were listed on the left-hand page and credits ("per contra") on the right-hand page. Each page was ruled into several sections in advance, into which a single transaction was recorded. A sample loan register entry/page from mid-century is reproduced in Figure 3. Only the simplest transactions, however, consisted of a loan and repayment. The fixed space often contains records of multiple payments and receipts that were organized by the bank as part of a single transaction. The modern experience where interest is paid either regularly or at the end of a loan, signified by a single repayment of principal, describes some, but by no means all, of the bank's loan activities. After the middle of the eighteenth century, the bank also began to compile separate lists of loans made, in chronological order, thereby facilitating oversight of the lending process.

An example of Hoare's banking activities is given by the complete account of Margaret Lightborn, extracted from several ledgers and shown in Table 1. (Note that January 1701 followed December 1701; the year began at that time on March 25.) Credits and Debits in the Customer Ledger were entered as the opposite in the Daily Cash Book. The initial credit to Margaret Lightborn on April 16 was entered as a debit in the Daily Cash Book. The initial deposit was a liability to Hoare's and a credit to Lightborn; when she withdrew money, this diminished her account and also Hoare's liabilities. Lightborn was a depositor in Hoare's Bank. She did not earn any interest, leaving her funds in the bank for the benefits in making transactions, much as people hold bank deposits today. She did not have a deposit at Hoare's for very long, which is why it is easy to show her account from beginning to end.[12]

[12] The account appears to be in very round numbers, but a clerk's interpolation in the Daily Cash Book on September 16 reveals that 200 was the sum of 112.2 and 87.8 with unreadable identifying notes.

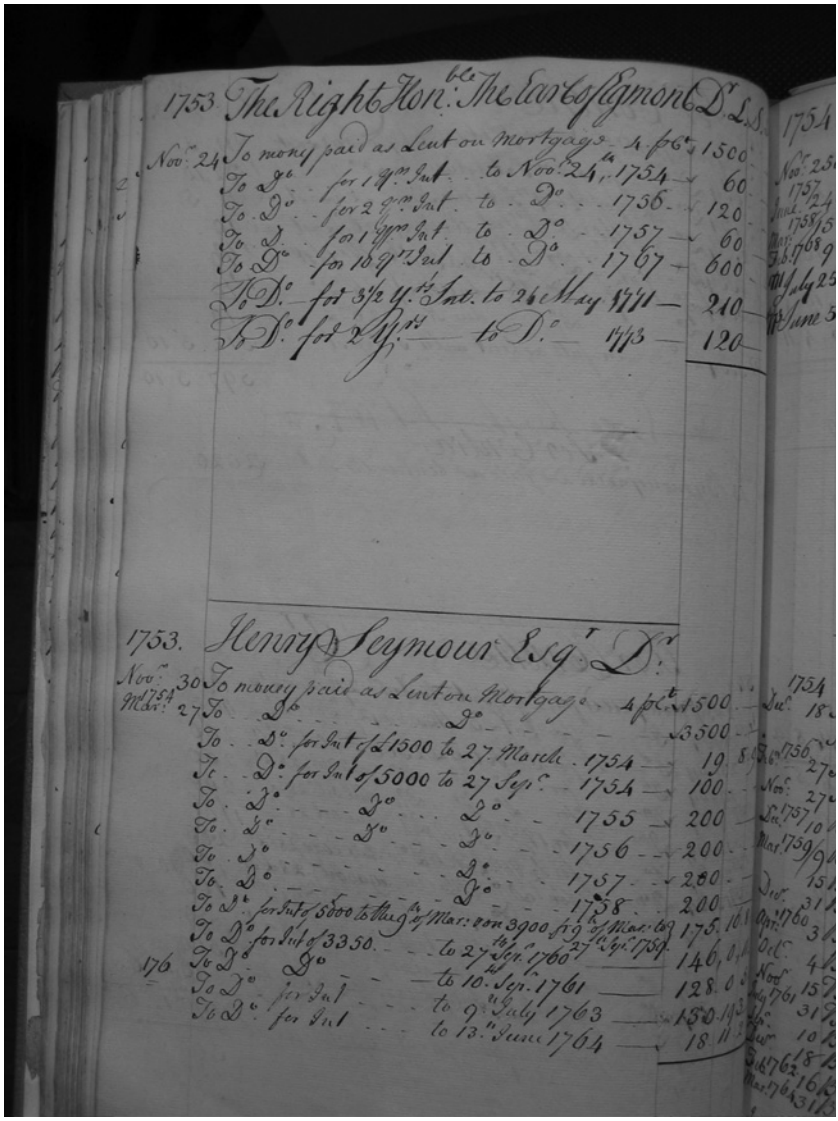

Figure 3. Page from the Loan Register of Hoare's Bank

Table 1. The complete account of Margaret Lightborn at Hoare's Bank in 1701 (in Pounds)

April 16, 1701	Credit: By money and note	220
April 16, 1701	Debit: to part of 220 this day	20
June 27, 1701	Debit: to [unreadable], ditto	200
September 16, 1701	Credit: By bill on John Walton or Waters	200
January 31, 1701	Debit: To my note of 16 September	200

Hoare's Bank used the funds deposited in the bank to make loans. The bank clerk recorded loans in the following order. First, the loan itself as a debit. Then repayments as credits. Finally, an entry on the debit side for the interest, seen as a claim by the bank on the borrower, which enabled the debits and credits to agree. The rate of interest was not recorded when the loan was extended, nor was the term of the loan as far as we can see. The interest recorded in the register therefore represents an *ex post* account of interest received, not an *ex ante* expectation of interest that would be owed. This mode of record may have been a result of the usury law that restricted interest to six percent before 1714 and five percent thereafter. As we will show, the interest rate charged did not differ much from the usury limit.

The bank made a distinction between loans at interest and loans without interest in its balance sheets, but they all were entered sequentially in the loan register. This raises the possibility that the interest rate, or lack thereof, was decided at the end of the loan, perhaps by the borrower's ability to pay. This happened in loans that we would call defaulted loans, that is, loans of long duration which were paid finally by selling the collateral (typically, jewelry or other items made of precious metal) or by transferring the loan to Richard Hoare. It is unlikely that it happened more generally for two reasons. First, many loans had similar interest rates, suggesting a standard rate known to both borrowers and lender. Second, it is hard to think how Hoare's Bank could have operated without an expectation of the return on investments. This was not a charity; it was a bank. Most loans were extended at a uniform interest rate. Aristocratic borrowers were identified as such in the loan register, but they were recorded sequentially with other loans. Aristocrats may have had easier access to credit in general, but they did not get segregated into a separate account. London had become sufficiently egalitarian by 1700 for aristocrats and commoners to use the same bank in the same way, provided they qualified to become clients at Hoare's.

A typical set of payments entered in the loan ledger reads as follows: On April 1st, 1700, John Egerton, Esq. borrowed £200, using plate as collateral. He repaid on the 22nd of October in the same year, with principal and interest amounting to a total of £206 s.10. Between 1700 and 1702, John Egerton took out two more loans, both also for £200, which he repaid within less than a year. Sometimes, both principal and interest were paid simultaneously; occasionally, interest was paid separately. John Austin borrowed a total of £800 in 1698, offering mortgages on houses as a security. In January 1699, he was charged £24 for 6 months' interest, equivalent to an annualized interest rate of exactly 6 percent. John Austin remained in debt with Hoare's until April 1711, when he repaid all interest and principal—having serviced the debt through frequent (but not regular) payments of accumulated interest and repayments. In addition to the original £800, John Austin borrowed another £789 before all his debts with Hoare's were cleared.[13]

The bank lent against a wide range of collateral, ranging from a sword hilt to diamonds and plate, from mortgages to bonds, and from Westphalian ham to Tuscan wine. If a client defaulted, the security deposited in exchange for the loan was often sold. On the 29th of June, 1706, for example, a Lady Adams received a loan of £180 in exchange for diamonds and a diamond necklace. One year later, on the 21st of May 1707, Hoare's sold the necklace, for £80. Eight days later, the rest of the loan was paid off in full, with interest, yielding proceeds of £185 s.10 for the bank (equivalent to the full principal, plus interest equivalent to an annual rate of 6 percent). Not all of these transactions turned out as well for the bank. Its expertise in valuing jewelry and plate made it relatively simple to protect itself against having to write off a loan's principal. Interest due appears to have been another matter. The long lags between the original loan and the eventual decision to sell the collateral often caused the return to be paltry: Madam Dorothy Kennett, for example, borrowed £10 against candlesticks in 1687. It was not before 1709 that Hoare's decided to sell them, netting the bank £10 s.12 d.6—equivalent to an annualized percentage rate of 0.7 percent. Overall, defaults were astonishingly rare (11 out of 877 loans). Where they occurred, the vast majority in our dataset (10 out of 11) involved lending against jewellery, gold, silver, or plate.

[13] One of these is against collateral, the other (the last one) is not.

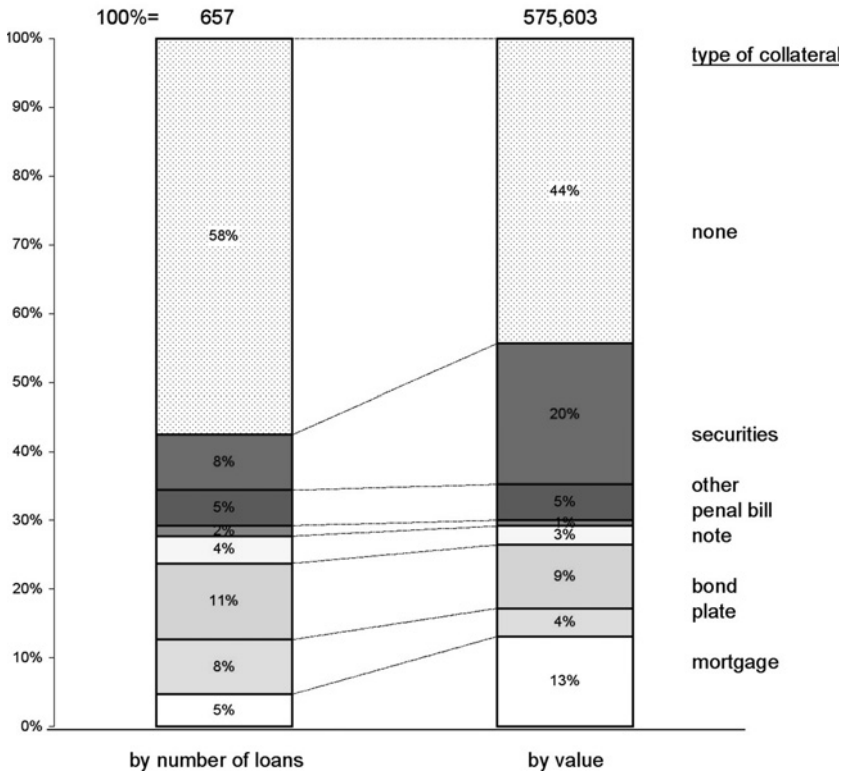

Figure 4. Loans at Hoare's Bank

Figure 4 shows the number of loans and their value, by type of security offered. Transactions without collateral typically were relatively small, with an average value of £676. Securitized loans were almost twice as large: £1,147. Within that group, mortgages and securities record particularly high values, with average loan amounts over £2,000. Loans without collateral were repaid after an average 556 days, whereas mortgages recorded an average duration of 2,017 days. Repayment periods could be as long as they are on some modern contracts. The Marquis of Winchester, for example, borrowed £3,000, and only repaid after some 14 years. Legally speaking, however, mortgages had a six-month term, and could be recalled by the lender after that.

The figure does not reveal some of the striking changes that occurred in the first decades of the eighteenth century. In the years before 1710, mortgages were the single most important security offered, accounting for approximately one third of collateralized lending. Securities were

also popular, and their importance grew significantly after 1710. Over half of all lending secured through assets held by the bank was in the form of securities in the years 1710–1721, partly no doubt because of the bank's role in the market for South Sea stock and other speculative securities.

Loans without interest appeared alongside all other transactions, as part of the continuous records of transactions with all customers. In some cases, these loans were clearly designed to help overcome a temporary cash shortage. The median duration of an interest-free loan was 64 days—though the maximum recorded was in the case of William Dobbs, who borrowed £40 in 1707 and only repaid in 1715. In a more typical case, on April 14th, 1699, Madam Elizabeth Gough received £10, leaving candlesticks as collateral. According to the loan ledger, she returned the next day to repaid the loan. Other transactions appear more puzzling to the modern historian's eye. Ann and Catherine Goare borrowed £20 in August 1698, and repaid £20 s.8 in December (equivalent to an APR of 6.3 percent—Hoare's evidently aimed to charge them 6 percent interest). In February of the next year, the two Goares borrowed again, for the same amount, leaving the same type of collateral—a bond—and repaid some nine months later. This time, however, there was no charge for interest. The motivation for this sequence of transactions is unclear.

The evolution and the payment details of non-interest bearing loans at Hoare's casts doubt on Quinn's interpretation of them at Child's, a rival London bank.[14] He argued that these loans contained hidden interest charges, in an effort to circumvent the usury laws that limited the maximum interest rates that could be paid. In effect, according to this interpretation, the Goares would have actually only received a fraction of the second £20, and then had to repay in full. We find no evidence to support this hypothesis in the records of Hoare's Bank. Given that the bank had just completed a successful transaction with the Goares, receiving its money back on time and with interest, what possible reason could there have been to want to charge a higher interest rate? Also, it recorded loans with interest separately from other loans on its annual balance sheet, again suggesting that these were not interest-bearing. Finally, in those years when the annual balance sheets

[14] S. Quinn, "The Glorious Revolution's Effect on English Private Finance: A Microhistory, 1680–1705." *Journal of Economic History* 61 (2001): 593–615.

recorded interest received separately, these must refer to "loans against interest"—otherwise, the ratio of interest received to loans outstanding would suggest that loans were charged at below the usury rate. In 1741, for example, Hoare's Bank recorded £15,775 in "interest on ditto" (referring to the item "by several persons as lent with interest", for £298,983), suggesting an effective yield of 5.3 percent. Given the interest rates (of 5–6 percent) charged and recorded, this seems plausible. If the other loans (recorded without interest) actually resulted in effective interest rates above this rate, and interest income on these was counted in the total, all lending at Hoare's would have effectively yielded much less than 5 percent for the firm—and even less than that on its normal loan transactions. This does not seem probable, since the lending rates that the account books documented for the period are very rarely below 5 percent. The reason why the yield on individual loans (and on average) can be slightly above the usury rate is that on loan durations of less than one year, the lack of compounding was actually to the bank's advantage—producing higher effective interest rates. Thomas Pritchard, for example, borrowed £500 from Hoare's against South Sea stock in 1718, and repaid a little more than six months later. The effective annualized interest rate on this transaction, as recorded in the loan ledger, was 5.9 percent; it seems relatively likely that the bank was aiming for a 5 percent charge, and generated 'too high' a yield as a result of accounting practices at the time.

Average interest received for loans, showing both the average of interest-bearing loans and all loans, is shown in Figure 5. The reduction in the usury rate from 6 to 5 percent in 1714 shows up clearly in the returns at Hoare's. Before 1714, there were limited differences among the returns, making the average generally under 6 percent. After 1714, Hoare's Bank appears to have loaned at a consistent 5 percent. Credit was rationed at the usury rate, cutting off some groups of borrowers when supply conditions were tight. The information contained in average loan rates on contracted loans therefore is of dubious value as an indicator of scarcity, casting doubt on the alleged effects of the Glorious Revolution on the cost of private credit.[15]

[15] Douglass North, and Barry Weingast. "Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England," *Journal of Economic History* 49 (1989): 803–32.

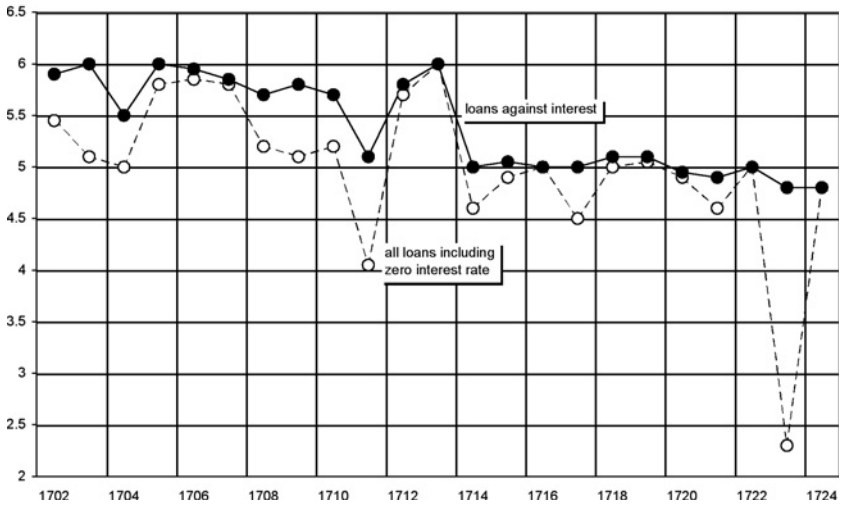

Figure 5. Two "Average" Interest Rates, Hoare's 1702–25

While not keeping separate ledgers for clients belonging to the nobility, the clerks at Hoare's were meticulous in recording the titles and positions of their clients. Whether in the case of Lady Charlotte de Roye (borrowing £50 on a "yellow brilliant diamond ring") or the Hon. Brigadier Hastings, the exact position was recorded in the ledger. Even in its early days, Hoare's list of clients was as blue-blooded as any bank could wish. In the years before the South Sea Bubble, it included *inter alia* Sir Samuel Barnadiston, governor of the East India Company, John Beaumont, geologist and Fellow of the Royal Society, Brooke Bridges, chancellor of the Exchequer, Sir William Booth, commissioner of the Navy, a bishop of Chichester, a director of the Bank of England, Sir Thomas Davies, Lord Mayor of London, the Countess of Dochester, and Edmund Dunch, the master of the Royal Household. The clerks also scrupulously noted changes in social position—when Charles Boyle started to do business with Hoare's in 1694, he was entered as "The hon., esq.". When he came in for another loan in 1699, the clerk noted "now Earl of Burlington" in the account ledger. Customers with a title—those entered as Sir, Lord, Earl, or Duke—entered into a total of 124 loan transactions between 1702 and 1724. They borrowed more than commoners—the average loan against interest amounted to £1,066 for those with high titles, and to £852 for those without them. Earls and Dukes, Sirs and Lords also repaid much later. Average loan duration for noble borrowers was 1,382 days, compared to 743 days

for ordinary customers. This implies that, for every given customer, Hoare's lending and loan exposure to those with a title at any one point in time was more than twice as large as to those without.

Many customers engaged in more than one transaction with Hoare's. In the first quarter of the eighteenth century, there were 570 transactions with customers who entered into more than one loan agreement or the like with the bank, and 407 individuals who were only mentioned once. Repeat customers borrowed slightly higher amounts against interest (£864 vs. £820), and they received more than twice as much when the bank lent at zero interest (£500 vs. £249). The type of accounts kept in the loan ledgers were identical for partnerships, for large companies (such as the East India Company), and for the Exchequer. Partners at the firm, as well as their family, borrowed freely, and they sometimes paid interest.

Lists of customers compiled at Hoare's do not differentiate between customers of the goldsmith's business and the lending side. Overall, the acquisition of new clients seems to have been relatively rapid in the early eighteenth century (Figure 6). In the first decade, the bank was adding close to 100 customers per year. It slowed down markedly in the following decades, dropping to less than half the earlier rate. As Richard and Henry Hoare began their operations in the West End of London, they naturally began to establish themselves with a new clientele. We cannot know how many of these were Richard's old goldsmith customers, but we presume that at least some were. It is noteworthy that most of these new clients were people without a noble title; the number of aristocratic clients did not change much in these early years. The result of the increasing stability of Hoare's client base was the increasing share of it composed of aristocrats.

Hoare's Bank therefore was set into its successful pattern soon after the South Sea Bubble. Having made the founding family rich by the standards of the time, it adopted a very conservative stance in two ways. The bank kept very high cash reserves, presumably to avoid being caught in a credit crisis like that of 1720. As shown in Figure 7, the bank became even more conservative, that is, held more cash, after 1720. It also increasingly loaned money to a stable set of rich and sometimes titled Londoners that uniformly repaid their debts. These cautionary policies may appear overdone in retrospect, but they enabled Hoare's Bank to survive far longer than most private London banks. These policies also enabled the Hoare family to earn consistently high returns on their invested capital and use their earning as consumption rather than added reserves.

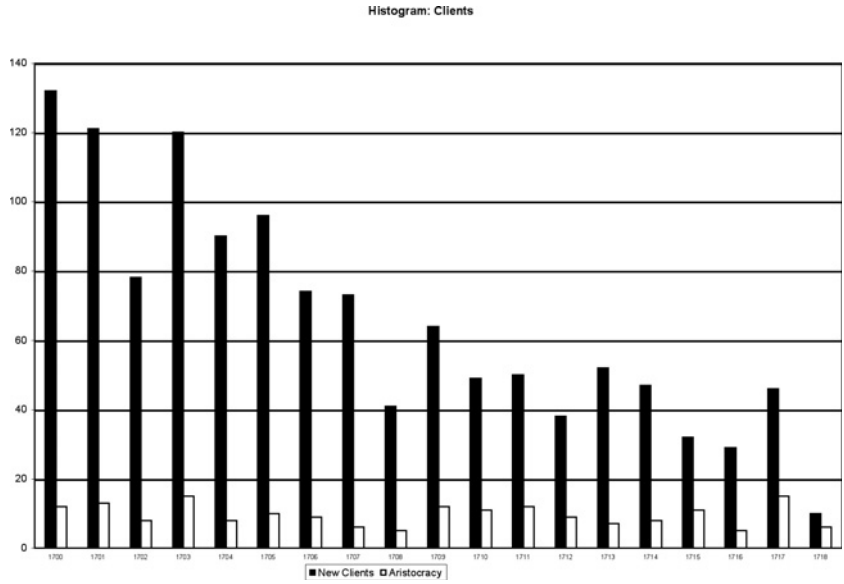

Figure 6. Hoare's Clients

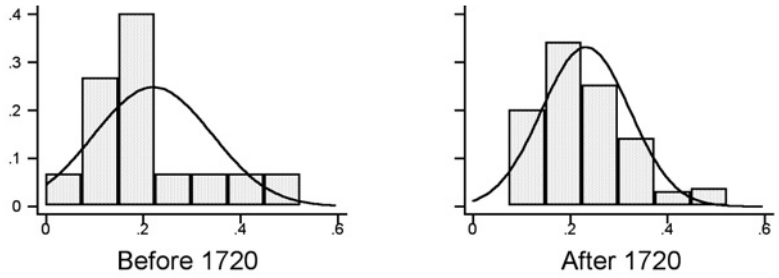

Figure 7. Distribution of cash ratios on Hoare's balance sheet, before and after 1720

Caution was also key in its lending policies. The bank's first century coincided with an unusually bellicose period in England's history. To avoid the dangers of sudden deposit withdrawals, loans were often called in as soon as war broke out. New lending was restricted, often at some cost to the bank's goodwill amongst its customers. In 1793, for example, after the outbreak of war with France, the bank had loans outstanding to the value of £427,620. It received repayments of £59,489, or 14% of the starting balance. It made new loans of £700, or 0.16% of the starting balance. In the 10 years before, the bank had on average engaged in fresh lending for £89,381 (24% of the starting balance).

Hoare's Bank also refined its bookkeeping over time. At the start of the bank, loans were recorded as credits. Then all repayments of principal and interest were recorded as debits. When the transaction was complete, the principal loaned was subtracted from the sum of repayments to provide another credit entry that balanced the books and showed the interest paid. By mid-century, the bank had progressed to entering interest as both credits and debits. Then the two sides of the ledger could be added up to make sure they balanced, providing a better check on the clerks. In line with this pattern of improvement, the bank introduced compound interest in its calculation of charges around the middle of the 18th century.

Investment Services

Hoare's Bank executed trades for its customers, buying and selling shares and bonds in Exchange Alley. In addition, it collected dividends and coupon payments on their behalf. We have no evidence that the bank traded ahead of its well-connected customers, but at a time when insider trading was not seen as a crime, it is hard to rule this out. We can be reasonably certain that the bank's success during the South Sea Bubble did not owe much to information derived from customers.[16] Overall, brokerage appears to have been a relatively small part of the bank's business.

Hoare's Bank entered its own investment in bonds and shares in the loan ledgers in the same way as loan transactions with clients, booking investments in securities on the debit side and the proceeds from sales on the credit side. In addition to trading on its own account, the firm also purchased securities for its clients. At the time when speculation in South Sea stock reached fever pitch, new—and often fraudulent—companies sprang up everywhere. In addition, the share price of old-established institutions such as the Bank of England and the East India company rose markedly, if less than in the case of the South Sea Company.[17] For example, Hoare's purchased 2,000 shares in the African company in May and early June, at approximately 40

[16] Peter Temin and Hans-Joachim Voth, "Riding the South Sea Bubble," *American Economic Review*, 94 (2004), 1654–68.
[17] Neal, *The Rise*.

pence each, for a total cost of £900.[18] From late June onwards, the firm sold its holdings at up to 128 pence each, receiving a total of £2,460 in the process—for a net gain of £1,560, equivalent to 173 percent over two months.

We can understand Henry and Benjamin Hoare's investment strategy from the dual role as bankers and investors. They were consistently conservative in their approach. In the South Sea Bubble, they bought early and held on to their investments in large part. They clearly knew that a bubble was in progress, because they loaned to other speculators at increasing discounts from the market price of South Sea stock, and they entered their holdings of South Sea stock in their annual balance sheet at a value considerably below the market price at the time. Hoare's sold a large quantity of shares relatively early, after the initial run-up in prices when Parliament decided to award the conversion contract to the South Sea Company. It then continued to buy for some time and sold near the peak, as well as selling smaller quantities after the crash.[19] This cautious strategy was adopted for the bank as well; it assured that the bank did not fail in the aftermath of the bubble, and it preserved the bank thereafter. Hoare's success in the bubble reminds us that even cautious investors and bankers can and will seize profit opportunities open to them, possibly adding to the instability of financial markets. Important as Hoare's profits from the proprietary trading were during the South Sea Bubble, however, this was not a regular source of income.

After the Bubble burst, in November 1720, the bank had earned profits of £27,000. This was an admirable achievement when people like Newton were losing money, and it provided a good base for the bank. Not all of the earnings went into the bank, however. The first Henry Hoare bought Stourhead in Wiltshire at this time. Many observers have argued that the profits from the South Sea bubble were immediately put to use in this purchase; while money is fungible, the additional influx of capital clearly facilitated the acquisition of such an

[18] On the history of the Royal African Company, see Ann Carlos, Jennifer Key, and Jill Dupree, "Learning and the Creation of Stock-Market Institutions: Evidence from the Royal African and Hudson's Bay Companies, 1670–1700," *Journal of Economic History* 58 (1998): 318–44.

[19] Temin and Voth, "Riding."

extravagant estate. His son Henry planted gardens in the 1740s that are still famous today.[20]

Growth of Total Assets

While loans were the principal activity of the bank and the largest category of its assets, we need to place them and other activities in the context of the bank's total assets. The bank's total assets fluctuated strongly from year to year in the first two decades of the eighteenth century, reflecting the short-term nature of many loans and of deposits, as well as varying levels of capital committed to banking activities by the partners at Hoare's. They are shown in Figure 12 up to 1742, with only a few missing balance sheets during the South Sea Bubble. In the first years after the "initial" accounts were drawn up, Hoare's assets fluctuated without exhibiting any positive trend. For Hoare's Bank, 1720 marked the turning point toward better times. The bank's balance sheet started to grow steadily, aside from a large positive deviation from trend in 1727/28. Richard kept the bank going in these early uncertain years, but it was his sons and grandsons that set the bank on an expanding path.

The oldest surviving balance sheet from 1702 showed Hoare's assets with a total value of £146,364 in 1702. Some 22 percent were held in cash. Customers borrowing for plate were a highly significant part of the first surviving balance sheet, constituting 30 percent of all assets. The largest single category was loans against interest (as well as money lent for securities purchases), for a total of £55,852, equivalent to 38 percent of the balance sheet. Loans bearing no interest (but not for plate) were very rare initially, accounting for no more than 3 percent. They rose quickly at the start of the new century, reaching a peak of 37 percent of assets in 1706 and declined steadily thereafter. The firm extended 62 loans without interest in 1704; by 1721, there were only 13 transactions in this category.

Almost immediately after the first preserved balance sheet was finished, Hoare's sharply reduced its lending to customers from its goldsmith business. During the years before 1720 as a whole, only 4 percent

[20] Marvin Trachtenberg and Isabelle Hyman, *Architecture, from Prehistory to Post-Modernism* (Englewood Cliffs, NJ: Prentice-Hall, 1986), pp. 403–404.

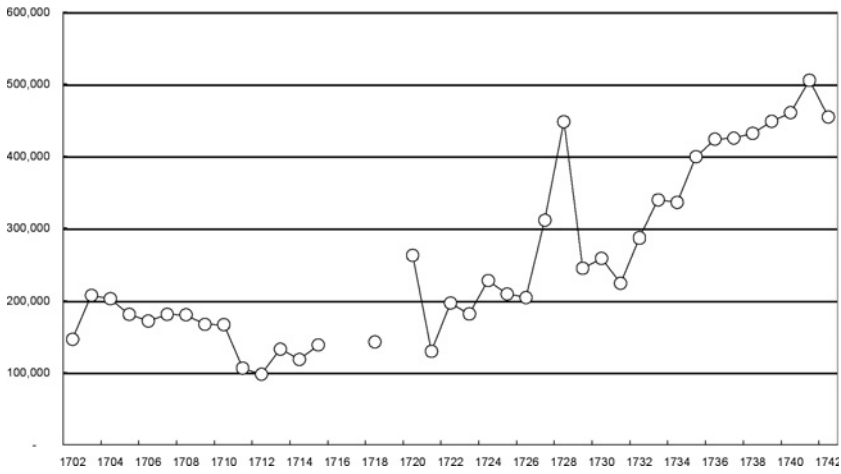

Figure 8. Size of Balance Sheet (Hoare's Bank)

of all assets fell into this category. Many of the transactions in these categories—non-interest loans and lending to customers for plate—have some similarity with a pawn-broking operation. They have the form of banking operations, but they appear to have been residues of the previous goldsmith shop.

Relative to the total of all other activities, interest-bearing loans rose from less than 40 percent in 1702 to 70 percent of all assets by 1714. The years before and during the South Sea Bubble showed a decline in the importance of lending against interest and a rise in cash holdings. Holdings in South Sea stock were recorded as late as 1731.

The main change in the composition of Hoare's assets was that lending without interest declined after 1720, while cash holdings increased by a similar amount. Lending against interest was higher compared to the entire pre-bubble period, but not much higher than in the years immediately before the South Sea crisis. For the years from 1728 onwards, the balance sheet recorded interest on loans in addition to the total lent against interest. This allows us to calculate an effective average interest rate on loans against interest. It varied between 1.3 and 5.3 percent. It looks likely that this entry refers to actual interest payments received from customers, not to the book value of claims against them corrected for defaults.

After the South Sea Bubble of 1720, Hoare's kept a very large part of its assets in cash, incurring significant opportunity costs in the

process and accentuating the puzzle of the bank's prosperity. In 1724, the balance sheet recorded £70,286 in cash. At an average effective rate of interest of 4 percent (assuming a 1/3, 2/3 mix of interest-bearing and non-interest-bearing loans), this would have been tantamount to incurring £2,811 in opportunity costs. Had the bank maintained the cash-liability ratio of the pre-1720 period, it could have earned some additional £1,022.[21] The key challenge for Hoare's Bank—as for all banks—is how its owners could prosper while the margin on lending was so small?

The solution to this apparent paradox is that the partners reduced their equity in the bank by a substantial margin after the South Sea Bubble, using deposits instead as the cushion for credit crises, thus leading to higher leverage. In only one year did the leverage ratio drop below its pre-bubble average. The bank had witnessed many of its competitors going out of business during the cash crunch that occurred during the crash of the South Sea Bubble. They probably took every imaginable precaution to avoid a similar fate. To counteract the drag on earnings, they began to leverage their own capital to a much greater extent.

Before the South Sea Bubble, the size of the balance sheets tended to be between 2 and 6 times larger than the equity of the Hoares. Thereafter, the partners were more aggressive, with a leverage ratio of 12 by 1725. This high leverage was a result of both a contraction in overall business and the reduction in capital employed in the bank. The years after the South Sea Bubble saw a marked reduction in partner's equity—down to a minimum of £16,567 in 1723, a mere 22 percent of the pre-bubble peak. The balance sheet did not contract to the same extent, leading to higher leverage—at its most extreme in the early 18th century, Hoare's had approximately £11 pounds in assets for every pound of partners' equity. What sounds like a risky strategy in retrospect was actually anything but—Hoare's was an unlimited liability partnership, and if the bank was ever in risk of insolvency, all the partners' assets (down to the magnificent buildings at Stourhead) would be used to pay off creditors. The riches of the family provided insulation ex ante from bad shocks not documented on the balance

[21] Hoare's had a cash-liability ratio of 30.8 percent in 1724, similar to the post-bubble sample average. The pre-crash average was 19.6 percent. 2,811*(30.8–19.6)=1,022. This would have been equivalent to more than one third of the average annual pre-bubble profit.

sheets. In addition, experience had shown to the Hoare's that the risk of them losing money on bad loans (or bad trades) was small. Defaults were minimal, and trading never led to significant losses; the bank had reason to believe that it would not run out of assets to cover its liabilities.

We do not have information on profits in all the balance sheets. The return on assets was low in most years before 1720, and it fluctuated between 0.13 percent and 2 percent. In the first year for which we have balance sheets and profits, 1703, Hoare's bank showed a gain of £3,700 on assets of £207,365, equivalent to 1.8 percent. Combined with a relatively modest equity cushion of £35,933, this translated into a return on equity of 10.3 percent. The following year was the best the bank had before the South Sea Bubble. The balance sheet contracted modestly, but profits rose by 12 percent. The Hoares took capital out, thus increasing leverage from a ratio of assets to equity of 1:5.8 in 1703 to 1:6.5 in 1704. Their return on equity accordingly rose to 13.3 percent. By 1710, gearing had declined to 1:2.2, and the existing assets generated a very low return of only 0.13 percent. This translated into a return on equity of 0.29 percent for this year. While absolute profits had averaged £2,775 in prior years, they dropped to £216, leaving Henry Hoare, the junior partner, with only £72 for his efforts in 1702.

We have only scattered information on profitability after the South Sea Bubble. The bank paid its partners interest on their equity, and then distributed "pure profit" to them according to the size of their holdings. The highest rate of return was in the 1730s when the bank earned over six percent on its assets. When data on interest received and on profits survived for the same year, we find that lending against interest was one of the main sources of profits, although—as we have noted—by no means did it dominate completely.

Bank mortality was quite high in 1710 and 1720. The Canton of Berne made money in the South Sea Bubble, but lost it all when the banks in which the Canton's winnings were held failed in the credit crunch that emerged as the price of South Sea Stock began its precipitous decline.[22] Even though the rate of return earned by Hoares

[22] Stefan Altorfer, "The Canton of Berne as an Investor on the London Capital Market in the 18th Century," LSE Working Paper in Economic History Number 85/04 (2004).

does not look very impressive, their continuation in business while others were exiting shows either great determination or that their earnings were quite respectable at the time.

Hoare's earlier practice easily qualified as relatively prudent by the standards of eighteenth-century manuals on banking and commerce. Richard Cantillon argued that ten percent was a perfectly adequate cash ratio for this group, while wealthy individuals, such as landowners, who deposited working capital with a bank, normally required a cash ratio of up to 50 percent. In the case of merchants and traders, 66 percent would have been necessary, as withdrawals could be highly irregular and rapid.[23] Given Hoare's client base, it must have resembled the ideal-type of the "most fortunate banker" relatively closely. Relative to the standard of ten percent described by Cantillon as normal for a bank in this group, Hoare's pre-bubble lending was highly cautious, and its cash ratios afterwards were extremely conservative.

Liabilities were recorded as deposits by individuals of cash, money owed for plate and jewels, debts to goldsmiths and jewelers (as well as employees, in some years), the capital of the partner(s), plus profits for the past year.[24] By 1710, Richard and Henry Hoare together had investments worth £74,939 in the bank, equivalent to 44 percent of all liabilities. In 1720, Henry Hoare was in business with his brother, Benjamin, yet their combined equity in the bank only amounted to £39,608, approximately half of the partner's capital in 1710. The family already had begun to increase the leverage of their investments. Richard had started his bank using his own capital as a means of insulating the business from negative shocks. Henry began the transition to a more typical bank financial structure using ample cash as the first "shock absorber" in the bank's structure. This allowed Richard's sons and grandsons to lever their investments, transforming the low rate of return on assets into a high return on equity. Given the success of this strategy, it is hard to fault them for being overcautious.

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[23] R. Cantillon *Essai sur la nature du commerce en général* (New York, A.M. Kelley, 1755 [1964]), pp. 302–5.

[24] This practice changed in later years, when the partners' capital is subsumed under the category of amounts due to others.

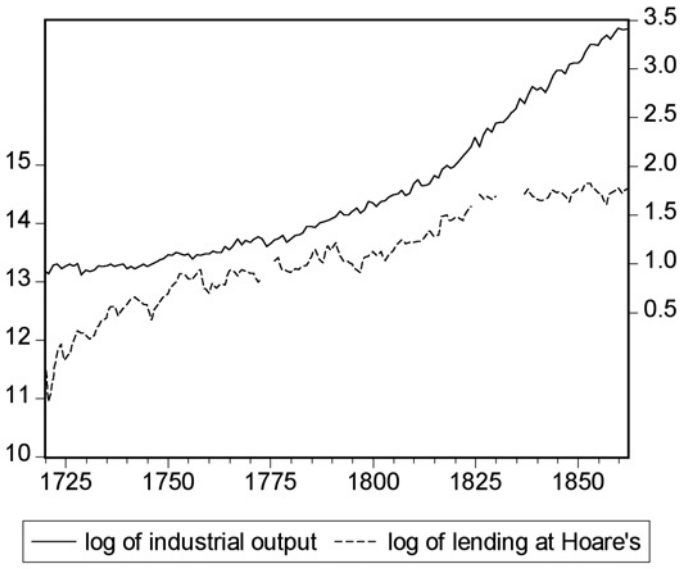

Figure 9. The Growth of Lending at Hoare's Bank, 1700–1850

Expansion

Hoare's Bank continued to expand into the nineteenth century, as shown in Figure 9. It skillfully avoided the dangers of overenthusiastic expansion and carelessly low cash ratios that victimized many of its rivals in the early 18th century. Hoare's also navigated the dangers that England's bellicose years produced. Every new war saw a decline in deposits leading to a potential asset-liability mismatch for the bank. Hoare's kept its lending short-term and called in loans when war was imminent. New loans were avoided during periods of war-induced liquidity shortages, which could last for years, often at some cost to established relationships.[25] Combined with its cash reserve, these cautious and restrictive procedures allowed the bank to weather financial storms. In later years, the bank of course was joined by many other banks, and its uniqueness disappeared. Its loans initially outpaced the staid rate of growth of industrial production before 1750. For the following half-century or so, it grew at roughly the same rate as

[25] Hoare, *Hoare's Bank*, 40.

industrial production in the economy. Only as industrial production began to climb more rapidly in the nineteenth century as the process of industrialization spread did the rate of growth of Hoare's lending fall behind.

The stability of policies resulted in part from stability in the bank's leadership. For almost two decades after the second Richard became a partner, there were no changes in the bank's partners. Then there were a spate of changes in the 1750s. Benjamin and the second Richard died. Their first replacement was another Henry who died almost immediately. Then two more Richards became partner and ran the bank with the second Henry for another two decades. There were five partners at the end of the eighteenth century from two generations. The three brothers of the younger generation were known as the Adelphi and are pictured in Figure 10. The presentation of these partners should be contrasted with the picture of the original Richard Hoare in Figure 2; the two portraits provide visual evidence of changes outside banking during the eighteenth century.

The Hoare family was as conservative with names as their bank was with reserves. Of the baker's dozen Hoares who were partners in the 18th century, seven were named Henry. An additional four were named Richard, leaving only two odd-balls named Benjamin and Charles (the direct descendant of three Richards and one Henry). Only once in 1778 did the partners reach outside their few small families to include a great grandson of the original Richard Hoare from a previously unaffiliated line as partner. All of the partners, continuing into the twenty-first century, were the direct descendents of the original Richard Hoare.

Hoare's Bank represents an example of successful entrepreneurship resulting in a business dynasty that may be unique in its commercial duration. The durability of Hoare's Bank appears to have been at least partly due to the great caution with which the bank operated. This conservative stance was initiated early in the 18th century and appears to have persisted over many generations. A benefit of this policy was that Hoare's Bank did not succumb in any of the many financial crises of the last three centuries.[26] A cost of this policy stance is that Hoare's

[26] The finding that the firms that last are often not the most profitable is not specific to English banks. Richard Foster and Sarah Kaplan, *Creative Destruction* (New York: Random House, 2001).

Figure 10. The Adelphi: Henry Merrik Hoare, Charles Hoare and Henry Hugh Hoare

Bank has become a niche bank in an increasingly diverse and rapidly growing financial system.

The early Hoares discovered a profitable and relatively low-risk business configuration, and their descendants have stayed faithful to the practices of the first few generations. Hoare's Bank was set up to provide financial services to the wealthy inhabitants of London's West End. They continue to furnish these services to the same clientele, who now typically live further from the center of financial London. This was a commercial opportunity that emerged with the development of financial markets at the start of the 18th century and which continues today. The Hoare family acquired expertise in providing these services, and they have been well compensated for them. Hoare's Bank has continued doing business at the same address that Richard Hoare moved to in 1690, although the building has been rebuilt. It is an enviable record of commercial success.

This account provides the only narrative we have of a goldsmith bank in its early years. The early experience of Hoare's Bank illustrates the conditions under which eighteenth century London banks operated. Subject to usury laws, they engaged in credit rationing far more often than tailoring interest rates to borrowers. They appeared to have provided equal access to funds for any citizen with financial resources—being conscious of aristocratic titles without being bound by them. And they appear to have benefited greatly from their location in the West End of London. Hoare's Bank succeeded where so many other fledgling banks did not due to their consistent business plan, their abundant male heirs, and their innate conservatism. If we seek to take this list as a prescription for today, only the need for sons has lost much its relevance. The rest of this story provides a timeless case of business success, despite its abundant eighteenth-century trappings.

MODEST HOUSEHOLDS AND GLOBALLY TRADED TEXTILES: EVIDENCE FROM AMSTERDAM HOUSEHOLD INVENTORIES

Anne E. McCants

As the diversity of essay themes in this volume demonstrates so vividly, the contribution of Jan de Vries' scholarship to the study of economic history has been distinguished not only by its exceptional creativity and quality, but also by the breadth of its range across a dizzying array of topics. His work includes historically significant contributions on: agricultural practices and the development of the rural economy, and of the Low Countries in particular; innovation in the provision of transport services; the timing, causes and consequences of European urbanization from the Middle Ages to the present; linkages between demographic phenomena and the standard of living; the peculiar characteristics of segmented labor markets; the production of art for the 'golden age' Dutch *burgerlijke* public; the early modern cultural discourse on luxury and vice; the contours of the global commodity trades of the company period; and perhaps most importantly for my purposes in this essay, the development of a theory which plausibly connects the hitherto orthogonal histories of production and consumption. To all of these projects he has brought to bear not only the technical skills of the quantitative social scientist and the theoretical tool-kit of neo-classical economics, but also the best kind of historical sensitivity to the lived experiences of his subjects as they might have understood them themselves. This combination has proved remarkably fertile, yielding a number of critical insights, often on subjects that had seemed tired and well-worn before he arrived to turn the standard historiography on its head.

The most ambitious of these interventions is his theory of the 'industrious revolution' first laid out in his 1993 contribution to the magisterial collection of Porter and Brewer, *Consumption and the World of Goods*, and further solidified in his presidential address to the Economic History Association later that same year.[1] De Vries posits

[1] Jan de Vries, "Between purchasing power and the world of goods: understanding the household economy in early modern Europe," in Roy Porter and J. Brewer (eds.),

that northwestern Europe experienced a radical change in work habits across the early modern centuries, a change manifested in both longer hours of work per worker and the greatly expanded employment of new (that is mostly child and female) laborers whose work potential had been previously under-utilized, or at least under-reported, in home production. More importantly, he argues that this move towards increased labor effort for the market occurred *in advance* of its much more famous (or perhaps infamous) cousin the 'Industrial Revolution'. The 'industrious revolution', he says, yielded growth along Smithian lines: that is per capita growth was generated from the economies of market expansion and the concomitant increased capacity for specialization and a further division of labor. The Industrial Revolution itself, of course, remains largely a story of technical progress and changes in the organization of production. But it would not be enough to just call upon an increased extraction of labor from the household to make de Vries's theory path-breaking. There is no shortage of historical or sociological theories about the myriad ways over the centuries that labor has been forcibly put to use for the expansion of productive enterprises. What is so striking about de Vries's contribution is that by linking his 'industrious revolution' to the then still relatively young literature on the 'consumer revolution(s)' of the 17th and 18th centuries he could tell a radically new story about the *voluntary* release of that additional labor effort. Moreover, as Adam Smith himself so presciently suggested in the later 18th century, the resulting increase in the capacity for further specialization of labor would prove to greatly facilitate the technical advances that were to become the cornerstone of 19th century economic growth. Further, this theory of an 'industrious revolution' could account for the hitherto yawning theoretical gap between the seemingly prolific expansion of the 'world of goods' as revealed in household accounts and probate inventories (not to mention in moral diatribes against the consumption vices of the middling and poor), and the economic historians' carefully constructed evidence of only slowly rising, when at all, real wages of adult male workers (largely in the construction trades) before the second half of the 19th century. It was not wage power that made

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Consumption and the World of Goods (Routledge: London, 1993) and "The Industrial Revolution and the industrious revolution," in *The Journal of Economic History* , Vol. 54, no. 2 (1994): 249–70.

possible the feverish progress of ever more, and more varied, items of personal and household adornment so lovingly reconstructed by the art and cultural historians of this period. Rather it was the transfer of leisure time, however happily or uselessly (depending on your politics) it might have been employed in the pre-industrious past, to the rigors first of proto-industrial time and then to the even more rigid strictures of factory time. As Maxine Berg has so convincingly shown us, it was women, along with many of their children, who were in the vanguard of this migration.[2] But why would anyone voluntarily trade in their Saint Monday's, their multiple religious feast days, and the autonomy of the household rhythm for the foreman's clock and the 'dark Satanic mill'? If we are to believe that the allure of consumer goods was sufficient to effect such a startling transformation in the preferred work habits of humankind, at least as they have been made manifest across the period documented by the historical record, we have to demonstrate that the new consumer goods were plausibly within reach of those members of society who stood to lose the most from this new labor regime. If the colonial groceries of tea, coffee, sugar and tobacco; dishwares and wall tiles made of porcelain and its many imitations; buttons, baubles and metal 'toys' of all varieties; and dress accessories and expanded wardrobes of new fibers and weaves, not to mention new dye colors and prints, were in fact all luxury goods, accessible only to elites and not to those below them in station and resources, then de Vries's theory has no legs, and the mechanism of voluntary change must be found wanting. Given the weight of contemporary commentary that fought to preserve 'luxury' as a meaningful descriptor of goods only available to those of appropriate rank, coupled with the verdict of most economic historians that the early modern trading companies dealt largely in ephemera (although I have argued otherwise),[3] it is on the consumer side of his equation where we will need to secure the strongest evidence.

It is in just such a pursuit of evidence that I have turned my attention to a remarkable collection of 18th century household inventories

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[2] Maxine Berg, "What difference did women's work make to the Industrial Revolution?" in Pamela Sharpe (ed.), *Women's Work: the English Experience 1650–1914* . (Arnold: London, 1998): 149–171.

[3] Anne McCants, "Exotic Goods,, Popular Consumption, and the Standard of Living: Thinking about Globalization in the Early Modern World." *Journal of World History*, Vol. 18, no. 4 (2007): 433– 62.

drawn up in Amsterdam by the Regents of the Municipal Orphanage, the Amsterdam *Burgerweeshuis* (hereafter referred to as BWH).[4] Following the model set forth by the so-called Orphan Chambers that had been an important social institution in medieval cities in the Low Countries for managing the property of parentless children, the Dutch orphanages that were established as a response to the rapid urban growth of the early modern period[5] likewise managed the property of their charges. They did this with the dual intention of both preserving whenever possible some patrimony for the benefit of children graduating out of the orphanage into adulthood, as well as assessing the ability of those estates to contribute to the maintenance costs incurred by the orphaned children while living in the institution. Hence, the Regents of Dutch orphanages were of necessity deeply implicated in the property assessment and management businesses. They were expert at collecting comprehensive inventories of households on the death of a parent, and remarkably persistent in tracking down the assets that were justifiably accreditable to their charges, whether they were directly from parents or from other more distantly related relatives.[6] Thus, even the deceased parents of very poor children were evaluated by the Regents and their bookkeeper, so long as they had been citizens of the city and their children were eligible for residence in the BWH. As a result the inventories associated with the BWH represent an unusually broad spectrum of the citizen working poor, as well as petty shopkeepers and craftsmen of the city. Moreover, their economic reach is not the only way in which this source is unique. These inventories also represent a most unusual opportunity to evaluate households headed by women

[4] All of the inventories consulted for this paper can be found at, G.A.A. p.a. 367, oud archief #652–688. These records are the source for all of the tables as well.

[5] The Amsterdam BWH was founded in 1526, for example.

[6] Each inventory includes the date of death and street location of the decedent's household, his or her surviving heirs (either a spouse, children or both), the names and ages of the children being left to the BWH, a listing and evaluation of all movable property and some real property as well, the credits and debts left outstanding either from or to the decedent, and a list of unredeemed pawnshop tickets if there were any. In almost all cases the inventories could be linked to the city marriage registers allowing us to calculate the age at death for the decedent, an occupation if given in the marriage registers, as well as the marital history of the decedent, and the funding or not of child support payments in the name of earlier deceased spouses. A complete description of the data set can be found in, Anne McCants, "After-Death Inventories as a Source for the Study of Material Culture, Economic Well-Being, and Household Formation Among the Poor of 18th c. Amsterdam," *Historical Methods*, Vol. 39, No. 1, Winter (2006): 10–23.

and those of unmarried individuals of both sexes. Probate inventories are usually limited in their research usefulness by the common feature of having been drafted more or less exclusively for those with property worth fighting about, and also primarily for married male heads of household. But in the case of the BWH the situation is very different. Because an inventory was drawn up at whatever point the second parent came to die, the decedent population includes (re)married men and women, as well as widows and widowers. Moreover, because one could fall under the scrutiny of the BWH both as a relative of a current orphan to whom one left property, or as a now grown-up former orphan (without heirs of one's own), the sample also includes 87 inventories of a mix of men and women who had never married. Some of these individuals were living in rented rooms, some as servants in the households of non-relations, and some, as we might expect, with members of their extended families. But in all cases, their estates have been evaluated independently of the households in which they resided.

The archives of the orphanage suggest that such inventory making had enjoyed a long history among the activities of the resident bookkeeper. However, the earliest extant inventory records date only from the latter seventeenth century, and these appear not to have been collected systematically. That is, there are many fewer surviving inventories than there were children entering into the institution, even when the inventories have been collected in a single volume suggesting that loss of individual records is not the problem. Rather it seems most likely that in this earlier period the bookkeeper restricted his inventory making to only the most prosperous households, much as the Orphan Chambers had only managed the property of those children with assets substantial enough to be worth managing. However, in May of 1740 this practice seems to have changed radically. A new format of inventory book begins in which a comprehensive record has been made of every household leaving behind either orphans eligible for the BWH, assets for those orphans, or assets of former orphans now deceased who did not themselves leave behind direct heirs with claims on those assets.[7] These inventories survive in a continuous line from

[7] The BWH did not have the right to make claims on the property of former orphans if they had their own children who required those resources. The guiding principle seems to have been the logical one of preserving the capacity to care for surviving children with family resources whenever possible.

their inception in 1740 until the end of the first decade of the 19th century, at which point the institution lost its financial independence and its corporate urban status with the political and fiscal collapse of the Republic under Napoleon. The total collection includes approximately 1,500 household inventories. However, the results presented here are based on only the 913 inventories recorded from the point of inception through April 1782.[8]

Admittance into the BWH was open to all fully orphaned children whose parents (both of them individually) had held citizenship in the city of Amsterdam for at least seven years. There is, however, reason to believe that, as with many early modern social welfare institutions, the more substantial members of society did not avail themselves of such publicly provided services for their children. They seem instead to have found adequate ways to care for their orphans within their own kin networks, thereby keeping assets well within familial rather than public control. Likewise, the immigrant underclass is also missing from the BWH population. They were excluded by the combined rules of citizenship and longevity. So it was that the BWH functioned primarily as an institution catering to those of the middling sort, a fact that is readily attested by the inventories themselves.

Indeed, despite the BWH Regent's own conception of their charitable mission to the *burgerij*, that is to the respectable middle class of their city, the actual population that found its way through the doors of the institution was by any absolute measure a poor one. During a period in which the BWH estimated that it spent about 150 guilders per annum to care for each resident child, the median household associated with the institution had total assets at death amounting to only 69 guilders. (This drops to only 52 guilders if we include the 133 inventories recording no possessions and value them at zero guilders, which cannot be too far from a correct assessment of the reality.) Moreover,

[8] After this date the proportion of the total inventories drawn up *per memorie* increases dramatically. These inventories include only the statement about the deceased and the composition of claimants on the estate, but no listing of either the specific assets or the debts. It seems that when the bookkeeper encountered a household in which the debts clearly exceeded any and all assets he increasingly saved himself the trouble of making lists and indicated only that the household had been noted just for the memory of it. While this is interesting information about the increasingly weak financial profile of the households associated with the BWH, it is not at all useful for my purposes here which are to look at the specific goods owned by these households. Some of these greatly truncated 'inventories' exist for the middle decades of the 18th century as well, but they form a much smaller percentage of the total.

once the outstanding debts of the deceased are accounted for, the vast majority of households actually had a negative net worth. It was only a scant 28% of the decedents who managed to leave property of enough value to more than cover their unpaid debts.

Table 1. Distribution of the Amsterdam BWH Inventories by Marital Status and Financial Status (net worth and assets in guilders)

	Married	Widowers	Widows	Single
All—N	279	202	345	87
median Assets	88	74.1	55	66
Positive net worth—N	65	51	88	49
Column %	23.30%	25.20%	25.40%	56.30%
median Net worth	67.2	120	113.4	51
median Assets	237	326.2	224.6	103.4
Negative net worth—N	197	113	181	36
Column %	70.60%	55.90%	52.60%	41.40%
median Net worth	–76.8	–72.7	–34	–25
median Assets	66.7	53.3	33.3	34.6
No valuation—N	17	38	76	2
Column %	6.10%	18.80%	22.00%	2.30%
median Net worth	NA	NA	NA	NA
median Assets	NA	NA	NA	NA

Note: Those with no valuation are the so-called per memorie records. Typically the family information, location of the residence, the date of the bookkeeper's visit and the signatures of the relevant surviving family members were still recorded in the usual fashion. What is missing is the list of household belongings (as presumably there were none) and the household debts (although presumably there were more than enough of these).

Yet some types of households were consistently poorer even than others. The distribution of inventories by marital status and net worth accounting, along with the median asset value and the median net worth for each combination of categories, can be found in Table 1. Most obviously, single individuals were by far the most likely (that is approximately twice as likely) to die with assets in excess of their debts. But this is not because the assets of the singles were so particularly high. They were actually only about half as high as those of their various married or once-married peers. Rather it was the modesty of their debts which kept them from falling into the red as was

so prevalent among other demographic groups. Less surprising is the relative financial weakness of the households headed by widows. They were the most likely group to fall into the *per memorie* category, and the total value of their assets was the lowest of all those who had ever married. The accounts of currently (re)married heads of household (of both sexes, as households could enter the bookkeeping of the BWH at the death of either the husband or a wife of the original marriage, whichever came second) are most affected by their high average debts. Nearly 71% of these households had debts in excess of their assets, despite the fact that they actually enjoyed greater median assets than the other groups as well. These debt burdens reflect in part the expense of maintaining a full household, often with young children in it as remarried men and women were likely to have younger children from their second marriages living alongside the partially orphaned children of their first marriages in what were often blended households of some complexity.

High debt burdens are also a sign of greater economic activity in a society where bills were typically only settled at long intervals. Thus, the debts of the married decedents might be read as a positive sign of their engagement with the world of commerce. Indeed, high debt levels were also a sign of their greater access to credit in a world where material possessions served in the first place as collateral in the imperfect petty capital markets in which people of relatively low economic standing had to operate. In either case the real relative strength of households headed by two adults should not be terribly surprising given that for almost all of the families who came in contact with the BWH the main source of total household assets resided in the movable goods themselves. Intact households tended to be larger with more possessions than broken households, regardless of the age of the household head.[9] Yet it is worth recalling that both widows and widowers had at one point been themselves in complete households, so there must have been some process by which they dis-acquired material possessions following the death of their spouses. Again, a process of shedding (or losing) household goods is not in the least remarkable given the overall economic location of the sample. Work I have done elsewhere

[9] Indeed, these results are not simply an artifact of age at death. The median age at death of the inventoried subjects does not vary systematically across the wealth categories, nor do the median asset figures for the various demographic groups change perceptibly when controlling for age at death.

shows that the families and individuals who are found in the records of the BWH did not stray much outside of the bounds of the second and fourth deciles of the larger distribution of Amsterdam households as measured by a combination of assets at death, the city income tax records, their citizenship status and the rent they paid for their housing (known in the majority of the inventories by the remaining debt for house rent specified by the number of months still due).[10] After all, nearly 30% of the inventories do not even record the presence of as much as a bed, or a piece of storage furniture, not even something as simple as a basket. And nearly 15% of the inventories record no possessions of any kind; this despite the fact that the pathetic descriptions of some of the enumerated inventories suggest that the threshold for non-reporting on the part of the bookkeeper was very low indeed.

What might we expect then in the way of consumer goods from a population that could barely support its children in life, let alone in death? How could such a group be expected to have participated in any meaningful way in the new consumer culture of the 18th century? What place would dress accessories and pottery, small metal wares and adornments, stimulants and sweeteners have occupied in their seemingly meager lives? Could the homes (cellars and single rooms as they often were) of such people possibly provide us with the evidence we need if we are to document the economic depth and importance of the new consumer behavior? After all, such documentation depends on finding consumption of the new 'luxury' items widely spread across the social spectrum, as consumer goods which were limited to elite lifestyles only might legitimately be dismissed as trivial when they are not overlooked altogether. For de Vries's industrious revolution theory to have traction we need to find evidence that the new consumer goods enjoyed a broad geographic reach as well as a wide price and quality spectrum. Only these features could produce the necessary conditions for the kinds of social differentiation that in turn might stimulate the willingness to work longer and less autonomous hours, especially on the part of women and the young.

Work I have published elsewhere using the BWH inventory data, in conjunction with a wide variety of other sources, argues that these conditions were met already in the 18th century for tea, coffee, sugar,

[10] Anne McCants, "Inequality Among the Poor of Eighteenth Century Amsterdam," *Explorations in Economic History*, Vol. 44, #1 (January 2007): 1–21.

and tobacco, and the new vessels in which they were prepared, served and enjoyed.[11] In this essay I would like to turn my attention specifically to textiles which I argue are especially suitable for testing some of the broader implications of de Vries's effort to establish a theory of consumer behavior as fully linked to the world of production and prices. For textiles are ubiquitous in the archeological record; in trade statistics and company records; in household production in cities, the countryside, and even frontier regions; in the history of art and display; in expressions of sexuality and in the negotiations surrounding family formation; in the annals of conquest, enslavement and tribute; in the history of technological progress and the development of modern science, most notably the chemistry of dye-stuffs; and indeed, they are absolutely central to the phenomenon of the Industrial Revolution itself. It is quite plausible that textiles have been the most frequently traded commodity in the history of human civilization, despite how easy it has become for those of us living in a 'post-industrial' age to overlook them entirely. Textiles can, and indeed have been, produced everywhere; and yet they have been traded extensively, and almost always between communities that are each perfectly capable of making their own. So although clothing that serves as protection from the elements might reasonably be classified along with other survival goods as necessities, the same cannot be said for clothing made of cloth imported over a long distance. As the exhaustive archeological work of Elizabeth Wayland Barber makes abundantly clear, the trading of textiles has been largely superfluous to the basic needs met by clothing for most of discernable human history.[12] On the contrary, the textile trade is necessarily fueled by either or both of two different factors: the price differentials that might arise from production efficiency gains in one location versus another; or people's (intrinsic?) love of variety and desire for novelty or display. That people have bought and sold textiles over often prodigious distances, and sometimes at great

[11] Anne McCants, "Exotic Goods"; and…., "Poor Consumers as Global Consumers: the Diffusion of Tea and Coffee Drinking in the 18th century," forthcoming in the *Economic History Review*.

[12] For a particularly accessible introduction to the highly technical field of textile archeology see E.W. Barber, *Women's Work: the First 20,000 Years* (Norton: New York, 1994).

expense as well, is strong evidence that they serve other functions than just the provision of warmth and protection from the elements.

To recap then, an examination of textile consumption patterns seems an ideal subject to bring together and focus many of the varied stands of economic theory and the history of consumption that have been so central to de Vries's research agenda, including but perhaps not limited to: macro-economic phenomena relating to the growth of economies and changes in the standard of living; the micro-economics of the supply of and demand for textiles in the marketplace; the production and use of textiles within the household economy; the gendered division of labor in textile manufacture, both commercially and for home consumption, and perhaps a related gendered division of consumer practices; and the luxury debates that raged so loudly in the 17th and 18th centuries. What then do the inventories associated with the BWH reveal about textile consumption within the milieu of the citizen working poor in the middle decades of 18th century Amsterdam, at the European epicenter as it were of global commodity exchange?

Table 2 presents a (non-clothing) sampler of the kinds of household goods that are found with some consistency in the BWH inventories. The total volume of goods in most of the sample households is not necessarily large, but the variety reflects a domestic interior that is distinctly richer than what we might expect to find in the sparsely equipped homes of a similar social rank in the medieval period. There is furniture for sleeping, eating, sitting, storage and work. The variety of kitchenwares and tablewares is not overwhelming, but nonetheless indicative of a move towards increasingly specialized vessels—water-pots, infusion-pots, cooking pots, oil-cans, milk-cans and beer-cans, not to mention tea-spoons,—cups and—saucers, are among the many items which incorporate a modifier into their name. Wardrobes include not just the basic items of shirts, pants, frocks, tunics and overcoats, but a myriad of accessories such as vests, camisoles, sleeves, caps, muffs, ruffles, aprons, pockets, stockings, bed jackets, robes, bonnets, ties, and special clothing for mourning and for children. And perhaps most surprisingly for such modest households, there is no shortage of items purely devoted to decoration such as prints, mirrors, paintings in frames, porcelain and other pottery trinkets, and window curtains.

Table 2. Amsterdam BWH Inventoried Goods, 1740–1782

	N	% of all Inventories	Goods per inventory Mean	Median	Maximum
# of inventory entries	805	88.2	61.2	52	293
total # recorded goods	805	88.2	218.5	134	8,129
Beds (all kinds)	652	71.5	1.8	1	14
Cupboards/ wardrobes	575	60.3	1.7	1	10
Chests	273	29.9	1.4	1	5
Chests of drawers	97	10.6	1.1	1	2
Cabinets	68	7.5	1	1	2
Hanging cupboards	144	15.8	1.1	1	3
Baskets/hampers	191	20.9	3.2	1	206
Walnut furniture (all)	79	8.6	1.3	1	12
Chairs	622	68.2	7.6	6	94
Tables	577	63.3	2.2	2	15
Tea tables	66	7.2	1.2	1	2
Blankets	621	68.1	3.2	3	14
Curtains (bed/ unspec.)	575	63	4.6	3	30
Curtains (window)	41	4.5	4.5	4	25
Floor mats/ carpets	65	7.1	2.3	2	8
Spoons	452	49.6	6.8	6	40
Forks	48	5.3	4.6	4	15
Beer cans/glasses	241	26.4	1.3	1	11
Delftware	492	53.9	4.1	2	73
Pewter wares	475	52.1	15.1	12	82
Pewter plates	132	14.5	6.8	6	26
China (porcelain)	341	37.4	29	11	412
Japanese porcelain	15	1.6	11.3	5	68
Coffee wares	482	52.8	7.4	2	199
Tea wares	360	39.5	4.5	2	94
Teapots/ infusers	422	46.3	3	2	23

Table 2 (*cont.*)

	N	% of all Inventories	Goods per inventory Mean	Median	Maximum
Coffee and tea (comb.)a	533	58.4	9.8	3	206
Sugar bowls, etc.	74	8.1	2.6	2	10
Chocolate wares	25	2.7	5.7	5	33
Pepper wares	189	20.8	1.1	1	7
Salt boxes/cellars	215	23.6	1.9	2	11
Mustard pots, etc.	68	7.5	1.1	1	3
Tobacco wares	317	34.8	2	1	17
Bibles	181	19.8	1.4	1	6
Other books	197	21.6	4.1	2	60
Paintings	224	24.6	3.8	2	61
Prints	261	28.6	4.1	3	29
Mirrors	529	58	1.5	1	10
Tea traysb	344	37.7	3	3	18
Scientific instruments	30	3.3	1.2	1	3
Timepieces	171	18.8	1.1	1	3
Gold (all items)	133	14.6	2.8	2	9
Silver (all items)	258	28.3	8.7	3	118

Normally we would not want to rely only on inventory listings to assess a flow phenomenon such as consumption. For inventories can tell us nothing about the timing of purchases, the rate of depreciation, or the scope for recycling and handing down. Indeed, it may be the case that the most frequently purchased items are the least likely to survive in inventory records on account of their ephemerality; hence, the suspicious absence of foodstuffs from almost all inventories. However, in the absence of account books, especially for earlier periods and the lower social groups, we have to work with what we have available to us. At the macro level this includes some market price data, and trade share data by broad category for the larger trading companies. At the micro level as revealed by the inventories themselves we have a limited number of well identified and individually valued items which allow for quality and price comparisons across similar types of goods, and we can assess the distribution of goods by type and quality across households of differing economic and demographic characteristics.

We can also look for goods that were owned in combination with other goods to reconstruct patterns of consumption; syndromes, as it were, of the desire to make social statements of a consistent kind.

Table 3. Mean Shares of Inventory Categories by Demographic and Wealth Profiles

Upper table: Types of goods as a share of all movable assets by marital status of decedent Lower table: Types of goods as a share of all movable assets by wealth status of decedent

	N	Clothing % share	Bedding % share	House goods % share	Jewelry % share	Shop goods % share
All	767	33.4	21.5	38.5	6.1	0.4
Married	263	31.4	21.1	42.8	4.1	0.3
Widower	160	29.8	22.1	42	5.4	0.4
Widow	264	28.3	26.4	39.5	5.4	0.5
Single	80	63.8	5.4	14.2	16.5	0.2

	N	Clothing % share	Bedding % share	House goods % share	Jewelry % share	Shop goods % share
All	767	33.4	21.5	38.5	6.1	0.4
Assets <15g	113	17.4	27.9	53.5	1.1	1.1
15–200	443	36.4	23.1	35.4	4.8	0.4
Assets >200	211	35.6	14.6	37.2	11.6	0.1

Table 3 reports the share distribution of the various categories of movable assets as found in the 767 BWH inventories which were fully evaluated by the bookkeeper and have no missing information. They have been sorted in two ways for this analysis, once by the marital status of the decedent and again by three very broad wealth categories based on the total assets associated with each inventory. Two things are worthy of note about this table in regards to the subject at hand here. First, the singles population held an extraordinary proportion of their total movable goods in stocks of clothing and accessories, on average accounting for nearly 64% of the value of their possessions. All other demographic groups were at about half that level with clothing accounting for approximately 30% of the value of their total household goods. Likewise the singles' share of jewelry, while much lower absolutely, was still more than twice as high, percentage wise, as for the differently constituted households. Second, clothing was a relatively low share (17%) of the very poorest households, those with total assets of

less than 15 guilders. But for the next richer group the share doubles, and stays steady into the very highest reaches for this population. That is to say that greater wealth seems to be dedicated in a proportional way to clothing outlays once a threshold is crossed. Yet even small initial increases in the financial status of very poor households led first and foremost to more than proportional increases in the commitment to clothing.

What kinds of textiles then were to be found in the inventory records of the BWH? How likely were the clothing allocations of these households of mostly modest means to contain fabrics which distinguished their owners as active participants in the consumer revolution taking place around them? Admittedly many of the individually enumerated pieces of clothing have been recorded with no specific detail, or are denoted only as 'old' or 'worn'. But a surprising amount of more useful detail is forthcoming than just this. A great many items of clothing are described according to broad characteristics, such as having been for a man, or a woman or a child. Common descriptors also include the color (or less often the print) of the fabric. And in a great many cases we can be certain of the type of weave, fiber, or both of the textile in question. Indeed, there is more variation in named types of fabric than in any other set of characteristics found in the inventories. For example, only seven distinct types of wood are listed by name to describe various pieces of furniture or wooden boxes and tools. But at least 55 different types of fabric are specified by name.[13] In some cases these are very specific names relating to the design or location of origin of the fabric such as *seras*, a very fine silk fabric produced along the Coromandel Coast of India. For other entries we find more general descriptors such as silk or cotton. If we were to multiply all the variations in fabric types by the various colors and prints also found as descriptors, the possibilities for individual expression in one's clothing choices expand rapidly.

But how can we be sure that this spectrum of designated fabric/design combinations was not just concentrated among the inventories of the richest of the households which came into contact with the BWH? For our argument it is not enough to simply identify them as present among the total. We need to document that they were

[13] I say "at least" because despite many years of sleuthing there continue to be clothing descriptor terms that I cannot identify in any other sources. In most cases these seem likely to be particular types of fabric now long forgotten.

distributed, even if not entirely equally, across the wealth spectrum. Table 4 represents an effort to make just such a demonstration. The procedure on which I rely here is not entirely intuitive, so it is worth some explanation. To begin with I want to capture a household's capacity to participate in a cultural practice, even if they could only do so in the most marginal of ways. For it is the *effort* to participate which is the salient fact for de Vries's 'industrious revolution', and not necessarily the volume of goods that are actually acquired. So it is not enough to just count the number of pieces of clothing made from the various textiles we think likely to be indicators of the new consumer practices. That would favor larger households, particularly those with two adults at the head, and certainly richer ones as well. Instead, I created groupings of households on the basis of whether or not they owned even one piece of a particular kind of fabric, for 22 different fabrics of both domestic and foreign manufacture selected on the basis of their frequency in the inventories as well as for their novelty value. I then evaluated these groups in comparison with each other for both the demographic and financial characteristics of the households that qualified. The financial characteristics are detailed in Table 4.

Table 4. Household Wealth Distribution by Fabric Possession

Households grouped by possession of specified fabric		Household Assets in Guilders				
		N	minimum	Q1	median	Q3
lakens	Dutch woolen	487	4	53.3	116	323.5
cottons	Asiatic	213	8.5	62	142	332.6
woolens	European	192	9.5	59.3	144.8	334.1
baai	woolen flannel	53	11	72.2	146	451.4
gingham	cotton print	8	28	73.1	152.9	382
bont	cotton print	131	13	66.7	165.9	352.2
cambaai	cotton print	51	14	97.5	168.5	352.2
muslin	Asiatic	165	7	79	172.1	334
bombazijn	heavy cotton	10	31.5	50.6	176.9	849.1
camelotten	camelhair mix	5	49.3	165.9	181	211
grij	Dutch woolen	71	13	71.5	181	451.9
serge	Dutch woolen	71	14	67.3	182.2	337
coleurde	Dutch woolen	119	11.5	69.5	187.5	403.7
damask	European	119	10.8	87.5	190	383.6
linnen	European	93	10.8	72.2	208.5	515.8
stofjes	Dutch worsted	51	48	142	217.9	470.7
trijp	Dutch velvet	9	71.5	110	245.2	841.5
silk	Asiatic	205	23.4	110.5	246.5	481.9
velvet	European	62	17.5	95	247.4	548.3

Table 4 (*cont.*)

Households grouped by possession of specified fabric		N	Household Assets in Guilders minimum	Q1	median	Q3
gestitke	embroidered	54	26	103.6	255.3	362.1
caleminke	Dutch woolen	32	29.5	91	259.1	795
chintz	Asiatic	132	12	131.1	272.4	601.3
armosijn	Bengal silk	2	273.5	273.5	557.6	841.5
seras	Coromandel silk	6	151.6	334	572.1	841.5

The table is arranged hierarchically with the fabric-possession groupings listed in ascending order of the value of the median asset value for each group of households. To give a fuller picture of the financial profile of these household groups the table also includes the first quartile, the third quartile and the minimum values of total household assets as well. Obviously the rank order of the fabrics would change slightly, but only slightly, if we were to sort on one of the other measures than the median. This variability reflects both the general statistical noise associated with this sort of calculation and the very small sample sizes for some of the fabric groups; but given the bluntness of the measurement instrument, its consistency is actually quite remarkable.

To help put these median asset values into context a similar exercise performed on other types of household goods finds that delftware (median asset value=99 guilders), mirrors (median asset value=104 guilders), and coffee and tea-wares (median asset value=114 guilders) all ranked lower in this hierarchy than even the most traditional of Dutch fabrics, the *lakens*. Even porcelain (median asset value=147 guilders) ranks just alongside a locally manufactured woolen flannel known as a *baai*. By contrast, the rather more prosaic fork (median asset value=272 guilders), which proves to be quite rare among this population, ranks higher even than silks and just on a par with chintz.[14]

Indeed, one of the most striking things about this hierarchy is how thoroughly mixed together are textiles of both local and exotic manufacture. The richest households (relatively speaking given the overall poverty of the sample) clearly had access to some expensive Asiatic imports of fine silk, but they also continued to buy fabrics of

[14] For a more complete list of goods other than fabrics see McCants, "Exotic Goods," Table 3, 452.

Dutch (or at least European) manufacture for which there were long associations of high quality, velvets and fine woolens such as *caleminke* for example. Likewise, households at the other end of the spectrum could also participate in the commerce with India. There were a wide variety of light cotton textiles, gingham, *bonts*, and *cambaai* for example, which seem to have been inexpensive enough that they could find their way into asset-poor households, even those from the lowest wealth category as measured here. Households of unmarried individuals were especially likely to participate where possible in the consumption of new and/or fashionable fabrics. This was the demographic group most likely to include silks and some of the cotton prints among their possessions, while deferring to their married peers when it came to wearing the solid, but perhaps now old fashioned *lakens*.

As interesting and suggestive as this kind of household ranking is, it still does not provide any concrete information about the relative prices of clothing made from these different fabrics. Unfortunately there are not very many items of clothing in the inventories that were both individually valued by the bookkeeper and described with full fabric detail. So it is only for a few types of items that appear with great frequency that we have enough data to evaluate the value differentials between fabric types for the same item of clothing. For example, of the 182 jackets that were valued individually fully half of them (96) were not identified by fabric type. The average unit value of those jackets is 1.1 guilders, compared to a mean unit value of 2.7 guilders for the 12 silk jackets, and of 3.1 guilders for the 44 jackets made of chintz. Meanwhile the mean unit value of the identified cotton jackets is only one guilder, completely consistent with the ordering of the household asset fabric hierarchy. A similar pattern emerges for the individually valued *japons*, a sort of dressing robe already identified by name with its eastern origins and exotic appeal. The inventories record 69 *japons* with individual valuations, 18 of which do not specify their fabric type. These 18 have a mean unit value of 3.9 guilders. Meanwhile the 33 silk *japons* average 8.6 guilders apiece, while the 5 chintz *japons* average 9.3 guilders apiece. Just as we would expect, the various other fabric types that make an appearance also have values that remain consistent with the hierarchy already developed in Table 4. While this remains far from conclusive proof that the procedure of ranking households with differential fabric possession by median asset values speaks reliably to the relative prices of those fabrics and the capacity of households to purchase them in the marketplace, it is nonetheless reassuring that the pattern of ordering is so consistent across measures.

What this evidence reminds us of then is the fact that both regions, Europe and Asia broadly construed, manufactured a full range of cloths, from cheap to prohibitively expensive. This range inevitably left poor Europeans excluded from some kinds of consumption but not exclusively along lines of geographic origin. While the traditional Dutch woolen is the fabric most in abundance in these inventories, it did not require much of a jump in wealth status for a household to be positioned for the ownership of at least a cheaper variety of cotton. Likewise, the top of the scale was occupied by a true mix of traditional European luxury fabrics such as velvet and damask, and some newer imports, most importantly chintz. By the early modern period silk cannot be classified as either a traditional local textile or a new exotic. After all, silk had been imported into Europe since the Roman period. By the High Middle Ages there was silk manufacturing in Europe itself. Nevertheless, and somewhat ironically, it was only with the large-scale importation of cheaper silks from China by the various European merchant companies that silk consumption could become so relatively widespread, reminding us once again of the important links between the productive process and the contours of consumption.

One final observation might be usefully made about the patterns of consumption revealed by the BWH inventories. That is, that the experimentation of these relatively poor households with new kinds of textiles was not likely to have been the result of a haphazard or accidental process. Rather the possession of individual fabric types seems to have formed an important part of a larger strategy of consumer presentation. Table 5 reports the likelihood of presence (and mean and maximum quantity of individual items) of specific fabric types in households that have already been identified by the possession of one of the fabrics listed in the median asset ranking. While this data is again hard to pin down statistically, it nonetheless suggests that households located at the top of the hierarchy (that is those that owned goods of one of the more expensive fabrics) were more likely than on average to possess specific fabrics lower in the hierarchy as well. Not surprisingly, this tendency does not work in reverse. So for example, three-quarters of those who owned something made of velvet also owned something made of cotton, whereas only just over half of those who owned the more traditional linen also possessed cotton. It seems likely that households did not just make a single foray into the market for the acquisition of just one fashionable item, but instead understood multiple (and coherent) such forays to be desirable.

Table 5. Distribution of Fabric Types among Households Owning Specified Fabrics with Mean and Maximum Number of Individual Items

	Cottons 213	*cambaai* 51	damask 119	linnen 93	*stoffjes* 51	silk 206	velvet 63	*caleminke* 32	chintz 132
Also own:									
	Col. % N	Col. % N	Col. % N	Col. % N	Col. % N	Col. % N	Col. % N	Col. % N	Col. % N
lakens	69% (148)	90% (46)	70% (83)	75% (70)	82% (42)	80% (165)	70% (44)	78% (25)	80% (105)
mean	5.9	7.7	7.4	7.2	9.5	7.8	7	6.6	8.2
max	22	35	46	31	46	46	28	16	46
cottons	100% (213)	41% (21)	66% (79)	56% (52)	43% (22)	44% (90)	75% (47)	75% (24)	64% (84)
mean	4	5.2	4.8	4.7	5.4	5	5.6	5.8	4.8
max	44	44	14	25	44	44	14	13	14
woolens	69% (147)	31% (16)	68% (81)	52% (48)	20% (16)	39% (80)	63% (40)	66% (21)	55% (73)
mean	2	2	2.1	2.1	1.9	2	2.1	2.2	2.2
max	7	5	7	7	4	7	5	5	7
baai	15% (31)	12% (6)	18% (22)	14% (13)	6% (3)	12% (25)	19% (12)	34% (11)	11% (15)
mean	1.5	1.8	1.4	2.3	1.3	1.9	2	1.6	1.6
max	6	3	3	6	2	5	4	3	2
bont	38% (81)	25% (13)	39% (47)	39% (36)	18% (9)	30% (62)	48% (30)	34% (11)	39% (52)
mean	4.4	4.4	4.6	4	8	5.5	4.5	6.1	5.4
max	42	13	42	20	42	42	16	30	42
cambaai	10% (21)	100% (51)	13% (15)	10% (9)	4% (2)	12% (24)	13% (8)	9% (3)	8% (11)
mean	1.2	1.2	1.1	1.1	2	1.3	1.1	1.3	1
max	2	3	2	2	2	3	2	2	1
grij	27% (57)	12% (6)	25% (30)	22% (20)	14% (7)	18% (38)	29% (18)	25% (8)	23% (31)
mean	1.3	2.3	1.4	1.5	1	1.4	1.5	1.8	1.4
max	3	3	3	3	1	3	3	3	3

Table 5 (*cont.*)

	Cottons 213	*cambaai* 51	damask 119	linnen 93	*stoffjes* 51	silk 206	velvet 63	*caleminke* 32	chintz@@ 132
serge	18% (38)	6% (3)	24% (28)	19% (18)	2% (10)	17% (34)	19% (12)	9% (3)	20% (26)
mean	1.7	1	1.6	1.7	2	1.9	1.7	2	1.9
max	4	1	6	4	6	6	4	2	6
damask	37% (79)	29% (15)	100% (119)	35% (33)	31% (16)	36% (75)	54% (34)	50% (16)	47% (62)
mean	1.8	1.8	1.7	2.4	2.6	1.8	1.6	2.3	1.9
max	15	5	15	15	15	15	5	15	15
linnen	24% (52)	18% (9)	28% (33)	100% (93)	16% (8)	21% (43)	27% (17)	28% (9)	25% (33)
mean	5.6	4.9	5.7	5.9	10.1	7.2	4.4	5.1	6.5
max	27	15	25	30	27	30	14	18	30
stoffjes	10% (22)	4% (2)	13% (16)	9% (8)	100% (510)	14% (29)	3% (2)	16% (5)	20% (25)
mean	1.9	2.5	1.5	1.3	1.8	1.7	1	1.4	1.8
max	7	4	3	2	7	4	1	2	7
silk	42% (90)	47% (24)	63% (75)	46% (43)	57% (29)	100% (206)	63% (40)	53% (17)	70% (93)
mean	2.5	2.2	2.5	2.5	3.1	2.5	2.9	2.6	3
max	10	6	8	8	8	10	8	7	10
velvet	22% (47)	16% (8)	29% (34)	18% (17)	4% (2)	19% (40)	100% (63)	28% (9)	23% (30)
mean	1.8	1.9	1.8	1.7	2	1.9	1.7	1.8	2.1
max	6	3	6	3	3	6	6	3	6
calemink	11% (24)	6% (3)	13% (16)	10% (9)	10% (5)	8% (17)	14% (9)	100% (32)	14% (19)
mean	1.2	1.7	1.2	1.3	1.6	1.2	1.2	1.2	1.2
max	3	3	3	3	2	3	3	3	3
chintz	39% (84)	22% (11)	52% (62)	35% (33)	49% (25)	45% (93)	48% (30)	59% (19)	100% (132)
mean	2.5	2.2	2.6	2.6	2.7	2.8	2.6	3	2.5
max	9	5	9	9	9	9	7	9	9

To bring this discussion to a conclusion, it seems to this author that we should not be particularly surprised by the evidence for a wide price and quality range for both European domestically produced textiles and their Asiatic competitors; or by the socially broad participation in the market for new consumer goods by the middle decades of the 18th century. Research carried out on the intra-Asian trade of the VOC has long shown that a wide range of textile qualities were moved over the whole trade network. The extreme example of this is the *guineas*, a very light cotton used mainly for clothing slaves, but more ordinary cheap goods were produced and distributed widely as well. For example, Wil Dijk's research in the VOC archives from Burma finds evidence of textile customers there who hailed "from all walks of life, from kings to slaves."[15] Indeed, her work shows that the bulk of the trade to Burma consisted of simple cloth intended for everyday use by common people. Given the much greater extent of the ordinary market than the luxury market, it should not be too hard to believe that savvy traders such as the Dutch would have found a way to tap into the lower end of the market. Nor should we find it so hard to believe that the VOC likewise brought home to Europe goods destined for a similarly broad market for ordinary wares. Profits may have been less per unit on the cheaper goods, but this could be more than made up for by volume. The preponderance of relatively inexpensive cotton textiles among the clothing of the orphanage affiliates is certainly evidence of such a strategy at work.

Moreover, the global give and take of both style and technique that has been so well documented for ceramic manufacture, leading to its appellation as 'the pilgrim art', is equally important for textile manufacture. Lest we forget, that most quintessential of English economic phenomenon, the so-called First Industrial Revolution, was overwhelmingly powered by the cotton textile industry, hardly an indigenous enterprise. However, we need not wait for the nineteenth century to see the powerful forces of global imitation at work in the manufacture of textiles. Both Maxine Berg and John Styles, among others, have shown exhaustively that as early as the late seventeenth century this industry was especially sensitive to changes in taste driven by imported goods. As Berg notes, the "focus of invention during the

[15] Wil O. Dijk, "The VOC's Trade in Indian Textiles with Burma, 1634–80," *Journal of Southeast Asian Studies*, Vol. 33 (2002): 495–515, 502.

eighteenth century was directed towards this process of imitation."[16] Moreover, as with ceramics, the direction of influence in textile manufacture was not merely one-way. Both Chinese porcelain and Indian cottons came to be decorated with patterns that were themselves imitations of the imitative style known in Europe as *chinoiserie*.[17]

These globally linked, and highly distinctive, new productive processes made it especially unlikely that cloth made at home would remain a desirable alternative to market participation. Aside from any cost considerations resulting from the economies of scale enjoyed by the mass-produced varieties of cloth, homemade textiles would have been immediately recognizable as such. Perhaps then the final piece of relevant evidence contained in the BWH inventories is the near total absence of spinning wheels and looms from the household possessions. (They were even fewer than the already mentioned scarce forks which could claim a presence in 48 households.) Only eight inventories so much as mention a spinning wheel, and at least three of these households were clearly engaged in the commercial production of textiles. Likewise an even fewer six households owned weaving looms, and all of these were in the service of commercial production. Given the relative poverty of the BWH population, and its high number of female (and especially widowed) decedents, it is truly remarkable that there is not more evidence of the classic female by-employment of spinning. In contemporary North America home production of cloth was still completely ubiquitous in the 18th century,[18] as must have been the case in many parts of Europe as well. This absence, as much as anything else revealed by the inventories about the possessions of ordinary Amsterdamers, brings us full circle in de Vries's conception of the 'industrious revolution'. Labor that would have once been tied up in the onerous and time-consuming task of textile production at home had clearly been shifted to other employments. To replace its former output with something softer, finer, more colorful, easier to wash, and almost certainly more voluminous as well, households of even very modest means turned to the marketplace where they increasingly found cloth to purchase that had been produced half-way around the world.

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[16] Maxine Berg, "New commodities, luxuries and their consumers in eighteenth-century England" in Berg and Helen Clifford (eds), *Consumers and Luxury: Consumer Culture in Europe 1650–1850* (Manchester: Manchester University Press, 1999), 77.

[17] John Styles, "Product Innovation in Early Modern London," *Past and Present*, Vol. 168 (2000): 133.

[18] See Laural Thatcher Ulrich, *The Age of Homespun: Objects and Stories in the Creation of an American Myth* (New York: Knopf, 2001).

BRITAIN'S ASIAN CENTURY: PORCELAIN AND GLOBAL HISTORY IN THE LONG EIGHTEENTH CENTURY[1]

Maxine Berg

The Asian Century

When Lord Macartney, appointed Ambassador to China in 1792, set off on a voyage to open an embassy in Peking he embarked on a government mission which had been nearly ten years in the making. Macartney's Embassy considerably enhanced an earlier embassy led by Charles Cathcart in 1787–8, aborted when Cathcart died en route. It cost the East India Company, which largely financed the expedition, £78,000, even though the Chinese defrayed the costs of travel and accommodation while Macartney was in China. Hopes were high for an expedition that cost the equivalent of building ten grand country houses or double the number of large cotton mills. Macartney believed that the gifts he brought the Qiang-long emperor were the epitome of British production, symbols of enlightenment and civility.[2] "The gifts we had to offer would suffer by being confounded with mere curiosities, which however expensive or even ingenious were more glittering than useful."[3] Their merit was to be measured "by their utility and deriving even a credit from the omission of splendid trifles."[4]

Macartney, stopping off in Canton on his way home, his mission repudiated by the Emperor, yet still wrote optimistically of potential Chinese markets for new British goods. "Already worthless clocks and watches seem to be indispensable necessaries to every Gentleman at Pekin, and even to his principal attendants…" There were great

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[1] Early versions of this chapter were presented as the Hicks Lecture in Economic History, University of Oxford, May, 2006 and the Plenary Lecture of the North American Conference of British Studies, Boston, November, 2006.

[2] For recent accounts of the Embassy as it related to British science and industry see Simon Schaffer, "Instruments as Cargo in the China Trade", *History of Science*, xliv (2006), 1–30; Maxine Berg, "Britain, Industry and Perceptions of China: Matthew Boulton, "Useful Knowledge" and the Macartney Embassy to China 1792–94", *Journal of Global History*, i (2006), 269–288.

[3] Macartney to Dundas, 9 November, 1793, India Office Records G/12/92, 45.

[4] Ibid.

possibilities of products for women, "for the men here seem at all times anxious to procure ornaments of every kind; especially earrings and necklaces of different coloured stones or of glass, or gold, or gilt." He concluded his reflections, "when the number of Consumers in so vast and populous an Empire as China is considered there are few articles so low priced when singly taken, as collectively to be insignificant, and when demanded by millions they rise to be of value…"[5]

This view of China as a huge untapped market for new British consumer goods was repeated in embassies and trade missions which followed during the next two centuries and more. Understanding Chinese consumer cultures as these engaged with Western trade in the later Nineteenth and Twentieth Centuries is now a major theme of histories of consumption.[6] Economic historians long assumed that "supply creates its own demand." Consumer cultures were to be explained wholly by changes in wages or standards of living.[7] But, as Macartney discovered at the end of the eighteenth century, accessing the curiosity, greed and hunger for novelty of China's 300 million would be no easy task. The framework for the Embassy, a voyage of Enlightenment, but also certainly of trade, needs to be set in the context of interaction and trade between China and Britain, indeed Europe—an interaction which I believe was crucial to the industrial development of the West. That trade, until China's ports were opened after the Opium Wars, was primarily about the impact of Chinese goods on European consumer cultures. Chinese export wares penetrated widely and deeply into European culture; the Embassy was in fact the culmination of a long period which I will call the Asian Century of continuous trade between Britain, China and India.

Chinese and Indian merchants responded to distant markets and built up or adapted their production base; European companies and merchants in their turn, built their consumer markets at home and abroad. That trade, of course, for Europe as a whole extended much

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[5] Macartney to the Chair and Deputy at Canton, India Office Correspondence. G/12/92, 375.

[6] Karl Gerth, *China Made. Consumer Culture and the Creation of the Nation* (Cambridge Mass., 2003); Karl Gerth, "Consumption and Politics in Twentieth-Century China," in Kate Soper and Frank Trentmann, eds., *Citizenship and Consumption* (Basingstoke: Palgrave Macmillan, 2008), 34–50; Frank Dikötter, *Things Modern: Material Culture and Everyday Life in China* (London: Hurst and Company, 2006).

[7] Joel Mokyr, "Demand vs. Supply in the Industrial Revolution," *Journal of Economic History* 37 (1977), 981–1008.

further back, but it had its most extensive impact on European material culture from the mid seventeenth century. I will focus on China's success in creating a major export ware sector in luxury and consumer goods appealing to Western consumers. Merchants paid duty on 2 million pieces of porcelain they imported into Britain in 1721 on voyages that had taken a year and half to two years from start to finish. In the decade before the Tea Commutation Act of 1784 which reduced the tea import duties from 80–100 per cent down to 12.5 percent, 7–8 million tons of tea were smuggled into the country, double the amount of tea legally imported.[8] By this time, tea drinking was integrated into the daily routines of the middling classes: Catherine Hutton wrote "Dr. Priestley admired my father [William Hutton], and frequently took tea with us, without ceremony."[9]

What part did porcelain play as a global commodity in the seventeenth and eighteenth centuries? How was it made into an export ware good for European markets in this period, after China's earlier focus on wider Asian and Islamic markets? What impact did these new global markets play in transforming China's porcelain manufacturing processes? How did this trade with China affect consumer horizons in Britain as well as other parts of Europe, and what part did it play in changing the priorities of production at home? These latter questions lead us into porcelain's story in our histories of "useful knowledge" and in our histories of consumer culture and "industrious revolutions." China's world dominance in a specialist commodity that until the eighteenth century no one else could manufacture, was also dominance in a global commodity, especially developed in taste, price and form to meet Western demands. This was a true export-ware commodity fostered by the intermediation of European East India companies and Chinese merchants and manufactured to order. How was knowledge, not just of porcelain's secret ingredients, but also of a product that could so effectively enter, then dominate foreign consumer cultures, conveyed from China to Europe?

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[8] D.R. Lunsingh Scheurleer, *Chinese Export Porcelain* (London: Pitman, 1974), 24–8; Ho-Cheung & Lorna H. Mui, *Shops and Shopkeeping in Eighteenth-Century England* (London: Routledge, 1989), 250; Id., "Trends in Eighteenth-Century Smuggling Reconsidered," *Economic History Review* 28, 1975, pp. 28–43.

[9] Catherine Hutton, *A Narrative of the Riots at Birmingham, July 1791* , (Birmingham, 1875), 5.

Porcelain as Export Ware

The trade in porcelain as it developed in Europe in the seventeenth and eighteenth centuries, was not a continuation of that type of luxury trade characterised by Christopher Bayly as a form of "archaic globalization" focussed on the rarified collecting of charismatic goods and substances, or luxuries and honorific goods from distant lands, such as Kashmiri shawls, Chinese silks, Arab horses and precious stones.[10] It fits, rather, with those features we associate with industrialized communities: large scale production, standardized products and long distance trade. It also fits, however, with the features of a much more ancient trade in quality, but relatively mundane objects from bronze drinking vessels to quality pottery traded from the Bronze Age and the Roman Empire right across Europe, the Middle East and North Africa. Andrew and Susan Sherratt vividly depicted bronze beakers in sites across the whole of Europe by 2000 BC.[11] From this very remote period elites defined their identities by acquiring external luxury materials and exotic manufactured goods. They created and maintained lifestyles by participating. in inter-regional systems of exchange. They were members of "a supra-regional club of powerful and civilised elites" whose status depended on continuing access to material symbols that defined their distinctive positions. Bronze drinking vessels, then pottery appeared in the slipstream of their trade in exotics and luxuries.

Pottery carried special characteristics as a commodity of long-distance trade: fragility, built-in obsolescence and ephemerality, together with its role in marking sub-elite and substitute-elite cultures. It was a good that fitted into an existing system of cultural values. A sub-elite needs acceptable and suitably exotic, but non-convertible "placebos." Pottery was a suitable commodity for social groups whose means or

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[10] C.A. Bayly, *The Birth of the Modern World 1780–1914* (Oxford: Blackwell, 2004), 42.

[11] Andrew Sherratt, "The Emergence of Elites: Earlier Bronze Age Europe 2500–1300 BC," in Barry Cunliffe, ed. *The Oxford Illustrated History of Prehistoric Europe*, (Oxford: Oxford University Press, 1998), 244–276; Andrew Sherratt, "Gordon Childe: Right or Wrong?" in Andrew Sherratt, *Economy and Society in Prehistoric Europe.Changing Perspectives* (Edinburgh: Edinburgh University Press, 1997), 490–505. Andrew Sherratt, "Reviving the Grand Narrative: Archaeology and Long-term Change," *Journal of European Archaeology*, vol. 3 (1995), 1–32.

status excluded them from participation in high level exchanges or access to truly elite materials and goods.[12]

Roman pottery, high-quality functional products, provided this right across the Roman Empire. The quality and standardization of Roman pottery, large proportions of it made in one production site at la Graufesenque in southern France, were not to be seen again in Europe until the fourteenth century AD, argues Bryan Ward-Perkins.[13] But Europe forgot its own heritage of quality consumer goods, produced on a large scale for discerning middle markets; instead she turned to Asia for quality ceramics, experienced by the early eighteenth century, no longer as exotic curiosities, but as prestige items of use for the polite middle ranks and by the middle of the century even for the trading and artisan classes. They were imported in tons, and produced in concentrated kiln complexes and factories deploying extensive division of labour.

Porcelain also provided the ideal product to meet a new characteristic of European material culture emerging in the early modern period. Cheaper and more fashion-sensitive goods replaced more expensive and durable products in the households of the middle and even upper ranks. Though ceramics were, of course, ubiquitous, it was only high-quality, high-fired porcelain that had the strength and finish to displace metal tableware for fine dining and for consuming hot beverages. They were breakable, collectable in sets, and fashion-sensitive, with patterns and shapes changing rapidly. This feature of porcelain's material culture created the opportunities perceived by merchants in developing this as a new export-ware good.[14]

Consumer revolutions

The trade from Asia by the mid eighteenth century was providing quality ware for Europe's middle ranks. How extensive were those

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[12] Susan Sherratt, "*E pur si muove:* Pots, Markets and Values in the Second Millennium Mediterranean," in Jan Paul Crielaard, Vladimir Stissi, Gert Jan van Wijngaarden, eds., *The Complex Past of Pottery. Proceedings of the ARCHON International Conference*, (Leiden: Brill, 1999), 163–196.

[13] Bryan Ward-Perkins, *The Fall of Rome and the End of Civilization* (Oxford: Oxford University Press, 2005), 87–120.

[14] Jan de Vries, *The Industrious Revolution: Consumer Behavior and the Household Economy, 1650 to the Present* (Cambridge: Cambridge University Press, 2008), 160–162.

markets, and what was distinctive about them in the later seventeenth and eighteenth centuries?[15] There is no escaping the evidence of tax, probate and business records over the later seventeenth and eighteenth centuries showing a greater abundance of household goods across all classes, but especially among the urban middling classes. Jan de Vries, convinced by this evidence—"it cannot be explained away as a phenomenon restricted to a small social group, a few goods or a brief period of propitious price and wage movements."[16]—also linked it to the change in household behaviour he termed "the industrious revolution." That industrious revolution, de Vries continues, was inspired by attractive goods produced outside the household, especially non-local goods and even exotic luxuries.[17]

Those consumer desirables were fashion clothing items, notably printed calicoes traded from India, and new hot beverages, tea, coffee and chocolate together with the ceramic accoutrements of sociability to serve them with. Ornaments of the body, and of sociability, civility and politeness, many of these consumer goods were created in Asia. Asian goods—not just tea, but textiles, porcelain, lacquerware and furnishings, drugs and dyestuffs were, by the eighteenth century, central to European material culture, and part of a systematic global trade. Jan de Vries calculates a trade of 50,000 tons a year by the late eighteenth century, or just over one pound of Asian goods per person for a European population of roughly 100 million.[18]

British consumers in the early eighteenth century, even long before the Tea Commutation Act of 1784, were buying large amounts of chinaware. We know that the focus of English East India Company trade shifted to China, especially from the 1780s, with imports focussed pri-

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[15] John Brewer, "The Error of our Ways: Historians and the Origins of Consumer Society," ESRC Cultures of Consumption Working Paper. Working Paper No. 12, www.consume.bbk.ac.uk/publications.html.

[16] Jan de Vries, "Between Purchasing Power and the World of Goods," in John Brewer and Roy Porter,eds., *Consumption and the World of Goods* (London: Routledge, 1993), 85–132.

[17] Ibid.

[18] Jan de Vries and Ad van der Woude, *The First Modern Economy. Success, Failure and Perseverance of the Dutch Economy, 1500–1815* (Cambridge: Cambridge University Press, 1997), 450–55, 462, 642–647; de Vries, "Connecting Europe and Asia: a Quantitative Analysis of the Cape-route Trade, 1497–1795," in D.O. Flynn, A. Giraldez, and R. von Glahn, eds., *Global Connections and Monetary History, 1470–1800* (Aldershot, U.K.: Ashgate, 2003), 35–106; de Vries, "The Limits of Globalization in the Early Modern World," *Economic History Review*, 63, 2010, pp. 710–733.

marily on tea. By the first decade of the nineteenth century goods from Canton accounted for 67 per cent of all Company sale income earned in London. Tea was, of course, the greatest import, but even by the mid eighteenth century chinaware eating and drinking vessels were no longer only the possessions of a narrow elite. Lorna Weatherill, Carl Estabrook, and Mark Overton found 30–50% of their inventories between 1720 and 1740 contained chinaware. Porcelain was smuggled into Ireland; the arrival of East Indiamen and auctions of their contents in Cork, Dublin and inland towns attracted all comers.[19]

This English and Irish experience was replicated in Europe. The Dutch inventories indicated even more rapid and extensive saturation. Half of Anne McCants's inventories from the Amsterdam Municipal Orphanage, between 1740 and 1782 representing a broad spectrum of the working poor, the craftsmen and small shopkeepers of the city had tea and coffee wares; 39 per cent of her inventories contained Chinese and Japanese porcelain.[20] And de Vries, himself has summarized other patterns of consumption. In the Dutch town of Weesp, not far from Amsterdam, half the inventories left by town dwellers contained porcelain; by the 1780s the better-off left behind an average of 392 pieces of porcelain, the less well off an average of 163. Nearby farmers left an average of 64 pieces.[21] In Antwerp Bruno Blondé found tea paraphernalia in 58% of the poorest households in 1730, and in all the inventories he examined by 1780.[22] Evidence gathered on French and Austrian consumption indicates slower uptake of porcelain and of

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[19] On Britain see my *Luxury and Pleasure in Eighteenth-Century Britain* (Oxford: Oxford University Press, 2005), 17–154 and 119–246. On Ireland see Toby Barnard, *Making the Grand Figure. Lives and Possessions in Ireland, 1640–1770* (New Haven and London: Yale University Press, 2004), 125–133.

[20] Anne McCants, "Poor consumers as Global Consumers: the Diffusion of Tea and Coffee Drinking in the Eighteenth Century," *The Economic History Review* , Vol. 61 (2008), 172–200, 185. Also see McCants, "Exotic Goods, Popular Consumption and the Standard of Living: Thinking about Globalization in the Early Modern World," *Journal of World History*, vol. 18 (2008), 433–462, 456–7.

[21] Van Koolbergen, "De materiële cultuur van Weesp en Weesperkarspel," cited in de Vries, *The Industrious Revolution: Consumer Behavior and the Household Economy 1650 to the Present*, 164.

[22] Bruno Blondé, "Tableware and Changing Consumer Patterns. Dynamics of Material Culture in Antwerp, 17th–18th Centuries," in J. Veeckman ed., *Majolica and Glass from Italy to Antwerp and Beyond: the Transfer of Technology in the 16th–early 17th Century* (Antwerp: Antwerpen, 2002), 295–311, cited in de Vries, *Consumer Behavior*, 164.

fine earthenware at least beyond the major towns.[23] This widespread appearance of porcelain within the consumer baskets of Europe's elite, middling and in some places even of its less well-off inhabitants indicates a product of long-distance trade fabricated to order, traded from China, and distributed within Europe and the Atlantic world in high volumes.

Porcelain and International Trade

Porcelain became one of China's most distinctive export-ware products. Robert Finlay emphasised the global significance of Jingdezhen blue and white wares from the fourteenth century, arguing for a collaboration of Muslim and Guangzhou merchants to create a major new export good for the Middle East and South East Asia.[24] Data gathered from Chinese and Japanese records for the seventeenth century indicate by far the highest of China's porcelain exports went to the 'South Seas', that is, Southeast Asia. Some of these included those going to Batavia, from which Dutch ships transhipped unspecified amounts on to Europe. By the 1690s porcelain dealers in Batavia estimated they received shipments of 2 million pieces a year.[25] But at this stage Japanese imports were also important. Direct European trade with China in porcelain developed out of China's already well-advanced export trade to Japan and 'South Seas' markets.

Table 1. Average Annual Ceramic Exports in the Seventeenth Century From China[26]

	Total Pieces	Europe	South Seas	Japan
1602–44	405,535	65,970	245,067	93,498
	(100%)	(16%)	(60%)	(23%)
1645–61	129,366	41,292	69,254	18,820
	(100%)	(31%)	(53%)	(14%)

[23] De Vries, *Consumer Behavior*, 163.

[24] Robert Finlay, "The Pilgrim Art: The Culture of Porcelain in World History," *Journal of World History*, vol. 9, Fall 1998, pp. 141–188, pp. 155–7. Also see his book, Robert Finlay, *The Pilgrim Art: Cultures of Porcelain in World History* (Berkeley: University of California Press, 2010).

[25] Lothar Ledderose, *Ten_Thousand Things. Modular and Mass Production in Chinese Art* (Princeton: Princeton University Press, 2000), 88–9.

[26] C. Ho, "The Ceramic Trade in Asia 1602–82," in A.J.H. Latham, H. Kawakatsu, *Japanese Industrialization and the Asian Economy* (London: Routledge, 1994), 37–8.

Table 1 (*cont.*)

	Total Pieces	Europe	South Seas	Japan
1662–82	95,959	5,834	89,312	1,162
	(100%)	(5%)	(93%)	(1%)
From Japan:				
1659–61	101,960	9,102	92,858	
	(100%)	(8%)	(91%)	
1662–82	95,828	8,988	86,840	
	(100%)	(9%)	(90%)	

Europe's East India Companies built on this experience. First, large quantities were imported. In the case of the English East India Company, Chaudhuri did not rank these imports as a significant part of the Company's imports,[27] but by the early eighteenth century the British imported one to two million pieces a year with 100,000 pieces a year re-exported to the British colonies.[28] Porcelain came to Europe in an extensive seagoing trade where the Dutch sent out nearly 2,000 ships between 1700 and 1760, while the English in the same period sent out 925 ships.

Table 2. Numbers of ships sent to Asia by the VOC, EIC and the French Company 1670–1790[29]

	VOC	EIC	French
1670–80	232	131	30
1690–1700	235	80	36
1710–20	311	127	41
1730–40	375	154	124
1750–60	291	191	135
1770–80	290	229	194
1780–90	297	292	303
1790–95	118	177	196

[27] K.N. Chaudhuri, *The Trading World of Asia and the East India Company 1660–17160* (Cambridge, Cambridge University Press,1978) 406–9; 519–520.

[28] Lorna Scammell [Weatherill], "Ceramics," *Oxford Encyclopedia of Economic History*, Vol 1 (Oxford: Oxford University Press,, 2003), 379–383.

[29] E.S. Gaastra and J.R. Bruijn, "The Dutch East India Company's Shipping 1602–1795 in Comparative Perspective," in Gaastra and Bruijn, *Ships, Sailors and Spices* (Amsterdam: Aksant Academic, 1993), 177–208, Table 7.2, 182.

If we look at Chaudhuri's data on these imports in more detail, and examine in addition the data compiled by Lorna Weatherill from the Customs accounts, we can identify a number of years of high imports in quantities and in valuations. This was furthermore a commodity whose use and cultural impact continued over a long time period, a lifecycle and beyond as it was bequeathed to the next generation. It was furthermore recycled and used through lower income groups, often in damaged or chipped form.[30]

Chaudhuri's estimates of Chinaware imports are based on the Ledgers of the India Office records. The values are cost values, and indicate relatively low valuations. Values listed after 1705 are all lower than in these early years of the century.

Table 3. English East India Company: Peak Years of Imports of Chinaware and Porcelain[31]

Year	Value (£)	% of Asian Imports
1693	6,275	10.4
1697	13,067	8.9
1699	15,282	3.9
1702	18,764	5.0
1704	20,815	13.3
1705	14,338	7.0

Table 4. English East India Company: Later Years of High Imports of Chinaware and Porcelain

Year	Value (£)	% of Asian Imports
1722	9,527	1.9
1729	9,599	1.3
1730	11,769	1.9
1737	11,246	1.9
1743	11,995	1.6
1754	10,225	1.3

[30] McCants, "Exotic Goods," 457.
[31] Chaudhuri, *The Trading World of Asia* , Appendix 5, Table C.8.

Turning to Lorna Weatherill's estimates, based on Customs 3, import valuations are much higher, but are also estimated differently. Retained import values here are estimated at three times the "at value" level given in the ledgers, a standard multiple to provide an estimate of the "sold at" values of the chinaware.

Table 5. Retained Imports of China Ware 1704–1774—England[32]

	£
1704	103,363
1714	23,452
1724	37,043
1734	70,297
1744	29,738
1754	29,474
1764	41,643
1774	23,320

Table 6. Retained Imports of China Ware—Peak Years—England

	£
1704	103,363
1718	144,523
1722	95,499
1732	118,652
1737	100,808
1740	107,482
1757	103,586
1758	150,621

Unlike Chaudhuri's estimates taken from the East India Company ledgers, Weatherill's Customs Accounts estimates show years of high value imports into the later 1750s. We can make some of these accounts of the early eighteenth century trade much more concrete by setting out the detailed lists of one ship, *The Loyal Bliss*. Orders for its voyage in 1712 included 40,000 chocolate cups with handles, 110,000 tea cups

[32] PRO Customs Accounts. Cust 3, 1698–1771; Cust 17, 1772–1808. Derived from tables compiled by Lorna Weatherill, "The Growth of the Pottery Industry in England, 1660–1815. Some new evidence and estimates." *Post-Medieval Archaeology*, Vol. 17 (1983), 15–46. Table A-3, 33–35.

with matching saucers and 6,000 tea pots, as well as 10,000 milk jugs and 2,000 sets of sugar bowls.[33]

Other ways of investigating levels of porcelain exported directly from Canton can be explored in exports of several European companies for individual years as recorded in the accounts gathered by H.B. Morse. These accounts indicate that even in the last half of the eighteenth century, when the amounts of porcelain imported by the English East India Company were declining, there were still substantial imports overall by all the East India Companies. Other indicators provided by Godden on the year 1778 show Britain's high level of imports, even compared to other European countries.

Table 7. Exports by Foreign Ships at Canton, 1764[34]

	Tea(piculs)	Porcelain(piculs)
14 English	53,000	— (370 chests)*
4 Dutch	37,078	3,326
4 French	14,580	2,284
2 Danes	20,357	1,460
1 Swede	11,958	1,170

1 picul=133. 1/3 lb. average
*370 chests of private trade only.

Table 8. Exports by Ships from Canton, 1773[35]

	Tea (piculs)	Porcelain (piculs)
13 English ships	69,000	1,211
4 Dutch ships	36,635	2,372
3 French ships	22,663	1,400
2 Danish ships	22,497	1,470
2 Swedish ships	20,602	1,887

[33] Chaudhuri, *The Trading World of Asia* , 408.
[34] H.B. Morse, *Chronicles of the East India Company Trading to China 1635–1834* , Vols. 1–V (Oxford: Oxford University Press, 1929), 113–114, 121–2.
[35] Ibid.

Table 9. Chinaware Carried by European East India Company Vessels in 1777–1778[36]

Number of Vessels	Country	Tons China Ware
8	Britain	348
4	Holland	111
6	France	100
2	Sweden	99
2	Denmark	39

To put this in a wider European context, the VOC imported 43 million pieces from the beginning of the seventeenth century to the end of the eighteenth century. The English, French, Swedish and Danish Companies shipped another thirty million pieces.[37] In one year, 1777–8, European ships brought in nearly 700 tons.[38] English and Dutch imports, though the largest, were competitively followed by the successes of Europe's smaller East India Companies. The Ostend Company (GIC), though short-lived, was in the early 1720s a profitable and effective competitor. Focussed on the China trade, its voyages were shorter and its vessels smaller and quicker. It held a favoured position in the tea trade, and with the tea always imported porcelain.[39] The gap the Ostenders left in this successful China trade was later taken up by the Danish and Swedish Companies which also focussed on a direct China trade.[40]

Official imports were furthermore amplified by private trade. Officers and seamen on East India Company vessels could carry 80 tons of privilege or private trade, made up of porcelain, especially ornamental and decorative ware, armorial ware and dinner and tea sets, but also

[36] G. Godden, *Oriental Export Market Porcelain and its Influence on European Wares* (London: Granada, 1979), 47.

[37] Finlay, "The Pilgrim Art: the Culture of Porcelain in World History," 141–89, 168.

[38] Godden, *Oriental Export Market Porcelain*, 47.

[39] K. Degryse and J. Parmentier, "Maritime Aspects of the Ostend Trade to Mocha, India and China 1715–1732," in F.S. Gaastra and J.R. Bruijn, *Ships, Sailors and Spices. East India Companies and their Shipping in the 16th, 17th and 18th Centuries* (Amsterdam, 1993), 162.

[40] F.S. Gaastra and J.R. Bruijn, "The Dutch East India Company's Shipping 1602–1795 in Comparative Perspective," in Gaastra and Bruijn, *Ships, Sailors and Spices*, 177–208; K. Konninck, "The Swedish East India Company 1731–1807," in Gaastra and Bruijn, *Ships, Sailors and Spices*, 125.

lacquerware, fans, painted glass, paper, mats, clay images, furniture, pictures, Persian carpets and diamonds. The China Committee of the VOC, furthermore, declared in 1756 that its official imports were not to include curiosities, services or cupboard garnitures, only "current ware," that is dinner plates, tea and coffee cups and saucers and other ware that brought in a fixed profit. The English East India Company in the 1770s restricted its own official imports to tea, silk and chinaware of fairly standard lines.[41] Through a combination of 'official' and private trade the full range of a relatively standard quality fine-ware product and a highly-diverse range of specialty goods was imported.

Asian Export Ware and European Markets

How did China produce such quantities of quality porcelain, most of it to standard specifications? To what extent did Asia then provide the model for consumer goods development in Europe? First, Europe's East India Companies actively participated in creating a product; in the case of porcelain, they engaged with merchants and manufacturers at home to design and dictate the shape and decoration as well as series and assemblage of objects for specific occasions of social engagement, especially teawares and dinner ware services. Chinaware retailers and other luxury-goods shopkeepers cultivated markets in Europe, selling initially within metropolitan luxury markets. They adapted the type and design of the porcelain they ordered from the East India Company to gentry and middle class desirables in tea ware and dinner services. This interaction between international and domestic merchants soon transformed an art object and exotic collectable into a commodity of taste and fashion. They quickly diversified to a broader range of qualities. Once the crates of porcelain reached Europe, they had to be sold, and the distribution outlets were centralised and large scale.

In Britain the goods auctioned in quarterly East India Company sales in London, and information gathered at these sales, regulated the volume of trade at the Asian end. Large lots were bought by middlemen, who then sold them to dealers advertising large consignments in the provincial press. London's china and earthenware dealers—there

[41] Chaudhuri, *Trading World*, 287; Christian J.A. Jörg, *Porcelain and the Dutch China Trade*, (The Hague: Springer, 1982), 102–8; Godden, *Oriental Export Market Porcelain*, 59, 78, 95–104.

were a minimum of 250 of them before 1780—frequently had stocks valued at £2–3,000; and even smaller provincial dealers kept stocks at the considerable values of £300–700.[42]

This repeated the pattern set by the Dutch. There were also small numbers of large-scale buyers at the Dutch Zeeland auctions—one in the period 1724–48 frequently bought 50,000–100,000 pieces; there were other dealers who took 20–40,000 pieces.[43] This highly centralised marketing and distribution also set the terms for how domestic quality earthenware came to be sold in the later half of the eighteenth century. Creating an export-ware sector depended on careful attention to design and to quality. This was product development on a sophisticated scale; it involved transforming a curio into both the extensive paraphernalia of the bourgeois tea table, and the necessary utensils of the daily routines of life of rich and poor alike. Consumer markets in Europe were made for quality goods that were not high luxuries for elites only.

Making better products also frequently required supporting changes in processes. Creating quality export wares was also about commodity reputations. The time and space separating importers from areas of production made mercantile control over quality all the more vital. For textiles, this was about thread counts, cloth weights and qualities, for indigo it was about light weight, sweet odour, smooth texture and luminous colour; for paper it was about regular weights and grades of diverse products for segmented markets.

What was it for porcelain? Here was a product esteemed for its beauty—its white base, its translucence, its distinctive blue and white, then polychrome decoration. It was also valued for its utility—it was tough and lightweight and impermeable to hot liquids. It was the ideal vessel for tea, coffee and chocolate. Over the course of the seventeenth and early eighteenth centuries representations of its magical qualities, which had once made it into such an exotic, were demystified. The

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[42] See Weatherill, "The Growth of the Pottery Industry," 17; Hilary Young, *English Porcelain 1745–95* (London: Victoria and Albert Museum, 1999), 154–7; Aubrey Toppin, "The China Trade and Some London Chinamen," *English Ceramics Circle Transactions,* 3 (1935), 37–57. On auctions and the art market see Jeremy Warren and Adriana Turpin eds., *Auctions, Agents and Dealers. The Mechanisms of the Art Market 1660–1830* (Oxford: Oxford University Press, 2007). See especially the chapter by Satomi Ohashi, "The Auction Duty Act of 1777: the Beginning of Institutionalisation of Auctions in Britain," 21–32.

[43] Jörg, *Porcelain and the Dutch China Trade,* 131.

tons of porcelain imported into Europe proved that something once thought impossible could be done.

Chemists, potters and projectors engaged in chemical analysis and experiment. Europeans knew more about where and how Chinese porcelain was produced as print culture from the seventeenth century conveyed the accounts and maps sent by Jesuit priests who recorded their travels to Chiangsi province.[44] Père d'Entrecolle's accounts in 1712 and 1722 were repeated many times in extended discussions of porcelain in Europe's encyclopedias and dictionaries of commerce and technology.[45]

Making Export Ware: Design and Production

In the case of export-ware porcelain, the bulk of the products came from one centre—Jingdezhen where the imperial factory and kilns were closely connected to the private factories.[46]

Conjunctural factors fostered three developments:

1. New export markets in Japan and new domestic markets
2. New export markets in Europe
3. A space for the development of private kilns and new merchant connections

Developing these export-ware goods for Europe's markets was closely tied to producing for new markets for Chinese porcelain opened in Japan in the mid sixteenth-century development when the Japanese developed of a specialised tea culture. Chinese merchants and private kilns responded to and fostered these markets in Japan; they also later

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[44] Rose Kerr and Nigel Wood *Science and Civilization in China. Vol. 5. Chemistry and technology. Part XII., CeramicTechnology* (Cambridge: Cambridge University Press, 2004), 742–5.

[45] For translations of d'Entrecolle's accounts see Robert Tichane, *Ching-te-chen. Views of a Porcelain City* (New York: New York State Institute for Glaze Research, 1983), 51–112–128. See the account in Malachy Postlethwayt, *The Universal Dictionary of Trade and Commerce,* 2nd edition, 2 vols. (London, 1757), vol. ii, "Porcelain."

[46] Kerr and Wood, *Ceramic Technology*, 188–90; A.T. Gerritsen, "Fragments of a Global Past: Ceramics Manufacture in Song-Yuan-Ming Jingdezhen," *Journal of the Economic and Social History of the Orient* Vol. 52 (2009), 117–152. Also see Dr. Gerritsen's AHRC Project, 'Global Jingdezhen: Cultures of Porcelain in World History', http://www2.warwick.ac.uk/fac/arts/history/ghcc/research/globalporcelain.

turned to European markets which posed some similar challenges in very specific consumer demands in different cultural contexts. As we have seen, over the course of the seventeenth century China exported 63 percent of her ceramic exports to the South Seas, only 12 percent to Europe and 23 percent to Japan. Events and markets during the sixteenth and seventeenth centuries provided the catalyst for developments that would make the large scale of Europe's imports during the eighteenth century possible. The major import of china wares into Europe was not just a story of European demand and European East India companies. It was also about events and changing production and market conditions in China and it was about consumer markets in Japan.

Imperial demand and investment in the imperial factory at Jingdezhen declined in the early seventeenth century, coinciding with the decline of the Ming dynasty, but middle range private kilns adapted their production to both a large internal market, and to new demand in overseas trade, notably from the Japanese and the Dutch. Private kilns responded to new non-imperial demands affecting design, quality and quantity. Chinese porcelain producers underpinned the elaboration of the Japanese tea taste.

The Japanese tea ceremony, or *chanoyu*, while it existed at least from the fifteenth century reached a high cultural and political significance in the last quarter of the sixteenth century. Developed into a high art, especially under the tea master Rikyū, *chanoyu* became a political and military ceremony under the daimyos, Nobunaga and Hideyoshi from 1570 through the 1580s.[47]

Hideyoshi developed it as a way of life, transforming ritual receptions into small tea meetings even in the midst of campaigns. Large tea gatherings and lavish displays provided a public ritualization of Hideyoshi's power and position. But equally the small tea house and culture of wabi, or negation of luxury provided its participants with a symbolic disrobing of status and power—the experience of *communitas*—an opportunity to sit in fellowship outside the system. Under Hideyoshi during court visits or in celebrations after campaigns, the tea gatherings were daily or more frequent. In one month in 1590,

[47] Theodore M. Ludwig, "Chanoyu and Momoyama: Conflict and Transformation in Rikyū's Art," in Paul Varley and Kumakura Isao, *Tea in Japan. Essays on the History of Chanoyu*, (Honolulu: University of Hawaii Press, 1989), 71–99; Michael Cooper, "The Early Europeans and Tea," in Varley and Kumakura, *Tea in Japan*, 100–132; Okakuri, Kakuzō, *The Book of Tea* (1906); (NY, 1923).

Rikyu hosted twenty-six of these gatherings, sometimes holding three in a day.[48] Cultivated by tea merchants and the tea masters, the tea ceremony spread by the early seventeenth century from the court and the elites. With Ieyasu as the first Shogun of the Tokugawa family, trade expanded and wealth grew in the newly settled conditions. New wealthy groups within a rapidly urbanising Japanese society developed different interpretations and styles of the tea ceremony.

What is crucial in all this for my purposes was the utensils and vessels used in the tea ceremony and *kaiseki* or simple meal which preceded it. At the heart of the tea ceremony was a showing of the valued tea articles (the sacra) and rehearsing their history. These were often simple, even rough wares, but they were highly individual, invested with personal associations and hugely valued. Leading tea masters had large personal collections from which they selected pieces for each ceremony. Some of these objects were Korean and some Chinese, but the bulk of Jingdezhen export ware was used in serving the meal that preceded the tea. Japanese tea masters prized quality wares exhibiting unsophisticated and individual characteristics.[49]

What the Chinese private kilns did over a crucial period of four decades, was to provide export-quality wares, many in small quantities, and specifically designed from patterns and correspondence provided by merchants servicing the different schools of tea ceremony. What this required was response to an aesthetic of diversity with some schools preferring more showy wares, others appreciating an understated taste. A diversity of shapes and utensils was required to meet the different protocols of the socially-diverse but large sectors of new wealth in Edo and other Japanese cities.

Together with this distinctive export ware, Chinese kilns also produced large amounts of good quality, standard design blue and white porcelain and stonewares for ordinary consumption.[50] Japan was soon to produce its own porcelain, and moved into European and South Seas markets during the Ming-Qing wars.

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[48] Ludwig, "Chanoyu and Momoyama," 90.

[49] Colin D. Sheaf, "Chinese Ceramics and Japanese Tea Taste in the Late Ming Period," in Rosemary E. Scott, "The Porcelains of Jingdezhen," *Colloquies on Art & Archaeology in Asia* No. 16 (London, Percival David Foundation of Chinese Art, 1992) 165–183.

[50] S.J. Vainker, *Chinese Pottery and Porcelain. From Prehistory to the Present* (London: British Museum Press, 1991), 150–1; Sheaf, "Chinese Ceramics and Japanese Tea Taste", 165–182.

At the same time as producing for this dual market in Japan, private kilns in China both provided a new type of product for domestic markets, and also adapted to Dutch markets and other European markets. The later Ming period saw a substantial group of new rich seeking the material attributes of the traditional gentleman literatus; this was a new market for high quality goods, especially those decorated to follow the new prints and book illustrations associated with the literati. Merchant guilds closely associated with literati circles took up their prints and illustrations conveying commentary on contemporary fashions and politics.[51]

Merchants also effectively turned this quality production for an internal market to new export opportunities. They sold quality wares to Europe's East India Companies, made after models for shapes like beer mugs, candlesticks, mustard pots or beakers, but decorated in Chinese style with a clear aesthetic appeal to European buyers. Adapting book illustration to ceramic decoration carried clear meanings for domestic consumers; they also proved attractive to European buyers who saw such decoration only as 'Chinese figures with landscapes.' Chinese merchant acuity and inland trading organization thus adapted these literati-inspired high quality wares to two markets—an internal, and a greatly expanded export market.[52]

During the long period of decline and struggle leading up to the Ming-Qing transition of the mid seventeenth century, this long-standing centre for the production of imperial, domestic and export-ware porcelain declined, but subsequently underwent a rapid transformation of its products and its production processes. This occurred at a time coinciding with the rising popularity of Chinese porcelain in

[51] See Craig Clunas, *Superfluous Things. Material Culture and Social Status in Early Modern China* (Cambridge: Cambridge University Press, 1991); Clunas, *Pictures and Visuality in Early Modern China* (London: Reaktion, 1997), 133–148; Robert Batchelor, "On the Movement of Porcelains," in John Brewer and Frank Trentmann, eds., *Consuming Cultures. Global Perspectives* (Oxford: Oxford University Press, 2006), 95–121.

[52] Shelagh Vainker, "Luxuries or not? Consumption of Silk and Porcelain in Eighteenth-Century China," in Maxine Berg and Elizabeth Eger, eds. *Luxury in the Eighteenth century: Debates, Desires and Delectable Goods* (London: Palgrave Macmillan, 2007), 207–218, Jörg, "Chinese Porcelain for the Dutch in the Seventeenth Century: Trading Networks and Private Enterprises", in Rosemary E. Scott, ed., *The Porcelains of Jingdezhen* (London: Percival David Foundation of Chinese Art, 1993), 183–205, 189; Margaret Medley, *The Chinese Potter: A Practical History of Chinese Ceramics* , 3rd Ed. (London: Phaidon Press, 1989), 229–232.

Europe, and coinciding in addition with the means of transporting vastly increased shipments of the goods.

The Kilns

The rapid design and marketing response to these export opportunities was carried out in private kilns in the late Ming and the period of transition to the Qing dynasty. The imperial factory was reorganized and renamed in 1645; then there was a great rebuilding after the destruction of large parts of Jingdezhen in 1675; there was an enquiry into the pottery industries in 1680, and for the next hundred years the imperial factory was under the control of officials from Peking.

Close interaction between the imperial factory and the private kilns brought quality controls, top quality wares, not just for ritual vessels for state and religious ceremonies and the needs of the royal household, but for wider markets, and with this high tax revenues.[53] This was a unique period of two to three decades, to be followed by diversification and specialisation by the early eighteenth century into much more middling and lower quality export ware.[54]

New markets and reorganization in Jingdezhen also stimulated new technologies. More kaolin added to porcelain clays and new glazes produced different and finer products. But it was new kilns and how they were used that created this export ware in such astonishing volumes. Porcelain had long been produced in dragon kilns, used in the South as early as the 3rd Century AD; these stretched up hillsides as much as 60 metres, and might fire 20,00 to 25,000 pieces with temperature differences of 600 degrees C. between the lower chambers and the higher. These could produce the full range from earthenware, through stonewares to porcelain.[55] A kiln of 42 metres required 6 tons of wood and the firing lasted 36 hours with a further cooling period of 72 hours. Such a kiln could fire 3,500 pots, or 7 tons of ware for 6 tons of fuel (open-fired pots without saggars).[56] New egg-shaped kilns

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[53] Kerr and Wood, *Ceramic Technology*, 188–190.
[54] Vainker, "Luxuries or not?" 208–9.
[55] These are described in Finlay, "The Pilgrim Art," 148, 156.
[56] Nigel Wood, Personal Communication, 28 April, 2006. Also see S. Vainker, "Production and Trade of Porcelain in China, 1000–1500." Paper to the Global Economic History Conference, April, 2006.

were widely introduced from the late Ming period, and extensively used by private producers,. They were 7–18 metres in length, consumed a modest 25 to 35 tons of wood for a 250 cubic metre capacity or 10 to 15 tons of porcelain (including the saggars could bring this up to as much as 30 to 45 or 40 to 60 tons) in a main firing period of 24 hours. They were constructed by specialist firms: each kiln allowed different temperatures and different kiln atmospheres within a single firing; they conserved energy in comparison with other kiln types, and they could be densely packed. They were also very versatile, firing a range of wares over a temperature difference of 300 degrees C. Where imperial kilns might fire 300 blue and white pieces at a time, operators at a comparable private kiln stacked 1000 pieces together for a single firing; private kilns regularly produced double the output of the official kilns and produced mixed loads in each firing.[57] By 1743 there were 200 to 300 areas of private kilns employing 100,000 craftsmen, from this period they expanded and skills increased.[58]

Pere d'Entrecolle's celebrated letters of 1712 and 1722 claimed 3000 furnaces. D'Entrecolle also provided a clear account of the economic impact of a division of labour, already in place by the beginning of the eighteenth century, governed by guild regulations. He recounted factories in "less frequented places of Ching-te-chen," "there live and work a large number of workers who each have their appointed task. One piece of porcelain, before it enters the door of the furnace passes through the hands of more than twenty people without any confusion…No doubt the Chinese have learned that the work is done faster this way." At a later point he added, "[I]t is surprising to see with what speed these vessels pass through so many hands. It is said that one piece of fired porcelain passes through the hands of seventy workers." Stamps, moulds and decorating were all based on modular systems.[59] In d'Entrecolle's words "[T]hese molded works are made in three or four pieces which are fitted one to the other…As for flowers and other

[57] Kerr and Wood, *Ceramic Technology*, 370–372; Vainker, ibid.; Lothar Ledderose, *Ten Thousand Things. Module and Mass Production in Chinese Art* (Princeton: Princeton University Press, 2000), 87–9.

[58] Kerr and Wood, *Ceramic Technology*, 201.

[59] "The Letters of Pere d'Entrecolles," Letter 1, September 1, 1712 translated by Robert Tichane, in Robert Tichane, *Ching-te-chen. Views of a Porcelain City* , 55–111. See the discussion of this and other modular systems in Chinese arts and crafts in Ledderose, *Ten Thousand Things*.

ornaments that are not in relief, but which are like engraving, one applies them to the porcelain with stamps and molds. One also applies ready-made reliefs, in the same manner that one applies gold lace to a coat."[60] "Chinese landscape with figures" decoration was a modular decoration created out of a small standardized range of decorative elements. Even with these "the work of painting in any given laboratory is divided among a large number of workers. One makes only the first coloured circle that one sees next to the ends of the porcelain; another traces flowers that a third one paints; this one does water and mountains; that one birds and other animals…"[61]

Conclusion

Large-scale production deploying modular systems and division of labour combined with geographical concentration of private and official factories and kilns in one major centre, Jingdezhen. This created the global export ware that passed in Europe from exotic collectable to the expected props of the daily routines of polite civility and respectable sociability. Asian production processes and Asian quality products globalized the concept of a semi-luxury, quality good integrated into everyday life.

Lancashire cotton manufacturers found in mechanisation the solution to the quality and diversity of Indian calicoes and muslins. British machine-made fabrics by 1790 provided the demands for quality and consistency throughout a high-income Atlantic free-trade zone. Porcelain, once exotic and magical was demystified by the early eighteenth century, as tons of it were brought in European ships, and as descriptions of the great porcelain city, its vast factories and intensive division of labour entered the canons of Europe's "useful knowledge."

Here was a great industrial city, its innovative private factories and merchants filling the gap left by the decline in imperial demand in the early to mid seventeenth century by responding to quality domestic markets and new export-ware markets in Japan and Europe. With the revival of the imperial kilns and new quality controls, and craftsmen and orders passing between the imperial and private kilns in the latter

[60] "The Letters of Pere d'Entrecolles," Letter 1, ibid.
[61] "The Letters of Père d'Entrecolles," Letter 1, ibid., esp. 73–78.

half of the seventeenth century, knowledge transfers and new markets stimulated technological innovation. On a grand scale, Jingdezhen reaped its gains from the 'locality' of knowledge, a creative city, anticipating Europe's Lyon or Birmingham.

The lessons of concentrated industrial regions, large kiln complexes, specifically honed fuel-efficient kilns and extensive division of labour later developed in different ways in Britain's region of earthenware production in North Staffordshire, where the potters of a group of interlocking towns developed a "useful knowledge" of craftsmen's skills, systematic experimentation and competitive imitation. They improved their own coal-fired bottle ovens, refined the clay composition of their earthenwares, and advanced the division of labour to produce their own high-quality export ware, creamware.

Staffordshire creamwares and other Staffordshire varieties of fine earthenware now fed the new markets for ceramics. Staffordshire ware became one of Britain's leading export-ware products, more of it supplied to the U.S. by 1790 than to anywhere else and providing the majority of table, tea and toiletwares.[62]

An Asian century was how Britain and Europe experienced the introduction of semi-luxury and quality consumer goods, produced in a huge industrial city, shipped in enormous quantities to Europe's entrepots, and distributed through the population by countless china dealers and retailers. Staffordshire ware, following the model of Chinese blue and white, quickly established itself as a global product, one of the new array of modern, fashionable and high quality British products. Trade once again meant variety and choice. This was now a trope representing prosperity, civilization and British goods.

And this was the message that Macartney wanted to take to China. Where Europe's 100 million had once been China's new market, now it was time to seek out markets for British goods among China's 300 million. Despite his negative reception at the Chinese court, Macartney wrote of the Chinese "in general I have found no people more curious, more greedy after novelty, or more eager to increase their personal convenience than the subjects of this Country." And the ever optimistic Matthew Boulton, compiling his own inventory of new British consumer goods to take on the Embassy saw this as "the most

[62] Berg, *Luxury and Pleasure*, 308–310.

favourable [occasion] that ever occurred for the introduction of our manufactures into the most extensive market in the world…to send a very extensive selection of specimens of all the articles we make both for ornament and use. I don't mean as presents to great men but such as are vendable through all the middle and lower class of people."[63]

[63] Birmingham Central Library, Matthew Boulton Papers, 'Macartney's Embassy, Matthew Boulton to James Cobb, East India House, no date, 1792, letter 19.

REPEAT MIGRATION BETWEEN EUROPE AND THE UNITED STATES, 1870–1914*

Drew Keeling

1. *Physical migration and its repetition*

Late nineteenth and early twentieth century transatlantic migration was among the greatest and most transparent intercontinental population transfers ever, but historical studies of its causes have infrequently encompassed all of Europe, and have tended to skirt around the intricate set of mechanisms by which the relocation was physically affected. How the Atlantic crossing evolved from one-time resettlement into repeatable travel for temporary employment, has also not been systematically connected to the broad overall causes behind migrant self-selection.

This paper seeks to contribute to explaining the general processes of two-way migration across the North Atlantic in the context of an environment wherein such relocation was legal, readily affordable, and clearly economically advantageous to many more Europeans than the roughly twenty one million who actually undertook it between 1870 and 1914.[1] Doing so thoroughly and accurately, however, turns out to require dealing with long unresolved problems of inconsistencies and deficiencies in the basic migration data on most prior historical accounts have relied. In particular, official U.S. records after 1900, although generally of relatively high quality and scope, nevertheless undercounted overall migration slightly, and repeat migration greatly,

* This study has benefitted from the scrutiny and suggestions of many others including Jan de Vries, Jon Gjerde, Richard Sutch, Gerry Feldman, Susan Carter, Patrick Weil, Joe Ferrie, Tom Weiss, Walter Kamphoefner, Eva Morawska, Regula Schmid, Larry Shumsky, Simone Wegge, Amy Bailey, Alexander Klein, Marian Smith, Ray Cohn, and Laura Cruz. I retain sole responsibility for any remaining errors. I also appreciate the assistance of Beverly Crawford and Eric Kotila at the Institute of European Studies at the University of California, Berkeley, where an earlier version appeared as a working paper.

[1] From Appendices 1 and 4 below: About twenty four million migrant crossings were made westwards from Europe to the United States in those years, but somewhat over three million were made by "repeat migrants" who had already traversed the ocean westwards at least once before.

inadvertently helping to foster under-appreciation of the rising rate of repeat migration over the 1870–1914 period as a whole.

The more immediate goal herein is therefore to develop more accurate measures of repeat migration in this period, and to examine some associated implications for broader processes of relocation between Europe and the United States. These migration processes and measurement issues are explicated in six sections below. The first, third and fourth sections deal with definitional matters: most especially, which transatlantic moves by individuals should be counted as migration, and how to most effectively measure those moves and that migration. The resulting methodology is used in the fifth section to analyze the principal motivations behind migrants crossing the North Atlantic more than once. The second section meanwhile argues more basically that to be comprehensive, any explanation of the relocation as a whole (including one-time and multiple moves) must account for the large number of Europeans who shared fundamental demographic and socio-economic characteristics with those who emigrated, but nevertheless chose to stay in Europe.[2]

The sixth and final section of this paper develops such an explanation by relating the central features of transatlantic repeat migration to the general self-selection processes influencing the overall numbers who relocated. Moving across the North Atlantic a century ago, for a non-permanent but indefinite period of low-skilled work, was an inherently risky endeavor. Most potential European emigrants dealt with that risk by avoiding overseas relocation altogether. The minority which did relocate to the New World consisted, for the most part, of those able and willing to diversify their endeavors over multiple moves within families ("chain migration") and multiple moves per individual ("repeat migration").[3]

This study has been inspired both directly and indirectly by the scholarship of Jan de Vries. As a student of his teaching and writings, one could not help but be impressed by the potential for historical

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[2] Klaus J. Bade, *Europa in Bewegung: Migration vom späten 18. Jahrhundert bis zur Gegenwart.* (Munich: Beck, 2000, revised paperback edition, 2002), 146.

[3] Drew Keeling, "Costs, Risks and Migration Networks between Europe and the United States, 1900–1914," in *Maritime Transport and Migration: The Connections between Maritime and Migration Networks* , Torsten Feys, Lewis R. Fischer, Stéphane Hoste and Stephan Vanfraechem (eds.), Research in Maritime History 33 (St John's, Newfoundland: International Maritime Economic History Association, 2007), 134–47, 155–57.

importance embedded within what otherwise might have seemed to be mundane economic phenomena. Utilitarian barge canals might be a catalyst for far-reaching changes in personal mobility or even a barometer of general economic health. Quiet, defensive-minded workers in early modern "proto-industry" might be the unplanned agents of an "industrious revolution." With such examples before me, and taking up the question of the factors shaping historical long-distance mass migration, I felt encouraged to try to carefully quantify these human flows and examine what their magnitudes might indicate about underlying causal processes. Many of the basic trends in nineteenth century U.S. immigration were obvious already to contemporaries, but decades of subsequent historical research might be usefully extended by applying "de-Vriesian" combinations of meticulousness, inquisitiveness, and creative encapsulation.[4]

By the late 1870s, for example, sailing ships had been completely replaced by steamships in providing passenger travel services across the North Atlantic. Over the course of succeeding decades (up to World War I, which effectively ended transatlantic migration on a mass scale), human movement across that ocean became noticeably more "circular".[5] How widespread this change was, and what caused it, are the sorts of questions which to answer requires digging beneath well-known surfaces to uncover additional nuggets of information.

Before 1870, migration across the North Atlantic is thought to have consisted overwhelmingly of "once-and-for-all" relocations. During the years 1908–1914, by contrast, half of North Atlantic migrant crossings were part of multiple-move "back-and-forth" transfers.[6] The "steamship revolution" itself, by reducing both transit times and travel

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[4] The analysis here is an outgrowth of research conducted for my PhD thesis. Jan de Vries served on the dissertation committee, together with Gerry Feldman, Jon Gjerde, and Richard Sutch. (Drew Keeling, "The Business of Transatlantic Migration between Europe and the USA, 1900–1914," (Ph.D. dissertation, University of California, Berkeley, 2005)).

[5] J.D. Gould, "European Inter-Continental Emigration, The Road Home: Return Migration from the U.S.A." *Journal of European Economic* History 9 (Spring 1980), 111, Karl Thiess, *Deutsche Schiffahrt und Schiffahrtspolitik der Gegenwart* (Leipzig: Teubner, 1907), 141.

[6] From Table A-1 of Appendix 1: During 1908–14 there were 10.4 million migrant crossings between Europe and the U.S. 6.8 million traveled westward (to the U.S.) and 3.6 million went eastward (to Europe). Of the westward crossings, 1.5 million were repeat moves. Since only migrants of European origin are tallied here (see the definition of "migrant" below—only negligible numbers of U.S.-born persons moved to Europe during the period) all eastward crossings of migrants were also

risks, undoubtedly made the possibility of a repeat crossing more palatable to migrants. The overall effect of travel improvements upon mass migration remains unclear, however, partly due to the difficulties of defining and measuring migration.[7]

Migration is ubiquitous to life. Birds do it, bees do it, even plants do it (intergenerationally), and it has been part of human history from its African origins to its globalizing dispersion today. Whether viewed as departure (emigration), as arrival (immigration) or both (migration), long-term moves of people on a wide scale across political borders have grown in importance for human societies along with the rise of the political power structures demarcated by those boundaries, and human migration has acquired a host of varying meanings to those who have studied it in recent decades.[8]

For understandable practical reasons, migration has often been regarded by governmental authorities and policy-makers as being externally or "exogenously" determined. Migration can be discouraged or adapted to, regulated or channeled, its benefits accentuated, or its negative impacts ameliorated, but its ultimate *sources* have been implicitly considered to be beyond reach, associated with inscrutable human psychology, deeply-rooted economic conditions, and unpredictable calamities, "natural" or "man-made". By contrast, the *effects* of mass migration though often disputed, have been more readily apparent. The demographic and social consequences of individuals, families, and communities from one society being "transplanted" into another, for instance, tend to be widely noticed. Thus, while the ultimate causes of international migration have often seemed relatively obscure, the interest of many politicians and scholars has focused instead on

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repeat crossings. Total repeat migrant crossings (1.5+3.6 = 5.1) divided by all migrant crossings (10.4) equals 49% (5.1/10.4 = .49).

[7] Walter Nugent, *Crossings: The Great Transatlantic Migrations, 1870–1914* (Bloomington: Indiana University Press, 1992), 34, 156–57, James Jackson and Leslie Page Moch, "Migration and the Social History of Modern Europe," in *European Migrants: Global and Local Perspectives* , Dirk Hoerder and Leslie Page Moch (eds.) (Boston: Northeastern University Press, 1996), 56, Drew Keeling, "Transatlantic Shipping Cartels and Migration between Europe and America, 1880–1914," *Essays in Economic and Business History* 17 (1999), 206.

[8] Among many fine overall introductions to the field, McNeill and Adams' collection remains one of the most illuminating. (William H. McNeil and Ruth S. Adams, (eds.) *Human Migration: Patterns and Policies.* (Bloomington: Indiana University Press, 1987)).

the challenges of dealing with migration's more readily discernable effects.[9]

The broad ethnic and linguistic diversity of the European overseas exodus, in the decades before the First World War, have enabled many interesting comparative analyses of the social, racial, or political ramifications of migration, the cultural exchanges associated with it, the sociological trajectories of alienation and assimilation, and identity transformations in ethnic diasporas, and so forth. Causal aspects governing who moved, who did not, and why are crucial questions less frequently investigated in the prior literature on transatlantic migration.

This paper addresses such historiographical gaps in the limited but basic sense of straightening out statistical inconsistencies and tapping complementary but rarely used data from passenger shipping records, in order to accurately and comprehensively measure migratory movements by European origin region and time period.[10] The transatlantic relocation is principally examined here as a process organized within self-selected families and kinship networks.

"Migrant", unless otherwise specified, is broadly defined here as follows:[11]

> A *migrant* (between Europe and the United States) is any traveller born outside the United States making any crossing of the Atlantic for the purpose, with the result, or as a consequence of long term residency in the United States.

Consistent with this:

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[9] Discussed further in the third section, "Migration as flows and processes," below.

[10] See the fifth section ("Seasons, reasons, and regions") and Appendix 1 below.

[11] These definitions do not adeptly classify a few interesting though statistically negligible forms of movement: A European-born person moving to America as an infant, and making a summer holiday in Europe fifty years later would then be crossing as a "migrant" (and a "repeat migrant.")." A U.S.-born child accompanying its European-born immigrant parents on their return to Europe would be a "non-migrant." A diplomat from Europe, having made a "long term" stay in the U.S., would thereafter be a "repeat migrant" each time he time he crossed the Atlantic. The definitions also ignore the (however relatively miniscule) counter-current of U.S.-born adults who relocated permanently to Europe in this period. During 1870 to 1914, Europeans moving to America constituted over ninety percent of all U.S. immigrants, and about half of all trans-oceanic migration (Keeling, "Networks," 162, Historical Statistics of the United States, Series C89–102, 106–107, data in Walter F. Willcox and Imre Ferenczi (eds.), *International Migrations* (New York: NBER, 1931)).

> A *repeat migrant* (between Europe and the United States) is any migrant making two or more transatlantic crossings (west or east).

These definitions[12] may seem straightforward, but they differ from those implicit in most previous migration histories in several important respects. One such difference is based partly on semantic convenience: any migrant crossing the ocean more than once is designated, by the definitions used here, as a "repeat migrant." This contrasts with the more typical differentiation between sub-types of multiple ocean-crossers based on the direction of travel.[13]

Another definitional difference is the lack of any "expiration date." Under the designations used here, a European migrant to the United States does not cease being a migrant merely by virtue of having already made a previous sojourn in America.[14] In other words, there is no attempt *within the definition itself* to obtain a measure of "net" rather than "gross" migration. Precisely that intent led to a change in the definition of "immigrant" used by the U.S. Bureau of Immigration starting in 1906.[15] As a result, official U.S. Bureau of Immigration [BI] reports and data give the erroneous impression that repeat migration was lower, during the nine year peak immigration years of 1906–1914, than it had been during the six years preceeding.[16]

Simplifying, but only slightly, a passenger between Europe and the United States who was not a tourist or business traveller is straightforwardly assumed here to have been a migrant, and a repeat migrant

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[12] The fourth section below, "Distinguishing between migrants and non-migrants," provides further details and rationale.

[13] The more common terminology categorizes migrants going east (back to Europe whence they came) as "return migrants," and only those among them who later moved *again* to America, are labelled as "repeat migrants" (on the occasion of any westward crossing other than their first one). By not counting eastward migration crossings as repeat migration, this traditional characterization has contributed to the under-appreciation of multiple moves as a salient aspect of turn-of-the-20th century transatlantic migration.

[14] Even if U.S. citizenship was acquired in the meantime. See also Appendix 1.

[15] See Neil Larry Shumsky, "'Let no Man Stop to Plunder!' American Hostility to Return Migration, 1890–1924," *Journal of American Ethnic History* 11(2), (1992), 56–76.

[16] Quite to the contrary, as shown in Appendix 3, repeat migration rose in the years just prior to World War I. From about 700 thousand for the years 1900–05, it amounted to nearly two million during 1906–14. In U.S. government statistics after 1905, however, repeaters were generally classified as "non-immigrants."

if he or she had previously crossed the Atlantic already). Nevertheless, even with the overall migration flow magnitude revised upwards thereby, it was still remarkably small relative to its potential.

2. *Why did "so few" leave Europe?*

The general causes of migration across the open borders of the late nineteenth century Atlantic basin are "over-determined." The economic advantages of relatively high U.S. wages were well-known, legally accessible, and economically attainable.[17] The all time highest rate of immigration relative to the U.S. population had already occurred, however: during the 1840s and 1850s exodus from Ireland, then one of Europe's most impoverished regions, and before steamships cut migrants' oceanic transit times by two-thirds.[18] The "more important" unanswered question about migration after 1870 is therefore, as economic historian Dudley Baines has put it, "not what factors caused people to emigrate but what caused so few people to emigrate."[19] Addressing this question requires measurements suited towards general explanations of the migration's fundamental causes and processes.

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[17] Most Europeans then could reasonably expect to recoup total relocation costs within six months of arriving in America, assuming they found employment promptly (Keeling, "Networks," 132–37, 168–70). Gavin Wright ("The Industrious Revolution in America," in this volume) shows how the mass migration pursuing these high U.S. wages exemplifies key features of Jan de Vries' "industrious revolution." These migrants were mobile and hard-working participants in a mobile and work-intensive economy. Producing and consuming almost exclusively for and from the market, their industriousness encouraged and was encouraged by America's reliance on short term low-skilled labor, flexibly used in large-scale, capital-intensive enterprise.

[18] Drew Keeling, "Transport Capacity Management and Transatlantic Migration, 1900–1914," *Research in Economic History* 25 (2008), 267–68, and Maldwyn Allen Jones, *American Immigration*, (Chicago: University of Chicago Press, 2nd ed. 1992), 61–92, 158.

[19] Dudley Baines, *Emigration from Europe, 1815–1930* (London: Macmillan, 1991), 28. See also Frank Thistlethwaite, "Migration from Europe Overseas in the Nineteenth and Twentieth Centuries," in *A Century of European Migrations, 1830–1930*, Rudolph Vecoli and Suzanne Sinke (eds.), (Urbana: University of Illinois Press, 1991, originally published after a 1960 conference), 36–37. There is a general consensus among scholars that although most migrants during the period eventually settled in America for good, many -if not most- came with the original intention of staying only temporarily. Psychological antipathies to permanently forsaking one's roots are thus an insufficient explanation for why a large majority of Europeans did not migrate overseas at all (see Mark Wyman, *Round-Trip to America: The Immigrants Return to Europe, 1880–1930* (Ithaca: Cornell University Press, 1993), 193, Baines, 39–47).

3. *Migration as flows and processes*

Historical research on late nineteenth and early twentieth century migration has typically followed the lead of contemporary government statisticians wanting to distinguish "permanent settlers" from "temporary sojourners." Transatlantic relocation has been categorized and analyzed in considerable detail on this basis, but without being accompanied by a comprehensive quantitative foundation.[20]

Attempting to sort migration into subsets differentiated by degree of "permanence" is, however, at odds with a growing scholarly consensus of recent decades: that the unit of migration is more often the kinship or community group than the individual, that such migration units are frequently composed of multiple individuals making multiple moves over multiple years, and that the total and integrated intention and outcome, in most cases, is a shifting mixture of both permanent and temporary relocation.[21] This awareness was reflected in the widely heeded call of historian Frank Thistlethwaite in 1960 for a "new look at the subject as a whole" whereby scholars would "treat the process of migration as a complete sequence of experiences."[22] Although Thistlethwaite's advocacy of a broad transatlantic perspective has powerfully influenced half a century of subsequent migration historiography, the "harvest" of scholarship he helped inspire has not included any major revision to the pattern wherein "it has been the consequences and not the causes of migration which have received the most attention."[23] This imbalance is also reflected in the formulation of the government immigration statistics upon which historians have typically relied.

If one's primary objective is to illuminate migration's many-faceted effects, then it is statistically important to focus on the population levels most directly associated with those effects (especially the numbers of foreign-born in the U.S.) at different points of time. The principal concern here, however, is with the causal processes by which a minor-

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[20] Walter D. Kamphoefner, "The Volume and Composition of German-America Return Migration," in *A Century of European Migrations, 1830–1930*, Rudolph Vecoli and Suzanne Sinke (eds.) (Urbana: University of Illinois Press, 1991), 305.

[21] Charles Tilly, "Transplanted Networks," in *Immigration Reconsidered: History, Sociology, and Politics*, Virginia Yans-McLaughlin (ed.), (New York: Oxford University Press, 1990), 84.

[22] Thistlethwaite, 22.

[23] Thistlethwaite, 19, 57.

ity of young European adults from lower-to-middle income families chose to physically relocate in the first place. Accordingly, the statistical emphasis here is less on ultimate changes in population *stocks* than on the continual series of *flows* over time, in both transatlantic directions, that were the relatively immediate and homogeneous outgrowth of those causal processes. Following this approach requires, in turn, correcting for the inconsistent definitions and classifications of U.S. authorities,[24] who, in attempts to better measure net additions to the stock of the U.S. population from abroad, obscured and understated the magnitude of the underlying flows, the frequency of multiple moves, and the extent to which ship accommodations used by migrants deviated from traditional wooden-slatted steerage.[25]

4. *Distinguishing between migrants and non-migrants*

The measurement of cross-border movements of people is notoriously fraught with statistical difficulties.[26] Transatlantic migration a century ago—despite being atypically legal and well-documented—is not an exception.[27]

The general assumption governing U.S. statistics-gathering for most of this period was that immigrants were only those foreigners making once-and-for-all westbound crossings in the steerage class. This definition was revised three times after 1900, however (in 1903, 1905, 1908). As a result, there are notable inconsistencies within the Bureau of Immigration (BI) statistics for 1900–1914, a period marked by high

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[24] The Bureau of Immigration ["BI"] data are geographically broader than those collected by European government entities, and thus remain the most-used of official government immigration statistics. Their limitations, however, mean that greater accuracy comes from using them, as here, in conjunction with shipping statistics of the Transatlantic Passenger Conferences Records, "Reports of the Trans-Atlantic Passenger Movement," New York, 1899–1914 ["PCR"]. Appendix 2 below reconciles the BI and PCR totals for the period.

[25] For a good general introduction to the measurement difficulties see E.P. Hutchinson, "Notes on Immigration Statistics of the United States," *Journal of the American Statistical Association* 53 (1958), 963–1029. Gould is also helpful. Simon Kuznets and Ernest Rubin, "Immigration and the Foreign Born," National Bureau of Economic Research, Occasional Paper 46, 1954, 87–94, offer a useful example of a stock-based analysis.

[26] See for example, *Economist*, "Cross Frontier Chaos," June 15, 2002, 50–51.

[27] See especially Hutchinson, for the most definitive prior cataloguing of these problems.

migration volumes documented in relatively complete detail. The new measures shown in Table A-1 of Appendix 1, columns 3 and 8, reduce these inconsistencies considerably by making the following adjustments to the BI data:[28]

1) Before 1903, the U.S. Bureau of Immigration (BI) counted as "Immigrants" only those Europeans crossing to the U.S. in steerage ("third class"). The new time series of "westbound migrants" shown here in column 3 of Table A-1 in Appendix I sums up migrants in all shipboard travel classes for the *whole* 1900–1914 period. (During 1870–99, fewer than 5% of European migrants arrived in cabin class, on average, but for 1900–1914 that rose to 14%).
2) After 1905, the BI stopped counting as "Immigrants" those who had "been in the U.S. before," and instead lumped them together with European tourists and short term business travellers in the general category of "Non-Immigrants." The series "westbound migrants" of Table A-1 undoes that major source of inconsistency and confusion, by classifying such "been before" arrivers as migrants throughout the period.
3) In 1908, the BI began counting "emigrants" departing the U.S. (see column 6 of Table A-1 in Appendix 1 below). Those figures are notably inaccurate, however, and the method of correction used in Table A-1 generates instead the "eastbound migrant" flows for 1900–14 shown there (in column 8). See also Table 2 below. Based on more sparse underlying data, less precise but still reasonably accurate estimates for eastbound migrant flows have been developed for 1870–99 as well.
4) As defined here, "migrants" include naturalized U.S. citizens travelling between Europe and America. That designation is based on records indicating that about one third of U.S. citizens travelled in

[28] Appendices 1–3 below provide further information on the methodologies used and measurements obtained. Estimated percentages of migrants in steerage and cabin class based on update of calculations used in Drew Keeling, "The Transportation Revolution and Transatlantic Migration, 1850–1914," *Research in Economic History* 19 (1999), 50, 56. The "adjustments to the BI data" described here apply essentially to the last fifteen years (1900–14) of the period, firstly, because that is when most of the inconsistencies in the data of the BI (for example, in the BI annual reports) occurred, secondly, because there are more alternative sources available after 1900 for making such adjustments, and, finally, because well over half of the migrant volume of 1870–1914 occurred during those final fifteen years of the period.

the steerage class, that nearly all U.S. citizens in steerage were naturalized Europeans, not native-born Americans, that their crossings were mostly roundtrips from America to (and back from) small villages in Europe[29] and that on the westbound traverse they often accompanied non-citizen relatives from those villages who were migrating to the U.S. for the first time.[30]

These adjustments have been made in order to clearly and accurately divide the gross flows of passengers between Europe and the U.S. into migrants (as defined here) and non-migrants going in both directions for the entire period. The resulting figures shown in Table A-1 of Appendix 1 and in Appendix 2 indicate that official U.S. government tallies normally used by historians understate overall westbound migrant inflows to the U.S. from Europe by more than 10%.[31] Other important revisions yielded by this analysis, for the 1900–1914 period,[32] are that:

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[29] i.e. U.S. citizens in steerage were not on summer sightseeing tours of Europe as citizens in first class often were. Although naturalized and native-born citizens were not routinely distinguished on passenger lists, the length and purpose of stays in Europe often were (U.S. National Archives: microfilmed passenger lists of arriving vessels, 1900–14). Accompanying family members arriving in America were usually grouped together on those U.S. passenger lists, and dozens of sampled lists, across many years and routes, show clearly that the incidence of non-English first and last names among U.S. citizens travelling in steerage was much higher than in 1st class, with 2nd class in between the two.

[30] Based on the definitions and assumptions here, 90% of non-migrants were native-born U.S. citizens, the rest were nearly all Europeans. Most of these non-migrants were summer tourists (based on BI annual reports, Reports of the Immigration Commission, chaired by Senator William P. Dillingham, 1911 ["Dillingham"], and on passenger lists). Most of the rest were businessmen on business trips. Naturalized U.S. citizens, in sharp distinction, overwhelmingly crossed the Atlantic in order to visit family members back in Europe, to bring the intellectual and financial fruits of labor in the United States to those European family members, and to help them to also migrate to America. Naturalized citizen arrivers *before 1900* were, however, small in number, and are not included in the migrant totals compiled here (Keeling, "Transportation Revolution," 56). See Appendix 1 below, especially part C.

[31] This was because U.S. federal government records did not classify as "immigrants" the following groups (rounded percentages of all migrants, for 1900–14, are in brackets): Non-citizen migrants in the second class [+1%], naturalized U.S. citizens [+5%—see prior two footnotes for the logic], westbound "domicile resumers" (multiple crossers) [+6%]. See Appendix 2 below.

[32] The repeat migrant crossing rates are from the 1900–14 totals at the bottom of Table A-1 in Appendix 1 (2,613/13,419 = 19% westward, 5,171/13,419 = 42% eastward). Migrants from North and West Europe were under counted (and the relative size of "New Immigrants" from south and east Europe consequently overstated) because they travelled more often in the second class that were excluded from "immigration" counts

1) Westbound repeat migrant crossings were 19% of total westbound migrants crossings [versus the U.S. immigration authorities' estimates of 12%]
2) Eastbound repeat migrant crossings were 42% of total westbound migrant crossings [versus the U.S. immigration authorities' estimated "return rate"[33] of 33%]
3) Migrants to and from South and East Europe were about 68% of total westbound migrants [versus the U.S. immigration authorities' figures of "New Immigrants" being 75% of total]

To better understand the dimensions of transatlantic repeat migration in the decades preceeding World War I it is useful to look comprehensively at the overall relocation between Europe and America. By the definition established here,[34] every migrant began his or her migratory experience by making a westward crossing from Europe to the U.S. All subsequent crossings were repeat migration crossings. To properly count (gross) flows of migration and repeat migration, one thus first needs a reliable measure of westward and eastward crossings. The time series of westward and eastward flows for 1870 to 1914, presented in

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before 1904 (PCR), Drew Keeling, "The Improvement of Travel Conditions for Migrants Crossing the North Atlantic, 1900–1914" (to be published within edited collection entitled "Points of Passage: Jewish Trans-migrants from Eastern Europe in Germany Britain, and Scandinavia")), and had higher rates of (undercounted) repeat migration westbound (see, for example, Table 4 below). For comparable U.S. government figures: Westbound migrants in the cabin class are estimated by BI for 1899 (see Hutchinson, 984), in BI Annual Reports (1900, 5, 1901, 4, 1902, 5, 1903, 5), and in *Facts about Immigration* (New York: National Civic Federation, 1907), 106. Westbound repeat immigrants are estimated in Dillingham, vol. 1, 104, vol. 3, 358–59, eastbound flows (emigration as % of immigration) in Dillingham, vol. 1, 181–84, vol. 3, 372. Figures for "New Immigration" (as defined by Dillingham, vol. 1, 170) are given, by "race" in the BI, Annual Report for 1914, 101–02. These three pairs of ratios are not exactly comparable because the government estimates are (presumably) ratios of persons not crossings. This does not make a tremendous difference, however, because a large majority of repeat migrants crossed the ocean a total of either two or three times. In other words, they made at most one *repeat* crossing in either direction (e.g. for them, the number of repeat crossings in each direction equaled the number of repeat crossers). As a hypothetical example, suppose, in round numbers, 10 million migrants moved west, 12% of them made multiple crossings, and 90% of those crossed west two times, 10% three times. Then, the rate of repeat westbound *crossers* would be 12%. The rate of repeat westbound *crossings* would be (using millions) 1.32 (= 1.2+.12) repeat westbound crossings divided by 11.32 (10+1.32) total westbound crossings, or 1.32 divided by 11.32 = 11.7%.

[33] As stated in Dillingham, vol. 3, 372: "…the outward movement or emigration of aliens has been approximately one third as great as the immigration movement."

[34] In the first section ("Physical migration…") above.

Appendix 1, have been accordingly corrected for inconsistencies in U.S. government data after 1900.[35] Table 1 shows summary results:

Table 1. Annual average migrant crossings in '000s, by direction, 1870–1914

Fiscal Years	Westward	Eastward	East/West	East/Total
1870–82	291	62	21%	18%
1883–99	403	132	33%	25%
1900–14	899	382	42%	30%

Source: Based on Appendix 1 below.

All eastbound migrant crossings are, by the definition used here, repeat migration flows. Movements westbound are less clear-cut, because they consist of a mixture of first-time crossings (not repeat migration) and non-first-time crossings (repeat migration). As noted already, 19% of westward migrant crossings between 1900 and 1914 were made by migrants who had already crossed west (at least) once before.[36] Although records of repeat westbound flows are not available before 1896,[37] it is clear that such repeat traffic must have increased in volume over 1870–1914, and faster than overall migration did. Based on Table 1 above, the maximum conceivable rate of repeat migrant crossings during 1870–82, for example (if 100% of eastward crossings during those years generated one additional crossing west (again) over that same thirteen year time period), would be 18%, versus the 19% rate of 1900–14. More realistic (lower) estimates of westbound repeat flows during 1870–99, and their relative growth over the 1870–1914 period as a whole, are shown in Appendix 4.

In order to better appreciate the reasons behind the secular rise of repeat migrant crossings, eastward and westward, it is useful to also examine their seasonal and cyclical patterns. This aspect is taken up in the section which follows below.

[35] See columns 3 and 8 of Table A-1 below. Note that the years after 1900 comprised one-third of the time span but accounted for about 60% of the flows.

[36] This is based on the second to last row of columns 3 and 4 of Table A-1 in Appendix 1: 2,613 / 13,491 = 19%.

[37] See Hutchinson, 990–91.

5. *Seasons, Reasons and Regions: when, where, and why repeat migration occurred*

Migrants made multiple crossings for a variety of reasons, beyond the usually appreciated final repatriation for retirement or response to disappointment in America.[38] Many went home seasonally, and with greater relative frequency to Northern Europe in the summer than to and from Italy in the winter on the archetypal "bird-of-passage" routes. Many also went from the United States to Europe temporarily: to "escape" cyclical unemployment in America. Another often overlooked form of repeat migration are the crossings of those who went back to Europe in order to then accompany relatives on another, later, journey to America. A comparison for the end of the period, 1909–13, between the overall migration movements as measured in this paper[39] and those used by most prior scholars, highlights the much greater magnitude of the eastward flow that results from defining migrants to include, in essence, all European-born passengers other than tourists and business travellers:

Table 2. Eastward crossings as % of westward, by European origin region, 1909–13

	Bureau of Immigration classifications	more inclusive measures	
	[1]	[2]	[3]
Regions	("Emigrants" / "Immigrants")	All Migrants who were not U.S. Citizens	All Migrants
North Europe	16%	42%	48%
East " "	21%	29%	29%
South " "	34%	47%	49%
ALL Europe	24%	40%	42%

Sources: BI Immigration Bulletins, BI annual reports, and Table A-1 of Appendix 1 below. [1] "Immigrants" and "Emigrants" are as defined by the BI during this period. This excludes westbound repeat migrants and "alien residents of the United States making a temporary trip abroad" (BI annual report for 1908, p. 102 (serial set)). Rates in column [2] are adjusted to exclude non-migrants (tourists and short term business travellers) from Europe. [3] "Migrants", as used consistently herein, equals [2] *plus naturalized* U.S. citizens. A yet slightly broader measure, all 2nd and 3rd class passengers (not shown here, but shown in Appendix 1) yields virtually identical results: (44% for all Europe). Regional breakdowns based on BI Bulletins' data on immigrants, by "race."

[38] Wyman, 75–76.

[39] E.g. in table 1 above and Appendices 1 and 2 below.

Subdivisions of repeat migrant flows can be made based on the season and stage of the business cycle when the crossing occurred. This procedure leads to the following seven sub-categories of eastbound and non-first-time westbound crossings, based on the probable reasons behind them:

Table 3. Categories of Repeat Migration by timing and purpose (and their estimated size)

1) "Summer": Crossings of migrants departing the U.S. in May, June, or July and returning the following August, September, or October.
2) "Year End": Crossings of migrants departing the U.S in November or December and returning the following January to June.
3) "Cyclical": Crossings of migrants departing the U.S during recessions and returning during the next subsequent recovery.
4) "Other Short Term": All other migrant crossings consisting of east-then-westward roundtrip journeys completed within twelve months.
5) "Debarred": Crossings of migrants returning to Europe because they were denied entry at U.S. arrival ports.[40]
6) "Permanent return": All eastbound crossings made by migrants who did not come to America again. (This group and the debarred group, by definition, consist of eastward migrant crossings only.)
7) Long Term: All other repeat migrant crossings.

As a % of all repeat migrants, in both directions, 1900–1914:[41]

Summer	15%
Year End Seasonal	13%
Cyclical	15%
Other Short Term	9%
Long Term	7%
Debarred (east only)	2%
Permanent Return (east only)	38%

[40] Some debarred from entry, and sent back to Europe, soon tried again and were successful, at a *different* port. Since they typically had never actually "been in" the US before (other than in an inspection station the first time) they were not counted as repeat migrants, even though they had crossed the ocean three times in order to enter America once. No attempt is made here to correct for this additional example of unnoticed repeat migration. It is small in size because total debarments, including those who did *not* try again, amounted to somewhat less than 1% of all migrant arrivals in this period. I am nonetheless grateful to Marian Smith of the U.S. Citizenship and Immigration Service for calling my attention to it.

[41] "Permanent Return" is based on the overall relation of eastbound and westbound repeat migration shown and derived in Appendix 1 below. "Debarred" numbers are from BI annual reports. The other five categories are estimated, month by month, based on available shipping and immigration statistics (the latter adjusted to include naturalized citizens and exclude migrants not from Europe) and by region, based on BI Bulletin figures for 1909–13. "Summer," "Year End Seasonal," and "Cyclical," are based on seasonal and cyclical deviations from trend. The remaining

While these percentages are only approximate estimates based on available data for 1900–14, they make it readily apparent that repeat migration was a broad and varied phenomenon.

Repeat migration across the Atlantic rose after 1900 and more quickly than did overall migration, but there were important differences between European source regions and calendar seasons. Repeat migration of northern Europeans (e.g. from the British Isles and Scandinavia) was dominated by short summer visits (to Europe in early summer, back to United States in early fall), while repeat migration of southern Europeans mostly consisted of one-time return trips to Europe in the late fall.[42] In the westbound direction, the northern regions of Europe had proportionally higher rates of repeat migration than did the southern regions. Available U.S. Bureau of Immigration data, adjusted to be consistent over the period, yield the following results for two key sub-regions:[43]

Table 4. Repeat Westward Migration as a % of Total Westward Migration

		Long Term	Short Term	All Repeat Westward
1900–05	Italy	7%	4%	11%
1906–08	Italy	7%	5%	12%
1911–14	Italy	11%	7%	18%
1900–05	Scandinavia	6%	10%	16%
1906–08	Scandinavia	7%	14%	21%
1911–14	Scandinavia	11%	20%	31%

Source: These are approximate estimates based on figures in the BI annual reports. They are not comparable to the percentages shown in Table 3, which, for example, include naturalized U.S. citizens (not included in Table 4 here). (Italy and Scandinavia contributed, respectively, 25% and 7% of all migrants from Europe to the U.S. during these years. As in Table 3, "short term" generally means repeat migrant crossings that were part of a transatlantic round-trip completed within a twelve month period.)

residual is divided roughly equally between "Other Short Term" and "Long Term," based on separate estimations west and eastward (see also Appendix 3 below).

[42] Many of the northern repeat migrants were naturalized U.S. citizens (*Wall Street Journal*, May 11, 1903, 2). It was common to return to the United States "after harvests abroad are finished" (*Wall Street Journal*, August 19, 1904, 2).

[43] BI annual reports, 1900–1914.

6. *Repeat Migration as Risk Management*

Repeat migration across the North Atlantic was related to underlying mechanisms of migrant self-selection within self-replicating kinship and community networks. Temporary summer trips to Europe by migrants already in America, short term moves to Europe to avoid periods of seasonal or cyclical unemployment in the U.S., and the permanent return to origin communities in Europe, all primarily reflected efforts by extended families to cope with uncertainties and vagaries of pursuing economic opportunities on two continents. Amidst their many purposes and characteristics, migration "chains" fundamentally developed as a means for diversifying the risks of migration across multiple individuals and multiple moves per individual.

Migration across the Atlantic a century and more ago, was often viewed as a risky "gamble" by those who considered it, and risks also limited the numbers attempting it.[44] For those who nonetheless undertook such relocation, migration chains were the principal means of coping with the associated uncertainties and pitfalls. Transatlantic kinship networks not only helped migrants find jobs and accommodations in the New World, and adapt to an unfamiliar language, new laws and new customs, they also helped the immigrant workers outlast periods of low labor demand in the U.S.,[45] or return to Europe, where living costs were lower, to wait out American slumps there.

Late nineteenth and early twentieth century North Atlantic passenger shipping companies, whose activities were characterized by unusually high fixed costs and fluctuating demand, were in a business more risky than most. The biggest and riskiest segment of their business was migrant traffic.[46] One way shipping lines coped with drastically fluctuating demand for migrant travel, was to make some of their carrying capacity interchangeable between migrants and tourists. Seasonally, for example, migrants moved west to America most heavily in the late spring, at a time when tourists (overwhelmingly Americans going for summer trips to Europe) approached a peak in the eastbound direction. Having the same quarters used in opposite directions by

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[44] See section 2 above ("Why did so few leave Europe?").

[45] See, for instance, the charitable functions of immigrant mutual aid societies described in Robert E. Park and Herbert A. Miller, *Old World Traits Transplanted* (New York: Harper Brothers, 1921), 124–32.

[46] Keeling, "Networks," 122, note 26.

migrants and tourists, however, required upgrading accommodations for migrants, from the "open-berth" dormitories typically found in nineteenth century steerage, to a quality level also acceptable to at least "second class" tourists. By 1914, most migrants on routes from and to the U.K. and Scandinavia, where summer repeat migration was most frequent, were housed in such "closed-berth" quarters. Improved on-board offerings (including more deck space, and better dining facilities as well as the more private enclosed cabins) were also a logical consequence of the scale economies which helped foster an approximately five-fold increase in average ship size over the period. These on-board improvements, in turn, further encouraged migrants to consider making the (thereby) less onerous crossing more than once.[47]

Repeat migration across the late nineteenth and early twentieth century Atlantic was more substantial, more widespread, and more directly related to the underlying causal processes of that relocation than prior scholarship indicates. Looking more explicitly and fundamentally at repeat migration, measuring it more accurately, and examining its causes more comprehensively allows for a better integration of hitherto rather disparate historiographical findings.

Scholars of cross-border migration have long been aware of the critical importance of kinship and community networks. More sporadically, they have also acknowledged the curious dichotomy of millions of Europeans a century ago voluntarily seeking economic betterment overseas while *tens* of millions of demographically and economically similar contemporaries voluntarily stayed in Europe. Widespread and growing repeat migration is a central linkage between these two important features of mass relocation across the pre-1914 Atlantic.

By at least the late 1880s, risk considerations (not upfront costs) were the primary barrier that kept most Europeans from pursuing opportunities for economic improvement in America. Chain migra-

[47] The increasing ship size was used in two ways: to carry more passengers and to provide more space per passenger. About 65% of migrants on these northern routes traveled in closed-berth cabins by the end of the period. Overall (on the main routes between Europe and the U.S. during 1900 to 1914), about 35% of migrants were in closed berths, of which 15% were in second class and 20% in third class. Keeling, "Transportation Revolution", 50, 58–59, "Conditions," especially Appendix 2. For passenger shipping lines, the advantages of an increased rate of multiple crossings per migrant can be seen in Appendix 4 below. The growing countercyclical eastward flow during recessions late in the period (1904–13) helped dampen overall fluctuations in migration volume across that business cycle (a central dilemma for the shipping companies whose costs varied hardly at all with these wide swings in travel demand).

tion was the principal means by which those who chose to surmount that barrier managed to do so. Repeat moves were a vital element of the risk-managing strategies within those kinship chains. Notwithstanding important differences across time and place, these findings also have applicability for long-distance migration beyond the case of the late nineteenth and early twentieth century North Atlantic. It is quite likely, for example, and for reasons not at all unrelated to the findings in Jan de Vries' *Age of Crisis*, that repeat migration—though lower than it later became- was higher in the eighteenth century than migration scholars have generally supposed. That possibility is one of several raised here that may be among those well-suited for future creative inquiry in the manner so skillfully exemplified by the economic and historical analyses of Jan de Vries.

Appendix 1: Derivation and analysis of migrant flows, 1870–1914

A. Table A-1. Passenger flows between Europe* and U.S., 1870–1914 ('000s, fiscal yrs ended June 30)

	Westward arrivals in the U.S.				Eastward departures from the U.S.			
Column #:	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Derivation:	US Gov't	Ship lines	calculated	calculated	US Gov't	US Gov't	Ship lines	calculated
	"Immigrants"	2nd & 3rd Class West	Migrants West	REPEAT Migrants West	By sea in steerage	"Emigrants"	2nd & 3rd Class East	Migrants East
1870	329		329 e		44			44 e
1871	265		265 e		46			46 e
1872	352		352 e		43			43 e
1873	397		397 e		62			62 e
1874	263		263 e		83			83 e
1875	183		183 e		106			106 e
1876	121		121 e		83			83 e
1877	106		106 e		76			76 e
1878	102		102 e		61			61 e
1879	134		134 e		51			51 e
1880	349		349 e		41			41 e
1881	528		528 e		48			48 e
1882	648		648 e		63			63 e
1883	523		523 e		78			78 e
1884	454		454 e		101			101 e
1885	353		353 e		154			154 e

Table A-1 (*cont.*)

	Westward arrivals in the U.S.				Eastward departures from the U.S.			
Column #:	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Derivation:	US Gov't	Ship lines	calculated	calculated	US Gov't	US Gov't	Ship lines	calculated
	"Immigrants"	2nd & 3rd Class West	Migrants West	REPEAT Migrants West	By sea in steerage	East	2nd & 3rd Class East	Migrants East
1886	329		329 e		113			113 e
1887	483		483 e		102			102 e
1888	538		538 e		114			114 e
1889	435		435 e		140			140 e
1890	446		446 e		132			132 e
1891	546		546 e		139			139 e
1892	612 e		612 e		151			151 e
1893	492 e		492 e		135			135 e
1894	304 e		304 e		191			191 e
1895	270 e		270 e		217			217 e
1896	329		329 e		121 e			121 e
1897	216		216 e		98 e			98 e
1898	218		218 e		131			131 e
1899	297		297 e		128			128 e
1900	425	489	471	79	137		176	145
1901	469	560	535	99	158		195	173
1902	619	695	677	94	169		203	187

Table A-1 (*cont.*)

	Westward arrivals in the U.S.				Eastward departures from the U.S.			
Column #:	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Derivation:	US Gov't	Ship lines	calculated	calculated	US Gov't	US Gov't	Ship lines	calculated
	"Immigrants"	2nd & 3rd Class West	Migrants West	REPEAT Migrants West	By sea in steerage	East	2nd & 3rd Class East	Migrants East
1903	815	860	846	104	207		237	219
1904	768	795	781	125	324		345	327
1905	974	1,013	999	213	335		391	373
1906	1,018	1,108	1,092	187	282		346	327
1907	1,200	1,331	1,314	196	345		430	397
1908	692	820	799	178	638	377	841	811
1909	655	862	829	342	342	181	446	413
1910	926	1,074	1,044	200	327	154	370	344
1911	765	906	876	171	432	231	492	466
1912	719	872	843	210	505	286	541	509
1913	1,056	1,228	1,201	232	450	249	510	482
1914	1,058	1,207	1,183	185	520	257	578	553
1900–14:	12,159	13,818	13,491	2,613	5,171		6,101	5,726
1870–1914:	22,781		24,113		8,222			8,778

* = except for column 5 which includes more than Europe
e = estimated here (for 1870-99) as being westward = column 1, eastward = column 5; re col. 1, 1892–95, see section C
Sources: See sections B and C immediately below

B. *Methods used in Table A-1*

Of the eight columns in Table A-1, the three most crucial to the analysis of repeat migration are Migrants West (column 3), Repeat Migrants West (column 4), and Migrants East (column 8). To achieve better overall consistency, different sources were used before 1900 than after 1900 in deriving these three data columns:

1) Before 1900, the basic U.S. government time series, immigrant arrivals (column 1) and steerage departures (column 5), consistently and closely approximate the broader migrant flows westward and eastward, as defined in section 1 of this paper, and shown in columns 3 and 8.
2) During 1900–14 the government data deviate more sharply, more variably, and more traceably from migration, as broadly defined here. For that period, columns 3 and 8 (the migrant flows west and east) were instead derived from the more consistent shipping data of columns 2 and 7. (The main difference between columns 3 and 8 and the shipping time series is that non-migrant 2nd class passengers were deducted from columns 3 and 8 after 1900).
3) There were essentially no figures kept on repeat migrants westbound (column 4) before the late 1890s. Repeat migrant flows in the westward direction before 1900 are therefore not shown in Table A-1 of Appendix 1 immediately above, but are instead estimated in Appendix 4 below.

C. *Sources used in Table A-1*

Column 1: Historical Statistics of the United States, series C-89–101, except for 1892–95 where it deviates from the more reliable Bureau of Statistics data which is then used instead (see Hutchinson, pp. 982–83, and notes to column 5 below) with estimates to adjust for the small fraction of flows which were not from Europe.

Column 2: Transatlantic Passenger Conference records (PCR) for traffic to and from New York, Boston, Philadelphia, Baltimore.

Column 3: Before 1900, estimated as equal to column 1. For 1900 through 1914, estimated by making small adjustments (not over 1% individually or in toto, net) to annual BI figures for immigrants to the four main ports, so as to reflect regular paying passengers from Europe, and thus be consistent with the shipping figures of column 2. For example, passengers debarred at the entry ports are included as "estimated migrants," but stowaways are not. Two

larger adjustments are the inclusion of immigrants in cabin class (excluded by BI before 1903) and repeat migrants (mostly excluded by BI, after 1905). Figures in this column, after 1900, also include flows of naturalized U.S. citizens, estimated by using available data for citizens in the steerage class on arriving steamships. See also Appendix 2 below.

Column 4: Derived in Appendix 3 below.

Column 5: U.S. Bureau of Statistics data, reproduced in "Quarterly Report No.2, Series 1892-'93" from "Annual Reports on Foreign Commerce and Navigation."

Column 6: BI annual reports: Table XX (1908) and Table VIII (1909–14)

Column 7: PCR

Column 8: Before 1900, estimated as equal to column 5. For 1900 through 1914, derived by deducting estimated eastward non-migrant crossings from total eastward passenger flows (including first class, not shown here). Intra-annual allocations of migrant flows (west and east) are similarly derived. Eastbound transits are smaller as a % of 2nd and 3rd class flows than westbound because tourists (in 2nd class) all travelled both east and west, whereas a majority or large minority of migrants travelled only west (once).

D. *The effect of various minor omissions on the rate of eastbound repeat migration* (the overall net effect is estimated in Table A-3 below)

Because transatlantic migrants from Europe initially reached the U.S by traversing the ocean westwards, the first and most significant component of *repeat* migration consists of eastward moves back to Europe. In this section of Appendix 1 the effect of various minor errors and omissions from the migration flows summed in Table A-1 is gauged by estimating how this imprecision, if corrected for, might change the rate of eastward to westward migrant crossings. The cumulative effect turns out to be rather small, because each of the several errors and omissions is quite small.

i. Counting of departures

Column 1 of Table A-1 covers only arrivals from Europe, whereas column 5, before 1900, includes movement to all foreign countries. By-country breakdowns available for 1890–95 show that 8% of such departures were to non European countries (Bureau of Statistics:

"Foreign Commerce and Navigation," 1800–95), thus, for this reason, the column 8 figures *overstate* the U.S. to Europe flow before 1900.

This overstatement is, however, mostly offset by a bias toward *undercounting* inherent in the way these departure statistics were compiled. Migrants departing *to* Europe (in contrast to those arriving *from* Europe) were not inspected upon embarkation or disembarkation, nor were they recorded in detailed government-required passenger manifests. The U.S Bureau of Immigration (BI) relied upon the "courtesy of the agents of steamship and packet lines for information on the outward passenger movement," and during busy times agents did not fully count all departing passengers. The resulting under-reporting can be measured by comparing BI departing passenger figures against PCR. Figures for 1906–1914 show that the BI undercounted departures by an average of 5%. The net effect thus amounts to about a 3% (8% less 5%) overstating of eastbound flows for the years 1870–99, in Table A-1.

ii. Some repeat migrants possibly not included in "immigrants" figures even before 1900

According to Hutchinson (994) "aliens" arriving at U.S. ports between 1868 and 1891 were "counted as immigrants on each re-entry", unless they were "temporary visitors". It seems likely, however, that at least some ports in some years before 1891 did not classify some repeat migrants as immigrants in their record-keeping (e.g. see New York State Commissioners of Emigration, annual report for 1884).

iii. Migrants going from Europe through Canada to the United States

Some European migrants coming to the United States via Canada were not counted as being immigrants from Europe. Undoubtedly some of those migrants later departed the U.S. for Europe, without going back through Canada enroute. The rate of eastbound migrant flows relative to westbound indicated by Table A-1 is thus slightly inflated, to the extent that such migrants were counted in the departures column (8) but not in the arrivals column (3). Any such overstatement, however, is small. At an extreme, if 100% of all immigrants coming into the U.S. from Canada came through it from Europe, and if 0% of migrants leaving the U.S. for Europe departed via Canada, the calculated rates of eastbound crossings, relative to westbound, would be altered (at most) as shown in Table A-2 below (column 6; for example, for 1900–14, the rate would be 41% instead of 42%):

Table A-2. Maximum effect of including migration between Europe and USA *through* Canada

Column #:	[1]	[2]	[3]	[4]	[5]	[6]
		Estimated European Migrants via Canada	Westward Migrants including via Canada		Eastward Rate	
	Westward Migrants			Eastward Migrants	without via Canada	with via Canada
Derivation:	from Table A-1	see below	= [1] + [2]	from Table A-1	= [4] / [1]	= [4] / [3]
1870–82:	3,777	648	4,425	807	21%	18%
1883–99:	6,845	844	7,689	2,245	33%	29%
1900–14:	13,491	427	13,917	5,726	42%	41%

Sources for column 2: Dillingham Report, vol.3, 30–44 (for 1870–84), Hutchinson, 986–87 (for 1885–99), Appendix 2 below (for 1900–14).

iv. Naturalized citizens and cabin class migrants

For the years prior to 1900, naturalized citizens are excluded from column 1 in Table A-1, and thus also from the final estimated westbound migration flows of column 3 in that table, for those years. The treatment of migrants in the cabin class is more ambiguous, but they too were left out of the "immigrant" totals in at least some years before 1900. Both these groups were smaller as a percentage of total migrants, and in both directions, before 1900 than they were thereafter, however. (See Hutchinson, 983–85, Keeling, "Transportation Revolution", table A3, 60–61.)

v. Overall effect

The overall effect of these various small inaccuracies and omissions (outlined in parts i–iv above) upon the rate of eastward to westward crossings is estimated below in Table A-3. As that table shows, their impact is not very large, either individually or in toto. They mainly effect the years before 1900. Correcting (ála Table A-3) for Table A-1's slight overstating of eastward moves, and understating of westward moves, leads to the aggregate result that the numbers in Table A-1 slightly overstate the east/west crossings ratio before 1900, and therefore slightly understate its rise after 1900. As summarized in Table A-3, the estimated cumulative effect is that the east/west rate, from the early part to the late part of the 1870–1914 period, goes from about 16% to 42% instead of from about 21% to 42% (as indicated by the Table A-1 data -developed in Appendix 4).

vi. Time lags

A further omitted factor is more relevant to the rate of east/west *crossers* than *crossings*, and its effect on both is fairly small, and it is not addressed in Table A-3 because it is difficult to determinate whether appropriate adjustments would raise or lower east/west rates measured over spans of a decade or longer. This "omission" amounts to an uncorrected-for "apples-to-oranges" mismatch occurring because eastward travel followed westward after a *lapse of time spent in the U.S.* The time lag seems to have averaged about three years, but there are few usable statistics, it is not easy to estimate, and it probably varied somewhat over the business cycle. (A similar lag pertains to the rate of westbound repeat crossings; e.g. time spent *in Europe* between crossings to America). For the purposes of the analysis here, however, time lag effects were small, for two reasons: (1) The length of the three periods being compared (13–17 years) insures that a large majority of people moving east as well as west would have completed both legs of the roundtrip within the period, e.g. no lag effect. (2) Time lags thus mainly impact the directional crossings rates at the beginning and end of each period, and, measuring over the entire period, the two impacts at either end are opposite (offsetting). (For example, in the first year of each period, most eastward moves were made by people whose previous westward move was made *before* the period began. In the last year of the period most westward moves were made by people who, if they ever crossed east again, did so *after* the period ended.). An "overcount" of eastward moves early in the period is thus offset by an "undercount" towards the period end. The offset largely, though not perfectly, eliminates the impact of the time lag mismatch.

Table A-3. Estimated net effect on east/west migrant crossing rate of adjusting for minor omissions

From part D above:		(i)	(ii)	(iii)	(iv)	(v)	(vi)
			Undercount of flows west due to omitted				
	Crossings east as as % of west (Table A-1)	Net overcount of flows east	Repeat migrants (some)	Crossings through Canada	Naturalized U.S. citizens before 1900	Total Change (sum of (i) through (iv))	Crossings east as as % of west (adjusted here)
1870–82:	21%	–1%	–1%	–2%	–1%	–5%	16%
1883–99:	33%	–1%	–1%	–3%	–2%	–7%	26%
1900–14:	42%			–1%		–1%	42%

Sources: See Appendix 1, part D, sections (i) through (v) above.
For (ii), flows west adjusted up 3% for 1870–82, 2% for 1883–99.
For (iii), flows west adjusted up by 2/3 of the maximum amount estimated in Table A-2 above.
For (iv), flows west adjusted up 2% for 1870–82, 5% for 1883–99; east up 9% and 13% respectively.
Note: minor discrepancies in table above due to rounding.

Appendix 2. Westbound Crossings of "Immigrants", Migrants, Second and Third Class Passengers, Europe to United States, 1900–14

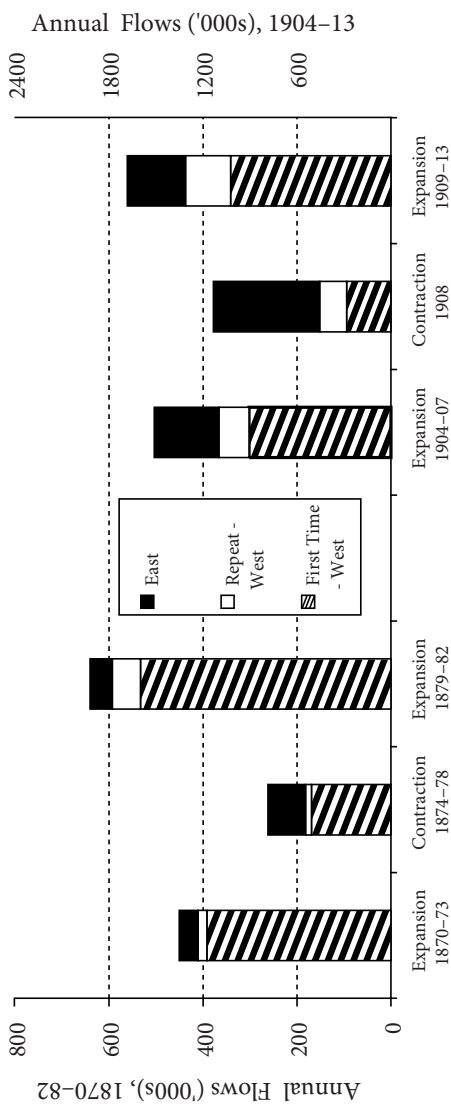
		in '000s	as % Immigrants
Immigrant Arrrivals from Europe (Table A-1, col. 1)		12,159	
Migrants who were not "immigrants"			+15%
Naturalized U.S. citizen arrivals		+ 606	
Westbound "domicile resumption"		+ 758	
Cabin class arrivals before 1904, in-transit, debarred		+ 510	
"Immigrants" who were not regular passengers to main ports			–4%
Migrant crossings through Canada		–426	
Arrivals of stowaways, deserters, migrants on irregular vessels, or through minor ports		–116	
Migrant Crossings West (Table A-1, col. 3)	=	13,491	+11%
Migrants who were not 2nd and 3rd class passengers			–1%
Migrant crossings in First Class		–135	
2nd and 3rd class passengers who were not migrants			+4%
Non-Migrant crossings in Second Class		415	
Non-Migrant crossings in Third Class		48	
2nd and 3rd Class West (Table A-1, col. 2)	=	13,818	

Sources: "Immigrants" are as variously defined by the U.S. Bureau of Immigration or BI (see text). *Naturalized U.S. Citizens*: estimated year by year based on available sources showing them (over the period as a whole) equal to about one quarter of arriving citizens from Europe. For example, BI and PCR data for 1901–05 and 1907 show about 28% of arriving citizens at New York came in steerage class from Europe. This percentage declined somewhat after 1907 due to the growing arrivals of native-born U.S. tourists and business travellers, particularly from non-European ports (Caribbean) which swelled the total count of arriving citizens. *Domicile resumption* (aliens "returning to resume domiciles formerly acquired in this country," BI Annual Report, 1906, p. 45, cited in Hutchinson, p. 992, note 78): per BI annual reports, table 15 (for 1906), table 14 (for 1907–14) with adjustment for flows not from Europe. See also Willcox, vol. 2, p. 656. *Cabin Class*: per BI annual reports, 1900–03, table 6, with deductions for tourists, passengers not from Europe, etc. *Through Canada*: for 1900–05 from BI annual reports for 1904, 78 and 1905, 63, for 1906–14, BI annual reports "admitted through Canada" (Table 1) less "last permanent residence" in Canada (BI annual reports, table 5 (1906–08) and table 8 (1909–14)). *Stowaways, deserters, irregular vessels*, etc.: from BI annual reports. *Migrants in 1st class*: based on the excess of Westbound over Eastbound first class passengers over the 1900–14 period as a whole (PCR). *Non-Migrant crossings in 2nd and 3rd class* : based on calculations from PCR compared to BI immigration data, and corroborated by passenger list samples.

Appendix 3. Repeat Migrant Crossings Westbound, Europe to U.S., 1900–14, by statistical category and sub-period (in '000s and % of all sub-period westbound repeat migrant crossings)

	1900–1905	1906–1914	1900–1914	
Measured by U.S. Bureau of Immigration (BI)				
Immigrants "been in the U.S. before"	478	468	946	
Not Measured by BI				
because not reported as "been in U.S. before"				
Long Term Repeat "Immigrant" arrivals		278	278	11%
because not considered "immigrants"				
Naturalized U.S. citizens	210	396	606	23%
"Domicile Resumption"		758	758	29%
Repeat migrant arrivals in cabin class	25		25	1%
Total Repeat Migrant Crossings	713	1,900	2,613	
Total % missed by BI	33%	75%		64%

Sources: "Been in US before": BI Table 2, Dillingham, vol. 3, p. 359. *Long Term Repeat*: not separately measured during 1900–05 (included in "been before"), BI reports for 1906–08, 1909–14 estimated based on 1906–08 ratio to "been before" *Naturalized U.S. Citizens, Domicile Resumption* : see Appendix 2. *Repeat Migrants in Cabin:* estimated by multiplying the BI repeat ratio (European Race "Immigrants Been Before" / European Race "Immigrants") to all Migrants in Cabin (from Appendix 2)



Appendix 4. Annual average migrant flows between Europe and USA (by direction, type, and business cycle phase, in '000s), 1870–82 versus 1904–13

Sources for 1870-82: Flows derived from Table A-1 above, business cycle phases per Gary M. Walton and Hugh Rockoff, *History of the American Economy* (Fort Worth: Dryden Press, (7th edition) 1994), p. 400. Repeat-west estimated at 50% of eastward flows (during 1900–14, it was 46%). Distribution of the repeat-west volume over the three business cycle phases set proportionate to the time pattern of 1904–1913 (Table A-1). First-time west equals All-west less repeat-west. *Sources for 1904–13*: Flows per Table A-1 and Appendix 3, first time-west = All west minus repeat-west, business cycle phases per Harry Jerome, *Migration and Business Cycles*, National Bureau of Economic Research Publication no. 9. (St. Albans, Vt.: Messenger, 1926).

THE INDUSTRIOUS REVOLUTION AND LABOUR FORCE PARTICIPATION OF RURAL WOMEN: EVIDENCE FROM MID-NINETEENTH-CENTURY FRANCE

George Grantham and Franque Grimard

Introduction

Economic historians have long suspected that unobserved movements in labour supplied by women and children could have affected productivity and material standards of living during the initial phase of European industrialization. In his presidential address to the Economic History Association, Jan de Vries proposed an 'industrious revolution' powered by redirection of (mainly female) household labour from home production of goods and services for domestic consumption to production for the market.[1] He conjectured that this reorientation was precipitated by the broadening spectrum of goods purchasable with money. In the degree that the new goods signaled rising social status, growing demand for them offset the negative income effect of their falling price on willingness to supply labour; in the degree that the novel commodities substituted for goods and services produced in households, they encouraged a corresponding substitution of market work for household work. The change in household allocation of work performed by women, and in lesser measure by children, was part of a more general tendency towards a finer division of labour and thus contributed to rising factor productivity prior to the onslaught of mechanized manufacturing.

De Vries's Industrious Revolution addresses an apparent inconsistency between signs of improving material standards of living evidenced in contemporary probate inventories and the stagnation of real wages in northwest Europe between late seventeenth and early

[1] Jan de Vries, 'The Industrial Revolution and the Industrious Revolution,' *Journal of economic history* 54 (1994), 249–70. The argument is set out in greater theoretical detail in Jan de Vries, 'The Industrious Revolution and economic growth, 1650–1830,' in Paul A. David and Mark Thomas, eds., *The economic future in historical perspective.* Oxford and New York: Oxford University Press, 2003, 43–71.

nineteenth century.[2] Assuming both bodies of evidence are reliable, a hypothesized rightward shift in per capita labour supply, for which there is anecdotal support, provides a neat resolution of the paradox. It has nevertheless proved difficult to test quantitatively owing to the absence of contemporary information on labour force participation rates and on days and hours worked. Given the crudeness of the data, indirect testing based on movements in aggregate factor productivity has also proved unfeasible. Clark and Van der Werf attempt to assess the hypothesis by estimating the number of days worked from a time series of English real wages and estimates of an Engels curve derived from nineteenth-century working class budgets.[3] They argue that since pre-industrial English workers were well-fed at low wages, they must have put in a long work year, leaving little or no room for an Industrious Revolution. One may nevertheless question that negative result on the grounds that it fails to pick up the effect of the possible shifts in the allocation of labour between non-market and market production that are the core of the theory of an Industrious Revolution.[4]

The present paper addresses this question by analyzing data describing the occupations of men and women in rural France in the middle of the nineteenth century. Although the date is late with respect to the hypothesized change in the labour supply, the apparent variations in participation rates provide insight into the underlying mechanisms that determined it. The data are drawn from the 1851 communal nominative census lists recording the name, age, occupation, marital status and relation to the head of household for 70,925 persons in 127 communes located in northern France. That sample has been matched with agricultural information and wage data from the 1852 agricultural census for the cantons in which the communes were located. The size of the sample makes it possible to analyze the sources of regional and household variation in labour force participation with considerable precision. Because adult males were almost fully employed, we focus on labour force participation rates of women and children. Our paper

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[2] Jan de Vries, 'Between purchasing power and the world of goods: understanding the household economy in early modern Europe,' in John Brewer and Roy Porter, eds., *Consumption and the world of goods* . (London: Routledge. 1993), 85–122.

[3] Gregory Clark and Ysbrand Van der Werf, 'Work in progress? The industrious revolution,' *Journal of economic history* 58 (1998), 820–43.

[4] Clark and van Werf also draw heavily on problematical evidence from the British census of 1851 indicating low contribution of women's wages to family income, which again begs the question of non-wage income.

thus addresses three questions: (1) what proportion of rural women worked in mid-nineteenth-century France; (2) how participation rates varied by age, and the principal occupation of the families concerned; and (3) how sensitive labour force participation was to differences in family income and wages? The paper proceeds in three parts. The first reviews the current state of play with respect to the evolution of women's participation in the labour force in the eighteenth and nineteenth century. The second assesses the trustworthiness of the 1851 French census with respect to its occupational designations. The final section reports the findings.

Changes in Female Labour Force Participation in the Early Industrial Era

The literature on female and child labour force participation during the early stages of industrialization responds to several distinct questions. For feminist historians, the primary issue is whether and in what degree industrialization created or reinforced gender-biased occupational assignments and gender-biased wage discrimination. Historians of child labour by contrast focus on the extent and economic rationality of child labour prior to the imposition of compulsory education. Although these issues are tangential to the Industrious Revolution, the research stimulated by them throws much light on it. Burnette finds that the male wage premium for agricultural labourers in England can be explained by differences in physical strength, which implies that a rise in it could be expected to induce substitution of women for men in heavy tasks.[5] This conjecture is supported by the influx of women and children into field work in periods when a significant portion of the male labour force was mobilized for war, as happened in Sweden during the Thirty Years War and in England during the Napoleonic Wars, after which it fell back when male agricultural wages collapsed in the decade following Waterloo.[6] The physical demands of farm

[5] Joyce Burnette, 'An investigation of the female-male wage gap during the Industrial Revolution in Britain, *Economic history review* 50 (1997), 257–81; Joyce Burnett, 'How skilled were English agricultural workers in the early nineteenth century?' *Ibid.* 54 (2006), 688–716.

[6] Marjatta Rahikainen, *Centuries of child labour. European experiences from the seventeenth to the twentieth century (* Aldershot (UK) and Burlington (VT): Ashgate, 2004), 22–23; Pamela Sharpe, 'The female labour market in English agriculture during

work, then, did not raise insuperable obstacles to women's participation in it. A good example is cheese making, in England a female occupation until the 1930s, where women lifted and rotate rotated cheeses weighing 50 to 100 pounds.[7] With respect to child labour, on the other hand, lack of physical strength was a dominant factor in limiting participation. Defoe, who was enthusiastic about putting the poor to work, documented only three instances of it, all in the woolen trade, and explicitly noted how rare it was.[8] The reason was its fundamental unprofitability. Children weren't hired out because they didn't earn their keep. The work of young children consisted in collecting dung from the roads, scaring birds and taking care of even younger children. As they matured, they helped in haying and reaping.[9] It was only from the age of 12 or 13 that their contribution began to match the cost of their maintenance. Unlike women, children had little unused labour potential. Their contribution to an industrious revolution can be expected to have been minimal.

Feminist historians have also examined the question of women's economic independence. Humphries has argued that in England, the extinction of common rights that were mainly exploited by women made them and their families increasingly dependent on casual work for wages. In particular, it increased the elasticity of female labour supply during the harvest, when the demand for temporary hands was greatest.[10] This position is consistent with an older Marxist-inspired argument that organizational changes in eighteenth- and early nineteenth-century agriculture 'forced' women into the fields.[11] Other students have argued for a decline in women's agricultural work, or at least some kinds of it. Snell contended that the substitution of the scythe for the sickle in the late eighteenth century reduced women's opportunities for harvest work because it was too heavy for most of

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the Industrial Revolution: expansion or contraction?' *Agricultural history review* 47:II (1999), 161–81.

[7] Sally McMurry, 'Women's work in agriculture: divergent trends in England and America,' *Comparative studies in society and history* 34 (1992), 253.

[8] Hugh Cunningham, 'The employment and unemployment of children in England, c. 1680–1851, *Past & Present* 126 (1990), 121.

[9] Rahikainen, *Centuries of child labour*, 102–103.

[10] Jane Humphries, 'Enclosures, common rights and women: the proletarianization of families in the late eighteenth and early nineteenth centuries,' *Journal of economic istory* 50 (1990), 17–42.

[11] Ivy Pinchbeck, *Women workers and the Industrial Revolution, 1750–1850* . (London: G. Routledge & Sons, 1930).

them to manipulate.[12] Subsequent research, however, indicates that the scythe was not widely employed to cut cereals before the early nineteenth century, while the gender division of agricultural tasks he supposed flowed from it dates back to at least the sixteenth century.[13] There is nevertheless evidence that female labour participation in farm work declined during the Industrial Revolution. Burnette found that between 1770 and 1830 the demand for female labour at Oakes farm near Sheffield fell as a result of changes brought on by enclosure.[14] Over the same period, increased gender specialization of field work relegated rural English women, who to judge from their height were somewhat undernourished, to the unskilled and low-paid tasks of turning hay to dry, hoeing and weeding crops, picking stones and cleaning drains.[15]

Budget studies paint a somewhat different picture. Analyzing a large sample of English working-class budgets Horrell and Humphries found that labour force participation rates for married women fell from about 66 percent in the 1780s to around 45 percent in 1860.[16] They attribute most of the decline to falling agricultural participation rates in 'high-wage' agricultural districts, which fell from over 50 percent between 1787 and 1815 to 22 percent in the 1820s and 1830s. In low-wage districts, the agricultural participation rates of women married to farm labourers was over 80 percent. Like Snell, they found sharpest declines occurred in the 1820s and 1830s when the male labour force in farming districts was in excess supply. The finding is paradoxical in that the reduction in family income resulting from falling male wages should have induced an increase in wives' participation. They propose that the absence of this income effect may reflect job rationing by farmers who preferred to hire men at low wages than women at even lower wages. According to that interpretation rural women may have desired to

[12] K.D.M. Snell, *Annals of the labouring poor. Social change and agrarian England 1660–1990.* (Cambridge: Cambridge University Press, 1985).

[13] Nicola Verdon, *Rural women workers in nineteenth-century England. Gender, work and wages.* (Woodbridge: The Boyden Press, 2002), 27–28.

[14] Joyce Burnette, 'Labourers at the Oaks: changes in demand for female day-labourers at a farm near Sheffield during the agricultural revolution, *Journal of economic history* 59 (1999), 41–67.

[15] Stephen Nicholas and Deborah Oxley, 'The living standards of women during the Industrial Revolution, *Economic history review* 46 (1993), 723–49.

[16] Sara Horrell and Jane Humphries, 'Women's labour force participation and the transition to the male-breadwinner family, 1790–1865,' *Economic history review* 48 (1995), 89–117.

work in agriculture, but found work hard to obtain. Another feature revealed by the budget studies is the slight contribution of women's earnings to family income. In high wage agriculture the husband's share generally exceeded 80 percent, and in low-wage agriculture 70. By contrast, in the sample of French cantons alluded to above, the ratio of a single male's income to family income averaged 48 percent, and in only 5 percent of the cantons did it exceed 70 percent.

With few exceptions, rural enterprises in the eighteenth and early nineteenth century were family enterprises. This was especially true of farms, where the majority of holdings (if not the majority of hectares) were in the hands of small holders who worked them using the labour of family members. Because arable holdings greater than 20 hectares (50 acres) usually required extra hands, growth in farm size shifted the locus of demand for farm labour from the family to the market, where contrary to Marx's claim that the labour market depressed workers' condition, the supply price of labour was higher. Farmers managing holdings large enough to require additional hands thus had an incentive to economize labour costs by keeping that hiring to a minimum. For many farms this seems to have been achieved by cutting back on female employment. Allen's analysis of farm-level data collected by Arthur Young in the 1760s and early 1770s indicates that most of the labour saved on farms between 20 and 120 hectares was female.[17] England's agricultural history is exceptional, however. In most of Europe, the majority of farms were small family operations worked by unpaid family labour, which implies high female participation rates. In any event, after more than a generation of careful work on published data bearing on occupational structure, there remains a large margin of uncertainty with respect to the evolution of the female agricultural labour force between 1750 and 1850.

The most intensive work on secular shifts in female labour force participation has been carried out for the United States, where census data on home manufactures many of which were products of female labour provide statistical footing for estimation and conjecture. The most widely cited hypothesis is Goldin's claim that female participation was originally high, and declined through the early and middle

[17] Robert C. Allen, *Enclosure and the yeoman: The Agricultural Development of the South Midlands, 1450–1850*. (Oxford: Clarendon Press; New York: Oxford University Press, 1992), 212–214.

phases of American industrialization.[18] Field work plays little role in this account, however. According to her the exogenous force driving this pattern was technological change. Prior to industrialization, home manufacturing of yarn and cloth consumed the energy of women of all ages.[19] The advent of mechanization in cotton spinning at the beginning of the nineteenth century altered this pattern by raising the demand for young women to staff the new factories while lowering that for older women whose domestic products could not compete with cheaper and generally higher-quality products of large-scale manufacturing. The overall impact was declining female labour participation. Towards the end of the century this trend was reversed by the growing demand for female typists, clerks, telephone operators and public school teachers. American experience may nevertheless be exceptional owing to the high self-sufficiency of farming families in the eighteenth and early nineteenth century. In Europe cloth-making had been commercialized since the thirteenth century, and although prior to their mechanization spinning and weaving were typically carried out in households, the work was coordinated by merchants responding to signals determined by markets rather than by purely domestic needs. Moreover, the existence of large specialized farms created a demand for field labour that was partly filled by female workers. Thus, in contrast to the early United States, where wives and daughters initially laboured within the confines of a domestic economy or within informal local exchange networks, European women had long been deeply involved in markets as producers and hired labourers. As a result, the path of female labour participation in Europe was more likely to reflect movement between already commercialized sectors.

Changes in per capita labour input ought to show up in changes in per capita output. This appears to have been the case in the United States, where the growth in agricultural labour productivity before 1840 and the accelerated growth in it during the Civil War appear to

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[18] Claudia Goldin, *Understanding the gender gap. An economic history of American women.(*New York and Oxford: Oxford University Press), 1991.

[19] Laura Thatcher Ulrich, *A midwife's diary. The life of Martha Ballard, based on her diary, 1785–1812.* (New York: Vintage Books, 1991). Here are some typical entries: August 18, 1787. 'I spun some shoe thread.' Sepltember 9, 1788, 'Mrs. Savage here. Shee has spun 40 double skeins for me since April 15th…Dolly wove her 7 yrds of diaper, I let her have 1 skein of lining warp.' October 4, 1789, 'Pikt green peas in our gardin.' October 5, 1789, 'A rainy day. I combd 7 lb of flax for myself & 4 for Cyrus.'

be due to redirection of household labour from domestic production of manufactures to agricultural production.[20] The growth in productivity during the decade of the Civil War is especially telling, as it appears to represent a 25 percent increase in labour supplied by adult women and a 13 to 17 percent increase in that supplied by boys and girls.[21] Analysis of labour input requirements by product group suggest that a major factor in increased participation by farm women in market-oriented production was the growth of dairying, poultry and garden produce, all of which drew disproportionately on female labour.[22] These findings are consistent with an Industrious Revolution.

The supply of female labour for remunerative labour came at a cost, however. Much of that cost was the loss of what Nancy Folbre felicitously terms 'caring labour,' the child care, housework, food preparation, laundry, and caring for the ill and aged.[23] She and Wagman have hazarded that in ante-Bellum America, a fair estimate of the value of these home-produced and home-consumed services may have equaled the value of men's contribution to GDP.[24] These services represented the shadow price of women's participation in market-oriented work, and they may also have provided the economic incentive for restricting women's access to that work. Evidence from an enquiry into the condition of labour in France in 1848 suggests that the value of such services in rural districts was 25 to 40 percent of a single male worker's earnings. In the canton of Chavanges (*département* of Aube), a single male day labourer spent on average 400 francs a year when living alone; when living with his family, the expenditure was 328 francs. Similarly, when they took their meals in taverns and cabarets, rural workers near Chartres spent 450 francs a year; at home with their family, they spent about 300.[25] Since economies of scale in food preparation could hardly

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[20] Thomas Weiss, 'Long-term changes in US agricultural output per worker, 1800–1900,' *Economic history review* 46 (1993), 324–41.

[21] Lee A. Craig and Thomas Weiss, 'Agricultural productivity growth during the decade of the Civil War,' *Journal of economic history* 53 (1993), 527–48.

[22] Lee Craig and Thomas Weiss, 'Hours of work and total factor productivity in U.S. agriculture,' *Advances in agricultural economic history* 1 (2000), 1–30.

[23] Nancy Folbre, *The invisible heart. Economics and family values.* New York: The New Press, 2001.

[24] Nancy Folbre and Brnet Wagman, 'Counting housework: new estimates of the real product in the United States, 1800–1860,' *Journal of economic history* 53, (1993), 275–88.

[25] *Enquête sur le travail agricole et indlustriel, 1848.* Archives Nationales C 946. Canton de Chevanges : Canton de Chartres-Sud.

be greater at home than in a commercial establishment, the advantage must have reflected unpaid labour of females and dependents. Data on consumption and saving from the 1852 *Enquête agricole* indicates that single males spent the same share of their income on food as a stylized family of five (62 percent). But family income supported the consumption of dependents, which means that unless the extra cost of food was offset by lower cost of food preparation, the share of family income going to food should have been higher than for single males. It is conceivable, therefore, that the shadow price of women's time as determined by the value of domestic services may have been 25 to 40 percent of a single male's annual income. Since the annualized ratio of female day wages to male day wages was 43 percent, that value represents nearly 60 to 90 percent of the supply price of full-time female labour. On these grounds one would expect that only exceptionally strong incentives could pull (or push) women out of the household and into the market.

Empirical studies of female labour supply in modern underdeveloped countries provide some further insight into the mechanics of an Industrious Revolution. Most exploit the model of optimal time allocation proposed by Becker and extended by Gronau, which stresses the effect of variations in wages and unearned income on female labour supply.[26] Empirical findings from panel data sets, however, give mixed results with respect to the predicted substitution and income effects. This appears to reflect differences in the organization of rural labour markets. In south Asia, where the markets for rural labour are well-organized, the wage is closely related to the quantity of labour supplied by women for market production.[27] In Africa, and in lesser measure Latin America, the effect is smaller. An interesting feature of exceptionally detailed data on time allocation in rural Pakistan is that female labour supply seems to be positively correlated with the time spent by men in household work, suggesting a degree of substitutability between men and women in household production for household

[26] Gary Becker, 'A theory of the allocation of time,' *Economic journal* 75 (1965), 495–517; Reuben Gronau, 'Leisure, home production and work—the theory of the allocation of time revisited,' *Journal of political economy* 85 (1977), 1099–1123.

[27] Shahidur R. Khandker, 'Determinants of women's time allocation in rural Bangledeshk,' *Economic development and cultural change* 37 (1988), 111–26; Nadeem Ilahi and Franque Grimard, 'Public infrastructure and private costs: water supply and time allocation of women in rural Pakistan, *Economic development of cultural change* 49 (2000), 45–75.

use.[28] The data also show a negative relation between women's labour market participation and their husband's wage. The studies, then, support in a general way the hypothesis that female labour supply is influenced by the opportunity cost represented by the value of their domestic production and by sources of income they treat as unearned, all of which are consistent with the underlying thesis of the Industrious Revolution.

Occupational Censuses and Labour Force Participation

Economic historians do not have the luxury of time budgets and panel data to test and flesh out arguments concerning labour supply. There are some data on hours worked, and by dint of heroic assumption one can extract information on the length of the work year. But our main information about historical patterns of labour allocation comes from censuses that record occupations. The purpose of recording occupations was originally fiscal, since the identification of its occupation, landholding, and civil status provided a ready means of assessing a household's fiscal capacity. The relicts of these exercises are the basis of our estimates of the broad division of labour between farming and other activities on the eve of the Industrial Revolution.[29] Towards the end of the seventeenth century governments started to count individual persons, but the predominately fiscal perspective restricted occupational designations to (mostly male) heads of households, and perpetuated the mixing of occupation and status categories.[30] The early enumerations, then, provide little more than a rough estimate of the sectoral distribution of the male labour force and no information on market-oriented work by rural women.

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[28] Emmanuel Skoufias, 'Labour market opportunities and intra family time allocation in rural households in South Asia,' *Journal of development studies* 40 (1993), 277–310.

[29] Gregory King's *Natural and political observations upon the state and condition of England, 1696* is the outstanding example of how these data can be exploited for the purpose of making national income estimates.

[30] The earliest 'census' was conducted by Vauban in 1682 for the cities of Flanders. Bertrand Gille, *Les sources statistiques de l'histoire de France.* Génève: Droz (1980), 47–48; A. Desrosières, Éléments pour l'histoire des nomenclatures socioprofessionelles,' in *Pour une histoire de la statistique.* Paris: Institut National de la Statistique et des Études Économiques (1976), 155–234.

National enumerations date to the first decade of the nineteenth century, and occurred simultaneously in France, the United States and Great Britain. None of the early censuses distinguish the occupations of females from those of male household heads except when they worked outside the household. Interest in occupations dates from the early 1840s, and was primarily directed at establishing the causes of mortality, then believed to be related to exposure to noxious substances. It was largely with this purpose in mind that the Belgian statistician Adolph Quételet directed the Belgian census of 1845 to collect data on women's work.[31] In England the first enumeration of 1801 pigeonholed families into three broad sectors; from 1811 through 1841 enumerators were required to obtain the occupations of all men over 19, and from 1841 to record the occupations of women working outside the home. The primary reason for this extension was to obtain information that might throw light on the connection between mortality and the kind of material to which workers were exposed.[32] The focus on public health, however, was not conducive to accurate reporting of the occupations of women and children, who were in any event exposed to substances worked up at home by the head of household. Thus, the enumerators often simply listed women as 'farmer's wife' or 'daughter,' which conveys no information regarding their employment. In 1851 the census administration directed enumerators to list dependents as working if they helped in a family enterprise, but many enumerators ignored the instructions.[33] The result is that although in principle British censuses between 1851 and 1871 captured women's labour force participation, in fact they greatly understated it in sectors like agriculture, where the work was jointly conducted with housework.[34]

The French censuses suffer from many but not all of the same defects. Beginning in 1836 enumerators systematically recorded the

[31] Quételet pioneered the application of least-squares analysis of social data, and was instrumental in designing the major mid-century European censuses. Joseph Lottin, *Quételet, statisticien et sociologque.* New York : B. Franklin Reprints, 1969, [1912].

[32] William Farr, who directed the census from 1838 to 1880, was a physician whose particular interest was how working with specific materials affected health,. Edward Higgs, 'Occupational censuses and the agricultural work force in England and Wales,' *Economic history review* 48 (1995), 701–702; Edward Higgs, *Making sense of the census revisited: Census records for England and Wales, 1801–1901.* London: Institute of Historical Research ,2005, 20–21.

[33] Edward Higgs, 'Women, occupations and work in the nineteenth century censuses,' *History workshop journal* 23 (1987), 60–80.

[34] Burnette, 'Wages and employment of female day labourers,' 682–83.

occupation of heads of household on the nominative lists. Unlike in England, however, the extension of that reporting to the occupations of dependents was driven by economic rather than public health concerns. As a result of France's revolutionary history, punctuated by urban and rural rebellions provoked by trade depressions and harvest failure, no mid-nineteenth-century government could afford to be diffident about the current and prospective state of the economy. In 1848 the Republic carried out a vast enquiry into conditions of work to collect information on the state of employment, the number of children and apprenticeships working in workshops, the length of the work year, and the relation between wages and the cost of living.[35] Six months before Louis Napoleon's *coup d'état* in December, 1851, the Bureau de Statistique, which was then under the Ministry of the Interior, instructed enumerators to report the means of support of all enumerated persons. For those who supported themselves by working, the entry was to record their occupation, or occupations if they had more than one; those who lived off their capital or landholding were listed as pensioners, *rentiers*, or landowners *propriétaire*). The critical designation concerns dependents, who are described as 'living on the income of x.' Thus, a wife who did not work is reported as *vivant du revenu de son mari.* Unlike the British census, and unlike earlier and later French enumerations, the French census of 1851 distinguishes working from non-working dependents. In this respect it provides a unique window into the labour force participation of women and children who worked at home but not for wages.

Despite its wealth of detail, the census has been dismissed by French historians as an unreliable source of information concerning occupational structure. This is in part owing to the suppression of information concerning the occupations of dependents in the summary tables used to work up the aggregate published data. Persons who reported more than one occupation might be counted once, more than once, or not at all in the summary statistics. Finally, not all enumerators followed instructions: some listed all dependents as having the same occupation as the head of household; others listed only that of the head. However, the main reason that historians downgrade its information is that the definitions of the labour force are inconsistent with those used in the

[35] *Enquête sur le travail agricole et industriel.* Archives Nationales. C 943 through C 949.

preceding and following censuses and thus unsuitable for a consistent time series. It was largely for this reason that the authoritative *Histoire de la population française* asserted that with respect to its occupational designations, the census of 1851 is unusable.[36] Before 1851 and from 1856, enumerators listed only those dependents working outside the household as employed. Thus, while the census of 1851 reported a labour force of 22.2 million, that of 1856 reports 14.2 million. Indeed the labour force estimated from the 1851 census is so high it was not equaled until 1974.[37]

The 1851 census, then, is a statistical outlier. The question, however, is whether it exaggerates the number of people who worked. We can test that possibility by considering the change in census procedures carried out in 1896, when the census supplemented the enumeration by households with returns on employment of individuals filled out by employers. Although working-age population in 1896 was only two-tenths of one percent higher in than in 1891, the reported labour force was 16 percent higher, indicating that the method of enumeration in place between 1856 and 1891 significantly undercounted actual employment. Who were the undercounted? We can answer this question by comparing the 1851 and 1856 census. Slightly more than half of the eight million person discrepancy consisted of approximately 4.3 million women reported as working in 1851 and not-working in 1856. That leaves 3.7 million missing male workers to be accounted for. Who were they, and how did they get omitted? Most were engaged in agriculture. The 1851 census reports 7.7 million men in agriculture; that of 1856 records only 5.1 million. Which estimate is more accurate?

An answer can be inferred from data on the size of the agricultural labour force in decennial agricultural enquiries of 1852, 1862, 1882 and 1892, and the corresponding decennial population censuses of 1851, 1861, 1881 and 1891. The *Enquête agricole* of 1852 reports the

[36] 'Le recensement de 1851, le premier à comporter une rubrique professionelle, reste à peu près inutilisable, les chiffres de la population active qu'il indique… relèvent d'une autre définition de la population active que tous les recensements postérieurs, et interdisent toute comparaison.' Jacques Dupaquier et al. *Histoire de la population française.* Paris: Presses Universitaires Françaises (1998), 244–45.

[37] Olivier Marchand and Claude Thélot, *Deux siècles de travail en France.* Paris: INSEE (1991), 174. The data for 1846 are unreliable, but if one extrapolates the 1856 figures on the growth rate for agricultural workers estimated by Marchand and Thélot, the labour force in 1846 was 13.5 million.

same male agricultural labour force as the census of 1851; the *Enquête* of 1862 reports a labour force that is 18 percent higher than the 1861 population; the agricultural census of 1882 gives a labour force 15 percent higher than its corresponding census, and that of 1892, one that is 9 percent higher. With the exception of the census of 1851, then, the population censuses systematically understate the French agricultural labour force. That understating shows up in the implied labour force participation rates from the two sources. Participation rates for men between the ages of 15 and 64 derived from the population censuses from 1861 through 1891 are 8 to 10 percentage points below those derived from the agricultural enquiries, which range from 93 to 98 percent of the eligible population.[38] The 1851 estimate from the communes sampled in the present study is 96 percent. It would appear, therefore, that far from being an outlier, the census of 1851 was the most accurate enumeration of occupations of all nineteenth-century French censuses.

The Sample and its Properties

The present sample consists of 70,925 individuals representing 127 communes distributed across 87 cantons and six *départements* in northern France (Aube, Eure-et-Loir, Haute-Marne, Mayenne, Meurthe and Seine-et-Oise). The communes were selected on four criteria: they had to be located in cantons for which a manuscript return of the 1852 *Enquête agricole* could be obtained; they had to be rural; they had to be representative of the canton in which they were located; and the occupational designations in the nominative list had to distinguish working from non-working wives. The test for the latter was whether the list contained explicit examples of working and non-working wives of farmers, which is the most sensitive indicator of whether enumerators were carrying out their instructions to the letter. With the exception of two communes for which some pages of the nominative list are missing, everyone in the commune was entered into the data base. The original nominative lists are organized by household, the head listed first followed by the spouse, children, other relatives, live-in employees, servants, and boarders. As the census is organized by residence,

[38] François Caron, *An economic history of modern France.* (New York: Columbia University Press, 1979), 17.

absent relatives are listed in the place where they resided at the time the census. The 'households' thus include a residential school containing more than a dozen students, and a railway or canal construction site with over 50 persons. Most households, however, consisted of nuclear families.

As was the case with earlier census classifications, the occupational categories do not always distinguish between occupation and status. For example, the designation *propriétaire* tells us that the person got his income from owning land, but not whether he farmed it himself. In most cases, however, the enumerators indicated a landowning farmer by setting the occupation as *propriétaire-cultivateur* or some similar appelation. The lists also indicate multiple occupations. When they do, the principal profession is listed first. Thus a person listed as *tisserand-journalier* was a weaver first and a day labourer second, while a listing of *journalier-tisserand* indicates that weaving was his by-employment. The most important feature of the census lists is their identification of women and children who worked enough to warrant an occupational designation. It is this property that shines a rare light on their labour force participation, and thus on the factors that encouraged or impeded an Industrious Revolution.

The communes cover almost the whole range of economic environments in northern France. They include wine-growing villages from the Champagne, the Moselle, and Paris Basin, share cropping districts specialized in livestock husbandry, districts dominated by large commercial farms that raised cereals for the Paris market, districts specialized in iron-working and forest products, and districts specialized in the rural manufacture of textile products. Wages and incomes varied greatly across the sample, male wages ranging from 3 francs around Paris to 1 franc per day on the periphery, and estimated family income from more than 1400 francs to a little less than 400.

As befits a rural sample, most households were engaged directly or indirectly in agriculture and nearly half owned land. Table 1 gives the occupational distribution of heads of households, households and persons working. Nearly 63 percent of heads of households were farmers, and over 70 percent of households had at least one person in agricultural employment. The craftsmen who shoed horses and made and maintained farm implements and tradesmen who marketed farm produce made up another 6.6 percent of households, so that in all roughly three-quarters of households depended directly or indirectly on income originating in agricultural production. The remainder were

distributed across forestry, road work, construction, retail shops and food distribution, textiles and the clothing trades. Nearly 12 percent of households included persons employed in a rural industry, and close to 10 percent had someone in the clothing trades, which included shoemaking, tailoring and laundry services. In both textiles and clothing trades, the workforce was predominately female. A little over 3 percent of household heads were members of a liberal profession. The table indicates that households were more diversified than individuals.

Farming claimed roughly equal proportions of men, women and children. In other sectors the sexual division of labour was more pronounced. The agricultural service trades were the exclusive province of men, as were the construction trades, forestry, road work, transportation, and the liberal professions. By contrast, women dominated the textile industry and the clothing trades, in which seamstresses made up 5.7 percent of all female workers. Outside agriculture, children were present only in rural industry, mainly textiles. Very few worked before the age of 13 or 14. Most children did not start working before the age of 12 or 13. Of 4,756 children between the age of 9 and 13, only 865 are listed as having an occupation.

Table 1. Occupational Structure

Occupation	Household head	Household*	All workers
Farming	62.8	70.9	70.1
Farm labourers	23.0	40.0	30.3
Agricultural Crafts[a]	3.3	3.8	2.2
Agricultural Marketing[b]	1.9	2.2	1.5
Food services[c]	4.1	4.4	3.5
Construction[d]	6.2	7.7	4.7
Clothing trades[e]	3.5	9.8	6.2
Transport & Road Work	2.9	4.0	2.1
Forestry	2.4	2.7	2.0
Rural industry	8.0	11.9	8.7
Liberal professions[f]	3.5	3.8	2.0
Number of observations	17,607	19,675	41,699

* At least one person in household engaged in the sector. Data are percent of all households

[a] Blacksmith, cartwright, ploughwright, barrel-maker, sadler and harnessmaker

[b] Grain, livestock, dairy produce, timber and wood products

[c] Grocer, innkeeper, cabaret, baker, butcher, charcuterie, miller

[d] Masons, tiles and brickwork, carpenters, roofers, painters, cabinetmakers

[e] Glovers, seamstresses, tailors, shoemakers, clog makers, laundry

[f] Functionaries, law, education, medicine, police, writers and artists

Table 2. Occupational Structure of Men, Women and Children
(Share of those employed)

Occupation	Men	Women	Children*
Farming	69.2	71.1	73.5
Farm labourers	28.8	32.4	32.8
Agricultural Crafts	3.5	0.3	1.0
Agricultural Marketing	1.7	1.3	0.7
Food services	3.2	2.8	1.2
Construction	7.6	0.7	3.7
Clothing trades	3.3	10.4	7.8
Transport & Road Work	3.6	0.1	–
Forestry	2.7	1.0	–
Rural industry	7.3	10.6	11.7
Liberal professions	2.9	0.9	–
Number of persons	24,209	17,491	865

Age 9 to 13

Landholding was widely distributed, as 42 percent of all households owned land and 51 percent of households engaged in farming. The average masks significant regional variation, however. In the more remote 'peasant' regions of Champagne and Lorraine (the departments of Aube and Haute-Marne), the proportion of farming households owning land reached 73 percent; in districts of capitalist farming where arable land had long been consolidated into large holdings, the proportion ranged from 35 to 41 percent. The lowest proportion of agricultural landowners was in the *département* of Mayenne, where most of the land was farmed on sharecrop tenure. Among occupations, the highest proportion of landowners was to be found among members of the liberal professions, where the share of proprietors exceeded even that of cultivators. Nevertheless, landholding was common in all occupational classes except hired hands, most of whom were young men and women. Age was an important determinant of landholding status, as property was accumulated by saving and by inheritance. Controlling for occupation, the probability of owning land rose by 1.8 percent with each year of age. Land-ownership was important for labour force participation, as it provided a means, especially for older men and women, of escaping field work. Although one might be tempted to suppose that the possession of land provided an outlet for excess family labour, the regressions reported below that the opposite was in fact the case. The possession of land lowered the likelihood of labour market participation.

Table 3. Land-ownership by Occupational Category

(percent)

Occupation	Households
All cultivators	51.4
Farm labourers	21.0
Hired Hands	7.0
Agricultural Crafts	31.5
Agricultural Marketing	31.5
Retail and food services	33.6
Clothing trades	25.4
Construction	27.1
Textiles	20.3
Other industry	21.8
Liberal Professions	58.4
Other professions, etc.	22.1
All Households	41.9

Table 4. Landholding by Age

(percent)

Age	All Persons	Household Head	Men	Women
20–29	4.8	25.4	8.4	1.1
30–39	14.4	32.5	25.8	2.4
40–49	21.8	40.7	37.8	4.8
50–59	27.9	47.0	46.0	10.2
60–69	31.9	49.8	50.9	16.4
70–79	39.0	51.8	52.7	26.9
80+	41.2	55.0	53.1	33.0

About 11 percent of individuals working and nearly a quarter of all households were employed in more than one sector. The least diversified sector was farming, where only 10.6 percent of persons employed in it practiced another profession, and only 28 percent of agricultural households had members working in occupations other than farming. The category with the lowest incidence of multiple occupations among individuals and households was sharecroppers, where nearly all family members were employed by the holding, often as a condition of tenure. Winegrowers are another class of highly specialized labour-intensive farmers, as the work of cultivating and pruning vines left little time

for anything else. It was among these classes that one finds the highest rates of labour force participation of wives and female dependents. Outside of farming, the incidence of multiple occupations was significantly higher, ranging between 20 and 38 percent among individuals and 60 to 75 percent among households. The only occupational class for which the incidence of multiple occupations for individuals was relatively low is textiles, where it was 13 percent, and even in this sector the household rate was 65 percent. Workers in agriculture, then, were highly specialized in farming in comparison with tradesmen and rural craftsmen.

For most non-farmers, the second occupation was farming, which provided the main outlet for excess labour and saving in rural communities that provided few growth opportunities for small businesses tied to the agricultural community. Households were nevertheless more diversified than individuals because rural families took in boarders, and because husbands, wives, and children had different occupations. On average men were twice as likely as women to have more than one occupation.

Table 5. Multiple occupations

Occupations	Individuals	Households	Men	Women
All Cultivators	10.6	28.1	12.6	6.0
Winegrowers	3.9	46.1	4.4	1.5
Gardeners	27.8	35.5	28.6	10.0*
Sharecroppers	6.4	1.7	2.1	0.0
Day Labourers	11.2	32.7	12.6	9.6
Hired hands (*domestique*)	4.7	28.5	4.3	5.3
Landowners	17.0	23.1	18.8	5.9
Agricultural Crafts	32.0	60.8	36.1	21.9
Agricultural Marketing	38.0	63.8	43.7	27.4
Retail and food services	36.0	64.2	45.0	22.2
Clothing trades	24.5	74.6	39.4	18.1
Construction	38.4	66.2	39.1	30.9
Rural textile industry	12.9	64.5	22.6	6.5
Other rural industry	30.7	76.9	31.0	25.7
Transportation and Roadwork	28.6	74.3	28.2	48.0
Liberal Professions	20.3	57.8	21.9	13.7
All persons and households	11.4	24.6[a]	14.5	7.2

* less than 10 observations
[a] All households including those with no workers.

Labour Force Participation Rates

Because census enumerators assigned occupations to individuals if their occupation constituted a significant source of income, the occupational assignments can be utilized to construct a crude measure of labour force participation in market-oriented work. They do not tell us the number of days or hours worked (although information on the former was collected by the 1852 *Enquête agricole* for day labourers), they nevertheless tell us who was *not* working. The question is how plausible is that division? As noted above, the key question concerns the labour force participation of women, who owing to their non-market services incurred significant opportunity costs in reallocating their time from household duties to market production. Table 6 displays participation rates for men and women by age and marital status. The data support the view that enumerators faithfully carried out their instructions. As one would expect, the participation rates of young people were lower than those of adults, and rates for women significantly lower than rates for men. For all classes, the participation rates rise through the 20s and decline only after age 60. Participation rates of single women are higher than those of married women, while the rates for widows are much higher. Widows in their 40s had participation rates approaching those of men, which is a measure of the devastating effect of death on young families that had not yet accumulated enough assets for the survivor to support herself on their earnings. This is not the case of elderly widows, whose participation rates were lower than those of married women. These expected patterns promote confidence in the enumerators' work. Another sign that they followed instructions is that married women between the age of 20 and 40 with children younger than 3 have a lower estimated participation rate (60 percent) than other married women (68 percent). The census, then, seems to be a faithful representation of the division of the working-age population between those engaged in remunerative work and those who did other things with their time.

Perhaps the most striking feature of the participation rates is the high share of female dependents in farming families who had remunerative occupations. Fully 70 percent of farmers' wives worked; among wives of sharecroppers and winegrowers, the proportion is 91 and 84 percent, respectively. Participation rates for wives of merchants and tradesmen were with some exceptions lower. The wives of highly paid craftsmen such as blacksmiths and cartwrights, had low participa-

Table 6. Labour Force Participation Rates by Age and Marital Status

Age	Total	Men	Women		
			All	Married	Widows
9–14	29.8	29.8	23.9		
15–19	80.0	80.9	68.5	58.1	–
20–29	81.4	92.6	70.0	60.6	87.8
30–39	82.5	97.2	67.2	63.7	87.0
40–49	83.9	98.2	68.6	64.5	91.0
50–59	82.4	97.2	68.0	62.4	85.1
60–69	67.5	81.7	55.8	55.8	54.5
70–75	53.2	68.0	40.2	45.5	35.5

tion rates, as did wives of carpenters and roofers. Shopkeepers wives typically had fairly high participation rates, especially those keeping inns and taverns, where the work was an extension of housework. The lowest participation rates were in families headed by a member of the liberal professions, for whom manual work or shop keeping represented a degradation in social status.

What light do these findings shed on the Industrious Revolution? Because the sample was deliberately selected to investigate the question of female participation rates in rural communities, it cannot detect the dynamic effects of changing terms of trade and preferences that are the heart of the hypothesis. The data indicate that female participation rates in rural France were high, and that they were especially high among dependents of farmers. But we do not know if they had always been that high, or higher and had already begun to decline, or if they were at a peak, having risen from a lower level. Among the traditional adjuncts to farming—the craftsmen who built and repaired implements, the merchants who marketed the produce, and the construction workers who were probably engaged in one of France's greatest rural building booms,[39] participation rates were relatively low. This had probably always been the case. Among the purveyors of household substitutes—groceries, prepared meals, drinks and pub sociability—the participation rates are somewhat higher, though still lower than among farm families. It was only among textile workers and the clothing trades, where seamstresses and tailors substituted for

[39] George Grantham, 'The French agricultural capital stock, 1789–1914,' *Research in economic history* 16 (1996), 37–83.

Table 7. Labour Force Participation of Wives by Husband's Occupation

Husband's Occupation	Participation Rate	Observations
Farmer (incl. Labourers)	70	9,993
Owner-Occupier	78	1,270
Sharecropper	91	288
Winegrower	84	1,928
Market gardener	64	200
Day Labourer	67	3,645
Agricultural Trades	40	567
Blacksmith	28	190
Cartwright	36	182
Cooper	57	79
Saddler, harnessmaker	57	113
Food services	65	524
Grocer	63	79
Innkeeper, Tavern keeper	78	252
Baker	53	47
Butcher, charcutier	45	56
Misc. (Milk, poultry)	48	90
Miller	65	126
Agricultural marketing	62	168
General, wholesale	66	116
Grain merchant	33	12
Livestock merchant	57	40
Wood merchant	42	38
Clothing Trades	55	462
Shoemaker	46	189
Clog maker (*sabotier*)	53	130
Tailor	64	89
Laundryman	78	54
Building trades	48	1,207
Tile, brickmaker	65	104
Mason	51	676
Carpenter	39	180
Roofer (*couvreur*)	26	66
Cabinetmaker	44	186
Rural Industry	61	843
Cloth manfacturer (mercer)	78	36
Weaver	61	419
Spinner	86	21
Framework knitter	72	160
Embroiderer	66	35
Cutler, metalworker	42	172
Transport	47	335
Road Work	46	194

Table 7 (*cont.*)

Husband's Occupation	Participation Rate	Observations
Liberal Professions	30	380
Functionary	40	58
Law	25	16
Medicine	7	15
Education	19	101
Police, guard	38	193

household sewing, that the participation rates of women were as high as in farming. There is these data, then, weak evidence for the kind of reallocation of effort suggested by de Vries's hypothesis.

In the degree that female dependents worked in the same sector as male heads of household, the data indicate a gender-based division of labour. Wives of blacksmiths, metal tradesmen, carpenters, and cartwrights did not work in their husband's trades, and were less likely to work at all than wives of farmers, spinners, spinners and weavers. On the other hand, participation by women in retail food services other than meat processing was high. The female participation rates in agriculture are exceptionally high by contemporary British standards, where to judge from Horrell and Humphries budget sample, they were a little under 50 percent in high-wage and a little more than 60 percent in low-wage districts in the middle decades of the nineteenth century. In part this was due to the high proportion of winegrowers, for whom the participation rates of women were exceptionally high. But it may also reflect differences in agrarian structure.

We can begin to sort out the various determinants of women's labour force participation by conducting out a probit analysis of the participation rate on demographic, structural and economic variables potentially affecting women's decision to undertake remunerative work. The demographic variables include age, marital status, number of young children and family size. The structural variables are the property-holding status of the household and the occupation of the head of household. The economic variables are drawn from the agricultural census of 1852. They include the male and female wage, family income estimated as the sum of reported expenditure plus saving, the labour input per hectare sown in cereals and the percentage of arable land in root crops, sugar beets, oil crops, vines, and fallow. The literature on women's work in England suggests that field work was

positively related to the labour intensity of cropping, in particular to the incidence of root crops. Economic theory predicts that it should be positively related to the female wage and negatively related to family income or the male wage.

Table 8 sets out the probit regression of female labour force participation on the variables mentioned above. As the previous tables indicate, the condition of marriage significantly lowered participation rates, while being widowed significantly raised them. The latter was is clearly due to the negative income effect of widowhood, as the relative increase in widows' participation is situated in ages 30 to 55. Having young children reduced women's tendency to engage in remunerative work, which supports the notion that the decision to work was affected by the opportunity cost of their time. The status of cultivator is strongly associated with women working, as is that of sharecropping and wine-growing. Surprisingly, however, being in a market gardening family reduced the probability of women working. Landholding has a strong negative effect, which is consistent with the hypothesis that 'unearned' income lessened the need or desire of women to work for pay.

The other structural variables essentially reproduce the information presented above in the tables. The textile and clothing trades were associated with higher rates of female labour participation, while the agricultural crafts and liberal professions are associated with lower ones. Female labour force participation is positively related to the percentage of arable in sugar beets, which supports the view that the spread of this intensively hoed crop increased the demand for female labour. On the other hand, the participation rates of women are negatively related to other root crops, the labour-intensive oil crops (flax, hemp, oilseed), which could have been expected to raise female labour participation. More intensive rotations as measured by declining percentage of arable land in fallow are associated with higher rates of female labour participation.

The results, then, are a mixed bag. The structural variables support the notion that women's decision to engage in remunerative work was influenced by the opportunity cost of their time. They also suggest, though cannot prove, that poverty was a powerful motive inducing higher participation rates. Widows worked more often than single and married women; women in landholding families worked less often. The 'poor' clothing and textile trades are associated with higher participation than the 'rich' agricultural crafts. From the economist's

Table 8. Probit Analysis of Female Participation Rates[a]

Dependent Variable: Female working
Uncentered R^2: 0.3808

Dependent Variable	Coefficient	Z-Statistic
Age	0.5957	10.69
Age^2	−0.0192	−8.80
Age^3	0.0002	7.64
Married	−0.2338	−2.55
Widowed	0.2207	2.60
Mother	−0.0523	−1.07
Number of children under 3	−0.0644	−1.47
Family size	−0.0382	−2.48
Family owns land	−0.1969	−2.31
Farming family	1.0549	12.54
Sharecropping family	0.6772	2.62
Winegrowing Family	0.5171	4.91
Gardening family	−0.1731	−1.63
Day labouring family	0.0733	0.83
Agricultural crafts	−0.1835	−1.62
Textiles	0.9384	7.33
Clothing trades	0.8366	11.22
Food Services	0.5649	7.23
Construction	−0.0629	−0.65
Road work	0.4232	1.33
Agricultural marketing	0.4231	5.31
Liberal Professions	−0.2231	−2.81
Industry (exc. Textile)	0.2112	1.50
Family income	−0.0001	−0.16
Female Wage	−0.4115	−0.83
Male Wage	0.3287	0.97
Percent arable in roots	−9.8445	−2.41
Percent in vines	1.7808	0.98
Percent in sugar beets	16.0114	1.85
Percent in oil crops	−14.0671	−1.48
Percent in fallow	−0.6241	−0.79
Department dummies[a]		
Aube	1.1962	2.78
Eure-et-Loir	0.7047	1.40
Haute-Marne	1.1840	2.82
Mayenne	−0.0770	−0.12
Meurthe	1.4380	2.51
Constant	−8.3485	−6.86

[a] Omitted *département* is Seine-et-Oise.

standpoint perhaps the most disappointing result is the absence of any relation between female labour supply and wage and income variables. It should be noted, however, that the variables relate to families of day labourers and are available only for the canton level of aggregation, and thus do not measure the wage and income constraints governing the decisions of individuals, the majority of whom were not day labourers. Perhaps the most important reason for the lack of a wage or income effect on labour supply is that the districts from which the sample was drawn varied greatly in their level of economic development. The most advanced from the standpoint of market integration were the communes in the *département* of Seine-et-Oise. Whereas in all other *départements* the wage response of female labour force participation was close to zero and insignificant, in Seine-et-Oise it is positive and significant. One may hazard the conjecture that in the more monetized districts of rural France, the response to market wages was more elastic. With the exception of Mayenne, which was a department dominated by large estates farmed as sharecrops, Seine-et-Oise had the lowest proportion of landowners among rural families, and wage labour was more common there than in other districts.

The hypothesis of an Industrious Revolution explains a discrepancy between stagnant real wages and rising material welfare in the pre- and early industrial era. The evidence presented here neither confirms nor denies it, as the findings are compatible with both possibilities. On the one hand, the extremely high rates of female labour participation might indicate a prior Industrious Revolution, but they can as easily support the view that participation rates were high before 1700. Peasant landholding seems on the whole to have encouraged a high labour input by female dependents, documented in the mongraphs directed by Le Play.[40] As in frontier America, the possibility of acquiring land by work and saving seems to have induced exceptional work effort among the French agricultural population.

The highest female participation rates occur in the departement of Mayenne. Was this because it was the poorest department, or because most of its farms were held on sharecrop tenure? The insensitivity of

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[40] Anne Meyering, '*La petite ouvrière surmenée*: family structure and women's work in nineteenth-century France,' in Pat Hudson and W.R. Lee, *Women's work and the family economy in historical perspective.* (Manchester: Manchester University Press 1990), 132–156.

the decision to participate in remunerative work to wages and family income is surprising, given the roughly 3:1 range in wages and estimated income of day labourers in the sample as a whole. The sharecropping communes were situated on stiff soils requiring huge labour inputs to grow cereals, and data on days worked per year in the *Enquete agricole* of 1852 show a high correlation (0.39) between the share of farms held as sharecrops and the annual work suppplied by female day labourers. The correlation for men is only 0.16. Wages and incomes were low in the stiff-soil districts because agricultural productivity was low. Despite high rates of seasonal emigration, or perhaps because of it, the low-wage districts retained their population at low wages and income. It is only in the economically advanced *département* of Seine-et-Oise, situated on the outskirts of Paris that the response of female labour force participation rates is positive and statistically significant. There is thus some reason to think that while economic backwardness tended to increase female participation rates in non-market production, economic progress induced it in wage work.

In 1851 rural France was only just emerging from the economic recession brought on by the harvest shortfalls of 1846/47 and the Revolution of 1848. The surge in rural wages and income that would mark the following decade and a half was just beginning. The participation rates derived from the census of that year thus give us a picture of the rural labour force on the eve of France's most rapid industrialization before the twentieth century. That picture shows an industrious population, in which two thirds to three quarters of women in farm families engaged in market-oriented work, most often farming. The one indicator of a possible Industrious Revolution is the low incidence of multiple occupations among farm families. Farming families were highly specialized in farming, winegrowers almost completely so. By the middle of the nineteenth century few farmers were making their own cloth. Almost every commune had its grocer, tavern, and baker. Many had butchers and *charcutiers*; some had dancing masters and wig makers. The population, then, was locally specialized.

It is difficult to know exactly when that specialization occurred; indeed it could have taken place several times as the state of the economy flowed and ebbed. But the most likely period was middle decades of the eighteenth century, when internal peace and investment in the infrastructure of roads and bridges began to loosen the straightjacket of local and family self-sufficiency. Economic historians

have detected an acceleration in the rate of agricultural productivity growth after 1750.[41] Capital accumulation is surely one reason, but intensified labour effort may well be another. France's agrarian structure was dominated by family holdings on tenures that even before the Revolution were remarkably secure. The expansion of market outlets provided rural families with opportunities to improve their economic security through hard work. It is perhaps not coincidental that the decline in the birth rate coincides with the growth in those outlets, and that it was most pronounced among small holders, for whom the release of female labour for market-oriented work was greatest. Is it possible that, as happened a century later, new opportunities for families to achieve economic security through hard work were achieved at the price of restricting the number of offspring? As de Vries suggested in his presidential address, the history of women's work in Europe from the seventeenth to the twentieth century has the makings of a grand narrative.

[41] George Grantham, 'The growth of labour productivity in the *Cinq Grosses Fermes* of France, 1750–1929,' in Bruce M.S. Campbell and Mark Overton, eds., *Land, labour and livestock: historical studies in European agricultural productivity* . (Manchester: Manchester University Press, 1991), 340–63; Philip Hoffman, *Growth in a traditional society. The French countryside 1q450–1815.* (Princeton: Princeton University Press, 1996).

THE INDUSTRIOUS REVOLUTION IN AMERICA

Gavin Wright

The Industrious Revolution is an economic history landmark, restructuring the pre-Industrial Revolution landscape in terms at once both vivid and prosaic. Identifying the household as a primary economic unit, Jan de Vries argues that the "long eighteenth century" running from 1650 to 1850 marked a fundamental change in the terms of interaction between nuclear families and the market economy in Western Europe. The essence of the change was "a *simultaneous* rise in the percentage of household production sold to others and a rise in the percentage of household consumption purchased from others" (71). "Simultaneous" in this usage should be understood in the economist's sense that these phenomena were "jointly determined" as a goal-oriented behavioral pattern, not that all of the component changes occurred at a single historical instant. Consumer desires were triggered by new goods from abroad (such as tea, coffee, sugar and tobacco), and subsequently extended to such items as clothing and household furnishings valued for their style, workmanship and appearance (133–154). Households attracted by these consumption goods became more specialized in marketable products, devoted more hours to household manufacturing (sometimes called "proto-industry"), and increased time spent working for others in the labor market (92–113). De Vries's essential historical point is that this behavioral transformation predated the technological breakthroughs of the Industrial Revolution, setting the stage for (though not "explaining") that great supply-side event (110–113, 180).

The purpose of this essay is to consider what adaptations and amendments may be required in order to apply this analysis to the economic development of the United States. That North America is intended to be part of the *Industrious Revolution* sphere is evident from many examples provided in the book. De Vries writes: "From an early date colonists in British North America came to view their land-abundant environment not as a platform for self-sufficiency but as a resource with which to participate—through a flood of marketed tobacco, rice, indigo, wheat, fish, timber and tar—in the Atlantic economy's

consumer offerings" (96). The author goes on to cite Gloria Main's explanation for "the emergence of rural industrial activity where one would least expect it," (land-abundant New England in the first half of the eighteenth century) as "a colonial adaptation to an expanding mercantile economy, a gendered variant of the intensification of labor" (98). These colonial snapshots, and many others, fit the de Vriesian template well. But at least three widely noted features of North American economic history may call for interpretive adjustments:

1. High Mobility. For many settlers, the very act of migrating to a new continent embodied an aspiration towards upward social and economic mobility, and thus could be taken as an additional indicator of de Vriesian industriousness. Upon arrival, the land-abundant setting gave rise to continuing new opportunities for advancement via migration, and high geographic mobility thus became an enduring feature of American economic life. Mobility or potential mobility was clearly consequential for families. Gloria Main writes: "…young people in New England had a choice that their counterparts in old England did not: They could move far away from home, work hard, and build a farm, or they could stay, seize the new opportunities afforded by expanding markets, and, by controlling costs through sexual restraint, still hope to enjoy the high, and increasing, standard of living enjoyed by their elders."[1]
2. Opportunities for Farm Ownership. Land abundance, high mobility, and active markets in real estate generated greater opportunities for farm ownership in North America than in most of Europe. For this reason, the same energies for household advancement tracked by de Vries were often channeled in the New World towards attaining or maintaining ownership status. Such aspirations were not (or at least not intended to be) inconsistent with high levels of material consumption, but they gave rise to norms and behavioral patterns that deserve special attention. As Thorstein Veblen wrote in 1923: "Habitually and with singular uniformity, the American farmers have aimed to acquire real estate at the same time that they have

[1] Gloria Main,"Rocking the Cradle: Downsizing the New England Family," *Journal of Interdisciplinary History* 37 (Summer, 2006), 58.

worked at their trade as husbandmen… They have been cultivators of the main chance as well as the fertile soil."[2]

3. Slavery. Although slavery had been in decline in Western Europe for centuries, replaced by nationalist ideologies boasting that the air of the country was "too pure to be breathed by slaves," the institution was revived and became entrenched in the Americas. How did slavery affect the behavior of industrious households? Prior to the American Revolution, as Jack P. Greene has emphasized, slavery was an integral and accepted part of British American culture, and the southern colonies were in the mainstream in this respect, epitomizing the vision of America as a place where "free people could pursue their own individual happiness in safety and with a fair prospect of success."[3] After the Revolution, however, slavery became confined to the southern half of the United States, with profound effects on patterns of settlement, markets, consumption and labor.

The list of distinctive American features could easily be extended. But as these three are already not entirely independent of each other, it seems wiser to keep the number of "basic" items to a minimum, and turn instead to a de Vries-like schematic narrative intended to show how the American case differed, and with what consequences for economic history. Taken together, it will be argued, mobility, farm ownership and slavery altered the timing and shaped the geographic spread of the Industrious Revolution in America. The larger objective, it should be stressed, is neither to refute de Vries nor to promulgate yet another variation on the familiar theme of American exceptionalism. Rather, the purpose is appreciative, to show the rich character of the de Vries framework when adapted to the history of the United States, a prime example of intensified work effort and rising market orientation as wellsprings of economic growth.

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[2] Thorstein Veblen, *Absentee Ownership and Business Enterprise in Recent Times* (New York: B.W. Huebsch, 1923), 135.

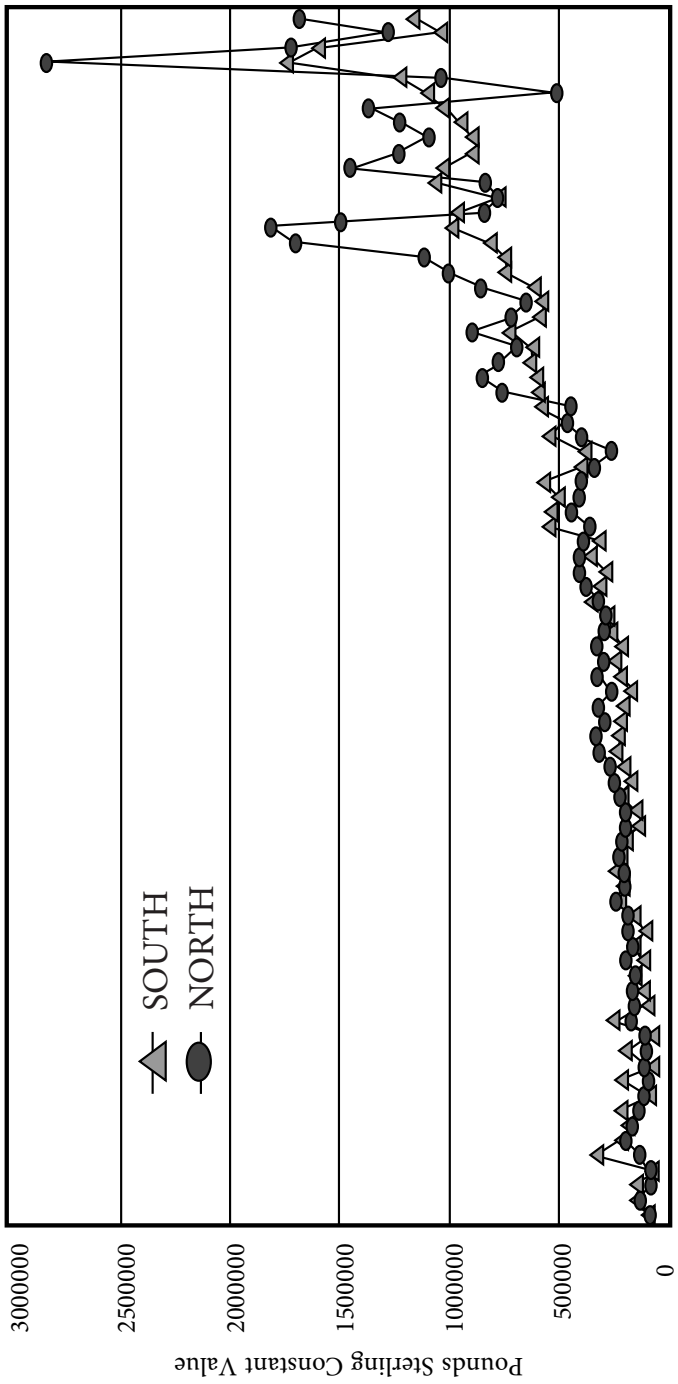
[3] Jack P. Greene, *Pursuits of Happiness: The Social Development of Early Modern British Colonies and the Formation of American Culture* (Chapel Hill, NC: University of North Carolina Press, 1988), 5, 176.

The Rise of Atlantic Trade

The British settlers who came voluntarily to North America certainly intended to maintain or achieve a European standard of living, if not better. But this proved difficult in the early years, as frontier conditions and the absence of markets drove many farm households into extreme self-sufficiency. By the eighteenth century, however, improvements in material conditions plus declines in transportation and distribution costs generated a vast expansion of trans-Atlantic trade. Although colonial imports included some producer goods, such as wrought iron and nails, the great bulk of shipments were consumer goods, including salt, sugar, tea, rum, glassware, fustians, linen, silk, stockings, and cotton cloths. Thus, the rise of imports may be taken as an indicator of the expanding consumer economy of colonial North America, the most rapidly growing market for British goods prior to the American Revolution.[4]

Figure 1 displays the rise of imports to the mainland colonies, divided into two regional groups according to their later decision as states on the slavery question. It is evident that import consumption grew throughout the colonies. In de Vriesian fashion, this expansion was associated with innovation and growth in retail trade, adapted to the American setting. No formal system of market-towns developed, but merchants who handled cash crops began to hold and sell "stores" of consumer goods, a usage unfamiliar to the British, and bringing into being "a new person, the shopkeeper." David Jaffee writes that beginning in the 1740s, "…newspaper advertisements, business documents, probate records, and other sources all indicate that an increasing volume of textiles, ceramics, glassware, and utensils was available to people at all social levels." By the 1770s, the ratio of population to retail establishments in Massachusetts was comparable to that in England. Timothy Breen argues that the passion for "Baubles of Britain" served as a vehicle for standardization of taste across the colonies, con-

[4] John J. McCusker and Russell R. Menard, *The Economy of British America, 1607–1789* (Chapel Hill: University of North Carolina Press, 1985), 284; S.D. Smith, "British Exports to Colonial North America and the Mercantilist Fallacy," *Business History* 37 (January 1995), 45–48.



Source: Susan B. Carter *et al.*, *Historical Statistics of the United States, Millennial Edition* , Volume 5: Series Eg436–442, Eg452–460.

Figure 1. Colonial Imports from England and Scotland, 1693–1774

tributing to the cultural cohesion that made the American Revolution possible.[5]

Whether the typical colonial household actually worked more total hours in response to these new incentives may be questionable, since (as Main writes) "work was what most people did most of the time" from the beginning. But the desire for consumer goods may have induced them to "work smarter" in the mid-eighteenth century, by orienting farm production towards markets, and by expanding indoor tasks to generate cash income. Winifred Rothenberg shows that after 1750, Massachusetts farmers intensified their efforts to produce goods for sale, keeping account books whose valuations reflected prices in accessible markets. Wives and daughters also contributed to household income, by making cheese and butter, by selling eggs and garden crops, or by spinning, knitting and sewing. The rise of consumption standards was often complementary to cottage industry. For example, the expansion of homes to include a second story was both a form of consumption and a means of increasing production, providing space for regular use of a spinning wheel.[6]

The demand for consumer goods was on the rise throughout the mainland, but Figure 1 also points to an emerging contrast between the northern and southern colonies. For the first half of the century, imports into the two regions were roughly equal. But after 1750, the North moved decisively ahead by this measure, importing 25 percent more than the South on average during these years. This difference is at first surprising, because exports to Britain from the southern colo-

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[5] Carole Shammas, *The Pre-Industrial Consumer in England and America* (Oxford: Clarendon Press, 1990), 8, 268, 275; Richard Bushman, "Shopping and Advertising in Colonial America," in Cary Carson, Ronald Hoffman, and Peter J. Albert (eds.), *Of Consuming Interests* (Charlottesville: University Press of Virginia, 1994), 233–251; Lois Green Carr and Lorena S. Walsh, "Changing Lifestyles and Consumer Behavior in the Chesapeake," in *ibid*., 59–166; David Jaffee, "Peddlers of Progress and the Transformation of the Rural North," *Journal of American History* 78 (September 1991), 515; Timothy H. Breen, "'Baubles of Britain': The American and Consumer Revolutions of the Eighteenth Century," in *ibid*., 444–482.

[6] Main, *Peoples of a Spacious Land* , 211, 221–222; Winifred Rothenberg, *From Market-Places to a Market Economy: The Transformation of Rural Massachusetts, 1750–1850* (Chicago: University of Chicago Press, 1992), esp. 54, 80–108. For eastern Pennsylvania, see Paul G.C. Clemens and Lorena S. Walsh, "Rural Labor and the Farm Household in Chester County, Pennsylvania, 1750–1820," in Stephen Innes (ed.), *Work and Labor in Early America* (Chapel Hill: University of North Carolina Press, 1988); and Mary M. Schweitzer, *Custom and Contract* (New York: Columbia University Press, 1987), 21–56.

nies were far higher throughout the period. The contradiction is only apparent, however. Northerners were able to import more than they exported, because of the greater role of "invisibles" in their economy (noncommodity services such as shipping and finance), and because of intra-imperial trade with the southern colonies and particularly with the West Indies. The volume of coastal commerce was nearly equal to overseas trade by the 1770s.

Behind these regional differences in structure lay deeper differences in economic geography and economic demography, ultimately traceable to slavery. The proximate cause of the import gap was the more rapid growth of the free population in the North. As early as 1760, Benjamin Franklin described the emerging pattern: "The trade to our Northern colonies, is not only greater, but is yearly increasing with the number of people: and even in a greater proportion, as the people increase in wealth and the ability of spending as well as in numbers."[7] In contrast, as observed by Rev. Jared Eliot of Connecticut in 1759: "Slaves spend but little…there will not be a proportionable demand for English goods…People of a free condition live at an higher rate, spend more, and consequently the demand for goods will be larger."[8]

Economists may object to the Franklin-Eliot diagnosis, on the grounds that the total value of spending must equal the total value of product, whether that product is produced by free or slave labor—a version of Say's Law applied to a regional economy. This is where the de Vriesian dynamic helps to clarify the issue. Demand patterns in the southern colonies differed from those in the northern colonies, not because slave labor failed to generate purchasing power, but because the slave-based economy altered the relationship between the producing unit and the suppliers of credit and consumer goods, between town and country. Breen notes the "strikingly different" networks of exchange in the Chesapeake compared to New England and the middle colonies. Initially, elite planters consigned their tobacco crops to merchants in London, who provided a variety of business services as well as supplies of English goods. In the eighteenth century, Scottish merchants offered a market for tobacco, as well as generous credit

[7] Benjamin Franklin,"Interest of Great Britain Considered," in Leonard W. Labaree (ed.), *The Papers of Benjamin Franklin*, Volume 9 (New Haven: Yale University Press, 1966), 87.

[8] Quoted in T.H. Breen, *The Marketplace of Revolution* (NY: Oxford University Press, 2004), 93–94.

terms and a variety of imported goods, at chains of stores stretching far into the navigable waterways of the Chesapeake area. This innovative method of bringing the goods virtually to the farm itself extended the consumer revolution well down the social scale. But crop finance and consumer supplies remained integrated in the southern colonies, in contrast to the North, where retailing became an independent, highly entrepreneurial pursuit.[9]

In their study of wheat-growing areas in backcountry Virginia, Warren Hofstra and Robert Mitchell found that the effects of free farming versus slavery on town-country interaction could be observed even within a single county. The key role for an emerging center like Winchester was not mainly to market wheat and flour but to serve as a hub for *import* distribution to a rural clientele. As Winchester expanded, its merchant community became actively involved in local land speculation and promotion, and in political agitation for internal improvements. The town was also a way station and staging point for waves of migrants, and all of these functions attracted a cluster of artisans performing diverse functions for both rural and urban customers. In contrast, the plantation sections of the county traded at long distances and had little contact with Winchester.[10]

The Market Revolution: One or Many?

If market and consumer values were so pervasive so early in colonial history, why is it that American historians continue to chronicle moments of "transition to capitalism" or "market revolution" for American farming households? One possible explanation is that these historians are themselves critical of market and consumer values, and so approach their research predisposed to identify societies in which community and family values were paramount. Jan de Vries seems inclined to this interpretation: "This is an illusion—the Jeffersonian myth—to which American historians even now remain astonishingly loyal, supposing, as many of them still do, that colonial Americans

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[9] Breen, *Marketplace*, pp. 121–127; Shammas, *Pre-Industrial Consumer*, 271–285; Thomas M. Doerflinger, "Farmers and Dry Goods in the Philadelphia Market Area, 1750–1800," in Ronald Hoffman *et al*, *The Economy of Early America: The Revolutionary Period 1763–1790* (Charlottesville: University Press of Virginia, 1988), 168–178.

[10] Warren R. Hofstra and Robert D. Mitchell, "Town and Country in Backcountry Virginia," *Journal of Southern History* 59 (1993), 636–644.

condemned the modern commercial mentality and that a 'market revolution,' like the serpent in the garden, expelled Americans from their paradise only in the Jacksonian era, circa 1830."[11] The fact that numerous alternative transition dates have been advocated may be taken as support for the view that an ideological impulse has been at work.

But historians draw upon the contemporary record of social and political commentary, and however much their readings may be shaped by their own values, they are usually not making it up out of whole cloth. It may be rewarding, therefore, to dig somewhat deeper and ask why American farmers and their advocates have found such recurring resonance with the theme of conflict between family values and the market.

One reason is that the transition from production for on-farm consumption to production for the market was not a one-time, either-or event, but a long-term trend that stretched across centuries. Figure 2 displays Thomas Weiss's estimates of gross agricultural output per worker for the nineteenth century, distinguishing between a "broad" output measure that includes home manufactures and improvements and a "narrow" alternative that counts only the market value of farm products. In 1800, the gap between the two was 17.5%, and by 1900 it had virtually disappeared. In reality, this gap substantially understates the trend towards commercialization across the century, because it does not include the crops and livestock products that were not sold but consumed on the farm. James Lemon found that late eighteenth-century "middling" farmers in southeastern Pennsylvania sold between one-third and one-half of total farm production.[12] By 1900, production for on-farm consumption was minor in most parts of the country, but southerners were still in transition from "living at home" to "living out of bags" (or "living out of the smokehouse and henhouse") in the 1950s.[13] Commercialization thus stretched across the better part of three centuries.

Why was the diffusion of commercial agriculture so protracted? One important reason is that the extension of markets was uneven across

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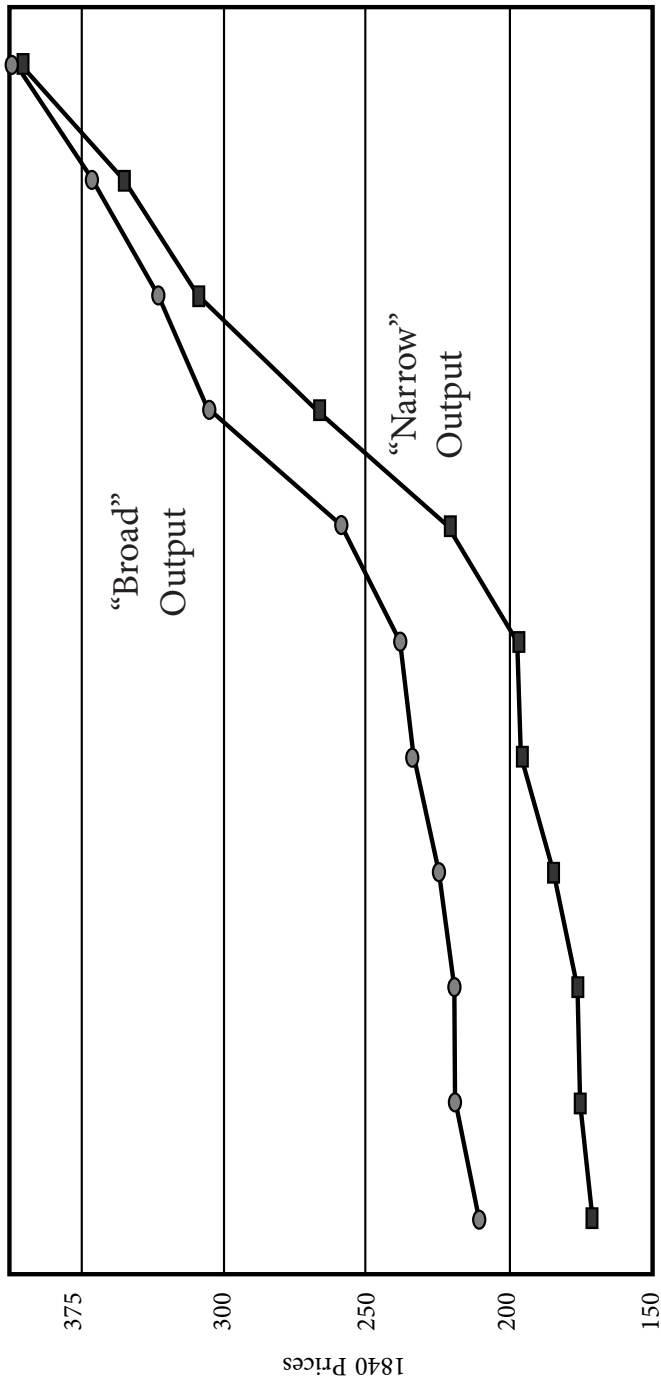
[11] *Industrious Revolution*, 95.

[12] James T. Lemon, *The Best Poor Man's Country: A Geographical Study of Early Southeastern Pennsylvania* (Baltimore: Johns Hopkins University Press, 1972), 27, 180–183.

[13] Jack Temple Kirby, *Rural Worlds Lost* (Baton Rouge: Louisiana State University Press, 1987), 116.



Source: Thomas Weiss, "Long-Term Changes in US Agricultural Output per Worker, 1800–1900," *Economic History Review* 46 (1993), p. 335.

Figure 2. U.S. Agricultural Output per Worker, 1800–1900

time and space. Although southerners were growing export staples virtually from the beginning, in the northeast the sale of food crops began on farms that were close to towns. With urban growth came roads into the interior, fostering the two-way commerce at the heart of the de Vries narrative. David Hancock writes that the elaboration of a distributional infrastructure in the eighteenth century is "one of the great, as yet largely untold stories about the economic development of British America and later the United States."[14] But eighteenth-century roads were notoriously slow and costly. Even after the burst of road-building during the early decades of nationhood, freight rates did not really fall substantially until the water-based Transportation Revolution of 1815–1840, centered around the steamboat and construction of canals. The opening of the Erie Canal in 1825 sparked a dramatic change in household resource allocation along its route, as farms moved into cash crops to exchange for manufactured goods, largely abandoning homespun production.[15] True enough, these farmers may well have harbored commercial motivations all along, specifically in their decision to migrate to the anticipated canal zone. But their capacity to carry out these plans waited on the canal itself, and for many other areas the transition came decades later. Thus Richard Bushman argues that "the market can be envisioned as a rising tide that gradually inundated more and more regions, not as a switch turned on at some moment for the entire continent."[16]

But even when markets were available, many farmers were reluctant to rely on the market for the basic necessities of the household: food, clothing and shelter. One way to interpret these choices is as behavior towards risk, by no means synonymous with distaste for modern consumer goods. Most American farmers were owners, and maintaining farm ownership was high and perhaps their highest priority. To rely on uncertain crop yields and fluctuating commodity prices for

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[14] "'A Revolution in the Trade': Wine distribution and the development of the infrastructure of the Atlantic market economy, 1703–1807," in John J. McCusker and Kenneth Morgan (eds.), *The Early Modern Atlantic Economy* (Cambridge: Cambridge University Press, 2000), 127.

[15] See the before-and-after maps in Arthur Harrison Cole, *The American Wool Manufacture* (Cambridge: Harvard University Press, 1926), 320. A comprehensive modern study is Andrew M.G. Coleman, "Transport Infrastructure and Specialisation in a Developing Economy: Evidence from New York State after the Construction of the Erie Canal," Working Paper, University of Michigan, 2001.

[16] Richard Bushman, "Markets and Composite Farms in Early America," *William and Mary Quarterly* 55 (July 1998), 361.

consumption items that the farmer was bound to provide whatever the outcome, might amount to "betting the farm" imprudently. The risk was particularly acute at a time when credit markets were poorly developed, and (then as now) the likelihood of qualifying for a loan was inversely related to the desperation of the need for one. Although one could interpret such behavior as an irrational concern for ownership status, a more plausible reading in the American context is that farm ownership was seen as central to a lifetime accumulation strategy, not as a preference for status over consumption standards.[17]

Thus American farmers wrestled with the market-nonmarket decision at the margin, and in a literate society, they often put their doubts into print. As late as the 1850s, a New England farmer wrote: "As a general rule, however, it is better that the farmer should produce what he needs for home consumption…He may obtain more money from tobacco or broom corn, than from breadstuffs, but taking all things into consideration, will he be better off?"[18] The wistful and moralistic tone is what attracts social historians. Their mistake is to presume that the transition occurred at a single point in historical time. But they are not wrong to believe that choices between market and nonmarket activities encompassed elements of financial prudence, family values, intra-household bargaining, and community relationships.

In 1975, Howard Kunreuther and I proposed an analysis of crop choices by nineteenth-century southern farmers along these lines, invoking the managerial precept known as the "safety-first" principle: plant enough corn to meet the farm's needs with a high degree of confidence, then allocate the remaining acreage to the cash crop cotton.[19] In the northern states, most cash crops were also consumed on the farm, so that "production for use and production for exchange blended imperceptibly";[20] farmers had the luxury of a post-harvest decision on how much of the product was a "surplus" to be exchanged for cash, supplies and consumer goods. The shift from (in de Vries's terms) "market contact" to "market orientation" could be incremental and gradual. In the South, however, food crops and cash crops were

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[17] Richard Bushman, "Family Security in the Transition from Farm to City, 1750–1850," *Journal of Family History* 6 (Fall 1981), 238–56.

[18] Quoted in Clarence Danhof, *Change in Agriculture: The Northern United States, 1820–1870* Cambridge: Harvard University Press, 1969), 23.

[19] Howard Kunreuther and Gavin Wright,"Cotton, Corn and Risk in the Nineteenth Century," *Journal of Economic History* 35 (September 1975): 526–551.

[20] Bushman, "Markets and Composite Farms," 363, 367.

distinct, forcing a sharper pre-harvest decision. Corn was essential for the farm's survival, and had to be either grown or purchased. Characterizing the decision in this way, as a choice between two alternative methods for obtaining corn, the postbellum price and yield data clearly show that relying on cotton was by far the riskier option. This was the logic of the steady flow of advice to southern farmers to "diversify their crops so as to raise their own supplies, and then raise all the cotton they can as a surplus crop."[21]

The southern case brings out another aspect of commercialization, which is that although the desire for consumer goods may be energizing and progressive going in, the same phenomena may be experienced as coercive and oppressive when markets sour. In the antebellum period, participation by small southern farmers in market exchange was limited, both because they were risk-averse and because the upcountry was largely isolated from transportation and retail facilities. These conditions changed rapidly after the Civil War, as railroads spread and country stores proliferated, offering fertilizer, consumer goods and credit. These new opportunities were initially welcomed by southeastern farmers, who rushed into cotton-growing in a major way.[22] By the end of the century, however, the irreversibility of this path was often lamented, as reliance on credit and purchased goods left farmers no real alternative but to continue planting large cotton acreages, even when prices were low. Indeed, they often felt impelled by de Vriesian logic to *increase* cotton planting when prices were low, as the only means they had for meeting their cash requirements. Thus, industrious behavior driven *ex ante* by a positive desire for increased consumption may be difficult to distinguish observationally from actions coerced *ex post* through credit markets and economic stress.

Overlapping Phases

In the basic de Vries scenario, the Industrious Revolution came first, followed by the Industrial Revolution. Patterns of household labor shaped by these two revolutions (multiple earners producing for the

[21] "Cotton, Corn and Risk," 546–547.

[22] David Weiman, "The Economic Liberation of the Non-Slaveholding Class: Upcountry Farmers in the Georgia Cotton Economy," *Journal of Economic History* 45 (March 1985), 71–93.

market) gave way after 1850 to the breadwinner-housemaker household, in which women's work became largely nonmarket, and children were redirected from laboring to schooling. As the preceding sections show, households in the British North American colonies participated fully in the consumer revolution of the eighteenth century. But the process of reallocating farm production from nonmarket to market goods continued throughout the nineteenth century, roughly concurrent with the Industrial Revolution in America. Meanwhile, the transition to a more modern middle-class household lifestyle was underway throughout the same period.

Much of the apparent phase overlap in the nineteenth-century may be attributed to the geographic diversity of the country, particularly the contrast between the more mature sections in the east and the moving frontier in the west, plus the special case of delayed commercialization in the South. But both phases were clearly visible in New England, heartland of American industrialization, in the first half of the century. The Lowell-Waltham mills were technological marvels, pioneering innovators not only in textile machine processes but in organizational forms and labor systems. The early factory workforce was disproportionately composed of women and children, raising apparent levels of labor force participation in these categories.[23] Yet in the same region at the same time, an even larger number of women labored as rural outworkers in their homes, making palm-leaf hats, straw bonnets, or boots and shoes. Table 1 displays Thomas Dublin's estimates of the occupational distribution of wage-earning women in Massachusetts in 1837. Dublin reports that the majority of outworkers were unmarried daughters. Their families were by no means destitute, but hat-making households were distinctly poorer and larger than the others. Because these young women worked with materials supplied by sophisticated traders catering to distant markets, Dublin writes that "the putting-out system was just as much the product of the industrial revolution in this country as were the textile factories in Lowell or the central show shops in Lynn."[24]

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[23] Claudia Goldin and Kenneth Sokoloff, "Women, Children, and Industrialization in the Early Republic," *Journal of Economic History* 42 (December 1982), 741–774.

[24] Thomas Dublin,"Women and Outwork in a Nineteenth-Century Town," in Steven Hahn and Jonathan Prude (eds.), *The Countryside in the Age of Capitalist Transformation* (Chapel Hill: University of North Carolina Press, 1985), 65; Dublin, *Transforming Women's Work* (Ithaca: Cornell University Press, 1994), 43–45, 63.

Table 1. Occupational Distribution of Wage-Earning Women in Massachusetts, 1837

Category	Percentage
Palm-leaf hats and Straw bonnets	48.6
Textiles	17.3
Boots and Shoes	14.4
Domestic Service	11.6
Teaching	3.6
Garments	3.0
Miscellaneous Other	1.4
Total Women Employed	105,977

Source: Thomas Dublin, *Transforming Women's Work*, p. 20.

But rising female labor participation in New England was experienced as a response to downward mobility, real or impending. Just as hat-making families were relatively poor, the young women who went to work in the mills came primarily from rural northern counties in the throes of agricultural decline and outmigration. Social historians differ on the extent to which these industrious young women worked mainly on behalf of their families, or mainly on behalf of themselves. Contemporaries often stressed the contribution of young women to paying off a family mortgage or putting a brother to school. But Dublin insists that these earnings were a path towards independence, showing for example that young women were often accumulating items to take into marriage, such as teacups, saucers, plates, platters, butterboats, muslin, calico, and chairs. It seems evident that both family interest and self-interest were in play.[25]

Contemplating such lists of consumption goods, one may certainly question the authenticity of notional decline. Antebellum New England may well provide an example of what de Vries calls a perceived "'necessity' to intensify work effort in the defense of a recently attained living standard" (p. 115). My point is that the situation contained elements from all three de Vries phases: intensified household work and multiple earners; expanded consumption opportunities through

[25] Dublin, *Transforming Women's Work*, 68, 73. For evidence from the twentieth century that earning money gave working children greater say in household consumption spending, see Caroline M Moehling, "'She Has Suddenly Become Powerful': Youth Employment and Household Decision Making in the Early Twentieth Century," *Journal of Economic History* 65 (June 2005), 414–438.

technological change in transportation and industry; and adaptation of production and consumption decisions to the expectation that women would ultimately settle into domestic life as non-earners. Timetables for these plans were disrupted by the opening of the midwest for commercial agriculture, in at least two ways: inflows of cheap goods undermined regional product markets, while western development attracted large numbers of young men, creating a scarcity of marriageable prospects in the east. Alex Field notes that between 1810 and 1830, New Hampshire had the country's lowest ratio of men to women, slightly over 9 men for every 10 women.[26]

The cultural roots of the breadwinner-homemaker household stretch back quite far in American history. In the 1830s, Tocqueville wrote with an air of certainty:

> In no country has such constant care been taken as in America to trace two clearly distinct lines of action for the two sexes and to make them keep pace one with the other, but in two pathways that are always different. American women never manage the outward concerns of the family or conduct a business or take part in political life; nor are they, on the other hand, ever compelled to perform the rough labor of the fields or to make any of those laborious efforts which demand the exertion of physical strength. No families are so poor as to form an exception to this rule. If, on the one hand, an American woman cannot escape from the quiet circle of domestic employments, she is never forced, on the other, to go beyond it.[27]

Like most travelers, Tocqueville undoubtedly wrote more of what he heard than what he actually saw, and many historians have been quick to note that his account was not entirely accurate. But the very fact that Tocqueville heard such emphatic statements suggests that the concept of a distinct woman's domestic sphere had a notional existence with some heritage as of the 1830s. Two decades earlier, New Englander Timothy Dwight recorded his astonishment at the sight of "ten women, of German extraction . . . arranged in front of a little building, busily employed in dressing flax," near Hudson, New York. Dwight noted that he had seen women "in a small number of instances . . . raking hay immediately before a shower, when the pressing nature of

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[26] Alex Field, "Sectoral Shift in Antebellum Massachusetts," *Explorations in Economic History* 15 (1978), 159.

[27] Alexis de Tocqueville, *Democracy in America* (New York: Knopf, 1945), Volume 2, 223.

the case demanded extraordinary exertions." But even this he had not seen for thirty years.[28] Whatever their factual accuracy, such observations underscore the pervasiveness of the idea that American women did not do field work, as well as the class-based character of this notion (closely tied to ethnicity) as a measure of proper behavior in modern times.

To be sure, proscription of female field work is not the same as relegating women to a "quiet circle" of domestic *nonmarket* employment. Lee Craig estimates that an adult woman in 1860 added as much to the value of a farm's output as hiring a male farmhand from planting through harvest.[29] But specific tasks were highly segregated by sex, and in New England this practice seems to go back to the seventeenth century.[30] The economist may, of course, explain this entire phenomenon in terms of division of labor according to the comparative advantage of the sexes. The problem with this interpretation is that indentured servant women were frequently put to work in the fields, especially in the Chesapeake, albeit at times with some reluctance. Any such ambivalence ended with the transition to African slaves as the main labor force on southern plantations.[31] Unconstrained deployment of female labor in field work was one of the primary economic advantages of slavery in antebellum America.[32]

On many other fronts, the transition to the breadwinner-homemaker household was underway well ahead of the de Vries timetable, at least in certain sections of the country. Gloria Main notes, for example, a "spectacular increase" in female literacy in Massachusetts, beginning with the cohort born in 1695–1710 and continuing with

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[28] Quoted in Percy Wells Bidwell and John I. Falconer, *History of Agriculture in the Northern United States, 1620–1860*. (Washington DC: Carnegie Institution of Washington, 1925), 116.

[29] Lee Craig, *To Sow One More Acre* (Baltimore: The Johns Hopkins University Press, 1993), 80–81.

[30] Gloria Main, "Gender, Work and Wages in Colonial New England," *William and Mary Quarterly* 51 (January 1994), 54: "The use of ox teams, restricted to older men, effectively segregated family members into field and home workers." Main also writes that tobacco was widely grown in New England, but there is no evidence that New England women hoed tobacco, as many did in Maryland (55).

[31] Lois Green Carr and Lorena S. Walsh, "Economic Diversification and Labor Organization in the Chesapeake, 1650–1820," in Innes (ed.), *Work and Labor in Early America*, 161.

[32] I make this case in *Slavery and American Economic Development* (Baton Rouge: Louisiana State University Press, 2006), 106–122.

the spread of public schooling in the eighteenth century.[33] Perhaps partly as a consequence of higher female literacy, "the fertility transition in southern New England was already under full throttle in southern New England," well before the great transportation and industrial revolutions of the nineteenth century.[34] Perhaps most tellingly in the present context, these literate and numerate women were widely associated, in critical social commentary from Benjamin Franklin to Henry David Thoreau but quite possibly also in the dynamics of household decision-making, with the spread of consumerism in America.[35] With evolving norms of production, consumption and childrearing pointing the way, the arrival of the breadwinner-homemaker household could not be far behind.

Labor Scarcity and the American Workpace

By all accounts, American farm families worked very hard, for as many hours as the seasons allowed. A full explanation for this behavior would undoubtedly encompass the de Vriesian desire for consumer goods, but the derived demand for effort was enhanced in the American setting by the incentive effects provided by land abundance and its reciprocal, labor scarcity. Most farms were owner-occupied and contained more land than the family itself could cultivate. As Stanley Lebergott argues, the "reserve" of unimproved acreage fit well into the plans and constraints of family farming, as land-clearing provided a profitable activity for hours that would otherwise be idle between peak labor requirements in cultivation. Most family farms combined commercial crop cultivation with land-clearing operations, commonly making several moves and repeated purchases and sales in a lifetime.[36] Thus high American levels of productivity and consumption were not primarily attributable to the *direct* impact of high land to labor ratios, but to the incentives for intensive use of family labor. Gregory Clark

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[33] Gloria Main, *Peoples of a Spacious Land* , 143.

[34] "Rocking the Cradle," 35–58.

[35] Jaffe, "Peddlers of Progress," 529; Innes, "John Smith's Vision," in Innes (ed.), *Work and Labor*, 33–34. Both Jaffe and Innes cite an unpublished paper by Robert A. Gross, "America's Agricultural Revolution, 1750–1850."

[36] Stanley Lebergott,"The Demand for Land: The United States, 1820–1860," *Journal of Economic History* 45 (June 1985), 187–189, 196. On the ubiquity of "reserve" land holdings, see Danhof, *Change in Agriculture*, 138.

argues that work intensity was the main source of international differences in agricultural productivity prior to mechanization, with the United States at the top of the world list.[37]

The centrality of incentives implies that land abundance should not be understood as a simple matter of relative factor "endowment," but as a feature of an economic structure with historical and institutional content. Access to farm ownership as a realistic objective was a function not just of the size of the continent, but of such economic variables as transportation costs, prices of farm products, and availability of credit, and such political variables as the price and quantity of federal lands, and diplomatic or military relations with American Indian tribes on the frontier. Thus the iconic land abundance of nineteenth-century America was powerfully shaped by the Revolution, the Land Ordinances of the 1780s, the Louisiana Purchase, and the progressively liberalized land policies from the 1790s onward, policies that put the federal government firmly in support of rapid western settlement by family farms.

This was the historical context within which long hours and an intense workpace carried over from farms to factories. Throughout the nineteenth century, the standard workday was longer in the United States than in Britain. In the U.S., the 12-hour day was common during the 1830s and 1840s, and in some sectors (such as steel) continued into the 1920s. The standard surveys place the average work day at 11.5 hours between 1830 and 1850, declining to 10 somewhere between 1880 and 1890. In Britain, maximum hours were set at 10 in 1847, while the standard had fallen to 9 by the 1870s, and to 8 in most industries (including steel) by the 1890s.[38] In his classic work on U.S. and British technology, H.J. Habakkuk noted this differential in hours, but regarded it as merely another form of adaptation to labor-scarcity.[39] On reflection this relationship is not obvious: Why should employees

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[37] Gregory Clark, "Productivity Growth without Technical Change in European Agriculture before 1850," *Journal of Economic History* 47 (June 1987), 425–431. See also the exchange between Clark and John Komlos: *Journal of Economic History* 48 (September 1988), 655–664; *Journal of Economic History* 49 (December 1989), 979–991.

[38] Jeremy Atack and Fred Bateman, "How Long Was the Workday in 1880?" *Journal of Economic History* 52 (March 1992), 136–148; M.A. Bienefeld, *Working Hours in British Industry: An Economic History* (London: LSE Research Monograph, 1972), 47, 106, 158.

[39] H.J. Habakkuk, *American and British Technology in the Nineteenth Century: The Search for Labour Saving Inventions* , (Cambridge: Cambridge University Press, 1962), 46.

under conditions of labor scarcity be willing to work longer hours than workers under conditions of labor abundance?

One possibility is that there was a tradeoff between hours of work and work intensity, as was widely observed during contractions of the workweek in the twentieth century. To the contrary, however, historical testimony is unanimous that the workpace was *more* intense in the U.S. None felt this differential more keenly than immigrants from Britain, who found that the hours were longer and more regular, the workpace faster, and holidays rarer in their new homeland. Englishman William Darnley wrote to his wife in 1857: "I can assure you that I never worked so hard indeed I would not stop in this country if I thought I must work all my life…"[40] Comparisons were similar elsewhere. Lamnot DuPont wrote in 1872: "It is well known that in Europe, they do not work much over half as hard as in this country."[41] This only deepens the mystery. One can understand why *employers* would want longer and more intense hours from their labor force, but how was it that relatively scarce American laborers were so readily induced to work both longer and harder?

A start at an answer is suggested by Darnley's letter, which implied that he had no intention of working at such an intense pace for his entire life. From the Lowell-Waltham girls until World War I, the American industrial labor force was dominated by successive generations of first-time workers, who also had no intention of staying at their jobs indefinitely, but were willing to work intensely on a temporary basis as they accumulated savings in pursuit of an externally-defined goal—farm ownership, opening a business, migration, or some other form of upward social and economic mobility. No doubt settling into marriage was an integral part of these long-term plans in most cases. But work intensity on the job often arose from the *disruption* of traditional family relationships, combined with the prospect that genuine advancement was possible.[42]

Labor historians regularly describe American industrial employers as harsh and authoritarian. As severe as they no doubt were on the

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[40] Quoted in Richard Stott, "British Immigrants and the American 'Work Ethic' in the Mid-Nineteenth Century," *Labor History* 26 (Winter 1985), 88.

[41] Quoted in Eugene S. Ferguson, "The American-ness of American Technology," *Technology and Culture* 20 (January 1979), 10.

[42] Paul David and William Sundstrom, "Old-Age Security Motives, Labor Markets and Family Farm Fertility in Antebellum America," *Explorations in Economic History* 25 (1988), 164–197.

shop floor, employers nonetheless had to cope with extreme levels of turnover among their workers, from the earliest days of nationhood if not earlier. Mobility was associated with land abundance, but it also had legal and political foundations. The idea that labor scarcity translates automatically into high labor mobility is refuted by the obvious counter-example of African slavery. But with the abolition of slavery in the northern states, legal precepts moved towards a radical form of free-labor doctrine, in which employees were entitled to quit without notice, and even to receive compensation in *quantum meruit* for the work time they had already put in. According to legal historian Robert J. Steinfeld, a tipping point in this "invention of free labor" came when slave owners tried to enroll their newly freed former slaves in long-term contracts as servants. These thinly disguised subterfuges tended to discredit all forms of long-term labor contracts, from indentured servitude to apprenticeship.[43]

Significantly, what Steinfeld calls the "norm of high mobility" was established prior to the first wave of industrialization. Sharon Salinger describes a marked rise in turnover at the artisan shops of Philadelphia beginning in the 1780s, where journeymen came and went so frequently the shops resembled "immigrant way stations."[44] The giant Lowell-Waltham mills were the most famous of enterprises that built an expectation of rapid turnover into their management system and even into the physical plant itself, in the form of dormitories to accommodate young, unmarried women for periods of one to three years. Job tenures may have been even shorter in mills employing the family-based Slater or Rhode Island system, for which Jonathan Prude estimates a mean turnover rate of 163 percent between 1813 and the mid-1830s.[45] A number of firms tried to implement twelve-month contracts during the 1820s in an effort to reduce turnover, but without success; indeed, the companies often found themselves rehiring

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[43] Robert J. Steinfeld, *The Invention of Free Labor: The Employment Relation in English and American law and Culture 1350–1870* , (Chapel Hill: University of North Carolina Press, 1991), 138–143.

[44] Robert J. Steinfeld, "Artisans, Journeymen and the Transformation of Labor in Late Eighteenth Century Philadelphia," *William and Mary Quarterly* 40 (January 1983), 72; "*To Serve Long and Faithfully": Indentured Servitude in Pennsylvania, 1682–1800* (Cambridge: Cambridge University Press, 1987), 155.

[45] Jonathan Prude, *The Coming of Industrial Order: Town and Factory Life in Rural Massachusetts, 1810–1860.* (Cambridge: Cambridge University Press), 1999.

workers who had quit before the full year stipulated in their contracts.[46] After 1830, most contracts were for shorter periods, in practice not effectively different from the enforcement provided by the two- or four-week pay period.[47] It is worth noting that these patterns were in place prior to the surge of Irish immigration after 1845. If anything, turnover rates in the textile mills increased as the labor force became increasingly dominated by immigrants.[48]

Whether these ambitious workers actually achieved their lifetime goals is of course another matter. Evidently the promise of betterment was sufficient to keep them moving. A generation of attempted social-mobility studies for nineteenth-century America found, as its primary conclusion, that *geographic* mobility was extraordinarily high, especially for the unskilled. More recent studies, using matched samples across census dates, find more optimistic results with respect to occupational gains, confirming the economic efficacy of migration.[49] High geographic mobility seems to have become a true national trait. Figures assembled by Adna Weber in 1899 on the proportion of the population living in its township or county of birth showed the U.S. population to be more mobile than that of any other country. "Indeed," he concluded, "it appears from the table that Americans are more accustomed to migrate from State to State than are Europeans from country to country."[50] Explicitly comparative evidence is rare, but a survey of case studies shows that persistence rates in U.S. cities were considerably lower than those in British cities.[51] High mobility rates have been

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[46] Caroline F. Ware, *The Early New England Cotton Manufacture* (Boston: Houghton Mifflin, 1931),. 266; David A. Zonderman, *Aspirations and Anxieties: New England Workers and the Mechanized Factory System, 1815–1850* (New York: Oxford University Press, 1992).

[47] Prude, *Industrial Order*, 150–154.

[48] Prude, *Industrial Order*, 227; Barbara M. Tucker, *Samuel Slater and the Origins of the American Textile Industry, 1790–1860* (Ithaca: Cornell University Press, 1984), 230–238.

[49] Joseph P. Ferrie, *Yankeys Now: Immigrants in the Antebellum U.S. Economy, 1840–1860* (New York: Oxford University Press, 1999), esp.130–155.

[50] A.F. Weber, *The Growth of Cities in the Nineteenth Century* (Ithaca: Cornell University Press, 1963), 250.

[51] Eric Monkkonen, "Residential Mobility in England and the United States, 1850–1900," in *Themes in British and American History* (Milton Keynes: The Open University Press, 1985), 77–83.

found in every type of American community, including older cities that were not growing in net population.[52]

Perhaps the clearest evidence may be found in the remarks of European migrants to America, who generally appreciated their new-found freedom and sometimes wrote home about it. One German worker wrote: "…here you can live well if you only have work, if you go ask for a job here you can say to the foreman or the master, tell me, do you have any work, here they aren't as proud like at home, you don't have to go cap in hand like at home…here you're free to do anything, you don't have to register with the police when you move in or out, you also don't have to pay any taxes."[53] Or this: "It is not here as in England if you don't liket you may leaveet et is here pray do stop I will raise your wages."[54]

Intensity as a Workplace Public Good

Of course not all American workers preferred such long-hour, high-intensity jobs. Much of the history of the conflict over control of the workplace may be interpreted as a reflection of conflicting priorities between short-term workers and (would-be) longer-term workers. A useful tool here is the concept of workplace public goods. Strictly speaking, workplace public goods are job attributes such as room temperature or air quality that are common to all employees at a given work site. One reason for uniformity would be the presence of a central power source for a factory, so that all of the machinery must start and stop at the same time, dictating both a standard work day and a common work pace during these hours. One need not take this concept literally to understand the powerful pressures toward standardization. Gregory Clark makes a persuasive case that the establishment of "factory discipline"—the rules characteristic of nineteenth century factories specifying hours, conduct on the job, continuous attention to work, and punishment for deviations—was not tightly linked to

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[52] Robert V. Wells, *Revolutions in Americans' Lives* (Westport CT: Greenwood Press, 1982), 111.

[53] Walter Kamphoefner, Wolfgang Helbich, and Ulrike Sommer (eds.), *News from the Land of Freedom* (Ithaca: Cornell University Press, 1991), 427.

[54] Quoted in K.D.M. Snell, *Annals of the Labouring Poor* (Cambridge: Cambridge University Press, 1985), 13.

power-driven technologies.[55] This view does not gainsay the presence of workplace public goods. It is in the nature of such systems that they must be strict, standard and uniform. Nothing breaks down discipline faster than toleration of a few slackers.

If job attributes were public goods, then we must ask how their values were determined in a labor market process. Contrary to much traditional labor history, firms could not simply impose terms unilaterally; they had to be sensitive to the response of labor supply to conditions of work. But if the work force were heterogeneous in its attachment to the job, and in its preferences regarding hours, working conditions, take-home pay, etc., then the "market" outcome was determined by an interaction between costs and the preferences of the *marginal* workers, those quickest to leave in response to dissatisfaction. If the marginal workers were younger, stronger, more mobile and more focused on immediate cash income as opposed to job security and career opportunities, then these were the preferences that shaped conditions at the workplace. Articulating the priorities of the intramarginal workers through "voice" (as opposed to the "exit" vehicle of the marginals) is one of the central functions of organized unions.[56]

Martha Shiells applies this framework to the choice of working hours in the British and U.S. iron and steel industries between 1890 and 1923.[57] The established collective-choice mechanism of the British industry led quite early to the shorter choice, while under open immigration their U.S. counterparts clung to twelve hours until virtually compelled to change by political pressure in 1923. The tradeoff between hours and take-home pay was not often clearly posed in nineteenth-century labor debates, but when it was, immigrant workers with short-term attachment to industrial work sometimes really did prefer longer hours.[58] A century earlier, the high-turnover workers in

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[55] Gregory Clark,"Factory Discipline," *Journal of Economic History* 54 (March 1994), 128–163.

[56] For formalized treatments, see Richard Freeman, "The Exit-Voice Tradeoff in the Labor Market," *Quarterly Journal of Economics* 94 (June 1980), 643–673; W. Kip Viscusi, "Unions, Labor Market Structures, and Welfare Implications of Quality of Work," *Journal of Labor Research* 1 (Spring 1980), 175–192; Greg J. Duncan and Frank P. Stafford, "Do Union Members Receive Compensating Wage Differentials?" *American Economic Review* 70 (June 1980), 868–872.

[57] Martha Shiells, "Collective Choice of Working Conditions: Hours in British and U.S. Iron and Steel, 1890–1923," *Journal of Economic History* 50 (June 1990), 379–392.

[58] *Ibid*., p. 386.

the Slater-type spinning mills showed no interest in the movement for the ten-hour day.[59]

This analysis sheds light on a whole range of job attributes, such as safety, security of employment, and opportunities for promotion. In each case the prevalence of workers with monetary goals and short-term attachments pushed the outcome towards longer hours, more intense workpace, and immediate rather than deferred payoffs. The recurring influx of new groups of first-generation workers was a distinctive feature of American industrialization prior to 1914, and many aspects of American labor relations may be traced to this influence. This economic structure might seem to have been transitional and temporary, but the scale of industrial expansion and the ongoing eastward and southward extension of the European migration frontier kept the process going throughout the country's surge to world leadership. The great majority left their home countries with the intention of returning, and although many changed their minds after arrival, large numbers carried out their original plans.[60] As heterogeneous as the immigrants were, their overriding common goal was to accumulate savings. A New Yorker teaching English to Italians asked them why they had come to America, expecting they might reply 'liberty' or 'democracy'; instead, "in one roar they shouted 'money!' "[61]

One might simply stop the analysis here, attributing differences in management choices between Britain and the U.S. to the varying proportions of long-term and temporary workers in their respective labor forces. But I have in mind a higher-order process, a set of dynamic complementarities among elements of a system, which had the effect of magnifying and perpetuating initial differences between the countries. The high mobility of free labor in the United States induced firms to adapt their jobs to short-term workers, making low investments in skills as a corollary. But this adaptation made industrial work even less

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[59] Prude, *Industrial Order*, 143.

[60] Susan B. Carter and Richard Sutch document a rising trend in the "immigrant return rate" (departures from the U.S. as a percent of arrivals), from less than 10 percent in 1870 and 1881 to over 70 percent just before World War I. "Historical Background to Current Immigration Issues," in James P. Smith and Barry Edmonston (eds.), *The Immigration Debates* (Washington DC: National Academy Press, 1998), 305.

[61] Quoted in Mark Wyman, *Round-Trip to America* (Ithaca: Cornell University Press, 1993), 59. For a general analysis of the cycle of long-distance migration, see Michael Piore, *Birds of Passage: Migrant Labor and Industrial Societies* (New York: Cambridge University Press, 1979).

attractive to those with long-term aspirations. Development of such labor systems early in the century meant that firms were well-positioned to absorb large numbers of unskilled immigrants, weakening the efforts of incumbents to exercise "voice". Both the legal regime and the adaptation to it gave employers a positive incentive to seek out new supplies of short-term workers, increasing the homogeneity of the workforce through recruitment as opposed to adjusting conditions to the preferences of the existing pool. Much of the literature discusses these issues in terms of the strength or weakness of labor organizations. But behind the strength of British unions was a strong degree of attachment to industrial work, as well as to particular localities and firms, so that collective pressures had a powerful impact even before the emergence of modern unions. Behind the weakness of U.S. unions lay not just ideology, but the legal construction of free labor and its manifestation as the norm of high mobility.

This conclusion is reinforced by further complementarities implicit in the foregoing discussion. The costs of enforcing long-term labor contracts, for example, depended on the prevalence of such contracts: It was easy to get lost in a society adapted to American-style free labor. Similarly, individual reputation mechanisms were of limited effectiveness in such a world. What did an employer think when a "stranger" walked in the door looking for work? In a world of limited mobility and low turnover, the natural assumption is that something must be wrong with such a person, who will probably not "fit in". But if the arrival of strangers was an everyday occurrence, employers had little reason to believe that the new person would not do as well as the incumbents. Indeed, they did their best to design jobs for which this was true.

Skills, Technology and the American System

The last link in the feedback loop is technological change. Since Habakkuk, and indeed since the reports of visiting British experts in the 1850s on which Habakkuk relied, observers have tried to interpret American technological change as a substitution of capital for labor, in a setting of labor scarcity. Yet economic historians have had persistent difficulty confirming this hypothesis, because capital as well as labor was scarce in nineteenth-century America, and because the so-called "American System of Manufactures" materialized historically as a complex pack-

age, blending such features as standardized products, faster machine speeds, and higher depreciation rates. The most successful syntheses have invoked abundance of American natural resources, postulating complementarity between capital and resources in that era.[62] Although much has been learned from this research, something important has been lost from the original, as labor has largely dropped out of the picture.

The treatment of skills in this literature has been persistently inconclusive. Habakkuk noted that American turnover was higher than the British, and therefore that the cost of permanent labor was higher than temporary; yet he concluded that on balance, skilled labor was probably more abundant in America than in Britain.[63] This conclusion was upheld in the attempted resolution of the paradox by James and Skinner, not on the basis of wage differentials (which they found to be about the same in the two countries by the 1850s), but by limiting attention to a handful of industries in which the U.S. fostered early technological innovation.[64] These industries—agricultural implements, furniture, machinery, hardware, nails, clocks, and guns—were characterized by high average wages, taken by James and Skinner as an index of skill. But this list covers only about seven percent of U.S. manufacturing, omitting textiles (to which Habakkuk devoted much of his attention), boots and shoes, and many others that emerged as important later in the century. Further, the James-Skinner "skilled" industries are largely those that *generated* "American system" technology, not necessarily representative of the system itself in practice. As Rosenberg and Thomson show, much nineteenth century manufacturing technology originated outside of the adopting industries.[65] Recent analyses by Goldin and Katz and by Acemoglu find that a distinction

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[62] Paul A. David, *Technological Choice, Innovation and Economic Growth* (New York: Cambridge Univ. Press, 1975), Ch. 1; Alexander Field, "Land Abundance, Interest/Profit Rates, and Nineteenth-Century American and British Technology," *Journal of Economic History* 43 (1983), 405–43; Nathan Rosenberg, "Why in America?" in *Exploring the Black Box* (Cambridge: Cambridge Univ. Press, 1995). 109–122.

[63] *American and British Technology*, 23, 66.

[64] John James and Jonathan S. Skinner, "The Resolution of the Labor-Scarcity Paradox," *Journal of Economic History* 45 (September 1985), 513–540.

[65] Nathan Rosenberg, "Technological Change in the Machine Tool Industry, 1840–1910," *Journal of Economic History* 23 (1963), 413–443; Ross Thomson, *The Path to Mechanized Shoe Production in the United States* (Chapel Hill: University of North Carolina Press, 1989).

between technology-generation (machine installation and maintenance) and technology use (production) is essential to interpreting U.S. technological change in the nineteenth and twentieth centuries.[66]

The idea that a defining feature of American technology was the use of machinery to substitute unskilled labor for scarce craft skills has not been entirely neglected. It was advanced for the Edwardian period by C.K. Harley,[67] and reiterated with somewhat broader scope by Broadberry and Grantham.[68] Contemporary testimony along these lines was widespread. In the classic reports by visiting British engineers, reference to the scarcity of craft skills is at least as prominent as the more generalized "labor scarcity" thesis. For example, Mr. George Wallis wrote as follows:

> Thus the very difficulty in procuring human labour, more especially when properly skilled and disciplined…appears to have stimulated the invention of the few workers whose energies and skill were engaged in the early development of manufactures; and to this very want of human skill, and the absolute necessity of supplying it, may be attributed the extraordinary ingenuity displayed in many of these labour-saving machines, whose automatic action so completely supplies the place of the more abundant hand labour of the older manufacturing countries.[69]

The early U.S. adoption of ring spinning over mule spinning is well-known. Mule spinners were skilled adult males, while ring spinners were young female machine-tenders, frequently replaced. The 1842 "stretch-out" at Lowell from two looms per weaver to three was associated with a switch from literate Yankee farm girls to illiterate and Irish workers.[70] At the innovative Collins Company in the 1840s, Elisha Root's shaving and forging machinery reduced the need for

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[66] Claudia Goldin and Lawrence Katz, "The Origins of Technology-Skill Complementarity," *Quarterly Journal of Economics* 113 (1998), 693–737; Daron Acemoglu, "Why Do New Technologies Complement Skills?" *Quarterly Journal of Economics* 113 (1998), 1055–1089.

[67] C.K. Harley, "Skilled Labor and the Choice of Technique in Edwardian Industry," *Explorations in Economic History* 11 (1974), 391–414.

[68] Stephen N. Broadberry, "Technological Leadership and Productivity Leadership in Manufacturing," *Economic Journal* 104 (1994), 291–302; George Grantham, "Economic History and the History of Labour Markets," in George Grantham and Mary MacKinnon (eds.), *Labour Market Evolution* (London: Routledge, 1994), 1–26.

[69] Nathan Rosenberg (ed.), *The American System of Manufactures* (Edinburgh: The University Press, 1969), 203.

[70] James Bessen, "Technology and Learning by Factory Workers," *Journal of Economic History* (2003), 33–64.

experienced grinders and strikers in axe manufacture.[71] In boots and shoes, the McKay sewing machine overcame the constraints of craft labor and the apprentice system.[72] Machinery for cutting and grinding cutlery was introduced in the 1860s, displacing skilled cutlers from Sheffield.[73] In shipbuilding, mining, metalworking, and later iron and steel, American practices were more mechanized and required less skilled craft labor than their British counterparts.

Perhaps the reason that this relatively straightforward portrayal has not found ready acceptance is that economists have tried to pound the topic into a Heckscher-Ohlin framework of relative factor endowments, distinguishing skilled and unskilled labor as factors of production whose relative scarcity ought to be reflected in their market prices. But if the technology emerged from a dynamic process of complementarity, arising from and reinforcing institutional differences in the attachment of employees to employers, then this process will not be tracked by the price of skill in the labor market. Because craft skills are intrinsically specialized, there is no true comparability between skill premiums across countries, nor between one type of skill and another. Even if these measurement problems could be waived, we would still face a basic indeterminacy. On the one hand, supplies of craft workers were scarce in the U.S., and the mechanisms for replacing them were disintegrating. But on the other hand, the processes of substitution were continually reducing the relative demand for such skilled labor, so that one cannot say what relative price to expect at a point in time.

The contrasting positions of the two countries may be characterized by the curves in Figure 3, relating the percentage of skilled operatives in the labor force to the direction of technological change, where "skill" refers to traditional craft training, as opposed to other dimensions of labor quality. The 45-degree line represents a set of equilibrium positions in which the percentage of skilled operatives matches the "optimal" engineering position embedded in the technology. The intersection at the center is one of these equilibria, but it is unstable.

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[71] Donald R. Hoke, *Ingenious Yankees: The Rise of the American System of Manufactures in the Private Sector* (New York: Columbia University Press, 1990), 115, 123.

[72] Jens Christiansen and Peter Philips, "The Transition from Outwork to Factory Production in the Boot and Shoe Industry, 1830–1880," in Sanford Jacoby (ed.), *From Masters to Managers* (New York: Columbia University Press, 1991), 21–42.

[73] Charlotte Erickson, *American Industry and the European Immigrant* (Cambridge, MA: Harvard University Press, 1957).

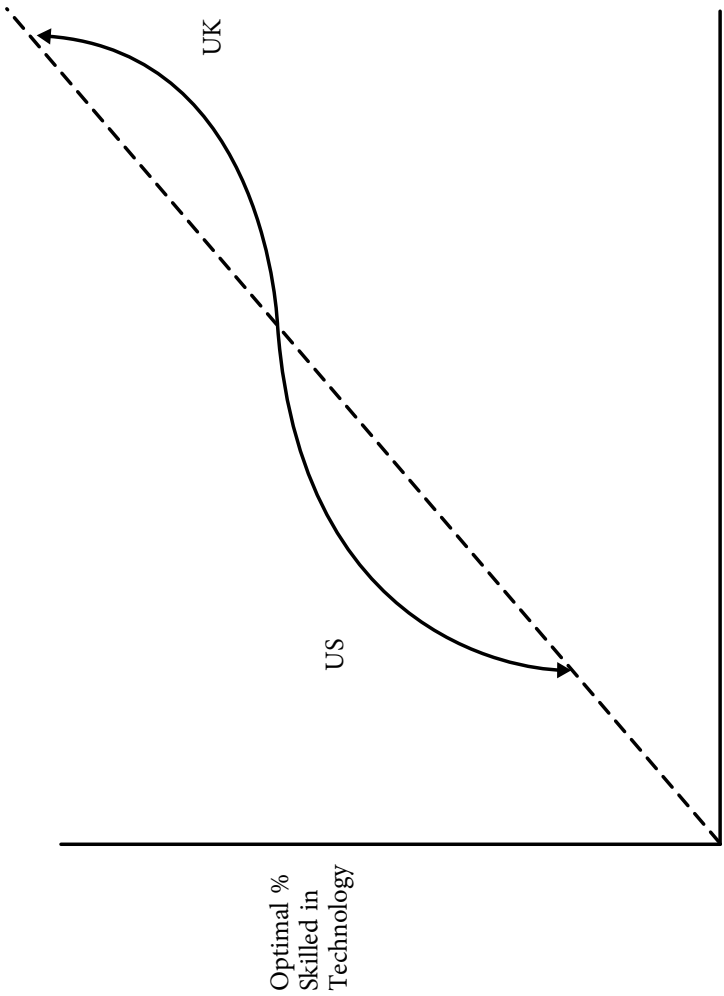

Figure 3. Dynamics of Skill and Technological Change, US-UK

To the right of this point, the UK responded to the positive payoff by training more skilled craft workers and adapting the technology to this skill mix. To the left, US industry simultaneously adapted to the relative absence of skilled workers and reinforced that absence in so doing. The diagram highlights the functional dependence between design and relative numbers, but the positions of the two countries would also be affected by institutions, and by opportunities available to workers.

This analysis does not imply that all American technology was "deskilling" in character, nor that craft workers as a class were displaced. In papermaking, for example, mechanization did not eliminate the jobs of most skilled workers, though it greatly increased the relative number of less-skilled machine tenders.[74] Most machine tools firms were flexible and accommodating to their high-mobility, individualistic, mechanically expert employees, even while designing a manufacturing technology that displaced older skills and created routinized, semi-skilled jobs. Elsewhere in the economy, expanding sectors such as trade, finance, communications and government drew increasingly on educated and professional personnel.

Above all, nothing in this analysis assures that a country with this type of "free labor" would actually succeed in developing a successful technology. Initially, the U.S. response may have been no more than a second-best adaptation to a constrained and inefficient labor market situation, as most British experts believed in the 1850s. By the end of the century, U.S. technological leadership extended to many more industries, but by that time there were additional advantages that could not be replicated in European countries, such as the size of the domestic market and the growing relative abundance of minerals. As Clark points out, the payoff to more intense factory discipline was greater, the larger the fixed-capital investment.[75] Studies of early American industrialization find that both intensity of work and the woman-child component of the workforce (arguably a good proxy for impermanence in that era) were systematically higher in large factories than in smaller artisan shops.[76] In the latter part of the century,

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[74] Judith A, McGaw, *Most Wonderful Machine: Mechanization and Social Change in Berkshire Papermaking, 1801–1885* (Princeton: Princeton University Press, 1987).

[75] Clark, "Factory Discipline," 141–144, 153–156.

[76] Goldin and Sokoloff, "Women, Children and Industrialization;" Kenneth Sokoloff, "Was the Transition from the Artisan Shop to the Nonmechanized Factory Associated with Gains in Efficiency?" *Explorations in Economic History* 21 (1984), 351–82.

the average establishment wage (a proxy for skill intensity) was inversely related to establishment size, accounting for much of the observed increase in wage dispersion.[77] Thus, skill-saving, effort-using aspects of the system may have been complementary to other dimensions of American technology. The gradual rise over time in the efficient scale of mechanized plants suggests an incremental learning trajectory such as that depicted in Figure 3.

In European countries, not only was the "initial endowment" of skilled craft labor ahead of that in the U.S., but institutions were maintained that facilitated the replication and advancement of these skills. Apprenticeship was one such institution. In contrast to the U.S., breaches of apprenticeship contracts in England were highly unusual.[78] The same was true of French Canada, confirming that labor market norms were not directly driven by the high land-labor ratios of the New World. Gillian Hamilton reports that in Montreal, no more than two percent of apprentices ran away from their contracts between 1791 and 1820, the very period when the institution was said to be breaking down in the U.S.[79] Enforcement was most commonly assured by the presence of a *sponsor*, usually a family member, who bore the financial risk and hence had an incentive to oversee successful completion of the contract. Such sponsorship was not standard practice in the U.S. The implication is that the decline of apprenticeship was not a simple function of technological trends, but also reflected deeper changes in U.S. family relationships.

Skilled labor was also recruited through less formal arrangements, such as "learnerships," or "following up" a work crew to receive instruction while working. Very often recruitment was within a family, typically of sons by fathers. In the 1890s, a French visitor was particularly struck by the absence of such family-based recruitment in America.[80] In France and Germany, these traditional forms of skill

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[77] Jeremy Atack, Fred Bateman, and Robert A. Margo, "Skill Intensity and Rising Wage Dispersion in Nineteenth-Century American Manufacturing," *Journal of Economic History* 64 (2004), 172–192.

[78] Charles More, *Skill and the English Working Class, 1870–1914* (London: Croon Helm, 1980), 75–78.

[79] "Enforcement in Apprenticeship Contracts: Were Runaways a Serious Problem?" *Journal of Economic History* 55 (1995), 551–574.

[80] Emile Levasseur, *The American Workman* (Baltimore: Johns Hopkins University Press, 1900), 64: "Unlike Europe, there is no district where an occupation descends from father to son."

acquisition were supplemented by technical schools, operated by or in close association with employers. All of these methods of training have in common an element of commitment on the part of the trainee. But it oversimplifies the matter to say that these institutions persisted only because European labor was "less mobile" than American, because the existence of these types of opportunities for young men was itself one of the reasons for lower mobility. Charles Sabel and Jonathan Zeitlin describe a scenario in which young men began their training in local- and/or family-based skill networks quite early, well before their major life decisions had been made: "The central and defining experience of each new generation was automatic and collective induction into local industry."[81] Technological communities of this type were not entirely absent in the nineteenth-century U.S., but these were not the features that emerged as characteristically American.

Conclusion

Jan de Vries's Industrious Revolution resonates evocatively with the main currents of American economic history. Colonials in all parts of mainland North America were eager participants in the consumer revolution of the eighteenth century, channeling their energies towards cash income, with which to enjoy the latest goods from across the Atlantic. Long hours and high effort levels were rewarded, and became enduring features of American life. With the important exception of African slaves, most of this energized activity took place within nuclear family producing and consuming units. Rising industriousness may plausibly be related to the growth acceleration of the early national period, as in Paul David's calculation that more than half of antebellum per capita income growth was attributable to increased labor effort (manhours).[82] In modern times, the U.S. continues to be an outlier in hours of work, mobility, and job turnover.

As argued here, however, the de Vries framework requires adaptation for distinctive features of the American setting. Although the

[81] Charles Sebel and Jonathan Zeitlin, "Historical Alternatives to Mass Production," *Past and Present* 108 (1985), 152–153.

[82] Paul David, "Real Income and Economic Welfare Growth in the Early Republic," University of Oxford Discussion Papers in Economic and Social History, Number 5 (March 1996), 1–39.

original colonies were affluent consumers by world standards, the post-Revolution opening of the west to commercial farming created vast new opportunities for social and economic advancement, launching a succession of "market revolutions" that continued through the nineteenth century. Consumer comforts may have been the ultimate household goal, but the immediate effect of high geographic mobility was to threaten or undermine established family relationships. Nonetheless, the realistic prospect of attaining farm ownership (or another comparable status) supported both high turnover and high effort levels in American factories. The argument of this essay is that a pervasive "norm of mobility" became embedded in law and expectations, shaping labor relations, working conditions, and ultimately the direction of American technological change.

This transition is sometimes seen as a substitution of individualism for family values. The nuclear household, however, continued as the basic consuming unit and the object of life-cycle plans for most American men and women. The cultural roots of the breadwinner-homemaker household reach far back in American history, so that twentieth century reformers could claim it as a national tradition that American men support their families.

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