

World War II

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Taylor Jaworski
Queen's University
Department of Economics
Kingston, ON K7L 3N6
tjaworski@gmail.com

Price V. Fishback
University of Arizona
Department of Economics
Tucson, AZ 85721
fishback@email.arizona.edu

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Abstract

This chapter reviews the evidence connecting World War II to US economic performance in the second half of the twentieth century. We emphasize the substantial costs of mobilizing the economy for war and provide a brief discussion of the institutions created to manage the war effort. We then survey four areas where research on World War II has concentrated: (1) the rise of women's labor participation, (2) the decrease in wage and wealth inequality, (3) the postwar growth miracle, and (4) the changing role of government in American society. Economic historians and economists have provided important revisions in each area. Along the way, we point in several directions for future research.

1. Introduction

World War II was a watershed event in US economic history. Over \$26 billion in new capital investment (nearly three-quarters financed by the federal government) flowed to regions and firms as the national economy was converted to fight an “all-out” war. Postwar government programs—many a continuation of New Deal and wartime social programs—permanently altered the view and role of government in American society.¹ Moreover, coming at the end of a prolonged economic downturn, the war is frequently ascribed a key role in recovery from the Great Depression as well as a major role in laying the foundation for the postwar “golden age.”² That story emphasizes the role of demand-side stimulus, due to \$108 billion in government spending on prime contracts, and productivity gains from learning-by-doing and R&D spending, to place mobilization for World War II at the center of recovery and postwar economic growth.

However, many changes followed the mobilization for war beginning in the late 1930s: conscription, accelerated depreciation for war-related capital, wage and price controls, excess-profit and income taxes, as well as changes in the regulation of business and attitudes toward government. The long-run effects of the new institutions stemming from the wartime political economy (e.g., the military-industrial complex) and postwar government programs (e.g., the 1944 Servicemen’s Readjustment Act) are the subject of debate among both economists and economic historians. For example, one estimate suggests that facilities and equipment investment during the war years helped to capitalize postwar growth in manufacturing, while other estimates emphasize the war’s fiscal costs.³ What role did World War II and the reform of political and

¹ Robert Higgs, *Crisis and Leviathan: Critical Episodes in the Growth of American Government* (Oxford: Oxford University Press, 1987); Paul A.C. Koistinen, *Arsenal of World War II: The Political Economy of American Warfare, 1940-1945* (Lawrence: University Press of Kansas, 2004); James T. Sparrow, *Warfare State: World War II Americans and the Age of Big Government* (Oxford: Oxford University Press, 2011).

² Harold G. Vatter, *The US Economy During World War II* (New York: Columbia University Press, 1985).

³ Robert J. Gordon, “\$45 Billion of U.S. Private Investment Has Been Misplaced,” *American Economic Review* 59

economic institutions during the early 1940s have on US economic performance in the second half of the 20th century?

This chapter examines the major economic changes brought on by World War II and the accompanying evolution in institutions and economic outcomes. The first part places World War II in the context of other 20th century mobilization efforts and then summarizes the key aspects of the institutional environment that emerged in the early 1940s and persisted after the war's end. The second part examines four ways in which the war shaped postwar economic performance. First, it analyzes the effect of the war on women's labor force participation. Second, it considers the war's contribution to change in wage and wealth inequality, the mobility of African-Americans, and the overall standard of living. Third, it assesses the war's role in the recovery from the Great Depression, postwar economic growth, and regional development in the West and South. Finally, it examines the long-run impact of immediate postwar government interventions into housing markets, programs to promote education, as well as broader changes in the American political economy that followed mobilization for war.

In the United States, the end of World War II was followed by rapid economic growth, the emergence of a middle class at home, and newfound economic and military leadership abroad. This chapter surveys the evidence on the war's impact on postwar growth and the reorganization of the American economy. The evidence that World War II was directly responsible for recovery from the Great Depression and postwar economic growth is inconclusive. Indeed, as with many of America's wars, the cost of World War II was substantial and has generally been underemphasized. In other areas there is clear evidence of the war's effect, such as with the GI

(1969): 221-238; Henry E. Siu, "The Fiscal Role of Conscription in the US World War II Effort," *Journal of Monetary Economics* 55 (2008): 1094-1112; Hugh Rockoff, *America's Economic Way of War: War and the US Economy from the Spanish-American War to the Persian Gulf War* (Cambridge: Cambridge University Press, 2012): 326-327.

Bill; in still other aspects of American life (e.g., trends in inequality and the regulation of business) the evidence is more mixed and future research is needed.

2. World War II in Context

A. Economic Consequences of America's Wars

One approach to quantifying the impact of war on the economy is to sum the rise in government expenditures or outlay associated with the war. However, in practice, this exercise is complicated by the change in circumstances that separates periods of war and peace.⁴ An economy at war demands different types of goods and operates under different constraints. Some war expenditures represent new spending that would not have occurred in the war's absence while other expenditures replaced civilian purchases and therefore did not reflect a net increase in economic activity. Finally, still other expenditures accrued over longer time horizons in the form of interest payments on wartime debt, and payments to veterans.⁵

The rise in expenditures associated with each war is calculated by first defining the period of war using the years of elevated military spending and summing expenditures in each war year after subtracting expenditures in a normal prewar year. Table 1 displays cost estimates for each of America's major twentieth century wars. World War II was the most costly in absolute terms and relative to GDP over the period of conflict. The expenditures on veterans' benefits were also substantial: accounting for half of the direct cost of World War I, one third of total expenditures on World War II and Vietnam, and 15 percent of the Korean War's direct cost.

The estimates in Table 1 do not include all of the costs associated with America's wars. For example, inefficiencies and resource reallocation due to mobilization, wage and price controls, rationing, and the accompanying responses by firms (e.g., the discontinuation of low-profit

⁴ Simon Kuznets. *National Product in Wartime* (New York: National Bureau of Economic Research, 1945).

⁵ Claudia Goldin, "War," in *The Encyclopedia of American Economic History, Volume III*, edited by Glenn Porter, 935-957. New York: Scribner's and Sons, 1980.

items, deterioration of quality) may have reduced welfare and are not captured in Table 1's cost estimates.⁶ In addition, World War II was notable as the first war financed substantially by taxation: nearly one half of expenditures were financed by additional income, corporate, and excess profits taxation compared with 30 percent during World War I.⁷ The introduction of new taxes and other wartime fiscal policies altered various margins of labor supply or investment (e.g., in human and physical capital), although the full implications of these changes for long-run growth and welfare are not well understood.

Estimates of gross national product (GNP) and other macroeconomic variables have also been used to assess the consequences of war for the allocation of resources across sectors, the operation of labor markets, and wartime standards of living. In the first column of Table 2, estimates of GNP growth between 1940 and 1950 show substantial growth during the war years. In addition, decreased unemployment (column 2) and increased per capita consumption (column 3) suggest a positive role for World War II in lifting the economy out of the Great Depression. However, data revisions combined with alternative interpretations of the key macroeconomic series suggest less rapid growth in the private economy and greater pessimism related to improvements in living standards. For example, Simon Kuznets and Robert Higgs document a sharp divergence in the overall and private GNP growth after 1940, while alternative estimates of GNP and per capita consumption expenditures cast doubt on optimistic interpretations of the wartime macroeconomic statistics.⁸

Overall, the direct costs of America's twentieth century wars were large and World War II

⁶ Hugh Rockoff, *Drastic Measures: A History of Wage and Price Controls in the United States* (Cambridge: Cambridge University Press).

⁷ Goldin, "War," 944; Rockoff, *America's Economic Way of War*, 125, 171.

⁸ Simon Kuznets, *National Product in Wartime*; Robert Higgs, "Wartime Prosperity? A Reassessment of the US Economy in the 1940s," *Journal of Economic History* 52 (1992): 41-60; Robert Higgs, "From Central Planning to the Market: The American Transition, 1945-1947," *Journal of Economic History* 59 (1999): 600-623.

imposed the greatest strain on the economy with the largest mobilization of human and physical resources in US history. Still, the evidence is mixed on which particular aspects of the war imposed the greatest short- and long-run costs.

B. Institutional Background

Prior to 1940 substantial obstacles stood in the way of military and economic preparedness for war. Congress passed a series of neutrality acts in 1935, 1936, 1937, and 1939, in order to limit foreign entanglements. In addition, legislation was also enacted to restrict the use of the “cost-plus” arrangements in government contracting that many observers associated with war profiteering. Finally, the extent of pre-1940 mobilization was also limited by the separation of responsibility for military and economic preparedness among various branches of the defense establishment. Therefore, except for circumscribed efforts centered on surveys of industrial capacity and the development of some links between government and business, by 1940 the United States was unprepared for a large-scale military conflict.

Following events in Europe between April and June of 1940, attitudes toward American rearmament softened. On May 26, President Roosevelt delivered his fireside chat, “On National Defense,” and laid out a broad mobilization program “calling upon the resources, the efficiency and the ingenuity of the American manufacturers of war material of all kinds.” The National Defense Advisory Commission (NDAC) was established two days later to oversee and coordinate industrial production. Further steps to remove impediments to rearmament were taken in the summer and fall of 1940; acts passed on June 28 and July 2 authorized the use of negotiated, cost-plus-fixed-fee contracts in place of competitive bidding and the Second Revenue Act, passed on October 8, allowed for accelerated depreciation of capital expenditures related to

the war effort and eliminated profit limitations on government contracts.⁹

Along with legislative actions to incentivize industrial expansion, various programs were created to finance plant expansion and equipment purchase directly. For example, the Emergency Plant Facility (EPF) program fully reimbursed certified plants over the course of five years and the Defense Plant Corporation (DPC) provided funds for facilities owned by the government and operated by war contractors. Under both programs the firms that operated the facilities during wartime maintained a purchase option after the war concluded. Ultimately, the DPC spent 20 times more than the EPF. It accounted for \$7 billion in expenditures on facilities and equipment, as well as 10 to 13 percent of total US industrial capacity in June 1945. The DPC played an even larger role in key war industries, such as synthetic rubber, aluminum, magnesium, and aircraft.

To speed mobilization further, the NDAC was replaced by the Office of Production Management (OPM) in late 1940, which was subsequently replaced by the War Production Board (WPB) in January 1942. The main impetus for this administrative reshuffling was to achieve a greater centralization of planning and coordination capabilities in order to meet better the demands of military and economic mobilization.¹⁰ Feasibility studies carried out in the early 1940s and then revised throughout the war played important roles in this process. The studies had the dual goals of balancing civilian and military requirements, as well as ensuring sufficient coordination to avoid unbalanced production and idle factories.¹¹ In the end the federal government spent \$17 billion on new facilities and equipment during World War II (over three-quarters of the wartime total of new facilities and equipment) and \$108 billion on prime supply

⁹ Paul A.C. Koistinen, *Arsenal of World War II: The Political Economy of American Warfare, 1940-1945*. (Lawrence: University Press of Kansas, 2004), 53-64; Donald M. Nelson, *Arsenal of Democracy: The Story of American War Production* (New York: Harcourt, Brace, and Co), 106-107.

¹⁰ Koistinen, *Arsenal of World War II*, 67-74, 195.

¹¹ Michael Edelstein, "The Size of the US Armed Forces During World War II: Feasibility and War Planning," *Research in Economic History* 20 (2001): 47-97.

contracts. This shift toward military goods required a substantial reorganization of industry.

Mobilization was accompanied by enormous growth in the size of the military, both as a share of expenditures and in terms of manpower. Total war spending, which is shown in Figure 1, increased from \$3.6 billion in 1940 to \$93.4 billion in 1944.¹² In addition, on September 17, 1940, Congress passed the Selective Service Act and enabled the dramatic increase in military manpower depicted in Figure 2. By the end of the war, a total of 16 million men had served in the armed forces, 12 million had been inducted under the selective service law. This growth persisted into the postwar years.

The desire to control inflation led the government to place a number of restrictions on consumption patterns during the war years. The Office of Price Administration (OPA) was established on April 11, 1941 and was strengthened by the Emergency Price Control Act. The new legislation formally empowered a single administrator to set a broad range of controls determined to be “generally fair and equitable.” The OPA’s first action was the General Maximum Price Regulation, effective in May 1942, which fixed a ceiling for prices at their highest level as of March 1942. To overcome the fairness, efficiency, and enforcement problems that arose from freezing individually set prices, the OPA subsequently worked to develop specific controls for industries and products. Still, Hugh Rockoff notes that price controls did not generally become effective at restraining inflation until they were combined with rationing, enforcement, and wage controls determined by the National War Labor Board.¹³

In response to the boom in military production and the migration to cities that followed the expansion of military production, the federal government took steps to ameliorate the negative consequences, even before the U.S. entered the war. In October 1940, for example, the Defense

¹² R. Elberton Smith, *The Army and Economic Mobilization* (Washington: Government Printing Office, 1959), 7.

¹³ Rockoff, *Drastic Measures*, 174-176.

Housing and Community Facilities and Services Act was enacted. It eventually included provisions to provide funding for housing and other public services to defense areas. In addition, the families of service personnel were provided with small payments and healthcare benefits under the Servicemen's Dependents' Allowance Act of 1942, the emergency maternity program, and the infant care program.¹⁴ The OPA also used its powers under the 1942 Emergency Price Control Act to roll back rents to prewar levels in the areas most affected by the surge in population during the war years.¹⁵

Preparation for reconversion began relatively early. Just as war production peaked, the War Production Board commissioned a preliminary report to study how and when demobilization should occur.¹⁶ In the summer and fall of 1944 Congress passed the Contract Settlement and Surplus Property acts, which reimbursed contractors for expenses on terminated war contracts and governed the disposal of government-held industrial assets. The legislation also included provisions to protect small businesses and encourage competition.¹⁷ Following the end of the war, many of the wartime controls were removed. The majority of wage and price controls were gone by the end of 1947 and businesses reported improved access to labor and raw materials and expected increased competitiveness in consumer markets in the short-run.¹⁸

Despite the end of the conflict, the institutions created to oversee the war effort did not disappear entirely. Many of the agencies that played a key role in mobilizing the economy for

¹⁴ William M. Tuttle, Jr., "Rosie the Riveter and Her Latchkey Children: What Americans Can Learn About Child Day Care From the Second World War," *Child Welfare* 74 (1995): 92-114.

¹⁵ Harvey C. Mansfield and Associates, *A Short History of the OPA* (Washington: Office of Price Administration, 1948).

¹⁶ Koistinen, *Arsenal of World War II*, 446.

¹⁷ James E. Murray, "The Contract Settlement Act of 1944," *Law and Contemporary Problems* 10 (1944): 683-692. Louis Cain and George Neuman, "Planning for Peace: The Surplus Property Act of 1944," *Journal of Economic History* 41 (1981): 129-135.

¹⁸ Paul W. Dickson and Francis R. Lusardi, "Elimination of War Controls," *Business Record* 4 (1947): 15-17; Henry E. Hansen, "Executives Look at '47," *Business Record* 4 (1947): 18-22; Robert Higgs, "From Central Planning to the Market," 101-123.

war were officially defunct by 1945 or shortly thereafter. However, many of their functions were incorporated into existing departments. Moreover, aspects of wartime legislation that were allowed to expire reappeared in new legislation passed in the immediate postwar years.¹⁹ As a result, the war years solidified a set of institutions that were dramatically different from those that had existed a half-century earlier.

3. The Economic Impact of World War II

The aspects of World War II's effects on the postwar economy that have been studied most by economic historians have been the rise of women's labor participation, the decrease in wage and wealth inequality, the postwar growth miracle, and the changing role of government in American society. Early research emphasized the war's transformative effect in each area: Rosie the Riveter continued to work after the 1940s, hence the war was a watershed for women's increasing participation in paid work; wartime taxation and labor market institutions altered the distributions of wages and wealth and attitudes toward inequality; investment and technological advances during the war spurred postwar growth; and federal policies such as the GI Bill permanently altered the role of government in education and housing finance. Recent studies by economic historians have re-evaluated these claims and, in turn, produced substantial revisions in our understanding of the impact of World War II.

A. Women's Labor Force Participation

The early literature on women's work and World War II emphasized the war's transformative effect.²⁰ Prior to 1940, women—particularly married women—faced substantial obstacles to paid work: segregation into low-wage occupations, legal constraints on daily and weekly hours, limited access to union membership, firm personnel policies that barred work for

¹⁹ Higgs, *Crisis and Leviathan*, 225-234.

²⁰ William H. Chafe, *The American Woman: Her Changing Social, Economic, and Political Roles, 1920-1970* (New York: Oxford University Press, 1974).

married women, and a workplace ideology dismissive of women.²¹ The increased demand for labor due to mobilization for World War II and the sharp decline in the number of men available for civilian work pushed the female labor force participation rate from 27.8 percent in 1940 to 33.8 percent in 1945. As the story goes, the disruptive change led many women to not only enter the labor force *en masse* during the war, but dramatically altered attitudes toward women in the workplace; thus, the war was the impetus for the continued increase in women's labor force participation throughout the second half of the twentieth century.

However, the view that the war led to sweeping changes in employment opportunities and attitudes toward women faces strong challenges. As Figure 3A shows, female labor force participation increased over the entire twentieth century, steadily until 1930 and more rapidly thereafter. Figure 3B shows a sharp decrease in the participation rate after 1945. Patriotism, the mobilization of men for military service, and the accompanying boom in female employment opportunities drew many women into the labor force during the war. Yet, despite their desire to remain at work, women were laid off in large numbers as employers and unions ignored seniority rules and gave preference to men in retention and hiring. More broadly, women also faced pressure to return to their prewar role as homemakers.²²

Claudia Goldin provided the first quantitative assessment of the war's contribution to rising female labor force participation based on individual data.²³ The data used were unique: surveys conducted in the early 1950s that asked employed women in six cities about various aspects of their employment history, in particular in 1940 and 1944. Focusing on white married women

²¹ Claudia D. Goldin, *Understanding the Gender Gap: An Economic History of American Women* (New York: Oxford University Press, 1990).

²² Karen Anderson, *Wartime Women: Sex Roles, Family Relations, and the Status of Women During World War II* (Westport: Greenwood Press, 1981); D'Ann Campbell, *Women at War with America: Private Lives in Patriotic Era* (Cambridge: Harvard University Press, 1984); Ruth Milkman, *Gender at Work: The Dynamic of Job Segregation by Sex During World War II* (Urbana: University of Illinois Press, 1987).

²³ Claudia D. Goldin, "The Role of World War II in the Rise of Women's Employment," *American Economic Review* 81 (1991): 741-756.

between the ages of 35 and 64 in 1950, Goldin found that the earlier views that the War stimulated women's labor force participation were overstated. Of women working in 1950, over half had also been working in 1940 prior to US entry into the war and before any substantial mobilization had taken place. Among women who had entered paid work during the war years, nearly half exited when the war concluded. Ultimately, wartime entrants comprised only one-fifth of white married women at work in 1950.

Another study by Daron Acemoglu, David H. Autor, and David Lyle, treats states as distinct labor markets and exploits the variation in manpower mobilization across states to estimate the effect of World War II on women's work.²⁴ The intuition for the approach is straightforward: manpower mobilization was a negative shock to a state's labor supply that induced women to enter the labor force during the war. After controlling for characteristics that may have caused female labor force participation to differ across states even without differences in manpower mobilization, the study shows that the War had contributed to only modest increases in labor force participation by 1950. Building on this study, Goldin and Claudia Olivetti find that employment gains were concentrated among women with at least a high school degree.²⁵ Moreover, women with no children during World War II were the most affected by manpower mobilization in 1950. Meanwhile, women with children were the most affected in 1960.

In earlier work, Mary M. Schweitzer showed that the increase in women's labor force participation during the war was responsive to their household duties.²⁶ Single women accounted for half of those working in 1940 and continued to comprise the largest share during the war. In

²⁴ Daron Acemoglu, David H. Autor, and David Lyle, "Women, War and Wages: The Effect of Female Labor Supply on the Wage Structure at Midcentury," *Journal of Political Economy* 112 (2004): 497-551.

²⁵ Claudia D. Goldin and Claudia Olivetti, "Shocking Labor Supply: A Reassessment of the Role of World War II on US Women's Labor Supply," NBER Working Paper 18676.

²⁶ Mary M. Schweitzer, "World War II and Female Labor Force Participation Rates," *Journal of Economic History* 45 (1980): 89-95.

contrast, women with young children were the last group to enter in large numbers: only in the second half of 1943 after firms together with local, state, and federal governments helped to provide child care and other housekeeping services. This infrastructure disappeared at the end of the war and so too did many working mothers.

A case study by Sherrie A. Kossudji and Laura J. Dresser using employment records from Ford Motor Company supports the findings of Goldin and Schweitzer. These authors document a pattern of postwar layoffs that is consistent with targeting women over men. As a result, by the start of 1946, only two of the women in their sample of roughly 300 were still working at Ford. This level of attrition does not comport with the generally high job performance ratings received by these women during the war. To explain this pattern, Kossudji and Dresser point to the unwillingness of management and unions to offer the wage and benefits packages perceived as necessary to maintain women in the workplace. Thus, from the vantage point of the late 1940s, the war's contribution to female employment gains was modest.

Nevertheless, over the second half of the twentieth century women's labor force participation increased dramatically. By 1990 the labor force participation rate was 57.5 percent; nearly triple the rate at the beginning of the century. Goldin emphasizes the evolutionary nature of the change.²⁷ In the early decades of the twentieth century few married women were in the labor force. In subsequent decades the arrival of white-collar jobs and changing attitudes toward women in the workplace fueled the entry into paid work and altered expectations regarding the prospects for participation in the labor force over the life cycle.

There is growing evidence that World War II played some role in changing attitudes towards women's work and women's expectations about their lifetime prospects in the labor market. A

²⁷ Claudia D. Goldin, "The Quiet Revolution That Transformed Women's Employment, Education, and Family," *American Economic Review Papers and Proceedings* 96 (2006): 1-21.

1947 report by the Women's Bureau presents evidence that women's work during the war altered family roles, for example with respect to childcare, meal preparation, and other household responsibilities.²⁸ However, the study provided no additional information on the attitudes of men and whether altered household responsibilities lasted into the postwar years. Raquel Fernandez, Alessandra Fogli, and Claudia Olivetti show that World War II had lasting effects on women's labor force participation through likely changes in the attitudes toward working women of the sons of working mothers. The sons of women more likely to have worked during the war were also more likely to have a working wife.²⁹

On balance, World War II did not produce a sharp break in the rise of women's employment. In many cases, women were dismissed from their wartime jobs once the fighting was over and by 1950 women who entered paid work during the war comprised less than one-quarter of overall female employment. Still, World War II did have some effect: modest immediate gains in employment combined with changing attitudes and expectations about women's work eventually led to greater participation and spurred investment in human capital among subsequent generations. The war did not have the immediate and dramatic effects initially ascribed to it, but may have accelerated changes already underway.

B. Inequality, Mobility, and Living Standards

During the 1940s, the distributions of earnings and wealth exhibited a strong movement toward greater equality. Figures 4 and 5 document this pattern across a variety of measures. Figure 4 shows the narrowing of the distribution of weekly wages between 1940 and 1950, and Figure 5 shows the evolution of executive compensation (Panel A) and the share of income

²⁸ US Women's Bureau, *Women's Wartime Hours of Work: the Effect on their Factory Performance and Home Life* (Washington: Government Printing Office, 1947).

²⁹ Raquel Fernandez, Alessandra Fogli, and Claudia Olivetti, "Mothers and Sons: Preference Formation and Female Labor Force Dynamics," *Quarterly Journal of Economics* 119 (2004): 1249-1299.

accruing to top earners before and after World War II. The fall in inequality was coincident with the war and the onset of the Great Depression, changes in tax policy, government-imposed caps on earnings, as well as economy-wide structural change stemming from the movement out of agriculture. What role did the war play in shaping the postwar distribution of income and wealth, and what was the war's contribution to changes in mobility and the standard of living?

Claudia Goldin and Robert A. Margo document the narrowing of the wage distribution between 1940 and 1950—what they term the Great Compression.³⁰ Focusing on the weekly wages of men, Goldin and Margo present evidence that the move toward greater equality was broad-based: the weekly wage distribution compressed from both above and below the median and differentials due to educational and regional differences were reduced. The 1940s compression took place in the context of structural transformation reflected in the movement out of agriculture and into manufacturing, the development of the US educational system particularly at the high school level, and the accompanying changes in the relative demand for labor of different skills. The effects of government policy during the Great Depression and war years were more short run. In the 1930s and 1940s, government policies were enacted to mitigate the most severe effects of the economic downturn and to limit inflation and prevent the war profiteering that had followed earlier wars. The Fair Labor Standards Act (FLSA) established a federal minimum wage at 25 cents in 1938 that eventually increased to 75 cents by 1950.³¹ The FLSA may have contributed to reduced inequality in the early 1940s, although Andrew J. Seltzer documents substantial evasion by firms in the southern seamless hosiery and lumber industries

³⁰ Claudia Goldin and Robert A. Margo, "The Great Compression: The Wage Structure in the United States at Mid-Century," *Quarterly Journal of Economics*, 107 (1992): 1-34.

³¹ "History of Federal Minimum Wage Rates Under the Fair Labor Standards Act, 1938-2009," last accessed March 15, 2013, <http://www.dol.gov/whd/minwage/chart.htm>.

either by dropping out of interstate commerce or simply paying lower (illegal) wages.³² During World War II, the compression of the wage structure was partially due to increased relative demand for less-educated workers and policies that capped earnings. For example, the National War Labor Board (NWLB) under the authority of the 1942 Stabilization Act restricted wage increases to an additional 40 cents per hour without permission from the NWLB and 50 cents with authorization from one of its regional offices.³³

To pin down the timing of the compression, Goldin and Margo draw on Bureau of Labor Statistics reports from the late 1930s and 1940s. Using consistent data for 15 industries, they date the compression in the bottom half of the wage distribution to the prewar and war years, while compression in the upper half started during the war and continued after the fighting was over. Ultimately, this pattern suggests that rather than causing the Great Compression, wartime controls reinforced long-run trends that raised the relative demand for less-skilled labor, lowered the returns to schooling, and solidified institutional changes (e.g., increased minimum wage and union membership) that began in the 1930s.³⁴

Turning to the effect on top earners, Thomas Piketty and Emmanuel Saez document the sharp drop in top income shares following the onset of World War II.³⁵ The share of income accruing to individuals above the 90th percentile dropped from 44.4 percent in 1940 to 35.5 percent in 1942 and 31.6 percent by 1944. Wojciech Kopczuk and Saez document a similar pattern of decline in top wealth shares due to World War II.³⁶ These authors stress wage controls along with increased income and corporate tax rates as the initial cause of the decline and explain the

³² Andrew J. Seltzer, "The Effects of the Fair Labor Standards Act of 1938 on the Southern Seamless Hosiery and Lumber Industries," *Journal of Economic History* 57 (1997): 396-415

³³ Rockoff, *Drastic Measures*, 119.

³⁴ Goldin and Margo, "Great Compression," 23-32.

³⁵ Thomas Piketty and Emmanuel Saez, "Income Inequality in the United States, 1913-1918," *Quarterly Journal of Economics* 118 (2003): 1-39.

³⁶ Wojciech Kopczuk and Emmanuel Saez, "Top Wealth Shares in the United States, 1916-2000: Evidence from Estate Tax Returns," *National Tax Journal* 57 (2004): 445-487.

failure of top incomes and wealth to recover with increasingly progressive taxation in the postwar period.

Focusing on the determinants of executive compensation, Carola Frydman and Raven Molloy provide evidence that the effect of specific regulations arising out of World War II were modest.³⁷ Between 1940 and 1949, the compensation of corporate officers in 246 firms experienced much slower growth in absolute terms and declined relative to production workers in the same industry. The authors attribute the change in executive compensation over the 1940s to decreased compensation for the top officers of larger firms and the ability of labor unions to restrict compensation at the highest levels. On the other hand, the effect of direct salary caps imposed during the war and higher tax rates appear modest and did not last beyond the end of the war.

Apart from the war's contribution to changes in the distribution of earnings and wealth, a number of studies examine changes in the circumstances of specific groups over the 1940s. For example, in *An American Dilemma: The Negro Problem and Modern Democracy*, Gunnar Myrdal wrote, "The present War is of tremendous importance to the Negro in all respects."³⁸ Indeed, in two studies using data from the 1940 and 1950 decennial censuses, Thomas N. Maloney and Margo document the convergence of black and white wages.³⁹ Blacks benefited from the overall compression of the wage structure as well as race-specific factors such as improvements in access to and the quality of schooling, occupational upgrading, and migration

³⁷ Carola Frydman and Raven Molloy, "Pay Cuts for the Boss: Executive Compensation in the 1940s," *Journal of Economic History*, 72 (2012): 225-251.

³⁸ Gunnar Myrdal, *An American Dilemma: The Negro Problem and Modern Democracy* (New York: Harper & Brothers Publishers, 1944), 409.

³⁹ Thomas N. Maloney, "Wage Compression and Wage Inequality Between Black and White Males in the United States, 1940-1960," *Journal of Economic History* 54 (1994): 358-381; Robert A. Margo, "Explaining Black-White Wage Convergence, 1940-1950," *Industrial and Labor Relations Review* 48 (1995): 470-481.

out of the South, played a role.⁴⁰

During the war years, the scarcity of labor and increased demand for industrial production also opened up employment opportunities previously closed to blacks. William J. Collins shows that the Fair Employment Practice Committee (FEPC), established by executive order on June 25, 1941, to investigate charges of racial discrimination in war-related industries, did improve employment prospects for blacks in the covered industries. The key evidence is drawn from War Manpower Commission reports that give information on employment by race and the FEPC caseload at the city-level. The ratio of non-white to white employment increased with FEPC activity and this effect survives an instrumental variables strategy to address unobserved city characteristics.⁴¹ In addition, Collins estimates the wage gains associated with work in war-related industries: a 15 percent wage premium for blacks employed in defense work relative to otherwise similar blacks in non-defense work.⁴²

The overall picture for the change in living standards during the war years and the specific contribution of wartime government policies remains unclear. A large body of evidence indicates a movement toward greater equality in the rewards from work: partially driven by long-run factors and partially due to policies associated with mobilization for war. However, evidence for overall gains in welfare is mixed. For example, Harold G. Vatter argues that economic activity was higher during the war than at any point during the Great Depression, while Robert Higgs reinterprets key macroeconomic variables to suggest that the US economy could not freely

⁴⁰ Robert A. Margo, *Race and Schooling in the South, 1880-1950: An Economic History* (Chicago: University of Chicago Press, 1994); Martha J. Bailey and William J. Collins, "The Wage Gains of African-American Women in the 1940s," *Journal of Economic History* 66 (2006): 737-777.

⁴¹ William J. Collins, "African-American Economic Mobility in the 1940s: A Portrait from the Palmer Survey," 60 *Journal of Economic History* (2000): 756-781.

⁴² William J. Collins, "Race, Roosevelt, and Wartime Production: Fair Employment in World War II Labor Markets," *American Economic Review* 91 (2001): 272-286.

consume more guns *and* butter.⁴³ Ultimately, the tension between evidence that war policies raised overall economic activity, produced greater equality, or limited consumer choices, awaits more micro-level studies quantifying the size of gains and losses from specific government actions.

C. Postwar Economic Growth and Regional Development

The difference between economic performance in the United States before and after World War II is striking. Economy-wide, the traditional narrative of growth over the twentieth century emphasizes the build-up and crash during the 1920s, sluggish performance in the 1930s, the boom of the 1940s, and subsequent postwar prosperity fuelled by productivity growth due to the mobilization for World War II. A version of this narrative is also used to explain growth at the regional level: in the American South and in states along the Pacific Coast new capital investment and learning-by-doing spurred industrialization. In general, this story suffers from relatively little empirical support and existing evidence that relies mostly on the temporal coincidence between the war in the 1940s and the improvement of macroeconomic aggregates between the 1930s and 1950s. Ultimately, the traditional story does not stand up against straightforward revisions to the macroeconomic data nor does it comport with growing micro-level evidence that mobilization for war did not provide direct inputs into economic growth and regional development.

Starting with macroeconomic data, many economists and historians have emphasized the role of World War II in the recovery from the Great Depression: mobilization for war coincided with

⁴³ Harold G. Vatter, "The Material Status of the US Civilian Consumer in World War II: The Question of Guns or Butter," in *The Sinews of War: Essays on the Economic History of World War II*. eds. Geoffrey Mills and Hugh Rockoff. (Ames: Iowa State University Press, 1993); Robert Higgs, "Wartime Prosperity?"

improvements in GNP, unemployment, and per capita consumption.⁴⁴ Between 1939 and 1945 real GDP increased 70 percent and per capita consumption was up nearly 25 percent, while the unemployment rate reached 1.3 percent by the end of the war. The link from the war to gains in these aggregate series is primarily through the build-up in military spending combined with fiscal policy multipliers that spilled over into the civilian economy. As an example, J.R. Vernon argues that over half of the recovery from the 1933 trough occurred between 1941 and 1942, and that war-related fiscal policy explains 80 percent of this growth.⁴⁵ Vernon uses a multiplier for government spending of 1.6, which is higher than multipliers obtained in more recent studies.⁴⁶ Robert Gordon and Robert Krenn argue that the U.S. ramped up military spending in July 1940. Their estimate of the multiplier prior to the third quarter of 1941, when the economy did not face capacity constraints, is 1.8, but falls to 0.9 afterward when capacity constraints became binding.⁴⁷

J. Bradford De Long, Lawrence H. Summers, and Christina D. Romer argue that a large portion of the recovery was already complete before mobilization for World War II began.⁴⁸ De Long and Summers cite government spending's relatively small share of GNP prior to the attack on Pearl Harbor as reason to doubt the war's contribution to the recovery. In their view, five-sixths of the decline in output relative to trend was made up before the government took

⁴⁴ Herbert Stein, *The Fiscal Revolution in America* (Chicago: University of Chicago Press, 1969), 170; Richard Polenberg, *War and Society: The United States, 1941-1945* (New York: JB Lippincott Company, 1972), 36; Vatter, *US Economy*, 14, 20; Stanley Lebergott, *The Americans: An Economic Record* (New York: WW Norton, 1984), 472, 477; Allan M. Winkler, *Home Front USA: America during World War II* (Arlington Heights: Harlan Davidson, 1986), 19-23; Michael A. Bernstein, *The Great Depression: Delayed Recovery and Economic Change in America, 1929-1939* (New York: Cambridge University Press, 1987), 207.

⁴⁵ J.R. Vernon, "World War II Fiscal Policies and the End of the Great Depression," *Journal of Economic History* 54 (1994): 850-868.

⁴⁶ Valerie A. Ramey, "Can Government Purchases Stimulate the Economy?" *Journal of Economic Literature* 49 (2011): 673-685.

⁴⁷ Robert Gordon and Robert Krenn, "The End of the Great Depression, 1939-1941: Policy Contributions and Fiscal Multipliers," NBER Working Paper 16380 (2010).

⁴⁸ J. Bradford De Long and Lawrence H. Summers, "How Does Macroeconomic Policy Affect Output?" *Brookings Papers on Economic Activity* (1988): 433-480; Christina D. Romer, "What Ended the Great Depression?" *Journal of Economic History* 52 (1992): 757-784.

substantial control over the economy. Romer identifies a monetary policy channel related to an inflow of gold that lowered interest rates and stimulated investment and consumer spending in the second half of the 1930s. In part, the monetary stimulus may have been due to the declaration of war in Europe and the flight of capital from war-torn countries. Still, the macro-evidence on the war's role in the recovery of output is less clear-cut than is typically suggested by the traditional narrative.

Whether one believes that the Great Depression ended in 1940, 1942, 1944, or 1947 depends on the choice of data series. Nearly all of the macroeconomic discussion has focused on measures of real GDP and thus treats the expansion of military production required to fight an all-out war as equivalent to production of peacetime goods in a normal economy. However, the expenditures on military production along with inductions and enlistments constituted a sacrifice necessary to win the war. High unemployment and relief work at half wages in the 1930s was replaced by high rates of military service during the 1940s. Life on the home front presented considerable challenges as well. Official figures for real private consumption per capita show little change between 1941 and 1944. However, these figures overstate private consumption during the war because they use price series that do not account for the decrease in the quality of consumer goods, and the extra costs of obtaining rationed goods, and the absence of variety.⁴⁹

Alexander J. Field follows up reinterpretations of the output data with new estimates of the peak-to-peak total factor productivity (TFP) growth. Annualized TFP growth was high during the two decades prior to World War II, 2.0 percent from 1919 to 1929 and 2.3 percent from 1929 to 1941. In fact, Field's estimates show that productivity growth was faster during the 1930s than at any other point in the twentieth century; the interwar years, not World War II, provided the foundation for postwar prosperity. Productivity gains in manufacturing were particularly

⁴⁹ Rockoff, *Drastic Measures*; Higgs, "Wartime Prosperity?" Higgs, "From Central Planning to the Market."

dramatic during the 1920s, topping 5 percent per year between 1919 and 1929, and gains in the transport and public utilities sector were strongest during the depression years. In contrast, overall TFP growth was 1.3 percent per year between 1941 and 1948.⁵⁰

Higgs and Field both challenge the notion that war-related capital investment and learning-by-doing spurred productivity gains beyond the war years. Higgs emphasizes the composition of wartime capital investment, which was concentrated in non-industrial structures and equipment (i.e., military buildings and munitions) and accounted for 83 percent of new capital formation in manufacturing.⁵¹ As a result, a substantial portion of the capital investment made during the war had limited peacetime use. Importantly, this conclusion is based on published US government statistics with some adjustments, for example, for greater capital utilization (and hence, greater depreciation) during the war. New studies using equipment-level data (e.g., from postwar surplus property sales) could provide more insight into the value and postwar uses of war-related capital. Nevertheless, evidence from the aerospace industry and demobilization at the end of the Cold War is consistent with substantial costs of redeploying sector-specific capital.⁵²

Field focuses on whether wartime learning-by-doing led to improvements that could spillover into productivity gains in the peacetime, civilian economy.⁵³ Citing a 1952 study by Solomon Fabricant, he notes the low levels of productivity in shipbuilding and airframe production prior to the military buildup and that subsequent growth during the war years was on top of this initially low base. Field also argues that many of the gains in producing military goods came from adopting organizational and technological innovations that were already integrated into the

⁵⁰ Alexander J. Field, *A Great Leap Forward: 1930s Depression and US Economic Growth* (New Haven: Yale University Press, 2011), 42-78.

⁵¹ Robert Higgs, "Wartime Socialization of Investment: A Reassessment of US Capital Formation in the 1940s," *Journal of Economic History* 64 (2004), 500-520.

⁵² Valerie A. Ramey and Matthew D. Shapiro, "Displaced Capital: A study of Aerospace Plant Closings," *Journal of Political Economy* 109 (2001): 958-992.

⁵³ Field, *A Great Leap Forward*, 79-105; Solomon Fabricant, "Armament Production Potential," in *War and Defense Economics*, ed. Jules Backman (New York: Rinehart, 1952), 19-45.

production for civilian goods. Work by Peter Thompson provides still more reason to doubt the relatively high previous estimates of learning-by-doing in the construction of Liberty ships. Thompson shows that the estimates of Leonard Rapping and Linda Argote, Sara L. Beckman, and Dennis Epple are too large and fall by 50 percent after correcting for an omitted variable problem due to mismeasurement in the capital stock.⁵⁴

Finally, Higgs argues that recovery in the immediate postwar years came as the demobilization occurred and the economy was returned to private hands and Field concludes that productivity gains stemming from investments made during the 1920s and 1930s were the source of postwar prosperity.⁵⁵ There is still considerable work to be done to better understand the relative importance of the forces emphasized by Higgs and Field as well as whether the government's wartime role in specific industries (e.g., synthetic rubber and aluminum) improved or worsened conditions in the long run. Nevertheless, any benefits of the war still have to be weighed against the substantial costs documented by Rockoff and others.⁵⁶

At the regional level, the traditional story emphasizes government spending and increased industrial activity during the war that later translated into industrialization in the states along the Pacific Coast and in the South. Gerald Nash tells this story for California, and the West more generally. In Nash's view, prior to the war the Western states had served mainly as a repository for natural resources that were transported to and processed in the East. The war provided infrastructure and opportunities to learn new production methods in the form of capital investment and supply contracts in high technology industries (e.g., chemicals, transportation

⁵⁴ Peter Thompson, "How Much Did Liberty Shipbuilders Learn? New Evidence for an Old Case Study," *Journal of Political Economy* 109 (2001): 103-137; Leonard Rapping, "Learning and World War II Production Functions," *Review of Economics and Statistics* 47 (1965): 81-86; Linda Argote, Sara L. Beckman, and Dennis Epple, "The Persistence and Transfer of Learning in Industrial Settings," *Management Science* 36 (1990): 140-154.

⁵⁵ Higgs, "From Central Planning to the Market"; Field, *A Great Leap Forward*.

⁵⁶ Rockoff, *America's Economic Way of War*; Goldin, "War."

equipment, etc.). Nash attributes the West's success in attracting a disproportionate share of war spending to skillful politicians who were able to pass legislation to ensure that large establishments in the East and Upper Midwest were not able to capture all of the spending on contracts, facilities, and equipment.⁵⁷ The result was that the West emerged from the war industrialized and prepared to share in postwar prosperity.

Paul W. Rhode challenges the Nash thesis and argues that World War II was not a watershed event. Rather mobilization for war complemented and reinforced a process of regional change that began earlier; the growth of the population, housing stock, and manufacturing base was already underway by at least the 1920s.⁵⁸ For California in particular, much of the spending was concentrated in the manufacture of aircraft and shipbuilding, industries in which the state already had a great deal of experience before the war.⁵⁹ Ultimately, the war may have pushed California and the other Pacific Coast states more quickly along the path of greater industrial development. But this likely would have been achieved eventually in any case.

In contrast to California's high-wage economy and prewar experience producing modern, durable manufactured goods, industry throughout the American South was low-wage and labor-intensive. The traditional story then emphasizes the new industries that followed war spending to the Southern states; thus the war helped to attract more capital-intensive and higher value-added products below the Mason-Dixon line. In addition, Gerald T. White writes, "This wave of new plants came to the South because of natural resources, climate, and a labor pool attractive for its size if not always for its skills.... During the war, they helped train a managerial group whose

⁵⁷ Gerald Nash, *World War II and the West: Reshaping the Economy* (Lincoln: University of Nebraska Press, 1990), 13-14, 166.

⁵⁸ Paul W. Rhode, "After the War Boom: Reconversion on the Pacific Coast, 1943-1949," in *History Matters: Essays on Economic Growth, Technology, and Demographic Change*, eds. Williams Sundstrom, Timothy Guinnane, and Warren Whatley (Stanford: Stanford University Press, 2003), 187-220.

⁵⁹ Paul W. Rhode, "California in the Second World War: An Analysis of Defense Spending," in *The Way We Really Were: The Golden State in the Second Great War*, ed. Roger Lotchin (Urbana: University of Illinois Press, 2000), 93-119.

entrepreneurial skills were a continuing asset to the South and acquainted many of the rural poor with an alternative way of life.” In addition, Fred Bateman, Jamie Ros, and Jason E. Taylor find evidence that public investments during the Great Depression and World War II facilitated a region-wide “big push.”⁶⁰ However, similar to revisionist arguments for the war’s impact on California, Robert Lewis argues that the war did very little to transform the Southern economy. Southern manufacturing lacked the strong linkages between firms typically required for spillovers from, for example, government spending to produce region-wide benefits. Industrial activity expanded during the war years, but this was a detour into sectors that would shrink or disappear by the late 1940s.⁶¹

Overall, the evidence suggests that mobilization for World War II was not responsible for recovery from the Great Depression and its effect on regional development was muted. Price Fishback and Joseph A. Cullen confirm the results from macroeconomic and regional case studies. Using county-level data these authors find little growth in economic activity due to war-related supply contracts and capital investment.⁶² Still, more studies are needed that connect the specific aspects of the command economy during World War II to theories of macroeconomic and regional growth. In addition, more detailed data are required to shed light on, for example, the postwar value of war-related capital investment, the extent of wartime technological advances and their applicability to the civilian economy, and the relevance of federal government spending for the regional economic development.

D. The Role of Government

⁶⁰ Gerald T. White, *Billions for Defense: Government Financing by the Defense Plant Corporation During World War II* (Tuscaloosa: University of Alabama Press, 1980), 125-126; Fred Bateman, Jamie Ros, and Jason E. Taylor, “Did New Deal and World War II Public Capital Investments Facilitate a ‘Big Push’ in the American South?” *Journal of Institutional and Theoretical Economics* 165 (2009): 307-341.

⁶¹ Robert Lewis, “World War II Manufacturing and the Postwar Southern Economy,” *Journal of Southern History* 78 (2007): 837-866.

⁶² Price Fishback and Joseph A. Cullen, “Second World War Spending and Local Economic Activity in US Counties, 1939-1958,” *Economic History Review* (forthcoming).

By the mid-1940s, the US economy had been significantly reshaped by the events of the previous two decades. First, a build-up and bust of the stock market in the late 1920s, followed by a prolonged Great Depression and the New Deal, and finally the massive mobilization for a modern war fought on two fronts. Over this period a new set of institutions emerged that was solidified in the immediate postwar years and continued to affect the interactions between people, firms, and government for the remainder of the twentieth century.

On August 18, 1945, President Harry S. Truman issued Executive Order 9599, which directed Federal agencies “to move as rapidly as possible without endangering the stability of the economy toward removal of price, wage, production, and other controls and toward the restoration of collective bargaining and the free market.”⁶³ However, while many agencies disappeared, others remained in place or had their functions subsumed into newly created or surviving agencies. Robert Higgs and Paul A.C. Koistinen each argue that the remaining wartime institutions combined with the concentration of supply contracts and capital investment among a few firms to create the postwar military-industrial complex. The pork barrel politics associated with the complex leads Higgs to describe it as the congressional-military-industrial complex.⁶⁴ In contrast, Mark R. Wilson argues that wartime institutions and their postwar counterparts did more to constrain the actions of the firms under their purview, rather than simply working to their benefit.⁶⁵

Overall, the change in the role of the federal government in American life was sweeping. The

⁶³ US Bureau of the Budget. *The United States At War: Development and Administration of the War Program by the Federal Government* (New York: Da Capo Press, 1972), 491.

⁶⁴ Robert Higgs, “Private Profit, Public Risk: Institutional Antecedents of the Modern Military Procurement System in the Rearmament Program of 1940-41,” in *Depression, War, and Cold War: Studies in Political Economy*, ed. Robert Higgs (Oxford: Oxford University Press, 2006), 49-54; Koistinen, *Arsenal of World War II*, 514-516.

⁶⁵ Mark R. Wilson, “‘Taking a Nickel Out of the Cash Register’: Statutory Renegotiation of Military Contracts and the Politics of Profit Control in the United States during World War II,” *Law and History Review* 28 (2010): 343-383; Mark R. Wilson, “Making ‘Goop’ Out of Lemons: The Permanente Metals Corporation, Magnesium Incendiary Bombs, and the Struggle for Profits during World War II,” *Enterprise and Society* 12 (2011): 10-45.

first peacetime draft was instituted in the fall of 1940 and did not end until more than three decades later. The 1941 Lend-Lease Act initially provided aid to Britain and other nations to combat the advance of the Axis powers. Ultimately, this would serve as the foundation for alliances that would last for many decades. Income taxation was extended to virtually every employed individual from the factory worker—previously not taxed at all—to the wealthiest Americans—with a long history of paying taxes but at much lower rates. During the war years, the government grew in size and scope. The war created 42 million new taxpayers and wartime mobilization programs dwarfed in expenditures and control their New Deal counterparts. And through these actions the changes wrought by the years of war continued to shape the postwar US economy.

Through the 1946 Employment Act, Congress declared the power and responsibility of the federal government to promote a broad range of social goals from competition and production among firms to individual employment and purchasing power. Similar concerns were expressed in the 1944 Surplus Property Act, the legislation governing the transfer of war-related government-held industrial assets to private hands, with conflicting evidence regarding the success of attempts to discourage monopolistic practices. For example, a 1946 study by the Smaller War Plants Corporation concluded that the disproportionate share of contracts and capital investment obtained by the largest firms during the war led to increased concentration of assets and employment.⁶⁶ Louis Cain and George Neumann document the concentration of the postwar sale of war plants to their operators during the war. Studies by Morris Adelman and the Federal Trade Commission suggested little impact of the transfer of war-related assets on overall

⁶⁶ Smaller War Plants Corporation, *Economic Concentration and World War II* (Washington: Government Printing Office, 1946), 49.

concentration.⁶⁷

There are still more instances in which mobilization continued to the effect peoples' lives even after the fighting was over. Taylor Jaworski shows that high school age women in states with high rates of manpower mobilization received less education. These women dropped out of school to fill the jobs of men pressed into military service and, on average, received two fewer years of education. Ultimately, differences in educational attainment disappeared in later life, but the evidence suggests a cost in terms lower employment and wages rates along the way.⁶⁸ Daniel K. Fetter, as well as earlier work by Milton Friedman and George J. Stigler, documents a rise in homeownership during the 1940s due to wartime rent control. Landlords, unable to raise rents, landlords removed their properties from the rental market, and the typical household, unable to purchase many consumer durables during the war, had extra savings to use to purchase housing. As a result, homeownership rates increased by 10 percentage points between 1940 and 1945, or about half of the increase between 1940 and 1960.⁶⁹

The 1944 Servicemen's Readjustment Act was another vestige of the war years that played a role in postwar life. The Act, popularly known as the GI Bill, provided unprecedented federal support to veterans of World War II and later wars. Soldiers serving at least 90 days or discharged with a disability received \$500 in educational benefits plus a stipend of \$65 per month for single men and \$90 for married men. John Bound, Sarah Turner, and Marcus Stanley

⁶⁷ Louis Cain and George Neumann, "Planning for Peace: The Surplus Property Act of 1944," *Journal of Economic History* 41 (1981): 129-135; Morris Adelman, U.S. Congress, Senate, Subcommittee on Antitrust and Monopoly hearings, *Economic Concentration, Part 1*, 89th Congress, 1st Session, 1964, 339; Federal Trade Commission staff report, *Economic Report on Corporate Mergers*, printed as Part 8A of the U.S. Congress, Senate, Committee on the Judiciary, Subcommittee on Antitrust and Monopoly hearings, *Economic Concentration*, 91st Congress, 1st Session, 1969, 17.

⁶⁸ Taylor Jaworski, "'You're in the Army Now:': The Impact of World War II on Women's Education, Work, and Family," *Journal of Economic History* 74 (2014): 169-195.

⁶⁹ Daniel K. Fetter, "The Home Front: Rent Control and the Rapid Wartime Increase in Homeownership," Working Paper (2013); Milton Friedman and George J. Stigler, "Roofs or Ceilings? The Current Housing Problem," *Popular Essays on Current Problems* 1 (1946): 7-22.

document substantial gains in college completion due the GI Bill: between 0.15 and 0.52 additional years of schooling. In addition, Stanley finds that the gains were concentrated among veterans from families with higher socioeconomic status, while Turner and Bound show that educational gains accrued only to black veterans born outside the South.⁷⁰ The GI Bill also provided veterans with subsidies for home purchase—lower interest rates and higher loan-to-value allowance—and Fetter finds that these benefits explain one quarter of the increase in homeownership among the affected cohorts between 1940 and 1960.⁷¹

World War II expanded the role of government in American life. Some wartime programs disappeared, while others remained in place for decades after the war's end. Out of the wartime agencies that governed the disbursement of contracts and new capital investment grew what President Dwight D. Eisenhower would later call the military-industrial complex. The fiscal and manpower demands of the mobilization would also see unprecedented expansions of the tax base and military conscription that would continue long after the war was over. In addition, the war led to dramatic changes in higher education and the US housing market; the GI Bill expanded the opportunities for many men to attend college and own homes. Marianne Page and others document the effect of the GI Bill's educational benefits on assortative marriage and intergenerational transfer of the schooling gains.⁷² All this suggests the long reach of mobilization for World War II into the second half of the twentieth century.

4. Conclusion

⁷⁰ John Bound and Sarah Turner, "Going to War and Going to College: Did World War II and the GI Bill Increase Educational Attainment for Returning Veterans?" *Journal of Labor Economics* 20 (2002): 784-815; Marcus Stanley, "College Education and the Midcentury GI Bills," *Quarterly Journal of Economics* 118 (2003): 671-708; Sarah Turner and John Bound, "Closing the Gap or Widening the Divide: The Effects of the GI Bill and World War II on the Educational Outcomes of Black Americans," *Journal of Economic History* 63 (2003): 145-177.

⁷¹ Daniel K. Fetter, "How Did Mortgage Subsidies Affect Home Ownership: Evidence from the Midcentury GI Bills," *American Economic Journal: Economic Policy* 5 (2013): 111-147.

⁷² Marianne E. Page, "Fathers' Education and Children's Human Capital: Evidence from the World War II G.I. Bill," Working Paper (2007); Matthew Larsen, TJ McCarthy, Jeremy Moulton, Marianne E. Page, and Ankur Patel, "War and Marriage: Assortative Mating and the World War II G.I. Bill," Working Paper (2011).

This chapter surveys the evidence that links economic mobilization for World War II with the postwar economic performance of the US economy. In first half of the chapter, we contrast the experience during World War II with other twentieth century wars and emphasize the substantial costs of mobilizing the economy for war. We also provide a brief description of the institutions created to manage large-scale industrial mobilization during the early 1940s. The war's role in establishing a new set of institutions and the impact of an expanded role for government in postwar American life should be a focus of scholars going forward.

Next, we consider four areas that have received the most attention from scholars: the rise of female labor participation, the decrease in wage and wealth inequality, the postwar growth miracle, and the changing role of government in American society. We show that economic historians and economists have contributed substantially to our understanding of the development of the postwar economy. In particular, the collection and analysis of unique data suggest that mobilization contributed less to the growth of women's work and income and wealth inequality decreased sharply over the 1940s, while the war's impact on postwar economic growth and regional industrialization remains unclear and open to future research.

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Table 1: Fiscal Costs of America's Twentieth Century Wars

| | Cost during years of active conflict (billions of 2008 dollars) | Cost during years of active conflict as share of average GDP during war (%) | Veteran's benefits (billions of 2008 dollars) | Total cost (billions of 2008 dollars) | Total cost as share of average GDP during war (%) |
|-------------------------------------|--|--|--|---|--|
| | (1) | (2) | (3) | (4) | (5) |
| Spanish-American War (1898-1999) | 6.3 | 1.5 | 17.9 | 24.2 | 5.6 |
| Philippine-American War (1899-1902) | 4.9 | 1.1 | 7.6 | 12.5 | 2.6 |
| World War I (1918-1919) | 313.0 | 43.0 | 305.7 | 618.2 | 82.3 |
| World War II (1937-1947) | 3,291.0 | 185.3 | 1,373.0 | 4,664.0 | 262.5 |
| Korean War (1950-1955) | 1,186.0 | 48.2 | 215.6 | 1,401.8 | 57.0 |
| Vietnam War (1967-1974) | 1,697.0 | 35.3 | 554.8 | 2,251.7 | 46.7 |
| Persian Gulf (1991) | 89.0 | 1.0 | 371.9 | 460.5 | 5.3 |

Notes: Estimates for the fiscal costs of twentieth century wars are from Rockoff's *America's Economic Way of War* (Appendix 3, pp. 226-27). The war periods are for years in which military spending appeared to be elevated due to participation in war and may not correspond precisely with war's political beginning and end.

Table 2: GNP, Consumption and Employment, 1939-1949

| | Gross National Product (1) | Per Capita Consumption (2) | Unemployment (3) |
|------|----------------------------------|----------------------------------|---------------------|
| 1939 | 100.0 | 100.0 | -- |
| 1940 | 109.7 | 105.4 | 15.7 |
| 1941 | 128.7 | 112.2 | 12.0 |
| 1942 | 145.5 | 110.2 | 7.0 |
| 1943 | 160.6 | 113.3 | 3.0 |
| 1944 | 172.4 | 117.8 | 1.3 |
| 1945 | 171.3 | 126.4 | 1.3 |
| 1946 | 156.7 | 140.7 | 2.6 |
| 1947 | 153.4 | 142.7 | 3.8 |
| 1948 | 160.0 | 145.6 | 3.9 |
| 1949 | 156.9 | 149.6 | 6.4 |

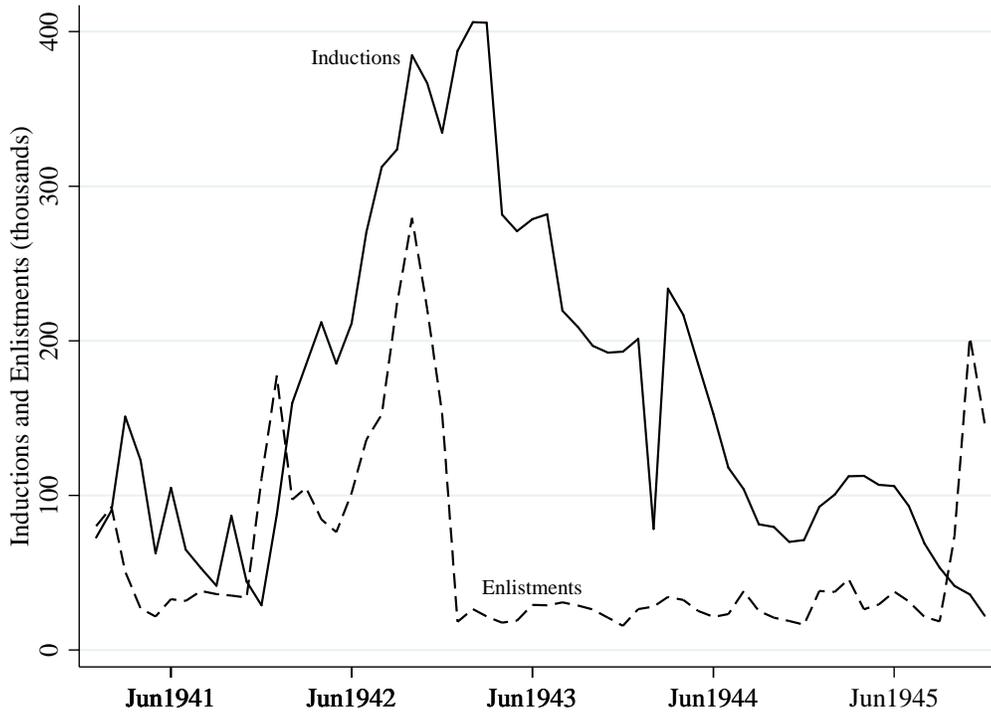
Notes: Columns 1 and 2 are from John W. Kendrick, *Productivity Trends in the United States* (Princeton: Princeton University Press, 1961), 291-292, 295, respectively. Column 3 is from US Department of Defense, *National Defense Budget Estimates* (Washington: Government Printing Office, 1987), 126.

Figure 1: World War II Spending, 1940-1945



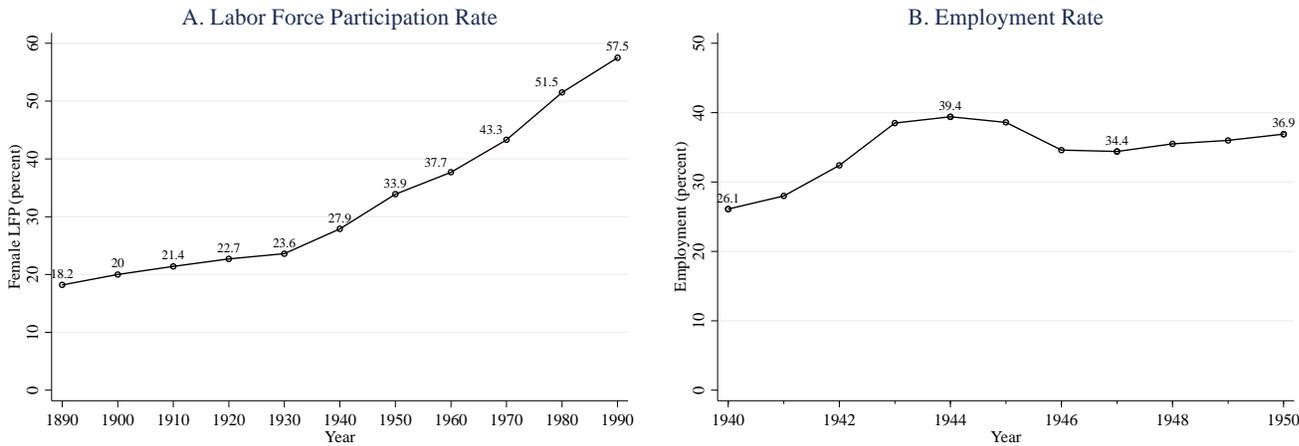
Notes: Estimates reported in this figure were originally compiled by the War Production Board and are drawn from R. Elberton Smith, *The Army and Economic Mobilization* (Washington: Government Printing Office, 1959), 7.

Figure 2: Monthly Enlistments and Inductions, 1941-1945



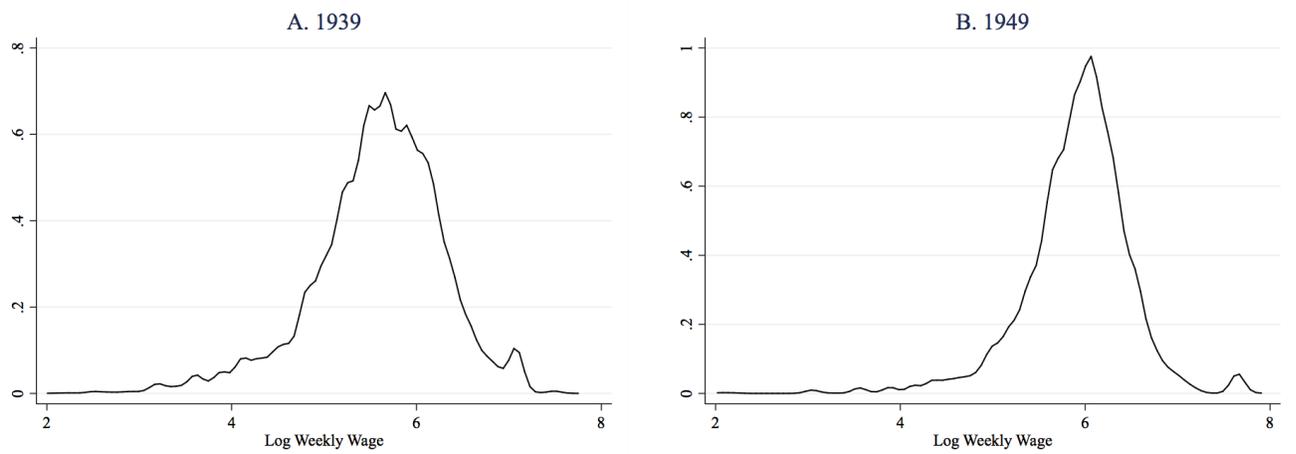
Notes: This figure gives the number of inductions (solid) and enlistments (dash) by month from January 1941 to December 1945. The sharp decrease in inductions in February 1944 is due to initiation of a preinduction physical examination. The data are drawn from U.S. Selective Service System, *Quotas, Calls, and Inductions, Volume II* (Washington: Government Printing Office, 1948), 32–33.

Figure 3. Female Labor Force Participation in the Twentieth Century



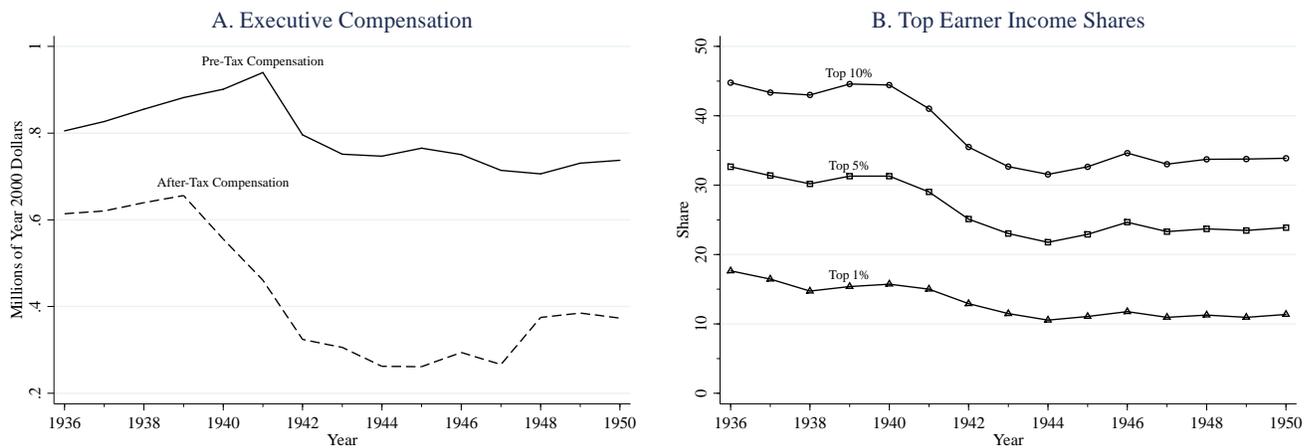
Notes: The female labor force participation rate in panel A is from Francine D. Blau, Marianne A. Ferber, and Anne E. Winkler, *The Economics of Women, Men, and Work* (Upper Saddle River: Prentice Hall, 2002). The data in panel B is drawn from US Census Bureau, *Historical Statistics of the United States, 1789-1945* (Washington: Government Printing Office, 1949), 63, and US Census Bureau, *Statistics Abstract of the United States* (Washington: Government Printing Office, 1951), 24, 174.

Figure 4. Distribution of Log Weekly Wages, 1939-1949



Notes: The figure shows the log weekly wage distribution for white men aged 18 to 64 in 1939 and 1949. The wage data are drawn from the 1940 and 1950 population census and the distributions are calculated from the samples provided by Steven J. Ruggles et al., *Integrated Public Use Microdata Series* (Minneapolis: University of Minnesota, 2010).

Figure 5. Executive Compensation and Top Income Shares, 1936-1950



Notes: The data on executive compensation in panel A are from Carola Frydman and Raven E. Saks, “Executive Compensation: A New View from a Long-Term Perspective, 1936-2005,” *Review of Financial Studies* 23 (2010): 2099-2138. Income shares for the top 1, 5, and 10 percent of earners is from Thomas Piketty and Emmanuel Saez, “Income and Wage Inequality in the United States 1913-2002,” in A. B. Atkinson, and T. Piketty, editors, *Top Incomes over the Twentieth Century: A Contrast Between Continental European and English-Speaking Countries* (Oxford: Oxford University Press, 2007), chapter 5.