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Looking for an "optimal wage regime" for the Euro zone

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Résumé

Cet article vise à définir une règle salariale optimale pour la zone euro qui permettrait de rendre compatibles les objectifs de cohésion sociale et de convergence et le respect des contraintes inhérentes à une zone monétaire. Dans la majorité des pays, à l'exception notable de l'Allemagne, les régimes salariaux assuraient avant la crise une progression des salaires relativement homogène entre secteurs abrité et exposé. Toutefois, les régimes salariaux étaient loin d'être optimaux, et depuis la crise, on tend à s'éloigner d'un régime salarial optimal et notamment de la norme de croissance relativement homogène des salaires qui prévalait auparavant. Un système européen de salaire minimum serait un instrument utile pour faire obstacle à une fragmentation accrue des marchés du travail, et il devrait être combiné avec des politiques coopératives assurant une meilleure convergence productive.

Abstract

The paper aims to figure out how an "optimum wage rule" for the euro area could look like. An optimal wage regime should be able to offer a way out of the crisis alternative to that of internal devaluations, their recessionary impacts and the new divergences across countries they encourage. With the notable exception of Germany, prior to the crisis, wage regimes provided wage progressions that showed little difference between sheltered and exposed sectors. However, wage regimes were far from optimal and since the crisis the general trend has been to move away from an optimal wage regime and the rule that prevailed in most countries of rather homogeneous wage increases across sectors. We argue that any progress toward an optimum wage rule requires to clearly recognize the incompleteness of the European construction, and to implement economic policies aimed both at enforcing balanced wage regimes and ensuring a convergence in productive performances.

Looking for an "optimal wage regime" for the Euro zone

Is there any possibility to figure out how an "optimum wage rule" for the euro area could look like? By optimum wage rule, we mean a wage regime that would be able to offer a way out of the crisis alternative to that of internal devaluations, their recessionary impacts and the new divergences across countries they encourage. That is the key question we address in this paper.

In order to answer to that question, we begin by analyzing the wage regimes organizing the relationship between wages and labour productivity in the Eurozone countries. The analysis is carried out along three partitions:

- between tradable and non-tradable sectors;
- between "Northern" (Belgium, Germany, Austria, Finland, Netherlands) and "Southern" Euro-Zone countries (Spain, Greece, Italy, Ireland, Portugal), France occupying an intermediate position most of the time ;
- between pre and post-crisis periods.

We start by a France-Germany comparison, which enables us to identify the main parameters governing country-specific wage regimes. In a second step, the comparison is extended to the other euro-area economies.

Considering that productivity provides the material basis for wage increases, two areas of divergence among Euro-zone countries emerge: (1) the convergence in productivity performance –expected as an outcome of the creation of a single currency area– did not happen; (2) and the divergence in productivity performances was accompanied by increased disparity in inflation rates. This double no-convergence was a major barrier to the emergence of an "optimum wage rule" that would have made the dynamics specific to each country consistent with their integration in a single currency zone.

Today, the risk is high that the way out of that non-optimal configuration may lead to abandon the rule that prevailed in most countries before the crisis (with the very notable exception of Germany), that allowed for wages to increase at a very homogeneous pace across sectors, exposed or sheltered.

We argue that any progress toward an optimum wage rule in the Euro-zone requires:

- to clearly recognize the incompleteness of the European construction,
- to implement economic policies aimed both at enforcing balanced wage regimes and ensuring a convergence in productive performances.

1. A comparison between France and Germany

We start by a comparison between the two largest countries of the Euro-area, France and Germany. This comparison will provide us the general framework of analysis we will in a second step extend to other Euro-zone countries.

Our first finding concerns productivity. In both countries, the same pattern for productivity can be observed: **labour productivity** is increasing much faster in manufacturing sectors than in services sectors. This is a very classic stylized fact (e.g. Clark 1940; Fourastié 1949; Baumol, 1967).

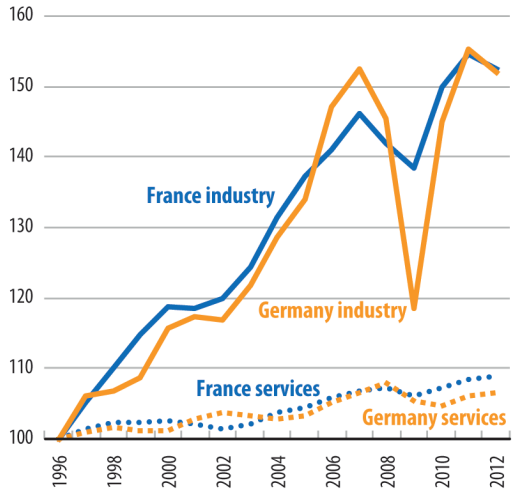
In contrast, **real wages developments** – measured by deflating average nominal wage per capita with consumer prices – reveal important divergences (see Figure 1). In France, during the pre-crisis decade, real wages were increasing at a very similar rate in industry and services sectors. Wages were in some ways disconnected from the labour productivity developments specific to each sector, as if an egalitarian principle was guiding wage dynamics in France, resulting in rather homogeneous wage developments (at least until the crisis) in the two major sectors of the economy.

The situation is very different in Germany. In the manufacturing sector, real wages rose at almost the same rate as in France. In contrast, they stagnated in the services sector. In contrast to the French case, German wages appear to be more significantly correlated with the labour productivity specific to each major sector (see Figure 2).

The **relative price** between the two major sectors is an essential intermediate variable linking the purchasing power of workers – related to consumer prices – to the real labour cost – related to the specific output price in each sector. Suppose that in a given sector, the value added price decreases relatively to the consumer price: if wages in this sector are more or less indexed to consumer prices, the change in relative prices, all things being equal, will lead to a rise in wage share (Box 1).

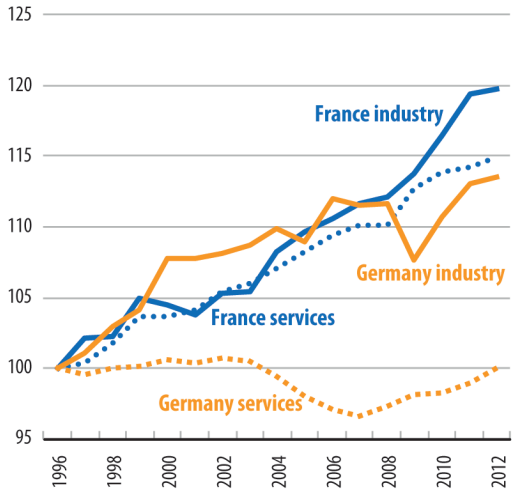
Relative output prices tend to be negatively correlated with the level of productivity across sectors. **This relationship can be understood as a mechanism of redistribution of productivity gains across sectors, equivalent to a process of equalization in profit shares**. This mechanism is essential for understanding the relationship between wages, prices and productivity at sector level.

Figure 1.
Productivity developments in France and Germany



Source : Ameco. 1996 =100.

Figure 2.
Real wage developments in France and Germany



Source : Ameco. 1996 =100.

Once again, the comparison between Germany and France reveals contrasted situations. Between 1996 and 2012, the wage share in the manufacturing sector increased by 12.3 percent in France, whereas it decreased by 13.4% in Germany. This divergence cannot be explained by productivity, which increased by 52% in both countries during the same period, nor by the purchasing power of wage which increased only slightly faster in France than in Germany: +19.8% against +13.5%. Indeed, most of the difference is explained by the relative prices. In France, value added prices decreased by 30% compared to consumer prices over the period 1996-2012. In Germany, it decreased by 14% only. Concretely, it **German manufacturing industry was able to keep a larger share of productivity gains** (which may also have be "imported" via inputs).

Box 1

Wage share purchasing power, productivity

Let p be the price of value added, pc the consumer price index, w the wage per employee, N the employment, Q the volume of product and $prod = \frac{Q}{N}$ the labour productivity.
The wage share can be written :

$$share = \frac{Nw}{pQ} \quad or = \frac{\frac{w}{p}}{prod}$$

But wage w can also be written *as : w=s.pc*, where s is the purchasing power of wage.
The wage share therefore be broken down as follows:

$$share = \frac{\frac{s}{prod}}{\frac{p}{pc}}$$

The first term compares the purchasing power of the employee to its contribution to production: the employee produces a unitary product (prod) and receives a quantum (s) of this product.

But the wage share also depends on the relative price $\frac{pc}{p}$. If the relative price increases and if nominal wages are indexed to consumer price, then the wage share will increase even if $\frac{s}{prod}$ remains constant.

The relative change in the wage share (and hence in the profit share) between the two major sectors will thus depend not only on productivity and wages, but also on the relative price of the two sectors. We obtain:

$$\frac{share_1}{share_2} = \frac{\frac{s_1}{prod_1} / \frac{p_1}{pc}}{\frac{s_2}{prod_2} / \frac{p_2}{pc}} = \frac{\frac{s_1}{s_2}}{\frac{prod_1}{prod_2} . \frac{p_1}{p_2}}$$

This relationship shows that wage shares follow the same trend if the purchasing power of wage increases at the same rate in both sectors ($\frac{s_1}{s_2}$ is constant) and if the relative prices ($\frac{p_1}{p_2}$) compensates for the relative productivities ($\frac{prod_1}{prod_2}$)

Since consumer prices are the same for employees of both sectors, the relative evolution of purchasing power is strictly equivalent to wages' relative evolution : $\frac{s_1}{s_2} = \frac{w_1}{w_2}$.

In other words, the relationship also shows that the wage share has the same evolution in both sectors, if the differences between sectors in the unit labour costs are reflected in the changes in relative prices.

2. The wage regimes in Europe

In this section, we attempt to establish a typology of the wage regimes covering the main countries of Euro-zone.

We start by examining the **relative productivity developments** in the two major sectors. The first finding is that the structure observed for France and Germany is also true in most other countries: in services sectors, labour productivity increases much less rapidly than in manufacturing sectors. The relative productivity between the two major sectors follows an upward movement, of similar magnitude in the major countries, except Italy. This provides us with our **first stylized fact: in most countries, there is a productivity gap between the two major sectors**.

In a second step, we examine the **real wages developments** in the major sectors, defined as the purchasing power of wages adjusted for consumer prices inflation. Despite country specificities, we obtain a second stylized fact: in most countries, wages increases at roughly the same rate in the two major sectors, at least in the period that immediately preceded the crisis.

The only true exception is Germany (see Figure 3).

Real wage growth depends on productivity, although in recent years, real wages growth tended to lack behind that of productivity. But the question is to decide which productivity measure is to be taken as reference for wages, since wages may be linked either to average productivity of the economy, or to the sector specific productivity. In the first case, wages will increase more or less uniformly across sectors. In the second case, the wage gaps across sectors will reflect that of productivity; wages will grow faster in the manufacturing sectors. But we must also look at the relative prices, which will finally determine the effect on the relative wage share. In order to better understand these mechanisms, Table 1 summarizes the developments of these variables for the whole Euro-zone during the pre-crisis period (1996-2007).

Table 1.
Wages, prices and productivity in the Euro-zone (1996-2007)

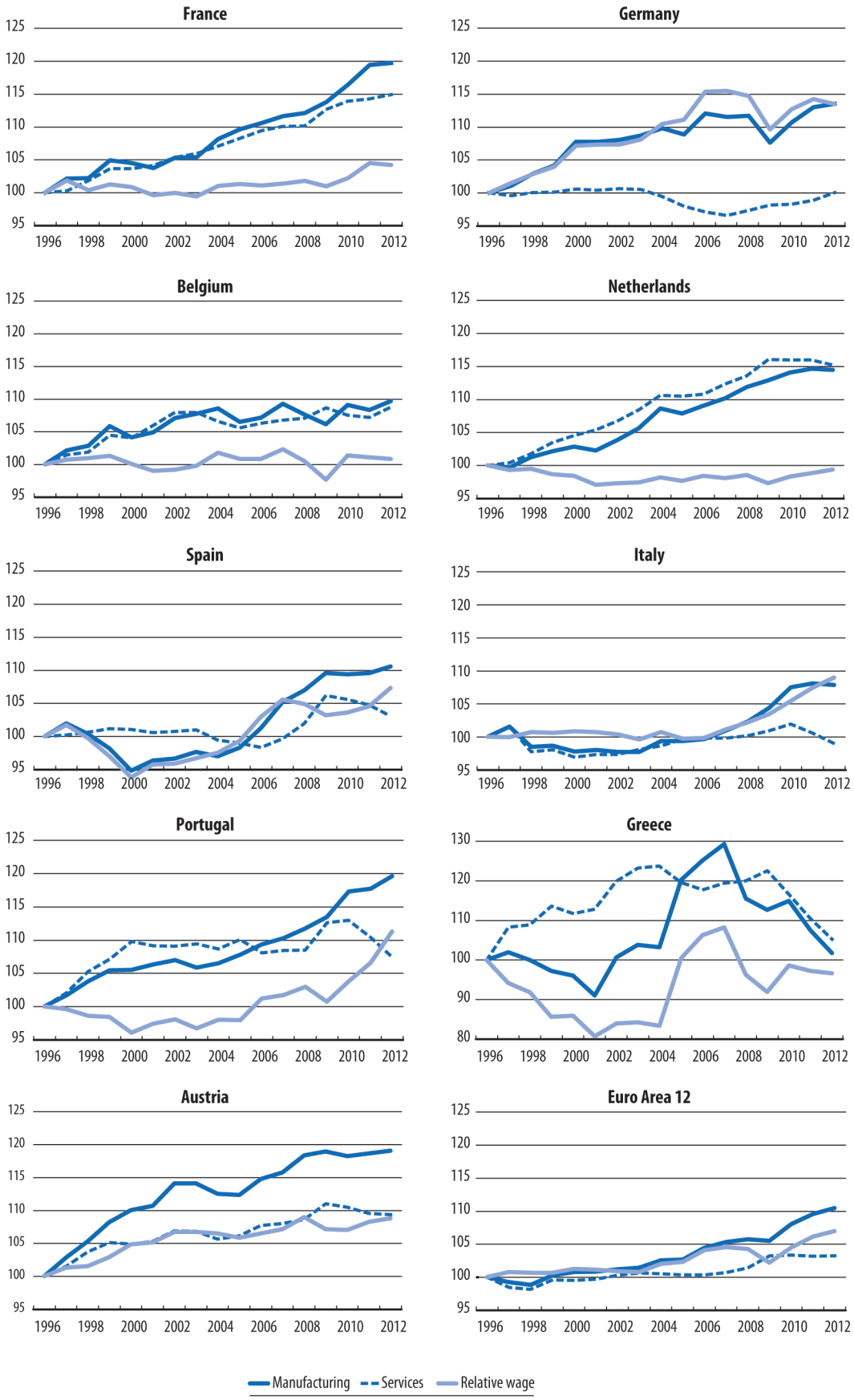
	manufacturing	services	manuf./services
(1) productivity	40,2	6,1	32,1
(2) s	5,3	0,7	4,6
(3) s/prod (2)/(1)	-24,9	-5,1	-20,9
(4) pi/pc	-15,9	-0,8	-15,2
(5) share=[s/prod]/[pi/pc]=(3)/(4)	-10,7	-4,3	-6,7

Source : Ameco.

Over the whole period 1996-2007, labour productivity (prod) grew at a much faster pace in manufacturing (+40.2%) than in services (+6.1%). The gaps in purchasing power (s) are substantially smaller (+5.3% in industry, +0.7% in services). The ratio between purchasing power and productivity (s/prod) declined in manufacturing (-24.9%), whereas it remained almost flat in the services sector (-5.1%). Furthermore, the relative price of the manufacturing sector declined (-15.9%) while the price of services remained flat (-0.8%).

Relative prices changes therefore narrowed the gap in relative wage shares measured on the basis of consumer prices (itself strictly equivalent to that of relative unit labour costs): it amounts finally to 6.7%, while it would have been 20.9% on the solely base of unit labour cost – i.e. without the relative prices effect. This configuration is illustrated

Figure 3. Purchasing power of wages in manufacturing and services sectors

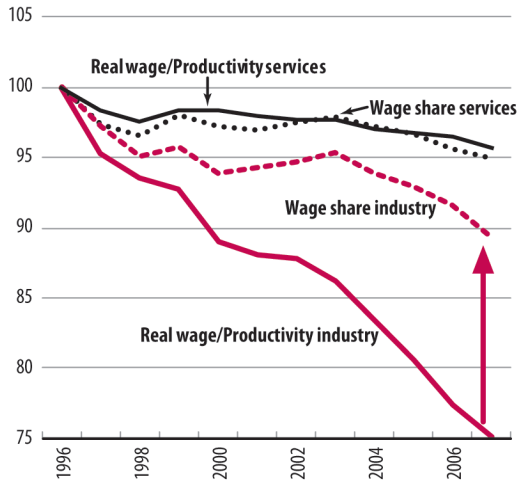


Source : Ameco. 1996=100.

in Figure 4, which illustrates how the wage share in the manufacturing sector is "pulled upward" by the relative prices mechanism.

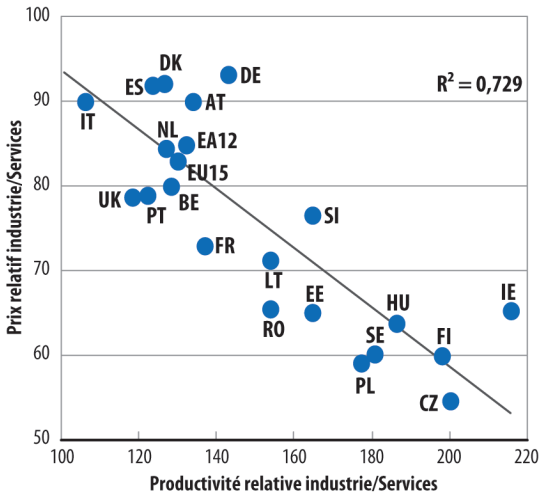
The same mechanism holds for all countries: **changes in relative prices compensate for the productivity gap between the two sectors, so as to ensure the transfer of productivity gains across sectors** (see Figure 5). It is important to understand that the main vector of this redistribution in productivity gains is the homogenous growth in wages across sectors.

Figure 4. Wages, prices and wage shares in the euro area



Source : Ameco. 1996=100.

Figure 5. Relative prices and productivities



Source : Ameco. Evolutions 1996-2007. Ameco.

3. What should an «optimum wage regime» look like?

In reference to the concept of Optimum currency area, we attempt to define an Optimum wage regime (OWM), consistent with a single currency area.

If we consider that promoting convergence and social cohesion are important principles to be pursued within a currency area, the objectives of such a regime could be twofold:

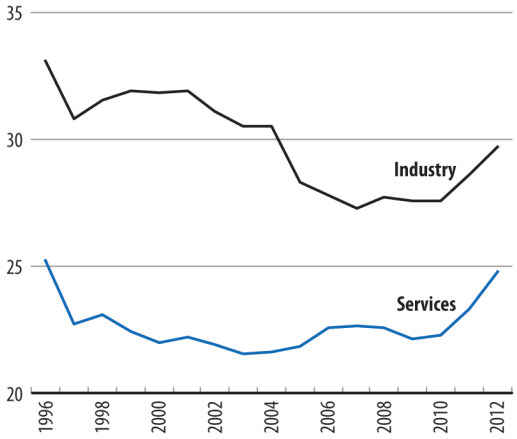
- *Objective N°1*: an optimum wage regime should be consistent with a relatively homogeneous wage growth within each country (ie across sectors), in line with the average labour productivity. In other words, an **Optimum wage regime should allow for a redistribution of higher productivity gains from the most efficient sectors, in order that employees in the less productive sectors benefit evenly from this general progress**. In the same time, it should ensure a balanced distribution between wages and profits in the economy as a whole.
- *Objective N°2*: an Optimum wage regime should be consistent with an upward convergence of real wages among countries, based on productivity catch-up. This second objective means that **real wages should grow faster in countries starting from a lower initial level of productivity**.
- *Constraint*: an Optimum wage regime should also respect the constraint imposed by a single currency area: in that sense, an Optimum wage regime cannot lead to a systematic distortion in cost competitiveness, since it is impossible to correct these distortions by nominal devaluations within a single currency area. In other words, **an Optimum wage regime should not lead to systematic distortion of the wage shares in the tradable sectors** (since it would mean for example that countries facing less favorable cost competitiveness development are forced to cut their profit margins).

The optimality defined above is far from having been verified.

- **The first objective was only partially achieved**, since the wage share declined in most euro-zone countries in the pre-crisis period. However, the euro zone allowed – at least before the crisis – for a relatively uniform growth of wages across sectors in most countries. The only notable exception is Germany.
- **The second objective was neither achieved**. The dispersion (across countries) of real wages slightly declined in the manufacturing sectors, but it was not the case in services sectors. **Moreover, an important evolution to be stressed is that the dispersion is increasing since the crisis, in both sectors** (see Figure 6).
- **The constraint in terms of cost- and price-competitiveness was neither respected**. The wage share in the tradable sector, which moved within a relatively narrow range before the establishment of the euro area, started to diverge from the very beginning of the 2000s (see Figure 7). **There has been no interruption of that movement with the crisis**.

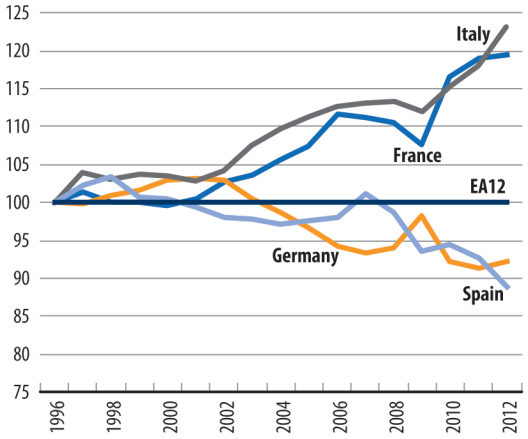
  It is always useful to recall that divergences in export performances cannot be explained by differences in cost-competitiveness do (Box 2). However, a single currency area cannot sustainably afford divergences in unit labour costs across its various members.

Figure 6. Indicator of wages dispersion



Source : Ameco. The indicator of dispersion is defined for each sector as the ratio of the standard deviation of real wages (constant 1996 euros) to the average wage in the euro area (11 countries).

Figure 7. Wage share in the manufacturing sector



Source : Ameco. Euro Area = 100.

The Euro-zone differs from an "optimum wage regime" on two points in particular: the absence of real wages convergence and the divergence in inflation rates. However, in the optimistic version of the *currency area theory*, convergence was to be achieved *via* the following virtuous circle: productivity gains are a priori more dynamic in the least advanced countries ; this can be accompanied by higher inflation, which can result in trade deficits. But these deficits are filled by capital inflows, that in turn increase investment and reinforce productivity gains, so that at the end inflation ends up will slow down and trade deficits will be reduced (see especially Blanchard and Giavazzi 2002).

The story that happened was clearly a different one, and we have to be able to explain it!

Box 2

Unit labour costs and export performances

There is now an abundant literature showing that unit labour cost divergences cannot account for export performances (Chagny *et al*., 2013). The prevailing view can be summarized as follows: "[…] Thirdly, and perhaps surprisingly, the large dispersion in current account balances across euro area countries seems to display a small correlation with "narrow" measures of competitiveness, as represented by relative price levels and unit labour costs. Instead, they seem to bear a stronger relation with broader, non-price competitiveness factors. It follows that internal devaluation policies may have limited success at reducing external imbalances unless accompanied by structural reforms that boost some of those non-price factors" (Estrada Garcia *et al.*, 2012).

In order to complete our analysis, it is necessary to introduce a distinction between tradable and non-tradable sectors. In a recent IMF working paper (Shik Kang, Shambaugh, 2013), the authors note that "the growing current account deficits seem driven by import increases and non-trade factors" and they establish a link between capital inflows and higher wages in the tradable sector: "Some [countries] – most notably the Baltics, but to some extent Spain, Greece, and Ireland – appear to have experienced large capital inflows and optimism-driven booms. This raised unit labour costs in the non-tradable sector and increased imports".

4. The divergence in production performances

An optimum wage regime, so as we defined it, **should be able to allow for real wages convergence across countries, based on productivity convergence**. We have already noticed that, in most countries, there was a similar pattern for relative productivity gains: a faster rate of productivity growth in manufacturing relative to the services.

This obviously raises the question of productivity catchup, particularly in the tradable sector. This issue was addressed by a recent paper from the European Commission (2013a). The author of the study, Narcissa Balta, emphasizes an important phenomenon: "There is strong evidence that the pattern of convergence changed considerably in the euro area prior to the crisis".

Initially (1995-2001), things happened according to "the neoclassical paradigm [that] predicts higher capital flows to lower-income economies because the marginal product of capital is higher than elsewhere in these countries".

During that period, "Investment increased in all converging economies more than in the rest of the euro-area (notably in IE, but also in PT and EL) and capital initially flew towards the catching-up economies in search of more productive uses, supported by strong financial integration among the euro area countries".

There was therefore a virtuous circle consistent with the "prediction of economic growth theory": the economic integration and financial "should lead to higher income levels across countries, while less advanced economies should grow faster than more advanced ones, either because of more rapid capital accumulation (the neoclassical growth model) or because of technology diffusion and innovation (endogenous growth models).".

But **this catching-up process reversed between 2001 and 2007**, that is to say, from the onset of the euro introduction : "capital continued to flow towards most of the catching-up

economies (...) driven not so much by marginal productivity of capital as by higher profit mark-ups in some of the services sectors and network industries".

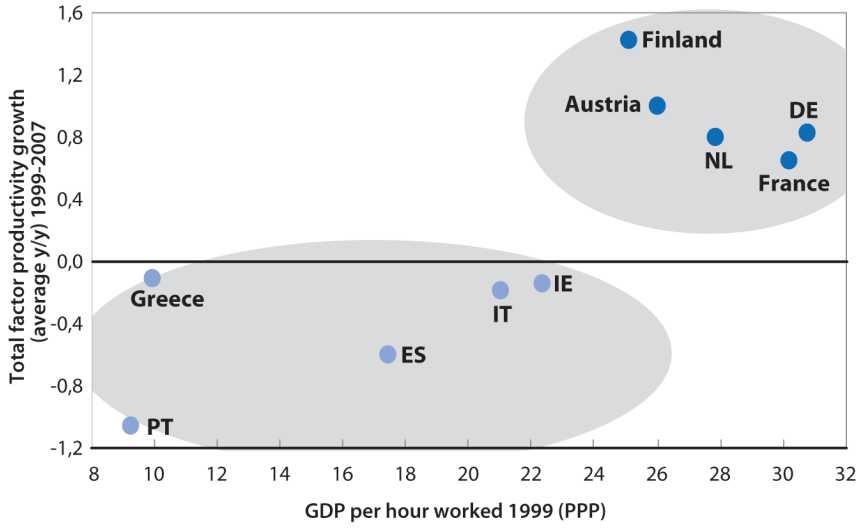
This shift means that capital flows have favored the low productivity non-tradable sector, which "could be suggestive of an accumulation process driven more by rent seeking than by efficiency considerations". In another paper, the European Commission (2013c) confirms this analysis by noting that "some vulnerable Member States witnessed a shift in profitability in the non-tradable sector above that of tradables", this shift being, according to the European Commission, the "result of the rapid credit-fuelled expansion of internal demand in the pre-crisis years".

The outcome of this "capital misallocation" is that convergence did not work. This can be checked through total factor productivity - – i.e. the efficiency with which inputs are being used in the production process. Figure 8 below shows how this synthetic indicator has evolved between 1999 and 2007, compared to the productivity level of each country in 1999.

Leaving aside Belgium, there are two clearly distinct groups of countries: "Northern" countries – that started with a higher level of labour productivity – have all improved their total factor productivity between 1999 and 2007. "Southern" countries, in contrast, started with a lower level of productivity, were characterized by a decline in total factor productivity. Said otherwise: **real convergence, in terms of production efficiency, did not work and the introduction of the euro was on contrary accompanied by a real divergence**.

Relative productive performances correlate well with the changes in the contribution of manufacturing production to the GDP, and with external debt developments (Bertola, 2013). "Southern" countries have benefited from massive foreign investment, but these capital flows were not oriented towards the manufacturing sector, so that the productive efficiency of "Southern" countries decreased.

Figure 8. No convergence of production efficiency



Source : European Commission, 2013a.

The analysis can be further clarified by noting that profit is the main determinant of investment (rather than the "profit mark-ups" cited by the European Commission), and that profit it depends on total factor productivity (see Box 3).

Box 3

Profit rate and total factor productivity

The profit rate is calculated as the difference between value added and total remuneration, relative to fixed assets/capital: R=(pQ-wN)/pK. Dividing both terms by pQ, and rearranging, we obtain:

$$R = \frac{1 - \frac{w/p}{Q/N}}{\frac{K/N}{Q/N}}$$

Notations:

R:profit rate	p:price	w:nominal wage
K:capital	Q: output	N:employment
s:real wage (s= w/p)	e:wage share (e=s/prod)	K/N:capital per capita
prod: labour productivity (prod=Q/N)	k:capital efficiency (k=Q/K)	

Profit rate depends therefore on three factors: real wage, labour productivity and capital per capita. After calculations it yields:

$$\dot{R} = \frac{1}{1 - e} [\dot{\pi}_{glo} - e\dot{s}]$$

In the above formula (a dot above a variable indicates a growth rate) π_{glo} accounts for total factor productivity. The profit rate dynamics depends on the relative growths of total factor productivity and real wage. Profit rate increases when:

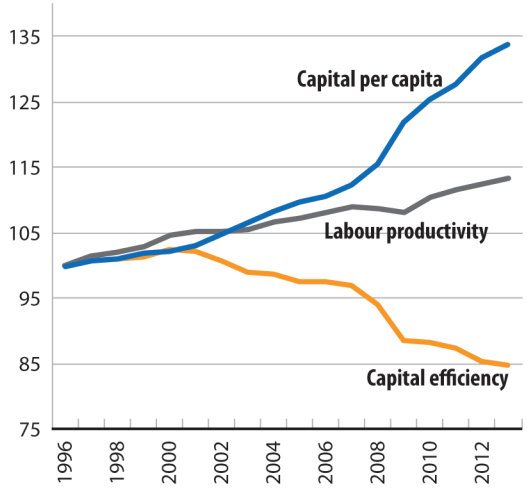
$$\dot{\pi}_{glo} > e\dot{s}$$

We can finally calculate the maximum rate of growth of wage s_{max} ensuring a stable profit rate :

$$\dot{s}_{max} = \frac{\dot{\pi}_{glo}}{e}$$

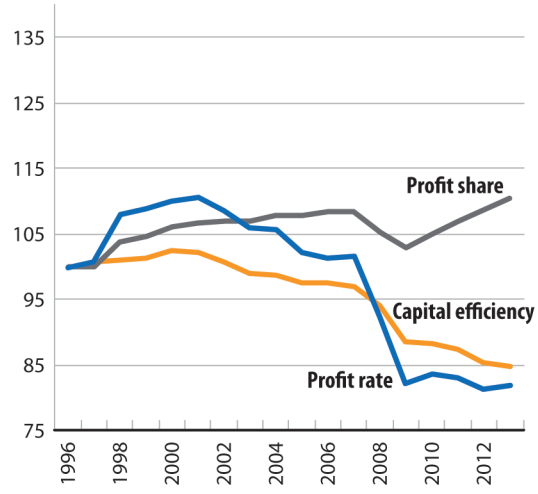
The breaking down of the profit rate in the "Southern" countries shows that **the capital efficiency (productivity) declined almost at the onset of the single currency** (see Figure 9). Capital per capita began to grow faster, but failed to "pull" labour productivity. These trends are typical of what economists describe as extensive growth patterns This loss in efficiency in turn negatively affected the profit rate, which was not compensated by the increase in profit share (see Figure 10).

Figure 9. Capital efficiency in the "South" countries*



Source : Ameco. 1996=100.
NB. : Capital efficiency accounts for capital productivity. Q/K=Q/L*L/K

Figure 10. Profit rate in the "South" countries



Source : Ameco. 1996 =100.

In summary, the absence of convergence in productivities and, at the end, of real wages, can mainly be explained by the orientation of capital towards less productive sectors.

5. Explaining the non-convergence

As quoted above, **an optimum wage regime should also allow inflation rates to converge**.

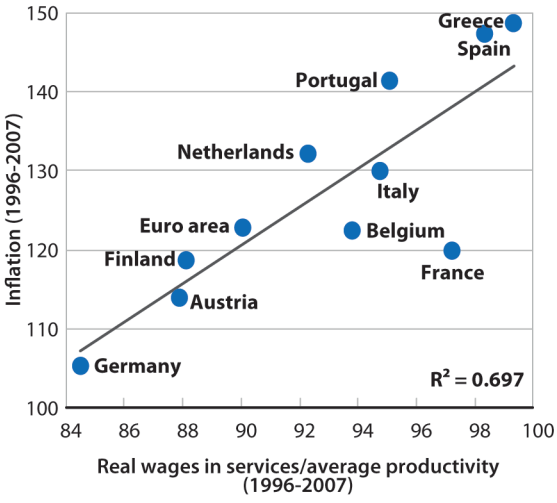
In this section we attempt to identify the structural determinants of inflation across countries.

- Our first assumption is that the **transfer of productivity gains from the manufacturing sector to services sectors implies an increase in the general level of prices**. We measure the extent of this transfer by the ratio between real wage in the services sector and the average productivity of the whole economy. We observe that this indicator correlates well to inflation (see Figure 11)
- The second assumption is that **inflation rate also depends on the intensity of distributional conflicts**, which we approach by S90/S10 inter-decile ratio, which compares the average income of the richest 10% to that of the poorest 10% in 2000. We see also that this indicator correlated well to inflation (see Figure 12).
- Bertola (2013) emphasizes a third **trade-off between reducing inequality and economic efficiency**: "The slow factor productivity growth and declining inequality observed in countries that accumulated negative imbalances may in part have resulted from a tendency to trade production efficiency for social protection: a tendency that would have been justified if productivity growth had materialized".

Here again we have a distinction between the two groups of countries: "Northern" countries performed better, but at the cost of an increase in inequalities. **In "Southern" countries (and also in France), total factor productivity declined or stagnated, inequality decreased** – or slightly increased in the case of Italy – (see Figure 13).

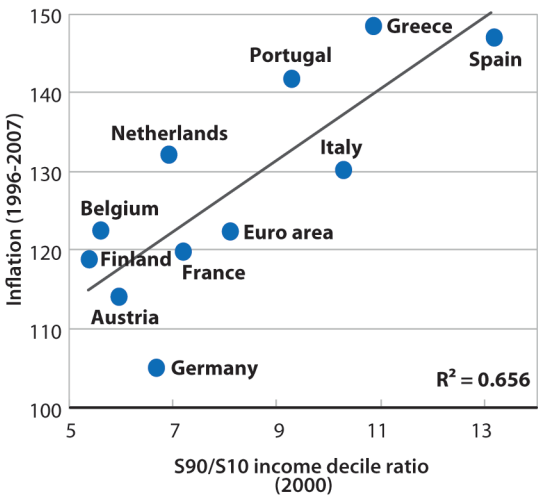
It can be shown from the same set of data that a wage regime ensuring a uniform wage growth leads to a reduction in or to a slower growth of inequality but also to higher inflation.

Figure 11. Inflation and wage in the services sector



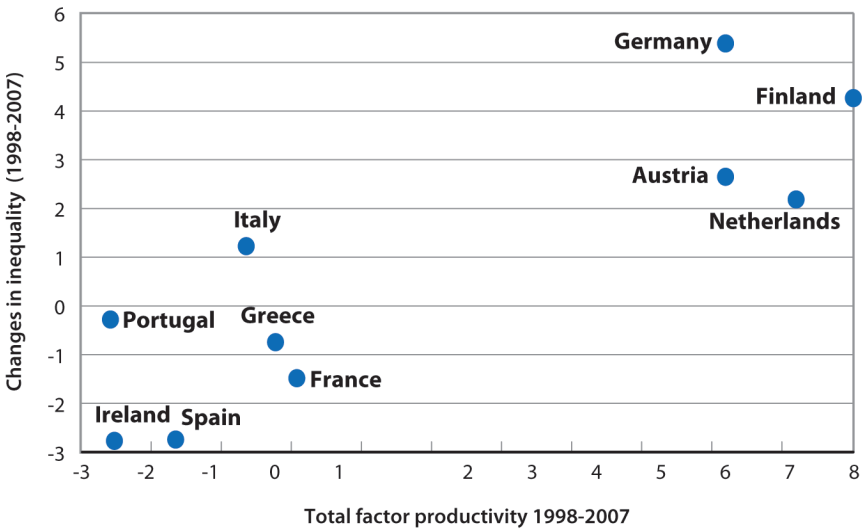
Source : Ameco, Eurostat.

Figure 12. Inflation and inequality



Source : Ameco, Eurostat.

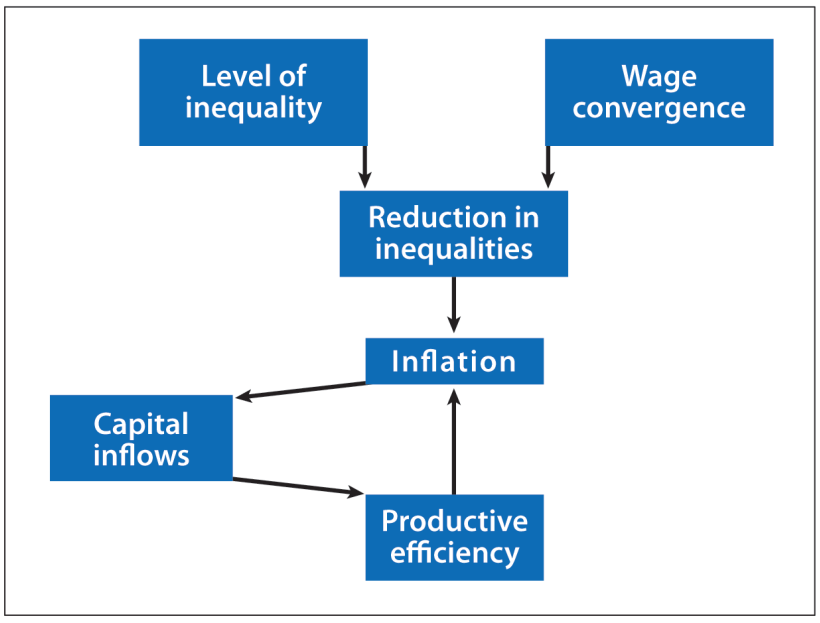
Figure 13. Inequalities and productive efficiency



Source : Bertola (2013).

We summarize the above findings in the diagram below.

Diagram 1. The mechanisms of non-convergence



6. Towards a devaluation of the "internal exchange rate"?

Our analysis above showes that the European wage regime was far from being optimal. We have so far described the formation of wages during the pre-crisis period (1996-2007). In the following, we try to understand to what extent the crisis, and the reforms undertaken since then, have – or not – introduced structural changes.

Since 2009, numerous reforms aiming at moderating wages and flexibilizing labour markets have been implemented, with great varying intensity across countries. We focus here mainly on the relative wage development between the two major sectors.

A key observation is that in most countries, since the crisis, wages have increased less (or declined more) in services sectors than in the manufacturing sector (see Table 2). In other words, **wage moderation tends to threaten the wage regime that prevailed in most countries before the crisis** that ensured relatively homogeneous wage growth across sectors. The consequence is that implementing these policies contributes to moving us away from an optimum wage regime.

Table 2. Differences in wage growth rate between services and manufacturing sector

Portugal	-9.5	Spain	-3.8	Netherlands	-2.1
Italy	-5.1	Germany	-3.4	Ireland	-1.9
Greece	-4.8	Belgium	-3.2	Austria	-1.6
Euro area	-4.4	France	-3.1	Finland	-0.5

2009-2013. Source : Ameco.

We are experiencing a (historical) shift in the recommendations relating to wage policy: after "internal devaluation", this is the concept of "internal exchange rate" that is increasingly emphasized.

A recent paper from *France Stratégie* (Sy, 2014) bases on the distinction between tradable and non-tradable sectors, and shows that the latter contributes too in determining the competitiveness on the world market. "In the non-tradable sectors, the sharp rise in unit labour costs and the lack of competition, result in dynamic changes in prices and therefore in the costs of inputs for the tradable sectors". These finding lead the authors to the following recommendations: "The competitiveness of export sectors would be improved if wages were better linked to the level of productivity in non-tradable sectors like real estate, business services, legal and accounting services".

The solution proposed by the authors is straightforward; wages in non-tradable sectors must adjust to the specific productivity of these sectors, rather than to average productivity, as was in practice the dominant rule in the euro area. The objective is, explicitly, to change the wage regime. It is even quantified: "a drop in the relative price of non-tradable between 4.9% and 9.7%" [is needed] in order to "stabilize the net external position". Of course, this could only be achieved by an equivalent decrease of wages in the sectors concerned, or by hypothetical productivity gains.

Patrick Artus (2014) goes even further, in an analysis of the specific challenges faced by France and Italy. It would, according to him, be inefficient to increase or slow down wages uniformly across sectors, "because of the asymmetry between the two parts of the economy". What is needed is a "decorrelation of wages between the manufacturing sector and the rest of the economy, to be achieved by establishing in wage negotiations a strong link, at plant-firm level, between wage increases and profitability, competitiveness of each of the firms" and a "more vivid competition outside of the manufacturing sector in order to bring prices down".

In the same vein, Stefan Collignon (2013a) proposes to use the profit rate (rate of return on capital) as a reference for wage adjustments. He redefines competitiveness as the ability of the profit rate to attract new investment. Following these conditions, unit labour costs are to be considered as "overvalued when the return of capital in one country is below that of the euro area average or undervalued if it is above this average". In other words, wage must not exceed the maximum wage, defined as the wage that does not lower the profit rate, which depends itself on the total factor productivity (see Box 3 above).

Collignon goes further in a note for the Committee on Employment and Social Affairs of the European Parliament (Collignon, 2013b). In this note, he proposes a new "golden rule" that "must take into consideration not only labour productivity, but also capital productivity". The new and better collective wage standard wage bargaining rule would be:

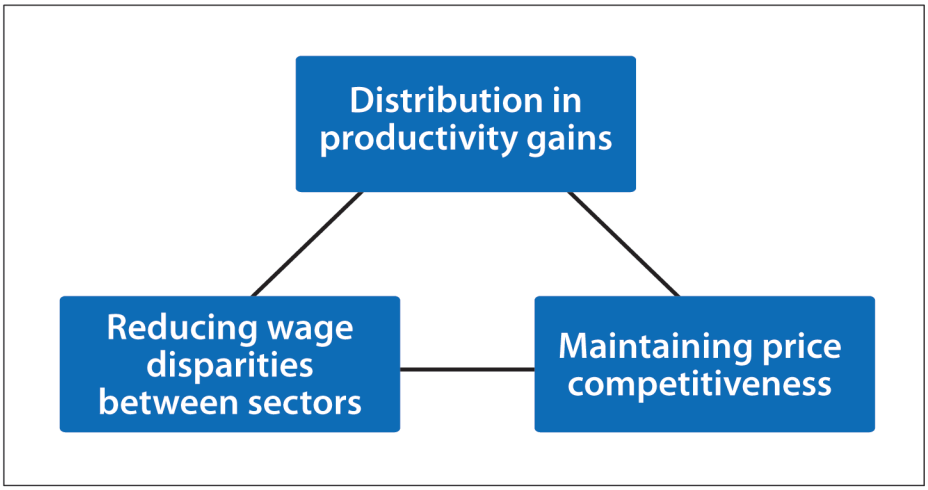
"Wage increases = labour productivity increases + inflation target + increases in the average efficiency of capital".

These analyses take rightly due account of the essential role of cross-sector wage prices and productivity dynamics. But they result in recommendations that, if the case they were implemented, would foster a disconnection between wages in the tradable sector and the average labour productivity across the economy. In other words, these proposals aim to generalize the German wage regime to other countries, with a growing wage gap between tradable and non tradable sectors.

The distance between such policy recommendations and an optimum wage regime - here considered at national level - can be illustrated by what we call an "**incompatibility triangle**" between three core objectives (see Diagram 2):

- *Objective 1*: a balanced distribution of the productivity gains at the level of the total economy, via a stable wage share at the level of total economy;
- *Objective 2*: an homogeneous wage growth across sectors, in order to allow for the redistribution to all employees of the productivity gains obtained in the best performing sectors;
- *Objective 3*: no deterioration in the price competitiveness, in other to avoid a continuous divergence in unit labour costs and/or inflation rates.

Diagram 2. The "wage incompatibility triangle"



The above analysis shows that a major structural weakness of the euro area is that it failed to make these three objectives compatible.

The first objective was very partially achieved before the crisis, since the wage share declined in almost all countries. The second objective has been achieved, since wages grew at roughly the same pace in the two major sectors, with the (notable) exception of Germany. But the consequence of these partial achievements was a divergence in inflation rates that severely impaired the cost- and price-competitive of the vulnerable countries.

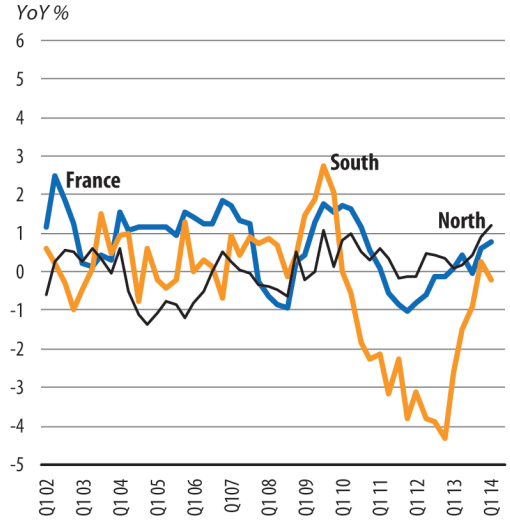
Since the crisis, public policies are based on the fundamental postulate that the main cause of macroeconomic imbalances was an excessive wage growth in the countries in

difficulty. We can consider that this assumption is misleading. Anyway: the fact is that this assumption is basis for many European policy guidelines today. But what we can also do is to analyze these guidelines from the perspective of the three dimensions of our "incompatibility triangle".

The result is clear-cut: **since the crisis, wage regimes are moving away from the first two objectives of an optimum wage rule**.

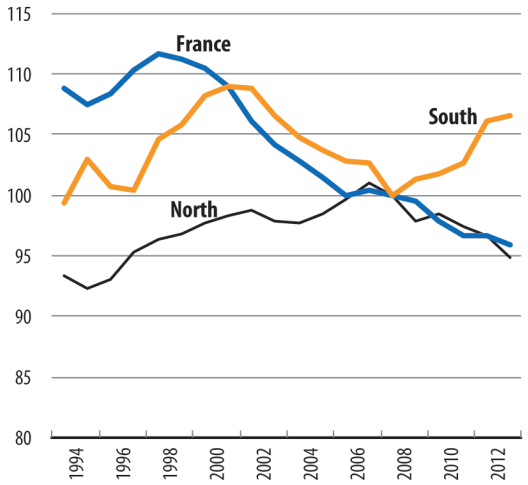
The recovery in profit shares from their sharp fall during the recession is accompanied by an increasing divergence in the wage development between tradable and non-tradable sectors. The third objective (reducing inflation differentials and supposedly trade deficits) is partially met but for wrong reasons. Firstly because trade balances recovered at the cost of recession or very weak growth, which reduced imports. Secondly because wage moderation is not primarily used to improve price-competitiveness, but to restore the profit shares (see Figures 14 and 15): "profit margins (gross operating surplus over value-added) increased – particularly in tradable industries – thus absorbing part of the reduction in unit labour costs" (European Commission, 2013b).

Figure 14. Real wages



Source : Chagny (2013), National Statistical Offices.

Figure 15. Indicator of relative export margins



2008 =100. Source : Chagny (2013), European Commission.

7. Is there a way out of the "incompatibility triangle"?

An important result of our analysis is the incompleteness of European integration. The Euro-zone institutional design failed to trigger structural convergence. This lack in convergence concerns first of all productivity performances measured for example by the total factor productivity. The weak catch-up process in terms of productive efficiency reduced the scope for wage increases and deteriorated capital profitability.

As a consequence, conditions of arbitration between wages and profitability were significantly tightened. In Southern countries in particular, the decline in wage share was not sufficient enough to offset that in capital efficiency. This general observation was complicated further by the contradictions generated, by the prohibition, within the single currency area, of nominal exchange rate adjustments, and a growing disparity in real interest rates that reflected the inflation differentials. All these mechanisms affected differently tradable and non-tradable sectors, and wage regime came increasingly under pressure.

Distributional conflicts and the weak productivity gains fueled in turn the divergence of inflation rates.

The dominant analysis, especially originating from European institutions, postulates that excessive wage growth was the main cause of the crisis in the euro area. Consistently, wage moderation and structural (labour market but not only) reforms are presented as the key levers for rebalancing the euro-area.

These recommendations are directed toward more decentralization in collective bargaining and a disconnection between wages and labour productivity. This perspective equals to abandon the idea of a general optimum wage rule. **In other words, such proposals do not aim at implementing the conditions of a real convergence within the euro area. Instead of seeking how to consolidate an optimum wage regime, their goal seems more to move away from it!**

We defend the idea that the "golden rule" that indexes wages on inflation and average productivity is and must remain the fairest rule for distributing productivity gains, and that a systematic capture by the firms (often to the benefit of shareholders) - in the name of competitiveness - is not economically and socially sustainable. Every wage earner should benefit from the overall growth of the economy irrespective of the characteristics of the sector he is employed in.

The implementation of this golden rule was hampered by two factors. The first is the general drift in wage shares during the crisis period. The second, on which we need to insist in this conclusion, is the imbalance caused by Germany, which significantly, and early, moved away from this wage rule. The introduction of a minimum wage in Germany is good news, since it should contribute to prevent, or at least, reduce the wage drift between sectors.

At European level, the aim of avoiding an increasing wage gap across sectors and to prevent for deflation risks would benefit from being institutionalized by the introduction of a minimum wage system. Proposals in this regard have multiplied in recent years: they stem from Union sectors (Schulten, 2014) as well as the state administration (Brischoux *et al*, 2014) and even from the new President of the European Commission, Jean-Claude Juncker, who stated in 2013: "We need a basis of social rights for workers, minimum social rights for workers, including of course one essential thing, a minimum wage – a legally compulsory minimum wage in the euro-zone member states" (Stearns, 2013).

A European minimum wage would offer an immediate answer and an essential tool to prevent a wage slippage in the so-called sheltered sector.

Two other conditions should be also met to move towards the optimum wage regime. Both involve profound changes both at country level as well at European level.

If the analysis above is correct, the indexation of real wages to average productivity gains is associated to different inflation rates, depending on the structural characteristics in each country. Inflation is an indicator of a dual conflict: between employees and employers for the distribution of productivity gains, between sectors for the transfers of productivity gains between sectors. Reducing these tensions would imply greater institutionalization of wage indexation rules and homogenization in collective bargaining procedures.

More fundamentally, within a single currency area, an optimum wage regime requires to work in favor of a convergence in productivity performances. As we have seen, this convergence did not occur. The functioning of the European integration has instead led to an industrial specialization that accentuated polarization between countries and regions, while capital flows did not invest in the sectors with the highest potential productivity.

Only transfers and investments directed towards sectors where productivity can be significantly raised in the catching-up countries would trigger the convergence of productivity gains, which in turn constitutes the material basis underlying the homogenization of wage earners' conditions of existence. **These are the perspective proposed by the European Trade Union Confederation with its plan "for investment, sustainable growth and quality employment"** (ETUC, 2013) and its proposals for wages and collective bargaining (ETUC, 2014).

Such changes within the European economy may look very remote or even out of reach. But if they are not implemented, the polarization of Europe is likely to worsen, between the surplus countries and the others, condemned to a slower growth and a perpetual wage moderation, or, in other words to a "low cost" development model.

Annex

Sources and methodology

Our main source is the European Commission's Ameco database which provides sectoral statistics and allows distinguishing the two major sectors of the economy, namely manufacturing and services. This partition approximately reflects the distinction between tradable and non-tradable sectors.

This assimilation of the tradable sector to manufacturing industry and of non-tradable sector to services is an imperfect proxy, but it may be justified in two ways. The first is practical: it makes possible the use of Ameco database that provides a set of consistent data. The second is an empirical one: this partition suffices for identifying the major trends and characteristics of each country.

(Labour) productivity is defined as the ratio between value added at constant prices and total employment. The definition of real wage introduces a distinction. From the point of view of employees, it is the purchasing power of wage that matters, i.e. the nominal wage deflated by consumer prices. On the corporate side, their margin depends on the nominal wage compared to the value added per person employed (in euros) and the real wage must in this case be defined in relation with the added value price.

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