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Greece and the Troika – Lessons from International Best Practice Cases of Successful Price (and Wage) Adjustment

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Ansgar Belke and Daniel Gros[1]

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Abstract

This paper reviews cases of successful price and wage adjustment, which are often regarded as constituting best practice, Australia, Latvia and the newly-formed German states and contrasts them with the Greek experience under the Troika Program. Latvia stands out as having had the quickest adjustment in wages. By contrast, before the crisis, Greek wages appeared to have been largely insensitive to labour market conditions but this changed with the program. We find that the reaction of wages to unemployment in Greece under the program was increasingly similar to that observed in Germany and Portugal (a case which has attracted less attention). A priori it is likely that the change in wage behaviour in Greece was due to the labour market reforms imposed under the program. But this cannot be proven beyond doubt.

JEL Classification: E31, F49

Keywords: Phillips curves; price and wage adjustment; internal devaluation; Australia; Greece; Latvia; Portugal; West vs. East Germany

May 2017

1 Ansgar Belke, UDE, CEPS Brussels, and IZA Bonn; Daniel Gros, CEPS Brussels. – *We are grateful to Matteo Migheli, Miguel Lebre de Freitas, Thomas Moutos, Werner Smolny as well as Francisco José Veiga for valuable comments and Matthias Busse for excellent research support.* – *All correspondence to: Ansgar Belke, ad personam Jean Monnet Chair for Macroeconomics, University of Duisburg-Essen, Universitätsstr. 12, 45117 Essen, Germany, e-mail: ansgar.belke@uni-due.de*

1. Methodology

In this paper we present three international best practice (or those considered as benchmarks) cases of successful price and wage adjustment. In this context we critically evaluate the reforms undertaken within the Greek Adjustment Program (see, for instance, Alcidi et al., 2014).

Among the benchmark practice cases there will be Australia with its flexible exchange rate (Wood, 2013), Latvia with its exchange rate peg (Alcidi and Gros, 2013, Gros et al., 2014, and Sippola, 2011), and the East German "Laender" after reunification and entering into a currency union with West Germany (Wolf, 2011).

The labour market is a key place where the adjustment takes place in a context of fixed exchange rates, irrespective of whether in the form of a currency board or a monetary union. Given that under this assumption external (currency) devaluation cannot act as safety valve to regain competitiveness and reduce external imbalances, the economy is forced into internal devaluation. This implies that prices must adjust and wages are a key price. Wage adjustment is key to allow the economy reach both internal and external balance. The immediate reaction after a sudden stop to capital inflows is of course that domestic demand falls. In the short run this is the only way to eliminate a current account deficit since it takes time to increase exports. A fall in wages will actually accelerate the fall in GDP in the short run. But the fall in wages stimulates net exports, allowing the economy to grow without incurring again large current account deficits (Belke and Gros, 2017). Without a fall in wages, domestic demand has to remain depressed and unemployment would remain higher. We therefore propose to analyse cases of significant wage/price adjustments, which could serve as a benchmark for Greece.[1]

Australia provides an extreme example, with a formal wages and price policy, accompanied by strong competition policies and legal authority to police the adjustment and to impose substantial fines where the basic rules are not followed. This package was adopted by the Australian government in 1982 to deal with excessive real wage cost levels, inflation and high unemployment under flexible exchange rates. Some argue that the policy was overall successful: real wage costs

[1] We would like to point out that a (relative) wage adjustment speeds up the adjustment towards the tradable goods, but it might have distributional implications and that the claim that if wages do not adjust (downwards) the economy contracts may thus be qualified. Since the income measure of GDP is defined as "compensation of employees plus gross operating surplus plus gross mixed income plus taxes less subsidies on both production and imports" (European Commission et al. 2009, p. 333), ceteris paribus a downward adjustment of wages corresponds by definition to a reduction in GDP. In principle, a reduction in wages can bring about an increase in GDP only if (a) on the expenditure side net exports increase enough (i.e., there is a substitution of foreign for domestic demand: domestic demand is unlikely to increase because of the cut in domestic income) and/or (b) on the income side the gross operating surplus increases (i.e., there is a shift in the functional distribution of income). For such a shift in the functional distribution of income to occur, unemployment must rise. In any event, the data show that this process takes some time. Therefore, while it may be true that "if wage adjustment does not take place, the economy contracts", if wage adjustment takes place the economy will contract either, but only in the short run. See, for instance, Belke and Gros (2017).

subsequently fell by 12 per cent, inflation fell back and full employment was restored (see, for instance, Wood, 2013).

Such a policy of extensive controls seems no longer feasible today. European countries on fixed exchange rates thus had to rely on a so-called austerity-led internal devaluation strategy. This was the case for Greece, Portugal, Latvia and other program countries. We thus propose to look at Portugal and Latvia as real life comparators. Another useful benchmark is the case of East Germany, because it shows how the adjustment could take place within one country, which one can consider as the extreme case of a monetary union.

Latvia, which maintained a tight peg to the Euro and thus, was also forced to adjust without any devaluation, provides a particularly important comparison because the initial optimism that the Greek program should succeed was based on the perceived success in this case. The macroeconomic adjustment program for Latvia was much stricter than that for Greece, but the adjustment was quicker and followed by a stronger rebound. At the trough of Latvia's recession, the program was also off-track and failure seemed imminent, but it turned out that the sharper-than-planned adjustment cleared the way for a solid recovery (Alcidi and Gros, 2013, Biggs and Mayer, 2014, Gros et al., 2014).[2]

Portugal, which came shortly after Greece, provides another benchmark as the country seemed to face similar problems as Greece in terms of low competitiveness (for details see Alcidi et al., 2014).

As another best practice case we refer to the *new states following German reunification.* Whereas this case is informative in suggesting that significant internal devaluations in larger, relatively closed economies are feasible, it of course does not speak in favour of the desirability or effectiveness of internal devaluations in the Eurozone crisis economies. Such an assessment would require close attention to the specific circumstances, notably the cross-linkages between the external cost competitiveness and the fiscal challenge, as well as to the likelihood that a cost competitiveness gain would result in a significant export response – which does not seem to be the case for Greece a priori (Paqué, 2009, and Wolf, 2011).

There exists a substantial literature (see Belke and Gros, 2017) on what constitutes a 'success' of IMF programs.[3] The current policy debate puts emphasis on the trade-offs between "external" and "internal" devaluation. Obstfeld (1997) claims that the former can be successful even in the presence of real wage resistance. In this context Belke and Gros (2017) and Alcidi et al. (2014) find it interesting to compare what happens to real wages under "external" and "internal"

[2] See Kang and Shambaugh (2014) for a comparison of the progress towards external adjustment in the Euro Area periphery (Greece, Ireland, Portugal and Spain) with that of the Baltic countries (Estonia, Latvia and Lithuania).

[3] For instance, Ul Haque and Khan (1998) broadly agree with the assumption that IMF plans have been applied mostly with success. However, they are IMF economists. Bird (2001) challenges their view, by considering a wider set of indicators, including the rate of recidivism and the completion of programs. Besides the obvious conflicts of interest (never ask the barber for a haircut, nor the IMF for a program), the issue of completion, considered by Bird, seems especially relevant in the Greek case and deserves some attention.

devaluation. The EU provides many examples of both adjustment methods. But our concern is not to judge whether IMF programs are well designed. We take a simpler, policy orientated view: we regard a program as a 'success' if the country concerned gains market access within the time frame considered of the program itself (and if there is no need for another program within a short period of time). The case of Greece stands out in this respect (Belke, 2017). But market access should of course not constitute the only criterion of success. But market access usually comes only if the country grows again. Greece was not able to exit its program because the country did not manage to embark on a sustainable growth path (Belke and Gros, 2017).

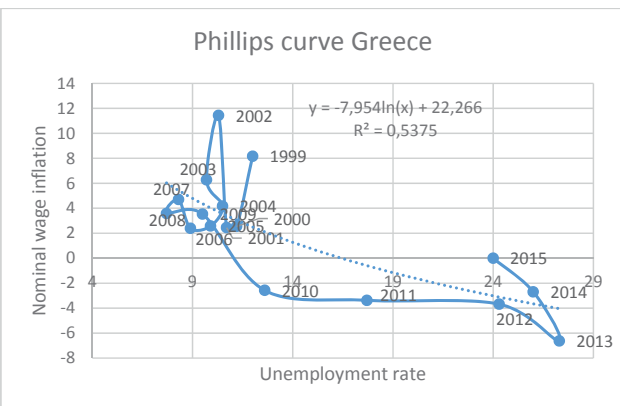
The next section looks at wage developments at the macroeconomic level.

2. Wage developments at the macroeconomic level

The relationship between slack in the labour market and wage growth is usually called the Phillips curve.[4] The basic idea is simply that an excess supply of labour (measured by the unemployment rate) should lead to lower wage growth.

This mechanism seems to have operated in Greece as nominal wages have fallen while unemployment rose above 20 % as shown in Figure 1 below. However, a closer look at the data shows that prior to 2009 there was no clear relationship between unemployment and wage growth in Greece.

Figure 1 – *Phillips curve Greece*



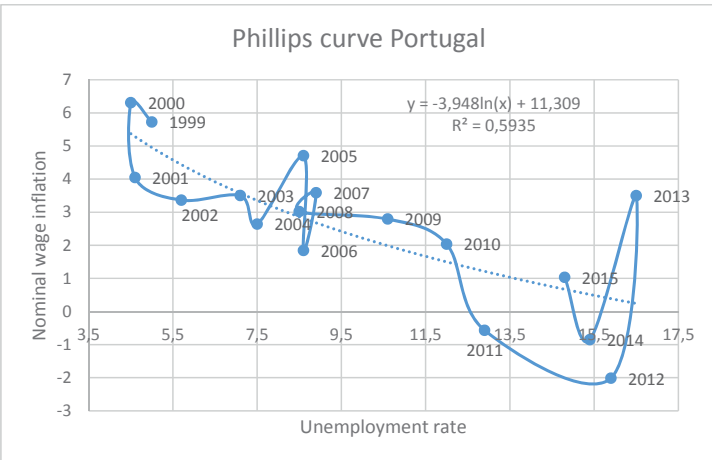
Source: European Commission, AMECO.

[4] For the renewed interest in the Phillips curve see, for instance, Stan Fisher's speech on the transmission of exchange rate changes to output and inflation (Fisher, 2015).

This absence of a Phillips curve type relationship pre-crisis sets Greece apart from other program countries with a low per capita Income level.

Figure 2 below shows that in Portugal wages had already begun to decelerate as unemployment increased well before the crisis. The increase in unemployment and the further fall wage growth during the acute phase of the crisis seem to have represented a continuation of a cyclical movement, which had already started beforehand.

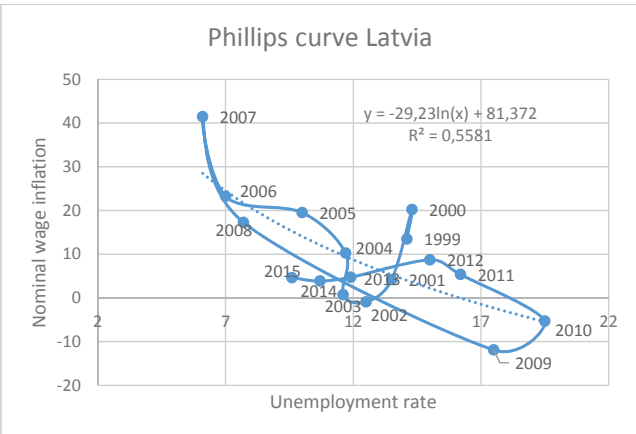
Figure 2 – *Phillips curve Portugal*



Source: European Commission, AMECO

The same can be said of Latvia, where wages had been growing at an extreme pace (an increase of close to 40 % at the peak of the boom in 2007), but decelerated sharply during the bust, with wage growth falling to minus 10 % in 2009 (while unemployment increased by 12 percentage points (from about 6 to 18 %).

Figure 3 – *Phillips curve Latvia*



Source: European Commission, AMECO

3. International best practice cases of successful price and wage adjustment - a review

After having discussed briefly the three program countries with fixed exchange rates we now turn to a more in depth discussion of two more complex cases - one under flexible exchange rates with an inflation problem (Australia) and another one within a monetary union with unified labour market institutions (the German New "Laender").

3.1 Australia

The "Prices and Income Accord"

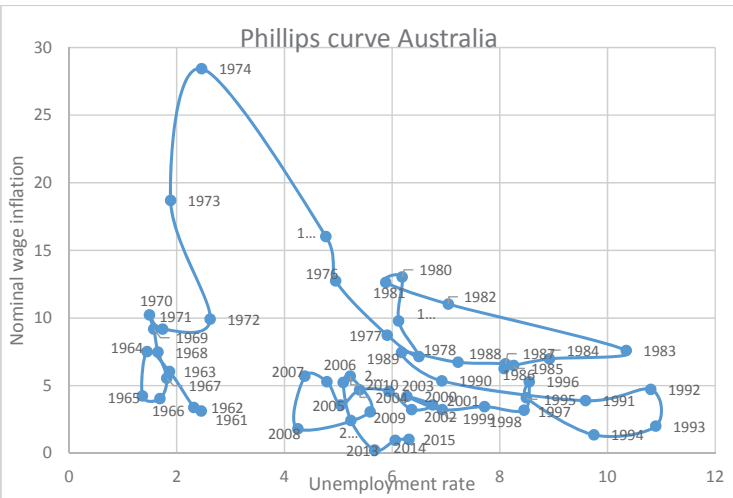
In 1982, the Australian government adopted an Income policy[5], consisting of formal wages and prices policies, called the "*Prices and Income Accord*" *to deal with excessive real wage cost levels*, inflation and high unemployment (apparently also core problems in Greece at the start of the crisis), allegedly *without reducing the living standards* of Australians – under flexible nominal exchange rates. Notably, this represents a different restriction than that faced by Greece today, i.e. "irrevocably" fixed nominal exchange rates within a currency union. The Accord represented an agreement met in 1983 between trade unions and the Australian Labour Party government (Prime Minister Bob Hawke and Treasurer and later Prime Minister Paul Keating) which, however, did

[5] Income policies have in the past often been resorted to during wartime or in times of serious distortions of the international payments system. They were much less successful in other periods where evidence was mixed, at best. See, for instance, Enev and Koford (2000) on the effect of Income policies on inflation in Bulgaria and Poland and the period 1990 to 1993, and, even on a more general level, Gaspar et al. (2014), p. 55.

not include the employers. All participants were obliged to relate their decisions to the overall economic situation and outlook (Romanis Braun, 1986, p. 3f.). Unions agreed to restrict wage demands, and the government in turn pledged action to minimise price rises (potentially useful also in the Greek case).[6]

The rationale for resorting to this measure was that the relationship between wage inflation and unemployment had deteriorated considerably, as shown in the chart below. For example, by 1974, wages were increasing by close to 30 % p.a. although unemployment stayed at 2 %, about the same level as the mid-1960s, when wages were increasing only by about 5 %. Wage inflation then decelerated considerably to about 5 % by 1983, but at that time unemployment had increased to 10 %. The trade-off had thus considerably worsened. The Accord can be seen as an attempt to shift the curve back towards the origin (i.e. to reach lower (wage) inflation with lower unemployment).

Figure 4 – *Phillips curve Australia*



Source: European Commission, AMECO

The Accord, which was *renegotiated several times*, can be characterised as a strategy of a formal wages and prices policy composed of temporary, tailor-made wages and prices policies. Among its formal elements were a general wage rule, a general price rule, strong competition policies, and legal authority to police the adjustment and to impose substantial fines where the basic rules are not followed.

[6] The government was also to act on the social wage. At its broadest this concept included increased spending on education as well as welfare. See also Gregory (1986).

However, two years after the instalment of the Accord, the issue arose whether wages should be fully indexed for price increases flowing from the, at that time, large devaluation of the Australian dollar. The government has responded by arguing for partial indexation and was thus "placing the Accord in jeopardy" (Gregory, 1986, p. S53).

What is more, many of the key elements of the Accord were *weakened over time*, as unions sought a shift from centralised wage fixation to enterprise bargaining in 1993.[7] The Accord ceased to play a major role after the recession of 1989–92, and was finally abandoned after the Labour government was defeated in 1996. The election of John Howard in 1996 dramatically changed the position of the Australian government on the ideological scale. The Liberal government was opposed to any wage fixing. This government's core beliefs were that the free market should determine wages, whilst the government should focus on tight monetary policy and avoid budget deficit. This was the beginning of a period of increased hostility between the government and the union movement in Australia and marked the end of the Accord period.

Assessment

Some proponents argue that the policy was overall successful: Real wage costs subsequently fell by 12 %, inflation fell back and (close to) full employment was restored during the later period of the Accord (see, for instance, Wood, 2013). Some economists also agree that a credible Income policy would help prevent inflation (Romanis Braun, 1986). However, the official Australian unemployment rate did fall under the early Accord, reaching a minimum of 6% in 1990, but rapidly increased again between 1990 and 1992.[8]

Anne Romanis Braun (1986), a former staff member of the IMF's Research Department, deals with the nature of wage determination and the problem of securing an economically appropriate development of money Income in an open economy over the medium term. According to her, the need for Income policies arises when there is strong evidence that a tolerable degree of price stability cannot be achieved by reducing the level of demand without incurring an unacceptable high cost in terms of loss of output, unemployment and growth (as claimed by many also for the case of Greece). Hence, Income policies have, at the second height of their popularity in the middle-1980s, often been presented as a *means of improving the trade-off between unemployment and price stability* (Romanis Braun, 1986, p. 3, Gregory, 1986).

However, Income policies may have other effects. By arbitrarily interfering with price signals, they provide an additional bar to achieving economic efficiency, potentially leading to shortages and declines in the quality of goods on the market, while requiring large government bureaucracies for their enforcement. This is what happened in the United States during the early 1970s (Yergin

[7] Enterprise bargaining implies wage and working conditions being negotiated at the level of the individual organizations.

[8] See http://www.budget.gov.au/2004-05/bp1/html/bst4-01.htm. For the early Income policies period see Gregory (1986).

and Stanislaw, 1997). When the price of a good is artificially lowered, this creates less supply and more demand for the product and thus leads to shortages.[9]

Some economists argue that Income policies (interpreted as a strict anti-inflationary device and not, as it is often the case, as an instrument to lessen the inequality of Income distribution, see Romanis Braun, 1986, p. 4) are less expensive and more efficient way of fighting inflation than recessions. Yet others argue that wage controls and recessions can be *complementary* solutions for relatively mild inflation.

By construction, Income policies have the best chance of being credible and effective for those sectors of the economy dominated by monopolies or oligopolies, particularly nationalised industries, with a significant sector of workers organised in Labour unions. These institutions enable collective negotiation and monitoring of the wage and price agreements. This condition does not seem to be fulfilled in the case of Greece: most employment is in very small enterprises where wages and working conditions are negotiated at hoc. Wage bargaining and labour unions dominate only the public sector and public utilities (like power generation, etc.).

Even in cases where Income policies have been relatively *successful in the immediate short term, in the moment they are abolished, large spikes in wages and prices tend to follow* (Gaspar et al., 2014, p. 55).

Other economists argue that inflation is essentially a monetary phenomenon, and the only way to deal with it is by controlling the money supply, either directly or by means of interest rates. They argue that price inflation is only a symptom of previous monetary inflation caused by central bank money creation. This view holds that, in the absence of a totally planned economy, the Income policy can never work, because the excess money in the economy will greatly distort areas which the Income policy does not cover (Belke and Polleit, 2010).

3.2 German new states

As an extreme case we refer to wage and cost developments in the *New "Laender" following German reunification.* This is a special case because it concerns diverging trends in two regions of one country and thus within the same system of labour relations. The intra-German case is also interesting because, as shown below, it was mainly about productivity, rather than nominal wages.

We look at East Germany and see what happens in a currency union between two non-harmonised economies with very different productivity profiles. In East Germany's case, there have been

[9] Here, we raise the issue that by arbitrarily interfering with price signals income policies provide an additional bar to achieving economic efficiency. But it should be mentioned that in the case of Labour markets the same may happen because of structural reforms, as Daveri and Jona-Lasinio (2005) and Gordon and Dew-Becker (2008) among others have pointed out.

massive subsidies to mask these problems. In the case of Greece, as in Spain and Ireland, this will not be the story.[10]

Is a purely internal devaluation in a larger, less open economy operating in a monetary and customs union feasible? The new states following German reunification have been moving from substantially higher unit labour cost relative to the old states in the early nineties to substantially lower costs today. Case studies suggest that the achievement of a significant internal devaluation, while slow, may not be as unlikely as widely thought, and points to the relative productivity channel as an important potential contributor to adjustment (Wolf, 2011). The experience of the new states following German reunification suggests that substantial cumulative competitiveness gains are possible but require significant time. The case further points to relative productivity gains and hence to structural reforms as an important aspect of the adjustment process. Let us now turn more closely towards the *real exchange rate adjustment* following German reunification *in the new German "Laender"*.

In 1990, the economic system of the Federal Republic was transferred to the New "Laender", which in the process also became members of the European Community, and thus the customs union.[11] While the adoption of the DM and the conversion rate were the subject of intensive public debate, concerns about the advisability of immediate monetary unification gained no political traction under Chancellor Kohl; the DM became legal tender in the summer of 1990 and the wages of East German workers which previously had been in the Mark of the GDR were then paid out one to one in DM. On top of this, wages in the New "Laender" were increased quickly towards the West German level.

These large wage increases were in excess of productivity growth in the immediate years following reunification and thus raised unit labour costs above the level in the old states, themselves in absolute terms near the highest globally. Alongside steep declines in manufacturing output and employment, exports fell sharply in the initial post reunification years. Though poor export performance reflected multiple factors in addition to deteriorating cost competitiveness, including the reduction in the capital stock and the collapse of traditional markets, the challenge of restoring cost competitiveness (relative to the old states and to other transition economies) emerged as one prominent issue from the mid-nineties onward; matched by concerns about deteriorating cost competitiveness relative to trading partners in the old states (Wolf, 2011).

In a sense the new German "Laender" faced even more significant challenges than Greece since the entire economic system had to change in a few years and former markets in Eastern Europe disappeared. These differences limit the comparability with Greece. But the case of German reunification does provide insight into the narrower question whether significant competitiveness problems as measured by high relative unit labour costs can be addressed within the context of a

[10] See, for instance, https://www.creditwritedowns.com/2010/06/questions-internal-devaluation-work-europe.html.
[11] For more details see Paqué (2009).

monetary and customs union in a larger, less open economy, the specific focus of this section (Wolf, 2011).

The difference in unit labour costs between East and West, which had arisen in the early years of German unification, was later gradually erased, but not by lower wages. Movements in relative productivity were the key. In the manufacturing sector, accounting for the largest share of exports, relative worker compensation in the new states rose from substantially below half of the level in the old states to the low seventy percent range by the mid-1990s (Bundesministerium für Wirtschaft und Technologie, 2010). The same period witnessed a dramatic contraction in output and an even more dramatic decline in employment. The resulting *productivity increase however fell short of the wage increase*, finding its reflection in relative unit labour costs initially rising to more than fifty percent above the level in the old states (and dramatically above levels in other transition economies), before gradually declining to a premium in the low twenty percent range by mid-decade (Wolf, 2011).

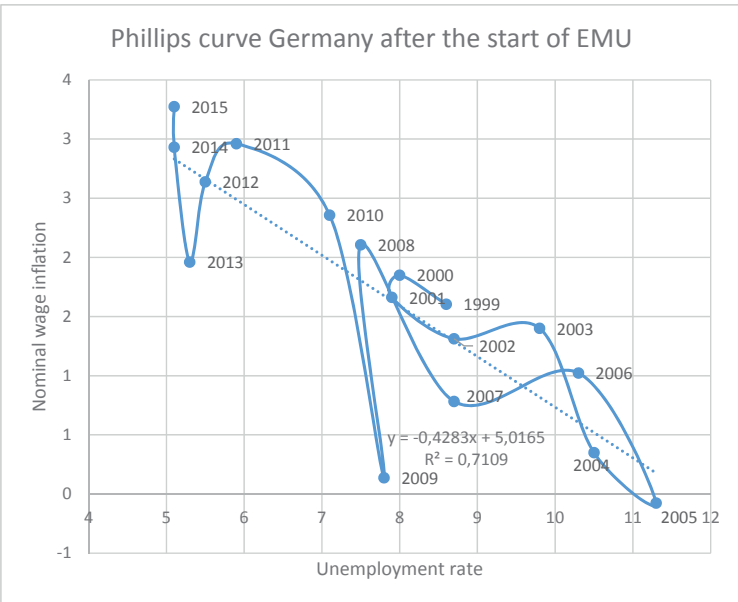
Against a backdrop of sharply rising unemployment and heterogeneous economic prospects across and within sectors and regions, wage-setting arrangements in the new states gradually decentralised, with firm-specific agreements playing a larger role compared to the old states. The decentralisation was accompanied by a stabilisation of relative nominal wages in the low seventy percent range by the mid-nineties. Subsequent changes in relative unit labour cost were thus *driven by relative productivity growth*, which so far have been absent in Greece. Slower but steady convergence translated into a gradual decline in relative unit labour costs, with parity being reached at the turn of the century. In the subsequent decade, the two trends - no relative wage growth coupled with steady relative productivity growth - have persisted in the manufacturing sector, accumulatively reducing relative unit labour costs close to 15% below the level in the old states (Wolf, 2011). This is just the opposite of the Greek performance up to now.

The gains in cost competitiveness of the new German “Laender” were accompanied by a rebound of growth in the manufacturing sector and even faster export growth, taking the export ratio in manufacturing to one third (Bundesministerium für Wirtschaft und Technologie, 2010). But even today the export ratio of manufacturing in the New “Laender” remains below that of the old “Laender” in the West. Empirical studies on the export ratio and the determinants of export activity in the new states (Zeddies, 2009, and Schultz, 2010) find that differences in price competitiveness no longer play an important role. Structural factors, such as differences in firms’ size (firms are generally smaller in the East) and the lower share of manufacturing can explain most of the existing differences.

We have concentrated so far on the intra-German adjustment. However, it is widely considered that Germany entered EMU with excessively high wages (at the time Germany had a current account deficit and a higher unemployment rate than the Euro area average). It seems that Phillips curve did work in Germany as shown in the chart below which shows (pan) German wage increases and the unemployment rate. There is a rather tight relationship with only one outlier (2009) when the fear of a long-lasting recession led to agreements with stagnant wages, but the recession proved

to be short lived (for Germany) and unemployment did not increase, partially because of the specific provisions for temporary short-term work.

Figure 5 – *Phillips curve Germany as a whole*



Source: European Commission, AMECO

More in depth investigations, which consider factors such as inflation, import and export prices plus productivity confirm essentially this finding (Quaas and Klein, 2010, p. 14). After a few years of deviation (Hassler and Neugart, 2003), united Germany behaves like West Germany before 1991 since around 1994/95, given that the institutional system of West Germany was adopted fully in former East Germany (Belke, 1997, Belke and Hebler, 2002, and Belke, 2003). "Augmented" Phillips curves are functioning well and prove to be rather stable in an econometric sense.

In the following, Phillips curve estimates for the German New “Laender” and West Germany are displayed (Figures 6 and 7). Due to the large weight of West Germany (including West Berlin) we do see few changes compared to the graph for total Germany. In East Germany wages increased consequently thanks to wage equalisation and a lower initial level, in most of the time more

strongly than in West Germany. The unemployment rate was steadily shrinking since 2005. It seems as if the slope of the Phillips curve for the German New "Laender" is significantly lower.[12]

Figure 6 – *Phillips curve Germany (Old "Laender")*

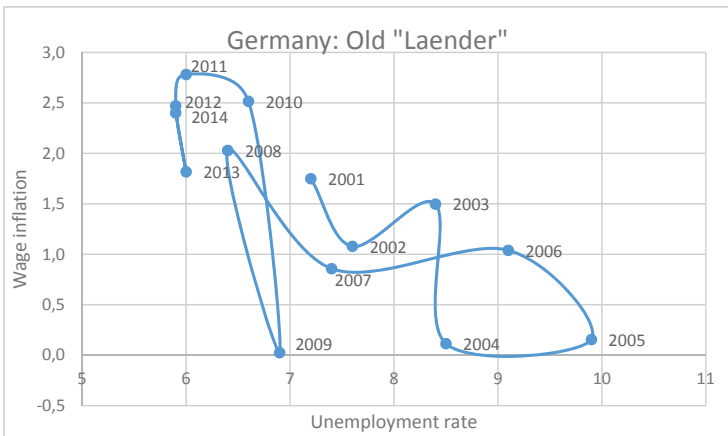
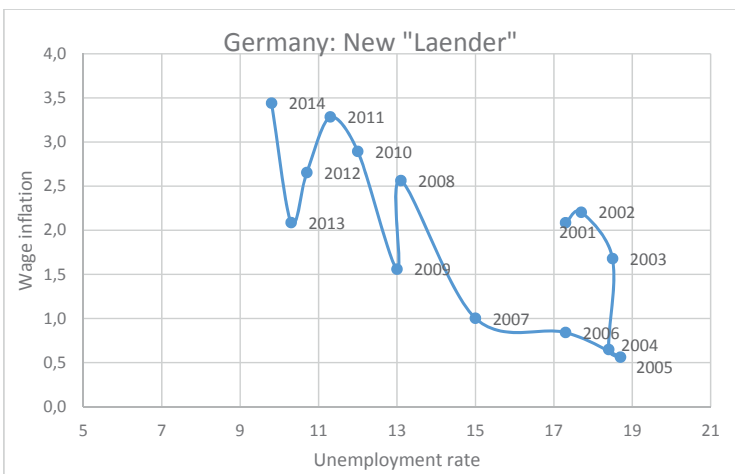


Figure 7 – *Phillips curve Germany (New "Laender")*



[12] However, one should be careful with any conclusions with respect to the relative steepness of the curves because the number of observations is rather low. Moreover, East Germany finds itself at another position on the Phillips curve, characterised by unemployment which is twice as high.

Source: Statistisches Bundesamt (Destatis data base) and Statistical Offices of the Länder (National Accounts of the Länder)

Main lessons

The case of the new German "Laender" suggests that adjustments of this magnitude, a cumulative forty-point swing even after the initial rapid drop, taking place at a time when wage growth in the old states was itself constrained by concerns about a loss of cost competitiveness relative to trading partners, can be achieved within a larger economy.

But the required adjustment period will be substantial if the initial gap is sizable and cannot be compressed by an initial absolute wage adjustment. The experience with the New German "Laender" suggests an annual decrease in the two to three percent range as a rough benchmark for an extended gradual adjustment (Wolf, 2011).

The third lesson has to do with the composition of the adjustment in the new "Laender", with relative wages remaining stable after the initial adjustment period and *subsequent gains in relative productivity providing the core adjustment channel*, pointing to the *importance* of accompanying *structural reforms* promoting productivity growth in *easing the adjustment burden on relative wages* in countries such as Greece seeking to reverse cost competitiveness losses.

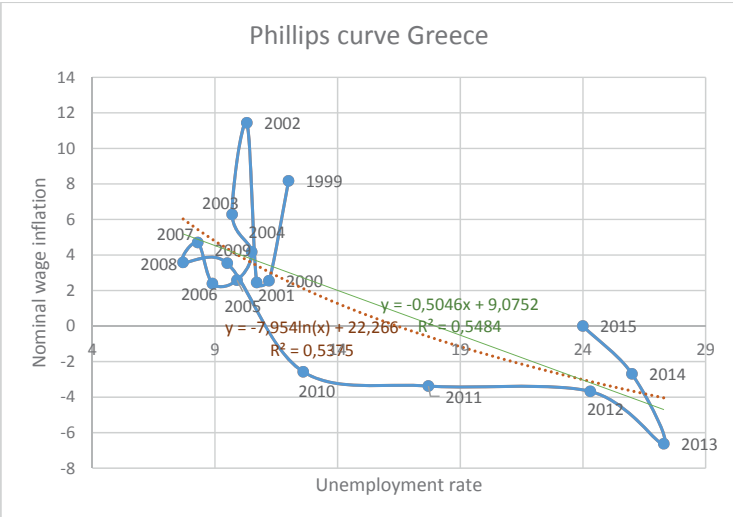
In the following section, we critically evaluate the reforms undertaken within the Greek Adjustment Program vis-à-vis the reforms of the best practice countries based on estimated Phillips curves.

4. Wage behaviour under the Greek Adjustment Program vis-à-vis the best practice countries

In order to capture the differences in the labour market adjustment process and thus the costs of adjustment across the countries, we compare the very simple estimates of the Phillips curve for the countries shown above and calculate the implications of these differences for the needed wage adjustments (see also Alcidi and Gros, 2013, and Belke and Boeing, 2014, for comparisons). Based on these results, we then critically evaluate the reforms undertaken within the Greek adjustment program (formally Greece had several different IMF programs, but consider them as one since the have followed each other back to back) which at first glance appear closer to the spirit of the Latvian reform package.

Table 1 below shows two estimates of the slopes of the Phillips curve. The first column shows the estimated slope coefficient based on a logarithmic formulation (i.e. wage inflation as a function of the logarithm of the unemployment rate). This functional form was chosen because it is often argued that wages are rigid downwards, which implies that the Phillips curve should become flatter at high unemployment rates. The second column shows the estimated slope based on a simple linear relationship. At first sight there are large differences between these two estimates, but in reality, the two curves are very close to each other (see below exemplified by the Greek case).

Figure 8 – *Phillips curve Greece*



Source: European Commission, AMECO

Moreover, and this is the key consideration, the relative ordering is very similar in both columns with Germany, Portugal, and Greece, showing similar values, but with Latvia being quite different. The justification for the logarithmic form was that the 'second lower bound' of decreases in nominal wages would make the Phillips curve particularly flat at zero wage increases. However, this does not have been the case for any of the three countries considered here. In the case of Portugal, the reductions in nominal wages recorded in 2011 and 2012 were somewhat larger in absolute terms than one would have expected from the pre-crisis relationship. The same seems to have been the case in Latvia in 2009. We thus prefer the 'normal' linear form.

Tab. 1 - *Examples of slopes of Phillips curves within the Euro area versus Australia*

	Logarithmic	Linear
Latvia	30	2.4
Portugal	4	0.42
Greece	8	0.50
Germany	3.2	0.43
Australia	4.0	0.75

Source: own calculations.

The amount of wage disinflation gained by each percentage point increase in unemployment (technically the slope of the Phillips curve) does not appear to differ much between the three 'old' Member states Greece, Portugal and Germany. The value for Greece is at 0.5 somewhat higher

than those of these other two countries (0.42 and 0.43). In this table, Latvia is the outlier as in this country wages react five times as much to unemployment as in Greece and six times more than in Germany or Portugal.

From a purel accounting point of view the difference between Latvia and Greece (or Portugal) means that in order to achieve the same gain in competitiveness, unemployment in Latvia has to increase by only one fifth of the amount needed in Greece or Portugal. A concrete example can illustrate this in practical terms.

It was widely assumed that wages needed to adjust by about 20-25 % in Greece in order to bring competitiveness indicators back to the level when Greece joined the Euro area. During the boom years, unemployment in Greece hovered around 10 and wages increased by about 4 % p.a. (see the cluster on the upper left hand side of chart 1). During the program, unemployment increased by about 16 percentage points (reaching about 26 %). With a coefficient of 0.5 this implies that wage inflation should now be about 8 percentage points lower, i.e. wages should be declining by about 4 % p.a. These values imply that unemployment would have to remain for a total of 5 to 6 years at the present level in order for the previous loss of competitiveness of 20-25 % to be fully corrected[13]. However, if the Greek Phillips curve had the same slope as that of Latvia, i.e. if wages in Greece were as responsive to unemployment as in Latvia, one year of unemployment at the present level would have been enough. This extremely high responsiveness of inflation to unemployment is thus one key reason why the adjustment was so much shorter in Latvia than in Greece (or in Portugal).

As shown above, the Phillips curve had been rather steep in Latvia already before the crisis. It is thus unlikely that this advantage of Latvia was the result of reforms undertaken under the program in that country (which also had contained labour market measures). Moreover, Latvia is also an outlier in terms of another adjustment mechanism, namely labour mobility. Since the start of the crisis the population of Latvia fell by about 10 %, against only 2 % for Greece, or Portugal.[14]

This relatively large rate of emigration around a deep crisis makes the Latvian Phillips curve even more of an anomaly. A high propensity to emigrate in the face of a recession should reduce domestic unemployment, as presumably mainly the unemployed will go abroad. Fewer unemployed should reduce the pressure on wages to fall.

However, it is not clear whether one can ascribe the high rate of emigration in Latvia to the IMF program. First of all, the country already had a high rate of emigration before the financial crisis. Already in 2006/7, boom years for Latvia, the population was falling by almost 1 % per annum. In 2009/10, at the peak of the crisis, the rate of emigration more than doubled, to 2.2 %. Emigration thus did not start with the economic crisis, but it reacted strongly to it. Overall, given that

[13] Assuming the absence of wage increases in the remainder of the Euro area.

[14] This development points to a tension between political and economic issues. While the optimum currency area (OCA) literature considers labour mobility as contributing to adjustment, such a large-scale emigration might be politically difficult to accept.

emigration doubled during the crisis, it seems that about one half of the total loss of population over the last decade was due to the crisis.

But one has to keep in mind that neighbouring Lithuania, which did not have an IMF program, experienced very similar rates of emigration (with an even higher peak of 2.9 % on an annual basis in 2010). It seems that all Baltic countries had a high degree of labour mobility, which presumably facilitated the adjustment to their extreme boom-bust cycles (Alcidi and Gros, 2013, Alcidi et al., 2014).

It was shown above that the negative relationship between unemployment and inflation started for Greece only with the program years. This is, a priori, a strong sign that the labour market did function differently under the program. But it is difficult to ascribe this difference to structural reforms in the labour market given that with a recession of unprecedented depth and duration one would anyway expect a break with past patterns (path-dependence or hysteresis). Moreover, a close inspection of the data in figure 8 above shows that wages started to fall by almost 3 % annually already in 2010, before any of the labour market program measures had been implemented (and with unemployment not yet much higher than at the start of EMU). The speed of the fall in wages did not accelerate strongly after 2010, although most of the increase in unemployment came in subsequent years. It is possible that the start of the fall in (nominal) wages in 2010 was due to the indirect effect on the private sector of the reduction in public sector salaries and the reduction in minimum wages, which had also been part of the program.

5. Conclusions

Adjustment programs under fixed exchange rate must rely on 'internal devaluation', i.e. a fall in domestic prices and wages. Has this mechanism worked during the last financial crisis, which forced several European countries to accept an IMF program? We concentrate on the adjustment of wages and find that before the crisis wages in Greece seemed to have been largely insensitive to unemployment, which changed with the crisis and the program.

It is difficult to disentangle the impact of policy (the program) from other factors, namely that labour market participants behaved differently because they realised that the country faced a fundamentally different environment, not just a cyclical downturn. The fact that wages started to decline almost immediately after the crisis had started and already before any reforms had been implemented, provides some evidence that the impact of the labour market reforms undertaken (imposed?) under the program were not the only reason for the change.

We also observe that in Portugal wages and unemployment had been linked even before the crisis; and that the program has not changed this relationship significantly although the Portuguese program also contained important labour market reforms. We find that there is little difference in the reactiveness of wages to unemployment between Greece, Portugal and even Germany. The real outlier is Latvia where wages react 5-6 times more to unemployment than in these countries.

At a more general level, recent explanations of the pre-crisis slowdown in productivity insist on another market distortion, the low level of the real rate of interest brought about by the Euro (Gopinath et al., 2015, and Cette, Fernald and Mojon, 2016). Since productivity adjustments play a major role in this contribution when we refer to the experience of the New German "Laender", it is fair to point out that also the onset of the Euro in some cases provided wrong incentives.

References

Alcidi, Cinzia and Daniel Gros (2013): *Country Adjustment to a 'Sudden Stop': Does the Euro Make a Difference?*, European Economy - Economic Paper No. 492, Directorate General Economic and Monetary Affairs (DG ECFIN), European Commission.

Alcidi, Cinzia, Belke, Ansgar, Coutinho, Leonor, Giovannini, Alessandro, and Daniel Gros (2014): *State-of-Play in Implementing Macroeconomic Adjustment Programmes in the Euro Area*, Policy Note, Directorate General for Internal Policies, Economic Governance Support Unit, European Parliament, Brussels, February, und Economic Policy, CEPS Paperbacks, Centre for European Policy Studies, Brussels, March.

Anderson, Kym (2012): *Australia's Economy in Its International Context*, Volume 2: 1956–2012, University of Adelaide Press.

Belke, Ansgar (1997): Zur Politischen Ökonomie der Arbeitslosigkeit: Mancur Olson versus Insider-Outsider-Theorie, in: Zeitschrift für Wirtschaftspolitik, Vol. 46/3, pp. 243–274.

Belke, Ansgar (2003): Maastricht - Implications of a Centralized Monetary and Currency Policy for Employment in Europe, in: Addison, John T., Welfens, Paul J.J. (eds.), Labour Markets and Social Security - Wage Costs, Social Security Financing and Labour Market Reforms in Europe, Springer, Berlin et al., 2nd ed., pp. 195-245.Belke, Ansgar (2017): The Specter of a Grexit, forthcoming: *Brussels Economic Review*.

Belke, Ansgar, Boeing, Michael (2014): Sacrifice Ratios for Euro Area Countries: New Evidence on the Costs of Price Stability, in: *Australian Economic Review*, Vol. 47/4, pp. 455-471.

Belke, Ansgar, Gros, Daniel (2017): Optimal Adjustment Paths in a Monetary Union, *Economic Modelling*, http://www.sciencedirect.com/science/article/pii/S0264999317302559.

Belke, Ansgar, Hebler, Martin (2002): Towards a European Social Union: Impacts on Labour Markets in the Acceding CEECs, in: *Constitutional Political Economy*, Vol. 13/4, pp. 313–353.

Belke, Ansgar, Polleit, Thorsten (2010): *Monetary Economics in Globalised Financial Markets*, Springer.

Bundesministerium für Wirtschaft und Technologie (2010) Wirtschaftsdaten Neue Bundesländer, July, Berlin.

Biggs, Michael, Mayer, Thomas (2014*): Latvia and Greece: Less is More*, CEPS High-level Brief, Centre for European Policy Studies, Brussels, 12 February.

Bird, Graham (2001): IMF Programs: Do They Work? Can They be Made to Work Better?, *World Development*, Vol. 29/11, pp. 1849-1865.

Cette, Gilbert, Fernald, John, Mojon, Benoit (2016): The Pre-Great Recession Slowdown in Productivity, *European Economic Review*, Available online 11 April 2016, ISSN 0014-2921, http://dx.doi.org/10.1016/j.euroecorev.2016.03.012.

Daveri, Francesco, Jona-Lasinio, Caecilia (2005): Italy's Decline: Getting the Facts Right, *Giornale degli Economisti*, Vol. 64/4, pp. 365-410.

Enev, Tihomir, Koford, Kenneth (2000): The Effect of Income Policies on Inflation in Bulgaria and Poland, Economics of Planning, Vol. 33, pp. 141-169.European Commission, International Monetary Fund, Organisation for Economic Cooperation and Development, United Nations, World Bank (2009): *System of National Accounts 2008*, New York.

Fisher, Stanley (2015): Transmission of Exchange Rate Changes to Output and Inflation, Speech delivered at the Research Conference "Monetary Policy Implementation and Transmission in the Post-Crisis Period,", Board of Governors of the Federal Reserve System, Washington, D.C., November 12.

Gaspar, Julian E. et al. (2014): Introduction to Global Business: Understanding the International Environment & Global Business Functions, Cengage Learning, 1st ed.

Gopinath, Gita, Kalemli-Ozcan, Sebnem, Karabarbounis, Loukas, Villegas-Sanchez, Carolina (2015): *Capital Allocation and Productivity in South Europe*, NBER Working Paper No. 21453, National Bureau of Economic Research, Cambridge/MA, August.

Gordon, Robert J., Dew-Becker, Ian (2008): *The Role of Labour Market Changes in the Slowdown of European Productivity Growth*, NBER Working Paper, No. 13840, National Bureau of Economic Research, Cambridge/MA, March.

Gregory, Robert George (1986): Wages Policy and Unemployment in Australia, *Economica*, New Series, Vol. 53, No. 210, Supplement: Unemployment, pp. S53- S74.

Gros, Daniel, Alcidi, Cinzia, Belke, Ansgar, Coutinho, Leonor, Giovannini, Alessandro (2014): *Implementation of the Macroeconomic Adjustment Programmes in the Euro Area: State of Play*, Centre for European Policy Studies (CEPS), Brussels.

Hassler, Uwe, Neugart, Michael (2003): Inflation-unemployment Tradeoff and Regional Labour Market Data, *Empirical Economics*, Vol. 28, pp. 321-334.

Kang, Joong Shik, Shambaugh, Jay (2013): The Evolution of Current Account Deficits in the Euro Area Periphery and the Baltics: Many Paths to the Same Endpoint," *IMF Working Paper* No. 13/169.Obstfeld, Maurice (1997): Europe's Gamble, *Brookings Papers on Economic Activity*, Economic Studies Program, The Brookings Institution, Vol. 28(2), pp. 241-317.

Paqué, Karl-Heinz (2009): *Die Bilanz - Eine wirtschaftliche Analyse der Deutschen Einheit*, Carl Hanser Verlag, Munich.

Quaas, Georg, Klein, Mathias (2010): *Clusters and Loops of the German Phillips Curve*, Universität Leipzig, http://mpra.ub.uni-muenchen.de/23094/1/MPRA_paper_23094.pdf.

Romanis Braun, Anne (1986): *Wage Determination and Income Policy in Open Economies*, International Monetary Fund.

Sippola, Markku, 2011, *Internal Devaluation and the Baltic Labour Market*, 3rd International Conference "Economies of Central and East Europe: Convergence, Opportunities and Challenges", 12 – 14 June 2001, Tallinn, Estonia.

Smolny, Werner (2009): Wage Adjustment, Competitiveness and Unemployment - East Germany after Unification, *Jahrbücher für Nationalökonomie und Statistik* 229/2+3, pp. 130-145.

Schultz, Birgit (2010): Wandel der betrieblichen Einflussfaktoren auf den ostdeutschen Export, *Wirtschaft im Wandel*, 3/2010, pp 158–163.

Ul Haque, Nadeem, Khahn, Mohsin S. (1998): *Do IMF-Supported Programs Work? A Survey of the Cross-Country Empirical Evidence*, IMF Working Papers 98/169, International Monetary Fund, Washington/DC.

Wood, Richard (2013): *Europe: The Failure of Internal Devaluation*, November 13th, Economonitor, web: http://www.economonitor.com/blog/2013/11/europe-the-failure-of-internal-devaluation/.

Wood, Richard (2014): Eurozone: Competitiveness Indicators and the Failure of Internal Devaluation," *EconoMonitor*, February 3.

Wolf, Holger (2011): Internal Devaluation in a Monetary Union, *International Economics and Economic Policy*, Vol. 8, pp. 3-6.

Yergin, Daniel, Stanislaw, Joseph (1997): Nixon Tries Price Controls, *Commanding Heights*, Retrieved 2015-04-15.

Zeddies, Goetz (2009): Warum exportiert der Osten so wenig? Eine empirische Analyse der Exportaktivitäten deutscher Bundesländer, in: *AStA – Wirtschafts- und Sozialstatistisches Archiv*, Vol. 3/4, 2009, pp. 241-264.