

Employment, Aggregate Demand, and the Reconversion Recession

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Abstract: This paper traces employment in war and nonwar industries during the transition to a peacetime economy after WWII. This exercise produces two main insights into the reconversion recession. First, unsurprisingly, job loss during the reconversion recession is concentrated in manufacturing industries producing for the war. For most war industries this job loss is largely temporary. Shipbuilding and aircraft manufacturing industries, however, experience a permanent collapse in employment. By the end of 1948 these industries lost two million jobs compared to a total decline in employment of 1.6 million. Second, traditional theories of reconversion point to domestic firm and household demand as buoying aggregate demand after the war. I demonstrate that continued government employment, labor market policy geared towards easing veterans back into civilian life and export employment played a major role in stabilizing employment in the years immediately following the war. Without these government and export factors by 1947 the unemployment rate would have been 11.3% compared to the actual rate of 3.9%.

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1 Introduction

In this paper I explore the dynamics of employment during the transition from a wartime to a peacetime economy in the United States during the mid 1940s. The unemployment rate increased from 0.9% in January of 1945 to a peak of 4.3% in February of 1947.¹ This is one important aspect of post-WWII “reconversion miracle”. That the unemployment rate remained low during the transition from a wartime to a peacetime economy is especially striking given that roughly 12 million men of prime working-age were released from military service into the private economy over this period (President’s Commission on Veterans Pensions (PCVP, 1956)).

This paper makes two basic points about the the US economy during the reconversion process. First, as expected, job loss in 1945/46 is concentrated in war industries². In particular, employment in the military dependent aircraft and shipbuilding industries fell by more than the total loss of jobs after the war. By the end of 1948 these industries lose two million workers compared to a total employment loss of 1.6 million for the economy as a whole. Further, while employment losses in war industries generally do not recover to wartime levels, most of the employment loss after the war in these industries is temporary. Employment losses in aircraft and shipbuilding, on the other hand, are permanent.

Second, there remains an open question about the nature of the postwar recovery. Traditionally, the smooth landing of the economy after WWII is attributed to “pent-up” demand. That is, in the immediate postwar period households and business were able to employ the savings they had accumulated during the war to meet consumption and investment needs that had been stifled during 15 years of depression and war. However, a raft of recent state and county empirical studies suggest that at the local level there is no connection between wartime spending and local postwar economic activity. This suggests that the pent-up de-

¹NBER Macro History Database series m08292b and m08292c.

²Government agencies compiling statistics on war production and other aspects of the wartime economy adopted a more or less uniform definition of war industries. This definition includes the following manufacturing sectors: iron and steel, nonferrous metals, automobiles, other transportation equipment, electrical machinery, nonelectrical machinery, petroleum and coal, rubber, and chemicals and allied products.

mand mechanism did not operate at the local level. Here, I sidestep the issue of measuring the effect of consumption and investment spending during reconversion to explore other possible mechanisms for the low unemployment rate during the second half of the 1940s. It is possible to use employment and labor force participation data to construct a counterfactual unemployment rate that takes into account the role of government policy and foreign demand for exports. Even if we ignore postwar consumption and investment dynamics the unemployment rate nearly triples by 1947 from 3.8% to 11.3%. This suggests a major role for factors other than domestic consumption and investment in stabilizing aggregate demand during the transition from a war to a peace economy.

The concentration of employment losses during the reconversion recession in aircraft and shipbuilding offers an industry level context to studies of the effect of war spending on local economies. Recent studies of the local effect of WWII military spending have not found a positive effect of military spending on state and country level economic activity. While these local effects likely have a limited correlation with national economic effects (Chodorow-Reich, 2019) the inability to find a local effect of wartime spending does suggest a need to explore other possible explanations for the soft landing of the economy after the war. Fishback and Cullen (2013) use a cross-section of military contract spending from Haines (2010) to explore the effect of the war on county level retail sales. They find no population adjusted effect. Fishback and Jaworski (2016) find a similar lack of long run effect at the country level of WWII contract spending. Jaworski (2017) finds no effect of war spending on industrial development in the South. Paul Rhode (2003) also argues that Pacific coast states experienced a similar lack of industrial change induced by the war. As well, Bossie (2020) find a strong negative effect of war spending on local bank deposits. The inability to tie military contract spending to local economic activity calls into question the idea that a strong contemporary or intertemporal multiplier effect of government spending during the war helped spur the private sector postwar boom.

In many ways this lack of a local effect is to be expected. The employment effects of

the drawdown recession is concentrated in aircraft construction and shipbuilding industries. These industries absorbed a large portion of military spending and were heavily dependent on military contracts with relatively little civilian demand to fill the production vacuum left by the end of the war. By December 1948, nonautomobile transportation equipment employment was 17% of what it was in 1944. Nonautomobile transportation equipment manufacturing sheds two million jobs by the end of 1948, compared to a total decline in employment of 1.6 million for the economy as a whole during that period. This offers clear evidence for the temporary nature of a large portion of wartime production shocks. The sharp retraction of employment in key war industries—which would have also experienced the strongest capacity expansion during the war—is indirect evidence for why Jaworski (2017) and Rhodes (2003) find no long run effect of war spending on regional industrial development.

This lack of local effect also suggests problems with the traditional pent-up demand story. Not being able to tie postwar savings and consumption behavior directly to military spending suggests the need to rethink the mechanism for the reconversion success. Few studies have challenged the traditional pent-up demand view, however. Robert Higgs (1999) modifies the pent-up demand story by pointing out that households do not dissave to consume after the war. Higgs' emphasis is on the postwar investment boom, which he argues powered the postwar increase in aggregate demand. Vedder and Galloway (1993) also propose an alternative mechanisms for explaining the soft landing of reconversion. They offer a “supply side” theory of reconversion in which the demobilization of returning soldiers served as a supply shock to aggregate labor markets, pushing down (relative) wages. The resulting lower wages increased (relative) profits while pushing the aggregate supply curve to the left. This theory offers a number of testable predictions. Inflation would be low, as the increase in the aggregate supply curve would slow the growth of the price level. As well, wages should be falling because of the positive labor shock. VG use an “adjusted real wage” which accounts for productivity changes as well as an aggregate measure of the share of labor in income.

They offer additional evidence that national income was redistributed in favor of owners and argue this further supports their supply side theory of reconversion as the increase in the return on capital (as a proportion of national income) induced an increase in hiring.

I offer contrary evidence that aggregate demand was driving the reconversion process. VG's claim that inflation was low in the immediate postwar period comes from using an alternative deflator estimated by Friedman and Schwartz (FS, 1982). The FS deflator is an lower bound outlier in what has come to be a cottage industry of alternative inflation adjustments for the war.³ As well, the FS deflator is based on national product estimates, alternative Consumer Price Index (CPI) measures capture the inflation of the time more accurately than the national product estimates that were the basis of FS's estimates. Alternative CPI estimators suggest inflation with inflation over 8% in 1945 and almost 10% in 1946. High inflation rates are consistent with upward aggregate demand pressure on the private economy, particularly the household sector. Wage changes are also more consistent with aggregate demand changes. Positively correlated increases in wages and employment in retail and positively correlated declines in wages and employment in transportation manufacturing industries are consistent with a change in demand conditions and not supply conditions in those industries. Further, evidence from national income distribution show no reconversion induced redistribution from workers to owners. The military drawdown saw an equitable redistribution of the portion of national income absorbed by military payrolls during the war. Workers and owners each received a portion of national income released from the drawdown of military employment in line with their respective share of national income. The redistribution to owners, furthermore, favored farm and nonfarm proprietorships at the expense of corporations.

The evidence that the reconversion process was an aggregate demand phenomenon is fairly clear. However, there is little evidence to support the pent-up demand or supply side hypothesis. As an alternative explanation for the reconversion success I offer a handful of

³Appendix A discusses this in more detail.

factors that kept unemployment relatively low during that were not tied to domestic consumption and investment. The permanently enlarged federal government directly employed 1.4 million more workers after the war than they did before the war. Mustering out payments and GI Bill educational benefits kept upwards of two million returning soldiers out of the labor force during the drawdown recession, 1.2 million service men remained out of the labor force as late as 1948. As well, foreign export demand also played an important role in generating employment. By 1947 two million jobs were supported by the postwar export boom as the US helped the world rebuild. Without these factors, independent of household and firm demand, the unemployment rate would have been roughly three times higher in 1946 and 1947 than it actually was.

2 The Reconversion Recession

Before discussing employment during the reconversion recession, it is worth looking at the nature of the post-WWII recession and how it's behavior has been interpreted by other economic historians. Generally, proponents of the pent-up demand theory and alternative theories of reconversion highlight the mildness of the postwar recession, arguing that official statistics overstate the depth of the recession. Higgs (1999) offers the clearest argument in favor of this reading of the data. He argues that when distortions in the official measure of the price level are properly controlled for the postwar recession—the NBER dates it from February 1945 to October 1945—is hardly a recession at all. However, this claim, along with much of the reasoning of VG (discussed below) rests on his use of the Friedman and Schwartz net national product alternative deflator. This deflator is an outlier among many WWII alternative deflators, and using it overstates the mildness of the 1945/46 recession. Further, this measure of inflation is based on estimates by Simon Kuznets of net national product. The issue of the “noise” of price changes in munitions industries in measuring inflation during the war are well known. The CPI is a more reliable measure of price changes during and

after the war. The experience of household's is also the primary interest when studying the period. The CPI also avoids distortions inherent in national product estimates of inflation that are more susceptible to both the ballooning in the quantity of munitions as a share of national product and the arbitrary, nonmarket, pricing of munitions. Adjusted measures of the CPI show significantly higher rates of postwar inflation than national product estimates. The behavior of inflation is an important component in evaluating the postwar labor supply shock argument of VG. Low postwar inflation is a key element of the VG argument as it implies a rightward shift of the aggregate supply curve driven by a rightward shift of the labor supply curve. High postwar inflation, on the other hand, implies a rightward shift of the aggregate demand curve.

Table 1 offers official and alternative estimates of inflation for 1940-1948. I refer the reader to Appendix A for an outline of how these different deflators are constructed. Most relevant here is that the FS deflator produces an inflation rate of 0.9% for prices from 1945 to 1946. This is an implausibly low inflation rate for that year. This estimate of inflation follows from the assumption that virtually all of the reconversion inflation was simply the manifestation of pent-up inflation that had been masked in the official statistics by the distortions of wartime accounting. For comparison, other GNP deflators show higher rates of inflation from 1945-1946. Even when including the FS deflator the three alternative national product deflators average a 3.7% inflation rate from 1945 to 1946 while the average change in the alternative CPI estimates is 9.6%.

Both the inflation of 1946-1947⁴ and the fact that from 1945 to 1946 personal consumption increased from 70.5% to 81% (Vatter 1993; Table 11.1) of disposable income suggest that postwar demand pressure played an inflationary role in 1945 and 1946. Given a slackening but not an elimination of shortages and controls, the jump in consumption suggests that the "first movers" who could produce new or more goods for the market had significant pricing power. A wave of strikes from 1945 to 1947 in several crucial industries such as automobiles

⁴The official CPI increased by over 14% December from 1946 to December 1947.

and steel also likely contributed on the margin to shortages with corresponding inflationary pressure.

The effect of using the FS deflator is to understate the decline in real GDP and suggests a more robust recovery of private economic activity relative to the other deflators. From 1944 to 1946 the FS deflator produces a decline in real GDP of 3.7%. As Table 2 shows, the average of national product deflators shows a decline in real GDP of 7.7% and alternative CPI estimates show an average a decline of 14.3%. Also included in Table 2 is an estimate of the growth of “private GDP,”⁵. For the alternative national product deflators real private GDP increases by 42.1% from 1944 to 1946 and alternative CPI estimates show a much smaller increase in real private GDP of 31.9%. For comparison, the FS deflator produces an increase in private GDP of 48.3%.

3 Employment Changes During Reconversion

Clearly the choice of deflator makes a large difference in how one views both the inflation and change in output during the reconversion recession. One alternative way of looking at the change in the economy is to look at changes in employment. This is a useful exercise for three reasons. First, looking at employment helps us avoid the problem inherent in trying to separate the real behavior of GDP from price behavior and gives us a more direct measure of the “real” changes after the war. Second, the Statistical Supplement to the Survey of Current Business, 1947-1949 (1950) offers a rich set of data to look at employment changes by industry. There is an obvious relationship between the geography of contract spending and the aggregate behavior of “war industries” and an analysis of industry level changes in employment helps shed light on the dynamics of local economies who receive war spending. Third, some authors use employment changes to illustrate alternative mechanisms for the success of reconversion and a disaggregated look at employment changes by industry helps clarify the underlying dynamics of the aggregate changes.

⁵This is simply total GDP minus government spending.

Figure 1 shows employment across war manufacturing industries, nonwar manufacturing industries and nonmanufacturing nonfarm sectors. The figure shows annual monthly average employment before 1945 and monthly total employment from January 1945 to December 1948. The evolution of employment is as one would expect. During the war, employment growth is primarily in war industries. The significant growth in nonmanufacturing employment is driven primarily by civilian government employment and construction employment, which is not surprising.

The 1945 recession coincides roughly with the slowing down of military operations and military procurement. It is useful to keep in mind that the Germans surrendered in May and the Japanese surrendered in August of 1945. The decline in employment over 1945 is almost entirely driven by a decline in employment in war industries. The smaller decline in nonmanufacturing employment in early 1945 is driven by construction employment. After the strike waves of late 1945 and early 1946 abate in March of 1946, we see growth across war, nonwar and nonmanufacturing industries—with a heavy seasonal element in nonmanufacturing employment, driven by trade—in employment across industries through the end of 1948.

Figure 2 looks at production employment in war manufacturing industries in more details. I have consolidated similar industry groups for clarity. What is most striking about war industry manufacturing employment is that the growth of production employment during the war and the postwar collapse in production employment is heavily concentrated in automobiles and other transportation equipment.⁶ The metals and machinery industries

⁶From here on I will refer to automobile and nonautomobile transportation industries generically as transportation equipment. Besides ease of exposition, grouping transportation together serves another purpose. The BLS maintained prewar industrial classifications during the war. This problem is most prevalent in automobile production. Civilian automobile production ceased during the war as auto manufacturers turned to producing heavy equipment for the war. While auto companies continued to produce military vehicles (most notably trucks) they also produces guns, tanks and aircraft. The largest automakers received contracts for aircraft production comparable in size to the largest aircraft companies. For instance the Curtiss-Wright Corp received just over \$4 billion in contracts up through September 1944. General Motors received \$3.5 billion (Smaller War Plants Corporation 1946 pp 149-157). Generally, aircraft production facilities were sold or abandoned by the automobile companies after the war as they reverted back to their prewar business. All of this is to say that the reader should be cognizant of the wartime misclassification of a substantial portion of automobile employment. This issue is minimized to the extent “transportation equipment” is treated as

also show large swings in employment, but increases in transportation equipment makes up 45.8% of the total increase in employment in war industries from 1940 to 1944 and also makes up 54.5% of the total decline in war industry employment during the 1945 recession.

This decline in employment in transportation industries is being driven by two important subcategories of transportation equipment: shipbuilding and aircraft manufacturing. On average these two industries account for 93.2% of the decline in employment in transportation industry employment from February to October 1945. These industries were expanded greatly during the war and evidence from 1941 and 1942 suggests that these two industries made up between 35% and 40% of total munitions contracts (Civilian Production Administration, 1947; Table 8). It is reasonable to expect that the peacetime civilian economy would not demand planes and ships at a comparable level to military demand during the war. This point is reinforced by the fact that employment in all war industries besides non-automobile transportation equipment had increased by the September 1948 employment peak from the October 1945 low;⁷ non-automobile transportation equipment, continued to shed jobs through the end of 1948. Employment in non-automobile transportation equipment in December 1948 is 17% of what it was in 1944; just under 2 million jobs are shed from this subindustry from wartime peaks to the end of 1948. For comparison: the total decline in employment is just over 1.6 million workers from 1944 to 1948.⁸

Figure 3 shows changes in employment in nonwar manufacturing industries. Again, I have consolidated similar industry groups for clarity. The crowding out of civilian industries during the war is quite evident. There is strong growth in nonwar employment in 1941, the year before the war begins and controls, rationing, and crowding out become issues. There is then a decline in nonwar manufacturing employment in the later years of the war. Nonwar manufacturing employment growth is generally negative during the 1945 recessions

a single category. The reader should also notice that this means that the total employment effect of the military drawdown on the aircraft industry (discussed below) is understated since it is not possible with the data here to clearly trace the effect of ending aircraft production by automobile companies.

⁷It should be pointed out that all war industries except the automobile and petroleum and coal industries still had lower levels of employment in December 1948 than they did at the end of 1944.

⁸Historical Statistics Millennial edition Series Ba494.

though the pattern of negative growth is less regular than it is in war industries. Generally, coming out of the 1945 recession, textiles and apparel as well as leather, and furniture and lumber lead the growth in nonwar manufacturing. Food and tobacco manufacturing also show employment growth during the 1945 recession, but this appears to be the function of a seasonal trend with hiring in the spring and summer and layoffs from October to March.

Figure 4 shows monthly changes in employment in nonmanufacturing industries. Here we see the decline in construction employment in the later years of the war. The decline in construction employment reverses in early 1945 and construction employment increases throughout the 1945 recession. Generally, employment growth in nonmanufacturing sectors is positive through the 1945 recession. There is also a strong seasonal pattern in retail employment from September to December and a decline in January. This seasonal effect is evident at the end of the 1945 recession. Also worth noting is the small decline in government employment from October 1945 to January 1946. Generally speaking, nonmanufacturing sectors added jobs during 1945. After 1945 there is generally balanced employment growth across sectors, with the strong seasonal pattern of retail employment being the most striking element of postwar nonmanufacturing employment.

As a takeaway, the decline in employment during the 1945 recession is driven primarily by employment in war industries, as expected, with airplane manufacturing and shipbuilding being the main drivers of the decline in employment (though there is also a large, temporary, decline in employment in metals-producing industries). Also relevant is that the decline in nontransportation war industry employment is mostly temporary, while the large decline in air and sea transportation employment is permanent. Nonwar manufacturing industries also shed workers but the decline is relatively mild; these industries lose 133,000 production workers compared with over 3 million production workers lost in war industries during the 1945 recession. Nonmanufacturing sectors added 1.2 million jobs during the 1945 recession, largely in trade and construction. Also of note, during the 1945 recession government civilian employment declined by 225,000 workers. This is a small fraction of the 1.9 million civilian

employees hired by the government between 1940 and 1943.

4 Aggregate Demand and Employment

This discussion of industry-level employment during the reconversion process offers some indirect evidence for the nature of the aggregate demand changes during the reconversion period. VG (1997) offer a useful model for thinking through the relationship of these labor market effects and the aggregate economy claim that the mildness of the reconversion recession was due to declining real labor costs once the war was over. They offer two primary pieces of evidence. The VG argue that the initial shock of the reconversion process is the re-entry of soldiers into the labor force. As VG point out between June 1945 and June 1946 just over 9 million men are discharged from the armed forces. This draw down of government employment is a rightward shift of the private sector labor supply curve, lowering the equilibrium adjusted real wage (real wages divided by a productivity measure) and increasing the equilibrium level of employment. The decline in labor costs then shifts the aggregate supply curve to the right, increasing output while at the same time putting downward pressure on prices.

VG offer two main pieces of evidence for their hypothesis. First is a simple regression model that looks at the relationship of unemployment with inflation, nominal wages, and last year's "adjusted real wage." Their adjusted real wage which is a measure of the aggregate real wage divided by output per hour. Their second piece of evidence is a schedule of the share of labor income in aggregate output and income, which shows a declining share of output over the immediate postwar period. There are three main issues with this theory of reconversion. First, much of the argument rests on the inflation measure by FS which, as discussed above, almost certainly underestimates the rate of inflation in 1945. Price-level behavior is important in assessing the argument VG makes that the demobilization shock to labor supply functioned as a shock to aggregate supply hypothesis. Both a shift of

aggregate demand and a shift of aggregate supply will increase output, but they move the price level/inflation in opposite directions. It is not obvious that 1945 was a low-inflation environment as predicted by VG's rightward shift of the aggregate supply curve. To the contrary, CPI inflation estimates suggest quite high inflation during 1945, and the rapid increase in consumer prices is consistent with an increase in aggregate demand.

Second, while the simple empirical model VG use predicts the aggregate change in employment after the war reasonably well, it is another thing entirely to try to make clear causal claims about the effect of their aggregate real wage measure and unemployment. This is especially true since VG's definition of the adjusted real wage contains three separate and variously fluctuating elements: annual aggregate wages, prices—which give us an “un-adjusted real wage”—divided by measured productivity, which gives us a real cost of labor output. Looking at hourly wage behavior in retail and non-automobile transportation industries is instructive in exploring the behavior of some components of VG's adjusted real wage across industries. From February 1945 to December 1945, as employment is falling dramatically, nominal hourly wages in aircraft and shipbuilding industries also fall by 4.8%. Over the same period, as employment is increasing, wages in retail also increase by 3% and nominal wages in wholesale trade increased by 1.6%. Decreasing employment and decreasing wages in transportation as well as increasing wages and increasing employment in trade are both consistent with changes in the demand for labor in these two industries. In addition, these changes in the demand for labor in these two industries are consistent with declining demand for the output of the aircraft and shipbuilding industries and an increase in the demand for trade services as the crowding out of the civilian economy abates.

This simple comparison, it should be pointed out, does not control for prices and does not account for productivity changes. However, under the assumption that workers and owners in the trade industry and in the aircraft and shipbuilding industries face the same price level, nominal wages give us a reasonable idea of relative real wage changes across industries. Taking the FS deflator at face value and assuming an inflation rate of 0.9% during 1945, we

see slightly rising real wages in retail and wholesale and falling real wages in aircraft and shipbuilding industries after the war.

Productivity measures by industry are not available. However, for the VG argument to explain the divergence of aircraft and shipbuilding and retail there must be an explanation for why relative productivity is increasing faster than wages in retail during this time and why productivity is falling more quickly than wages in aircraft and shipbuilding. Further, it is not obvious that productivity is independent of aggregate demand conditions. For instance, nonfarm labor productivity increases in all recessions between 1948 and 1973 (Chernousov, Fleck, and Glaser, 2009). This is likely because firms do not completely adjust to demand conditions through employment and hours worked but also adjust to demand conditions through the intensity of labor utilization. For instance, as VG point out, one adjustment made that lowered nominal wages was the decline in overtime. Assuming that workers are not 1.5 times more productive in their 41st hour than their 40th hour, this would have a mechanical effect of reducing VG's adjusted real wage without a change in productivity.

VG also offer further support for their declining adjusted real wage theory of the smoothness of reconversion with a measure of the aggregate share of income and output going to wages. They argue that the declining share of income and output going to labor is further evidence that the decline in real wages was driving the smooth landing of reconversion by encouraging hiring. As they put it succinctly "Using labor's share of personal income, the decline is from 69-70 percent level late in the war to about 63 percent in the 1946 and 1947 quarters. Using labor's share of GNP, the decline is from 54-55 percent in the late war (first three quarters of 1945) to 51-53 percent in the 1946 and 1947 quarters." (VG 1997; pp 170)

Table 3 looks at the aggregate payroll data in more detail. One important issue that VG do not address is the fact that more than the entire decline in the share of income going to labor from 1945Q1 to 1947Q4 is accounted for by the decline in military payrolls. The data as presented by VG are used to argue that labor costs were falling for the private sector; however, it is not clear how changes in military payrolls factors into private hiring decisions.

The argument VG make is that the observed decline in wages and salaries represents a redistribution from workers to owners. However, while the share of income going to total wages and salaries does fall over this period, the decline in private labor's share of income is higher than it was in the first quarter of 1945 at the end of 1947. To put it another way, the 3.9 percentage point decrease in labor's share of GDP and 7.3 percentage point decline in labor's share of personal income from 1945Q1 to 1947Q4 pointed out by VG is less than the entire decline in the share of military wages and salaries in GDP and personal income. Wages and salaries paid by the military drop from \$23.1 billion in 1945Q1 to \$3.8 billion in 1947Q4. Total employee compensation in the whole economy increases over this period by \$5.3 billion. Presumably, the discharged soldiers were also heading into higher-paying jobs. At any rate, it is unclear how lower government payrolls affect the demand for workers by private firms.

Further, the 1949 Statistical Supplement has enough detail to establish how a portion of wartime military payroll spending was redistributed between workers and owners. Table 4 offers a more complete picture of the change in the share of income going to employees and owners from the first quarter of 1945—the peak of wartime national income—to the fourth quarter of 1947. This table shows a number of interesting things. First, we can see clearly the effect of ending the war on the distribution of sources of income. From 1944 to the end of 1947 the share of total national income going to military payrolls shrinks by 10.2 percentage points. Government civilian payrolls also fall by a small amount, for a total decline in government employment income of 10.4 percentage points of total income. Military payroll spending is redistributed to other income earners more or less in line with their share of overall income with a bias toward private wage and salary earners who account for 45% of total income in 1945Q1 but receive 66% of the redistribution of income from the decline in military payrolls. It should be pointed out, however, that this redistribution of military payroll income to private workers is in line with the share of national income going to workers generally (63.9% in 1945Q1). Owners receive 36.5% of the decline in

military payrolls, compared with their 33.6% share of total income in 1945Q1. Within the ownership income class, nonfarm and farm proprietors receive a larger share of the decline in military payrolls than their share of total income, which comes at the expense of the share of corporate profits in national income. This suggests that any supply-side explanation of the reconversion success necessarily should focus on the effect of reconversion on smaller firms and farms, which are likely to be organized as proprietorship. It is also true that construction and trade firms, which show employment growth during the reconversion process, are also likely to be organized as proprietorships.

The evidence from national income immediately after the war makes it clear that private employment did not completely absorb the decline in military employment during reconversion and hence the 2.7% increase in unemployment from December 1944 to December 1946. However, the redistribution of shares of income from government income to private income, shows a slight bias towards an increased share of national income going to workers in the private sector. This reading of the data is in contrast to the idea that the relative prosperity of the late 1940s was driven by a redistribution of income from workers to businesses. There is an obvious redistribution of national income from the government to the private economy, but this shift from a military to a civilian economy during reconversion saw national income redistributed evenly between workers and owners.

5 Sources of Employment During the Postwar Boom

The evidence points to aggregate demand factors as the driving force of the reconversion recession. However, evidence for the traditional aggregate demand explanation for the reconversion success, pent up demand, is lacking. In the section I turn to alternative aggregate demand explanations for the smoothness of reconversion. Government and export employment both play major roles in the stabilization of the US economy in the second half of the 1940s.

5.1 Exports

Table 5 summarizes the finding of two separate estimates of export employment for 1946 and 1947. The first estimate is from the BLS Monthly Labor Review (December, 1947). The second estimate of export employment comes from input-output analysis by Further, Taylor, Basu, and Mclean (TBM, 2011). The industry level employment estimates have been condensed into the major categories under consideration in this paper for clarity. The BLS and TBM estimates are not directly comparable, but both estimates show a similar pattern of postwar export employment. The main difference is in the relative proportion of export employment from nonwar manufacturing industries and war manufacturing industries. The TBM estimates show a higher proportion of manufacturing exports employment from non-war industries. This is primarily driven by the fact that the TBM estimates show a larger proportional effect of export employment in food and tobacco industries. While the composition of manufacturing exports is different across estimates, both estimates attribute about 70% of nonagricultural export employment to manufacturing and 30% to nonmanufacturing exports. Leaving asides the difference mention above, the proportions of export employment for 1947 (where comparison is possible) are roughly the same across categories. However, the BLS estimates roughly 400k more jobs generated from exports, estimating more employment from exports in all industries.

The combination of data sources offers some useful information. Foremost, both data sets demonstrate the importance of export employment in 1946 and 1947, estimates suggest around 2 million jobs attributable to exports. There are also a number of other things worth pointing out. First, though the estimates diverge on the proportion of export employment for war and nonwar manufacturing, they both show that export employment is concentrated in war industries. This suggests that export employment helped cushion the withdrawal of military demand in war industries. Here the aggregate data is useful in making a point about local economies during reconversion. If postwar export employment has not been controlled for adequately, the zero or negative effects found in the empirical literature would have been

negative (or more negative) severe without offsetting demand from foreigners.

A second point to make is that the BLS data shows remarkable stability in the shares of export employment across major industries before and after the war. That is, exports from war industries account for essentially 50% of all export employment in 1939 and in 1947. The war itself does not seem to have caused any major shifts in employment by industry. There are a handful of exceptions worth noting. Textile and apparel industry employment almost doubles (5.8% to 10.2%) as a share of total export employment. As well, transportation services show a large decline as a share of overall export employment from 14.1% to 11.2% of total export employment. Generally, however, export employment remains within one percentage point from 1939 to 1947 on an industry by industry basis. This lack of major shifts in export employment is remarkable given the disruptions of the 1940s to domestic and international economies.

5.2 Government Policy

It is also important to highlight the role of government employment and labor policy as a source of employment stability during reconversion. I focus here on two ways in which government policy had a direct effect on employment through the reconversion period. First, veteran's benefits were generous and self consciously geared toward easing returning soldiers back into the civilian economy. Second, while military employment shrank precipitously after the war, civilian government employment fell by only a small amount after the war.

In the 1940s federal civilian employment peaked in March of 1945 at 2,915,000. The federal government shed workers through September of 1947, reaching a nadir of 1.77 million employees.⁹ However, even after shedding over a million jobs, the federal government continued to maintain civilian employment well above it's prewar level. Civilian employment at its low in 1947 was still 52% higher than it was in 1939 and 72% higher than its level in 1935.

⁹1949 Statistical Supplement, p 62.

It is useful to also look at measures of civilian government employment that includes both an expanded definition of federal employment and state and local employment. Total government employment peaked at just over six million v¹⁰. At its lowest level in August of 1947 government employment fell to 5.3 million, only an 11% decline. A return to average total government employment in line with average employment from 1935 to 1940 would mean an additional decline in employment of 1.4 million workers.

The generosity of the GI Bill also likely played a significant role in managing the postwar transition. Veteran's lobby organizations such as the American Legion, which was founded in 1919, advocated for better treatment of WWII veterans than was experienced by those who fought in WWI. These veteran's organizations found a post-New Deal world more receptive to government-sponsored programs than ever before (Atschuler and Blumin 2009; p 36-37). This led to a novel package of benefits for GIs returning to civilian life which also aided in postwar economic management.

Table 6 shows Bureau of Census estimates of the labor force status of returning veterans (President's Commission on Veterans' Pensions, 1956; Table 7). This first thing to note is what as strong shock to labor markets the discharging of soldiers was in 1945 and 1946. By December 1945 there we already 7 million discharged WWII veterans, 5 million of them were discharged in the last four months of the year (Ballard, 1983; pp 92). The number of WWII vets back in civilian life almost doubled a year later 1946. Unemployment among soldiers peaked in March of 1946 with 11% of soldiers estimated to be unemployed. However, a larger portion of soldiers remained out of the labor force. By the March 1946 peak 2 million male veterans remained out of the labor force. Even as late as December 1948 over a million WWII veterans—the vast majority of whom were prime working age—remained out of the labor force. The implications for the unemployment rate of these returning veterans remaining out of the labor force are obvious.

The reasons for soldiers remaining out of the labor force are worth discussion. The

¹⁰1949 Statistical Supplement, p 54.

decisions for soldiers to remain out of the labor force early in the discharge period was driven primarily by the availability of mustering out pay. The longest serving soldiers qualified for the three monthly mustering out payments of \$100. This was effectively three months of no strings attached unemployment payments, allowing soldiers to remain out of the labor force. This aided in the reintegration of returning soldiers not only into the labor force but civilian life generally by providing returning GIs with the space for some R&R before taking on the responsibilities of civilian—and in many cases for the first time adult—life as well as flexibility in choosing employment. As Figure 5 shows, mustering out payments by dollar amount dominate spending on returning GIs in fiscal year 1946, but quickly fades in importance. In the longer term education benefits (both college and sub college level) dominate as the device for keeping returned soldiers out of the labor force. For instance, in 1947 2.48 million people were receiving educational benefits (Historical Statistics, Series Ed468 and Ed469), compared to a peak of 1.38 million veterans estimated to not in the labor force in December of that year. Labor force management during the reconversion process was an explicit function of the education benefit. As Roosevelt states in a speech to Congress on October 27th, 1947:

We, at home, owe a special and continuing obligation to these men and women in the armed services. ... the best way that we can repay a portion of that debt is to see to it, by planning and by action now, that those men and women are demobilized into an economy which is sound and and prosperous, with a minimum of unemployment and dislocation; and that, with the assistance of government, they are given the opportunity to find a job for which they are fitted and trained, in a field which offers some reasonable assurance of well-being and continuous employment.

Also worth a discussion is the role of unemployment benefits extended to veterans. Unemployed veterans were entitled to \$20 a week unemployment compensation for up to 52 weeks. Self employed veterans were also entitled to monthly payments to increase monthly income to \$100. This was meant to subsidize self employed veterans and farmers during low income months. As shown in Figure 5 this “readjustment allowance” was also a major ex-

penditure. At its peak in May 1946 slightly over 2 million men were taking the readjustment allowance. How these benefits play into measured unemployment for veterans is not clear. The conditions of the readjustment payments were similar to state level unemployment benefits. Recipients were expected to actively be looking for work and thus would be counted as unemployed by the BLS. However, anecdotal reports suggests these conditions were often flouted. Regardless, the role in easing returning veterans into the civilian economy for these 2 million soldiers is obvious.

5.3 An Unemployment Counterfactual

With the government employment and export employment estimates above it is possible to construct a counterfactual unemployment rate for the 1945 to 1947 period taking into account the sources of employment discussed above to get a sense of how factors outside private consumption and investment stabilized the employment (and by inference aggregate demand) situation after the war. Figure 6 shows counterfactual unemployment rates under a variety of alternative assumptions about the employment situation after the war. Adding returning soldiers not in the labor force, and assuming all of those soldiers remained unemployed more than triples the unemployment rate by in 1945 and increases the unemployment rate by roughly 3 percentage points(ppt) in 1946 and 2 ppt in 1947. Also removing foreign demand for US production and reducing direct government employment to its 1935-1939 average increases the unemployment rate to above 9% in 1945 and above 11% in 1946 and 1947.

These estimates should be thought of as an upper bound estimate of the potential unemployment effects of removing government labor market policy and export employment. It is not obvious that there was no crowding out by government and export employment of privately and domestically generated employment. As well, the rising unemployment rate would have almost certainly meant more discouraged workers would have dropped out of the labor force. However, if this counterfactual over estimates the number of unemployed by

900,000 workers in 1947 (12% of the counterfactual level of unemployment) the unemployment rate would still have reverted back to 9.9%, the same rate that it was in 1941, the year before the war started.

Also included in Figure 6 is a measure of the unemployment rate if all “extra” workers stayed in the labor force. The Monthly Labor Review in December of 1947 offers estimates of “emergency workers”. These were workers that would otherwise have not been in the labor force had the swelling of the armed forces and munitions production not necessitated the use of nontraditional labor. The US Census Bureau estimated that by spring 1945 there were 8.1 million “extra” workers in the labor force. The reader, of course, is familiar with Rosie the Riveter, but only about 2.5 million of these extra workers were women of normal working age. Half of the 8 million were “youths of school and college age”, both men and women¹¹ and the remainder were men over the age of 55. The estimate presented in Figure 6 includes all extra workers to highlight the scale to which a nontraditional labor filled the gap in the labor force created by the war. Nontraditional labor and population growth, which added an additional 3 million workers went a long way to replacing the millions of men absorbed into the armed forces. These workers leaving the labor force played a significant role in stabilizing postwar employment. However, it should be pointed out that these workers also often left the labor force even though wages were above their reservation wage. Gender, race, and age discrimination was expected in favor of returning GIs. It is also of interest to note that of the estimated 8 million workers counted as “extra” by the Census in April 1945, 1.6 million of them remained in the labor force as of April 1947, over 90% of these remaining extra workers were men. (War Manpower Commission, 1947 p641).

6 Conclusion

In this paper I have revisited some outstanding issues with economic historian’s understanding of the behavior of the US economy during the post-WWII reconversion process.

¹¹In total 4.2 of the total 8.1 million extra workers were women.

The WWII reconversion process is unique among large American wars in that the shift from a war to peace economy was relatively smooth, with two relatively mild recessions between 1945 and 1950. This smoothness is reflected in the relatively small increase in unemployment during the reconversion process. The generally accepted explanation for the smoothness of reconversion is that households and firms spent down the wartime buildup of savings to satisfy the demand for goods and services denied them over the preceding 15 years of depression and war. However, other authors have called this reading of the reconversion period into question (Higgs, 1999 and VG 1993). As well, new econometric evidence suggests that war spending likely had no effect on local consumption or economic development. The econometric evidence even suggests the effect of war spending is to reduce local savings. While one should be cautious about extrapolating these local studies to the national economy, it is striking that it is not possible to tie the war to positive postwar economic activity geographically.

The employment and wage evidence reinforces that aggregate demand changes driving the economy during the reconversion readjustment. Price level changes, wage behavior and employment in war and nonwar industries suggest large shifts in aggregate demand immediately after the end of the war in 1945. I have used labor market data to establish that government employment, labor policy geared to easing retiring soldiers into the civilian economy and foreign exports collectively play a major role in keeping unemployment low during the transition away from a war economy. This clearly establishes two major channels for employment stabilization independent of pent-up demand by domestic households and firms.

The intention here is to reintroduce, outline, and expand old debates about the nature of the reconversion process. The reconversion process sets the stage for the greatest sustained period of growth—and generalized prosperity—in American history. Understanding reconversion is central to understanding how that period emerged and flourished. There are numerous open questions to be answered and this period also offers a wealth of unexploited data sources easily accessible through Google and university libraries. This period is a rich

vein for economic historians to mine.

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7 Figures and Tables

Table 1: Inflation Rates for Alternative WWII Deflators.

Year	National Product Deflators					CPI Deflators			National Product Average	CPI Average	
	BEA	Kuznets NNP	FS NNP	M&R GNP	V&G GNP	BLS	Rockoff	Vatter			Bossie
1940	0.90%	1.10%	1.10%	0.90%	0.90%	0.70%	0.70%	0.70%	1.24%	0.97%	0.88%
1941	6.54%	7.91%	7.91%	6.54%	6.54%	5.06%	5.06%	5.26%	11.20%	7.00%	7.18%
1942	8.37%	13.11%	13.11%	14.79%	9.67%	10.78%	13.80%	10.66%	8.23%	12.52%	10.90%
1943	4.72%	9.00%	13.13%	11.59%	10.77%	6.14%	12.38%	11.00%	5.65%	11.83%	9.67%
1944	2.38%	2.97%	7.45%	5.74%	10.03%	1.61%	7.76%	10.98%	3.08%	7.74%	7.27%
1945	2.56%	2.96%	4.40%	2.88%	10.93%	2.29%	6.65%	11.00%	6.41%	6.07%	8.02%
1946	12.57%	7.15%	0.89%	3.67%	6.52%	8.51%	8.75%	10.97%	9.38%	3.70%	9.70%
1947	11.17%	11.78%	8.10%	3.41%	3.83%	14.47%	3.02%		10.28%	5.11%	6.65%
1948	5.61%	6.56%	6.56%	7.66%	2.50%	7.66%	5.63%		1.33%	5.57%	3.48%

Source: See Appendix A

Table 2: Change in Real GDP 1944-1949 Average of Alternative Price Deflators

Year	Real GDP		Real Private GDP	
	Ave GNP Def	Ave CPI	Ave GNP Def	Ave CPI
1944	3.85%	3.16%	3.52%	2.84%
1945	-3.41%	-5.87%	7.85%	5.10%
1946	-4.45%	-9.01%	31.74%	25.47%
1947	1.25%	2.99%	4.92%	6.72%
1948	4.20%	6.32%	4.77%	6.89%
1949	0.41%	1.50%	-2.51%	-1.45%
1944-1946	-7.69%	-14.34%	42.12%	31.88%
1944-1947	-6.61%	-10.08%	48.99%	43.46%

Source: See Appendix A

Table 3: Share of Employee Compensation 1945q1 to 1947q4

	Percent of NGDP					Percent of Personal Income					
	Total Employee Compensation	Em- ployee W&S	Total Private W&S	Military W&S	Government Civilian W&S	Total Employee Compensation	Em- ployee W&S	Total Private W&S	Military W&S	Government Civilian W&S	
1945q1	57.3	55.0	38.8	10.4	5.9	73.1	70.2	49.5	13.2	7.5	
1945q2	56.4	54.0	37.7	10.5	5.8	72.8	69.8	48.7	13.6	7.5	
1945q3	57.7	55.1	37.6	11.2	6.3	72.1	68.8	46.9	14.0	7.9	
1945q4	57.4	54.6	38.6	9.9	6.2	68.1	64.8	45.8	11.7	7.3	
1946q1	56.1	53.2	41.0	5.9	6.2	66.2	62.8	48.5	7.0	7.4	
1946q2	55.5	52.8	42.8	3.8	6.2	66.0	62.8	50.8	4.6	7.3	
1946q3	54.1	51.6	42.6	3.0	6.0	65.9	62.8	51.9	3.6	7.3	
1946q4	54.5	52.1	43.6	2.5	6.0	66.4	63.5	53.2	3.0	7.3	
1947q1	54.4	51.9	44.2	1.9	5.8	66.1	63.1	53.7	2.3	7.1	
1947q2	53.6	51.2	43.8	1.7	5.7	66.8	63.8	54.6	2.1	7.1	
1947q3	55.1	55.1	45.5	1.6	5.8	65.2	65.2	53.8	1.9	6.9	
1947q4	53.4	51.4	44.2	1.5	5.6	65.8	63.3	54.4	1.9	6.9	
Change 1945q1-1947q4	-3.9	-3.7	5.4	-8.8	-0.3	-7.3	-6.9	4.9	-11.4	-0.6	

Source: Survey of Current Business Statistical Supplement p6, Vedder and Gallaway Table 8.6.

Table 4: Shares of National Income by Source of Income

	Total National Income	Total Worker Income	Private Wages and Salaries	Military Wages and Salaries	Civilian Government Payrolls	Supplements to Wages and Salaries	Total Owner Income	Nonfarm Proprietors and Rental Income	Farm	Total Corporate Profits	Net Interest
Levels (Billions \$)											
1945q1	191.8	127.5	86.4	23.1	13.1	4.9	64.4	25.0	12.8	23.5	3.1
1947q4	211.8	132.8	109.8	3.8	14.0	5.1	79.0	31.1	16.6	27.8	3.5
Shares (%)											
1945q1		66.5	45.0	12.0	6.8	2.6	33.6	13.0	6.7	12.3	1.6
1947q4		62.7	51.8	1.8	6.6	2.4	37.3	14.7	7.8	13.1	1.7
Change		-3.8	6.8	-10.2	-0.2	-0.1	3.7	1.6	1.2	0.9	0.0

Source: 1949 Survey of Current Business Statistical Supplement; p 6.

Table 5: Export Employment by Specific and Broad Industry Classification

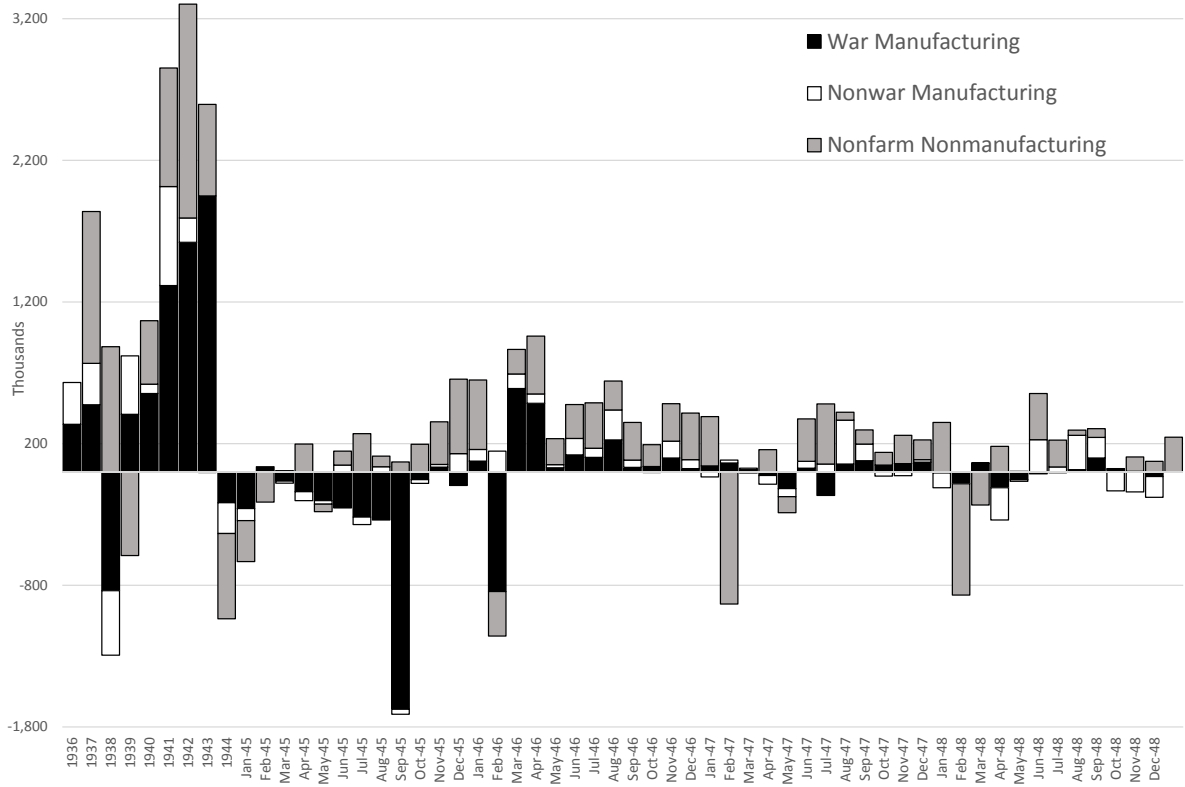
	Total Export Employment				Percent of Total				
	BLS		TBM		BLS		TMB		
	1939	1947	1946	1947	1939	1946	1946/1947		
	Total	Direct	Indirect						
Total Nonagricultural Export Employment	944	2,364	1,189	1,175	1,328.3	1969.0	100.0%	100.0%	100.0%
Total Manufacturing	654	1,704	1,211	503	832.6	1,234.2	69.3%	72.1%	69.0%
War manufacturing	476	1,173	845	348	502.4	744.8	50.4%	49.6%	40.0%
Nonwar manufacturing	178	531	366	155	330.2	489.5	18.9%	22.5%	29.0%
Nonmanufacturing	292	672		672	368.6	546.4	30.9%	28.4%	31.0%
							Percent of TBM export employment		
Agriculture					116.8	173.1			8.8%

Source: See text.

Table 6: Employment Status of Male WWII Veterans (December 1945-1950)

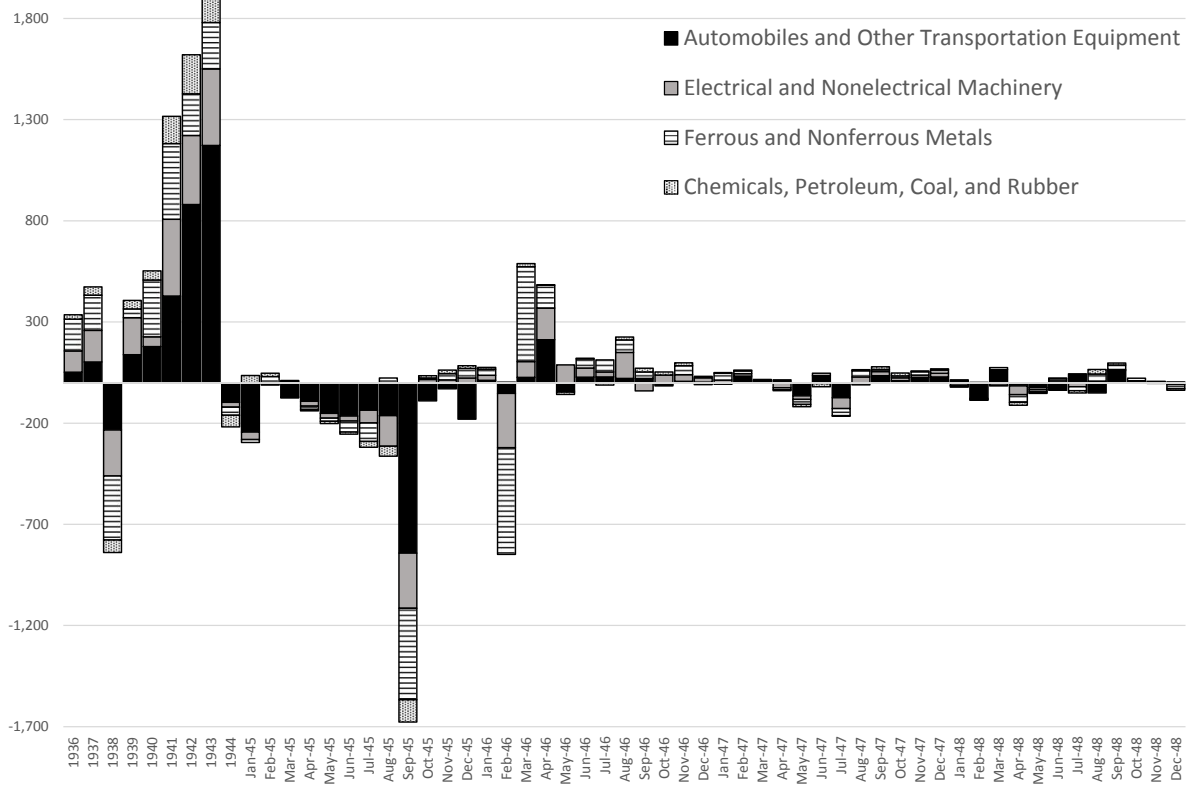
Year	In civilian labor force		Not in labor force	
	Total	Employed		Unemployed
1945	4,990	4,240	750	2,030
1946	11,450	10,610	840	1,710
1947	12,749	12,213	536	1,388
1948	13,241	12,760	481	1,188
1949	13,545	12,814	732	1,045
1950	13,858	13,463	395	739

Source: See text.



Source: 1949 Survey of Current Business Statistical Supplement p54-57

Figure 1: Change in Employment in Nonfarm Industries. Annual Monthly Average 1936-1944, Monthly 1945-1948



Source: 1949 Survey of Current Business Statistical Supplement p54-57

Figure 2: Change in Employment in War Manufacturing Industries. Annual Monthly Average 1936-1944, Monthly 1945-1948

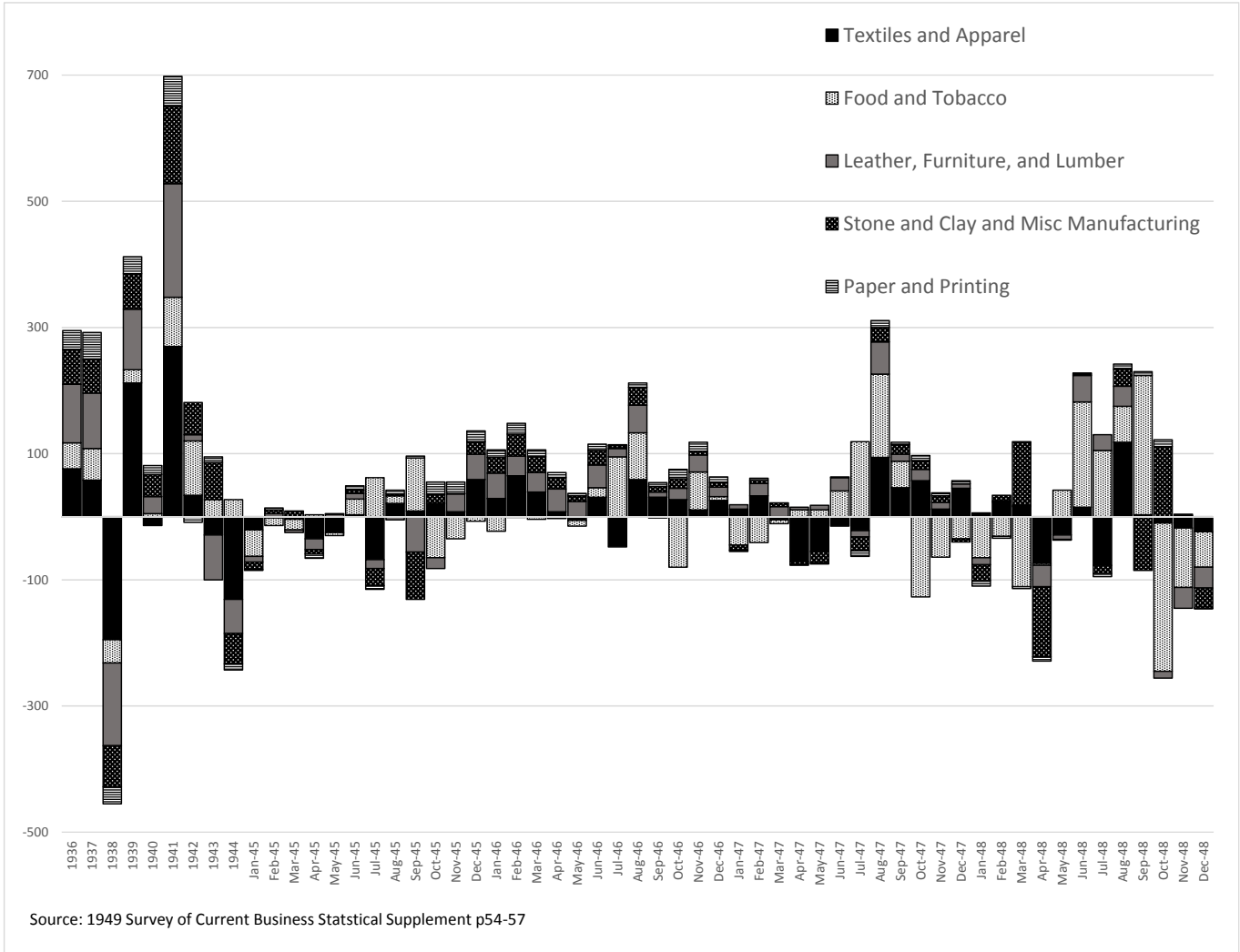


Figure 3: Change in Production Employment in Nonwar Manufacturing Industries. Annual Monthly Averages 1936-1944, Monthly 1945-1948

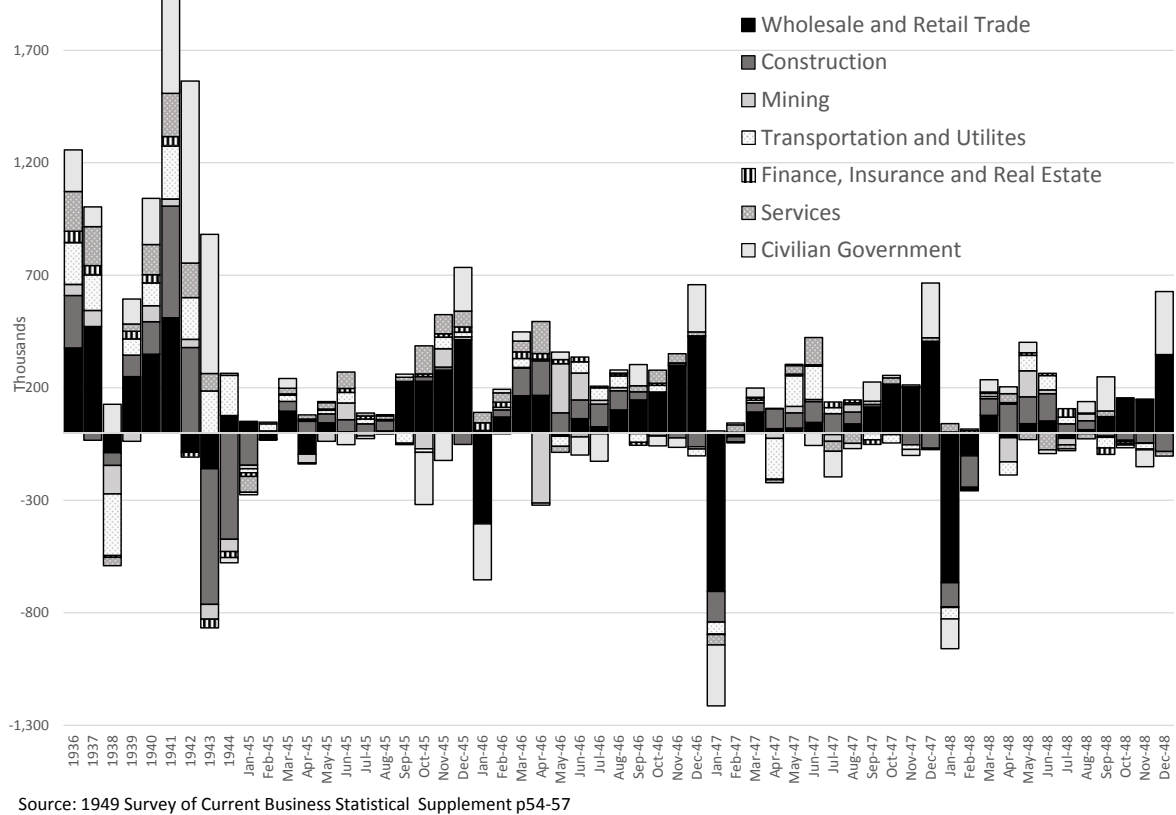
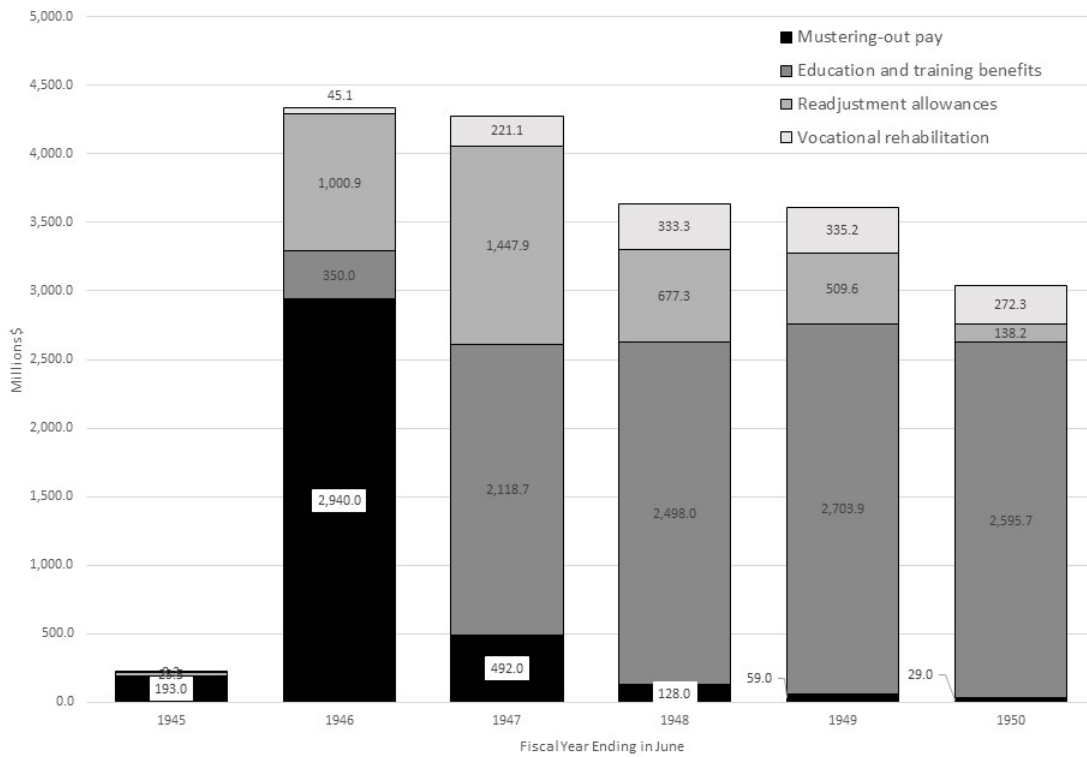


Figure 4: Change in Production Employment in Nonmanufacturing Nonfarm Industries. Annual Monthly Averages 1936-1944, Monthly 1945-1948



Source: President's Commission on Veterans' Pensions (1956). *Readjustment Benefits: General Survey and Appraisal*. Table 3

Figure 5: Government Spending on Labor Market Integration for Returning Veterans 1945-1950 (Fiscal Year)

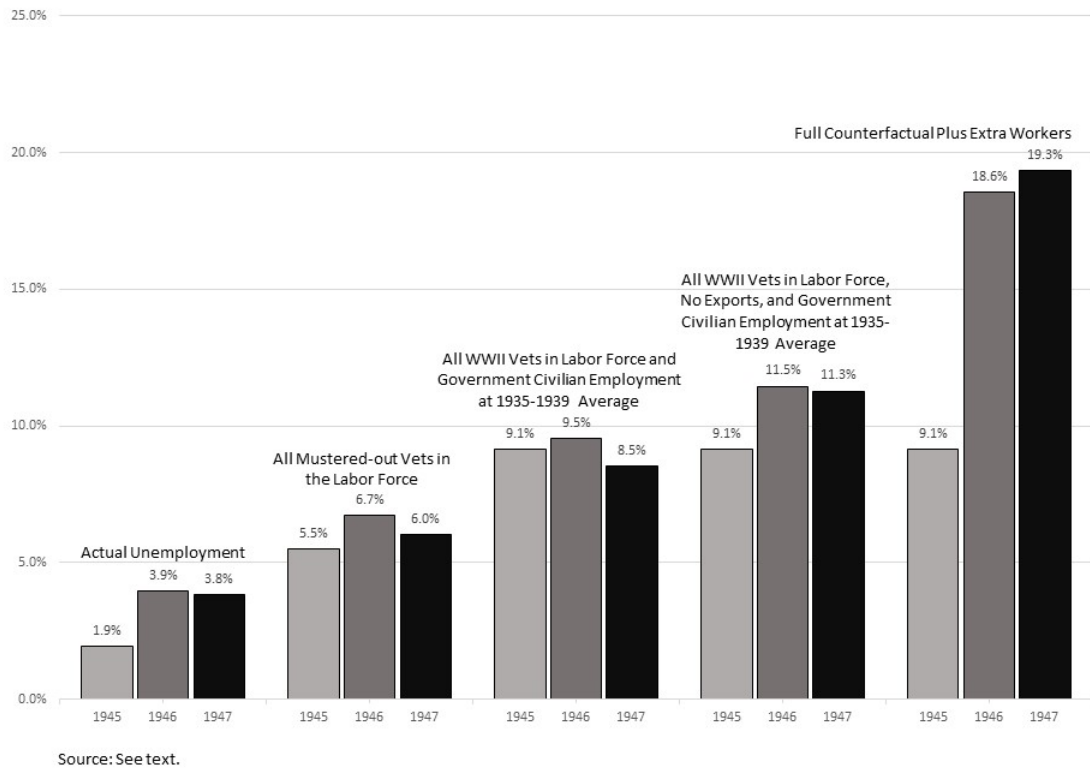


Figure 6: Actual and Counterfactual Unemployment Rates 1945-1947