# Wage share variations in France and Germany since 1970: what does really matter?

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**Abstract.**

This paper refers to a few recent studies, which have focused on methodological issues related to the estimation of the wage share variations, to compare the evolutions in France and former West Germany since 1970. It is shown that the usual method overestimates the long run drop of wage share in both countries but that the magnitude and thus the contribution of different biases are quite different in France and Germany. However no bias can explain the sharp drop of wage share in Germany since 2001, which has to be analysed within the framework of the euro area.

## 1. INTRODUCTION

The evolution of income distribution (between wages and profits) in developed countries since the beginning of the 1970s seems today well established. A lot of studies focused especially on countries of Continental Europe, where wage share variations have been very important for thirty years, whereas economic theory generally assumes that it should be nearly constant and stable over time. In these countries, wage share increased during the 1970s. Then it strongly decreased, so that wage share level at the beginning of twenty first century would be quite below its 1970 level.

For twenty years, many theoretical explanations have been brought to analyze the large fluctuations of wage share in these countries. A first set of contributions raised the usual hypothesis of an elasticity of substitution between factors equal to unity (as in the Cobb-Douglas production function). Indeed, if this elasticity is inferior to one, any increase of the relative price of a factor will increase the share of this factor in the

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value-added. Thus, wage share push in the 1970s would result from the failure of wage to adjust to the slowdown of labour productivity growth (Bruno and Sachs, 1985). Similarly, wage share drop in the 1980s would be due to the rise of real interest rates (see e.g. Cotis and Rignols, 1998, or Baghli, Cette and Sylvain, 2003). Caballero and Hammour (1997) assert that, whereas elasticity is inferior to one in the short-term, it is likely to be far superior to one in the medium-term, because adoption of new techniques in response to price evolutions takes time: thus the important increase of relative price of labour in the 1970s, which has initially brought about a wage share increase, would also explain its decrease in the 1980s.

A second set of contributions (see e.g. Blanchard, 1997, or Blanchard and Giavazzi, 2003) has analysed the income distribution variations in the framework of rent-sharing models: imperfections on the goods market generate rents, that firms and unions try to capture afterwards. In this perspective wage share decrease can result either from a rise of rents (as imperfection on goods markets grows, which raises price level and eventually reduces real wages) or from a weaker bargaining power of unions to capture rent (which would be the main explanation of the large drop of wage share for twenty five years, according to these authors).

At last, a third and more recent set of studies has focused on methodological issues related to the estimation of income distribution and challenged the analysis developed to date. These studies have underlined that usual method to calculate wage share was misleading and generated biases. On the one hand, De Serres, Scarpetta and Maisonneuve (2002) showed that evolutions in the sectoral structure of countries biased the wage share indicator; on the other hand, Askenazy (2003) exhibited another bias, related to the estimation of labour remuneration of unincorporated enterprises.

In this paper, we refer directly to these two last works to compare wage share evolution in France and former West Germany since 1970. Indeed, the first contribution of our work is to focus on data of only former West Germany (before and after 1991), which allows to avoid many methodological issues – which will be presented in the core of the article – related to reunification. In a first step, we show that usual method does overestimate the drop of wage share in both countries but the magnitude and thus the contribution of each bias is quite different in France and Germany. Second, we focus more specifically on the bias highlighted by de Serres, Scarpetta and Maisonneuve: we decompose by sector the sectoral bias so as to show why it has been more important in Germany than in France. At last, we concentrate on the recent period, during which no bias can explain the sharp drop of wage share in Germany, und we interpret the noted evolution within the framework of the euro area.

## 2. THE EVOLUTIONS OF WAGE SHARE IN FRANCE AND GERMANY SINCE 1970

The usual method to estimate wage share is to divide total compensations of employees by nominal GDP. Nevertheless, this estimate generates a bias, because the part of employees in total employment has been increasing for several decades (at the expense of unincorporated enterprises, which strongly decreased in the same time) in the bulk of developed countries. The usual method to remove this bias consists in attributing to unincorporated enterprises owners the average compensation of wage earners as remuneration of their labour. Figure 1 displays this

adjusted wage share for Germany from 1970 to 2004 (as most of studies on German wage share, figure 1 displays data of West Germany before 1991 and data of reunified Germany thereafter)[1].
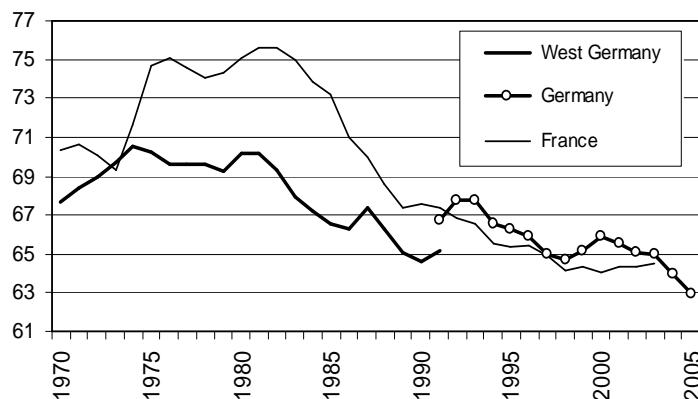
*Insert Figure 1 about here*



**Figure 1** Adjusted wage share in value added (at basic prices), France and Germany, 1970-2004

Concerning France, wage share increased a lot between 1970 and 1982 (+5.3 points of percentage). Nevertheless, the evolutions reversed in 1980s: the wage lost 8.1 points of percentage from 1982 to 1990. In the 1990, the wage share kept decreasing but more slightly than the previous decades (-3.0 points between 1990 and 2003). Actually the wage share in 2003 is 5.8 points under its level of 1970.

For Germany, we are faced with the problems relating to the reunification and its consequences on German data. From figure 1, we notice that reunification brings about a "leap" on German wage share: in 1991, the wage share equals 65.1 % in West Germany and 66.8 % in reunified Germany. So it is obvious that reunification had a significant impact on the indicator of wage share.

## 2.1. Distinguishing former East and West Germany after 1991

One important contribution of our paper is to focus on former West Germany before and after 1991. Indeed, data for former West Germany after 1991 can be obtained by using available data by Land for the period 1991-2004. Nevertheless, our data after 1991 includes East Berlin in "former West Germany"; because the only data available after 1991 concerns the whole of the Land of Berlin and not West Berlin only. This approximation corresponds to a 0.7 % increase of value added in 1991, and the

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[1] German national accounts very recently updated their national accounts by adopting the new treatment of FISIM (Financial intermediation services indirectly measured) proposed by the European System of Accounts 95 (ESA 95): the use of FISIM is not anymore by convention recorded entirely as intermediate consumption, but can also be final consumption. This new treatment of FISIM has a direct impact on the estimation of gross value-added. Data on figure 1 take this new treatment of FISIM into account. Nevertheless and unfortunately, available data on sole Former West Germany after 1991 just as data by industry (that we use afterwards in this article) have not been updated yet. So, in the rest of this article, the data we use were built on the basis of former SIFIM treatment (the use of FISIM is fully recorded as intermediate consumption). Concerning French data, we used data in "base 80" for the period1970-78 and in "base 95" for the rest of the period. Data in "base 2000", adopting the new treatment for FISIM are today incomplete (especially data on employment).

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wage share is hardly affected by this discrepancy (less than 0.2 points of percentage in 1991).

The reason which motivates our choice to focus on former West Germany is twofold. On the one hand, we get continuous time series between 1970 and 2004 and then remove the leap brought about by reunification. On the other hand, it allows us to distinguish the very contrasted evolutions of wage share in these two areas (East and West Germany) after 1991.

### 2.2. The case of former East Germany

East German wage share during the 1990 is characterized by two points:

- First of all, the East-German wage share just before reunification was extremely high: more than 90% in 1991 (it is indeed this very high level, by comparison with West Germany, which explains the "leap" consecutive to reunification (see figure 1)). This can be easily explained by remembering that East-Germany was a socialist economy, so that return on capital was very weak (and consequently the wage share very important).
- East Germany has experienced important economic evolutions since 1991 with strong impact on income distribution: between 1991 and 2004, East-German wage share collapsed and lost nearly 25 points of percentage. In 2004, it eventually equals 67 %, which corresponds almost to the mean of the West German wage share between 1970 and 1991 (67.5%).
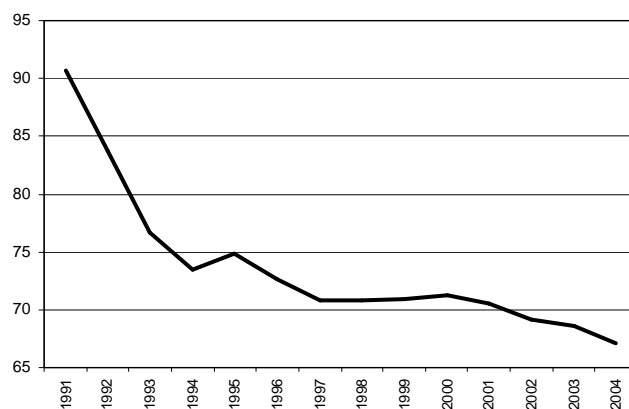
*Insert Figure 2 about here*



**Figure 2** Adjusted wage share, Former East Germany, 1991-2004

One explanation for this sharp decrease is that return on capital had to increase during transition into capitalist economy. But another and undoubtedly the most important explanation is that East Germany, which productivity was far weaker than that of West Germany in 1991, has benefited from catching-up process. As figure 3 emphasizes, East German labour productivity was only 43 % of West German productivity in 1991, 65 % in 1995 and around 75 % today. As catching-up usually rests on strong capital accumulation, it is likely to have increased the share of capital remuneration in value added.
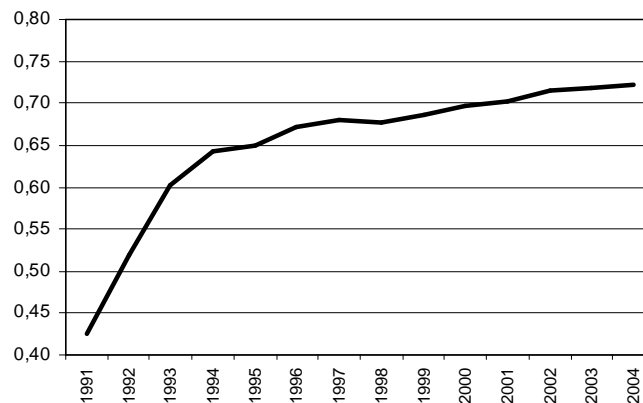
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*Insert Figure 3 about here*



**Figure 3** Average labour productivity in Former East Germany divided
by average labour productivity in former West Germany, 1991-2004

### 2.3. Former West Germany

As seen in the previous section, the impact of East German situation on the wage share of reunified Germany is twofold. On the one hand, the very high level of East German wage share explains the jump of 1.7 points observed in 1991 (see figure 1). On the other hand, the important fall of the East German wage share explains a part of the fall of the wage share of reunified Germany between 1991 and 2004: the decrease of the West German wage share is only of 2.0 points between 1991 and 2004, against 3.0 points for reunified Germany (whereas the value added of the Ex-GDR accounts for only 7 % of the value added of reunified Germany in 1991)[2].
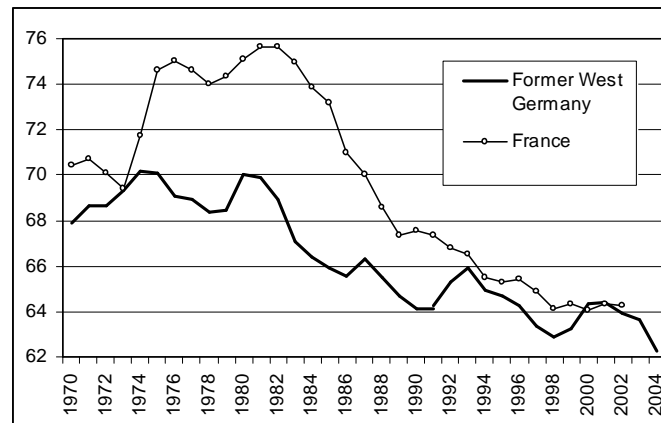
*Insert Figure 4 about here*



**Figure 4** Adjusted wage share, Former
West Germany and France, 1970-2004

In this article, we focus on West Germany (and not reunified Germany). Figure 4 shows that West German wage share lost 5.8 points of percentage between 1970 and 2004. The general impression given by this figure is that, for thirty years, West

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[2] Thus, one third of the decrease for reunified Germany between 1991 and 2004 is explained by the decrease in East-Germany

German wage share has experienced oscillations around a noticeable decreasing trend for thirty years.

If we compare now France and West Germany, the two curves were approximately at the same level at the beginning of the 1970s. Although trajectories between 1973 and the end of the 1980s are quite different, France experiencing both stronger increases and decreases, the wage shares of both countries seem to converge for fifteen years. Wage shares of both countries show a declining long term trend.

Nevertheless, many recent studies highlighted that the method of calculation of the wage share presented hitherto generates decreasing biases which could explain the general evolution of both curves on figure 4 to a large extent.

In the next section, we describe the biases related to the standard method of calculation of wage share. We then present the methods which allow to remove these biases and show eventually that these methodological corrections modify substantially the shape of wage share curves.

## 3. HOW TO DEAL BETTER WITH THE UNINCORPORATED ENTERPRISES?

Askenazy (2003) recently underlined that the method presented hitherto (where labour compensation of each unincorporated enterprises owner equals the compensation of the average employee) generates itself a bias, because average compensation is a very bad approximation of the income of unincorporated enterprises owners. Indeed, this method would overestimate their income in the 1970s, when these non-employee workers were mainly farmers with low earnings. Symmetrically, this method would underestimate their income today, as a large part of these workers (doctors, lawyers…) earn much more than the average employee. A better estimate can easily be obtained by attributing to these workers the compensation of the average employee of their own activity branch (and not the national average compensation). Figure 5 displays former West German wage share calculated by this "Askenazy assessment". Our data on former West Germany after 1991 allows us to divide total economy into only 11 sectors (for which data on total employment, employees and labour compensations are available). Nevertheless, this calculation has been made over the period 1970-91 with decomposition into 11 as well as 30 sectors, with quite similar results (the gap between the two curves never exceeds 0.2 points of percentage and this gap remains constant over time).

Conclusion drawn from figure 6 is that this correction has a rather weak effect on German wage share which looses 4.2 points between 1970 and 2002 with the usual assessment against 3.7 points with the Askenazy alternative method (the gap between the two curves equals 0.5 points in 2002)[3]. Thus, only 17 % of the German wage share decrease between 1970 and 2002 can be explained by the bias discovered by Askenazy (indeed, the rate of salaried workers in total employment was already very weak in 1970).

In the French case on the contrary, the two calculations lead to quite different curves: the wage share as per the Askenazy method is almost 4 points above the usual wage share, so that the gap between 1970 and 2001 is not of 6 but of only 2 points.

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[3] To facilitate the comparison of the two curves, the same level has been attributed to the two curves in 1970 (this method of comparison is used in most of other figures of the paper). Actually, the wage share estimated by the Askenazy method is 1.3 points above the wage share estimated by the usual method in 1970.

This correction is much more important for France than for Germany, especially since the agricultural population remained pretty large in 1970 in France, whereas it was already low in West Germany at the same time.
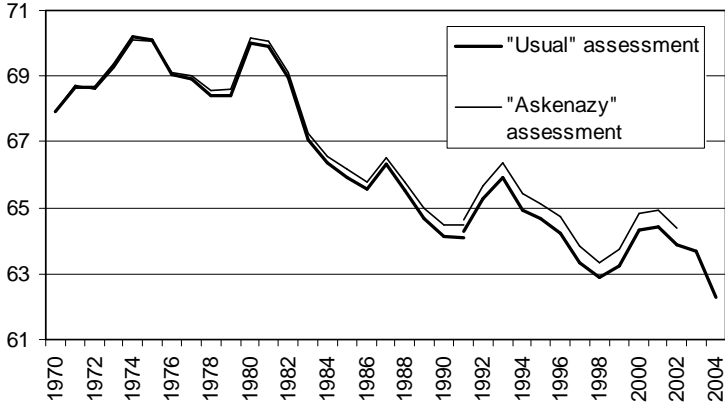
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**Figure 5** Adjusted Wage share in value added,
two different methods of calculation:
Former West Germany, 1970-2004
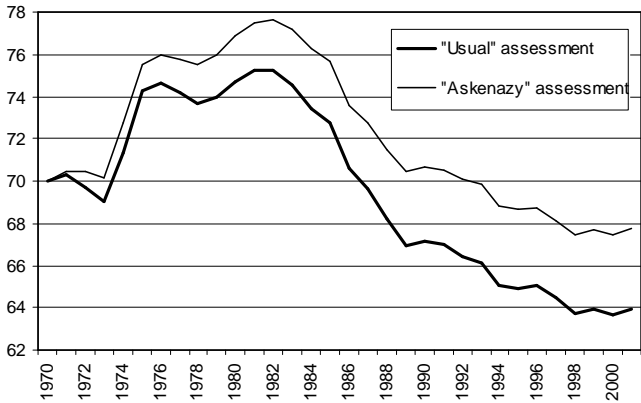
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**Figure 6** Adjusted Wage share in value added,
two different methods of calculation: France, 1970-2001

## 4. THE STRONG EFFECT OF A SECTORAL SHIFT BIAS

Suppose an economy with only two sectors of activity A and B, each of them weighting 50 % of total value added. The wage share of sector A equals to 80 %, the wage share of B equals to 60 %, so that the national wage share equals to 70 %. Suppose now that the weight of sector B grows and reaches 60 % of total value added (40 % for sector A). The national wage share then decreases to 68 % (40 %*0.8 + 60 %*0.6) whereas wage share in each sector remains unchanged. Total wage share decreases only because the economy specializes in the sector which wage share level is weaker. Serres, Scarpetta and Maisonneuve (2002) underline the magnitude of this sectoral shift bias by keeping constant weights of each sector in total value added over time. For that, they just calculate the average weight of each

sector in value added over the period 1970-1995 and estimate each year the national wage share by weighting the sectoral wage shares with this (constant) sectoral structure. Their main conclusion is that this bias explains a substantial part of the wage share decrease observed in many OECD countries for three decades, and that this effect is particularly important in the case of Germany.

In the next section, we apply this method to French and former West German data over the period 1970-2002. Following Serres, Scarpetta and Maisonneuve; we then decompose the evolution of national wage share into two distinct effects: one sectoral wage share evolution effect, and one sectoral composition evolution effect. We also stress out the contribution of each sector to these two effects so as to explain precisely why the sectoral composition effect is so high in Germany.

We suggest two distinct methods to remove the sectoral shift bias:

- As with Serres, Scarpetta and Maisonneuve (hereinafter referred to as 'SSM'), the sectoral weights are kept constantly at their average value over the period we study (1970-2002) (SSM assessment).
- An alternative method consists in keeping the sectoral structure of the initial period[4].

Figures 7 and 8 display the French and West German wage shares after removal of the sectoral composition effect (bias). These results are compared with the Askenazy assessment[5].
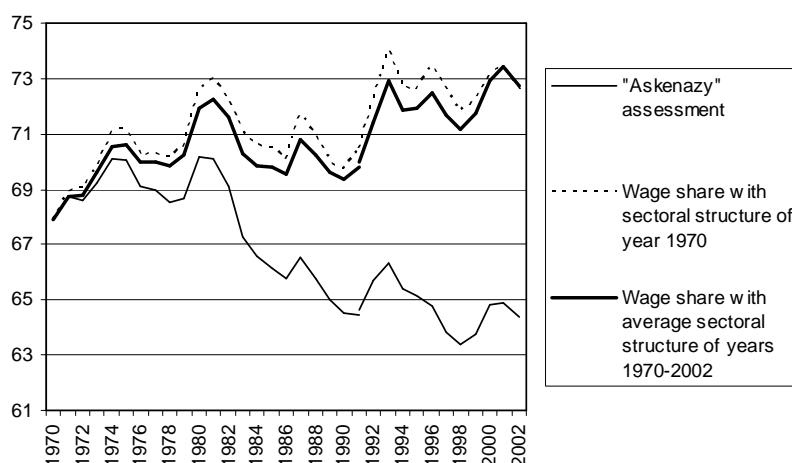
*Insert Figure 7 about here*



**Figure 7** Wage share in value added: Askenazy and SSM assessments
Former West Germany, 1970-2002

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[4] Initial period is 1970 for Germany and 1978 for France. For France indeed, we present the decomposition of the sectoral composition effect only over the period 1978-2002 (data before 1978 come from "base 80" for which decomposition by industry is different).

[5] As there is no available data of FISIM by industry, it is impossible to calculate the weight of each industry (for the SSM method) using value-added after deduction of the SIFIM (Financial intermediation services indirectly measured), which would theoretically correspond to the actual definition of value-added. This is the reason why the denominator of our wage share is the value added (at basic prices) before deduction the FISIM ("Unbereinigt Bruttowertschöpfung" in German national accounts). To get harmonized data, we have taken this same value-added for the calculation of wage share by Askenazy method.
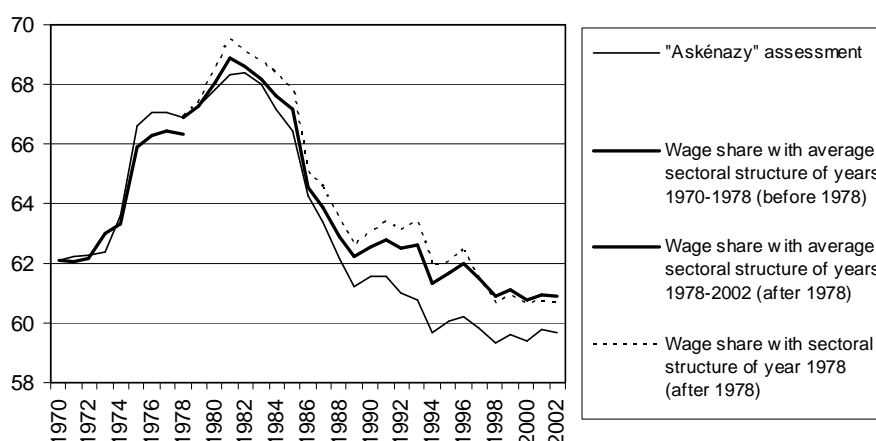
*Insert Figure 8 about here*



**Figure 8** Wage share in value added: Askenazy and SSM assessments
France, 1970-2002

For France, the 1980 based (for the period 1970-78) and 1995 based (for 1980-2002) times series used hitherto unfortunately do not use the same industry classification, so that it is quite impossible to build the average sectoral structure of the all period. Thus, we have built two different indicators for the SSM assessment: one for period 1970-78 and one for period 1978-2002. Over the period 1978-2002, the SSM curve is 1.2 points above Askenazy's curve. Over the period 1970-1978, the SSM curve is 0.6 points *below* Askenazy's curve. For the full period, our conclusion must be cautious the correction induced by SSM method is likely to be pretty low in the French case because of the absence of continuous times series. However, the general conclusion is that the sectoral composition bias is likely to explain at best 1 point (probably a bit less) of wage share decrease over the whole period.

For West Germany, our results are quite similar to those of Serres, Scarpetta and Maisonneuve; nevertheless, the gap between the curve before and after correction of the sectoral composition bias is a bit higher with data on West Germany only. By attributing the same level to all curves in 1970 (see figure 6), the gap between Askenazy and SSM assessments equals 7.8 points of percentage in 1997 and 8.4 points of percentage in 2002, which is very impressive. Instead of a decreasing trend (before correction of sectoral composition bias), we finally get an increasing trend after correction.

Note also that our alternative method to remove the sectoral composition effect overestimates a little the results by comparison with the SSM assessment (at least until the end of 1990s). Nevertheless, it remains a good estimate of the SSM method, since the average gap between these two curves is only of 0.5 points of percentage.

Let us now identify the contributions of the two underlined effects (sectoral wage share evolutions and sectoral composition evolutions) one the one hand, of each sector on the other hand, to the variations of national wage share.

The decomposition of wage share evolutions in two effects has been clearly highlighted by Serres, Scarpetta and Maisonneuve in their article (2002):

$$\text{National Wage Share} = WS = \frac{\sum_i LC_i}{\sum_i VA_i} \tag{1}$$

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Where LC and VA are respectively total labour compensations and value added in sector *i.* So equation (1) can be rewritten as follows:

$$WS = \sum_i \frac{LC_i}{VA_i} \cdot \frac{VA_i}{\sum_i VA_i} = \alpha_i WS_i \tag{2}$$

where $\alpha_i = \dfrac{VA_i}{\sum_i VA_i}$ is the weight of sector *i* in value added of total economy and

$WS_i = \dfrac{LC_i}{VA_i}$ the wage share of sector *i.*

By differentiating this equation over time, we can exhibit two different components:

$$\Delta WS_t = \sum_i \alpha_{i,t} \Delta PS_{i,t} + \sum_i PS_{i,t+1} \Delta \alpha_{i,t} \text{ where } \Delta x_t = x_{t+1} - x_t \tag{3}$$

The first term in equation (3) captures the sectoral wage share evolutions effects, the second term the sectoral composition effect.

To identify the contribution of each sector, we need to modify a little this equation (3). At this stage an increase of the weight of one sector in total value added just brings about a positive sectoral composition effect for this sector. However, we would like to have a positive effect if two conditions are fulfilled: on the one hand, the weight of the sector increases (resp. decreases) and, on the other hand, the wage share of this sector is higher (resp. weaker) than the average wage share of the economy. This is the reason why we slightly modify equation (3): in equation (4), the second term (sectoral composition effect) is now centred around the average national wage share[6]:

$$\Delta WS_t = \sum_i \alpha_{i,t} \Delta WS_{i,t} + \sum_i (WS_{i,t+1} - WS_{t+1}) \Delta \alpha_{i,t} \tag{4}$$

Table 1 displays the result we obtain by using equation (4) to decompose the evolutions of total wage share between 1970 (initial period) and 2002 (final period) in Germany.

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[6] To get equation (4), just note that $\sum WS_{t+1} \Delta \alpha_{i,t} = 0$. Suppose that wage share is the same in all the sectors of the economy (it is then equal to the national average wage share WS). In this case, the evolutions of sectoral composition will obviously have no effect on national wage share, which will remain constant.

*Insert Table 1 about here*

**Table 1** Decomposition of wage share variation, Former West Germany, 1970-2002

| | 1970-2002 | | | | |
|---|---|---|---|---|---|
| | Global Effect by Sector | Sectoral Composition Effect | Sectoral Wage Share Effect | Wage Share Variation | Weight of the Sector in Global Value Added in 1970 |
| | (1) = (2) + (3) | (2) | (3) = (4) * (5) | (4) | (5) |
| Agriculture, Hunting, Forestry and Fishing | -2,4 | -0,7 | -1,7 | -50,4 | 3,3 |
| Mining and Quarrying | 0,1 | -0,7 | 0,8 | 49,5 | 1,6 |
| Manufacturing | 1,8 | -1,7 | 3,5 | 9,6 | 36,6 |
| Electricity, Gas and Water Supply | 0,3 | 0,1 | 0,2 | 10,7 | 2,2 |
| Construction | -0,1 | -0,4 | 0,3 | 3,9 | 8,0 |
| Wholesale and Retail Trade | 0,9 | -0,1 | 1,0 | 9,0 | 11,5 |
| Restaurants and Hotels | 0,2 | -0,1 | 0,3 | 22,2 | 1,4 |
| Transports and Storage and Communication | -0,8 | 0,0 | -0,8 | -12,6 | 6,3 |
| Finance and Insurance | 0,7 | 0,1 | 0,5 | 15,5 | 3,3 |
| Real Estate and Business Services | -5,1 | -5,8 | 0,6 | 6,0 | 10,6 |
| Community Social and Personal Services | 0,7 | 1,0 | -0,3 | -1,7 | 15,2 |
| **Total Economy** | **-3,6** | **-8,2** | **4,6** | **-4,2** | 100,0 |
| **Methods:** | Askenazy | | SSM | Usual method | |

The last line of this table ("Total Economy") confirms the main conclusions drown from Figure 6: the national wage share decrease of 3.6 points between 1970 and 2002 is the consequence of two very antagonistic effects: the "sectoral wage share evolution" effect has increased of 4.6 points over the period but, at the same time, the "sectoral composition evolution" is strongly negative (-8.2 points). Actually, wage share would have risen in most sectors of the economy but national wage share has however decreased because former West Germany has deeply specialized over the period in sectors which wage share was relatively low (this has induced the strong negative sectoral composition effect).

Table 1 allows to identify which evolutions in the productive structure induced this composition effect. From this table, it appears that only two sectors explain the bulk of this effect: "Manufacturing" (-1.7 points, 20 % of total effect) and, above all, "Real estate and Business Services" (-5.8 points), which represents 70 % of the total sectoral effect.

For "Manufacturing", this negative effect is the consequence, as one could expect, of the decreasing weight of this sector in total value added over the period: "Manufacturing" accounts for 23.1% of total German value added in 2002 against 36.6 % in 1970. As manufacturing wage share in 2002 is higher (75.4 %) than national wage share (63.1 %), the sectoral effect is negative.

The sector "Real Estate and Business Services" has been broken down into five subsectors in order to identify which ones explain such an important effect[7]: from this decomposition, it appears that the sole "Real Estate, Rental and Leasing" industry represents more than eighty percent (82 %) of the total effect over the period 1970-91. Finally, "Real estate" would explain more than 50 % (almost 60 %) of the total sectoral effect over the period 1970-2002. Remember that, in national accounting, rents are recorded as consumption by the tenants of a housing service (not as a transfer of income) produced by the owner (and so recorded in value added). Moreover, the value added of this housing service is estimated by the rent paid by

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[7] Such a decomposition was impossible to lead on former West Germany after 1991 (data unavailable); this is the reason why this decomposition has been carried out only over the period 1970-1991.

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the tenant (this is the reason why the wage share level in this sector is quite low: only 4.8% on average over the period 1970-2002). The weight of this sector in total value added increased a lot over the period (from 6% in 1970 to 12% in 2002)[8]. As the value added of this sector goes primarily to capital remuneration (real estate of the owners), the increasing weight of this sector brings about a fall of total wage share (rise of the denominator without modification of the numerator); this fall however does not come at all from any deterioration of employees bargaining power in firms, as Serres, Scarpetta and Maisonneuve had already suggested.

Note that the SSM assessment does not allow to conclude that "wage share in West Germany" did not fall since 1980. The truth is that it did decline; the only thing is that wage share did not decline because of some wage austerity. It decreased only because of sectoral shift.

For France, we have seen that the sectoral composition effect was pretty weak over the period 1970-2003; nevertheless, this weakness may be the consequence of opposite effects (positive or negative) at sectoral level. Because available data over the period 1970-78 come from "base 80" which uses a different sectoral classification, we concentrate here on period 1978-2003. On table 2, we thus compare the decomposition of wage share evolutions between 1978 and 2003 in France and Germany (1977-2002 for Germany).

*Insert Table 2 about here*

**Table 2** Decomposition of wage share variation, Comparison of France and Germany

| | France 1978-2003 | | | Former West Germany, 1977-2002 | | |
|---|---|---|---|---|---|---|
| | Global effect by sector | Sectoral Composition Effect | Sectoral Wage Share Effect | Global effect by sector | Sectoral Composition Effect | Sectoral Wage Share Effect |
| Agriculture, Hunting, Forestry and Fishing | -1,2 | 0,3 | -1,4 | -0,8 | -0,5 | -0,2 |
| Manufacturing | 0,1 | -0,7 | 0,8 | 0,2 | -1,1 | 1,3 |
| Electricity, Gas and Water Supply | -0,1 | 0,1 | -0,2 | 0,2 | 0,1 | 0,1 |
| Construction (incl. Mining) | 0,1 | -0,2 | 0,3 | -0,8 | -0,6 | -0,2 |
| Wholesale and Retail Trade | -2,2 | 0,0 | -2,2 | 0,4 | -0,1 | 0,5 |
| Transports* | 0,1 | 0,0 | 0,1 | -1,0 | 0,0 | -1,0 |
| Finance and Insurance | -0,1 | 0,0 | -0,1 | 0,7 | -0,1 | 0,7 |
| Real Estate and Business Services** | -3,5 | -2,3 | -1,2 | -3,5 | -5,1 | 1,6 |
| Community Social and Personal Services | -1,5 | 0,9 | -2,3 | 0,1 | 0,2 | -0,2 |
| Total Economy | **-8,2** | **-1,9** | **-6,2** | **-4,4** | **-7,1** | **2,7** |
| Real Estate sector*** | -2,8 | -2,7 | -0,1 | -4,0 | -4,0 | 0,0 |

*Including Storage and Communication for Germany.
** Including Restaurants and Hotels for both countries, Storage and Communication for France.
*** Estimated for Germany

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[8] We could think that the bulk of this increase is explained by a price effect, related to an increase of rents more important than price increase of other products. Our data prove quite the contrary: price index of "real estate" increased at the same pace as value added price deflator over the period 1970-2002 in Germany. Indeed, available data on housing clearly suggest that increase of rents stems from a strong volume (maybe quality) effect: higher surface area by inhabitant (higher surface area and fewer inhabitant by housing).

On table 2, we see that sectoral composition bias is quite weaker in France (-1.9 points of percentage) than in Germany (-7.1 points). This difference is explained by two different reasons: on the one hand, and maybe surprisingly, the negative effect of "Real estate" sector is twice bigger in Germany (-5.1) than in France (-2.3); on the other hand, many sectors in France exhibit a positive sectoral effect which partially offset the (prevailing) negative effect: global positive effect equals 1.3 points in France against only 0.3 in Germany. At last, we can notice that the wage share effect, which is positive (+2.7) in Germany over the period, is strongly negative in France (-6.2), especially because wage austerity had been very strong during the 1980s in this country.

## 5. WAGE RESTRAINT IN GERMANY SINCE 2001 WITHIN THE EURO AREA.

Former developments have highlighted the strong sectoral bias in Germany in the long run. Our aim is now to deepen the analysis of the fall of the wage share which has occurred since 1995, on the national level as well as in the industry – a drop that has dramatically accelerated since 2001 – thanks to some larger international comparative data. We then propose an interpretation of the noticed evolution.

### 5.1. Since 2001: a pronounced mark-up effect in Germany.

First, a comparison, extended to the Euro area and the United Kingdom – as an example for a country outside the monetary Union –, confirms the singularity of the strong fall of the unit wage cost which has occurred in Germany since 2001.
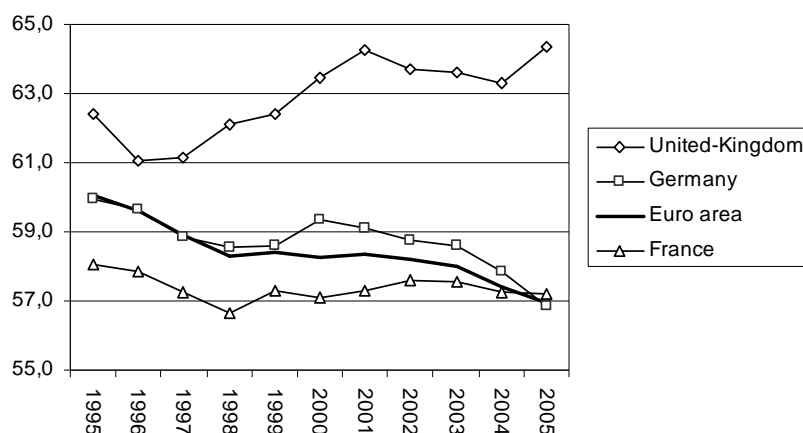
*Insert Figure 9 about here*



**Figure 9** Adjusted wage share (usual method) in total value added (at basic price) in the UK, France, Germany and the Euro area, 1995-2005 (Sources: Eurostat, own calculations)

According to EUROSTAT data, in the United Kingdom the wage share in the value added at factor prices in the whole economy has increased by 2 points of percentage since 1995. If one turns one's attention to the most recent period, since 2000, one can see that the real unit labour cost[9], remained overall stable in France and Italy. It

[9] Which includes however probably itself an unequal sectoral bias according to the countries.

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is therefore the German economy – that accounts for more than a quarter of the Euro area GDP –, which has clearly weighed on the global evolution of the EMU.
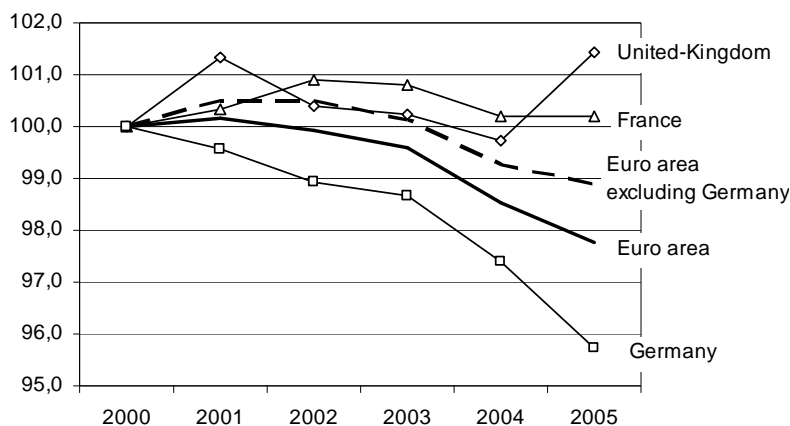
*Insert Figure 10 about here*



**Figure 10** Evolution of real unit labour costs (total economy) in the UK, France, Germany, and the Euro area, 2000-2005 (Sources: Eurostat, own calculations)

Secondly, there are two main reasons to focus now on the evolution of the wage share in industry alone. The first raison has to do with the price-competitiveness of the exports, that is the variation of the unit labour costs[10]. The second raison is related to the effects previously highlighted (increasing part of the employees in total employment and the sectoral bias), which are here neutralized.
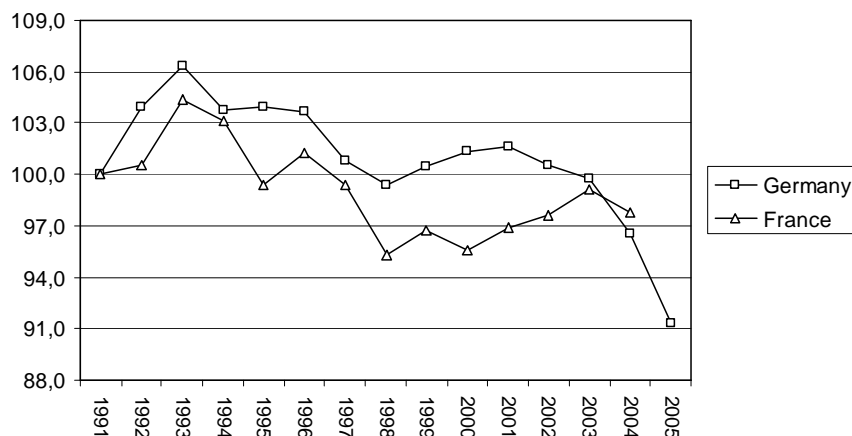
*Insert Figure 11 about here*



**Figure 11** Wage share (= 100 in 1991) in the industry (exclusive of construction), France and Germany, 2000-2005

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[10] Regarding the competitiveness of the French and German exports, two elements are to be considered. First, the main part of competitiveness' variations between the euro area and the rest of the world comes from the fluctuations of the euro exchange rates and not mainly from differences between the national unit wage costs (Artus and Fontagné, 2006). Therefore the cost competitiveness is especially important within the EMU. Secondly, the main difference between French and German (or European) exports relates to the income-elasticity: while that of German exports is high, French exports are not very sensitive to a given increase of the external demand (Gaullier and al., 2006).
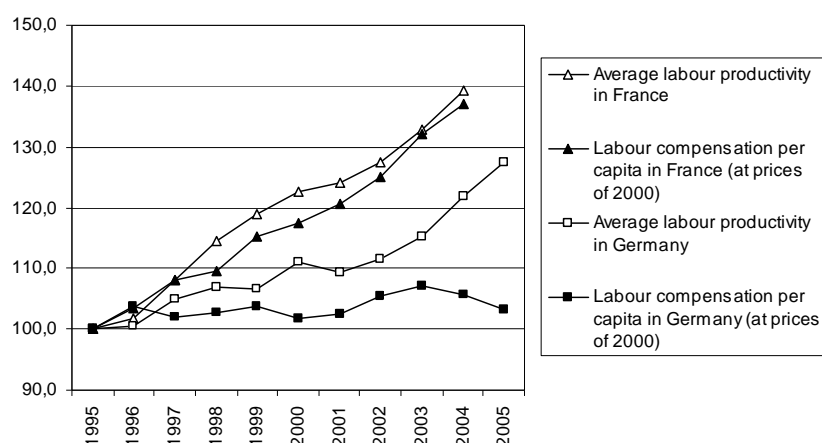
14

*Insert Figure 12 about here*



**Figure 12** Labour compensations (in real terms) and productivity in the industry,
France and Germany, 1995-2005

Due to the impact of the reunification, the wage share in German industry found only in 1997 its level of 1991. It has then increased slightly more quickly than the wage share in French industry until 2003. But the underlying factors are quite different in both cases as the decomposition of the real unit labour cost shows. In French industry the labour compensation per capita has been following more or less the productivity in the long run with slight differences in the short run, which explain the variation of the real unit labour costs. The growth rate of productivity in German industry is lower that of its French counterpart between 1996 and 2002, but it has increased at about the same pace since then. Only the long run stagnation of the labour compensation per capita in real terms can explain the drop of the wage share by 10 points of percentage since 2001, with a very marked "unhooking" of wage costs compared to productivity. In a context of a growing decentralization in wage setting regimes (Heinbach, 2006), the growth of the nominal wage has been particularly weak in the industry as in the whole economy.

### 5.2. A competitive strategy within the euro area.

How can we explain the noted facts? A first grid of interpretation suggests the repercussion of German reunification, understood here as a shock on labour costs. Within this framework of analysis the "wage restraint" – i.e. a growth of the real labour compensation lower than the productivity - in Germany during these last years has just been a long run correction. Moreover this wage restraint is to be welcome: it makes it possible to increase the demand thanks to the creation of jobs and to increased competitiveness. The following increase in the profits is set to boost the investment because the curb of the labour costs makes the investment more profitable (Sachverständigenrat, 2003, pp.361-377)[11]. Without discussing here the underlying theoretical arguments, we would like to pay attention to the logic and to the consequences of this strategy of lasting wage restraint within the EMU. It is a matter of fact that, following reunification, the real wages grew faster than productivity

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[11] See also the recommendations of the Sachverständigenrat regarding the wage policy (Sachverständigenrat 2006, pp. 459-463). For a critical argument, see Fritsche and *alii* (2005, pp. 41-48).

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in the first part of the nineties in Germany. But the correction was achieved at the very beginning of the new century. It is therefore only increased competitiveness that can justify the wage restraint after 2001. But what are the results for the whole euro area?

Considering the limited scope of countercyclical fiscal policy under stability and growth pact and the fact that the common monetary policy aims at stabilizing inflation to a low level for the whole EMU ("one size fits all"), it is well-known that the wage policy takes on greater importance as an adjustment variable, i.e. to mitigate adverse shocks. In this context, cross-sectional investigations show that, contrary to some theoretical predictions, wage restraint has been either unchanged or increased following EMU in the bulk of countries and particularly in Germany (Posen and Gould, 2006) – even if the underlying mechanisms remain the matter of debates. The wages' determinants and the rate of growth of the labour costs however go on to diverge within the euro area (Fritz and *alii*, 2005). Compared to other monetary Unions like Germany before the EMU and the United States, country-specific deviations of unit labour costs from the rest of the currency union are "more pronounced and more persistent" in the EMU (Dullien and Fristche, 2007). These persistent divergences can be attributed, on the one hand, to the "South-countries" of the EMU, where wage policy is above the recommended benchmark[12], and, on the other hand, to Germany which has the opposite case.

The noticed fact in Germany can be characterized as a new "competitive disinflation" strategy within the institutional framework of the EMU (Creel and Le Cacheux, 2006). This kind of strategy was frequently used in Europe before the EMU: national governments used competitive devaluations to improve the competitiveness of their national economies. Since the single currency makes the devaluation impossible, the same results are reached nowadays by wage moderation, reduction of the costs' production and tax competition. The increase of the VAT in Germany in January 2007 to make up for the drop in contributions' rate to unemployment insurance lies within the scope of this non-cooperative strategy within the European Monetary Union. This policy which aims at increasing the contribution of the balance of goods and services to the growth of GDP – until now implemented by the "small" countries of the euro area, where the share of the national production absorbed by partners is high – leads ineluctably to a non-cooperative equilibrium. From this point of view Germany reached its aim with a positive growth contribution of the balance of goods and service around 1 point each year from 2001 to 2006 – as previously for year 2007. The price to be paid was however high with a sluggish growth in the GDP over this period.

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[12] Variation of cost of labor – that is employee compensation per salary earner – should grow like the average productivity plus the inflation target of the ECB. See for instance Fritsche and *alii* (2005).

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*Insert Table 3 about here*

**Table 3** Growth rate of real GDP, contributions to growth, unemployment and inflation rates, in Germany, United-States and Euro area

|  | Germany 2001-2005 | Euro area 2001-2005 | USA 2001-2005 | Germany 2006 [(*)] | Germany 2007 [(*)] |
|---|---|---|---|---|---|
| **Real GDP, annual growth rate, percent** | **0,7** | **1,4** | **2,6** | **2,4** | **1,8** |
| **Growth contribution of domestic demand including stocks, percentage points** | **- 0,3** | **1,3** | **3,0** | **1,4** | **0,9** |
| Growth contribution of private consumption, percentage points | 0,2 | 0,8 | 2,2 | 0,5 | 0,2 |
| Growth contribution of public consumption, percentage points | 0,0 | 0,3 | 0,5 | 0,2 | 0,1 |
| Growth contribution of gross fixed capital formation, percentage points | -0,4 | 0,1 | 0,4 | 0,7 | 0,6 |
| **Growth contribution of balance of goods and service, percentage points** | **1,0** | **0,1** | **-0,5** | **1,0** | **0,9** |

**Sources**: OECD, Forcastings Sachverständigenrat (2006) and own calculations.

Does the 2006 recovery of the German economy mean that this strategy has been durably successful in the long run? A look at the market share and at the balance of goods and services seems to confirm the increase in competitiveness of the German economy[13]. But a more thorough analysis shows that, by assuming that French sectoral structure of exports had been the same as the German one[14], three quarters of the difference in export performance between both countries would have been explained by the higher growth of German exports to the EU from 1998 to 2003. This fact can be explained by a more dynamic domestic demand in France (and in the rest of the euro area) than in Germany (Artus and Fontagné, 2006, pp.31-48). In other words, durable and sluggish domestic growth[15] might explain why Germany has been performing so well overseas. But one may fear that an unchanged wage restraint in Germany will continue to be detrimental for France as for the entire euro area, i.e. in the long run for Germany itself.

## 6. CONCLUSION

In this article, we have compared income distribution evolutions since 1970 in France and former West Germany by removing biases exhibited due to sectoral shifts (de Serres, Scarpetta, Maisonneuve, 2002) or to the approximation of the income of unincoporated enterprises owners (Askenazy, 2003). Three main results have been obtained.

First, for France, the bias emphasized by Askenazy explains a large part of the decrease of wage share (with the usual method) because agriculture remained a relatively important sector in this country in 1970. Once this bias has been removed,

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[13] Energy deficit put aside, the surplus of the trade balance was multiplied by two in Germany from 2000 to 2005 whereas it is remained stable on a low level in France over the same period.

[14] Note that this sectoral difference between both countries explains less than 10% of the gap between French and German exports (see Artus and Fontagné, 2006, p. 35).

[15] 0.7% each year in real terms from 2001 to 2005, with a negative contribution of the domestic demand.

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French wage share in 2002 is 2 points below its 1970 level. The sectoral composition bias suggested by Serres, Scarpetta and Maisonneuve seems to be pretty weak in this country over the period 1970-2003.

Secondly, for West Germany on the contrary, the "Askenazy bias" is very weak, whereas the second one is very strong and completely explains the fall of wage share in this country (see figure 1): if sectoral structure in former West Germany had remained the same as in 1970, wage share would not have decreased of 4 points but increased of 4 points in 2002. Almost 60 % of this sectoral effect stems from the growing weight of "Real Estate" sector in total value-added. By comparison with Germany, the French sectoral composition bias is far lower because of both a weaker "Real estate" effect and, during the same time, a noticeable opposite (positive) sectoral effect in many other sectors of the economy.

At last, biases highlighted above cannot explain the severe decline of wage share for some years in Germany: in accordance with recommendations of several German experts, Germany has been experiencing a severe wage austerity since 2001 (especially in the manufacturing industry), which has been here analysed as a competitive but non cooperative strategy, mainly within the euro area.

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