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THE EFFECT OF MANAGEMENT AND TECHNOLOGY DIFFUSION ON FIRM PRODUCTIVITY: EVIDENCE FROM THE US MARSHALL PLAN IN ITALY

MICHELA GIORCELLI

This paper analyzes the effect of management techniques and technology diffusion promoted by the US Marshall Plan on the productivity of Italian firms in the aftermath of WWII. With the Marshall Plan, the US administration promoted massive economic and financial aid to Western European countries from 1948 to the end of the 50's. Among other initiatives, starting in 1952, the plan supported management and technology diffusion by both offering training periods for Italian managers, engineers and technicians in the US and by granting to firms new machinery not available in Europe. I collected and digitized financial statements data on 6,065 Italian firms eligible to receive US management and technology support, spanning from 1946 to 1970. I evaluate the effect of this program on firm productivity by combining differences across geographical areas in which the plan was implemented with differences in years in which the support was received. Preliminary results suggest that (1) firms that received at least one form of supports significantly increased their productivity, (2) firms that received both types of transfers simultaneously showed an additional increase in productivity, suggesting that management and technology may be complementary in production, (3) the effects are persistent and increasing up to a decade after the implementation of the program, and (4) firm exit rate is lower for firms that received the USTA&P support.

LIQUIDITY RISK, BANK NETWORKS, AND THE VALUE OF JOINING THE FED

CHARLES W. CALOMIRIS, MATTHEW JAREMSKI, HAELIM PARK, AND GARY RICHARDSON

Reducing systemic liquidity risk related to seasonal swings in loan demand was one reason for the founding of the Fed. Existing evidence on the post-Fed increase in the seasonal volatility of aggregate lending and the decrease in seasonal interest rate swings suggests that it succeeded in that mission. Nevertheless, less than 8 percent of state-chartered banks joined the Fed in its first decade. Some have speculated that non-members could avoid higher costs of Fed reserve requirements while still obtaining access indirectly to the Fed discount window through contacts with Fed members. We find that individual bank attributes related to the extent of banks' ability to mitigate seasonal loan demand variation predict banks' decisions to join the Fed. Consistent with the notion that banks could obtain indirect access to the discount window through interbank transfers, we find that a bank's position within the interbank network (as a user or provider of liquidity) predicts the timing of its entry into the Fed system and the effect of Fed membership on its lending behavior. We also find that indirect access to the Fed was not as good as direct access. Fed member banks saw a greater increase in lending than non-member banks.

DISTRIBUTIONAL EFFECTS OF INTERNATIONAL TRADE: EVIDENCE FROM CHINA IN THE EARLY TWENTIETH CENTURY

CONG LIU

One puzzle in international trade is the persistent inequality and poverty in developing countries as globalization has increased. Although the Heckscher-Ohlin model predicts that involving into international trade should reduce inequality in developing countries, empirical evidence does not support this claim (Goldberg & Pavcnik, 2007). This paper aims to provide an answer to this question. Using county-level wage-rental ratio in China in the early twentieth century, I argue that the rise of manufacturing sectors and the resulting regional specialization explained the persistent inequality.

The rise of manufacturing sectors is usually difficult to identify empirically because it is endogenous to other social and economic events. Previous literature mostly examines existing industrial allocation and relative income (Tombe & Zhu, 2014; Coşar & Fajgelbaum, forthcoming). The experience of historical China provides an exogenous positive shock on the rise of manufacturing sectors—the eruption of WWI. Before WWI, China exported agricultural products and imported manufactured commodities. WWI served as an unexpected trade block that largely reduced the trade between China and Europe and cut the supply of manufactured goods to China. The excess demand created room for domestic factories in coastal areas to emerge and produce manufactured products. This also led to changes in regional specialization: coastal areas produced manufactured goods while inland areas produced agricultural goods. Since manufactured goods were labor intensive while agricultural goods were land intensive, coastal areas experienced an increase in the wage-rental ratio while inland areas experienced a decrease in the ratio.

Using wage-rental ratios from 104 counties in China from 1901 to 1933, I find that access to trade had significant impacts on the rural wage-rental ratio. During WWI, along with the transition of coastal areas toward trading and manufacturing centers, the ratio increased dramatically in coastal areas while remaining constant in inland areas. After WWI, the ratio continued to rise in the coastal areas relative to the inland areas.

To illustrate the rise of manufacturing sectors, I use detailed and reliable records on international trade flows and examine the experiences of single industries, particularly the cotton textile industry. If more factories appeared in China and exported manufactured products, I should observe a decrease in the net import (or an increase in the net export) of manufactured products. Trade flows confirm this hypothesis. Compared with pre-war levels, there was a dramatic drop in the imports of cotton products and an increase in the exports of domestic cloth after WWI. Although lacking direct measures on manufacturing industries, information on trade values confirms the expansion of the manufacturing sectors during and after WWI.

This paper enriches literature on economic history by considering heterogeneous impact of international trade on different regions in China in the early twentieth century. Previous literature on rural welfare (Myers, 1970; Brandt, 1989) does not address the contrast picture between coastal and rural areas in China. Literature on international trade only considers the impact on national wage gap (Mitchener and Yan, 2014) or heterogeneous trade patterns (Keller, Li & Shiue, 2011, 2012, 2013).

`THERE CAN BE NO PARTNERSHIP WITH THE KING': REGULATORY UNCERTAINY AND INVESTMENT IN THE ENGLISH EAST INDIAN COMPANY

DAN BOGART

The English East India Company helped build Britain's colonial empire in Asia, but the Company struggled for much of its early history due to an uncertain regulatory environment. This paper examines how political and fiscal instability affected investment in East Indian shipping tonnage by increasing uncertainty. Regressions show the growth of shipping tonnage declined significantly when there were changes in the monarchy and government minsters. Shipping growth and its link with the growth in sales revenue also varied across monarchs suggesting that certain political regimes were associated with higher uncertainty and dampened demand shocks. The results also show that higher tax revenues increased the growth of shipping tonnage, suggesting that greater fiscal capacity contributed to a more certain environment for investment. The findings point to the significance of regulatory institutions in Britain's development and provide unique insights into how regulatory uncertainty affects investment.

WOMEN'S WORK AND WAGES DURING THE FIRST WORLD WAR IN BRITAIN

JESSICA BEAN

A debate about whether the experience of female workers in Britain during the First World War constituted a watershed moment for women's position in the economy exists in the historical literature, but the issue has been explored very little in the economic history literature. Using Census data and data collected from numerous wartime government reports and surveys, this paper aims to fill in a significant gap in the literature by examining the impact of WWI on female employment and wages both during and after the war. Although there was no evident increase in female labor supply following the war, there does appear to have been some reallocation of less-skilled female labor from domestic service into clerical work, and some increase in the opportunities available to college-educated women. The major contribution of the project so far has been documenting in much more detail than was previously available the wages earned by female workers in a wide array of war employments, using data collected from the Women's Work Collection at the Imperial War Museum. The ultimate goal is to compare the impact of the First Word War on female employment in Britain to that of WWII on women in the United States.

WHAT KILLED THE INDEPENDENT GROCERY STORE? LESSONS FROM THE 1929 CENSUS OF DISTRIBUTION

EMEK BASKER, CHRIS VICKERS, AND NICOLAS L. ZIEBARTH

The introduction of the chain store format in grocery retailing in the late 19th and early 20th century has had long-lasting effects on market power and innovation in that sector. At the time, the Federal Trade Commission, charged with explaining the cause of chains' growth, focused on chains' ability to extract concessions from the manufactures and retailers. We use an establishment-level dataset of schedules from the 1929 Census of Distribution in Washington, DC to investigate other differences between chain grocery stores and independents. Preliminary results suggest that chain stores exhibited a number of competitive advantages: (1) higher output per worker, (2) lower wages, (3) lower inventory holdings, and (4) lower rent expense ratios.

WORLD WAR II AND THE INDUSTRIALIZATION OF THE AMERICAN SOUTH

TAYLOR JAWORSKI, QUEEN'S UNIVERSITY

What is the role of the state in industrialization and regional development? For countries at or near the technological frontier, one view of the state's role is to provide national defense, secure property rights, and facilitate contracting. However, a large theoretical literature studies how in the absence of institutions to coordinate investment or in the presence of barriers to technology adoption, private incentives may not maximize social welfare (North, 1981; Murphy, Shleifer, and Vishny, 1989; Olson, 2000; Acemoglu and Johnson, 2005). As a result, some industries or regions may lag behind and national governments may intervene to promote national growth, for example, through industrial policy, special economic zones, or infrastructure improvements.

Until 1940, the US South lagged behind the rest of the country. Starting in the 1930s, the federal government intervened in part to alleviate these regional disparities. During mobilization for World War II, the government made substantial investment in manufacturing, which resulted in a doubling of the South's capital stock (Deming and Stein, 1949). This paper examines the contribution of this investment to changes in the region's industrial structure after 1945.

Specifically, this paper quantifies the spillovers from new industrial facilities constructed during World War II to postwar growth of manufacturing and the reallocation of activity across sectors within the American South. In this period, over 1500 projects were completed with investment totaling nearly $1.6 billion. These facilities were often more capital intensive, attracted skilled labor, and embodied new technology relative to the typical southern manufacturing establishment prior to 1940. In the postwar period, the South did converge with the rest of the country in terms of industrial structure and income per worker. However, the contribution of mobilization is not understood.

Mobilization for World War II generated substantial economic activity in the southern economy between 1940 and 1945. The South accounted for 32.6 of total investment, despite receiving only 13.3 percent of spending on prime contracts and up only 14.0 percent of the nation's manufacturing value-added in 1940. However, from the war's end until 1960, the empirical results indicate no differential growth in aggregate manufacturing activity or in the wholesale sector due to World War II. In the postwar period, the retail sector expanded and total population increased in counties more exposed to mobilization for war.

Within manufacturing, I find some evidence for reallocation of activity across sectors. Immediately following the war the number of establishments in rubber goods, metals, machine tools, and transportation equipment was higher. However, these effects were short lived, which suggests that new facilities constructed during World War II played only a small role in changing the composition of industrialization in the postwar American South. The small magnitude is consistent with evidence that capital redeployed after World War II (White, 1980) and at the end of the Cold War (Ramey and Shapiro, 2001) sold at large discounts. The results suggest any positive spillovers generated by mobilization were temporary, small, and outweighed by disamenities.

THE VALUE OF RURAL ELECTRICITY: EVIDENCE FROM THE ROLLOUT OF THE US POWER GRID

JOSHUA LEWIS AND EDSON SEVERNINI

This paper exploits the historical rollout of the U.S. power grid between 1930 and 1960 to study the impact of rural electrification on local economies. We find that rural electrifications led to large gains in agricultural employment and farm populations. These gains were offset by contractions in urban industries, as increased demand for rural land drove up local housing costs and crowded-out non-agricultural sectors. The growth in the rural sector was due both to advances in agricultural productivity and improvements in housing quality. Applying a standard Rose-Roback style model to our reduced form estimates, we derive estimates of the implied value of electricity for agricultural productivity, and the amenity value of residential electricity access. We find that farm access to electricity raised productivity by 35%, and that families were willing to forgo 32% of annual income to live in an electrified home. The results suggest that benefits of rural electrification far exceeded the historical costs of extending the grid, and imply that there is large scope to expand rural access in the developing world today.

THE EFFECT OF THE 1918 INFLUENZA PANDEMIC ON DEMAND FOR LIFE INSURANCE AMONG U.S. WORKING-CLASS FAMILIES

JOANNA SHORT

This paper examines the effect of a sharp rise in mortality, the 1918 influenza epidemic, on demand for life insurance in the U.S. In just a few months, influenza and pneumonia killed an estimated 550,000 Americans in excess of the expected mortality from those causes. On the one hand, life insurance is frequently characterized as a service that must be "sold" by agents. If households rarely seek it out, and must be reminded of its utility, then the influenza epidemic could have been very effective in stimulating demand for life insurance. Insurance executives certainly thought 1919 was a banner year for selling life insurance, and largely credit the pandemic for it.

On the other hand, perhaps the influenza epidemic did not widely stimulate life insurance demand. The disease came and went very quickly. In addition, some may have recognized the epidemic for what is ultimately was—a temporary deviation from the long term downward trend in mortality. Furthermore, Kantor and Fishback (1996) have shown that industry accident risk did not affect the purchase of life insurance in this period. Perhaps families similarly did not change their life insurance coverage in response to changes in the general disease risk. Contemporary studies of the effect of mortality risk on insurance demand also offer mixed results (for example: Browne and Kim, 1996; Li et.al., 2007).

By investigating the amount of life insurance in force in this period, I find that real private life insurance in force increased only slightly between 1917 and 1919. At the household level, the BLS Cost of Living Surveys of 1918-19 provide a unique opportunity to examine the effect of the pandemic—some households were surveyed before, and others during or shortly after the worst of the influenza outbreak. Controlling for various household, city, and regional-level variables, I find little evidence that the city mortality rate affected the probability of holding ordinary insurance policies. The purchase of fraternal and especially industrial policies, though, was affected by the disease environment. The effect of the number of life insurance agents and fraternal organizations in a city on life insurance demand also appears to rise in the post-flu period. This may indicate that sellers became more persuasive after the epidemic.

SEGREGATION AND LYNCHING

LISA D. COOK, TREVON D. LOGA, AND JOHN M. PARMAN

The empirical relationship between racial segregation and racial violence is unknown. Since racial violence (lynching) occurred in rural and urban areas, traditional measures of segregation cannot be used to estimate the relationship. Earlier analysis has used racial proportions, a poor proxy for racial segregation. We use a newly developed measure of residential segregation based on individual-level data (Logan and Parman 2015), which exploits complete census manuscript files to derive a measure of segregation based upon the racial similarity of next door neighbors. This new measure distinguishes between the effects of increasing racial homogeneity of a location and the tendency to segregate within a location given a particular racial composition. Using this comprehensive measure of racial residential segregation for every county in the United States, we estimate the relationship between racial segregation and lynching. We find that conditional on racial composition, racially segregated environments were much more likely to experience lynchings and to have more lynchings. In general, a one standard deviation increase in segregation in 1880 resulted in one additional lynching in a county from 1882 to 1930. The result is robust to numerous controls, functional form assumptions, and the inclusion of traditional segregation measures. Consistent with the hypothesis that segregation is related to interracial violence, we find that segregation is highly correlated with African American lynching, but uncorrelated with white lynching. We conclude by describing how our results call for reformulating theories of lynching to focus on social interactions and interracial proximity.

FIRM HETEROGENEITY AND THE GAINS FROM TECHNOLOGICAL ADOPTION: THEORY AND MEASUREMENT

ALEX W. CHERNOFF

There are several theoretical and empirical challenges associated with estimating the aggregate effects of technological adoption. Aggregate models of technological adoption abstract from important questions regarding why only some firms adopt certain technologies, and how this heterogeneity affects aggregate outcomes. While models of firm heterogeneity are increasingly popular, tractability in aggregation poses a challenge to estimating the macro-economic effects of technological adoption in micro-founded models. From an empirical perspective, the inherently endogenous relationship between productivity and technological adoption raises issues of identification that are not easily resolved. This paper develops and estimates a model of firm heterogeneity and technological adoption that overcomes all of the challenges above.

In the spirit of Melitz (2003), I develop a model where firms are heterogeneous in productivity and face a fixed cost to adopt a new technology. The purpose of the theoretical model is to derive a sufficient statistic that measures the effect of technological adoption on the aggregate price index. To achieve this objective I solve the model and compare the aggregate price index in the economy with and without this new technology. The introduction of the technology results in three effects on the price index. First, firms with the highest productivity adopt the technology which leads to a decrease in the price index. Second, this decrease in the price index results in the exit of firms with the lowest productivity which further decreases the price index. Third, there is an offsetting effect arising from firm exit that puts upward pressure on the price index. In particular, firm exit leads to a reduction in the range of goods available to consumers, and this increases the price index as consumers' value product variety in consumption. I show that the net effect of the introduction of the new technology is a reduction in the aggregate price index. Using the model I derive a sufficient statistic that measures the combined effects that result from technological adoption.

In the empirical section of the paper I develop an econometric methodology for estimating this sufficient statistic. For my empirical application I consider the case of steam power in the Canadian manufacturing sector during the late nineteenth century. As a general purpose technology (GPT), my analysis of steam power provides insight that generalizes to further understanding of the aggregate effects of GPTs when there is firm heterogeneity in adoption. My identification strategy leverages the fact that steam and water power were the two main sources of inanimate power during this era. Under the assumption that water and steam power were substitutable technologies, I propose that exogenous variation in stream flow accumulation and precipitation can be used as instruments for steam power adoption. Using instrumental variables estimation, I estimate that adopting steam power increased firm-level labour productivity by approximately 75 percent. In order to calculate the sufficient statistic, I estimate two structural equations from the theoretical model. My results indicate that steam power adoption resulted in a 7.96-13.2 percent reduction in the price index of manufactured goods in Canada in 1871.