doi: 10.1017/S0022050711001628

Summaries of Doctoral Dissertations

Why Did Fertility Decline? An Analysis of the Individual-Level Economic Correlates of the Nineteenth-Century Fertility Transition in England and France

The decline of fertility in nineteenth-century Europe is one of economic history's greatest puzzles. There is no consensus on the causes of this revolutionary change in human behavior. Following a critical review of the empirical and theoretical literature, this thesis examines the economic correlates of the fertility decline through the analysis of two new individual-level data sets from England and France. For the first time, the relationship between wealth and fertility can be studied during the period of the fertility transition. I propose that changes in economic inequality and the environment for social mobility suddenly made family size relevant in the determination of relative social status. Once this occurs, family sizes fall.

Despite over 50 years of concentrated research, we still do not know why fertility declined during the Demographic Transition. Further, there is no convincing explanation for why fertility declined in France over a century before her richer and more industrialized neighbor, England. The conclusions to the European Fertility Project (EFP), the largest ever empirical investigation on the question, stressed that fertility decline in Europe was not related to socioeconomic changes.[1] Time itself, the decade of the 1890s, and not the level of economic development, was the best indicator for the onset of sustained decline. Recently, John C. Brown and Timothy W. Guinnane have detailed two critical problems in the EFP's methodology.[2] Firstly, the level of aggregation (counties, *départements*, cantons etc.) was ill-suited for the precise detection of individual-level fertility differentials. Secondly, the project failed to collect relevant socioeconomic data and this fact precluded any serious test of the role of economic factors in the decline.

This thesis directly addresses these two concerns via the collection and analysis of new individual-level fertility life histories linked to wealth at death estimates for England and France, during the fertility transition. The data reveal striking patterns.

For England, I sampled 3,000 wills from the southern counties of Suffolk, Essex, and Ipswich, for men dying between 1800 and 1920. The wills were sourced from the National Archives, multiple local archives, and the Principal Probate Registry in London. Each will was closely read and coded into a database for 24 different

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[1] Summarized in Coale and Watkins, *Decline of Fertility in Europe*.

[2] Brown and Guinnane, "Regions and Time."

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

demographic and economic variables such as marital status, number of children, amount and type of property held, cash bequests, and literacy. Following this, robustness checks were employed and the testator data set was checked for representativeness with respect to the general population.[3]

The wealth-fertility relationship was examined via negative binomial regressions, controlling for period and location (urban/rural). Two large and opposing patterns are discovered—a positive association of wealth and net fertility, and a negative association of occupational status and net fertility.[4] The analysis reveals that it was the poorest members of the top occupational status classes who had the lowest fertility, although the wealth effect diminishes in strength over time and is much weaker in urban areas. Also changing over time is the relationship between occupational class and wealth. For the top occupational status class, there appears to be a breakdown in the strength of the relationship between wealth at death and occupational status. Within the top status group, it is the poorest who have the lowest fertility. It is speculated that this low fertility is a result of a desire to preserve the concentration of wealth within a family and between offspring.

In joint work with Greg Clark, we extend the testator database back to 1500 and find an earlier Demographic Transition to the one traditionally associated with the 1890s.[5] Around 1800 the super-high fertility of the richest testators, which was evident from at least 1500, quickly converges to the level of the poorest. This suggests that the origins of the English fertility transition are significantly earlier than we first thought. We show that the Demographic Transition actually began at the same time as the Industrial Revolution. Net fertility among the rich fell rapidly towards modern levels for marriages formed after 1800. But aggregate fertility rose in these years, because net fertility among the poor increased to equal that of the rich. Expanding the database by linking testators to parish records, we discover that the early fertility decline of the rich was not related to changes in child survival. Further, it appears that it was variation in the reproductive span, and not "spacing" of births, which drove this convergence. The drop in fertility of the rich could not be a response to changing incomes: Before 1800 there is no threshold level of income that is related to smaller families.

For France, I linked the Louis Henry/INED[6] family reconstitution database (*Enquête Henry*) to detailed wealth at death estimates from the *Tables des Successions et Absences* (TSAs), sourced from multiple *Archives Départementales*, for 1810–1870.[7] This period covered the last few decades of the *Enquête Henry* data and the beginning of the fertility transition in France. Four villages were selected based on record availability. At this time, the vast majority of the French population lived in rural villages of a similar size to those in the

[3] The robustness checks included comparing the sex ratio of mentioned children in the wills with that of the general population (to reveal sex-based omission from a will—none was found). Comparisons were also made using the marriage characteristics, occupational representativeness, and the net reproduction rate of the testator sample compared with that of the general population. The sample was biased towards those with high-status occupations but the testator fertility rates closely track those of the population Net Reproduction Rate estimates. (The average difference between the measures for the cohort years of 1750–1850 is slightly over 1 percent.) This evidence confirms the reliability and validity of the testator wills as a source for the calculation of relative fertility levels.

[4] I employed the occupational classification schema devised by Stevenson, a categorization based upon skill, see Stevenson, "Fertility of Various Social Classes."

[5] See Clark and Cummins, "Urbanization, Mortality, and Fertility" and "Malthus to Modernity."

[6] Institut National Etudes D´emographiques.

[7] Results also discussed in Cummins, "Marital Fertility."

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

sample. The villages display a heterogeneity: two exhibit large decreases in fertility over the sample period (Rosny and Cabris), while the other two (St. Paul and St. Chely) do not.

The results show that where fertility was in transition, it was the richest villagers who reduced their family size first, and that they used both "stopping" and "spacing" strategies to achieve this. Where fertility was not in decline, there is a positive wealth-fertility gradient. Infant mortality appears to play a role: Where fertility is declining, infant mortality rates were between 50–70 percent of the levels where fertility was not declining.

Various hypotheses are tested for the early French fertility decline, including "neo-Malthusian" explanations (which fail to be supported as it is the rich who reduce their family size first—the opposite of that predicted by "neo-Malthusian" reasoning) and the importance of the Revolution in initiating the decline is quantified. The Revolution is not exactly simultaneous with the new demographic regime: Fertility decline originated before 1789.

Any explanation for why fertility declined during the Demographic Transition in Europe must account for France. Why did fertility decline in France over 100 years before it declined in England? What was unique about France and what was the universal underlying mechanism behind Europe's Demographic Transition?

I answer these questions by developing a new economic model of fertility linking the determination of family sizes to social mobility and economic inequality. The intuition is simple. It is a stylized fact of economic history; Preindustrial societies were highly unequal relative to modern societies.[8] Take this hypothetical example of a preindustrial society, ruled by 1 percent rich "elites," 99 percent "peasants" living at subsistence and no middle class. There is no incentive for the peasants to reduce family sizes in this society because it does not matter how many children a peasant has, both parent and child will still be peasants. The economic distance between the two status groups is too large—neither the peasants nor the elites perceive the possibility of gaining or losing status via fertility decisions. The high level of inequality reflects the narrow opportunity for social mobility.

The formal model in the thesis directly relates parent's fertility decisions to the level of economic inequality in their society. Parents choose a level of fertility consistent with their status aspirations, for both themselves and their offspring. Where upward/downward mobility is close to impossible, parents do not control. Where mobility is possible, they do. They make the decision to control based upon their perceptions of the probability of social mobility—this judgment is based upon the observable level of economic inequality in their society.[9]

When inequality falls below a certain threshold, parents control fertility because they now perceive the realistic probability of ascending or descending the social ladder.[10] Empirically, the thesis investigates the relationship between inequality in the samples and the presence of fertility decline. For both England and France, where fertility is declining, inequality is lower, the "perseverance" of wealth within families is lower and there is a significant drop in the proportion of wealth held by the top occupational status groups, and a rise for all below.[11] The sample data provide suggestive evidence for the operation of the theorized mechanisms during

[8] Milanovic, Lindert, and Williamson, "Measuring Ancient Inequality."

[9] Inequality is the cross-sectional analogue of social mobility. On this, see Becker and Tomes, "Equilibrium Theory."

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

the Demographic Transition in England and France. At the aggregate level, variations in economic inequality may explain why it was France, and not England, who entered a modern fertility regime first.

This thesis, through the analysis of new micro-level data, argues that there were clear economic patterns to the fertility transition in England and France. Future research will continue to document the empirical character of the decline and search for the causes of this momentous change.

[10] Examples of literature discussing forces similar to those proposed here are Banks, *Prosperity and Parenthood* (for England); Dumont, *Dépopulation et Civilisation*; and Blacker, "Social Ambitions" (for France).

[11] As measured by the relationship between father's and son's wealth.

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REFERENCES

Banks, Joseph A. *Prosperity and Parenthood: A Study of Family Planning Among the Victorian Middle Classes*. London: Routledge and Kegan Paul Ltd., 1954.

Becker, Gary S., and Nigel Tomes. "An Equilibrium Theory of the Distribution of Income and Intergenerational Mobility." *The Journal of Political Economy* 87, no. 6 (1979): 1153–89.

Blacker, J. G. C. "Social Ambitions of the Bourgeoisie in Eighteenth-Century France, and Their Relation to Family Limitation." *Population Studies* 11, no. 1 (1957): 46–63.

Brown, John C., and Timothy W. Guinnane. "Regions and Time in the European Fertility Transition: Problems in the Princeton Projects Statistical Methodology." *Economic History Review* 60, no. 3 (2007): 574–95.

Clark, Gregory, and Neil Cummins. "Urbanization, Mortality, and Fertility in Malthusian England." *American Economic Review* 99, no. 2 (May 2009): 242–47.

_____. "Malthus to Modernity: England's First Fertility Transition, 1760–1800." MPRA Paper 25465, University Library of Munich, Germany, June 2010.

Coale, Ansley J., and Susan. C. Watkins, eds. *The Decline of Fertility in Europe: The Revised Proceedings of a Conference on the Princeton European Population Project*. Princeton, NJ: Princeton University Press, 1986.

Cummins, Neil J. "Marital Fertility and Wealth in Transition Era France, 1750–1850." PSE Working Papers 2009-16, PSE (Ecole normale suprieure) 2009.

Dumont, Arsene. *D´epopulation et Civilisation: E´tude D´emographique*. Paris: Lecrosnier et Babé, 1890.

Milanovic, Branko, Peter H. Lindert, and Jeffrey G. Williamson. "Measuring Ancient Inequality." NBER Working Paper No. 13550, Cambridge, MA, October 2007.

Stevenson, Thomas H. C. "The Fertility of Various Social Classes in England and Wales from the Middle of the Nineteenth Century to 1911." *Journal of the Royal Statistical Society* 83 (1920): 401–44.

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

Property Rights in Rural West Africa: Causes and Consequences

I look at how geography, trade, and monitoring costs have shaped rights over land, labor, and capital in rural West Africa, and at how these institutions constrain agricultural production in the present. I explain the causes and consequences of these institutions using formal models and evidence taken from archives, court records, oral histories, Geographic Information Systems (GIS) data, and modern surveys. I use institutional and GIS data to demonstrate that sparse population in Africa explains many of its precolonial institutions, including weakly defined land rights, slavery, and polygyny. I apply this analysis to the Egba of Nigeria and show that their institutions responded to changes in the availability of land over the nineteenth century. I use a model of the defense of property to explain why many Igbo groups in Nigeria curtailed private rights over palm trees during the trade in palm oil. I support this model using evidence from colonial court disputes over palm harvesting. I conduct a meta-analysis of the literature on land rights and investment in Africa, and find that both context and research design have affected published findings. Using multiple data sets from West Africa, I show that land rights consistently impact investment in tree planting and fallow.

The first chapter is a literature review, entitled "Institutions in African Economic History." I discuss the role of African institutions in general and precolonial institutions in particular in explaining present-day African poverty. Six of the most often cited explanations of African poverty—geography, ethnolinguistic fractionalization, the slave trades, colonial rule, underdevelopment, and failed aid—operate largely through institutions. Bad institutions themselves directly affect modern growth. Precolonial institutions also matter for present-day outcomes. I look at four broad institutional types (land tenure, slavery, polygyny, and states), outline influential theories that explain why they took the shapes they did before colonial rule, and why they matter to Africa today. This chapter has since been substantially reworked since my dissertation was submitted, and is now available under the title "The Causal History of Africa: A Response to Hopkins."

The second chapter is entitled "Does Land Abundance Explain African Institutions?" I show how abundant land and scarce labor shaped African institutions before colonial rule. I present a model in which exogenous land quality and endogenously evolving population determine the existence of land rights, slavery, and polygyny. I use cross-sectional data on precolonial African societies to demonstrate that, as in the model, the existence of land rights, slavery, and polygyny occurred where land was most suitable for agriculture, and where population density was greatest. These results are robust to alternative measures of institutions and historical population, and better fit the data than alternative theories of slavery.

The third chapter is entitled "Land Abundance and Economic Institutions: Egba Land and Slavery, 1830–1914." The "land abundance" view of African history uses sparse population to explain economic institutions. I provide supporting evidence from

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This dissertation was completed in the Department of Economics at Yale University under the direction of Timothy Guinnane.

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

the Egba of Nigeria. I use early colonial court records to show that Egba institutions fit the theory's predictions. Before 1914 the Egba had poorly defined land rights, practiced extensive agriculture, relied on dependent and forced labor, and used labor to secure loans. There are two major exceptions. First, the Egba sold some land. Second, land disputes existed. These are explained by land scarcity when the Egba initially arrived at Abeokuta and by heterogeneity in the quality of land.

The fourth chapter is entitled "*Imachi nkwu*: How Commercialization of Natural Resources Can Create Common Property." Conventional wisdom suggests that, as the value of a natural resource rises, private property will emerge. The Ngwa and other Igbo groups of Nigeria, however, curtailed private rights over palm trees in response to the palm produce trade of the nineteenth and early twentieth centuries. I present a game between property owners and potential thieves in which an increase in the price of a natural resource makes it possible to introduce regulated communal tenure. This makes all parties better off than under private property. I use this model along with colonial court records to explain the political economy of property disputes in interwar Igboland.

The final chapter is entitled "Land Tenure and Investment Incentives: Evidence from West Africa." The existing literature on the relationship between property rights in land and agricultural investment in Africa has given results that are often confusing and contradictory. I make two clarifying contributions to this literature. First, I pull together existing studies and investigate whether the results they find have been affected by research methods or local contexts. Studies with small sample sizes, those that use binary investment measures, and those that control for household fixed effects are less likely to find a statistically significant link between land tenure and investment. Self-reported tenure security has been a poor predictor of investment outcomes. Second, I test for a relationship between land tenure and agricultural investment in nine data sets from West Africa. While the link between tenure and investment is significant for fallow and tree planting, it is less robust for labor use and other inputs, such as manure or chemical fertilizer.

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Bullionism, Specie-Point Mechanism, and Bullion Flows in the Early-Eighteenth-Century Europe

The discovery of America was followed by a flow of precious metals to Spain and Portugal, and, from there, throughout the world. Gold and silver had a large and growing importance in international trade during the early modern period. And Spain was a main player of this international trade because the Spanish-American colonies produced three-quarters of the world's silver and one-half of the world's

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This dissertation was completed at the Sciences Po, Paris under the supervision of Marc Flandreau.

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

gold. Historiography has estimated the quantities of gold and silver transferred from the New World to the Old World, but we know little about the reasons for the bullion outflows. This dissertation analyzes the causes of precious metal outflows from Cadiz, Spain to the main northwestern European bullion centers in the early eighteenth century.

The dissertation aims at reconstructing the specie-point mechanism in order to understand the basis for the bullion flows by combining new data from primary sources collected in archives from Spain, France, England, and the Netherlands. Specie-point mechanism measures the gap between the exchange rate and the relative bullion prices in two centers. If the gap is bigger than the arbitrage costs, arbitrage is profitable and bullion will be shipped from the cheapest to the most expensive center.

When studying the specie-point mechanism in Spain, a basic problem arises. Market prices for bullion are not available because a legal bullion market did not exist. Being the main producer of precious metals, Spanish monetary policy focused on hindering the drain of gold and silver from the American colonies to other countries. Chapter 1 describes the bullionist regulations enacted by the Spanish Crown to prevent the outflow of precious metals. From the late Middle Ages until the mid-nineteenth century, administrative prices prohibited the exchange of gold, silver, or billon at a different price than the official parity, and bans on exports forbade the exportation of gold or silver without a license.

The consequence of the bullionist legislation was the absence of a free bullion market, so we lack of legal bullion prices. However, a majority of the silver that arrived from Spanish-America was smuggled from Cadiz to the rest of Europe because a black market had developed in Cadiz. The dissertation provides black market prices for silver in Cadiz. Dealing with black markets is always difficult because, due to their informal conditions, getting systematic quantitative evidence is not easy and, often, impossible. Fortunately, the international character of the arbitrage business forced merchant bankers to continuously exchange information. Because the merchant bankers were geographically separated, the way to transmit information in the eighteenth century was through correspondence. Letters between correspondents have been, therefore, an excellent source to calculate the silver-point mechanism because the letters are filled with data and qualitative details about arbitrage. The discovery of data on the silver black market in Cadiz has been a milestone in helping to understand the reasons behind the silver outflows.

Chapter 2 calculates the silver-point mechanism for the case of bullion controls to determine how profitable smuggling was. The archival research in the account books of *Fond Roux*, a leading eighteenth-century French merchant from Marseille, provides an explanation of the exact working of the arbitrage with silver. The arbitrage was conducted between silver and bills by three partners from different cities. The first partner was the *Roux* merchant house in Marseille, the second partner was its correspondent in Cadiz, and the third partner was a banker from another European center (Lyon, Paris, Amsterdam, etc.). They had a joint arbitrage account in a main financial center, for example, Amsterdam, to settle the arbitrage operations. In the first step, the partner in Cadiz bought the silver in the Cadiz black market in exchange for a bill of exchange drawn in Cadiz on the main center, Amsterdam. The seller of the silver in Cadiz cashed the bill to have a credit balance in Amsterdam while the arbitrageurs had one entry on the debit side of the joint account ledger. In the second step, the partner in Cadiz sent the silver from Cadiz to a main European bullion market, for example, London. The correspondent in London sold the silver in exchange for a bill of exchange drawn in London on Amsterdam. The buyer of silver reduced his credit balance in

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

Amsterdam while the arbitrageurs cashed the bill in Amsterdam, thus having one entry on the credit side of the joint account ledger. Finally, the profit was calculated as the difference between the entries on the credit side and the entries on the debit side in the joint account ledger. This profit was shared among the three partners after deducting costs.

To estimate the profitability of the arbitrage process, I calculate the silver-point mechanism between London and Cadiz for the period 1729–1741, when half-monthly quotations of silver in the Cadiz black market are available. Appendices explain the technical details about the construction of the silver-point mechanism. To sum up, I consider data of relative market prices in the two centers (arbitrated parity), arbitrage costs, and spot exchange rates calculated from the exchange rate paid in bills of exchange at maturity. Then, I compare the implicit spot exchange rate with the arbitrated parity adjusted by costs. The empirical results present a puzzle for our knowledge of the specie-point mechanism. The common understanding of the operation of the specie-point mechanism refers to an institutional setting of free bullion movements, such as that of the late nineteenth century. What was the effect of bullionist restrictions on the performance of silver points? Results show that from 1729 to 1737, the gap between the implicit spot exchange rate and the lower silver point made arbitrage systematically profitable. From mid-1737 to 1741 the gap was corrected because the Spanish Crown reacted to the illegal silver outflows with a devaluation that equalized the implicit spot exchange rate and the arbitrated parity, so arbitrage stopped being profitable.

If the price of silver in Cadiz was lower than in London, the arbitrageur should have bought the silver in Cadiz and sold it in London, which had equalized prices. But there was no adjustment. Are the results due to bullionist controls or, on the contrary, could we obtain similar results for the same period without these controls? Chapter 3 provides a counterfactual case to the Spanish arbitrage with bullion controls by calculating arbitrage with free bullion movements. The counterfactual case is the arbitrage between two non-bullionist centers, Amsterdam and London, for the period 1734–1758, when bullion data are available in primary sources for both centers. In the case of free bullion movements, gold arbitrage, silver arbitrage and bimetallic arbitrage worked as expected, and only occasionally did a specie-point violation occur. London and Amsterdam markets for precious metals were closely integrated because bullion trade made bullion prices equal in both markets owing to the fact that bullion movements were free.

Therefore, in the case of free bullion movements (Chapter 3), the specie-point mechanism was efficient and only few non-persistent violations of the specie-point occurred. By contrast, in the case of bullionist controls (Chapter 2), there was a systematic profitability for arbitrageurs because the Spanish bullionist framework of the law mispriced the black market price of silver. Despite smuggling, there was no price adjustment. The explanation is that the law of one price for silver only holds if markets are competitive. The mispricing of silver meant that the black market in Cadiz was not competitive. Focusing on the market structure, Chapters 4, 5, and 6 demonstrate that the silver market structure in Cadiz was an oligopsony, thus explaining why prices in Cadiz were lower than the international prices.

Chapter 4 studies the agents involved in silver transactions in order to measure the importance of smugglers regarding the total merchants in Cadiz. Trade with the Spanish-American colonies was restricted to Spanish citizens, so the silver market separated agents by nationality. Nationality criterion is the reason for the emergence of a silver black market in Cadiz; so the silver was not traded directly from Spanish-America colonies to the major European bullion markets but through the Cadiz black

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

market. Suppliers of silver in Cadiz were the Spanish merchants who legally could trade with the colonies. The demanders of silver were the foreign merchants who had settled in Cadiz, and who were not allowed to import silver from the Spanish colonies. They had diplomatic immunity and could, therefore, illegally extract the silver from Cadiz and smuggle it to main centers in Europe. The French merchants who had settled in Cadiz were the main smugglers. They were the most important merchants in Cadiz according to Spanish fiscal sources and French contemporary reports on French merchants who settled abroad.

French merchants had a dominant position in Cadiz. They represented one-quarter of all merchants and obtained 50 percent of the total annual net income per wholesale trade in the mid-eighteenth century. The most important French merchants in Cadiz were the smugglers. They dominated the business of silver extraction and were a first-class group of French merchants. The top one percent of all merchants earned nearly 15 percent of the total net income. Each of the top 1 percent had a net income more than 10 times higher than the average income of all Cadiz merchants. Bullion smuggling was a business for the top merchant houses because illegally exporting bullion required an international network to extract and distribute the bullion outside Cadiz, and resist, by force if necessary, the Spanish duty control.

Using information obtained from Spanish reports against smuggling, Chapter 5 describes how the exchange took place in the silver black market. Secrecy was preserved because both sides of the bullion market cheated the Spanish government —importers saved the import tax and exporters ignored bans on exports. The introduction of the bullion from Spanish America into Cadiz was assessed a substantial tax, more than 7 percent for gold and more than 10 percent for silver. This provided bullion importers the incentive to introduce the bullion without registration. Indeed, the bullionist doctrine which identified bullion with wealth was the perfect excuse to justify the bullionist rules of law because, in fact, the Spanish treasury acted as a rent-seeking agent for nearly three centuries. The government was not only satisfied with the direct remittances of bullion from the American mines, but it also wanted to obtain profits from the bullion that was sent from the colonies by private agents. Because the bullion imports were assessed such a heavy tax, the bullionist laws attempted to prevent the entrance of bullion without registration and, therefore, without paying the duties.

The control by the Spanish government increased when fiscal receipts decreased. But even in those cases, the leaders of the smuggling were not condemned. As very important foreign merchants, they were granted diplomatic immunity; therefore, they could not be judged in a Spanish court. The existence of special judges for foreign merchants was a safeguard for smuggling bullion. The privileged treatises had weakened Spanish control over foreign residents and opened the way to systematic fraud. The privileges granted to foreign merchant communities covered their rights of residence, consuls, and judge conservator. As a result, the handling of their shipping, incoming cargoes, and smuggling infractions became riskless. The Spanish Crown had lost the legal monopoly to enforce the law. Treaties, therefore, were imposed to legitimize illegal commercial activity, giving legal superiority to foreign merchants over Spanish merchants. Bullionist bans on exports, networks of smugglers, and privileged treatises for foreign merchants configured the oligopsonistic silver market structure in Cadiz.

Chapter 6 analyzes the smugglers' network to reveal the oligopsonistic structure of the silver black market in Cadiz. The most important foreign merchants in Cadiz were members of international societies with partnership companies abroad. They were

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organized in long-run networks and were specifically directed to undertake illegal trade operations between the Spanish American colonies and Europe through Spain. Networks gave smugglers enough market power to drive down the price of silver and provided them with the necessary international connections to illegally extract and distribute bullion from Cadiz. Silver smugglers were the price markers, according to contemporary reports.

The networks combined formal limited-partnership ties with informal alliances based on family ties. Notary and ecclesiastical sources made possible to analyze the partnership and family ties in order to reconstruct the smugglers' network. Chapter 6 presents the merchants' biographies to illustrate the strategies that were followed by bullion smugglers to develop their networks in Cadiz. Foreign communities in Cadiz had great cohesion among their members. These merchants' enclaves formed culturally and economically hermetic units institutionalized through the consulates. Marriage, partnership, and trade were closely related. The long-run stability of their merchant houses was guaranteed by the transfer of partnership to younger relatives, and the houses' power was increased by the strategic marriages which linked the most important merchant houses among them. The strategy of developing merchant alliances between families of similar profession and nationality on the basis of marriage helped merchant houses to achieve stability and to maintain an adequate operation. It also contributed to the expansion of merchants' networks into the main centers of European and Atlantic trade.

Bullionist bans on exports served as barriers of entry to the bullion smuggling business which was restricted to a small number of very important foreign merchants mutually related through partnership and family networks that had the capability to drive down prices. Nevertheless, oligopsonistic power had a lower bound, which was the official parity, as in the number of units of account per coin. Below the official parity, the silver coins were used as money and went out of the commodity market. Therefore, the devaluation should be understood as an increase in the official parity intended to eliminate the oligopsony power.

Chapter 7 develops a static model of partial equilibrium for the market of commodity money, and is aimed at clarifying some theoretical concepts. The model explains the operation of the oligopsonistic silver commodity market and the effect of devaluation. The main argument of the model is that the oligopsonistic price fluctuated within the international competitive price and the official parity. The international price was the maximum price because the oligopsonistic markdown was zero at the international competitive price. The official parity was the minimum price because below that price, sellers would use the coins as money valued at official parity and not sell them as a commodity. The lower limit of the silver commodity market price gave the government the opportunity to apply an exchange rate policy oriented to the bullionist aim of avoiding silver flows. When the government increased the official parity at a higher level than the point of intersection of the curves that equaled marginal expenditure and marginal value, the smuggled quantity decreased and the hoarded quantity increased. The devaluation was effective to achieve the bullionist goal of increasing the hoarded quantity, but its long-run effectiveness was dependent on the evolving international price levels.

The most important implication of the model is the effect of oligopsony on quantities. Oligopsony limited smuggling *per se* because silver outflows were lower under oligopsony than under perfect arbitrage competition. To some extent, oligopsony was helpful to the government. If it had not existed, pressures from international prices would have been much higher. Indeed, this may explain why the

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government implicitly accepted the existence of the cartel. Of course, smuggling was not good from a bullionist point of view, but cartelized smuggling was better than competitive smuggling.

Some important lessons emerge from the dissertation. The understanding of the specie-point mechanism is required to understand the causes behind the silver flows. And the macroeconomic interpretation of the international silver flows should focus on the special microeconomic features of the silver market structure. The dissertation is an original theoretical contribution to the specie-point mechanism in the case of imperfect competition, and it is a historical explanation of the causes of the flows of precious metals from the New World to the Old World in the early modern period.

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Feeding Gotham: A Social History of Urban Provisioning, 1780–1860

Provisioning food, constructing shelter, and supplying clean water for growing populations were the three vital challenges that booming nineteenth century Western cities confronted. Whereas housing and sanitation have long been central topics for urban history, the provisioning of food has received relatively little attention. Yet cities cannot feed themselves, but depend on external, often market-mediated sources. Given the historically unprecedented scale of nineteenth-century urbanization, every major component of the urban food systems underwent this profound transformation. Using New York as case study, *Feeding Gotham* presents the first systematic analysis of any American city that examines how nineteenth-century urban growth affected and depended on structural changes in food provisioning and consumption.

New York offers an ideal site for this analysis for two reasons. First, as the fastest growing city in the Western world, with its population increasing from 30,000 to 800,000 between 1790 and 1860, New York City officials faced unprecedented challenges to ensure residents' access to adequate quantities and quality of food supplies. Second, New York City offers exceptionally rich source material. The butcher-turned-historian Thomas F. De Voe's books and manuscripts contain a wealth of information about the city's public markets and meat supplies.[1] Additionally, municipal records shed light on the political process and infrastructure of provisioning, and previously unused market returns allow for a novel understanding of early-nineteenth-century urban meat consumption. Finally, censuses, city directories, maps, public health records, and a variety of qualitative sources provide further material for the analysis.

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This dissertation was completed in the Department of History at Northwestern University under the supervision of Joel Mokyr (co-chair), Josef Barton (co-chair), Henry Binford, and David Van Zanten. Financial and institutional support was provided by Northwestern University, the American Council of Learned Societies, the McNeil Center for Early American Studies at the University of Pennsylvania, and the Gilder Lehrman Institute for American History.

[1] Thomas F. De Voe (1811–1892) published two books during his lifetime: *The Market Book* (1862) and *The Market Assistant* (1867). His unpublished records are available at the New-York Historical Society, Manuscript Collections.

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

The central narrative of the dissertation tracks New York City's history of food market deregulation. Throughout the colonial and early Republican periods, in New York, as in most other major American cities, the retail trade in fresh red meat, arguably the most important component of the American urban diet, was limited to licensed market butchers who operated out of public markets.[2] The highly restricted meat trade, in turn, concentrated the sale of all fresh provisions at the municipal marketplaces. The primary purpose of the market laws was to enforce strict municipal oversight of the supply of food to the city. For a variety of reasons, the Common Council, New York City's legislative body, broke with two centuries of tradition, and deregulated the market for fresh red meat in 1843.[3] In the next decades, other American cities followed course, pursuing similar free market reforms in urban food provisioning. The transition from tightly regulated to unregulated food markets had important consequences for the spatial development of New York, the distribution of food supplies in the city, and the standard of living of the city's residents.

The opening chapter establishes the political economy of New York City's public market system of provisioning. Drawing on municipal records, this chapter analyzes the decentralized and contingent political process by which the "public good" of urban food provisioning was successively renegotiated by three constituent parties: consumers, retailers, and city authorities.[4] Traditionally, food provisioning relied on neighborhood markets, which—in terms of their funding, construction, daily upkeep and management—operated as joint ventures of local residents, market vendors, and the Common Council. As long as the city remained relatively small, this community-based model of provisioning was flexible and responsive enough to arbitrate the diverse conflicting and converging interests of the parties involved. From the 1810s, however, accelerated urban growth pushed the council to take full responsibility for the financing, expansion, and supervision of the public market system. The city directly controlled the infrastructure and regulatory framework of provisioning, while open entry of trade and competition were restricted by limiting the sale of fresh meat to a privileged class of licensed market butchers.

From the 1830s the pendulum swung to the opposite direction: from greater public intervention to market deregulation. Three factors contributed to this transition. First, by repealing the market laws in 1843, the council embraced the widely shared belief that free-market competition was the most effective way to distribute food supplies to citizens in a rapidly growing city. Second, deregulation put an end to the council's futile efforts to suppress a bourgeoning and resilient informal economy of food retailing. And third, deregulation freed the council from having to allocate ever-greater funds to the market infrastructure. Priorities changed: at the same time as the city deregulated the provisioning of food, it socialized the provisioning of water. The construction of the Croton Aqueduct (1836–1842) raised the municipal debt to historically unprecedented levels, limiting the city's ability to devote funds for other public works projects, including the continuous expansion of the market system *vis-à-vis* urban growth.

[2] For a general history of nineteenth-century American urban food markets, see Tangires, *Public Markets and Civic Culture*.

[3] The deregulation of meat markets in New York City has been studied by Horowitz, Pilcher, and Watts, "Meat for the Multitudes"; Tangires, *Public Markets and Civic Culture*, pp. 71–94; and Beal, "Selling Gotham," pp. 304–70.

[4] The research relies on published and archival municipal records, including Common Council proceedings, Market Committee and other reports, Comptroller accounts, and hundreds of petitions to the council by local citizens. Manuscript records are available at the New York City Municipal Archives. The most important published sources are New York (N.Y.). Common Council, *Minutes of the Common Council of the City of New York, 1784–1831*; and Matteson and New York (N.Y.). Common Council, *Minutes of the Common Council of the City of New York, 1784–1831: Analytical Index.*

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

More generally, New Yorkers struggled with the most fundamental dilemma of any free-market society: where to draw the line between the unfettered free market and public policy meant to ensure the common good of citizens? Their debates about the nature and extent of municipal intervention in urban food markets reveal a great deal about the theory and practice of nineteenth-century urban governance. Moreover, their decisions about the provisioning infrastructure directly affected the material conditions of urban life and the standard of living of residents.

Turning from political negotiations to social consequences, chapter two examines how rapid urbanization and market deregulation affected the constraining structures of time and space in urban household provisioning. Focusing on temporality, the first part combines monthly market sales data on the supply side with household account books on the demand side to trace seasonal, weekly, and daily schedules of marketing.[5] High seasonal fluctuations driven by supply conditions characterized the consumption of all fresh food items, including butcher's meats. New Yorkers above all had an appetite for fresh beef. Complementing their year-round beef diet with veal in the spring, lamb and mutton in the summer, and pork in the winter, they furnished their tables with a constant supply of fresh red meat. The weekly rhythm of trade was dominated by Saturday, when residents crowded into the markets in preparation for their Sunday meals. Unlike seasonal and weekly cycles, which persisted over the entire period, the daily rhythms of trade changed considerably. Traditionally, the lack of proper refrigeration posed strict limitations on the daily schedules of marketing: the earlier the hour, the greater the selection and the better the quality of goods; however, as the day progressed, the variety and the quality of food diminished, and prices declined accordingly. Correspondingly, different social strata of customers shopped at the marketplaces at different times of the day. From the second quarter of the century, the proliferation of outside food purveyors opened up alternative shopping schedules for residents, fragmenting the strictly regimented temporal order of the public market system of provisioning.

The second part of the chapter concerns spatiality. Using newly constructed estimates of the volume of trade in public markets and Geographic Information System analysis, the spatial research systematically maps the changing landscape of household provisioning, characterized by increasing spatial fragmentation and segregation. Until the mid-1820s public markets played a positive role in sustaining urban growth by distributing fresh food supplies to all neighborhoods. The council's failure to expand the market system from the early 1830s, coupled with its decision to deregulate the meat markets in 1843, however, left newly expanding areas of the city without adequate market facilities. North of Fourteenth Street, food retailing depended entirely on private entrepreneurs, while south of this line, public and private infrastructures coexisted. Income inequalities and cultural preferences further reinforced the fragmentation of suppliers. Whereas better-off residents in the western wards were more likely to continue to rely on craftsman market butchers, working-class consumers in the densely packed eastern wards increasingly substituted the marketing journey with daily purchases at groceries, meat shops, or street vendors. German residents in "Klein Deutschland" could at least rely on a vibrant ethnic economy of food purveyors. Yet in the poorer Irish districts, no such ethnic tie ensured mutual trust between vendors and customers. These spatial patterns were only a matter of degree in a metropolis where even in the least "ethnic" ward, one-third of the population comprised of immigrants. Still, by the mid-nineteenth century, New

[5] The temporal analysis follows Henri Lefebvre's concept of rhythmanalysis. See Lefebvre, *Writings on Cities*, pp. 219–27.

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

Yorkers navigated an evermore fragmented landscape of provisioning, where residential segregation based on class and ethnicity increasingly determined one's options to procure fresh provisions.

Chapter three looks at the relationship between urban meat consumption and living standards, providing new insights to the "antebellum puzzle."[6] First, the chapter documents the changing quantity of Gotham's meat supplies. Combining new data on market sales and excise taxes, the research derives the most complete time series evidence on meat consumption for any American city in the early nineteenth century.[7] Between 1790 and 1818 carnivorous New Yorkers ate an estimated 160 pounds of fresh red meat per capita, more than half of which came from beef. These figures not only exceed meat consumption rates in other urban societies at the time, but they also compare favorably to the highest recorded levels in American history in the twentieth century.[8] Circumstantial evidence supports the findings of other scholars that per capita meat consumption declined from the mid-1830s and recovered only well after the Civil War. Importantly, the analysis underlines that this negative trend was not preceded, but certainly exacerbated by the recession of 1837–1843. Second, the research highlights some of the distinctive features of urban food consumption. City dwellers consumed more meat than their rural counterparts who supplied them. They also enjoyed the privilege of eating chiefly fresh meat all year around, whereas people in the countryside relied more heavily on a diet of preserved meats. Yet city dwellers paid a high price for depending on a complex provisioning chain. External shocks, such as epidemics, war, or economic crises, could severely disrupt the city's supply chains, resulting in a sharp temporary fall of urban food consumption.

The urban angle also brings the much-overlooked problem of food quality into focus. Lacking direct evidence, the research looks at the provisioning infrastructure to arrive at tentative conclusions. Traditionally, public markets were the only systematic mechanism of quality control available for American cities. Free market deregulation meant that city officials lost oversight of the urban food supplies. Whereas before, fresh meat was retailed at a dozen closely monitored marketplaces, by the mid-nineteenth century, hundreds of meat shops, thousands of groceries, and many more unlicensed peddlers entered the trade. Despite public health officials calling for greater municipal intervention, New York City failed to build public abattoirs or a central wholesale market in the Parisian model, nor did it institute any alternative mechanism of systematic meat inspection. Circumstantial evidence suggests that the spatial fragmentation of food retailing contributed to the deterioration of the quality of fresh food supplies in certain areas. It made a difference whether one purchased fresh meat

[6] The term "antebellum puzzle" refers to the three decades prior to the Civil War, which were characterized by the perplexing combination of rapid economic growth and growing per capita income on the one hand, and deteriorating biological standard of living, more specifically, declining physical stature and rising mortality, on the other. Scholars have proposed two distinct lines of explanation: changing diets, in particular, declining per capita protein consumption, and worsening disease environments chiefly as a result of modem urbanization. By focusing on the quantity and quality of the urban meat supply, this analysis contributes new insights to both interpretations. See Komlos, "Shrinking in a Growing Economy?"; and Haines, Craig, and Weiss, "Short and the Dead."

[7] Two sets of sources were used to estimate per capita meat consumption rates. First, market clerks prepared monthly returns of the amount of fresh beef, veal, lamb and mutton, and pork sold at the city's public markets. Their original returns survived for 1816 and 1818. Second, the Proceedings of the Common Council document how much excise taxes were collected from the city's butchers on the amount of meat sold in most of the years between 1790 and 1818. Combining these two sets of records, while also knowing the tax rates that were applied to the different kinds of meats, it becomes possible to estimate the actual volume of meat sales.

[8] Horowitz, *Putting Meat on the American Table*, pp. 11–17.

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

from craftsman market butchers, corner grocers, or street peddlers. Yet in an increasingly segregated metropolis, this option largely depended on one's neighborhood of residence.

Chapter four concludes the dissertation by shifting the scale of the research to one neighborhood and its marketplace. By narrating Catharine Market's rise and fall, this chapter explores how structural changes in urban food provisioning affected the everyday life of local food vendors and residents. In the early nineteenth century, Market emerged as one of Gotham's largest and best emporia of food supplies, agglomerating the trade of hundreds of market vendors, including butchers, fishmongers, hucksters, and farmers. As the center of an enormous economy, it regularly supplied a district of close to 30,000 residents. From the second quarter of the nineteenth century, forces of supply and demand coalesced to fragment Market's business. Outside retailers, selling meat and other fresh foodstuff, often without license, mounted growing competition to legitimate market vendors. Meanwhile, demographic changes reinforced market fragmentation. By the 1830s this once wealthy area became one of New York's most distinctively immigrant working-class neighborhoods. Most residents could only afford lesser quantity or lower quality food supplies, while also seeking out bargain provisions from outside retailers. Eventually, the tightly knit provisioning system that had traditionally centered on Market was undermined by an insurgent free market economy of formal and informal food purveyors and their customers.

Overall, *Feeding Gotham* contributes to the existing scholarship at three intersections. First, it identifies food provisioning as a central aspect of modern urban governance to which historians need to pay more attention. New York City's history of food market deregulation was shaped by local politics. Yet New York's experience was representative in that most other major American cities pursued free-market reforms in the middle of the nineteenth century. European cities, on the contrary, tended to balance deregulation in retailing with greater public intervention at wholesale markets and slaughtering facilities. Understanding these converging and diverging trends requires future comparative analysis. Second, the dissertation underlines the central role of geography in shaping urban material conditions. Specifically, the analysis shows how different political economy models produced different landscapes of household provisioning. Moreover, historians have long argued that modern cities are characterized by a strong association between social inequalities and horizontal segregation. The research outlines the emergence of this modern spatial logic, by which residential location increasingly determined unequal access to food, along with other better studied basic resources, such as housing and sanitation. Third, the dissertation presents new data concerning early-nineteenth-century meat consumption levels, while also highlighting the distinctive qualities of urban provisioning. In addition, circumstantial evidence suggests that urban growth coupled with market deregulation had an adverse effect on food quality. One important conclusion is that historians interested in the biological standards of living in general, and the "antebellum puzzle" in particular, should extend their inquiry from the more quantifiable problem of the quantity to the equally important yet more elusive category of the quality of urban food supplies.

This dissertation is a case study of America's first metropolis. As such, one could find many reasons why some of its findings may not be representative. The next step of the research therefore will situate New York City in relation to other comparable cities to enhance the scope and relevance of the analysis.

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https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

REFERENCES

Beal, Th. D. "Selling Gotham: The Retail Trade in New York City from the Public Market to Alexander T. Stewart's Marble Palace, 1625–1860." Ph.D. diss., State University of New York at Stony Brook, 1998.

De Voe, Th. F. *The Market Assistant, Containing a Brief Description of Every Article of Human Food Sold in the Public Markets of the Cities of New York, Boston, Philadelphia, and Brooklyn: Including the Various Domestic and Wild Animals, Poultry, Game, Fish, Vegetables, Fruits, &c., &c., with Many Curious Incidents and Anecdotes*. Cambridge: Printed at the Riverside Press for the author, 1867.

De Voe, Th. F. *The Market Book: A History of the Public Markets of the City of New York*. New York: A. M. Kelley, 1970.

Haines, M. R., L. A. Craig, and T. Weiss. "The Short and the Dead: Nutrition, Mortality, and the 'Antebellum Puzzle' in the United States." *The Journal of Economic History* 63, no. 2 (2003): 382–413.

Horowitz, R. *Putting Meat on the American Table: Taste, Technology, Transformation*. Baltimore, MD: Johns Hopkins University Press, 2006.

Horowitz, R., J. M. Pilcher, and S. Watts. "Meat for the Multitudes: Market Culture in Paris, New York City, and Mexico City over the Long Nineteenth Century." *The American Historical Review* 109, no. 4 (2004): 1055–83.

Komlos, J. "Shrinking in a Growing Economy? The Mystery of Physical Stature During the Industrial Revolution." *The Journal of Economic History* 58, no. 3 (1998): 779–802.

Lefebvre, H. *Writings on Cities*. Oxford, Cambridge: Blackwell, 1996.

Matteson, D. M. and New York (N.Y.). Common Council. *Minutes of the Common Council of the City of New York, 1784–1831: Analytical Index*. New York: M. B. Brown Printing & Binding Co., 1930.

New York (NY). Common Council. *Minutes of the Common Council of the City of New York, 1784–1831*. Vols. 1–19. New York: City of New York, 1917.

Tangires, H. *Public Markets and Civic Culture in Nineteenth-Century America*. Baltimore, MD: Johns Hopkins University Press, 2003.

Federal Policy and the Mid-Century Transformation in U.S. Housing Markets

Between 1940 and 1960 the United States saw some of its most dramatic changes in housing markets and household formation. Home purchase shifted earlier in the life cycle: the age profile of home ownership by age was stable from 1900 to 1940, but by 1960 had become substantially more concave.[1] Earlier entry into ownership contributed to an increase in aggregate home ownership, which rose from 44 to 62 percent. At the same time, family formation at younger ages became more common. Much of this transformation occurred after World War II. Strikingly, however, more

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This dissertation was completed at Harvard University under the direction of Edward Glaeser and Claudia Goldin.

[1] I illustrate the age profiles in my dissertation; some past authors noting variants on this fact are Aaron, *Shelter*; and Collins and Margo, "Race."

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

than half of the two-decade increase in aggregate home ownership—approximately 10 percentage points—occurred between 1940 and 1945, despite severe wartime building restrictions. I investigate the role of federal housing policies in driving these changes, to assess their contribution and to shed light on the broader forces that transformed housing markets at mid-century.

In the first chapter of my dissertation, I study mortgage subsidies to veterans under the Veterans Administration (VA) home loan program. Established under the World War II and Korean War GI Bills, the VA program provided a guarantee to lenders against losses on approved home loans, up to a specified amount. The corresponding reduction in lending risk was meant to allow veterans to obtain loans on easier terms than they could have otherwise—lower down payments, lower interest rates, and longer maturities. In addition to being a large program in its own right, estimates of the impact of the VA shed light on the effects of the broader relaxation in terms on home mortgages in the mid-twentieth century.

A standard life-cycle model of tenure choice with credit constraints suggests that the effects of easier mortgage terms should be highly heterogeneous in age.[2] Ideally, one would observe otherwise identical individuals facing different mortgage terms, and estimate the effect of easier terms at several different ages. As an approximation to this ideal experiment, I begin my empirical analysis by using veteran status as a measure of access to VA loans. Selection into military service makes comparisons of veterans to nonveterans within birth cohorts problematic. Instead, I make between-cohort comparisons in a regression discontinuity (RD) framework. The RD approach exploits the fact that the probability of military service by date of birth fell steeply for men coming of age around the end of World War II or the Korean War.[3] Assuming that home ownership would otherwise be a continuous function of age, discontinuities in home ownership corresponding to breaks in the probability of military service identify the effect of veteran status on home ownership. With two "breaks"—associated with World War II and the Korean War—and multiple census years, I can compare effects at two ages in a single cross-section and also follow cohorts over time.

The results of the main empirical analysis are consistent with the prediction that the effects of easier housing finance should decline with age. I find large effects of veteran status on the probability of home ownership in 1960 at both breaks, with greater differences for the 26-year-olds at the Korean War break than for the 32-year-olds at the World War II break.[4] Also consistent with effects that decline with age, I find no evidence for positive effects of veteran status on home ownership at either break in 1970 or 1980, when a person born at either break would have been at least 36 years old.

The GI Bills provided several other benefits as well, but I present several pieces of evidence suggesting that education and other benefits do not explain a substantial share of the home ownership result. In addition, military service itself may have influenced an individual's demand for housing. I address these potential "service effects" in two ways. First, I test for effects of veteran status on home ownership for World War I veterans in 1930. Despite national and state bonuses, as well as housing benefits in some states, the estimates I find are smaller than those for World War II and Korean War veterans in

[2] A classic reference is Artle and Varaiya, "Life-Cycle"; calibrations include Hayashi, Ito, and Slemrod, "Housing"; and Sheiner, "Housing."

[3] Similar variation in veteran status has been used previously to study effects of military service and benefits on income, education, and mortality. Examples include Angrist and Krueger, "Why Do"; Bedard and Deschênes, "Long-Term Impact"; and Bound and Turner, "Going."

[4] Here and elsewhere, an important caveat is that these effects are local average treatment effects, in the language of Imbens and Angrist, "Identification."

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

1960. Second, using annual data from the Survey of Consumer Finances,[5] I show that rates of home purchase by World War II veterans relative to nonveterans responded significantly to changes in the availability and generosity of the home loan benefit through the late 1950s.

Under the assumption of no spillover effects on nonveterans, my estimates imply that 70 percent of the 1940–1960 increase in home ownership at age 26, and about 30 percent of the increase at age 32, can be attributed to VA home loan benefits. Extrapolating to other ages, they suggest that the direct effects of the VA program may explain about 10 percent of the overall increase in home ownership.[6]

In the second chapter of my dissertation, I examine some of the changes in family formation—increased rates of marriage and fertility among young individuals—that occurred at mid-century. I build on the analysis of the first chapter and estimate the impact of military service and veterans' benefits on marriage and fertility. Understanding this relationship is interesting in its own right, but may also shed light on the relationship between housing and family formation at mid-century, as I discuss below.

As in chapter 1, the smoothness of marriage and fertility rates by age motivates application of a regression discontinuity design that exploits variation across cohorts in the probability of military service. I find that veterans at the Korean War threshold show clear evidence of a "disruption" effect in marriage: they are significantly less likely to have married by 1955, approximately when one would expect them to have left the military. While their marriage rates appear to have recovered by 1960, they do not appear to have been *more* likely to have married than comparable nonveterans. Similarly, there is evidence of a disruption effect in the probability of fathering a child: from 1955 to 1957 they appear less likely to have had a child than comparable nonveterans. Yet they show a substantially higher probability of having a child in 1958. This difference was more than simply recovery from their earlier, lower fertility: they appear more likely to have had a child by 1959.

Interpretation of the results at the World War II break are more complicated because those who did not serve in World War II were more likely to be drafted to serve in the Korean War, implying that men on the later side of the break who served in the military likely did so with a delay of several years, rather than immediately after their slightly older counterparts. The clearest inferences that can be drawn are that there is little evidence of disruption effects during service in World War II, and no long-term discontinuities in the probability of family formation at the World War II break.

After documenting these facts, I attempt to shed some light on the mechanisms that may have driven them, focusing on the Korean War results because of the greater complications in interpretation of the World War II break. The absence of evidence for a positive discontinuity in marriage rates makes it unlikely that the results are simply due to veterans "growing up fast." The evidence is most consistent with the hypothesis that housing benefits induced earlier family formation by relaxing constraints on home purchase and space: across census regions, areas with greater "veteran effects" on home ownership and number of rooms also have larger "veteran effects" on the probability of having had a child by 1960. In contrast, areas where the discontinuities in educational attainment were greater had smaller discontinuities in fertility.

[5] The source of the SCF data is Economic Behavior Program, "Survey."

[6] Vigdor, "Liquidity," examines the VA program and argues that relaxing liquidity constraints increases house prices. Price effects would suggest that my aggregate estimate is too high; any positive spillover effects on nonveterans could mean the estimate is too low. Vigdor also provides an estimate of the share of the 1940 to 1970 increase in home ownership attributable to the VA that is higher than mine; our findings likely differ because of our different empirical approaches.

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

In the final chapter, I turn to the remarkable increase in home ownership between 1940 and 1945. Many of the theories that may explain the broader mid-century increase—such as increased availability of finance, increased rates of family formation, and decreased transportation costs broadening possibilities of suburban settlement—are unlikely to explain changes during World War II, when construction was curtailed and fertility rates had not reached their dramatic postwar levels.

The unusual characteristic of the 1940–1945 increase was that it largely represented conversion of dwellings from renter- to owner-occupancy: the Census Bureau estimated that of the 24 million dwelling units that were owner-occupied in 1950, at least 3 million had been renter-occupied in 1940.[7] I discuss a number of possible explanations for the increase. Demand for ownership may have increased during the war due to increased real incomes and savings. The wartime expansion of the income tax may have made the favorable tax treatment of owner-occupied housing more relevant.[8] Finally, I reintroduce another hypothesis to the literature: that wartime and postwar federal rent control drove the shift.[9] Approximately three-quarters of the 1940 housing stock lay in areas put under rent control by 1946, and in many places rent control appears to have been a severe constraint on the level of rents. At the same time, prices for sales to owner-occupants were not controlled. Thus, rent control may have induced landlords to withdraw housing from the rental stock for sale to owner-occupants at uncontrolled prices.

Testing the rent control hypothesis is the focus of my empirical work. I use newly digitized records from intercensal housing surveys, carried out by the Census Bureau and the Bureau of Labor Statistics (BLS) between 1944 and 1947. These surveys collected information on vacancy, tenure, persons per room, and several other variables. I link information from these surveys to a sample of large cities that the BLS had begun tracking before World War II for the rent component of its cost-of-living index.

Because nearly all large cities were under rent control during the war, there is little scope for comparing controlled areas to uncontrolled ones. But there was considerable variation across cities in the "bite" of rent control: the difference between controlled rents and uncontrolled house prices was probably much larger in some cities than in others. I lack data on house prices to use for this purpose, and therefore measure severity as the difference between the maximum level of rents before control and their level after control. I show that greater severity of rent control predicts a larger increase in city-level home ownership during the war. This is true even controlling for the degree of rent increase before control: the result does not appear to be driven simply by housing demand shocks.[10]

[7] This estimate is presented in U.S. Bureau of the Census, *Census*. While some of these units had likely been part of an "overhang" of properties foreclosed on during the Depression, I present evidence that the overhang is unlikely to explain a large share of the overall increase.

[8] This argument is presented in Rosen and Rosen, "Federal."

[9] In a complementary analysis, I also show that in a larger sample of cities, predicted increases in employment are associated with greater increases in home ownership in cities facing greater geographic supply constraints, where house prices should have been more sensitive to demand shocks. I calculate predicted employment along the lines of Bartik, *Who Benefits*; and use measures of geographic supply constraints from Saiz, "Geographic."

[10] This explanation was common at the time; one reference is Friedman and Stigler, "Roofs."

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https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

REFERENCES

Aaron, Henry J. *Shelter and Subsidies: Who Benefits from Federal Housing Policies?* Washington, DC: The Brookings Institution, 1972.

Angrist, Joshua, and Alan Krueger. "Why Do World War II Veterans Earn More than Nonveterans?" *Journal of Labor Economics* 12 (January 1994): 74–97.

Artle, Roland, and Pravin Varaiya. "Life-Cycle Consumption and Homeownership." *Journal of Economic Theory* 18 (June 1978): 38–58.

Bartik, Timothy J. *Who Benefits from State and Local Development Policies?* Kalamazoo, MI: W. E. Upjohn Institute for Employment Research, 1991.

Bedard, Kelly, and Olivier Deschênes, "The Long-Term Impact of Military Service on Health: Evidence from World War II and Korean War Veterans." *American Economic Review* 96 (March 2006): 176–94.

Bound, John, and Sarah Turner. "Going to War and Going to College: Did World War II and the GI Bill Increase Educational Attainment for Returning Veterans?" *Journal of Labor Economics* 20 (October 2002): 784–815.

Collins, William J., and Robert A. Margo. "Race and Home Ownership: A Century-Long Perspective." *Explorations in Economic History* 38 (January 2001): 68–92.

Economic Behavior Program, Survey Research Center, University of Michigan, "Survey of Consumer Finances, various years," Institute for Social Research, Social Science Archive 1973. Distributed by Inter-university Consortium for Political and Social Research, 1999.

Friedman, Milton, and George J. Stigler, "Roofs or Ceilings? The Current Housing Problem." *Popular Essays on Current Problems* 1 (September 1946): 7–22.

Hayashi, Fumio, Takatoshi Ito, and Joel Slemrod. "Housing Finance Imperfections, Taxation, and Private Saving: A Comparative Simulation Analysis of the United States and Japan." *Journal of the Japanese and International Economies* 2 (September 1988): 215–38.

Imbens, Guido W., and Joshua D. Angrist. "Identification and Estimation of Local Average Treatment Effects." *Econometrica* 62 (March 1994): 565–637.

Rosen, Harvey, and Kenneth T. Rosen. "Federal Taxes and Homeownership: Evidence from Time Series." *Journal of Political Economy* 88 (February 1980): 59–75.

Saiz, Albert. "The Geographic Determinants of Housing Supply." *Quarterly Journal of Economics* 125 (August 2010): 1253–96.

Sheiner, Louise. "Housing Prices and the Savings of Renters." *Journal of Urban Economics* 38 (July 1995): 94–125.

U.S. Bureau of the Census. *Census of Housing: 1950, Vol. I: General Characteristics*. Washington, DC: USGPO, 1953.

Vigdor, Jacob L. "Liquidity Constraints and Housing Prices: Theory and Evidence from the VA Mortgage Program." *Journal of Public Economics* 90 (September 2006): 1579–1600.

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

Essays in American Fertility

Fertility rates in most of the developed world are currently at or below replacement rate, the level needed to prevent population decline. For the United States, replacement level fertility is the culmination of a demographic transition more than 200 years in the making as fertility fell from a high of 7.1 children per female in 1800 to 2.2 children by 2000. This dissertation is an empirical study of the causes of fertility decline in the United States.

The U.S. decline is not a victim of understudy. To the contrary, the literature in this area is rich, and contributors come from a variety of academic disciplines. This dissertation contributes to the extant literature by directly testing potential explanations of the American decline using two original data sets comprised of household and township-level panel data.

The first chapter of the dissertation is an introduction to the broad and deep literature on fertility decline, American and otherwise. The study of fertility decline famously began with Malthus, but a renewed push came from the Office of Population Research at Princeton University in the 1940s. The Princeton Project was followed by the inclusion of fertility decision making in Gary Becker's "New Home Economics" in the 1960s and 1970s, and the literature on fertility decline in economics has expanded rapidly ever since.[1]

In the spirit of Becker's early work, economists have sought to define fertility as the equilibrium outcome to a household's utility maximization problem subject to its resource constraints. In Becker's formulation, children enter the household utility function in parallel with other consumption goods and carry a positive market price. This price incorporates the direct costs of bearing and rearing children and can incorporate the shadow price of time invested by the parents as well. In this framework, the demand for children is analogous to the demand for market commodities in a standard consumer decision model.

An immediate conclusion of the model is that demand for children is inversely related to their price. If children are also producers within the household (rather than simply objects of consumption by their parents), their price also incorporates the positive returns associated with the child's household production. The inverse of this price is the child's value, and, *ceteris paribus*, increases (decreases) in the value of children will result in increases (decreases) in household fertility. This basic idea, the "value hypothesis" has given rise to a host of economic theories of fertility decline and is the focus of chapter 2 of the dissertation.

Empirical examinations of this "value hypothesis" are hampered by an inability to measure the value of children directly and by the failure of proxy variables to adequately do so. In most cases, empirical work stipulates an OLS relationship between a dependent fertility rate and an independent approximation of the value of children, conditional on other attributes of the population in question. The most common technique in the literature is to proxy the value of a child with one or more variables that should be correlated with their value. For instance, researchers regress fertility rates on the labor force participation rate of females, on the size of the agricultural labor force, or on the

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This dissertation was completed at Northwestern University under the supervision of Joseph Ferrie and Joel Mokyr.

[1] See Becker, "Economic Analysis" and "Theory of Allocation."

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

stringency of child labor laws. Such a method is limited both by the inability of these variables to adequately proxy the value of children and by omitted variable bias.

This chapter contributes to the literature on fertility decline by testing the value hypothesis in a novel way. I propose that slave emancipation in the U.S. South between 1863 and 1865 is a natural experiment ideal for testing the value hypothesis of fertility decline. Prior to emancipation, a slaveowner's own children and his slave holdings generally worked side by side on the family farm. Under weak assumptions about the household production function on these farms, the shock to the price of labor resulting from emancipation changed the value of the former slaveowner's own children. If the value hypothesis is correct, this should have affected his fertility. Because hypothesized changes in the value of children brought on by emancipation are independent of other household characteristics, this approach allows observed correlations between the value of children and fertility rates (conditional on differences in initial household characteristics) to be interpreted causally with less concern for embedded bias.

In order to generate testable implications, chapter 2 exploits the fact that emancipation changed the value of slaveowners' own children differentially depending on the characteristics of their pre-emancipation slaveholdings. For instance, assuming that a slaveowner's own children and enslaved children were substitutes in production and that emancipation increased the price of labor of formerly enslaved children, emancipation would have increased the value of the owner's own children as well. Conversely, under the assumption that the owner's own children and slave adults were complements, fertility should have fallen as a result of the positive labor price shock following emancipation. These assumptions are incorporated into a model of household behavior and generate testable implications about post-emancipation fertility depending on the characteristics of a Southern white household's pre-emancipation slave holdings, such as the gender and age composition. Comparing the empirical post-emancipation fertility rates of these former slaveowners to the model's predictions serves as a test of the value hypothesis of fertility decline.

My findings in chapter 2 are consistent with the value hypothesis of fertility decline. The value of children and household fertility were positively correlated in the post-Civil War period. Those households for whom the model predicts the value of children increased the most after emancipation experienced the highest subsequent fertility. Those with a predicted decrease in the value of children had the lowest fertility rates. Specifically, small slaveowners who enslaved young children showed fertility rates up to 37 percent higher by 1870 than the non-slaveowning middle class. Further, large slaveowners who owned adult female slaves exhibited a 31 percent reduction in fertility rates.

Chapter 3 provides background information and justification for the historical experiment performed in chapter 2, detailing the literature on the role of owner's children on farms employing slave labor, the chronology of slave prices as evidence that slave emancipation was unanticipated as of the 1860 U.S. Census (when slaveownership is measured), and the post-emancipation Southern labor market.[2]

Chapter 4 contains the second of the two experiments in American fertility. A second hypothesis on American fertility decline is that it resulted from technological change, industrialization, and the rising return to human capital. Clearly, this second hypothesis is related to the "value hypothesis" highlighted in chapter 2. An important distinction, however, is that the second often relies on changes in the return to human capital in precipitating the decline. This is the Becker "Quality/Quantity tradeoff" hypothesis, and

[2] See McCurry, *Masters of Small Worlds*; Ransom and Sutch, *One Kind of Freedom*; and Margo, "North-South Wage Gap."

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

it feeds into a more recent literature on Unified Growth Theory.[3] In addition, the literature highlights the role of a rising opportunity cost of female time, a reduced opportunity for child labor inside industrial locales, an increase in urbanization, and changes in child mortality as possible causes for a decline in fertility in the wake of rising industrial activity.[4]

Previous attempts to document the impact of industrialization on fertility have been hampered by issues of simultaneity and colinearity. An empirical observation that industrialization and fertility are negatively correlated is not informative about the order of causation. Unified Growth Theory provides a specific mechanism whereby falling fertility may have spurred industrialization rather than vice versa. Other correlates of the industrialization process may also have been simultaneously determined.

To solve the simultaneity problem, the empiricist must be able to identify plausibly exogenous changes in the level of industrialization. In chapter 4, I exploit the circumstances surrounding industrialization in South Carolina between 1880 and 1900 to identify such a change. The introduction of textile mills to South Carolina after the Civil War marked the beginning of the state's industrial era. I argue in chapter 4 that the emerging geography of South Carolina's textile industry was determined by water power concerns and was independent of the characteristics of the local labor force, in particular their fertility. Comparing the fertility patterns of rural townships in South Carolina that did and did not receive textile mills over this period, I ask whether industrialization had any measurable impact on household fertility. I find that the arrival of textile mills negatively impacted marital fertility rates in South Carolina between 1880 and 1900. The introduction of textile mills reduced 1900 marital fertility by as much as 10.4 percent in the cross section and 6.9 percent using a difference-in-difference approach. Using household-level data, I document that the fertility reduction is attributable almost entirely to the in-migration of low-fertility household.

The data also allows for an evaluation of the mechanism at play. Other research has shown that the textile industry was not associated with changes in the returns to human capital.[5] I exploit the facts that children were extensively employed in the mills and that child labor laws were not passed in South Carolina until 1903 to argue that changes in the labor opportunities of children were unlikely to be at fault. That leaves rising population density, changes in child mortality, an increased price of female time, and other cost considerations as the most likely explanations for reduced fertility rates, an assertion that is supported by household data. I also find evidence of differential infant mortality among industrial workers.

At the end of chapter 4, I propose an additional mechanism linking economic growth and industrialization to lower fertility rates: an increase in the costs of raising children resulting from the separation of households from their extended families. A pronounced fertility difference in migrants relative to the native population in industrial locations lends support to this hypothesis.

Finally, chapter 5 provides background information and justification for the historical experiment performed in chapter 4. The chapter details the evolution of the textile industry in South Carolina, how location decisions were made, what recruitment took

[3] See Becker and Lewis, "On the Interaction"; and Galor and Weil, "Population."
[4] See Doepke, "Accounting for Fertility."
[5] See Becker, Hornung, and Woessmann, "Catch Me."
[6] See Carlton, *Mill*; and Wright, "Cheap Labor."

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

place in an effort to staff the mills, the extent of child and female labor in the mills, and the evidence on adverse health implications for mill operatives.[6] Chapter 6 concludes the dissertation.

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REFERENCES

Becker, Gary, ed. "An Economic Analysis of Fertility." In *Demographic and Economic Change in Developed Countries,* Universities-National Bureau Committee for Economic Research, 209–31, Princeton, NJ: Princeton University Press, 1960.

_____. "A Theory of the Allocation of Time." *The Economic Journal* 75, no. 299 (1965): 493–517.

Becker, Gary, and H. Gregg Lewis. "On the Interaction Between the Quantity and Quality of Children." *Journal of Political Economy* 81, no. 2 (1973): S279–S288.

Becker, Sascha O., Erik Hornung, and Ludger Woessmann. "Catch Me If You Can: Education and Catch-Up in the Industrial Revolution." CESifo Working Paper 2816, Munich: CESifo, 2009.

Carlton, David L. *Mill and Town in South Carolina: 1880–1920*. Baton Rouge: Louisiana State University Press, 1982.

Doepke, M. "Accounting for Fertility Decline During the Transition to Growth." *Journal of Economic Growth* 9 (2004): 347–83.

Galor, Oded, and David Weil. "Population, Technology, and Growth: From Malthusian Stagnation to the Demographic Transition and Beyond." *American Economic Review* 90, no. 4 (2000):806–28.

Margo, Robert A. "The North-South Wage Gap Before and After the Civil War." In *Slavery in the Development of the Americas,* edited by David Eltis. Cambridge: Cambridge University Press, 2004.

McCurry, Stephanie. *Masters of Small Worlds: Yeoman Households, Gender, Relations, and the Political Culture of the Antebellum South Carolina Low Country*. New York: Oxford University Press, 1995.

Ransom, Roger, and Richard Sutch. *One Kind of Freedom: The Economic Consequences of Emancipation*. Cambridge: Cambridge University Press, 2001.

Wright, Gavin. "Cheap Labor and Southern Textiles Before 1880." *The Journal of Economic History* 39, no. 3 (1979): 655–80.

Comments on Cummins, Fenske, and Nogues

The task of selecting the Gershenkron prize winner for the best dissertation on non-U.S. topics is one of those duties that are onerous yet rewarding. Reading so many dissertations takes a lot of time and the burden of selecting the finalists and the ultimate winner is daunting. Since the decision is taken by a single referee, the choices made involve his preferences and his reading of where the profession should be heading. So, before commenting on the finalists, let me briefly provide some background numbers and an outline of my selection criteria.

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

I received 17 dissertations; 12 from economics graduate students and 5 from history. I received 9 dissertations from graduates of U.S. programs and 8 from European ones. The topics spanned from the early middle ages to the twentieth century and covered four continents—a true reflection of the globalization of our profession. This great variety of topics, locations, eras, and methodologies presented a real difficulty. In arriving at my final decision, I chose to reward differentially dissertations that combined an analytical approach (theory), empirical analysis, and the collection of data from original sources. This choice reflects my reading of what economic history is all about and emphasizes our comparative advantages and unique contributions over mainstream historians and economists. The finalists, in my opinion, exhibited the best mix of these ingredients. I will now move on to briefly comment of these dissertations, in alphabetical order.

NEIL CUMMINS

Neil Cummins' dissertation addresses one the most important research questions in contemporary growth and development literature—that of the demographic transition. The demographic transition has become an essential cornerstone in the "new unified growth model" literature.[1] However, so far, these new theories have, in most cases, failed to pass empirical tests and have therefore remained based on, hitherto, unverified assumptions. A partial explanation for the lack of empirical support for these new theories is that most of the previous data collections efforts of demographers tended to aggregate data that cannot lend themselves to the careful econometric analysis needed to relate economic incentives with fertility choices at the individual level.[2] Cummins tries to remedy these problems by gathering and using individual-level data. Part of the failure of historical data to provide support to the new growth models is perhaps rooted in a theoretical shortcoming of these models, namely, the failure to integrate the microeconomic models of individual fertility behavior with demographic models based on innovation diffusion. Here, again, Cummins contributes to our understanding by proposing a theoretical modification to existing models.

Cummins collected data on English wills that allows constructing a database relating wealth, status, and fertility—in a similar manner to what Greg Clark and Gillian Hamilton did.[3] A more novel exercise is carried in France where existing demographic data was matched with wealth at death data, to provide a comparative analysis. The choice of France is more than appropriate as France was always considered an outlier in the demographic transition literature as its demographic transition came too early.[4] Cummins' major finding is that preservation of status was important and in the face of social mobility, limiting fertility seems to have been the strategy employed to preserve it.

Cummins develops a simple model, providing a theoretical foundation for the empirical findings. The model is a variant of the quality-quantity tradeoff model. In both models, parents' expectations for their children's well-being are taken into account in fertility decisions. In existing models, future well-being is achieved through costly investment in human capital which is rewarded in future income. In this model, Cummins introduces social status rather than income.

[1] Galor, "Stagnation to Growth."

[2] Guinnane, Okun, and Trussell, "What Do We Know"; and Guinnane, "Historical Fertility Transition."

[3] Clark and Hamilton, "Survival of the Richest."

[4] Chesnais, *Demographic Transition*.

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

The return to investment in human capital is contingent on the technological environment (production function). However, the return to social status is more complex and relates also to a social (political) environment that allows for social mobility. Cummins proposes income or wealth inequality as a proxy for social mobility and puts his model to the test. It performs well.

A mark of good research is not saying the last word on a topic. There are some loose ends in Cummins' fascinating account: the easy cheap shot is identification—the empirical analysis does not really take issue with causality and correlation. A dynamic version of the model whereby the demographic building block is embedded into a dynamic growth (macro) model may provide some directions for examining causality. After all, inequality (proxy for mobility) is not an exogenous factor and an environment measured this way is not independent of the way income (GDP) is generated. Moreover, can we talk about social mobility without migration—what do we know about the fertility of those that migrated? Another apparent problem is the comparability of fertility data for England and France, while for France Cummins uses the Henry female fertility data, the English data are based on heirs in wills, male acknowledged fertility, if you will.

The major implication of the model is that the rich (high status) are the first to reduce fertility in a similar way to the effect human capital has in the model. However, while Cummins treats them differently, we can view "status" as a special case of human (social). Finally, the model accounts for France and England, However, the relationship between inequality and fertility is too tempting to leave aside. The Nordic countries had lower inequality, nevertheless, their demographic transition occurred late why? Cummins' dissertation will certainly generate future research, setting both a standard of collecting micro-level data and looking beyond human capital to social capital and mobility, from the individuals to society.

JAMES FENSKE

James Fenske's dissertation brings cutting edge economic history to African history. Fenske contributes to the literature relating institutions to development and growth. The analysis of the relationship between institutions and growth has argued that the underdevelopment of the third world in general and Africa in particular is due to the lack of institutions protecting property rights. An important subset of that literature links geographical preconditions to the differences between institutions.[5] With respect to Africa, this was mainly related to colonial heritage and the international slave trade.[6] The empirical proof advanced by that literature rested on cross country panel data analysis, at times with the use of some clever albeit controversial instruments.[7] Most economic historians, myself included, remain skeptical of the findings reported by some of the more influential economists of our time. While European historical economic institutions are well researched by economic historians, African ones remained to a large extent untouched.

Fenske's main contribution is in bringing Africa closer to home. While the dissertation exhibits all the marks of state of the art economic history: a model and cross-section econometric analysis, the most important ingredient is providing us with a new data set and micro-level analysis of the model. In particular, in the tradition of the best crop of recent dissertations, Fenske goes out to collect archival data in Nigeria

[5] Sokoloff and Engerman, "History Lessons."
[6] Nunn, "Long-Term Effects."
[7] Ibid.; and Nunn and Puga, "Ruggedness."

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

relating to the Egba tribe. Unlike some of the famous papers written on the subject, Fenske does not pull a rabbit out of the hat—the reader can figure out the data generating process and is confident about the results shown.

The dissertation starts with a model—an extension of Largelof's model, in itself an extension of Domar's classic model that relates land abundance to slavery and the absence of property rights in land (Fenske adds polygamy).[8] While Domar's model provides good intuition, Fenske provides us with a dynamic version of the model—in the tradition of new growth models. He later moves to estimate a cross-section regression to provide support to his model. The following two chapters take this dissertation to the next level—the detailed analysis of institutions, of the sort that Avner Greif taught us.

Fenske documents the prevalence of property rights and their litigation for the Egba tribe. From the outside, this could have been yet another case of land abundance and no property rights. Going after original data, Fenske is able to show that land was not so abundant when the Egba first settled, he is also able to show that even when land is abundant, it could be heterogeneous in many dimensions rendering some of it more valuable.

In short, Fenske lays the foundations for the new economic history of Africa, a pioneer of sorts. In the tradition of the famous papers that Fenske improves on—he is tempted to generalize too much from his finding on two or three tribes for nineteenth- century Africa. Claiming to show the link between geography, institutions, and Africa's underdevelopment in such a deterministic way may miss some important questions: going back to Domar, land abundance was not unique to Africa in the nineteenth century. Slavery was commonplace, so was polygamy—why did some civilizations switch to monogamy (retaining slavery)? Why did some civilizations develop institutions that fostered sustainable growth? Put differently, why did Africa, the cradle of homo sapiens, remain underpopulated, such as to preserve the conditions favoring slavery. Why was agricultural productivity "stuck" at a level favoring the steady state of slavery in Africa, but not elsewhere? I think that explaining Africa's economic backwardness is still a formidable challenge—Fenske took an important step forward setting the standard for future research in this field.

PILAR NOGUES

Pilar Nogues revisits a large literature in economic history—related to bullion flows from America into Spain and Western Europe.[9] These bullion flows shaped the economic futures of Spain and countries such as the Netherlands. It inspired Hume's famous price specie flow mechanism. Nogues's dissertation concentrates on bullion smuggling from Cadiz in the eighteenth century and meticulously recreates that market.

The dissertation begins with a description of the bullion market in Cadiz and the bullionist measures enacted by the Spanish crown to prevent the outflow of precious metals. In the presence of the Spanish Crown's market intervention, one would expect that a black market develop. Nevertheless, the study of black markets eludes the researcher as very rarely we are in possession of data, prices, or quantities. In the second chapter, which is exemplary of research in economic history, Nogues was able to find archival data from French merchant houses from Marseilles on the exact working of the black market for bullion and how the mispricing of the Spanish bullion

[8] Lagerlof, "Slavery"; and Domar, "Causes of Slavery."
[9] Hamilton, *American Treasure*.

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

prices was arbitraged away. The archival data allows Nogues to recreate the process in detail and calculate the profitability of this arbitrage. In a clever exercise, Nogues provides a counterfactual to the Spanish market by comparing the free-trade bullion market of London-Amsterdam with that of London-Cadiz.

The following chapters reconstruct, using archival data the milieu of the foreign merchant community that was involved in smuggling bullion. The results show that French merchants from Provence and Bretagne were the most prominent of these traders—this is certainly a contribution to our understanding of the trading networks of the early eighteenth century and in particular the role played by French merchants, which is understated in existing historiography. Nogues reconstructs the institutional framework of the market in Cadiz and the precise workings of the smuggling business. She then proceeds to establish that the market for smuggled bullion could be characterized as an oligopsony, a crucial element for the model she constructs in the final part of the dissertation

The dissertation ends with a construction of a price-specie flow mechanism with an oligopsony. The model allows Nogues to analyze the Cadiz bullion black market and the smuggling equilibrium it entailed. The model is cleverly constructed and is a nice theoretical contribution to existing price-specie arbitrage models. The addition of the assumption of an oligopsony refines the results in an interesting way. From the Spanish government's point of view, the existence of an ologipsony, under certain price conditions, is preferable to a competitive smuggling equilibrium, because it leaves more metal in Spain.

Nogues has produced an outstanding dissertation in economic history that has that perfect mix of theory, archival research historical narrative. While the common tendency is to overgeneralize one's findings, Nogues's could have attempted to place her dissertation in a wider context. We learn about an interesting game played between Spanish governments, smugglers, and French merchants. What is missing are the motivations for the Spanish monetary policy over time—why do they play the game during some periods, yet in others break the rule by debasing the currency? Readers would also like to know the larger context relating bullion flows and trade—an important part of the previous literature—and how do they relate to Spanish monetary (economic) policy. Nogues's dissertation has brought micro-level data to help us properly understand issues relating to one of the important macro questions of the early modern period, an even greater contribution would have been to relate the microeconomic finding to the broader economic picture.

Rome was not built in a day and as economic historians, we should be grateful for the fine building blocks laid by the three finalists—they have advanced our knowledge and have moved the practice of economic history further afield.

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REFERENCES

Chesnais, Jean-Claude. *The Demographic Transition: Stages, Patterns, and Economic Implications*. Oxford: Clarendon Press, 1992.

Clark, Greg, and Gillian Hamilton. "Survival of the Richest: The Malthusian Mechanism in Preindustrial England." *The Journal of Economic History* 66, no. 3 (2006): 707–36.

Domar, Evesy. "The Causes of Slavery or Serfdom: A Hypothesis." *The Journal of Economic History* 30, no. 1 (1970): 18–32.

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

Galor, Oded. "From Stagnation to Growth: Unified Growth Theory." *Handbook of Economic Growth*. Amsterdam: Elsevier, 2005.
Greif, Avner. *Institutions and the Path to the Modern Economy: Lessons from Medieval Trade*. New York: Cambridge University Press, 2006.
Guinnane, Tim W. "The Historical Fertility Transition and Theories of Long-Run Growth: A Guide for Economists." Mimeo. Yale University, 2008.
Guinnane, Tim. W., Barbara S. Okun, and James Trussell. "What Do We Know About the Timing of Fertility Transitions in Europe"? *Demography* 31, no. 1 (1994): 1–20.
Hamilton, Earl J. *American Treasure and the Price Revolution in Spain, 1501–1650*. Cambridge, MA: Harvard University Press, 1965.
Lagerlof, Nils-Petter. "Slavery and Other Property Rights." *Review of Economic Studies* 76, no. 1 (2009): 319–42.
Nunn, Nathan. "The Long-Term Effects of Africa's Slave Trades." *Quarterly Journal of Economics* 123, no. 1 (February 2008): 139–76.
Nunn, Nathan, and Diego Puga. "Ruggedness: The Blessing of Bad Geography in Africa." NBER Working Paper No. 14918, Cambridge, MA, 2009.
Sokoloff, Kenneth L., and Stanley L. Engerman. "History Lessons: Institutions, Factors Endowments, and Paths of Development in the New World." *The Journal of Economic Perspectives* 14, no. 3 (2000): 217–32.

Comments on Baics, Fetter, and Wanamaker

Scholars in our field are like an extended family, brought together by a common love of economic history. The Economic History Association's dissertation prizes are our family's annual opportunity to welcome and honor new members. It is my pleasure to convene the dissertation panel for the Nevins Prize, and to comment on the dissertations of these three new additions to our family.

But these three panelists are not the only scholars joining the field of American economic history this year, and before I begin I'd like to say something about the others. I received twelve submissions for the prize. Many of the submissions that were not chosen as finalists were very strong works of economic history, and their authors show significant promise. It would not be an exaggeration to say that there were several impressive panels worth of dissertations submitted this year, and that some of the dissertations not chosen would almost certainly have been selected in years with less competition.

The panelists I have chosen have each written works that address important questions in economic history, and should be commended for having made valuable contributions to our field. Yet their dissertations are quite different from one another's, especially in their analytical approaches. All of them are quite methodologically sophisticated, but in very different ways. This diversity of approaches and methods is a great strength of our field, and a reflection of the many different ways in which good economic history can be written.

GERGELY BAICS

New York City's colonial charters gave it extensive powers to regulate commerce within its borders. Beginning in the nineteenth century, the city began to alter its system of retailing, from its tightly controlled public markets to a mostly unregulated

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

and spatially dispersed system of private stores. Making extensive use of archival sources, Gergely Baics' dissertation presents a comprehensive history of provisioning in New York. It is so thorough it is impossible to summarize succinctly, but I'll mention that he presents spatial analyses of how well different neighborhoods were served by butchers and grocers over time; he carefully constructs annual data on the volume of meat sold in the city, in order to analyze the evolution consumption patterns; and in one chapter presents a study of the rise and decline of one of New York's markets. Baics has used GIS software to produce a dissertation that is replete with richly detailed maps. His work is impressively sophisticated, and makes a significant quantitative contribution to the field of urban history.

Up until the late 1820s most New York neighborhoods were well served by public markets. But from that point on, the growth of the city significantly outpaced the expansion of the market system, and many neighborhoods were left without good access to a market. This created opportunities for informal vendors to step in and circumvent market regulations, and it also created political pressure for change. After years of significant increases in the city's role with its public markets, in 1843 the city finally opted to deregulate them, ultimately permitting unlicensed vendors to sell food outside of the markets. Baics argues that this did not simply reflect a shift toward greater privatization, or the ascendance of free-market ideology, as earlier scholars have concluded. Instead, he points out that the city was undertaking very expensive public works at the time, actually expanding the government's role in providing other public services, and deregulating the public markets freed the city of the significant financial burden of building new markets.

Much of Baics' dissertation is devoted to an analysis of the consequences of the liberalization of the city's market laws. This substantially increased the number of butchers selling meat outside the markets, and marked an important step in the city's evolution towards a modern system of retailing centered on stores. Although this change improved some neighborhoods' access to grocers and butchers, Baics argues that the liberalization likely lowered the quality of meat that was sold in some parts of the city. Part of the rationale offered for restricting provisioning to regulated public markets, after all, were concerns over public health. The meat offered for sale, and the cleanliness of market stalls, was often inspected by market officials, who enforced rules about the selling of unwholesome provisions. Moreover, the butchers within the market could observe what their competitors were selling, and expose any vendor selling diseased or unwholesome meat. The shift of meat selling away from markets, in Baics' view, may have contributed to an increase in foodborne illnesses, and perhaps also to higher rates of mortality. He offers some conjectures about whether the developments he documents in New York's provisioning systems may have contributed to the mid-nineteenth century declines in physical stature that have come to be known as the "Antebellum puzzle."

My only criticisms of this otherwise fine dissertation center on Baics' analysis of the causes and consequences of the liberalization of New York's market laws. In essence, these laws were a form of an occupational license, used to limit entry into the ranks of butchers. The repeal of these laws coincided with a number of similar liberalizations in the city and state, such as the state's free banking laws, and its decision to grant open access to auctioneering licenses, and I believe they can be interpreted as part of a broader process of eliminating forms of exclusive legal privileges undertaken by the Jacksonians. I am also somewhat skeptical of some of Baics' claims regarding the consequences of the market liberalization for the quality

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of the city's meat supply, firstly because the laws were widely circumvented, but also because by facilitating greater entry, the liberalization likely increased competition in many neighborhoods.

DANIEL FETTER

The current financial crisis has reignited debates about the appropriate role of federal policy in housing markets, and in particular whether the federal government should promote home ownership. Daniel Fetter's dissertation analyzes the period that saw the greatest rise in home ownership during the twentieth century, the 1940s through the 1960s, and the role of federal policies in promoting home ownership during that era. Fetter's dissertation makes use of both census data and some housing surveys undertaken in the 1940s which have not previously been analyzed by economists. His work is extraordinarily careful and precise, and analyses the details of the policies that are the focus of his work quite carefully. He also utilizes some very clever empirical strategies in testing a series of hypotheses that are well grounded in economic theory.

The vast increase in the rate at which American men born in the 1920s and early 1930s served in the military, in World War II and the Korean War, gave a huge proportion of that generation access to the veterans' home loan benefits provided by the postwar GI bills. Fetter begins his analysis by developing some theoretical predictions to take to the data: using a calibrated lifecycle model of housing and consumption choices, Fetter shows that the effect of the more generous mortgage terms made available to veterans should be greatest among the young. Fetter then empirically analyzes the impact of these veterans' home loan programs on subsequent home ownership using a regression discontinuity design. Cohorts reaching the age for military service just as World War II ended in 1945, and as the Korean War ended in 1953, were dramatically less likely to have been veterans relative to cohorts born just a few quarters before them. Fetter's methodology investigates whether there was a sharp change in homeownership rates from cohorts that served in these wars, compared to those born just late enough to have avoided military service. Since these cohorts, born just a few quarters apart, should have been otherwise quite similar, any large and discreet change in homeownership was likely due to the large and discreet change in veteran status. This is what Fetter finds: cohorts that served in World War II and the Korean War were much more likely to own homes. Consistent with the predictions derived from his model, these effects were largest among younger veterans in 1960, and diminished over time as those cohorts aged.

A question that arises in this analysis is whether the veterans' home loan benefits were responsible for these effects, or whether some other treatment effect of military service could have played a role. To investigate this possibility, Fetter estimates the effect of service in World War I among earlier cohorts on their subsequent home ownership, since World War I veterans were not granted home loan benefits, and presumably the treatment effect of military service itself would have been similar across the two wars. He finds that military service itself does seem to have important effects on home ownership, but most of his specifications show that the veterans' home loan benefits offered after World War II had substantial effects on home ownership.

A related question analyzed in Fetter's dissertation is whether military service during this era had any impact on marriage rates or fertility. In a similar empirical framework, again using a regression discontinuity design comparing cohorts born just a few quarters apart with sharply different rates of military service, Fetter finds that military service

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

had no discernable effect on marriage rates, but that it did have an effect on fertility: service in the Korean War led those cohorts to have more children than they otherwise would have. Fetter argues that the housing benefits available to these veterans likely contributed to greater fertility by relaxing the financial constraints faced by young families.

Home ownership also increased during World War II, well before the GIs returned home and began to take advantage of veteran's housing benefits, and Fetter investigates these patterns as well. Rent controls were imposed in many American cities during the war, and some contemporary observers, including Milton Friedman and George Stigler, argued that rent control programs induced many landlords to withdraw their housing from the rental market and sell it in the uncontrolled market for home sales. Fetter revives this hypothesis and tests it in a clever way. Rent controls were imposed in inconsistent ways across cities, and the difference between the controlled rents that were imposed and the market rates that prevailed prior to the imposition of the controls varied considerably. Using a sample of cities where he can measure the deviation between constrained rents and the previous market rents, Fetter finds that variation in rent controls was responsible for a significant portion of the variation in home ownership rates: where rent controls were most severe, home ownership increased the most. His empirical specification enables him to control for the rise in rents observed prior to the imposition of controls, and thus changes in demand for housing, and he finds that increases in demand alone were not responsible for his results.

MARIANNE WANAMAKER

The dramatic decline in American fertility observed over the nineteenth and twentieth centuries has been the focus of an enormous amount of research. But much of that scholarship has analyzed macro-level trends, such as the variation in fertility across states or counties. Marianne Wanamaker's dissertation is part of a newer generation of research that exploits the availability of searchable indexes of federal census manuscripts to create relatively large samples of individuals and households and follow them over time, and thus test theories of household behavior more directly. In particular, Wanamaker is interested in testing the implications of the "value hypothesis" of fertility, which holds that changes in the net return to having children drive changes in fertility. Wanamaker's dissertation presents tests of the value hypothesis of fertility using household-level data, and investigates whether the fertility behavior of different households responds to shocks to those households' net returns to having children.

Using manuscript census records, Wanamaker constructs and analyzes several household-level data sets around two "natural experiments" that changed the net returns to having children for some families. The first is the emancipation of slaves in the American South during and after the Civil War. Wanamaker begins her analysis by developing a simple model of household production in which enslaved labor, as well as the household's own members, can be utilized as inputs. In her framework, the emancipation of the slaves represented an enormous increase the price of labor inputs that would previously have been supplied by slaves, and thus alters the optimal amount of children for a household. Wanamaker's model of household production posits that slave children were substitutes for the family's own children, and enslaved adults, in particular adult women, were complements, in particular because they could serve as caretakers. The emancipation of the slaves therefore removed substitutes for a family's own children from some households, and complements for own children from

https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press

others, depending on the age and gender of the slaves they held. Thus the benefits of more children increased for some households that previously owned slaves, and the costs of more children increased for others.

Wanamaker's analysis of a random sample of southern households found in the 1860 and 1870 Federal Census estimates effects of emancipation that are generally consistent with the predictions of her model; fertility between 1865 and 1870 fell for households that owned adult female slaves, and rose for households that owned enslaved children. This creative and interesting test presents new evidence in support of the value hypothesis of households' fertility decisions, using a data set that would have been virtually impossible to construct only a few years ago.

But the interpretation of Wanamaker's results hinges on several questions that are difficult to resolve. The differences in slave holdings across southern households were not random, but rather were the outcome of those households' own preferences, endowments, and responses to local market conditions. If the factors that led certain households to prefer to hold particular kinds of slaves also influenced their subsequent fertility behavior, then they could be responsible for Wanamaker's results. Moreover, the numerous social and economic changes that confronted her sample households in the aftermath of the Civil War may have influenced their fertility behavior in a way that was correlated with their slave holdings. Finally, as with all data sets of households matched across censuses, sample selection may be an issue. Wanamaker is a good empirical economist and is well aware of these issues. She performs a series of well-constructed tests to investigate the influence of these factors on her results, and is mostly able to rule them out. However, the limits of the available data prevent her from resolving these questions completely.

Wanamaker's second "natural experiment" focuses on the process of industrialization, another factor long believed to play an important role in influencing fertility and the returns to having children. The State of South Carolina saw a rapid proliferation of textile mills within its borders during the last decades of the nineteenth century and the first decade of the twentieth, and Wanamaker constructs several samples of South Carolina households with which to analyze the impact of the arrival of a mill on the fertility behavior of local households. Wanamaker's analysis of her sample households finds lower fertility among residents of towns where a mill arrived during her sample period. But interestingly, these results are driven by lower fertility among households that moved into towns that received mills, rather than among households who had already been living in the towns.

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https://doi.org/10.1017/S0022050711001628 Published online by Cambridge University Press