doi: 10.1017/S0022050716000607

Summaries of Doctoral Dissertations

The Dissertations of Andrew Goodman-Bacon, Natacha Postel-Vinay, and Zachary Ward: 2015 Allan Nevins Prize Competition of the Economic History Association

It has been my great honor to serve as the Nevins dissertation prize convener for 2015. The set of submissions for the prize represented a wide spectrum of time periods and topics, and their breadth forced me to engage in literatures I might not otherwise have ventured into. The finalists stood out amongst their peers, but the quality of the overall pool reminded me that economic history remains a strong and vibrant field.

Many of my predecessors have commented on the life and times of Allan Nevins and on the qualities he found important in scholarly output. One of those qualities that Nevins emphasized, and which played an important role in the selection and awarding of the Nevins prize this year, was his belief in the pursuit of big and worthy topics. The three dissertations reviewed here are all characterized by the pursuit of such topics: Andrew Goodman-Bacon's measurement of the mortality effects of Medicaid and Community Health Centers, Natacha Postel-Vinay's deep-dive into the causes of Great Depression bank failures in Chicago, and Zachary Ward's new estimates of the selection of return migrants from the United States in the era of the Mass Migration are all taking on big and worthy topics.

In addition to emphasizing the import of the question, Nevins was also passionate about the broader accessibility of academic research. His background as a journalist and media contributor was a likely factor in the development of this belief, and the finalists for this year's prize would have made him proud on this front. In particular, the three finalists nicely tie their work to more recent economic policy questions and broader social science. In doing so, they make their work accessible to other academics, and perhaps to non-academicians as well.

Each of the authors represented do what economic historians do best: strategically bringing new data to answer a well-defined question and deriving implications that show us the relevance of economic history for understanding how markets and individuals behave—in the past and in the present.

ANDREW GOODMAN-BACON

Goodman-Bacon's dissertation, "Three Essays in Health Policy Evaluation," is a collection of three chapters assessing the effects of Great Society-era public programs. He begins with Medicaid, and his first two chapters measure the effect of the initial Medicaid rollout in the 1960s on the mortality and health-seeking behavior of treated individuals. It is important to note that his is not the first paper looking at the impact of Medicaid on health and health-seeking behavior (Currie and Gruber 1996a, 1996b; Sommers, Baicker, and Epstein 2012; Meyer and Wherry 2015). But the extant literature focuses on expansions subsequent to the program's debut, and therefore measures the impact on newly enrolled participants, many of whom are of higher socioeconomic status than the original enrollees.

https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

In addition to being the first to measure the effect of the Medicaid program's advent, the strength of these first two chapters is in the identification design. A major roadblock in identifying the effect of the Medicaid program is that all states eventually adopt Medicaid in the 1960s, and the timing of the implementation is highly endogenous; states that adopted Medicaid early versus later are unquestionably different *ex ante*. This renders the extensive margin of adoption unusable for identification. However, leaning heavily on his economic history predecessors, Goodman-Bacon astutely notes that the generosity (intensive margin) of each state's Medicaid program is legislatively linked to the generosity of their state welfare programs that preceded Medicaid (Moehling 2007; Alston and Ferrie 1985). Goodman-Bacon then uses this pre-Medicaid variation in generosity to compare the "high" and "low" generosity states to each other, conditional on the year in which they enacted Medicaid. In this way, Goodman-Bacon can calculate an intent-to-treat effect on child mortality and healthcare utilization. He finds a significant reduction in the mortality of non-white children and a corresponding increase in their uptake of medical care. White children, on the other hand, were essentially unaffected. Goodman-Bacon attributes this racial difference to racial differences in income-based eligibility.

Goodman-Bacon's results are a clear contribution to the literature on this topic, but it is important to note that, much like the extant literature, his estimates are based on the behavior of the marginal Medicaid participant rather than the universe of initial enrollees. In relying on differences in the generosity of the program across locations for identifying variation, the resulting estimates reflect differences in those individuals who are covered by Medicaid in generous states but whose peers are not covered in less generous states. These marginal individuals, although perhaps more representative of the poorest Americans than those individuals who became eligible under subsequent Medicaid expansions, remain a second-best study population.

The dissertation's third chapter on community health centers (CHCs) is joint with Martha Bailey. The authors use the somewhat chaotic nature in which CHCs were constructed as plausibly exogenous variation in population access to primary care. They calculate an adult mortality reduction attributable to the expansion of CHCs implying that these facilities were responsible for between 20 and 40 percent of the overall reduction in a calculated poor/non-poor mortality gap in the mid-1960s. Using information on the costs of these centers, the authors' cost-benefit calculations indicate that the expansion of CHCs was a more cost-effective method of reducing adult mortality than the United State's signature Medicare program. One of the more interesting conclusions of the paper is that health insurance coverage, alone, is an ineffective tool for reducing health disparities if it is unaccompanied by proximate providers. Although the program also lowered the cost of prescription drugs for participants, the growth of CHCs increased the number of individuals reporting a "regular source of care" in the chapter's analytic sample by 23 percent. The authors make a convincing case that this access is a critical part of the mortality reduction they document.

The conclusions of this dissertation combine with work by Bailey and others to show just how important Lyndon Johnson's unconditional war on poverty was for the relative advance of black Americans in this period. Indeed, their work indicates that our understanding of the Civil Rights Era, and our focus on labor markets and on the expansion of voting and other civil rights, has been too narrow in ignoring the equalizing effects of these social programs.

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NATACHA POSTEL-VINAY

Postel-Vinay's dissertation, "Sitting Ducks: Banks, Mortgage Lending, and the Great Depression in the Chicago Area, 1923–1933," examines the causes of bank failures in the Great Depression with an eye on lessons for bank balance sheet regulation. She utilizes the bank failure pandemic in Chicago in the early years of the Great Depression to explore potential opportunities for regulator actions that would shield banking systems from the sorts of systemic risk made evident after 1929 and again in the most recent financial crisis. One notable consequence of the 2008 crisis was a renewed appreciation for the autopsy work many historians have done with respect to the Great Depression (Eichengreen 2012). (Indeed, a favorite graduate student game in the fall of 2008 was to read the front page of *The Wall Street Journal* and count the number of financial historians quoted therein.)

Postel-Vinay's work fits squarely in that legacy, as she performs yet another autopsy on the banks of that era. To do so, she collects data on the balance sheets of Chicago banks from 1923 through 1933. With new data and new hypotheses, she finds that the rate of mortgage composition of banks' balance sheets substantially affected their probability of surviving the first few years of the crisis. Indeed, an ordered logistic (and hazard-rate) analysis of the time to failure indicates that the percentage of (highly illiquid) mortgages in the banks' holdings were significant, positive indicators of the probability of a bank's collapse.

Much of the strength of Postel-Vinay's work is the simplicity and linearity of her argument. She uses a simple tool to make her main argument, dividing banks up into those that failed by June 1931, by June 1932, and by June 1933, and those that survived. In a powerful visual result, she plots the course of bank balance sheet items over the course of the crisis for each of these groups, beginning in the early 1920s well before anything is on the horizon. In this way, Postel-Vinay shows a stark separation of the real estate loans to total assets value by each of these failure categories. Other balance sheet ratios do not exhibit this same pattern. Critically, banks in each of these categories displayed remarkably similar deposit losses over the course of the crisis, implying that banks all faced the same impetus for failure. The correlation between these failure timelines and the mortgage intensity of their assets constitutes the main evidence in support of Postel-Vinay's hypothesis.

Turning to the mechanisms at play, Postel-Vinay notes that real estate loans' predictive power over future failure says nothing about whether it was quality or illiquidity of those assets that mattered. Postel-Vinay first notes that these loans held a 50 percent loan to value rate, but the decline in housing prices was not nearly that great. The implication is that these mortgage loans remained net positive assets for the bank and highlighting the potential role of illiquidity in the overall story. Postel-Vinay takes a clever approach to pushing this argument even further. She exploits the fact that most Chicago banks were neighborhood banks and then uses data from other sources to plot the fall in land values in the neighborhood of each bank. Those land value decreases are uncorrelated with failure rates, indicating that the quality of assets was a secondary issue to their fundamental illiquidity. Although this is interesting first-brush evidence in favor of illiquidity over quality, the empirical analysis in this portion of the dissertation was remarkably simplistic and would have benefited from a more sophisticated econometric tool.

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In her second chapter, Postel-Vinay highlights the importance of debt dilution, via secondary mortgage markets, in the illiquidity of bank-issued mortgages. Again, the links to the 2008 crisis are front and center. Postel-Vinay shows that the 50 percent down payment rule in place at this time was rarely met and, instead, a second mortgage market was active. This second mortgage market served to delay the foreclosure process and make mortgage assets that much more illiquid. As an example, she provides the statistic that a foreclosure in Illinois took 18 months at the height of the crisis. As further evidence that these secondary mortgage markets had an effect on illiquidity, Postel-Vinay shows that American cities with low loan-to-value ratios ended up with higher foreclosure rates, a perhaps counter-intuitive result. She hypothesizes that this result is consonant with her mortgage asset illiquidity story of bank failure if low loan-to-value cities were also characterized by sizable piggyback mortgage markets that served to heighten illiquidity.

Postel-Vinay's third chapter is a work of historical narrative where she returns to primary sources to tell the story of mortgage backed security markets in this era. Relying on Kenneth Snowden (1995), among others, she highlights the myriad criteria for efficiency that were violated by these early attempts, and she convincingly argues that some of those efficiency concerns were fixed in the 70 years that followed but others were not. Although her work here is quite different in its lack of both collected data and empirical hypothesis testing, she works in a way that demonstrates the value of economic history to the economics profession overall.

The conclusions of Postel-Vinay's work, and specifically the implications regarding illiquidity over poor loan quality as drivers of bank collapse, have important consequences for understanding the causes of bank failure in the Great Depression. But they also hold lessons for the development of lender-of-last-resort policies in responding to banking crises. In the process, Postel-Vinay's work adds yet another piece of historical evidence for understanding and responding to financial crises faced in more modern times.

ZACHARY WARD

Ward's dissertation, entitled "The Circular Flow: Return Migration from the United States in the Early 1900s," can be summed up in the following statement, with which he closes his dissertation:

> *The migrant stock is made up of two flows; only paying attention to one side of the flow captures half of the story of the complex mechanics of migration in the United States*.

Indeed, Ward's dissertation is dedicated to measuring the relationship between return migration and the economic realities immigrants faced in their receiving countries.

Of course, Ward follows a strong tradition among economic historians in this respect, and recent work by Ran Abramitzky, Leah Platt Boustan, and Katherine Eriksson (2012, 2014) on this topic has spent much time and effort on characterizing return migrants because only in understanding their selection can we understand the assimilation patterns of those who remain. From the work by Abramitzky, Boustan, and Eriksson, we know that migrants are negatively selected relative to the migrant population as

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a whole. Despite these well-known articles, Ward nevertheless advances knowledge substantially on this topic.

In Chapter 1, Ward proposes a simple labor market model, which implies that a quota restriction on low-skilled immigrants should present a labor market boon to those who are already part of the receiving country's low-skilled workforce. Ward generates a continuous measure of quota restriction for immigrant groups and shows that changes in this restriction variable correlate nicely with sharp decreases in the number of short-term migrants and a corresponding uptick in the number of medium- and long-term migrants. Because they delivered a boon to current market participants, labor market shocks from the quotas appear to have encouraged longer, not shorter, stays in the United States.

At the beginning of this analysis, Ward sets up two competing models of return migrants. In one model, the "target saver" model, workers stay in the United States until they have reached a target amount of savings and then return to their home countries. The prediction from this model is that an increase in the wages of these workers will result in lower duration stays in the host country. On the other hand, if migrants are simply maximizing labor market returns and returning to their home countries if the realities of the host country labor market fall below their expectations, a positive shock to wages in the host country will encourage less return migration. One thing we might conclude from Ward's initial results, then, is that the majority of return migrants in this sample are not target savers.

The second chapter takes a clever turn on the previous one, merging in data on the expected residence duration of incoming migrants. The practice of soliciting expectations over labor market outcomes has experienced a renaissance in the economic literature in recent years, and Ward's data collection in this chapter represents a novel advance in pushing this methodology frontier into economic history. Ward collects the incoming ship manifests of a representative sample of incoming groups at Ellis Island, where the expected duration of residence is recorded. With this cohort- and ethnicity-specific information, Ward can then measure the degree to which actual duration in the United States differed from intention and make some more robust conclusions regarding the circumstances leading to return migration. These data allow him to answer questions that no other sample would allow, and that includes the linked samples that many of us are so fond of in this area. Indeed, he is measuring expected labor market outcomes versus realized labor market outcomes for a population that preceded by 100 years our current practice of soliciting expectations.

In this way, Ward is able to determine whether the negative selection observed in the work by Abramitzky, Boustan, and Eriksson was to be expected when immigrants arrived on U.S. soil or, alternatively, if the U.S. labor market induced selection in one direction or the other through asymmetric shocks. He shows that migrants who out-migrated were negatively selected on skill, consistent with the previous literature, but that this selection was stronger than would have been expected given the expectations stated at arrival on Ellis Island. Ward concludes that "shocks after arrival intensified the negative selectivity pattern by driving out low-skilled migrants." He also shows that in the era of immigration quotas, the observed negative selection was somewhat curtailed as lower-skilled immigrants stuck around to reap the benefits of a negative labor supply shock.

https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

In Ward's final chapter, which is done jointly with Edward Kosack, he undertakes a final piece of intense data collection, including the heights of Mexican immigrants as recorded in border manifests in Texas and Arizona in 1920. With these newly-collected data, Ward and Kosack then compare the distribution of heights of these registered migrants to two known distributions of migrants from the Mexican population to document the level of selection into migration. They then link these men forward to the 1930 census of the United States and Mexico to identify return migrants and stayers. Because the heights of these individuals presumably do not change over time, the fact that the distributions of the two groups (stayers and return migrants) are essentially indistinguishable implies no selection into return migration.

Ward's dissertation involves three separate data collection efforts that serve to substantially advance our understanding of the labor market realities encountered by European and Mexican migrants in the early years of the 1900s. His use of solid theoretical frameworks to help organize and interpret the results is superb, and the state of knowledge regarding these topics has been substantially advanced as a result.

MARIANNE WANAMAKER, *University of Tennessee*

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https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

Three Essays in Health Policy Evaluation

The mid-1960s saw the most expensive and ambitious expansion of public provision and financing of health care for poor families in U.S. history. A new means-tested public health insurance program—Medicaid—grew to cover 18 million people by 1970. A network of low-cost primary care clinics—Community Health Centers—spread from an initial location in Mound Bayou, Mississippi in 1965 to more than 600 counties by the end of the 1970s.[1] Within a decade, these new targeted health programs accounted for 10 percent of personal health expenditures in the United States.[2]

Medicaid and Community Health Centers (CHCs) are still the basis of the health safety net, but they have survived amid considerable controversy. Medicaid costs, for example, have persistently grown faster than projections, imposing a considerable burden on states, who share in the program's financing (Davis and Schoen 1978). In addition to the highly publicized refusal of many governors to accept federally funded Medicaid expansions under the Affordable Care Act, several states have recently considered opting entirely out of the program. CHCs, too, have changed over time, initially in response to criticism that they provided too many services and focused too much on the urban poor. Despite their long history, uncertainty remains about the effects of these programs on their recipients.

Chapters 1 and 2 of my dissertation estimate the effect of Medicaid's original introduction on children's outcomes. Medicaid was included in the 1965 Social Security Act amendments and states (except Alaska and Arizona) took it up between 1966 and 1970. States received much higher federal cost-sharing than they had under the small, pre-existing health programs, and in exchange had to cover basic medical services (inpatient, outpatient, physician, lab/x-ray, and nursing home) and provide coverage to everyone receiving cash transfer programs ("categorical eligibility"). These features meant that (1) Medicaid implementation represented a large, sudden increase in the availability of meaningful public insurance coverage and (2) this size of this jump varied widely according to state welfare participation rates (which children almost always got through the Aid to Families with Dependent Children program (AFDC)).

Medicaid's roll-out and the categorical eligibility requirement motivate a difference-in-differences design that compares outcomes before and after Medicaid began (first

Andrew Goodman-Bacon is a Robert Wood Johnson Foundation Health Policy Scholar at the University of California, Berkeley and a Research Assistant Professor in the Department of Economics at Vanderbilt University, 2301 Vanderbilt Place, Nashville, TN 37235-1819. E-mail: andrew.j.goodman-bacon@vanderbilt.edu. This dissertation was completed in 2014 in the Department of Economics at the University of Michigan under the supervision of Martha Bailey (Chair), John Bound, John DiNardo, and Helen Levy.

I gratefully acknowledge the financial support of the NICHD (T32 HD0007339) UM Population Studies Center Traineeship, the University of California-Berkeley's Center on the Economics and Demography of Aging (NIA 2P30AG012839), and the Robert Wood Johnson Foundation's Health Policy Scholars program.

[1] CHCs were originally called Neighborhood Health Centers, and are now part of a larger network of centers called Federally Qualified Health Centers, only some of which receive federal grants.

[2] This is based on National Health Expenditure Accounts data, available here: https://www.cms.gov/research-statistics-data-and-systems/statistics-trends-and-reports/nationalhealthexpenddata/nationalhealthaccountshistorical.html.

https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

difference) in states with higher and lower rates of categorical eligibility (second difference). To measure child categorical eligibility, I use the AFDC rate that was in place in each state in the year of Medicaid implementation. This equals the size of the initial post-Medicaid jump in eligibility and provides a way to order states by the size of their eligible populations that is fixed over time.[3]

Comparing outcome changes across initial AFDC rates is likely to capture the effect of Medicaid for a number of reasons. First, cross-state variation in AFDC rates was stable at least as far back as the 1940s (Moehling 2007), which means that it did not emerge simultaneously with factors affecting poor children in the 1960s. Second, AFDC participation varied primarily because of institutional factors such as state constitutional provisions, traditions of generosity, labor market structure (Alston and Ferrie 1985), or overt discrimination. Consistent with this, I show that initial AFDC rates are uncorrelated with levels and trends in child poverty, family structure, infant and child mortality rates, birth weight, hospital capacity, private insurance coverage, and the expansion of other War on Poverty programs such as Food Stamps, Head Start, or CHCs.[4] Finally, using newly entered data on children's *use* of public medical benefits from 1963 to 1976, I show that initial AFDC rates strongly predict increases in children's public insurance use. For each percentage point difference in the share of families on AFDC, the share of children who received Medicaid grew by 4 percentage points began (s.e. = 1.01).

Chapter 1 uses this research design to show that Medicaid implementation improved infant and child health. Using a state-by-year panel of white and nonwhite mortality rates from 1950 to 1979, event-study models show directly that higher- and lower-AFDC states had indistinguishable trends in log age-adjusted child mortality rates for 16 years before Medicaid but that mortality fell in higher-AFDC states immediately after Medicaid began. Because there is so much more variation in nonwhite AFDC participation (the variance of initial AFDC rates is 50 times larger for nonwhites than whites), these estimates are most precise for nonwhite children. Each percentage point in initial AFDC rates is associated with a 1.4 percent reduction in post-Medicaid nonwhite child mortality (s.e. = 0.34).

Medicaid's mortality effects are strongest for two groups: neonates and children ages 1–4. Several pieces of evidence suggest that the infant effects come from improved labor and delivery care rather than from improvements in health at birth. Medicaid has its largest mortality effect in the first few hours after birth, but does not affect health outcomes such as birth weight and the sex ratio. Moreover, estimates from survey and administrative data suggest that Medicaid increased the share of births occurring in the hospital, and time series evidence from California show large shift of births from public to private or non-profit hospitals (California Public Health Service

[3] Because of large differences between white and nonwhite children in the level and the spatial patterns of AFDC receipt, I calculate both my measure of categorical eligibility and my outcomes by race throughout the analysis. I combine archival data on AFDC recipients (DHEW 2011) with administrative data on total caseloads and population to construct a race-specific AFDC participation rates.

[4] The cross-sectional variation in AFDC rate also obviates the need to compare states that implemented Medicaid at different times. This strategy has been used elsewhere (cf. Strumpf 2011), but in this context I show that Medicaid timing is correlated with pre-existing trends in mortality.

https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

1973).[5] The effects among young children are driven by infectious disease deaths that were considered treatable at the time (Beeson 1980), rather than by untreatable conditions or external causes. This is consistent with an important role for primary care and prescription drug coverage in reducing child deaths.

Chapter 2 uses restricted geographic identifiers in the 1963 and 1970 Surveys of Health Services Utilization and Expenditure to test whether Medicaid implementation affected the use of care. The results suggest that Medicaid implementation increased insurance coverage and the probability of seeing a doctor but had little effect on hospital admissions.

These results contribute to an extensive literature in economics on the effects of Medicaid on children stemming from Currie and Gruber's (1996a, 1996b) work on eligibility expansions from the 1980s (for a summary see Buchmueller, Ham, and Shore-Sheppard 2015). Like mine, this work finds that Medicaid coverage increases health care use and reduces infant and child mortality, but the associated effects on insurance coverage are relatively small and the implied treatment effects on newly insured children (assuming that *only* these children benefitted) are implausibly large: –84 to –188 percent, depending on the study. My estimates, on the other hand, imply that Medicaid reduced mortality of treated children by about 20 percent, and ultimately lowered aggregate nonwhite mortality rates by about 11 percent.

Chapter 3 (with Martha Bailey) turns to the Community Health Center program (Bailey and Goodman-Bacon 2015). Soon after the passage of the 1964 Economic Opportunity Act, administrators in the Office of Economic Opportunity (OEO) discovered that health problems and little access to care limited participation in human capital and community development programs. In response, they initiated the CHC program in 1965 with eight development grants, and by 1974 CHCs existed in 117 counties. Unlike Medicaid, which financed care from existing sources, CHCs directly provided low-cost care in poor communities with a focus on auxiliary services such as transportation, in-home follow ups, and outreach.

To estimate the effect of CHCs on health, we exploit their staggered roll-out across counties under the War on Poverty. OEO administrators report an atmosphere of "great administrative confusion" (Levine 1970) soon after the Economic Opportunity Act passed, and we show that this led to a pattern of CHC grants that were largely uncorrelated with county characteristics (however, urban counties with more doctors were more likely to get CHCs). We combine primary source materials on CHCs with archival data on grants made by the OEO to construct a variable that measures if and when each county received its *first* CHC between 1965 and 1980. This is the basis of a difference-in-differences design that uses variation in the existence and timing of CHC grants to estimate the program's effect on county-level mortality rates. Using the first CHC grant

[5] While hospital desegregation induced by Medicare's passage in 1965 provides a plausible alternative explanation for these results (cf. Almond, Chay, and Greenstone 2006), several features of the analysis rule it out. First, most of the South implemented Medicaid in 1970, and the event-study results do not show a pre-Medicaid trend break that would be consistent with a desegregation effect. Second, the regression specification includes region-by-year fixed effects. Third, the effects are robust to dropping all or part the South. Fourth, hospital desegregation primarily affected post-neonatal infant mortality due to gastrointestinal disease, while my effects are almost entirely due to changes in first-day mortality, long before such infectious diseases could take their toll.

https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

is crucial to the design because administrators may have funded subsequent centers in a county to either compensate for low-performing ones or expand successful ones, both of which would lead to a spurious correlation between the number of CHCs and health outcomes. The county-level nature of the CHC program is also important because it allows us to control for state-by-year effects, which net out the state-level effect of potentially confounding programs such as Medicare and Medicaid.

The results show that CHCs had a large immediate impact on the mortality of residents aged 50 and older. Deaths from cardiovascular related causes fell sharply and the overall effect on age-adjusted mortality rate for this group was about 2 percent, or between 7 and 13 percent among the subgroup who actually used CHCs. The results are similar for those over 65 who were covered by Medicare (which suggests that providers affect health even for the universally insured) and for those under 65 (which suggests that Medicare does not account for the treatment effects). The magnitudes also fit well with the results from randomized field trials of new anti-hypertension medication from the time, suggesting that both the low-cost provision of drugs and CHCs' follow-up efforts played a role in the program's effects.

Together these chapters use the unique historical circumstances of the of Lyndon Johnson's Great Society programs to extend our understanding of health safety net programs. The results show that these programs, Medicaid and CHCS, had large and previously underappreciated benefits.

ANDREW GOODMAN-BACON, *UC Berkeley and Vanderbilt University*

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Sitting Ducks: Banks, Mortgage Lending, and the Great Depression in the Chicago Area, 1923–1933

The recent financial crisis has revived interest in the causes of bank failures. A lively debate on U.S. Depression banking panics has drawn increasing attention to the importance of illiquidity and falling asset values as causes of bank failure. On the one hand, there is compelling evidence that falls in the value of bank assets had a significant impact on the probability of survival (Calomiris and Mason 2003; Temin 1976). On the other hand, there is also evidence that liquidity mattered (Friedman and Schwartz 1963). For instance, Mark Carlson, Kris J. Mitchener, and Gary Richardson (2011) showed that liquidity provision by the central bank reduced the risk of bank failure.

These results highlight the fact that both insolvency risk (falls in asset values) and illiquidity risk can contribute to bank failure risk. In fact, deposit withdrawals rarely occur in the absence of a shock to asset values. As depositors are usually risk-intolerant, even small shocks to insolvency risk can cause solvent banks to fail through large deposit withdrawals.

The central problem is thus not so much to determine which of these two factors caused banks to fail; rather it is to determine the relative importance of each. A pertinent question to ask is how important endogenous illiquidity risk was, above and beyond any observed increase in insolvency risk. Bank failures could have occurred either because the shock to assets was very large, or because only a small shock occurred but those banks were highly illiquid. For instance, imagine two banks that have identical declines in their asset values and have the same leverage, which means they have identical increases in insolvency risk. As a consequence, both banks experience similar deposit outflows. But one of them has enough cash to handle those withdrawals, while the other does not, and consequently fails. This would be an example of cross-sectional differences in survival primarily driven by liquidity risk. Note that what is driving failure risk here is not exogenous liquidity risk (deposit withdrawals) but *endogenous* liquidity risk: the fact that the second bank was less liquid *ex ante* than the first one.

Natacha Postel-Vinay, Postdoctoral Fellow, Department of Economics and CAGE, University of Warwick. E-mail: n.postel-vinay@warwick.ac.uk. This dissertation was completed under the supervision of Olivier Accominotti and Albrecht Ritschl at the London School of Economics.

https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

The aim of this dissertation is to answer this question for Great Depression Chicago, which had one of the highest urban bank failure rates in the country. Most Chicago banks were small community banks that catered to their local community. By looking at their balance sheet data from as early as 1923, and by focusing on items specifically linked to their *ex ante* liquidity, I find that pre-crisis liquidity risk management played a role in causing them to ultimately fail. While liquidity risk was considered an important aspect of bank management in the late nineteenth century and early twentieth century, it was then replaced with a greater focus on credit risk and capital holdings. This dissertation suggests that both aspects of bank management are equally important: while capital is essential, assets' inherent liquidity should not be disregarded.

Chapter 1 analyses balance sheet ratios from 1923 to 1933, and finds that while all banks faced equally large and heavy deposit withdrawals, those which had been more heavily engaged in mortgage lending *ex ante* were more likely to fail. In theory, mortgages could have mattered due to a lack quality: borrowers unable to repay or falls in land values could have forced banks to suffer losses on these loans. But they also could have mattered due to their lack of liquidity: long maturities, the absence of secondary markets, and the impossibility of rediscounting these loans at the Federal Reserve meant that they were inherently less liquid than other types of loans. Looking at the existing evidence, low quality seems unlikely to be the main culprit. Most mortgages had a 50 percent loan-to-value (LTV) ratio, while land values in Chicago did not fall by more than 50 percent, suggesting that banks could not have made any substantial losses on them. A multinomial logit model using banks' locations and geographical variation in land values within Chicago provides further evidence of this hypothesis.

Chapter 2 zooms in on the nature of mortgage contracts in the 1920s. It finds that defaults on first mortgages made by banks partly resulted from the fact that most borrowers could not actually make the 50 percent down payment. They had to take on a second mortgage from a different lender, which had a substantial debt dilution problem. While this did not induce any mortgage losses for first mortgage lenders (banks) – given the 50 percent LTV—it increased the illiquidity of such loans as the foreclosure process in Illinois took over 18 months on average. This would not have been problematic in the absence of bank runs, but given their widespread occurrence, it did increase the risk of bank failure. Interestingly, debt dilution is still cause for concern. The 2000s witnessed a rise in "piggyback" mortgage lending, which according to recent research led to similar debt dilution issues (LaCour-Little, Calhoun, and Yu 2011).

The third chapter asks whether mortgage securitization would have increased the liquidity of mortgages in 1920s Chicago, and uncovers the fact that many banks did indeed engage in some form of securitization. While mortgages on banks' books usually remained unsecuritized, I find that banks often issued mortgage bonds off-balance sheets. Securitization can in theory increase the liquidity of long-term assets. But it was not the case then due to a lack of transparency on those bonds and the fact that banks did not explicitly guarantee them, which led to moral hazard.

Today, banks securitize mortgages by pooling them and dividing them into securities with different credit risks attached to them. This process is usually undertaken

https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

not by the bank itself but by a special purpose vehicle or conduit, which packages the mortgages into securities and issues asset-backed commercial paper to fund them. The securities and the commercial paper appear off the balance sheet of the original bank, but the original bank's risk is not completely separated from the conduit's risk as it usually provides implicit guarantees or "liquidity puts" to the conduit. This means that the sponsoring bank is indirectly subject to liquidity risk through the maturity mismatch between the conduit's long-term assets underlying mortgage-backed securities and its very short-term liabilities—asset-backed commercial paper—which need to be rolled over overnight (Claessens et al. 2012).

Moreover, the original bank usually purchases some of its own mortgage-backed securities from one of its special purpose vehicles, which end up on the asset side of its balance sheet. It funds these securities through repos ("repurchase agreements"), which are short-term liabilities collateralized by them and, like asset-backed commercial paper, also need to be rolled over, often overnight. This means that the bank itself is directly subject to liquidity risk through its maturity mismatch between the long-term assets underlying the mortgage-backed securities it bought and its short-term funding through repos, which are uninsured liabilities.

The fact that securitization does not eliminate liquidity risk has been recently emphasized by a number of authors (Brunnermeier 2008). While it does not eliminate it, it can reduce it, but only if it is done in the right way. One of the main problems in the recent crisis was that banks faced only the "pipeline" risk of holding mortgages for a few months until they were passed on to another entity. Their liquidity puts to conduits were only implicit, and when they did take back these entities on their balance sheets during the crisis for reputational reasons, they were inadequately prepared to take on those new risks.

Despite major differences in the complexity of the securitization process, Chicago mortgage bonds in the 1920s suffered from similar inefficiencies. Moral hazard was greatly increased by the fact that banks only provided implicit guarantees to investors in such bonds. When the liquidity crisis manifested itself, for reputational reasons banks often did take back some of those securities, while being in fact unprepared to take on such new risks. In order for banks to increase the liquidity of mortgages through securitization, therefore, they need to be liable for the credit risk associated with them. Covered bonds are more transparent and constitute claims not only on the underlying assets but on the actual cash flow of the institution that issues them (Calomiris 2008). This can significantly reduce moral hazard while still increasing the salability of loans and their risk distribution to different types of investors.

More fundamentally, banks still need to be aware of liquidity risk. Maturity transformation is an essential feature of modern banking, and no bank will ever be perfectly hedged in terms of its maturity profile. Nevertheless, given the funding illiquidity risks that persist to the present day despite the establishment of deposit insurance, a balance needs to be struck between long-term lending and liquidity maintenance. Making banks responsible for their liquidity risk management—not just for their credit risk management—is an idea that has only taken hold in the past few years.

This does not rule out a role for lenders of last resort as a within-crisis solution. But it does suggest a role for regulatory authorities in crisis prevention, namely ensuring that

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banks meet liquidity requirements such as maintaining healthy cash ratios. This is all the more important given that central banks cannot always accurately predict the quality of banks' collateral (especially in the case of assets maturing at a much later date), making central banks' task a highly complex and possibly imperfect one (Goodhart 2010).

The results of this dissertation also invite a reassessment of the role of real estate in the Great Depression. While largely unmatched, Chicago's real estate boom resembled both in character and magnitude the suburban booms of other major cities in the East North Central region. This region also experienced one of the highest numbers of bank suspensions in the country. A number of recent papers have shown that, in the aggregate, the direct contribution of real estate to the decline in economic activity was small (Field 2014; White 2014). My thesis assesses its possible indirect contribution via the banking channel.

NATACHA POSTEL-VINAY, *University of Warwick*

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https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

The Circular Flow: Return Migration from the United States in the Early 1900s

An implicit assumption often made when modeling migration is that moves are unidirectional—from poorer to richer countries—and that they are permanent. This assumption may have been valid in the early decades of the United States when migrants boarded sailing ships from Europe and endured what must have been a harrowing journey across the Atlantic—a journey one would be unlikely to repeat. Yet at the end of the 1800s and the early 1900s, the rate of return migration rapidly increased. This is mainly due to two developments: the shift of shipping technology from sail to steam, which dramatically lowered the time costs of travel, and the shift of migrant composition from the "Old" source countries of Northern and Western Europe to the "New" source countries of Southern and Eastern Europe. These new migrants returned at higher rates (Cohn 2009; Gould 1980), which also goes against simple income maximization as these migrants would have benefitted the most from the higher real wages in the United States.

This dissertation studies temporary migration in the early 1900s, a time period uniquely well-suited for analysis. First, return rates were astonishingly high: outflows have been estimated to be as high as 60 to 75 percent of inflows, suggesting that the average incoming individual was a temporary rather than a permanent migrant (Bandiera, Rasul and Viarengo 2013). Second, there were significant policy and economic shifts. In particular, the long-standing open-door policy abruptly changed with the introduction of restrictions based on quality (e.g., the 1917 literacy test) and quantity (e.g., the 1920s migration quotas); further, the largest fall in the business cycle occurred during the Great Depression, offering a prime setting for analysis of return migration during downturns in the economy.

The final, and perhaps most important, reason for studying temporary migration in the early twentieth century is that data actually exist. This time period is the only one in U.S. history when the country systematically tracked individuals returning to their source country. As this tracking system is no longer in place, temporary migration is a rare topic where there is better data historically than in the present day. Another advantage of the historical data is that when incoming migrants arrived in the country, they revealed their expected length of stay, whether permanent or for a couple of years, months, or even days. This helps to separate return migrants into two different groups: those who planned to return home, perhaps after accumulating savings for investment or consumption at home, and those who unexpectedly returned home, perhaps due to failure in the labor market. A final data source, the recently digitized censuses, allows for matching of individuals from arrival records to the United States or source country census, providing an additional and valuable source of microdata.

The first chapter of the dissertation, co-authored with Michael Greenwood, explores how the rate of return migration fluctuated during the early 1900s. While there is some

Zachary Ward, Assistant Professor, Research School of Economics, Australian National University. E-mail: zach.ward@anu.edu.au. This dissertation was completed under the supervision of Ann Carlos, Michael Greenwood, Brian Cadena, Carol Shiue, and Murat Iyigun at the University of Colorado.

https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

debate over the level of the rate of return migration, as out-going individuals were likely undercounted (like incoming migrants), we focus our attention on how the rate of return migration changed over time—in particular, how the rate responded to shocks to the system such as WWI and the 1920s migration quotas. To estimate the effect of the 1920s migration quotas on return migration, we take advantage of the multiple iterations to the law in 1921, 1924, and 1929. Since the first and second chapters of this dissertation relate to the migration quotas, I will explain the law changes in some detail.

Under the first law, the Emergency Quota Act of 1921, a country's quota number was 3 percent of the country's migrant stock as enumerated in the 1910 United States Census. Soon after that, the quotas were revised to 2 percent of a country's migrant stock as in the 1890 United States Census; this change was more restrictive for the New source countries of Southern and Eastern Europe, which had smaller migrant stocks in the late nineteenth century. Finally, in 1929, the quotas were changed to approximate the "National Origins" of the country, calculated to reflect the nativity of the country in 1790; this change essentially reduced the quota for Germany and increased it for the United Kingdom.

We use these three sharp changes in quota allocation to create a variable to proxy the intensity of restriction. Estimating the relationship between return migration rates and migration quotas reveals that the quotas dramatically lowered the return migration rate. For instance, during the 1900s and early 1910s, New source countries had higher return rates than Old source countries, as expected, but by the end of the 1920s the pattern completely switched such that New source countries had lower return rates. This fall in return rates appears to be mostly due to less return migration of the least skilled; thus, while the quotas attempted to reduce low-skilled migration into the country, they also led to an unintended consequence of keeping more of the low-skilled inside the country.

The fall in return rates is likely due to a number of factors; first, the composition of flows shifted toward females and children, groups who had lower return rates in the first place relative to single males. Second, the migration quotas trapped a few individuals who had expected to leave and re-enter into the country, but this is likely not a significant driver of results. Rather, we argue that a main cause of the fall in the return rates was improved labor market opportunities. Inflows fell by 55 percent between 1921 and 1925, causing a large supply shock to the migrant labor market. As a result, those who were lucky enough to make it into the United States likely had better employment prospects. Further, those who did actually leave the country stayed longer, likely taking advantage of the better opportunities in the United States prior to returning home.

Chapter 2 of the dissertation delves more deeply into the question of who decided to return home and who decided to stay. The main contribution of this paper is to separate return migrants into those who planned to return home and those who did not. Many view return migration to be a planned strategy, where migrants save the higher real wages abroad and use them for consumption or investment at home upon return. However, it is also possible that those who returned home are individuals who attempted to assimilate into the United States, but found outcomes much worse than expected (Abramitzky, Boustan, and Eriksson 2014). To quantify this behavior, I collect a dataset of 27,000 incoming migrants who had to reveal their duration plans to incoming migrant officers. Importantly, there was no penalty or gain from misstating one's true duration intentions.

I find that the planned return rates (15 percent) were lower than the actual return rate estimates (>50 percent) during this time period, suggesting that most return migrants moved home because of worse-than-expected outcomes in the United States. Planned

https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

return migrants were very different: relative to actual return migrants, planned returners were less likely to be from New source countries, to be male, to be prime-aged, or to have migrated to the Northeast. Thus, these same attributes were characteristics of *unplanned* return migrants.

The gap between planned return rates and actual return rates—reflecting unplanned return migration—was not constant throughout time. For instance, the rate of unplanned return migration was higher *before* the migration quotas were put into place; after the 1921 migration quota, the rate of unplanned return migration fell, suggesting that there were fewer "failures" in the labor market. This evidence supports the argument that economic opportunities were of higher quality under the migration quotas, likely because there were fewer incoming migrants to compete with for jobs. While there is little direct evidence on the employment prospects of the foreign-born during the 1920s, there is indirect evidence that labor market outcomes improved by examining migrant flows from relatively less restricted areas. For example, flows of blacks from the South to the North have been linked to decreased incoming migrants, and flows from Mexico and Canada into the United States rapidly increased during the early 1920s when these countries were unrestricted by the quota laws (Collins 1997). This evidence suggests that an open-door policy, while it would likely lead to increasing flows from abroad, would also lead to increasing temporary flows where the least skilled would be driven back home due to intense competition amongst migrants.

Chapter 3 of the dissertation, coauthored with Edward Kosack, turns the focus toward migration from Mexico, which became an increasingly important source of migrants in the 1920s. However, little is known about the selection of migrants who came from Mexico. We use a novel approach to estimate the quality of migrants: rather than using education, occupation, or wages as a measure of a migrant's skill (measures that are problematic as they are not available or change across countries), we use a migrant's height. Height is a useful measure as it is positively correlated with human capital, is consistently measured across countries, and is easily compared to the source country's population (Steckel 1995). Our examination of a novel sample of 3,500 border crossing records reveals that Mexican migrants to the United States were positively selected on height when compared to two reference samples in Mexico—military and passport applicants.

To understand selection into return migration, we take advantage of the recent digitization of census data by linking our border crossing records to the 1930 censuses of both the United States and Mexico. We find that return migrants' heights were statistically indistinguishable from those of permanent migrants; this suggests that the "quality drain" from Mexico to the United States was not reversed by return migration. However, return rates were high: it is possible that up to 44 percent of incoming migrants returned home by 1930. It is unclear why the lack of selection of return migrants to Mexico was different from the negative selection of return migrants to Europe. One possibility relates to the repatriation of Mexicans during the onset of the Great Depression; while it is unclear how many were deported by the government relative to returning home voluntarily, it is possible that deportation pressures would have driven home everyone, regardless of skill, rather than just the least skilled.

In a demographic accounting equation, change in population is affected by births, deaths, inflows, and outflows. There are many studies of the determinants of and the effects of policy on the first three, but outflows remain understudied. This dissertation aims to fill this gap in the literature by exploring outflows over one hundred years ago.

https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

Part of what makes the dissertation possible is the availability of data from when the United States tracked individuals leaving its borders, a process that has been discontinued. We must hope that someday the United States will return to accounting for those who leave, allowing vast improvements on current studies that must treat the return migrant as a residual.

ZACHARY WARD, *Australian National University*

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The Dissertations of José-Antonio Espín-Sánchez, Amanda Gregg, and Casey Marina Lurtz: 2015 Alexander Gerschenkron Prize Competition

The three dissertations demonstrate the wide range of approaches economic historians are using to better understand the past, ranging from detailed narrative histories to structural analysis. One common theme that seems to emerge among all of the finalists is the importance of attention to historical detail that is only possible in micro-level studies. All three dissertation demonstrate the potential strengths of such micro-level analyses, as well as demonstrating the importance of understanding the macro-economic environment in which the micro environments were embedded. In my comments I will discuss the three dissertations in alphabetical order.

JOSÉ-ANTONIO ESPÍN-SÁNCHEZ

José-Antonio Espín-Sánchez's dissertation explores the water markets of southeastern Spain. To do this, the dissertation constructs datasets from archival sources.

The first chapter focuses on the change from auctions to quotas in Mula, Murcia, Spain in 1966. The chapter argues that in Mula's environment, the use of auctions

https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

to allocate water rights was inefficient yet persisted for 700 years. The chapter attributes the emergence of auctions to historical circumstance following the conquest of Mula from Muslims in the thirteenth century. Once the initial water rights had been assigned, farmers faced liquidity constraints that made it impossible for them to credibly commit to buy these water rights from those who owned the water. The chapter argues that a temporary surge in agricultural prices combined with changes in the financial institutional environment enabled farmers to accumulate savings and finally purchase the water rights from the farmers in the 1960s. It interprets this as an example of institutional change without either technological changes or changes in the political equilibrium.

If this is the correct story, however, it seems like the macro-level changes in Spanish financial institutions are the fundamental causes of the institutional changes documented (as surely there were many wide swings in agricultural prices since the conquest). It would be nice in a future iteration of the paper to include more details regarding the process that led to these changes.

The second chapter aims to formally establish that the quota system is more efficient than the auction system in the Mula environment. To do this, the chapter develops a dynamic demand model and then structurally estimates this model. Using the estimated demand parameters, the chapter develops a welfare measure and compares the counterfactual value of this metric obtained under the quota system with the observed value obtained under the auction system. This exercise suggests the optimality of the quota system.

Finally, the third chapter investigates the relationship between judicial punishments and the characteristics of criminals using trial data from the community of farmers in Mula. Perhaps unsurprisingly, most of the trials in the data set are from farmers stealing water to irrigate their crops. Empirically, the chapter documents that repeat offenders receive higher punishments for the same crime than is the case for first-time offenders. This is explained in a formal framework in which some "non-criminal" types commit one-off crimes due to transitory shocks to their environment. Individuals who are repeat offenders reveal their "criminal" type and thus receive steeper penalties.

The dissertation can be read as a case study showing how one community allocated a scarce resource with what seems to have been relatively little conflict for more than 700 years. In future work, it might be interesting to compare Mula's solution to this problem with those that emerged in other dry regions outside of Murcia. The Islamic world seems an obvious candidate, particularly given that such comparisons might provide further insights into the determinants of the auction/quota equilibria as well shedding additional light on the extent to which Mula's water markets were a continuation of Islamic practices. This seems of particular interest given the existing literature stressing the link between irrigation arrangements and autocratic institutions (e.g., Wittfogel 1963).

AMANDA GREGG

Amanda Gregg's dissertation investigates the relationship between firm organization and factory performance in late Imperial Russia using a novel data set constructed from Russian manufacturing censuses conducted in 1894, 1900, and 1908.

The first chapter documents that incorporated firms were more productive than those that were not incorporated. This correlation is robust to the use of within-firm variation

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as well as to an instrumental variable strategy in which a measure of the advantage to incorporation is used to instrument for an indicator variable equal to one if the firm is a corporation. Laudably, the chapter is very upfront that bullet-proof identification in this context is difficult. I believe that a greater discussion of the political economy underlying the Russian incorporation laws might help here. For example, when reading the chapter I often wondered why incorporation was so expensive in Russia. Was this done to benefit certain firms or sectors at the expense of others? Were imperial authorities worried that certain types of firms would become too powerful? Perhaps the answers to such questions would help better understand which firms incorporated as well as the timing of a firm's incorporation, both of which are central issues when interpreting the empirical results.

The second chapter explores the effect of the 1901 change in Russia's commercial code that strengthened minority shareholders' rights among other things and was designed to limit risk-taking by corporations. Importantly, this reform differentially affected Russian firms. The chapter uses this variation to identify the effect of the reforms using a differences-in-differences framework and finds that affected firms had smaller total capital, fewer shares and issued shares at higher prices.

The final chapter examines the determinants of vertical and horizontal integration in the Russian cotton textile industry. The chapter finds support for the Coasian hypothesis (Coase 1937) that firms are more likely to engage in vertical integration when transaction costs are higher. In particular, firms in non-European parts of Russia were more likely to be vertically integrated. The chapter suggests that these areas were exactly where markets were thinner although I would have benefitted from more evidence substantiating this claim.

Broad brush, one unifying theme of the dissertation is that there is still much to be learned regarding the interaction between institutions and economic outcomes that in many ways still remains a bit of a black box. To make some progress in this endeavor, the dissertation often delves deep into the details to first document the effect of a given law or policy and then to provide insights into why the documented effect occurred. This makes sense and seems a natural calling of the economic historian. As noted earlier, however, I think that better understanding why certain Russian policies and legal institutions looked the way they did in the period studied by the dissertation is fruitful area for future research.

CASEY MARINA LURTZ

Casey Marina Lurtz's dissertation explores the development of the Soconusco region in the southwestern corner of the Mexican state of Chiapas during the second half of the nineteenth and early twentieth centuries. The dissertation argues that this region's backwater status combined with its distance from the centers of state power played an important role in its emergence as a significant node in the late nineteenth century global coffee market.

The first part of the dissertation explores the process through which coffee was first introduced into the region. It explains how Matias Romero—a powerful political figure in Mexico—became interested in developing the coffee business in the region for his own gain. Romero, however, rapidly became caught in a web of intrigue that was in part

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related to the ongoing dispute between Guatemala and Mexico regarding the exact position of the border between the two countries. Although Romero's personal investments failed, his efforts led to the emergence of foreign investment in the region.

These foreign investors were initially operating in a "weakly institutionalized" environment. Property rights were not secure and the region was controlled by a strongman whose good will seems to have been necessary to get anything done. Despite these challenges, foreign investors used personal connections to secure funding from their home regions to set up coffee plantations in the region. These investments, however, often fell prey to the intrigue that initially characterized the region.

Despite such initial challenges, the region eventually became a major coffee-producing region in Mexico. The second part of the dissertation explains how this occurred.

The emergence of the Mexican Land and Colonization Company played an important role in this process by helping provide secure property rights and easing the flow of credit. Although much of this money was used to improve private property, a portion was also channeled to fund public works. Thus, merchants and plantation owners pooled capital to build a bridge and improve the communication infrastructure such as telephone lines.

As the coffee industry further developed, labor became increasingly scarce. This labor scarcity translated into better conditions for local workers—contrary to what occurred in much of Mexico. Consistent with Daron Acemoglu and Alexander Wolitzky's (2011) theoretical framework, the unique institutional characteristics of the Soconusco seem to have played a key role in generating this relatively benign outcome.

The dissertation suggests that Soconusco's remoteness from the center of power both encouraged greater local initiative and discouraged the emergence of more extractive forms of economic organization. In many ways, the dissertation echoes much of the recent work on the role of institutions in economic development by arguing that remoteness from an extractive "center" put some developing regions on a more benign development path than others. One wonders, however, the extent to which the extreme fertility of the region also played a role in generating its particular development path. In the end, it seems unlikely that foreign investors would have worked to establish secure property rights and provide public goods in the absence of the region's unique agricultural endowments. To better establish that the region's distance from the center of state power was a key determinant of its unique development path it might be useful to think more about how a region with similar agricultural endowments but closer to the state's center would have developed differently over the same period.

ERIC CHANEY, *Harvard University*

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https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

The Illiquidity of Water Markets

In my dissertation I study a self-governed irrigation community in Mula, in southern Spain. This community used weekly auctions to allocate the water of the river among the farmers since the *Reconquista* in 1243. In 1966 they switched to a system of fixed quotas where each farmer gets an amount of water proportional to her land holdings, every three weeks. Most towns in the region had always had the system of quotas, thus the auction was the oddity, not the rule. The questions that I am trying to answer here are: (1) Why did the auctions persist for more than 700 years? (2) Were the quotas more efficient than the auctions? (3) How did the institution survive unchanged for so long?

The dissertation consists of four chapters. Chapter 1 provides an overview of the history and geography of the region, necessary to understand the context. In particular, to understand that it is water, not land, the scarce resource in this economy. For this, I collected weekly auction data of more than 160 years.

Chapter 2 explains why Mula established the auctions in 1243; why the auction system stayed in place for more than 700 years despite being considered less efficient and egalitarian; and why they changed to quotas in 1966. I show that traditional explanations cannot account for all three facts and I propose a new model of institutional change, that I call Institutional Inertia.

Chapter 3 shows that, contrary to economic intuition, the quotas were more efficient than the auctions. In addition to the auction data, I collected individual farmer data from both the agricultural census and the urban real estate census.

Finally, Chapter 4 shows how the community was self-governed and had internal rules to prevent water stealing among farmers. I codified all the available trials for more than a century and show how the fairness and flexibility of this legal system facilitated its survival until today.

I will now describe the process of Institutional Inertia. In 1242, by the *Alcaraz* treaty, the Muslim Kingdom of Murcia became a protectorate of the Christian Kingdom of Castile. According to the treaty, local (mostly Muslim) citizens would keep their customs and property rights. The governor of the city of Mula, however, rebelled and rejected the agreement. Hence, the Christian army took the city by siege. After the siege, the invading army expropriated the water rights and established a corporation in Mula (*Heredamiento de Aguas*). The corporation held weekly auctions to sell the water flow of the river. This corporation had tradable shares and paid dividends.[1]

The system of quotas, or any system that requires joint ownership of water and land, implicitly requires the farmers to own water rights. A penniless farmer, however, is unable to pay in cash. The solution to this problem resembles a debt contract. The farmer promises to repay the value of the water rights at some point in the future; however, the effort that the farmer will exert while in the contract is suboptimal. If the effort is low, the expected payment is low, and the contract might not be worth it for the

José-Antonio Espín-Sánchez, Assistant Professor, Economics Department, Yale University, New Haven, Connecticut. E-mail: jose-antonio.espin-sanchez@yale.edu. This dissertation was written under the supervision of Joel Mokyr, Joe Ferrie, Regina Grafe, and Robert Porter at Northwestern University.

[1] The account of historical events is described in Llopis (1998).

https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

seller (Waterlord). In this situation, a down payment can act as a commitment device: if the farmer defaults, she would lose the down payment. If the farmer can make a substantial down payment, her effort will be high and then the Waterlord will agree to the sale.

How can we explain the institutional change in 1966? There was no political change, no technological change, and no change in output prices. There was a temporary increase in output prices in the 1950s, however, which implied a permanent increase in savings for the farmers for the first time since the thirteenth century. With the increased savings, the farmers could then pay a high down payment to act as a commitment device and the Waterlords agreed to sell the water rights. The intuition is the same as when you want to buy a house today using a mortgage, the bank usually requires a down payment of the order of 10–15 percent.

The reasoning in Chapter 2, implicitly assumes that quotas are more efficient than auctions. Chapter 3 addresses this question. In economics we usually think that individuals differ in their valuation for a given good, that is, their willingness to pay for the good. This is the basis for a demand curve. Individuals with high valuations are up in the curve and those with low valuations are down. Alternatively, financial markets are modeled with all individuals having the same valuation for the good, that is, the underlying valuation of an asset. But agents may receive liquidity shocks that make then unable to buy a given asset at some point in time.

If we think that both characterizations are important we arrive to interesting results. In one extreme, if farmers differ in their willingness to pay but face no liquidity constraints, we are in a standard economics world. Markets are efficient because they allocate more water to more productive farmers, while quotas will allocate the same amount of water to everyone. In the other extreme, if farmers have the same productivity, but some of them face liquidity constraints, then quotas are efficient: with a concave production function it is efficient to allocate the same amount of water to everyone. Markets, however, will allocate less water to poorer farmers and more water to wealthier farmers, which is inefficient. This is the first result of this chapter. In the presence of liquidity constraints, it is theoretically ambiguous which system is more efficient. In general we think that individuals differ in both dimensions. Hence, it is an empirical question whether auctions or quotas are more efficient in this case.

I will now turn to the data. In principle, it could be a simple empirical question if we had the right data. For example, if we have production data in Mula, before and after the change, we just need to compare them, and take the difference. Moreover, if we also have production data in Mula and in comparable neighboring towns, we could construct a panel and run a differences-in-differences estimation. Unfortunately, no such data exists. Luckily for us, we can use structural estimation to answer this question.

The idea is simple. We use the very detailed auction data from before the change and combine it with the agricultural census data to estimate the demand for water. Once we have the demand for water we only need the allocation of water to compute the welfare. We have the data for the actual allocation of water under auctions. The allocation of water under quotas is fairly simple: uniform allocation of available water per square feet. Hence, once we have the estimated demand, we can compute both welfare measures. When we do that we find that quotas were more efficient than auctions.

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The last chapter focuses on how and why this inefficient system persisted over centuries without major revolts. Elinor Ostrom (1990) described this community as the longest living self-govern community that we know. She also posited a puzzle: this community maintained a very low crime rate while having very low punishments. In the world of economists the only way to maintain low crime is by having high punishments.

There have been some proposed solutions to this puzzle. For example, in sociology the prevalent theory is the idea of the *noble savage*, or that the farmers were "really nice guys" that care for each other. Another explanation is that there might be informal punishments. The problem is that the predictions of these theories are either untestable, orthogonal to the theory proposed here, or rejected by the data.

When we look closely at the data, we find that the low average punishment is a composition of very low punishments for first-time offenders and high punishments for recidivists. Hence, crime is deterred by the potential of high-punishments for recidivists. It is precisely because the potential punishments are high that we rarely observe recidivists in the data, thus the observed low punishment. One should be aware of what could have happen, and not only about what happened when making inferences about the data.

Judges have flexibility regarding the punishment, and they use it to make the punishments depend on the identity of the offender and that of the victim. We do not have information about the wealth of the farmers, but we do know whether they were referred as *Don* (*e.g.*, *Don* Corleone), during the trial. In Spain the title *Don* is reserved for the nobility and the upper class. Punishments are higher for recidivists. Punishments are higher when a *Don* stole water and Punishments were lower when someone stole water from a *Don*.

All these facts are consistent with judges trading off insurance versus deterrence. If the farmer is in need of water, the punishment is low, but if the farmer seems to be greedy, the punishment is high. The dynamics of the punishment allow farmers to steal with a low punishment if they received a liquidity shock, but punish them if they try to abuse the system. Moreover, judges are trying to maximize total welfare by punishing more individual who stole from poor farmers than those that stole from wealthy farmers.

As a summary, we can conclude that a historical accident created the institutional divergence. Due to liquidity constraints, water auctions were inefficient. The hold-up problem faced by the poor farmers meant that an inefficient institution persisted for more than 700 years. The flexibility of the self-govern legal system, however, provided an insurance of last resort that reduced the inefficiencies and decreased the unrest, making it the longest living self-governed institution that we know of.

José-Antonio Espín-Sánchez, *Yale University*

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https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

Factory Productivity, Firm Organization, and Corporation Reform in Late Imperial Russia

This dissertation uses newly collected Imperial Russian manufacturing data to address two central issues in economics: the effect of institutions on economic performance and the nature of the firm. The first chapter examines selection into Imperial Russia's costly concession system of incorporation and documents the impact of incorporation on firms' production technology and productivity. The second chapter studies the effect of Russia's 1901 corporation reform, a change in the commercial code that improved the rights of small corporate shareholders. In the third chapter, I show how geography and legal forms of organization influenced the Russian cotton textile industry's patterns of horizontal and vertical integration.

The dissertation's new panel database of Russian manufacturing establishments permits a rare empirical examination of institutions, organization, and production at the factory level. A large literature emphasizes the importance of institutions for economic growth, but exactly how institutions influence individuals' behavior remains poorly understood. The few studies that explicitly address institutions' endogeneity exploit variation across countries (Acemoglu et al. 2011; La Porta et al. 1998). Little empirical work, for example, studies how institutions can cause individual firms to produce more output given the same inputs. The dissertation also considers a firm's boundaries: Why do certain firms produce their own inputs while others purchase them on the market? Research clarifying how firms establish boundaries must address the characteristics of vertically integrated, multi-plant firms in a variety of environments. Firms' productivity and organization could have large effects on economic growth in countries like Imperial Russia.

The dissertation's first chapter documents the causes and consequences of a firm's choice of legal form of organization. The effect of choosing a certain enterprise form is difficult to measure: certain enterprise forms may cause better performance, or more productive firms may choose a certain legal form of organization. I examine Imperial Russian enterprise forms because costly incorporation provides stark contrasts between firms of different enterprise forms and because the Ministry of Finance collected high-quality factory-level data in which it is possible to identify firms' enterprise forms. Without factory-level enterprise form information, existing literature stops short of directly relating enterprise forms to firm performance. Timothy Guinnane et al. (2007) argue that flexible enterprise forms should have positive effects on economic growth. Thomas Owen (1991) and Timur Kuran (2003, 2005) claim that inflexible enterprise

Amanda Gregg is Assistant Professor, Department of Economics, Middlebury College, 303 College Street, Middlebury, VT 05753. E-mail: agregg@middlebury.edu. This dissertation was completed at Yale University under the supervision of Timothy Guinnane (chair), Naomi Lamoreaux, and Mark Rosenzweig.

The project was supported by grants from the National Science Foundation, the Yale University MacMillan Center, the Economic History Association, the Sasakawa Young Leaders Fellowship Fund, the Yale Program in Economic History, and the Yale University Economic Growth Center. I am grateful to the staff of the National Library of Russia and the Russian State Historical Archive for their kind and patient assistance. Inna Borovnik, Doniyor Djalilov, Volha Halkouskaya, Dmytro Lianka, Ella Saginadze, Andrew Shore, and Galina Zagumennova provided meticulous research assistance.

https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

form menus contributed to economic stagnation in the Russian Empire and the Ottoman Empire respectively. Neither Guinnane et al. nor Kuran directly relates laws on enterprise forms to individual firms' production or financial decisions.

I argue that certain Imperial Russian firms chose to enter a costly incorporation process to obtain access to scarce long-term capital. Firms in Russia's small but rapidly growing manufacturing sector faced substantial obstacles to financing long-term capital investments. Russia's slowly-developed banking sector focused on short-term and medium-term credit provision, for example, discounting of bills of exchange. The small Imperial Russian financial sector offered few opportunities to obtain the kind of long-term capital necessary to finance large machine investments. Russia's financial sector accounted for only 26.9 percent of national assets, compared to 39.5 percent in Germany and 39.3 percent in France. Bank activity in Russia accounted for only 22.3 percent of national assets. By comparison, bank activity comprised 31.1 percent of German national assets (Goldsmith 1985).

Incorporation provided firms with a package of advantages for raising long-term capital. Firms in the Russian Empire could form as single proprietorships, partnerships, or corporations. Unlike single proprietorships or partnerships, corporations could sell stock and bonds on domestic and foreign stock and bond markets and could avoid investor hold-up through lock-in of capital. Incorporation also guaranteed limited liability to all investors; in other Russian enterprise forms, at least one party held unlimited liability. Corporations existed as entities: they could write contracts in their own names and continue operations even if the original investors no longer participated. Incorporation thus gave firms access to additional capital markets, facilitated capital investment through limited liability, and solved investor hold-up, and prevented untimely dissolution by allowing firms to act as entities. Forming a corporation in the Russian Empire thus guaranteed firms a package of benefits, but incorporation was also costly.

Incorporation in the Russian Empire required a time-consuming and expensive Imperial concession. Firms submitted charters to the Ministry of Finance for approval, and the Tsar's signature transformed the charter into an independent piece of law. Despite incorporation's costs, more than four thousand Russian firms incorporated before 1914. I argue that high-productivity firms that wanted to expand chose to incorporate. For such firms, capital advantages of incorporation justified the costs of obtaining a costly Imperial concession. Corporations used these capital advantages to finance purchases of productivity-enhancing machines, which I can observe in Russian factory-level manufacturing data.

I identify the characteristics of firms that chose to incorporate and measure the gains in productivity and growth in machine power enjoyed by corporations using a panel database of manufacturing enterprises I compiled from Imperial Russian factory censuses conducted in 1894, 1900, and 1908. The manufacturing database shows each factory's name, street address, industry, enterprise form, revenue, and number of workers. The factory censuses from 1894 and 1908 also provide information on each factory's power-delivering machines, including their type, number, and total horsepower. Factories are matched over time to form a panel and to an existing list of all Imperial Russian corporations (Owen 1992, RUSCORP Database) to confirm whether each factory was owned by a corporation.

I show that factories owned by corporations were larger, more productive, and grew faster. The factory-level panel data allow me to identify firms that changed form within the sample frame. I find that factories with higher revenue productivity were more likely to incorporate, and after incorporating, factories added machine power and became even

https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

more productive. Results from an instrumental variables regression suggest that selection into incorporation was not determined solely by productivity and could be influenced, for example, by connections to government officials.

Comparing two kinds of corporations shows that firms sought not just access to stock markets but the corporate form's full set of capital advantages. Although the Russian commercial code made no distinction between Russian corporations, in practice two types emerged, which I call A-corporations and share partnerships.[1] A-corporations tended to issue shares on stock or bond markets, while share partnerships did not. If access to stock markets provided by incorporation was especially important, I should find that A-corporations enjoyed advantages to adding productivity and machine power. I find that A-corporations did not significantly outperform share partnerships. Critically, A-corporations did not add more physical capital than share partnerships.

The second chapter studies the effects of Russia's only major change to its corporation law. The Russian 1901 corporation reform increased the rights of small shareholders and removed bankers from corporations' boards of directors. The reform affected one type of corporation (A-corporations) more than another type (share partnerships): one provision of the law created a loophole that excluded most share partnerships from the law's requirements. I thus apply a differences-in-differences approach, studying the differences in corporations of these groups founded before versus after the reform. The RUSCORP Database (Owen 1992) provides initial charter information from all Russian corporations and from all surviving Russian corporations in 1905.[2] I find that, in response the reform, A-corporations increased the par value of their shares, reduced their total capitalization, and reduced the number of shares they issued. I argue that the reform increased the cost to the firm of having small shareholders; thus, corporations affected by the reform began to resemble the more closely held share partnerships.

The third chapter considers Russian firms' decision to integrate vertically and horizontally. Here I focus on a firm's vertical integration decision: the decision over whether to produce or purchase inputs. According to Ronald Coase (1937), firms engage in vertical integration to save the cost of transacting on the market, especially when markets are thinner and therefore price risk is greater. On the other hand, firms that wish to vertically or horizontally integrate may be unable to do if they face financial constraints because integration requires additional capital (Acemoglu, Johnson, and Mitton 2009; Macchiavello 2012). John Brown's (1992) study of the German textile industry largely confirms Coase's hypothesis. Brown argues that German firms before WWI tended to be highly vertically integrated due to a protective tariff wall that kept German markets thin, which exposed firms to price risk for inputs and outputs. The Russian Empire also had protective tariffs, and markets within the Empire may not have been well integrated.

The third chapter finds evidence for a thin markets explanation of integration within the Russian cotton textile industry in 1894 and 1900. The 1894 data provide especially rich information on firms' degrees of horizontal and vertical integration: the data list a complete description of each factory's internal activities and final products. To examine horizontal integration, I match factories to the firms that owned them. Both

[1] In Russian, *aktsionernye obshchestva* and *tovarishchestva na paiakh*.

[2] I focus attention on total share capital, par share value, and number of shares as measured in 1905, comparing A-corporations to share partnerships founded before versus after the reform. Measuring each variable in 1905 shows how the law worked in practice, since I can examine how the law affected firms that existed before the law's passage, and controls for inflation and other economic shocks.

https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

vertically and horizontally integrated factories and firms were larger in terms of number of workers and tended to be located outside of European Russia, where markets were thinner. Vertically integrated firms were older, had more workers and machine power, and produced more revenue per worker given the same machine power. Echoing the first chapter's results, corporations produced more revenue per worker than non-corporations, even controlling for vertical integration.

Finally, the dissertation includes an Appendix that describes the new database of manufacturing establishments in the Russian Empire. The database will allow for new studies of the Russian economy and of factory performance in late-industrializing countries. This appendix provides a codebook with variable definitions and a description of the censuses' sampling frame as well as comparisons of matched to unmatched factories and comparisons of results that use the enterprise-level data to more aggregated sources.

This dissertation's chapters reveal strong relationships among Russian firms' decisions over production, finance, and organization. Future research considers corporations' internal investment decisions and corporate governance through examining corporate balance sheets, charters, and financial market outcomes.

AMANDA GREGG, *Middlebury College*

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https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

Exporting from Eden Coffee, Migration, and the Development of the Soconusco, Mexico, 1867–1920

In this dissertation, I explain how a backwater like the Soconusco region of southern Chiapas became Mexico's most significant node in the global network of commerce that coffee represented during the late nineteenth and early twentieth centuries. In doing so, I argue that distance from the centers of state power and the tenacity of local structures conditioned the growth of a capacious and enduring economy completely different from those that supposedly governed the Mexican countryside of this era. The scarcity of labor, the abundance of land, and the difficulty of translating legislation into practice meant that export-oriented agriculture and modernization in the Soconusco proceeded in the hands of local smallholders as well as migrant entrepreneurs. Labor was incentivized by extra-wage payments and advances. The capital that flowed into the region was transformed into infrastructure and institutions that, even when foreigners failed or departed, continued to strengthen and expand the local economy. While the emergence of coffee destabilized old social and political relationships, this destabilization was conditioned by those self-same structures as well as the cultural and economic outlooks of those new to the region. The capitalistic impulses of would-be coffee barons were constrained by the steadfastness of long-established villages and a local populous uninterested in wage labor. These local elements were in no way anti-capitalist or anti-coffee; rather, they pursued a parallel path toward market engagement alongside and appropriative of the expanding plantation system. The Soconusco was not a place of unlimited growth and opportunity, but it was a space where coffee took hold because of the flexibility and involvement of a wide variety of actors who saw in it the possibility for progress.

The growth of the coffee economy in the Soconusco was part of a much larger hemispheric renovation of export-based economies. From the mid-nineteenth century through the Great Depression, a wave of investment in export agriculture swept across Latin America. With the support of consolidated national governments and the capital accumulation and demand generated by the industrial revolution, this boom in tropical commodities set the tenor for the economic future of the hemisphere. Land and labor were put to work producing for foreign markets, often without regard for the claims or rights of those thus employed. Penetrative foreign capital, bent on profits, paid little mind to the building of local institutions and infrastructure, and, for many, provides an explanation for the slow growth of Latin American economies in the twentieth century. With my dissertation, I argue for an understanding of foreign investment and export agriculture that moves beyond these tropes of exploitation and stagnation. Alongside Mexicans from the region and from further afield, migrants from Britain, Germany,

Casey Marina Lurtz, Academy Scholar, Harvard Academy for International and Area Studies. E-mail: lurtz@wcfia.harvard.edu. This dissertation was completed at the University of Chicago under the supervision of Emilio Kourí, Mauricio Tenorio, and Dain Borges. My advisors were: Committee Chair: Emilio Kourí, Department Chair, Department of History, University of Chicago. Other members: Mauricio Tenorio, Samuel N. Harper Professor of History, Romance Languages and Literatures, and the College, University of Chicago; Dain Borges, Associate Professor of History and the College, University of Chicago.

https://doi.org/10.1017/S0022050716000607 Published online by Cambridge University Press

Spain, the United States, France, China, and Japan fostered the growth of coffee in the Soconusco and the linkages to global markets that would guarantee its success. The knowledge, capital, and customs newcomers brought to the region proved instrumental in rooting the coffee economy in locally grown institutions and funneling its profits to local growth. Rather than restricting participation in the prosperity that ensued, migrant capital uncoupled economic opportunity from deep-seated local patronage networks and allowed for the entrance of new players and the advancement of popular as well as elite interests.

This approach also allows me to reevaluate how the modernizing projects of President Porfirio Díaz, who ruled Mexico from 1876 to 1910, and his counterparts across Latin America, impacted rural societies. The growth of markets in land, labor, and capital in the Soconusco makes it clear that, despite the dominant historiographical focus on the consolidation of state power in the era, reforms instituted by the national government had little meaning until locals gave them shape. After an initial burst of national interest in the region, little help came from the state in terms of promoting the growth of coffee. Instead, those living in the region had to create the necessary tools for a functional economy including defensible land titles, an operable credit market, and reliable labor structures. Statutes that had been passed decades before went unenforced until local actors needed them. As legislation became useful, it was not only large landowners and new arrivals eager to export coffee who began to use privatization and contract laws to their benefit. Those who had long lived on the land and those who were being tapped for labor also took advantage of the possibilities enshrined in these reforms. Capital was restricted but coffee in demand, land plentiful but labor scarce, and so an inclusive, dynamic market developed around all elements of the local economy. Upending our understanding of how the liberal policies of the era found expression in the countryside, my dissertation demonstrates that local needs and efforts, not state mandate, dictated the shape of modernization.

Structured in two parts, the first chronological, the second thematic, the dissertation traces the development of the coffee economy and its constituent parts, namely land, labor, and capital. The first part of the dissertation covers the 1860s through the early 1890s. The first chapter examines the role of the Minister of Finance Matías Romero in the initial promotion of coffee production in the Soconusco. After working for years to facilitate commerce and investment in the region from Mexico City, Romero moved to the Soconusco in 1872 to try his hand at coffee cultivation. His experience captures the difficulties of a shift to export-oriented development across Mexico as well as the ways that local actors manipulated and took advantage of access to national players to forward their own interests. Though ultimately a failure as a planter, his work opened the region to international trade, drew investors from across Mexico and Europe, and introduced the commercial framework upon which future planters would rely.

Chapter 2 uses the political back and forth between the Soconusco and the national government during and after Porfirio Díaz's Tuxtepec Rebellion of 1876 to shed light on the strategic use of crisis in the consolidation of power at both the local and national levels. The local strongman, Sebastián Escobar, was key to the success of Díaz's rebellion in Chiapas and parlayed that role into the governor's seat. When sent back to the Soconusco in disgrace, Escobar set about re-establishing his local dominance through the persecution of federal officials and Romero's friends. The generally tenuous state of national integration, particularly at the periphery, and on-going struggles with Guatemala

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over the placement of the border provided Escobar with the leverage to dictate terms to President Díaz. At the same time, lack of military resources and the importance of maintaining peace for an increasing number of coffee planters meant that the national government was given room to intervene in matters of security. Pulling apart various moments of conflict and cooperation, the chapter deepens our understanding of why and how peripheral regions participated in the cementing of the Mexican nation. Chapter 3 follows with an examination of the conflict between old and new power brokers that followed. As Escobar re-asserted his dominance, newly arrived coffee planters continued trying to build the legal and financial tools necessary for an export economy. By tracing the development of one Swiss planter's fincas and the financial web that shored them up, the chapter argues for an early and diverse incorporation into global capital and commodity markets marked by flexibility and local mediation.

The second part of the dissertation delves into the workings of the coffee economy in full swing, covering the period from the early 1890s through the Mexican Revolution. Following an introduction that provides state and national-level context, Chapter 4 focuses on the parallel development of markets for large and small parcels of land in the Soconusco from 1890 through 1915. On one side, a British enterprise with a concession to survey and title national lands in much of Chiapas, made property easily accessible and titles reliable and transferable. On the other, a vibrant market for small village properties emerged from the slow implementation of privatization reforms mandated by the national government. The markets for large and small properties rarely overlapped, but their concurrent development points to the broad impacts of coffee on land regimes throughout the region. Coffee was commercializing not only previously untouched public lands, but also the village lots that had long remained only nominally titled and divided. Though state and national laws had long dictated their division and privatization, it was only with the advance of the coffee market that locals reached out for and implemented these statutes. Repartition of village land was a locally driven process, one that also shaped the topography of the larger coffee fincas that emerged on privatized public lands.

The question of an adequate labor source plagued all of Chiapas throughout the late nineteenth century, but was especially pronounced in the Soconusco. This chapter places coffee planters' struggles to secure a workforce within the context of broader discussions of labor systems in Chiapas and Mexico. Much to their chagrin, planters in the Soconusco had become increasingly dependent on customary debt relationships with workers from central Chiapas by the early twentieth century. By looking at these debts as advances and credits, I argue for placing the notorious debt peonage of southern Mexico in the context of hemispheric understandings of the relationship that give greater agency to the laborers involved. A region of labor scarcity like the Soconusco provided an opportunity to escape the much harsher conditions and lower pay of central Chiapas. The newness of finqueros to the political and patronage game meant that they had little recourse to the recruitment and enforcement apparatus that elsewhere tied highland villagers into exploitative relationships.

The final chapter examines the shifting patterns of commerce and finance in the Soconusco. Because of the lack of banks and currency, the economy of the Soconusco was based primarily on credit from merchants and planters. The market that developed for collateralized loans in the region was responsive to local needs, and access to credit was a relatively impersonal process, despite the lack of formal credit institutions. The

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capital that flowed into the region was directed to individual plantations but also to the development of local infrastructure. The examination of credit markets thus demonstrates the manner in which capital became fixed in the region and export profits benefited all comers.

The conclusion provides an overview of the coffee economy of the Soconusco as it continued to grow across the twentieth century. As the Mexican Revolution swept across the country, coffee production continued to boom and the institutionalization of land, labor, and credit discussed in Chapters 4–6 held. The parallel development of small and large production from the first years of coffee forward was cemented by the land reforms of the 1930s. Most fincas were small enough to avoid expropriation, and many of the laborers who had worked those fincas for decades claimed neighboring lands. Today, the Soconusco is still the largest exporter of coffee from Mexico, and the vast majority of coffee is grown on plots of less than five hectares. The history of this region's prosperity, especially compared to the rest of Chiapas, relies on the interplay between village and finca, laborer and employer, creditor and debtor. Oriented outward from the 1870s onward, the economic and social organization of the Soconusco has provided space for negotiation and relative mobility, with coffee as the fulcrum around which a great diversity of structures and relations continue to evolve.

Casey Marina Lurtz, *Harvard University*

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