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Much Ado About Nothing?
A Note on Investment and Wage Pressure in
Weimar Germany, 1925-29

Hans-Joachim Voth*

Abstract: According to the Borchardt hypothesis, state arbitration during Weimar's relatively stable years (1925-29) led to excessive wage pressure. As a direct consequence, profits were squeezed hard and investment fell, giving rise to a 'small-cake economy' which, in the end, had to fail. Borchardt's interpretation, hotly debated amongst German and Anglo-Saxon scholars for some time, is challenged in this paper. I first discuss the shifts in basic demographic variables during the early decades of the twentieth century. It will emerge that declining population growth rates are largely responsible for the changes in macro-economic variables noted by Borchardt. Finally, this article demonstrates why the indicator of wage pressure used in previous work is fundamentally flawed.

Ever since Knut Borchardt challenged the conventional wisdom about the Weimar Republic's economy in general - and the scope for action during the Great Depression in particular¹ - economic historians have continued to debate his conclusions.² The so-called Borchardt hypothesis has two elements that are

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¹ K. Borchardt, 'Zwangslagen und Handlungsspielräume in der **großen** Wirtschaftskrise der frühen dreißiger Jahre', in: *Jahrbuch der Bayerischen Akademie der Wissenschaften* 1979, pp. 85-132; reprinted in: *Ibid.*, *Wachstum, Krisen, Handlungsspielräume der Wirtschaftspolitik*, Göttingen 1982, pp. 165-82.

² The most important contributions are: C.-L. Holtfrerich, 'Zu hohe Löhne in der Weimarer Republik? Bemerkungen zur Borchardt-These', *Geschichte und Gesellschaft* 10 (1984), pp. 122-41; H. James, 'Economic Reasons for the Collapse of the Weimar Republic', in: I. Kershaw (ed.), *Weimar: Why Did German Democracy Fail?*,

interrelated. Nonetheless, it is important to distinguish between them: Firstly, Borchardt argued that wages during the 'golden years' of the Weimar Republic (1925-29) were so high that profits were squeezed and, consequently, investment had to fall markedly below the level that had prevailed before 1914.³ Secondly, he contended that the Brüning government had virtually no alternative to the strictly deflationary course on which it embarked.⁴ This second side to the Borchardt hypothesis is a direct consequence of the first aspect: the depression had such severe consequences in Germany not because the Brüning government pursued a rigorous policy of 'balancing the budget' and deflation, but because a 'crisis before the crisis' beset Germany's first republic.⁵ In contrast to the established consensus, Borchardt held that Brüning's policies were not only inescapable, but also beneficial. Weimar's 'sick'⁶ economy allegedly emerged healthier from the slump - no longer saddled with excessive wages, Germany's Nazi economic miracle could only take place because of the enlightened policies carried out by the Brüning government.

This article will proceed in two steps. The first section gives a short overview of the economic and demographic conditions prevailing during both the Empire and the Weimar Republic. It will emerge that the indicator of investment performance used in the debate so far is conceptually unconvincing; if the appropriate measure for the expansion of capital stock is analysed, no significant difference between the investment behaviour during the Empire and the years 1925-29 exists. The second section then asks how this finding can be reconciled with the fact that previous scholars have - in their majority at least - found evidence of wage increases outstripping productivity gains. I will argue that a clear distinction between wages as a cost for enterprise and wages as an indicator of living standards has often been conspicuous by its absence in the Borchardt debate. Once this problem is remedied, there is markedly less evidence for wage pressure during Weimar's 'golden years'. Section III concludes.

London 1990; J.v. Kruedener, 'Die Überforderung der Weimarer Republik als Sozialstaat', *Geschichte und Gesellschaft* 11 (1985) pp. 358-76; A. Ritsehl, 'Zu hohe Löhne in der Weimarer Republik? Eine Auseinandersetzung mit Holtfrerichs Berechnungen zur Lohnposition der Arbeiterschaft 1925-1932', *Geschichte und Gesellschaft* 16 (1990), pp. 375-402; T. Baiderton, *The Origins and Course of the German Economic Crisis. November 1923 to May 1932*, Berlin 1993; as well as D. Petzina, 'Was There A Crisis Before the Crisis? The State of the German Economy in the 1920s', in: J.v. Kruedener (ed.), *Economic Crisis and Political Collapse. The Weimar Republic 1924-1933*, New York/Oxford/München 1990, p. 1-19.

³ Cf. Borchardt, *Wachstum*, p. 177 ff.

⁴ K. Borchardt, 'Zur Frage der währungspolitischen Optionen Deutschlands in der Weltwirtschaftskrise', in: K. Borchardt and F. Holzheu (eds.), *Theorie und Politik der internationalen Wirtschaftsbeziehungen*, Stuttgart 1980, pp. 165-182, reprinted in: K. Borchardt, *Wachstum*, pp. 206-224.

⁵ K. Borchardt, 'Wirtschaftliche Ursachen des Scheiterns der Weimarer Republik', in: K.D. Erdmann und H. Schulze (eds.), *Weimar, Selbstpreisgabe einer Demokratie. Eine Bilanz heute*, Düsseldorf 1980, pp. 211-249, reprinted in: Borchardt, *Wachstum*, pp. 183-205.

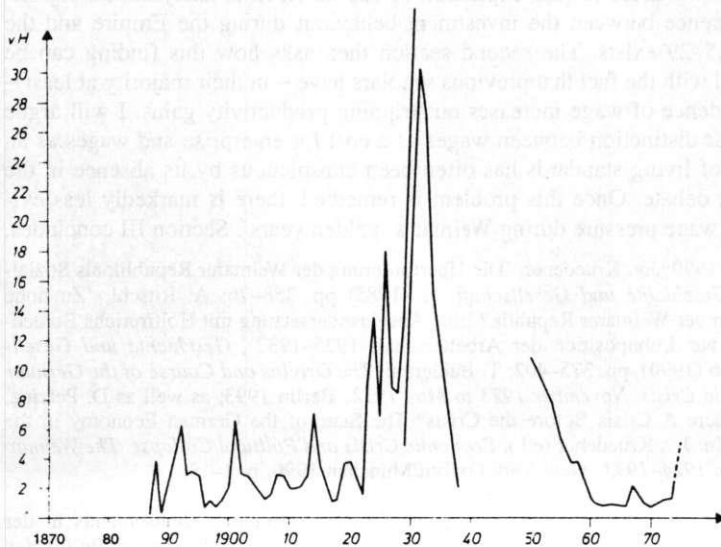
⁶ Borchardt, *Wachstum*, p. 182.

I.

For all the critical intelligence that Borchardt's hypothesis has attracted, one type of study has not been carried out: a systematic comparison of the Empire's and Weimar's economy and the socio-demographic context in which they operated. Borchardt's value-judgement about the 'sickness' of the Weimar economy is based on the fact that he perceives a systematic difference between the years 1925-29 on the one hand and the *Kaiserreich* as well as the Federal Republic since 45 on the other. He stresses three main points:

1. even **before the** slump, **unemployment rates** were markedly higher than in any other period of German economic history⁷ (cf. figure 1)
2. real wages, when compared with productivity, stood at **unprecedented** (and never repeated) levels
3. investment as a share of **GDP** had fallen from 16% in 1910/13 to 10.5% **in** 1925/29.⁸

Figure 1: Unemployment Rates



What, then, are the reasons offered by Borchardt for this remarkably sluggish performance of the German economy during this particular part of the interwar

⁷ Borchardt could of course not foresee today's *malaise* of unemployment reaching almost Great Depression levels.

⁸ Borchardt, *Wachstum*, p. 196.

years? According to him, the economic peculiarities of the interwar period need to be appreciated in their political context. Borchardt sees the first German republic as a state haunted by the spectre of communism and worker militancy in general. Fear of a possible repetition of the chaotic situation in 1919/23 led governments to interfere with the economic process. This influence made itself astutely felt in wage settlements: if unions and employers failed to reach an agreement, state arbitrators could impose new 'tariff wages' (Tariflöhne)⁹ unilaterally. Since fear of unrest was much more on the minds of public officials than beneficial economic policy, wage increases were generally too high. Already after the stabilization of the mark, firms were faced with excessive costs for labour. Increases in productivity were insufficient to offset these extra costs.

The consequence of these politically instigated adverse supply conditions was a sharp decline in profits. As both present profitability as well as expectations of future returns on capital fell to low levels, investment spending was dramatically reduced. Borchardt focusses primarily on one possible mechanism through which lower profits could have influenced the expansion of capital stock. The inflation, he claims, had devastated the capital market to such a degree that firms, if they wanted to finance investment, had no alternative but to plough back profits.¹⁰ Balderston has recently pointed to a second possible link: rates of return were too low in comparison with entrepreneurs' expectations. Therefore, they staged an 'investment strike', which became particularly severe after 1927.¹¹

Numerous critics of Borchardt have pointed to problems with his argument. The details of these contributions cannot be recounted in full here, but comments have largely focused on one particular aspect: the relationship between wages and productivity. Holtfrerich demonstrated that a substantial fraction of the divergence perceived by Borchardt was due to the fact that he compared annual productivity with hourly wages, an approach that would only have been feasible had the number of working hours in the year remained constant between 1913 and 1925.¹² Since the introduction of the eight hour working day led to a sharp fall in per capita labour input in the economy, this technique biased the results in his favour. Despite the fact that Ritschl has recently been able to point to some inconsistencies in the data underlying Holtfrerich's calculations,¹³ the latter's contribution is remarkable for pointing to an alternative interpretation of the distributional shift that occurred in Weimar Germany. The

⁹ Balderston suggested the use of this somewhat clumsy translation of the German term. Cf. T. Balderston, *Origins*, p. 47.

¹⁰ K Borchardt and A. Ritschl, 'Could Brüning have done it? A Keynesian Model of Interwar Germany, 1925-32', *European Economic Review* 36 (1992). It should be noted that a mere 12.5 percent of all investment was financed out of profits. Cf. H. James, *The German Slump. Politics and Economics 1924-1936*, Oxford 1986, p.132.

¹¹ Balderston, *Origins*, p. 81.

¹² Holtfrerich, 'Zu hohe Löhne', pp. 122-141.

¹³ Ritschl, 'Zu hohe Löhne', p. 378 ff.

inflation had virtually wiped out the entire German 'rentier' class; a whole group of citizens had to work for a living rather than leading a pleasant life on the basis of income from capital. Holtfrerich argues that the increase in the consumption share in national income - and, therefore, the decline in the investment share - were largely caused by these repercussions of the hyperinflation.¹⁴ The appropriate public policy measure would consequently have been to encourage workers' savings, possibly through some form of tax shelter.¹⁵

It is unlikely that Holtfrerich's explanation can account fully for this large change in the allocation of national income. He himself emphasizes that a substantial part of the shift can also be interpreted as the result of new forms of the organization of labour - modern industry needed more clerks and supervisory personnel. These *Angestellte* tended to receive higher pay than workers.¹⁶ Further, Holtfrerich sees the high wage/income share as the result of only weak economic growth. With a quicker expansion of national income, capital would have received a higher rate of return. Consequently, the level of consumption in Weimar Germany is no longer the cause of economic misery, but rather a sign of it. Yet the policy prescriptions are fundamentally different: demand stimulus rather than wage-cutting and an emphasis on supply-side conditions would have been more appropriate.¹⁷

Almost all contributions to the debate¹⁸ accept Borchardt's basic assumption that Weimar was essentially a 'sick' economic system.¹⁹ The single most important piece of evidence is the decline in investment between the late Empire and the period 1925-29. Investment is the crucial factor determining future well-being - per capita output largely grows because of the increased capital stock which one generation inherits from the previous one. Borchardt cites Hoffmann's figures which suggest a decline from 16 to 10.5 percent of GDP - a reduction by more than a third. Balderston has recently stressed that the time series used for calculating capital stock during the *Kaiserreich* and the Weimar Republic are quite different.²⁰ Yet, if the nature of the error is constant over time, the *rate of expansion of capital stock* should be comparable between the two periods. Table 1 gives an impression of the decline in investment in Germany, 1925-1929 relative to 1910/13.

What may account for the dramatic development portrayed in table 1? Until recently, economic historians of the German interwar years have rarely appreciated the importance of disaggregating economic variables such as 'invest-

¹⁴ Holtfrerich, 'Zu hohe Löhne', p. 139 f.

¹⁵ Ibid., p. 140.

¹⁶ Ibid., p. 137.

¹⁷ Ibid., p. 135 f; C. Maier, 'Die Nicht-Determiniertheit ökonomischer Modelle. Überlegungen zu Knut Borchardts These von der »kranken Wirtschaft« der Weimarer Republik', *Geschichte und Gesellschaft* 11 (1985), passim.

¹⁸ Balderston (*Origins*, p. 81) is a notable exception.

¹⁹ James, *German Slump*; Ritsehl, 'Zu hohe Löhne'; Holtfrerich, 'Zu hohe Löhne'.

²⁰ Balderston, *Origins*, footnote 85, p. 80.

Table 1:
Investment in Weimar Germany, 1925-29

1913	100
1925	80.26
1926	33.85
1927	117.88
1928	131.84
1929	41.49

(Source: W. Hoffmann, *Das Wachstum der deutschen Wirtschaft seit der Mitte des 19. Jahrhunderts*, Berlin 1965, p. 253f.)

merit'. This gap has now been partly filled by James and Balderston, who established the crucial importance of distinguishing between restocking, investment in capacity expansion, and productivity-enhancing capital outlays. James's comment that much of investment during the Weimar period was devoted to restocking²¹ points to a similarity between the *Wirtschaftswunder* of the 1950s and this part of the interwar period. Balderston finds 'that such fixed industrial investment as occurred in this period was designed not to extend capacity, other than in a few branches ... , but rather to further the so-called »rationalization« of industry'.²² Initially, one may be tempted to view this as support of the Holtfrerich hypothesis - capacity utilization was low, and consequently, little investment to expand production facilities was undertaken. Yet, it could equally be argued that non-market clearing wages held down the total amount of demand in the economy (in the case of lower equilibrium wages, the reduced income per worker would have been more than offset by higher numbers in the workforce), and that 'rationalization investment' only came to dominate because employers were naturally keen to substitute away from the relatively more expensive factor of production (labour). For any given amount of output, then, the capital/labour ratio may have risen - despite the investment share in the whole economy still being low.

²¹ James, 'Economic **Reasons**', p. 34.

²² Balderston, *Origins*, p. 373 f.

It is the argument of this article that neither of these explanations are entirely convincing, and that a neglected factor was largely responsible for the apparent decline in the proportion of national income that was invested. Development economists have noted for a long time that economies experiencing high rates of population growth have to reduce consumption and spend proportionally more on investment than nations with stagnant or even declining populations.²³ In order to keep the capital/labour ratio at least at its past level, investment has to increase in line with population growth.²⁴ This is precisely the reason why many developing countries today, despite high rates of investment and growth in total GDP face considerable problems - the number of people rises faster than either national income or investment per capita.

In a historical perspective, the rapid growth of populations in Europe during the nineteenth century had more beneficial effects than the 'population explosion' in today's Third World. This was for a number of reasons: First, demographic growth, even if spectacular by the standards of the time, was slow in comparison to today's less developed countries (LDCs). While LDC today easily have populations growing at 2-3 percent per year, European nations seldom grew at more than 1.5 percent.²⁵ Second, the European experience also differed fundamentally because levels of human and physical capital were markedly higher.²⁶ Studies by developmental economists have demonstrated that moderate population growth has beneficial effects.²⁷

How, then, do these findings from developmental economics relate to the Weimar economy? Demographic growth rates were remarkably high during the *Kaiserreich* - a source of national pride, in particular vis-a-vis the stagnating French. While the German population had grown at 1.366 percent between 1900 and 1913, the rate of population growth fell to an unspectacular 0.64 percent during Weimar's 'golden years' - 53.15 percent less. It is obvious that

²³ Cf. J. M. Keynes, 'Some Economic Consequences of a Declining Population', *Eugenics Review* 29 (1937/38); D. Bender, 'Entwicklungspolitik', in: D. Bender et al., *Wahlers Kompendium der Wirtschaftstheorie und Wirtschaftspolitik* Bd. 2 (München 1988), p. 501ff; G. Feichtinger, Art. Bevölkerung, in: W. Albers et al. (eds.), *Handwörterbuch der Wirtschaftswissenschaften* Bd. 1 (Stuttgart 1977), p. 623.

²⁴ One could of course object that during the 1920s, the large cohorts born before 1914 were only just entering the labour market (Cf. James, 'Economic Reasons', p. 33f). Yet since fixed investment is almost always supposed to be used for a rather long time, entrepreneurs would have been more concerned about the sharply falling number of young adults that would enter the labour force within the next few years.

²⁵ After thirty years, a population growing at 1.5 percent would have increased by 56 percent, whereas a population growing at 3 percent will increase by 143 percent. Cf. World Bank, *Population Change and Economic Development*, New York 1984, p. 39.

²⁶ In a context of increasing returns to scale, population growth will generate additional rewards. Some writers have related the poor performance of the French economy to an inability to capture economies of scale. Cf. F. Caron, *An Economic History of Modern France*, London 1979, p. 199 f.

²⁷ D. Bloom and R. Freeman, 'Economic Development and the Timing and Components of Population Growth', *NBER Working Paper* 2448 (November 1987), p. 22-23.

an economy experiencing such a sharp slowdown of population growth will save - and invest - less in the aggregate. Factories need not expand at the same rate, fewer additional schools and roads, houses and ports are needed. How much, then, of the slowdown in capital formation can be explained by declining population growth? Table 2 assembles the necessary evidence:

Table 2:
Investment and Population Growth in Germany, 1900-1929

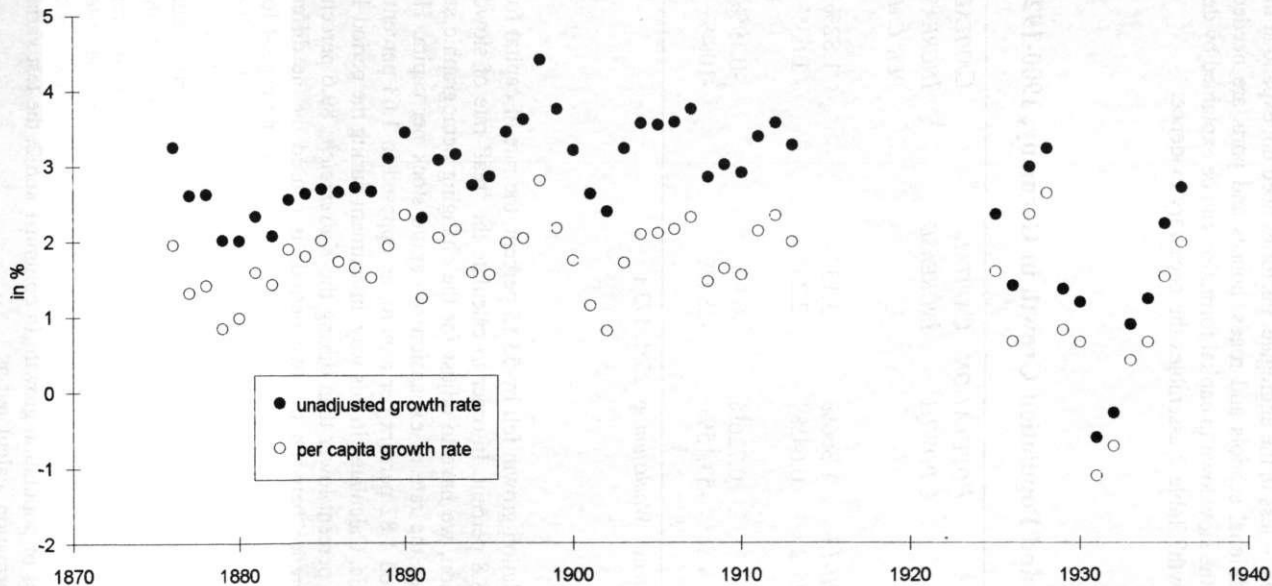
	<i>POPULATION GROWTH</i>	<i>CAPITAL INCREASE</i>	<i>CAPITAL INCREASE PER CAPITA</i>
<i>AVERAGE 1900-13</i>	1.366%	3.13%	1.82%
<i>AVERAGE 1925-29</i>	0.64%	2.23%	1.63%
<i>DIFFERENCE</i>	-0.726%	-0.9%	-0.19%
<i>DIFFERENCE IN %</i>	-53.15%	-28.8%	-10.4%

(Source: Hoffmann, *Wachstum*, p. 253f, 173.)

While population growth fell by 53.15 percent, the rate of capital formation declined by 28.8 percent. In order to calculate the 'rear rate of slowdown of capital formation, we have to adjust for the changing demographic structure. Column 3 gives the rate of expansion of capital stock per capita. Here, the Empire achieved 1.82 percent per annum, as opposed to 1.63 percent for the Weimar republic. Calculated in this way, investment during the period 1925-29 was only 10.4 percent lower than during the *Kaiserreich*; 89.6 percent of the observed difference between the two periods is caused by the different demographic regime. Figure 2 demonstrates the effect of using capital formation per capita, rather than the total value. Weimar looks very much less like an age of crisis once this fundamental variable has been taken into account.

Economic indicators, like most variables measured by statistical bureaus or reconstructed by economic historians, are observed with an error. Is the markedly smaller difference we find statistically significant, or is the remaining differential due to chance? Table 3 reports the results for both t-tests and Mann-Whitney U-tests. We use Hoffmann's time series for capital stock as well as his estimates of population growth. In column 1 and 2, the test variable was total capital formation, calculated as

Figure 2: Growth Rates of Capital Stock in Germany, 1876-1936



(Source: Hoffmann, *Wachstum*, p. 253, 173)

$$(1) \quad \Delta K = K_t - K_{t-1}$$

In columns 3 and 4, the rate of growth of capital was corrected for population growth:

$$(2) \quad \Delta K / P = \Delta K_t / P_t - \Delta K_{t-1} / P_{t-1}$$

(K = capital stock, P = population)

Table 3:
Tests of Statistical Significance

	(1)	(2)	(3)	(4)
<i>TEST</i>	<i>t-test</i>	<i>M-W U</i>	<i>t-test</i>	<i>M-W U</i>
<i>RESULT</i>	2.58	-1.74	0.63	-0.2273
<i>PROBABILITY</i>	0.014	0.0814	0.534	0.82

(M-W U refers to the Mann-Whitney U-test, the result reported is the Z-score; data for capital stock came from Hoffmann, *Wachstum*, p. 253; data for population growth came from *ibid.*, p. 173)

I used a grouping variable to discriminate between the Empire and the Weimar period. It took the value of 1 during 1925-29, and 0 otherwise. Sample period was 1876-1929, with missing observations between 1914 and 1925. The Mann-Whitney U-test indicates a significant difference between both periods when the uncorrected rate of capital accumulation is used: with a Z of -1.74, we cannot reject the hypothesis of the two sample periods being different at the 10 percent level (although the value is too small to be significant at the 5 percent level). With the use of the corrected rate of capital formation, no significant difference can be discerned - the probability of the two populations having the same mean is 82 percent. Although there are some doubts about the feasibility of using a parametric technique for this specific task, t-tests are also reported. Here, the same pattern can be observed. With the variable from equation (1), the test yields a t-statistic of 2.58 - significant at the 0.1 percent level.²⁵ This seemingly significant difference again emerges as caused by the fact that population growth rates have not been taken into account. For invest-

²⁵ The t-statistic reported assumes equal variances. Levene's test for equality of variances indicates an 8 percent probability of the two periods having different variances. The corresponding t is 1.81, which is not significant even at the 10 percent level.

ment per capita, the t-statistic is a mere 0.63 - equivalent to a 53 percent probability that Weimar did not differ from the Empire in this regard.

II.

The previous section has demonstrated that Weimar's investment record was not significantly different from the Empire's if we focus on the decisive variable that determines future well-being: the expansion of capital stock per head of population.²⁹ However, what of the evidence that wage increases outstripped productivity gains during the second half of the 1920s? How could the productive capacity per head of population grow at an unaltered speed if wage pressure was strong?

There are two possible answers to this objection. The first is that, although capital formation per capita continued at an undiminished pace, total investment was lower, thus giving scope for increased consumption. Two economists writing on the consequences of slowing population growth in Europe today observed that

the economy with a static labour force achieves higher sustainable consumption per head partly because, at a given capital intensity, the amount of capital widening investment necessary to maintain that capital intensity is lower, but primarily because it adopts more mechanised, capital-intensive techniques of production (having a higher capital-output ratio).³⁰

This is in part what we observe during Weimar's 'golden years'. Further, the increased share of national income going to labour need not be a sign of state interference any more: slower population growth will lead to a tighter labour market, driving up wages. This is exactly what Balderston observed:³¹ participation rates were rising fast, and there is no reason to assume that the economy's demand for labour could have been satisfied if wages had remained stagnant.

This first explanation of the seeming paradox posed by section I may go some way towards resolving the conundrum.³² I would also like to argue that the degree of wage pressure in Germany, 1925-29, has been grossly overstated. To be sure, there is no shortage of calculations of the CRP - the cumulative real wage position of the German workers (*kumulierte Reallohnposition*). In his first articles, Borchardt had used this concept which was initially developed by the Institut für Weltwirtschaft.³³ The formula implicit in his original article is

²⁹ Borchardt himself stresses the crucial importance of investment for economic growth, yet fails to note that capital per head of population is the correct point of reference. Cf. Borchardt, *Wachstum*, p. 196.

³⁰ J. Ermisch and H. Joshi, 'Demographic Change, Economic Growth and Social Welfare in Europe', CEPR Discussion Paper 179 (May 1987).

³¹ Balderston, *Origins*, p. 80 f.

³² For the obvious limitations, cf. footnote 24.

$$(3) \quad CRP = \frac{(Y/L)}{(W/P)}$$

(Y - output, L - labour input, w - wage, p - price)

Wage increases will not push the CRP up as long as there are commensurate rises in productivity.³⁴ Ritschl's recent contribution has corrected Holtfrerich's calculations because of new estimates of Y/L - Ritschl claims that the national accounts used by Holtfrerich seriously overstate per capita productivity. Table 4 compares their calculations of KRP for the years 1925-29.

Table 4:
Cumulative Real Wage Position

	<i>Holtfrerich</i>	<i>Ritschl</i>
1913	100	100
1925	97.5	113.4
1926	104.0	110.7
1927	98.1	114.9
1928	103.4	117.2
1929	98.9	115.5

(Source: Ritschl, 'Zu hohe Löhne', table 2, p. 383, table 5, col. II, p. 391)

It is one of the remarkable features of the entire debate that few attempts have been made to improve on the denominator in equation (3). Real wages can be defined in two different ways - either as the amount of goods and services that workers can purchase in return for their exertions, or as the cost incurred by employers. In the former case, we would want to deflate the nominal wage with an index of the cost of living. This is the approach that the majority of contributors to the Borchardt debate has followed.³⁵ However, this is - strictly

³³Borchardt, *Wachstum*, p. 178.

³⁴ Economists have increasingly criticised the concept as such: Cf. O. Landmann et al., 'Unemployment and the Real Wage Gap: A Reappraisal of the German Experience', *Weltwirtschaftliches Archiv* 129 (1993), p. 692 ff.

³⁵ The only exception is von Kruedener, 'Überforderung' p. 371ff.

speaking - not the correct indicator to be applied if one wishes to discuss the question whether wage increases generated excessive pressure on entrepreneurial profits.³⁶ Ritschl in principle acknowledges this, yet claims that actual differences would be negligible.³⁷ I will demonstrate that this claim is unfounded, and that the actual divergence of wages and productivity is considerably smaller than has been suggested by earlier work.

Von Kruedener used the price index of investment goods. This is considerably closer to the price index we would ideally want to use - an index of output prices - than the cost-of-living index employed by the other protagonists in the debate. Since, however, the *Institut für Konjunkturforschung* began to collect time series of prices for industrial products from the middle of the 1920s, onwards³⁸ there is still considerable scope for improvement. Figure 3 demonstrates the degree to which both indexes diverged. After the end of the hyperinflation, prices for industrial products stabilized at a comparatively higher level than consumer prices. Recall equation (3). With the expression in the denominator (W/P), relatively higher prices mean that the cumulative real wage position was lower than implied by Ritschl. Until 1927, there is a tendency towards convergence of the two price series. Between 1928 and 1930, industrial products are again relatively more expensive than consumer goods. Only after 1931 is the situation reversed, with the consumer price index being higher (in relation to 1913) than the index for industrial output. Table 5 compares a calculation of the cumulative real wage position for German industry based on the IfK-index with Ritschl's results.

The use of the IfK-index has considerable effect on the CRP-indicator of wage pressure during the Weimar period. After the stabilization of the *Mark*, the cumulative real wage position was not more than 15 percent higher than in 1913, as claimed by Ritschl. Rather, the difference only amounted to little more than 4.5 percent - considering the inaccuracies of statistics at the time, this hardly constitutes a significant divergence.³⁹ Only in the late 1920s are wages clearly forging ahead of productivity. The maximum divergence, however, amounted to 16.1 percent, and not the 19.5 percent claimed by Ritschl.

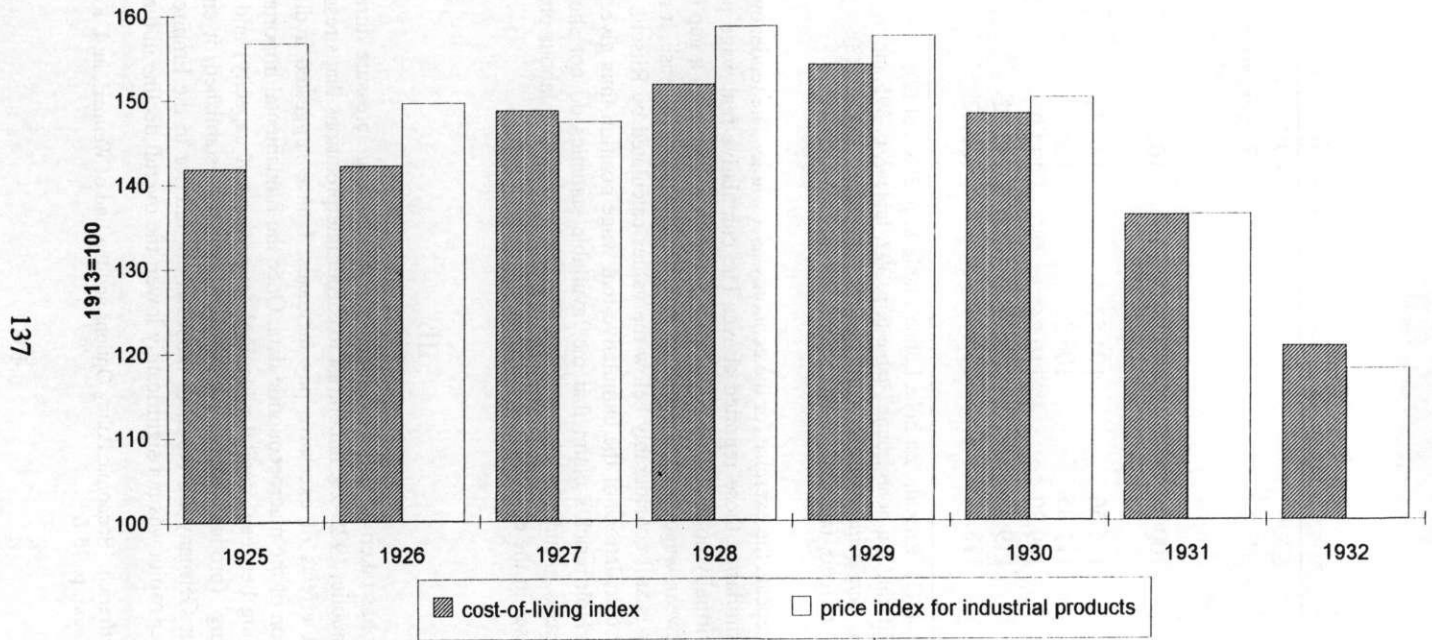
³⁶ This is precisely the conclusion reached by English economic historians during their debate on wages and unemployment in the 1920s and 1930s: M. Beenstock, P. Warburton, 'Wages and Unemployment in Interwar Britain', *Explorations in Economic History* 23 (1986), pp. 162, 169f.

³⁷ 'Ein theoretisch wesentlicher Punkt ist zudem, daß für den Produzenten die realen Lohnkosten gemessen werden sollten in Kaufkrafteinheiten seiner eigenen Erzeugnisse, weniger in Kaufkrafteinheiten der Löhne auf dem Markt für Konsumgüter.' Ritschl, 'Löhne', p. 385. In his recent econometric study, Ritschl correctly deflates profits with the index I will subsequently use. Cf. Ritschl, 'Goldene Jahre? Zu den Investitionen in der Weimarer Republik', *Zeitschrift für Wirtschafts- und Sozialwissenschaften* 114(1994), p. 109.

³⁸ E. Wagemann (ed.), *Konjunkturstatistisches Handbuch 1936*, Berlin 1935, p. 104, table 23.

³⁹ Holtferrich ('Löhne', p. 131) makes similar allowances for errors in the statistics.

Figure 3: Prices in Germany, 1925-32



(Source: Wagemann, *Konjunkturstatistisches Handbuch*, table 23, p. 104, Holtfrerich, 'Zu hohe Löhne', table 3, p. 129)

Table 5:
Cumulative Real Wage Position in German Industry

	<i>CRP</i> (Ritschl)	<i>CRP</i> (based on IfK) (1913=100)	<i>CRP</i> (Balderston)
1913	100	100	100
1925	115.56	104.57	136.24
1926	111.85	106.33	136.65
1927	109.30	110.24	132.9
1928	119.39	114.20	149.72
1929	118.65	116.08	150.82

(Sources: col. (1): Ritschl, 'Zu hohe Löhne', table 8, p. 398. col (2): based on Ritschl, 'Zu hohe Löhne', table 6, p. 392, table 7, p. 395 and Wagemann, *Konjunkturstatistisches Handbuch*, table 23, p. 104. col (3): Balderston, *Origins*, table 3.2, p. 55)

Table 6 repeats the exercise for the economy as a whole. The tendency of our results is similar to those reported above: The cumulative real wage position indicates virtually no cost pressure in 1925 - the index suggests a gap of 2.64 percent between wages and productivity. After considerable increase, it reaches a peak that is still considerably below the values calculated by Ritschl. These new calculations of the cumulative real wage position thus give further support to Holtfrerich's claim that the 'available statistics do not show that wage increases in industry clearly broke the limits drawn by labour productivity increases in the economy as a whole.'⁴⁰

III.

This paper has taken a fresh look at investment and wage pressure during the Weimar republic, 1925-29. In contrast to earlier interpretations that stressed the detrimental effects of excessive pay increases, I have suggested a different interpretation of the macroeconomic data. Once the fundamental importance of distinguishing between 'capital-widening' (extensions of capacity) and 'capital-deepening' (productivity-enhancing investment) is established, it emerges that Weimar Germany's investment record is not inferior to the Empire's. Investment per capita was not significantly lower; the overall decline in the share

⁴⁰ C.-L. Holtfrerich, 'Economic Policy Options and the End of Weimar', in: I. Kershaw (ed.), *Weimar*, p. 75 f.

Table 6:
CRP und Real Wages in the German Economy

	<i>real wage (Ritschl)</i>	<i>CRP (Ritschl)</i>	<i>real wage (based on IfK)</i>	<i>CRP (based on IfK)</i>
1913	100	100	100	100
1925	103.1	113.42	93.3	102.64
1926	109.7	110.7	104.28	105.23
1927	115.7	114.88	116.7	115.35
1928	125.3	117.22	119.86	112.12
1929	130	115.45	127.19	112.96

(Sources: col. (1): Ritschl, 'Zu hohe Löhne', table 5, p. 391.
col (2): based on Ritschl, 'Zu hohe Löhne', table 4, p. 390,
table 1, p. 381 and Wagemann, *Konjunkturstatistisches
Handbuch*, table 23, p. 104)

of GDP devoted to additions to capital stock can almost exclusively be explained by slowing population growth. In this sense, the seemingly poor performance of the first republic was caused by the repercussions of the First World War.

The second section demonstrated that Weimar also looks much less like an 'unviable economic system' if we calculate the index of wage pressure on a basis that was relevant to employers, deflating wages by the index of industrial prices. Previous calculations of the cumulative real wage position have systematically overestimated the divergence of wages and productivity since they used the cost-of-living index to this end.

In combination, these findings suggest that the 'Borchardt controversy' focussed on a misleading indicator of macroeconomic performance - the share of GDP devoted to investment - which was then explained by a fundamentally flawed measure of wage pressure. Unless the findings presented in this paper can be substantially revised by future research, the debate over the weakness of the Weimar economy should be over. During the past decade, the Borchardt debate has generated important insights into the nature of the German interwar economy. Today - at least with respect to Weimar's alleged fundamental weakness, the decline in investment - we may safely draw a parallel to Ludwig Wittgenstein's famous dictum: "The question does not exist any more, and this in itself is the answer."

¹¹ 'Freilich bleibt dann eben keine Frage mehr; und eben dies ist die Antwort'. L. Wittgenstein, *Tractatus logico-philosophicus* (-Werkausgabe Bd. 1), Frankfurt 1988, Satz 6.53, p. 85.