

How Capital Taxes Harm Economic Growth: Britain Versus the United States

*Lee E. Ohanian**

To finance expenditures on goods and services and government programs, governments levy taxes on many different economic activities. Large countries tend to raise much of their revenue by taxing income. For example, in the United States, taxes are levied on *capital income*, such as profits and interest, and also on *labor income*, such as wages and salaries.

Taxes on income affect economic activity, since they change the incentives individuals

and enterprises have to produce, consume, save, and invest. Taxes on capital income have potentially important implications for economic growth, since they change the incentives to accumulate capital goods. For example, increasing taxes on capital income reduces the *rate of return* to capital investment. A decline in the rate of return may lead to less investment and, consequently, slower growth in a nation's stock of productive capital. Slower growth in the stock of capital means fewer new factories, office buildings, computers, and other types of equipment and structures available to produce output, which can lead to slower economic growth.

This argument suggests that an important factor in setting capital taxes is the sensitivity

*Lee Ohanian is an assistant professor of economics at the University of Minnesota and has been a visiting scholar in the Research Department of the Philadelphia Fed. This article is available on the Internet at "<http://www.phil.frb.org/econ/br/brja97lo.pdf>".

of investment to capital taxation. If investment is *insensitive* to capital taxation, taxing capital will not affect the capital stock or economic growth appreciably. If investment is *sensitive* to capital taxation, however, even relatively modest taxation may reduce economic growth considerably. While most economists agree that increasing capital taxes will lead to reduced investment, there is no consensus on how large that effect might be.

This article uses historical differences in capital income taxation between the United Kingdom and the United States to help shed light on how capital income taxes harm economic growth. Over much of the postwar period, capital income taxes in the United Kingdom were much higher than those in the United States. The genesis of this difference lies in the policies these countries used to finance World War II. Following the advice of the influential British economist John Maynard Keynes, the United Kingdom increased income taxes, particularly those on capital income, significantly during World War II. While some of the same sentiments that helped Keynes persuade the United Kingdom to raise taxes were also present in the United States, the increase in U.S. taxes during the war was small relative to the increase in the United Kingdom.

The differences in capital income taxation in these countries during the war and the postwar period provide a natural experiment that can be used to evaluate the economic consequences of capital income taxation. To gain an understanding of how capital income taxes affect economic growth, this article discusses the *qualitative* mechanisms underlying the possible growth effects of taxes, contrasts the economic performance of the United States and the United Kingdom over the postwar period, and uses differences in taxation to interpret the differences in economic performance between the countries after the war.

This article also discusses the evolution of war-finance policies in the two countries. Al-

though the United States and the United Kingdom ultimately used very different policies to finance World War II, I argue that during the 1940s—and even into the 1950s—the United States came close to adopting the type of policies used by the United Kingdom. Thus, if not for stubborn U.S. lawmakers who were unwilling to adopt President Roosevelt's recommendations, tax policies—and perhaps economic performance—in the United States may have been very similar to the British experience.¹

TAX SMOOTHING AND WAR FINANCE

One of the most important questions that confront government policymakers is: how should wars be financed? Wars are times of national emergency and often require enormous increases in government expenditures. As a result, wars are periods in which output needs to be high, so *economic inefficiencies* associated with a poorly designed tax system could be very costly during these episodes. The economic inefficiency created by a tax is the extent to which taxation causes a decline in the level of the taxed economic activity. For example, high taxation of capital income reduces the incentive to invest, since it reduces the rate of return. Similarly, high taxation of labor income reduces the incentive to work, since it reduces aftertax wages. By reducing the level of economic activity, taxes prevent mutually beneficial trades that would otherwise have taken place and thereby make all parties who would have either bought or sold that good or service worse off.

How can a government raise revenue to finance the war effort while at the same time keeping economic inefficiency low? Two aspects of war can influence the design of tax policies

¹ This article draws from earlier work of mine, including "The Macroeconomic Effects of War Finance in the United States: World War II and the Korean War," and "Postwar British Economic Growth and the Legacy of Keynes," with Thomas F. Cooley.

that minimize economic inefficiencies: the level of government expenditures and the duration of the war. During wars, substantial resources are transferred from households to government. Thus, as the level of government expenditures rises during wars, fewer goods are available for private consumption. This specific outcome is referred to as the *income effect of taxation*, since the transfer of resources from households to the government through taxation effectively reduces household income. To compensate for this loss of income, households tend to work harder and produce more goods and services.

The duration of a war also plays an important role. The shorter the war, the more likely households and firms will try to avoid taxes by substituting nontaxed activities, such as leisure, for taxed ones, such as labor. This is called the *substitution effect of taxation*. The size of the substitution effect is a key factor in determining the economic inefficiency of a tax. If the substitution effect is large, taxes can lead to a significant decline in the taxed activity and a big increase in economic inefficiency. For example, suppose income tax rates were very high for only one day. In this case, we would expect households and firms to avoid temporarily high taxes by reducing work and production on that day. As a result, tax revenue on that day may be low, despite high tax rates.

A number of economists have studied the effects of these two factors on the design of efficient plans for war finance. The best known work in this area is by Robert Barro, who argues that to minimize economic inefficiency, wars should be financed primarily by government debt and that the debt should be gradually paid off after the war. This policy is known as *tax smoothing*.

To understand how tax smoothing works, consider the alternative policy: financing a war while maintaining a *balanced budget*. The key feature of a balanced-budget policy is that no debt is issued to pay for government expenditures. Since expenditures are high during wars,

taxes would need to be raised substantially to ensure that expenditures do not exceed revenues. However, high tax rates will lead to significant economic inefficiency unless the substitution effect is small. Recall that the size of the substitution effect will depend in an important way on the expected duration of the war. In particular, if the war is expected to be short, the substitution effect will be very high because individuals can avoid temporarily high income taxes by working less, changing their consumption behavior, and using savings to help finance their expenditures during the short period in which taxes are high. If the war is expected to last many years, however, it becomes much more difficult for individuals to avoid taxes, and thus the substitution effect will tend to be smaller.

Based on the duration of most major U.S. wars, Barro has argued that it is reasonable to expect that the substitution effect will be large during these episodes. Given the presumption of large substitution effects, Barro's analysis suggests using government debt to pay for most war expenditures. This policy leaves the efficiency of the tax system roughly unchanged during a war and does not reduce incentives to produce. After the war is over, taxes are raised slightly to gradually retire the debt. This tax increase after a war does not increase economic inefficiency much, since the increase is fairly small and is long-lasting. The benefit of financing wars with government debt is that debt can be used to smooth out tax distortions over time, leading to a better outcome than the alternative of having very high inefficiencies for a short period.

HISTORICAL TAX POLICIES IN THE U.K. AND THE U.S.

Historically, tax policies in the United Kingdom and the United States have been characterized by tax smoothing. Robert Barro and others have argued that U.K. wars prior to World War II were financed primarily by debt, and that

wartime debt was paid off gradually after the specific war. For example, Cooley and Ohanian (1997) report that about 70 percent of U.K. government expenditures during World War I were financed by debt, and this percentage appears to be even higher for many earlier wars.

During World War II, however, there was a sharp change in the type of war finance policies used in the United Kingdom. Britain largely abandoned its historical policy of tax smoothing in favor of a policy designed to finance as much of the war as possible from contemporaneous taxation. This departure from the standard policy was due to the influence of John Maynard Keynes, one of the best known economists of the 20th century.²

Keynes was strongly opposed to the use of debt to finance war expenditures. Keynes opposed deficit financing because of the difficulties faced by several countries in repaying debts after World War I and also because government debt was owned primarily by wealthy households. Keynes thought that wars should be periods of sacrifice and not a time when the wealthy benefited by earning interest on war bonds. Instead, Keynes favored a balanced-budget policy, in which tax revenue was sufficient to finance government expenditures and no debt was required to finance the war effort.

Keynes detailed his opposition to the standard practice of tax-smoothing policies and constructed a specific alternative plan to finance the war in his monograph *How to Pay for the War: A Radical Proposal to the Chancellor of the Exchequer*. Keynes's objective was to pay for the war without using deficit financing. Keynes's interest in maintaining a balanced budget during wartime differed sharply from the modern theory of war finance developed by Barro and

others. However, Keynes had additional motivations in favoring a policy of higher taxes over a tax-smoothing one. He recommended not only that taxes be raised substantially to finance the war but also that wealthy households exclusively should bear the burden of these taxes. In Keynes's view, economic inequality in Britain was too high, and his plan to finance the war effectively redistributed income from wealthy households to poor ones.

But such a plan would not raise sufficient revenue unless it also involved taxing the income of households at all income levels. Keynes's solution to this problem was to propose a system of sharply rising levies on all incomes in excess of a small minimum, with the highest incomes paying a marginal rate of 85 percent. For nonwealthy households, these levies were to be regarded as compulsory savings, credited to a savings institution of the individual's choice, that would be rebated with interest beginning in the first postwar recession. The rebates were to be financed by a wealth tax that would begin following the war.³ Keynes also had hoped that the wealth tax would become a permanent part of the U.K. tax code.

How a wealth tax affects investment depends on whether households expect the tax. If households expect that their assets will be taxed in the future, the expected rate of return to investment will decline, and investment will fall. Some economists recognized this potential problem with the Keynes plan and criticized this component. Sir John Hicks, another leading British economist of the period, argued that the imposition of a wealth tax would lead to high economic inefficiencies, as wealthy households altered their behavior to try to avoid the tax. Although Keynes understood the logic of this argument, he claimed that households would not change their behavior significantly in response to a future wealth tax.

² Keynes's book *The General Theory of Employment, Interest, and Money*, published in 1936, was a widely used text in graduate economics education for much of the postwar period.

³ A wealth tax is a levy based on the value of household assets.

Keynes also worked hard to persuade British Treasury officials that his proposals should replace the standard war finance policy of tax smoothing. Some government officials viewed the proposals advanced in *How to Pay for the War* skeptically. The Treasury initially rejected the proposals, fearing that higher taxes might jeopardize the increased level of production required for the war effort. However, Keynes was ultimately able to persuade the Chancellor of the Exchequer that his plan was superior to the conventional type of war financing.

Consequently, Keynes heavily influenced the 1941 budget statement. The budget contained most of the tax changes Keynes had advocated, including sharp increases in income taxes—a standard rate of 50 percent and a top marginal rate of 97.5 percent. The United Kingdom did not adopt the large compulsory savings program that had been a key factor of the Keynes plan. Instead, the budget included a very modest compulsory savings plan that promised rebates of a small portion of the taxes at the end of the war.

The adoption of these policies changed the aftertax income distribution considerably in the United Kingdom. For example, in 1938, the top 289,000 households had an average aftertax income of nearly 2000 pounds. By 1949, only the top 11,000 households had an average aftertax (inflation-adjusted) income of that magnitude, a decline of 96 percent in the number of households at that net income level.⁴

Despite these sharp increases in taxes, the

⁴ See Cooley and Ohanian (1997).

United Kingdom still needed to issue debt to help finance World War II. Thomas Cooley and Lee Ohanian report that about 60 percent of expenditures were financed with tax revenue, and just under 40 percent were financed with debt.

The United States also has traditionally financed wars with tax-smoothing policies. For example, before World War II, the United States fought six wars financed with a mixture of direct taxes, debt, and seignorage.⁵ Claudia Goldin has documented the relative importance of these different sources of revenue (Table). These statistics suggest that, with the exception of the Spanish-American War, the United States financed the six wars prior to World War II primarily with debt.⁶

During World War II, a greater fraction of

⁵ Seignorage is the revenue the government receives by printing new money.

⁶ It should be noted that Goldin does not distinguish between debt finance and seignorage and that the United States made considerable use of seignorage during the Revolutionary War.

TABLE
War Financing in the United States

	Percent of expenditures financed by direct taxes	Percent of expenditures financed by debt and seignorage
Revolutionary War	13.1	86.9
War of 1812	21.0	79.0
Mexican War	41.8	58.2
Civil War - Union	9.3	90.7
Civil War - Confederacy	13.0	87.0
Spanish-American War	66.0	34.0
World War I	24.0	76.0
World War II	41.0	59.0
Korean War	100.0	0.0

Source: Claudia Goldin, 1980, pp. 938-940.

U.S. war expenditures was financed by direct taxation (though still a far smaller fraction than in the United Kingdom). This is broadly consistent with Barro's idea, since the war was relatively long, and expenditures were high. However, as noted by Paul Studenski and Herman Kroos (1963), a number of government officials, including President Roosevelt and Treasury Secretary Henry Morgenthau, pushed for even higher taxes. As military expenditures began to rise in 1941, Morgenthau urged Congress to finance at least two-thirds of defense purchases with taxes, recommending high taxes on capital income.⁷

By 1942, President Roosevelt also believed that the war should be financed with higher taxes. He fought for a substantial tax increase and proposed a ceiling of \$25,000 on aftertax household incomes.⁸ Moreover, he recommended that Congress consider a forced savings plan similar to that designed by Keynes. Although Congress did raise taxes during World War II, it did not implement the draconian changes recommended by the President and his Cabinet. After Roosevelt's budget message of 1944, in which he chastised Congress for failing to adopt his recommendations, Senator Walter George, chairman of the Finance Committee, stated "We have reached about the bottom of the barrel as far as existing taxes are concerned."⁹

The administration and Congress continued to clash over tax policy during 1944 and 1945, but Congress continued to oppose Roosevelt's recommendations, and taxes were raised only modestly over the balance of the war. Thus, while Roosevelt's views on war finance were

similar to those of Keynes, and may have even been shaped by Keynes, he was not nearly as successful in influencing tax policy during World War II.

Even after World War II, support for balanced-budget policies remained high in the United States. President Truman was a staunch believer in maintaining balanced budgets. Studenski and Kroos note that Truman continuously urged Congress "...to finance the greatest possible amount by taxation," and that he "...hoped to maintain a balanced budget, even if military costs doubled."¹⁰ Truman felt that the policy of using debt to finance World War II was a mistake: "During World War II we borrowed too much and did not tax enough."¹¹ President Truman was much more successful than President Roosevelt in persuading Congress to raise taxes in wartime: Goldin estimates that the entire Korean War was financed with taxes on labor and capital income.

U.S. AND U.K. MACROECONOMIC PERFORMANCE

At the outbreak of World War II, the macroeconomic performance of the United States and that of the United Kingdom were similar in several ways: both were wealthy countries and both had relatively skilled labor forces. In addition, both faced similar patterns in the demands that war placed on their economies. For example, between 1939 and 1944, inflation-adjusted expenditures of the central government in the United Kingdom rose by a factor of about 8; over that same period, inflation-adjusted expenditures of the federal government in the United States rose by a factor of about 9.

Despite the similarity between the increases in government expenditures in these two countries, their macroeconomic performance was

⁷ See Studenski and Kroos, page 438.

⁸ This recommendation implies a 100 percent marginal tax rate on high income households.

⁹ See Studenski and Kroos, page 449.

¹⁰ See Studenski and Kroos, page 490.

¹¹ See Studenski and Kroos, page 490.

strikingly different (Figure 1).¹² There are several important differences in the behavior of output in the two countries. A large gap in output between the two countries emerged during this period. The gap grew considerably during the war, and narrowed afterward as U.S. output of military equipment and supplies fell. The gap also widened somewhat in the 1950s. Between 1939 and 1959, real output per capita in the United Kingdom grew at an average rate of 1.5 percent per year, while that in the United States grew at the rate of nearly 3 percent per year.

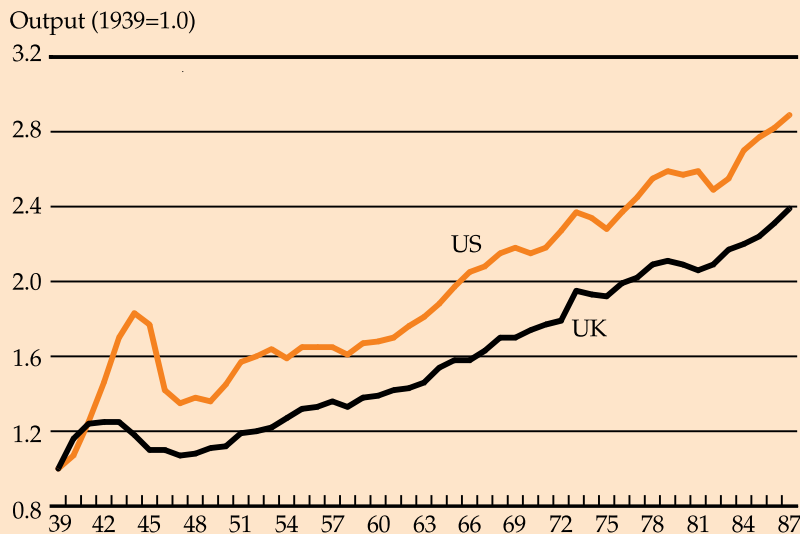
The output picture in the two countries changed considerably, however, after the war

(Figure 1). The gap between the two countries continued to develop as the United States grew faster in the early 1960s, but this gap narrowed by the end of the decade. Moreover, from the 1970s on, growth rates in the two countries were very similar as U.S. output and U.K. output moved almost in lockstep.

Similar differences between the United States and the United Kingdom are seen in the behavior of private business investment in plant and equipment. The United States experienced a sharp drop in business investment spending during the war, which reflects the fact that not many goods were available for private use. As a result, individuals chose to consume a rising share of the smaller amount of goods, rather than forgo additional consumption and invest. In the U. K., investment also dropped steadily throughout the war (Figure 2).

¹² Output in both countries is measured relative to its 1939 level.

FIGURE 1
Real Per Capita Output: U.S. and U.K.
1939-87



After the war, however, sharp differences in the behavior of investment arose between the two countries. In the United States, investment rose quickly, from around 4 percent to about 16 percent of GNP, and fluctuated around that value over the rest of the postwar period. In the United Kingdom, however, private investment rose modestly after the war, from about 3 percent at the end of the war to about 7 percent a year later. However, private investment in the United Kingdom continued to rise gradually over the postwar period, and by 1980, the rate of investment in the United Kingdom was similar to that in the United States.

These data indicate that the United Kingdom grew at a much slower rate during World War II and for the first half of the postwar period. In addition, the period of slow output growth coincided with a period of low investment and

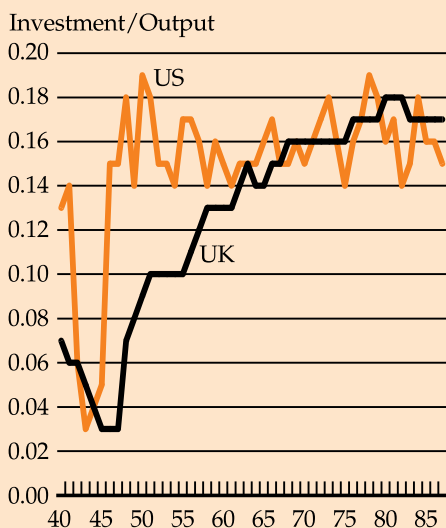
low growth in the capital stock. What are the reasons for this particular pattern of macroeconomic performance in the United Kingdom? In particular, are there any simple explanations consistent with both the poor early performance and the improved performance later?

While many factors can affect economic performance, I highlight one simple difference between these two countries that is consistent with the different early and late postwar macroeconomic behavior: large differences in taxation of capital income.

Figure 3 provides a measure of the average tax rate on capital income.¹³ Perhaps the most

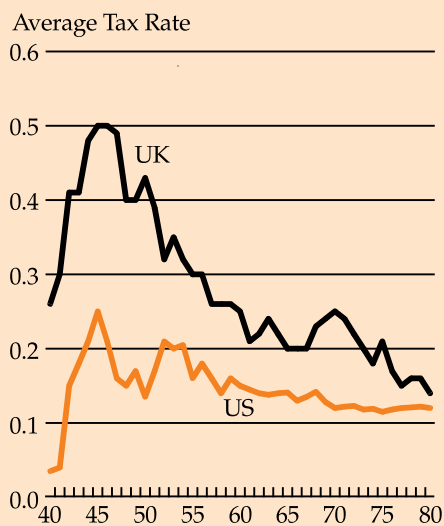
¹³ Economists often distinguish between gross and net capital income. Gross capital income is total capital income, and net capital income is gross income less the value of depreciated capital.

FIGURE 2
Investment/Output:
1940-87



Source: Cooley and Ohanian (1997).

FIGURE 3
Average Capital Tax Rate:
1940-80



Source: Cooley and Ohanian (1997).

striking aspect of Figure 3 is that capital tax rates in the United Kingdom during World War II and the early postwar period are substantially higher than those in the United States. For example, capital tax rates in the United Kingdom approach 50 percent at the peak of the war, which is double the U.S. tax rate of 25 percent. Note also that capital tax rates in the United Kingdom decline consistently over the course of the postwar period, from the peak of 50 percent in 1946 to about 17 percent by 1980. Thus, the data in Figure 3 indicate that the very high rates of capital income taxation put in place at Keynes's recommendation during the war remained in place in the early postwar period and were only gradually reversed. In the United States, the capital income tax rate declines quickly from 25 percent at the peak of the war to about 15 percent by 1950. Although the tax rate increased during the Korean War (1950-53), it declined modestly over the post-Korean War period, to about 12 percent.

The very different pattern of these tax rates, along with the basic theory of how changes in capital tax rates can affect investment, has important implications for macroeconomic performance in the United Kingdom and the United States. First, the differences in investment between these two countries immediately after the war suggest that investment is quite sensitive to capital income taxation. In 1946, capital income taxes in the United Kingdom were about twice as high as those in the United States, and the rate of investment in the United Kingdom was only about one-third the rate in the United States. My interpretation of this difference is that high capital taxes led households to substitute lower taxed activities for saving and investment.

A look at both the behavior of capital taxes and the investment rate over the entire postwar period sheds further light on the effects of capital taxes. In the United Kingdom, the steady decline in the rate of capital income taxation from 50 percent to about 15 percent resulted in

a significant increase in the rate of return to investment. This is consistent with the smooth increase in the investment rate in the United Kingdom over the postwar period. As the rate of return gradually rose, the rate of investment increased, reflecting the higher aftertax reward to investing.

In the United States, the capital tax rate declined from 15 percent immediately after the Korean War to about 12 percent by 1980. Since the capital tax rate did not change much over this period, basic theory predicts that the investment rate should also not change much. This is consistent with the steady investment rate in the United States over the postwar period.

The historical differences in capital income taxation between these two countries account for these three distinctive features: (1) the enormous difference in the rate of investment between the United Kingdom and the United States at the end of the war, (2) the steady rate of investment in the United States over the postwar period, and (3) the persistent increase in the rate of investment in the United Kingdom over the postwar period. The main implication for economic growth is that the low rate of investment during the early postwar period in the United Kingdom led to slower growth in the capital stock. This observation can help to account for the low growth rate of U.K. output during the immediate postwar period.

By the early 1960s, the investment rate in the United Kingdom had caught up to the investment rate in the United States, resulting in a pickup in growth in the U.K.'s capital stock. This catching up also helps explain the fact that the growth rates for output in the United Kingdom and the United States were virtually the same after the mid-1960s. But for the United Kingdom, the period of slow growth in the 1940s and 1950s left the level of real per capita output persistently lower than that in the United States.

CONCLUSION

Historical differences in capital income taxation and the investment rate between the United Kingdom and the United States suggest that investment in capital goods is sensitive to taxation of capital income. This analysis concludes that large increases in capital income taxation, such as the increase that occurred in the United Kingdom during World War II, can lead to sharp declines in investment and future economic growth.

The United Kingdom followed the recommendations of John Maynard Keynes in substantially increasing capital income taxes to finance the war. In Keynes's day, a common view in economics was that investment was not very sensitive to capital income taxation. This view suggests that financing the war with high capital taxes would not affect investment or economic growth very much and thus helps explain Keynes's recommendations.

But further analysis suggests that this view was wrong and implies that Britain would have had a significantly higher standard of living had a tax-smoothing policy been used to finance World War II. Moreover, Britain might have been much worse off had it adopted all of Keynes's recommendations, which included a permanent wealth tax. Although that policy may have furthered Keynes's objective of reducing economic inequality, it's likely that investment and growth would have been even lower over the postwar period.

As in Britain, there was considerable pressure to increase taxes in the United States during World War II. In fact, President Roosevelt's views on war finance were quite similar to those of Keynes: both argued against debt finance, felt that the war should be financed by high-income households, and viewed a forced savings policy as a potentially important component of war finance. However, unlike their British counterparts, lawmakers in the United States were not persuaded by these arguments and instead financed the war primarily through issuing debt, much as previous wars had been financed.

Even though Congress did follow President Truman's recommendations for higher taxes to finance the Korean War, the relatively low level of military expenditures during that war did not require huge increases in tax rates. In recent work, I have found that the economic inefficiency of following a balanced-budget policy during the Korean War rather than a tax-smoothing policy was about 0.5 percent of real GNP per year. However, had the United States used a balanced-budget policy during World War II, economic inefficiency could have been as high as 5 percent of real GNP per year (Ohanian, 1997). This suggests that the United States was fortunate to have resisted pressure to raise taxes substantially during World War II. Otherwise, postwar economic performance in the United States may be much more like that of the United Kingdom.

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