

Walking wounded: The British economy in the aftermath of World War I

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It is well-known that World War I was expensive for Britain. The indirect economic costs were also huge. This column argues that the adverse implications of the Great War for post-war unemployment and trade – together with the legacy of a greatly increased national debt – significantly reduced the level of real GDP throughout the 1920s. A ballpark calculation suggests the loss of GDP during this period roughly doubled the total costs of the war to Britain.

World War I was not over by Christmas of 1914. It was a prolonged, brutal, and expensive conflict. Britain incurred 715,000 military deaths (with more than twice that number wounded), the destruction of 3.6% of its human capital, 10% of its domestic and 24% of its overseas assets, and spent well over 25% of its GDP on the war effort between 1915 and 1918 (Broadberry and Harrison, 2005). Yet that was far from the sum of the losses that the Great War inflicted on the British economy; economic damage continued to accrue throughout the 1920s and beyond.

Against a background of continued weak productivity performance (see Table 1), a number of new problems emerged from a transition to peace that was fraught with difficulty. The difficulties that beset the British economy in the 1920s came from changes in the world economic environment compared with the pre-war period, from the legacy of the war itself, and from the policy choices made in the aftermath of the war. The implications were a substantial rise in equilibrium unemployment, a big squeeze on real earnings and a need for eye-watering primary budget surpluses to preserve fiscal sustainability.

Table 1. Labour productivity in the United States (UK = 100)

	Agriculture	Industry	Services	GDP	Real GDP/person
1909/11	103.2	193.2	107.4	117.7	107.8
1929	109.7	222.7	121.2	139.4	125.3

Note: real GDP/person comparison is for 1913.

Sources: Maddison (2010) and Broadberry (2006).

More than any other major country, Britain's position in the world economy on the eve of World War I was predicated on the globalization of that period. Britain was the leading capital exporter with net property income from abroad of about 9% of GDP, accounted for 27% of the world's manufactured exports, and had a much higher share of trade in GDP (54%) than other leading economies such as Germany (40%) or the United States (10%). As Findlay and O'Rourke put it, "World War I brought the liberal economic order of the late 19th century to an abrupt halt" (2007, p. 429). The implication for Britain was a substantial increase in trade costs in the face of increased protectionism (Jacks et al. 2011). The trade ratio, $(X + M)/Y$, fell by about 12 percentage points – which can be expected to have reduced the level of GDP through adverse impacts on investment and TFP (Frankel and Romer 1999).

Moreover, countries such as Japan and the United States were able to replace Britain in international markets during the war, allowing them to develop successful agglomerations that undermined British first-mover advantages in activities such as cotton textiles and international lending with the result that Britain suffered a permanent loss of world market share (Cochrane 2009). The bottom line was that the volume of British exports in the mid-1920s was only about 75% of its 1913 level, and persistently high levels of unemployment in what had been staple export industries in 19th century scarred 'Outer Britain' (Table 2).

Table 2. Unemployment rates, 1925-29 (%)

Total labour force	8.4
All insured workers	10.9
London and South East	5.9
Midlands	9.5
North East, North West and Scotland	13.5
Wales	19.3
Coalmining	16.5
Cotton textiles	13.6
Iron and steel	25.5
Shipbuilding	30.5

Note: the National Insurance Scheme did not cover all workers in the interwar period, implying that total numbers unemployed are underestimated while unemployment rates are exaggerated by data taken from its records (all rows in Table 2 except the first one).

Sources: total labour force from Boyer and Hatton (2002); insured workers from Ministry of Labour Gazette.

Not surprisingly, the conduct of the war, which entailed substantial borrowing, resulted in high inflation and a large increase in the national debt. By 1920, the GDP deflator stood at 270.8 (1913 = 100) and the national debt was £7.8 billion (1.3 times GDP) compared with £0.62 billion (0.25 times GDP) in 1913 (Mitchell 1988). Such a large increase in the public debt to GDP ratio can be expected to have significant adverse effects on economic growth through its implications for interest rates, taxes, investment and TFP.

Macroeconomic conditions during the war were conducive to a massive increase in trade union membership, which doubled from 22 to 44% of the work force, intensifying militancy. The policy response included the development of relatively generous unemployment benefits with much wider coverage and the development of collective bargaining institutions such as wage councils and trade boards. Ultimately, this reduced wage flexibility and raised the NAIRU which was about 4 percentage points above the pre-1913 level (Hatton and Thomas 2013).

The key post-war policy decision, taken following the report of the Cunliffe Committee in 1919, was to seek to return to the gold standard at the pre-war parity of \$4.86. Seen as a return to the contingent 19th century rule which imposed discipline on politicians, this was entirely understandable (Bordo and Kydland 1995). Montagu Norman, Governor of the Bank of England, saw the return to gold as "knaveproof". However, this could only be achieved through a severe deflation which reduced domestic prices and wages very substantially such that the real exchange rate was consistent with external and internal balance. At the time it was not clear how much prices needed to fall, and ex-post analysis leaves considerable room for doubt (Redmond 1984). This is especially

so because in the new external economic environment the equilibrium real exchange rate was probably lower than in 1913, so purchasing-power-parity-based calculations were likely inappropriate. Table 3 suggests that the eventual return to gold at \$4.86 in April 1925 was at an overvalued exchange rate if the aim was to return to the 1913 unemployment rate of 4.2%, and prices were not very flexible downward. It is easy to think that this was a big mistake, a verdict that has been generally believed ever since Keynes delivered it at the time.

Table 3. Balance of payments current account (£ mn)

	1913	1925	1925 at 1913 prices
Visibles	-82	-265	-144
Invisibles	+317	+317	+172
Current balance	+235	+52	+28

Note: price index is GDP deflator

Source: Mitchell (1988).

It should be recognized that the challenge to policymakers of the immediate post-war situation was daunting and that the biggest costs came from getting from 1920 to 1925. These costs came from the early 1920s deflation and were felt in terms of a severe recession, a permanent increase in unemployment, and the fiscal consequences of a big increase in the public debt to GDP ratio. The deflationary squeeze saw the unemployment rate for all workers at an average of 11.5% during 1921-1922 (Boyer and Hatton 2002) while prices fell by about 30 per cent between 1920 and 1923. In the course of this adjustment, real earnings showed no growth between 1919 and 1926. However, real unemployment benefits and replacement rates rose steeply because nominal benefit levels were not cut significantly as prices fell.

Table 4. Fiscal sustainability data, 1921-1929

	b	i	π	g	d
1921	5.10	4.41	-10.52	-4.71	1.472
1922	7.38	4.45	-16.05	4.11	1.668
1923	8.92	4.52	-8.01	3.40	1.763
1924	7.60	4.58	-1.39	5.10	1.726
1925	6.46	4.59	0.27	2.89	1.633
1926	6.10	4.85	-1.41	-4.59	1.717
1927	6.89	4.57	-2.36	8.22	1.635
1928	7.53	4.75	-1.12	1.17	1.613
1929	7.00	4.85	-0.34	3.43	1.584

Note: the condition for the debt to GDP not to increase is that $b \geq d(i - \pi - g)$

Sources: b, primary budget surplus to GDP ratio, i, average nominal interest rate on government debt, and d, public debt to GDP ratio from Middleton (2010) database; π , rate of inflation based on GDP deflator from Feinstein (1972); g, 4th quarter real GDP growth rate, from Mitchell et al. (2012).

In the context of today's concerns over public debt reduction in the wake of the recent financial crisis, Table 4 makes painful reading. Despite running really big primary surpluses, the fall in prices and the huge differential between real interest rates and real growth rates meant that the public debt to GDP ratio had risen to 1.76 by 1923. Even after the return to gold, high real interest rates made debt reduction difficult. Table 4 shows that the end result of the return-to-gold strategy was that British taxpayers delivered an average primary budget surplus of 7% of GDP during 1921 through 1929 but the debt-to-GDP ratio at the end of this period had risen to 1.58 compared to 1.47 at the start!

Overall, there were important adverse effects of World War I on British income levels in the 1920s, working through higher unemployment, lower trade, and a vastly increased public debt to GDP ratio. How big was the reduction in real GDP? This requires serious research, but a 'back of the envelope' calculation suggests it was quite big.

If we assume that the NAIRU was raised by 4 percentage points then real GDP each year would be lower by about 2.8 percentage points. If we assume that the trade ratio was reduced by 22% then with the elasticity of 0.2 (as in Bradford et al. 2006), real GDP each year would be lower by 4.5%. Using the estimates in Egert (2013) it would not be unreasonable to suppose that an increase of the ratio of public debt from below 30% pre-war to over 90% post war would reduce growth by at least 0.8 percentage points per year, implying that by 1929 the level of GDP would be reduced by 7.3%. In total for the 1920s, this means that on average GDP would have been $1.028 \times 1.045 \times 1.036 = 1.113$ times the actual level. Adding up an annual loss of about 11% of GDP each year during the decade gives a total not very different from the amount spent on fighting the war. This is obviously a crude estimate of the indirect economic costs to Britain but its message is surely correct: the total economic cost of World War I to Britain was far greater than is generally recognized.

Editors' note: This is the sixth in a series of Vox columns by leading economic historians on the First World War, which will be collected in a Vox eBook at the end of the year: "The Economics of the First World War", edited by Nicholas Crafts, Kevin O'Rourke and Alan Taylor.

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