Results of the Belgian SAM sub-account for labour demand

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Bart Van den Cruyce*, bv@plan.be,

Johan Wera*, jw@plan.be

* Federal Planning Bureau, Kunstlaan/Avenue des Arts 47-49, 1000 Brussels, Belgium[1]

Abstract – The process of producing a Social Accounting Matrix (SAM) for Belgium has been split up into a series of detailed SAM sub-accounts. This paper focuses on the results of the first of these sub-accounts, completed in January 2007. It involves the demand side of the labour sub-matrix, which has been produced for all the years between 1997 and 2005.

For these years, national accounts totals on labour compensation, hours worked and employment were split up by gender, age class, labour regime, type of contract and educational attainment level. Many of these distinctions, including their combinations, were isolated at a detailed industry level, involving more than 140 industries.

[1] The views expressed in this paper are those of the authors and do not necessarily reflect those of the Federal Planning Bureau.

The paper briefly discusses the methodology used to compile these data, but most attention goes to reporting on the results themselves, as it is the first time that such detailed labour results are available for the whole Belgian economy.

Besides the methodology and results, a preliminary analysis of the analytical qualities of SAM labour data is presented together with an attempt to extend the Belgian mid-term outlook with schooling level data. Finally, the gender wage gap is investigated. The labour demand sub-account yields the evolution of the total gender wage gap in the period 1997-2005. Our results are compared to recent results for the gender gap based on survey data for the “market” part of the economy.

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1. Introduction

This paper reports on the results of detailing the demand side of labour. The disaggregation of the employment data is one of the most popular breakdowns that can be integrated in a Social Accounting Matrix (SAM). More detailed labour data can be very useful and the data to make the necessary disaggregations are often available. That is also why this breakdown was the first stage in constructing a SAM for Belgium. Together with the employment, wage costs and hours worked were split up too. All these series are consistent with the Belgian National Accounts and the data supplied for the EU-KLEMS project, a European project to analyse productivity growth at industry level. The EU-KLEMS project comprises a labour accounts module which is in general less detailed than the data presented here, but it focuses on a longer period. Because of the EU-KLEMS requirements, most of the data were immediately compiled for the period 1997-2005.

The Belgian National Accounts Institute for already published in 2000 a methodology for creating a full SAM[1] for the year 1997 as part of the project LEG SAM with 9 member states that was approved by the EU Statistical Programme Committee[2]. Although much of the methodology is comparable to the one described here, we did not use it as a guideline for this project due to changes of the available statistical resources, national accounts methodology, EU-KLEMS requirements and research priorities. Some variables like firm size, were (temporarily) left out in our project, while sometimes more detail was needed, like for example a very extensive industry level.

[1] Instituut voor de Nationale Rekeningen (2000)
[2] Leadership Group on Social Accounting Matrices (2003)

For most of the detail that had to be compiled, we had administrative data sources at our disposal that cover approximately the whole labour population. One can for instance observe the number of employees of the industrial branches and most of the characteristics that are consistent with the national accounts, almost directly in the databases of the governmental social security administrations. For just a few manufacturing industries the total difference is more than 4%. This allowed us to generate reliable data at a very detailed level. For some detailed figures, estimates had to be based on surveys. While using the surveys, we were able to benefit from the totals given by the national accounts and administrative data to enhance the survey data.

In the first part of this paper, we will briefly discuss the methodology. Secondly, we will present the aggregated overall results together with the main trends that can be found in the data. Then we will extend our analysis with a straightforward use of the results. We will thereby use the current Belgian medium-term projections and have a closer look at the gender wage gap. For the latter, we will compare our results with those of a recently published Belgian study of the Instituut voor Gelijkheid van Vrouwen en Mannen (2007).

2. Brief overview of the methodology

Employment, wage costs and hours worked were calculated at a detailed level in a bottom up approach. The comparability of these series was assured by the use of the same sources. In a second stage, they were made consistent with the industry totals of the national accounts. In addition, the wage costs (D1) were split up in wages without social security contributions but with taxes included, the employers' social security contributions and the employees' social security contributions. Whenever it was possible, a cross-tabulation with the following characteristics was made for these series:

- industry (147 industries)
- gender
- type of contract (blue-collar, white-collar, civil servant, self-employed)
- age category: (15-19, 20-24, 25-29, …, 55-59, 60-64 and 65+)
- level of schooling (Primary / lower secondary, Upper secondary, Tertiary short type, Tertiary long type, University)
- kind of sector (private or public sector)
- labour regime (full time or part time)

Sometimes, even more detail was calculated. For instance, separate calculations were made for students working part time and for specific categories of the self-employed. On the other hand, in some cases calculations had to be done at a more aggregated level. Especially for the level of schooling and self-employed data, the available sources did not always provide enough detail.

The detail was primarily compiled on the basis of anonymous social security data sources. We therefore combined the information of two Belgian institutes, one that covers the social security payments of local administrations (RSZPPO) and one that covers approximately all the rest (RSZ) except the payments for self-employed.

For the employment data of the self-employed, the fiscal VAT-data were used first. The VAT-data do not provide much detail, but for the self-employed there are not many other sources and they can provide reliable numbers at a very detailed industry level. The gender and age classes of the self-employed were derived from the Labour Force Survey (LFS), a survey imposed by the European Union and data of the institution that processes the social security payments for the self-employed (RSVZ).

The schooling level of the employees and self-employed was inserted on the basis of the Labour Force Survey and the totals given by the administrative sources. It is not surprising that even the sample of the Labour Force Survey with its ten thousands of observations is too limited to obtain results at the most disaggregated level. Therefore, the LFS data were included by means of nested ordered logit regression. The methodology is described in more detail in a Federal Planning Bureau working paper (2007).

For the wage costs, only data for the employees were drafted in this project. In the EU-KLEMS project limited compatible data about mixed income were collected. For the wages per schooling level, another survey imposed by Eurostat, the Structure and Distribution of Earnings Survey was also used. However, the link between schooling level and wage costs is only available at a more reduced level.

The labour volume concept in the Belgian national accounts corresponds to hours worked. They too have been split up using social security data (RSZ and RSZPPO). No detail per schooling level was made, nor is there any information about the self-employed.

3. Analysis of the results

We will first have a look at the results of 2005 and then have a look at how the figures have evolved.

3.1. Results for 2005

3.1.1. Number of persons employed

Table 1 and 2 give an overview of which characteristics are available for the number of persons employed per year. Some categories, like the industry level, schooling level and age category are already aggregated here, and not much crossed data are shown. All the data can be simultaneously crossed at the most detailed level but the results are of course more reliable on a more aggregated level. The differences between the shares of the characteristics per industry and those of the total economy that can be seen in table 1, indicate that it is meaningful to use a detailed breakdown when analyzing the labour force. Not surprisingly, the construction industry (F) employs only 9% women while industry N+O+P (health, social work, other services and private households with employed persons) employs 74% women and the total economy 46%.

Table1

In fact, table 1 does not contain a lot of unexpected results, except perhaps that some industries, like the energy industry (with 27% workers between 50 and 59) or transportation, postal services and telecom (with 24% workers between 50 and 59), have a significant elder workforce than average (17% workers between 50 and 59). The

interim workers are completely included in industry J+K (Financial, real estate & business activities). Therefore, only by the calculation of indirect input-output effects as has been done for 2000 and 2002 (Van den Cruyce and Wera, 2007), they will be attributed to the industry where they de facto work for. Interim workers represented in 2005 19% of the employees in industry J+K. This does not prevent this industry to attract a lot of high skilled personal, together with public administration, social security & education (L+M) it has the most highly skilled workforce. We can also see in table 1 that the manufacturing industries generally hire more men than the services.

Table 2 presents the shares of the number of self-employed per industry and characteristic. As compared to employees, more men (63% compared to 54% of the employees) and more elderly people (for instance for the category 60+ 14% as compared to 2% of the employees) are self-employed. The self-employed are also more highly skilled (24% as compared to 14% of the employees). The company administrators in table 2 are like the interim workers in table 1, completely included in industry J+K, while their firms are spread over all industries. 23% of the self-employed in branch J+K are company administrators.

Table 2

3.1.2. Hours worked

Table 1 shows that the shares of full time employment fluctuate a lot and that the importance of part time employment cannot be neglected. Only 50% of the women work full time, for men this is 88%. Therefore, the use of hours worked is often

preferred to the number of persons employed. Table 3 presents the shares of hours worked. For the hours worked no information about schooling level is available and for the self-employed no estimations were made.

Table 3

Together with the number of employees, we can calculate the hours worked per person and characteristic. In table 4, the hours worked per person are compared to the total average hours worked per employee. We can see that in 2005 an employee older than 60 worked on average the same number of hours as someone who worked part time, or 74% of the average number of hours, while the average full time employee worked 112% of the hours of the average employee. Blue-collar workers work less than the average (95%), civil servants work more than average (106%). This is mainly due to the fact that civil servants seldom work part time.

If we would only consider the full time employed, we would see that a full time civil servant works just a bit more than a full time employed blue-collar worker (1592 hours per year compared to 1524) and a bit less than a full time employed white-collar worker (1641 hours). As far as the age and hours worked of full timers is concerned, the average hours worked gradually begins to decline at the category of the 35-40 year-old (1614 hours) to the category of the 60-65 year-old (1344 hours) to rise again for 65+. There are also differences in hours worked of a full timer between men and women (1614 compared to 1536), but we will come back to that when discussing the gender gap.

A comparison for 2001 with German data (Schaffer, 2007) and the Dutch national accounts (Centraal Bureau voor de Statistiek (2004)), indicates that the share of women

in Belgium is even quite high. The share of hours worked by female employees amounted to 39% for Belgium in 2001, in Germany and in the Netherlands 36%.

Table 4

3.1.3. Wage costs

Table 5 shows for the wage costs the same data as table 3 does for the hours. We can see that the share of the men (+4%), the elderly, the white-collar workers (+7%) and full time workers (+4%) has increased compared to the data of the hours worked. As already mentioned earlier, the data for the wage costs per schooling level are taken from the EU-KLEMS-project. A reduced 3 type-schooling level was calculated there at a level of 15 industries, 3 age categories, and the gender for the period 2000-2003. The 2003 data are added to table 5.

Table 5

Together with the number of hours worked, we can now calculate the average wage cost per hour worked per characteristic. In table 6, the wage costs per hour are presented as a percentage of the total average wage cost per hour. Industry E (Energy and water) is the best paying industry, paying its personnel 176% of the average wage cost per hour. Women are almost consistently paid less than men. We can also see that part time work is less rewarded per hour than full time work and that a youngster (-30 years old) earns 25% less than the average employee while the average wage cost per hour of the eldest is 26% more than average. We have to be careful with interpreting these results, since a specific group of youngsters continue their education and are not yet included in the

data and we can assume that work by part time, seasonal or interim workers is often different from the work done by full timers.

Table 6

3.2. Evolutions in the period 1997-2005

Despite the short period, some evolutions can clearly be distinguished. Most important are the increase of the share of women and part time work, the ageing workforce, and the rise of the schooling level. The latter will be discussed when refining the Belgian medium-term projections.

3.2.1. Gender and type of contract

Figure 1 shows us that the share women in the wage costs accrued from 33% in 1997 to 37% in 2005. We can see that especially the portion of the white-collar contracts of women rose significantly. The shares of the male blue-collar workers and male civil servants declined, but this is not true for the nominal data.

Figure 1

3.2.2. Labour regime

The second graph we present here shows the growing share of part time employment. The impact of interim work is limited as compared to part time work, which includes seasonal work too. The declining share of full time employment is in fact not due to a nominal decrease of the full time employment, but to faster growing part time work.

Figure 2

Part time work is, taking into account effects of different proportions of women, who work more often part time than men, far more popular for services than for manufacturing. Even when looking at a more detailed level of industries and accounting for gender differences, the same conclusion can still be drawn. It is a bit surprising that this cannot be completely attributed to a different presence of blue-collar workers or legal constraints since there is no obvious reason why for instance the financial sector should make more use of part time work than the food industry. Perhaps it is less convenient to manage a more complex workforce in an industry that depends more on machines. Maybe men also tend to work more part time if there are more part time working female colleagues present in their firm while in the 'male' industries it is more considered to be a bad career move. There is a significant positive correlation between the share of part time work for men and the share of women, but this does not assume that the latter causes more men to work part time of course.

3.2.3. Ageing of the workforce

One of the most apparent evolutions that can be observed is the ageing of the workforce. Although this evolution has been predicted for a long time, it is still worth to mention it here because the impact is quite large and it stresses the importance of the supply side of the labour market that one has to keep in mind to draw conclusions for the future.

Figure 3 presents relative age pyramids for 1997 grouped by four categories of industries and presents the age pyramids of 2005 expressed in 1997 industry totals. Figure 3 clearly shows the relative size of ageing of the labour force per industry expressed in hours worked. We can also see that the industries have coped differently with the problem. In general, service industries were still able to attract youngsters,

while the manufacturing industries appealed less to youngsters and got partly rid of the eldest group. The construction sector seems to have made use of its personnel a bit longer, but services do better in that way. The evolution for agriculture is not that relevant, since agriculture represents only a small part of the workforce and the increase of the employed is completely undone by the decline of the self-employed who are important for that industry but are not included here.

Figure 3

4. Towards using the labour data for projections

Naturally, we are not only interested in evolutions of the past or the current state of the workforce, we would also like to know how the structure of the workforce will evolve. But we cannot just extrapolate the current situation.

4.1. Possibilities of extrapolation

If we want to project the characteristics of the employees, we have to take into account that labour-output ratios can fluctuate. Table 7 shows that assuming a constant output per hours worked ratio even for one year can easily result in deviations of several percentages. For the period 1997-2005 the output per hour worked increased by 31% for the total economy. Correcting output for price changes reduces it to 12%, but it does not eliminate the whole difference. The ratio output per wage cost is not constant either and fluctuations seem less gradually than the adjusted output/hours worked ratio. Some correction seems necessary to account for productivity changes.

Table 7

As far as the characteristics of labour are concerned, they are even less likely to evolve proportionally to the output. This is of course linked to the trends in the SAM labour data. Besides that, the characteristics of laid-off workers can be very different from the workers that are hired. Let us consider the age categories. The total workforce has grown with approximately 200,000 persons during the period 1999-2005. If the workforce would have had still the same age structure as in 1999, it would have counted for example almost 60,000 persons less between 45 and 50 in 2005, a deviation of more

than 10%. For the lowest schooling we even obtain an overestimation of more than 100,000 workers or 22% deviation. Moreover, the differences between hired people and people that left are significant. Companies do not always tend to hire the same type of people as they would target in case of lay-offs. And due to an ageing population, even in the industries with a growing workforce, there was a decline of the 25-29 year-old during the period 1999-2005, while a simple linear extrapolation would imply the structure of the laid off workforce in case of a decline to be the same as the structure of an increasing workforce. But not only for the age categories, increases of the workforce are no mirror images of decreases. Besides an ageing population, there is also a strong growth of the white-collar workers, an increase of part time work and a declining share of low-schooled labour. For these and some other trends it is not suitable to assume that even for a short period of a few years they will be more or less constant.

4.2. Validity of the free capacity-assumption

Another assumption that can be made when making forecasts is that there is enough free capacity to generate extra production. As shown in table 8, there was in general a 7.5% extra labour input free for 2000 (and 9.3% in 2005). If one analyses the free capacity at the level of schooling, it becomes clear that there are not always that much spare labour inputs available. At university level, there was merely 3.5% available in 2000 (and 5% in 2005), and we can assume that for some specific categories like civil engineers, the free capacity will be almost zero.

Table 8

Additionally, there are large regional differences in the Belgian unemployment data. The unemployment rate in one region is more than twice as high as in another region and even within a region the same kind of differences can be found between provinces. Therefore, it is unrealistic to assume that any extra final demand can be met without a reduction elsewhere. It also points out that employment policy measures designed for specific groups have to be used to reduce unemployment and that it might be useful to make use of projections that already incorporate a confrontation of labour supply and demand estimates.

4.3. Schooling levels and refining the Belgian medium-term projections

We can use the SAM labour data to refine the Belgian medium-term projections[3] based on the Belgian macro-sectoral Hermes model[4]. The model gives results for 16 industries and allows incorporating price and productivity changes in the SAM data at that level. A distinction between high and low paid workers is made in the model, but it does not include schooling levels. However, the schooling level is one of the most interesting variables to use since high skilled people are difficult to substitute for low skilled workers. Gender, age or labour regime cannot offer such a clear distinction. The difference between blue-collar and white-collar offers also a similar barrier, but is not available for the self-employed and civil servants.

According to the medium-term projections, employment will increase by 207,000 jobs over the period 2005-2010. We can apply the shares per schooling level per industry of 2005 to obtain estimations of changes per schooling level and industry. While schooling

3 Federal Planning Bureau (2007)

4 Bossier F., Bracke I., Stockman P., Vanhorebeek F. (2000)

levels do not remain constant over time, the evolution of the schooling levels has been more stable, as can be seen in table 9. The table has to be interpreted as follows: the share of the employed with only a primary school degree of 2001 is 96.6% of the share of 2000, so there is a decline of 3.4%.

The fastest growing group is that of those with a degree of the tertiary short type, followed by the tertiary long type group. Although the upper secondary category has grown a lot in absolute terms (+137,000), it cannot compensate for the decline of the primary (-75,000) and lower secondary type (-107,000). Thus, in 2005 as compared to 2000, not only more people that had graduated with a better degree were hired, but also more people that had continued their education.

Table 9

The same rise of the schooling levels can be noticed in the data per age category. On the basis of those data we can see that the replacement of elderly people by younger higher qualified people has certainly not finished yet. For example, 14.7% of the 25-30 and 30-35 year-old had a university degree in 2005, whereas for the age category 45-50 only 10.1% had a university degree. For the eldest categories, the share begins to rise again, but this seems to be due to the longer career of the highly qualified, which, together with the fact that the categories of the youngest coincide with higher education, makes it difficult to estimate precise effects of ageing with those data. As a result of the continuously rising schooling level, it is desirable to extend somehow the evolution per schooling level towards 2010.

We can also have a closer look at the evolutions at industry level as presented in table 10. It is remarkable that the health industry is the only industry that has been

characterized by a drop of the schooling level: for example, the share of the workers with a university degree of 2005 has fallen to 89% of the share in 2000. This does not mean that there was a decline of the workers with a university degree. In absolute terms, their number even slightly increased, but not as much as that of most other categories in the industry. We also have to note that the number of health care workers is expected to grow by 13%, the second largest increase of an industry according to the projections and that due to ageing, it will probably remain a key industry long after 2010. The share of workers with a primary or lower secondary degree did not grow in any industry, except for the special case of domestic servants. The strongest growth of highly qualified workers was achieved in agriculture, but the absolute numbers are very small there.

Table 10

It is often claimed that international competition leads to job losses, and that especially the low skilled workers will suffer from imports. However, we have not found any significant evidence at a detailed industry level that industries with more low skilled workers grow in terms of employment significantly slower, even when distinguishing non EU-imports from EU-imports. It is true that the fastest growing industries, that all belong to the service industries, tend to attract more people with a university degree. Net job creation and destruction is quite concentrated in certain industries. At the most detailed level, there were 74 industries with a growing workforce in the period 1999-2005 accounting for 326,000 extra jobs, while 67 branches, representing a decline of 126,000 jobs, shrank. The top 10 nominal growing industries created 221,000 jobs,

while the bottom 10 declining industries in terms of employment realized a loss of 68,000 jobs.

Table 11 presents the projections per schooling level assuming that the shares of schooling per industry will evolve during the period 2005-2010 in the same way as between 2000 and 2005. In a second part of the table, the comparison is made between the current situation and these projections. A third part of table 11 indicates the part of the hypothesis of evolving schooling level shares in these projected changes. The hypothesis of constant shares can be expressed as follows:

$$L_{ij2010} = L_{i2010} \bullet \frac{L_{ij2005}}{L_{i2005}} \qquad (1)$$

with L = employment, i = industry and j = schooling level. And the hypothesis of evolving shares can be in a simplified form represented as

$$L_{ij2010} = L_{i2010} \bullet \frac{L_{ij2005}}{L_{i2005}} \bullet \frac{L_{ij2005}}{L_{ij2000}} \qquad (2)$$

but to avoid that the sum of the evolved shares does not equal 100% we multiply this by

$$\left(\sum_{j=1}^{n} \frac{L_{ij2005}}{L_{i2005}} \bullet \frac{L_{ij2005}}{L_{ij2000}} \right)^{(-1)} \qquad (3)$$

An estimation of the unemployment, based on how schooling levels of the unemployed have evolved, is added at the bottom of the table. Changes in unemployment are not projected to supply the major part of the workers needed for the employment growth, despite the 9% decrease of unemployment. The growth of the workforce, due to

different factors such as a higher participation of women and pension reforms, will be more important.

All the changes in activity rates, unemployment and population structure were included in the model, except the schooling level. So how about the changes per schooling level? The expected rise of qualification levels at the supply side should not be a problem. Companies often complain that high-skilled workers are hard to find. The demand per industry can be more problematic. In most industries the changes appear to be easily attainable. The largest changes will take place in “other market services”, with perhaps just a few fast growing branches which will have difficulty to find the people they need. The 23,000 extra jobs for holders of a degree upper secondary in the construction sector will also pose some problems due to the fact that most of these extra vacancies will have to be filled with people without a degree with main subject construction, since a higher schooling levels implies less construction degrees in Belgium.

But the health and care industry will probably face most bottlenecks. Assuming schooling level shares will evolve in the same way as in the period 2000-2005, the health and care industry will need 26,000 extra workers with a tertiary short type degree (of which a lot of nurses), as can be found in the second part of table 11. In addition, medical professions are very specific. Without a major vocational training, personnel cannot be transferred from most of the other industries. What is more, the health and care industry in Belgium is already facing shortages of nurses. In the third part of the same table we can see that 8,000 workers of the estimate can be attributed to the changing schooling shares. So even if the shares would evolve somewhat differently, the extra jobs would imply large changes in the mains subject of many graduates.

Table 11

According to the projections made in the Hermes model the activity rate of women between 15-64 years old will grow between 2005 and 2010 only almost half as fast as between 2000 and 2005. Unfortunately, the vast majority of the health and care workers are women. Assuming the same growth of schooling levels as between 2005 and 2010 will probably be a bit too optimistic. The importance of a higher participation of women can be estimated by investigating the changing activity rates of women given by the Hermes projections. For 2005-2010, approximately a quarter of the growth of the working population is due to a higher activity rate of women according to the projections. Based on 2010 projections with constant schooling level shares, it ranges for the four lowest schooling levels between 27 and 30%, whereas the effect is a bit smaller for the categories tertiary long (20%) and university (17%). Taking into account that for the tertiary short type schooling level in 2005 24% of the women and 2.8% of the total population chose to work in the health care industry and that 30% of the growth of the working population is due to the specific effect of a higher participation rate for that degree, we can expect an increase of approximately 10,700 people. Adding a 4.5% growth due to a larger share of the schooling level in 2010 results in 11,200 extra tertiary short type schooled people in the health care industry, or 15,000 short compared to projections with schooling levels growth like in 2000-2005 and 7,000 short with fixed shares.

5. The gender wage gap

5.1. Comparison with the IGVM–SES results / the effect of hours worked and part time work

The gender wage gap is the second thematic issue treated here. A recent report on the wage gap between men and women published by the Instituut voor de Gelijkheid van Vrouwen en Mannen (IGVM, 2007)[5] has received quite some attention in the national press. The report shows the gender wage gap in monthly gross wages and gross hourly wages for full time and part time workers. Its figures are based on the results of the Belgian Structure of Earnings Survey (SES).

Gross wages differ from the national accounting concepts of "compensation of employees" (D1) or "wages and salaries" (D11). Like wages and salaries, gross wages exclude employers' social contributions (D12), but they are restricted to monthly wages and do not include holiday pay, dinner-cheques, thirteenth month or extra legal advantages like laptops, company cars, mobile phones or contributions to private insurance or pension plans[6]. All these are included in labour compensation costs (D1) and wages and salaries (D11).

A second difference with our wage data is that our results cover all industries, while the IGVM study is restricted to industries C to K, which include manufacturing and most market services. This is because the Structure of Earning Survey excludes employees in

[5] This report is a joint effort of the Instituut voor de Gelijkheid van Vrouwen en Mannen, the Federal Government Service Employment and the Algemene Directie Statistiek en Economische Informatie. The latter organizes the Belgian Structure of Earnings Survey.

[6] The SES does include premiums like those for work in shifts, night- or weekend work (Fiers (2007)).

agriculture and fishing (NACE sections A+B), and more importantly, the public and services industries from NACE section L to P. The survey, organised at the firm level, also excludes employees working in firms with less than 10 employees at sampling time.

Despite its shortcoming, the results of this carefully written study are a good reference point[7] and we will try to provide figures that are closely comparable to it, while providing some more results. Figure 4 shows the evolution of the gender hourly wage gap for the period 1997 to 2005 in both the SAM and the IGVM study. The underlying wage concepts for the SAM–based wage gaps are the "wages and salaries" (D11), that for the IGVM the gross wages.

Like the IGVM, the hourly wage gap is expressed as the percentage difference between male and female wages, with the first in the denominator. The wage gap for all employees in all industries is being represented by the filled squares line in figure 4. It decreases over time. In 1997 this wage gap equalled 18.1%, while in 2004 and 2005 it is down to 15.4% and 14.6% respectively. The exact figures can be found in table 12.

Figure 4

The IGVM does not present an hourly wage for full time and part time workers combined, so a comparison can only be made within the categories of full time or part time employees.

[7] One of the advantages of the IGVM study is that its gender wage gap can be compared internationally based on SES data in other European countries. Another advantage is that it has data on individual employees. Thus, the influence of individual characteristics like marital status and number of children could be found.

First consider the results for the full time workers. The line most comparable to the dotted line that represents the hourly wage gap for full time workers based on the structure of Earning Survey in the IGVM study is that for full time employees in the industries C-K.

In the SAM, the wage gap for full time employees in the industries C-K equals 15.1% in 2004 and 14.7% in 2005. The IGVM study reports an hourly gender wage gap of only 12.9% for full time employees in the year 2004. Since the wage concepts are different, the wage gap should not be exactly the same.

While for most years the gender wage gap among full time employees tends to be smaller in the IGVM data, the figure for 2003 shows the opposite results. The relative instability of the gender wage gap in the IGVM results can be attributed to the fact that the IGVM wage data are survey based, while the gender differences in the SAM are based on almost exhaustive administrative (social security) data for private and public sector employees.

Table 12 reports the exact wages behind figure 4. It shows that the hourly wages and salaries are higher than the gross hourly wages the IGVM reports for full time workers, as could be explained by the exclusion of a number of benefits in gross wages. Table 12 also allows a comparison with the IGVM results in terms of monthly[8] wages and salaries per head.

Table 12

[8] Wages and salaries in the SAM have been made monthly by dividing annual wage data by 12.

It shows that both in the SAM and the IGVM study, the gender wage gap in wages per head exceeds the one in wages per hour. Even among full time workers, it is important to correct for the number of hours worked. For full time workers, the gender wage gap falls from 15.4% to 11.6% in 2005 once one corrects for the smaller amount of paid work offered by female employees (see further in table 13). An even larger effect of the hours worked can be observed among part time workers where the gender wage gap is reduced from 13.1% to 7.1% in 2005.

Still, the hours worked do not explain all the gender differences, and have been less important in the industries C to K. In these industries, the hourly wage gap remains 14.7% for full time workers and 9% for part time workers. This result is close to the 9.8% reported by the IGVM for 2004 on the basis of the Structure of Earnings Survey.

In figure 4, the wage gap for full time workers in industries C to K is close to that for all employees in all industries. In 2005, the corresponding gender wage gaps are respectively 14.7% and 14.6%. However, this is the result of two large opposed effects. If one considers the wage gap between all types of employees in industry group C to K, the gender hourly wage gap increases to about 18% in 2004 and 2005. If thereafter, one shifts from industries C-K to all industries, figure 4 shows that the effect of joining labour regimes is more than undone.

Thus, joining all labour regimes increases the hourly gender wage gap, while including the public sectors L to P reduces it. The reason why the hourly wage gap is higher for all employees is the fact that (both male and female) hourly wages for part time workers are significantly lower than those for full time workers and that a higher share of women works part time.

From table 12 we already know that as much as 50% of the female employees work part time while this is only the case for 12% of the men in 2005[9]. The hourly wage differences between part time and full time workers are shown in table 12. They are impressive, particularly for men, where in 2005, full time workers hourly earn 24.14 euros per hour, which is 4 euros more than part time male workers. For women, part time work led to an hourly wage reduction of 2.65 euro. As a result, the gender wage gap is smaller for part time work, but still exists with men earning 20.14 hourly, while women only earn 18.70.

Like the IGVM (2007, p 9) we conclude that part time work and wages are interconnected. This may be caused by a negative effect of part time work on the carrier of an employee over the (following) years.

It also results in an increased hourly wage gap between all male and female workers. Compared to the IGVM we find a larger influence of the fact that women work more part time. Consider table 12, where the total wage gap falls back from 14.6% in 2005 to only 11.6% for full time and 7.1% for part time workers. This is a much larger effect than the 9.4% of 46% explained reported by the IGVM[10]. This can be attributed to the non-inclusion of the industries L-P in the Structure of Earnings Survey, since the share of part time work is highest in these industries (see table 12).

The high share of women that work part time may even have a negative indirect effect on female wages in full time jobs. Women that apply for full time jobs or promotions can be discriminated because employers may (correctly) fear that women have a higher

[9] Recall that in our data, part time work includes seasonal and student work.

[10] Based on the survey data of 2004, the IGVM reports that 46% of the gender wage gap can be "explained" by variables like the region of employment, part time work, the type of contract (duration), the profession, the presence of

tendency to leave full time employment at some later point in time. Such discrimination against women should not be expected between part time workers. The fact that gender wage differences between full time employees are larger than those between part time workers could confirm this idea.

In the following sections we will look at the impact of other variables on the gender wage gap. These are the social security contributions, the employers industry, the workers age class, type of contract and formation level.

5.2. The impact of social security contributions on the gender wage gap

The wage concept used in table 12 and figure 4 was that of "wages and salaries" (D11). This excludes employers' social contributions, but includes social security contributions paid by employees (D6112). Both types of contributions have been allocated over all categories of employees. Thus it is possible to compute the gender wage gap for three wage concepts: wage costs or compensation of employees (D1), wages and salaries (D11) and wages and salaries minus contributions paid by employees. The latter still include direct income taxes.

Figure 5 gives the gender wage gap for each of these wage concepts for the period 1997-2005. It shows that the shifting from wage costs (D1) towards net wages reduces the gender wage gap. Subtracting employers' social contributions and social contributions paid by employees from wage costs both have the effect of reducing the wage gap by about 1% point.

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children in the household or the marital status, within firm experience and education level. The authors warn that explaining the wage gap partly by such variables does not imply accepting it.

Figure 5

Social contributions can have this favourable effect on the gender wage gap because they have on average been smaller for lower wages in the period 1997-2005.

5.3. The impact of the industry on the gender wage gap

When discussing the impact of industries on the wage gap between men and women, it is important to include all industries.

In the IVGM study no figures could be given for the industries A+B and L to P. Together the newly included industries represent no less than 53% of female employment! This can be seen in table 13, where the last column shows the industry share in the total number of female employees. Table 13 also gives hourly wages for female and male employees, the gender hourly wage gap and the share of women in the hours worked (labour volume) and in the number of employees within each of 33 industries.

Table 13

The new industries include public administration, education and health and social work. In these industries, that hold 46% of female employment, the gender wage gap is average (public administration) or smaller than average (Education and Health and social work). Because the wages in these industries are close to average, and in the case of education higher than average, these industries have had either little (Public administration) or a reducing effect on the general wage gap (Education and Health and social work).

In the private households with employed persons (industry P) there are almost no wage differences between women and men. However, because of its very low hourly wages, and the high share of female workers, this industry has in fact contributed to the total wage gap. If it is left out, the total wage gap would fall back from 14.6% to 13.5% in 2005.

Of the new industries, Agriculture and Other community social & personal services, industries with a lot of small employers, have gender wage gaps that are higher than average.

We conclude that for evaluating the total economy wage gap it is important to include all industries. The general effect of including the industries L to P and A+B is to decrease the wage gap by 3.3% in 2005 (as can be seen in table 12).

Since we have data on all industries, it is interesting to look if the distribution of women over industries can explain an additional part of the gender wage gap (a first part being explained by the differences in labour regime). Therefore we computed the average hourly wages female employees would earn if they were paid the wages of the male employees in the industries, and vice versa.

If female employees would receive the wages of men, but remained in the same industries and labour regimes, their average hourly wages for 2005 would equal 23.95 euros. This is more than the average hourly wages of 23.85 euros that men received in 2005! Vice versa, if men remained in their industries and labour regimes, they were to receive 20.38 euros. This is hardly more than what women receive hourly (20.32 euros).

Thus, contrary to widespread beliefs, the average female employee cannot improve her position relative to men by seeking employment in another industry! This conclusion is different from that in the IGVM study, where 9.1% of the “explained” wage difference was attributed to the industry of employment. Again, this difference in result may be caused by the non-inclusion in the Structure of Earnings Survey of large employers of women with a small wage gap, like the Education and Health and social work industries.

5.4. The impact of the age class and type of contract on hourly compensation costs for men and women

From section 1.3 we know that differences in the allocation of women and men over industries do not contribute to the explanation of the wage gap. Thus, it is the wage formation process within firms and industries itself that is responsible for it. Indeed, from table 13 one can learn that out of 33 industries, the gender wage gap is only negative in 2 industries (both with very few female workers), and less than 5% in only two (low pay) industries more (Postal & courier services & Private households with employees).

We already discussed the influence of part time work. Here we will present the wage formation process by showing how wages evolve as a function of the age class of employees. Because the wage formation process differs significantly between blue-collar workers, white-collar workers and civil servants, distinct figures are given for these three groups.

Figures 6 and 7 give the Compensation of employees (D1) per hour for male and female blue-collar workers, white-collar workers and civil servants in 2000 and 2005. Here, blue-collar and white-collar workers include public sector workers that are no civil servants. Workers aged less than 20 years and more than 65 are left out in the figures.

Figure 6

Figure 7

The effect of the age class on average wages and the gender gap depends heavily on the workers type of contract. For blue-collar workers, wage costs per hour show little (men) or no (women) progress as a function of the employees' age class. The gender wage gap is present from the age group of 20-24 years old, but only increases slowly thereafter and even decreases from the age of 50 years.

In contrast, for white-collar workers, labour compensation increases sharply with age for men, and only mildly for women. As a result, the gender wage gap increases heavily with age among white-collar workers.

Thus, while men in white-collar functions seem to benefit from experience, this is much less so for women. This results in a very large wage gap over the years. Of course, the qualification of a white-collar worker does not say much about the type of function, nor the industry of employment. In this respect, the groups of blue-collar workers and civil servants can be expected to be more homogeneous than that of white-collar workers.

In contrast to white-collar workers, for civil servants there is only a gender gap in favour of men for the age groups 55-59 and 60 to 64. For all other age groups there is either no gender wage gap, or one in favour of women!

A part from some subtle improvements in specific points, the relation between the gender gap and the age of men and women has been stable between 2000 and 2005. Thus there seem to be no strong generation effect that would dye out by the automatic replacing of older by younger workers. The factors that cause the wage gap seem more related to specific ages rather than generations.

Consider the inversed gender gap among civil servants less than 55 year-old. As wages for civil servants are determined legally in a way strongly linked to the formation level, their employers might have less freedom to discriminate against women than those of blue or white-collar workers. The remaining opportunities for discrimination would be in promotions and management functions. This could result in the (re-)appearance of a gender wage gap in favour of males from the age of 55 onward.

But this still does not explain why average wages for female civil servants are higher than those of male civil servants. The most likely explanation for this is that, on average, female civil servants have a higher formation level than males. Again, Education, with high formation levels & wages and a female dominance (68% of the employees in Education are women, see table 13) may have played a major role here. On the other hand, industries like Transport services and Postal and courier services employ a large share of low skilled male civil servants.

Thus, the absence of a gender wage gap among civil servants aged less than 55, does not imply that there is no gender wage gap in public sectors. Table 13, shows that there is still a gender wage gap in Public administration, Education and Health & social work of respectively 14%, 11% and 9%. As shown in table 12, these industries do not only

employ civil servants, but also blue or white-collar workers with a private type of contract.

5.5. The impact of the formation level on wages & the gender gap

In the SAM sub-account wage costs (D) have been allocated over three formation levels for the period 2000-2003. This was done using the Structure of Earnings Survey data for industries C to K and the Labour Force Survey for the other industries (Fiers, 2007). A distinction is made between low skilled (no ed.+ lower ed. + lower secondary ed.), medium skilled (Higher secondary ed. + post secondary not high ed. + short type high ed.) and high skilled (Long type Higher ed.+ university ed.).

The survey data have been used only to compute annual skill premiums of these three formation levels by industry, sex and major age classes (Fiers, 2007). The allocation over formation levels respects the allocation of wage costs over sex, industries and the three main age classes (15-29, 30-49, 50 and more) in the rest of the SAM sub-account. The latter is expected to be more reliable, because it is based on (exhaustive) administrative data.

The wage data in the Labour Force Survey (LFS) have been made comparable with those in the Structure of Earnings Survey (SES) by applying transition coefficients from net wages (LFS) to gross wages (SES) per major age class and education level[11].

In figure 8, we give labour compensation costs (D1) per head for men and women working in the manufacturing sector for the year 2003. Figure 9 gives the same for

[11] These transition coefficients are based in data for the industries C to K with net wages from the LFS and gross wages from the SES (Fiers, 2007). Implicitly this approach also corrects for the possible effect of the low response on

Public administration, education & health industries. The skill premiums in manufacturing are based on the SES, those for the services L, M and N on the LFS.

Figure 8

Figure 9

The figures give wages per head, because labour volume data (hours) have not yet been allocated over formation levels. To see the possible effect of part time work on the gender wage differences, the figures also show the % of women that work part time and the percentage differences between this and that for male employees. The percentages can be read on the right axis.

The figures demonstrate that in wage costs per head there is a gender gap in favour of men in all considered industries, skill levels and age classes. In both manufacturing and the public services, the gender gap is smallest for high skilled employees under 30 years of age. Except for low skilled workers in manufacturing, the gender wage gap is smaller for employees younger than 30.

The wage gap per head tends to increase with age in all formation levels. A higher formation level has a positive effect on male and female labour compensation costs, but does not necessarily reduce the gender wage gap.

The group of high skilled employees younger than 30 years is not only the group with the lowest gap in wages per head, it is also the group with the lowest fraction of part time workers. For all formation levels in both industries, the group of women aged 30-49 has a higher share of part time workers than that of women aged 15-29 years. This

net wages in the LFS: only half of the respondents (employees) gave information on their net wages in the LFS.

increase is typical for women, since the share of men working part time often drops after 30 years as indicated by the steeper slope of the curve indicating the difference in % part time workers between women and men.

Thus, it is likely that there is a direct link between the gender wage gap in wage costs per head and the gender difference in part time work. Indeed, for all formation levels the gender wage gap increases when going from age class 15-29 to 30-49.

In manufacturing the share of part time work increases further among women of all formation levels in the age group of 50 years or more, while it decreases in the industries L, M and N. In manufacturing the gender gap in wages per head also rises further for 50 and older, which seems less the case in the public sector.

Given the results on wages per hour shown earlier for both manufacturing and the three public sectors, it is unlikely that the difference in part time work can explain the full gender wage gap, but it certainly explains a part of the differences in wages per head.

6. Conclusion

This paper reports on the results of the SAM sub-account for labour demand. It is the first time that Belgian national account data on wage costs, salaries and hours worked have been split up by gender, age class, labour regime, type of contract and educational attainment level at a detailed industry level.

Hours worked per employee and wage costs per hour can be calculated and analyzing these variables can offer useful insights. We are now able to see to what extent industries are affected by an ageing workforce, compare characteristics of the self-employed with those of the employees, identify the best and less paid workers or differentiate industries by their needs of high skilled workers.

We have demonstrated that the wage costs, hours worked and workers are characterized by an increase of the share of women and especially female white-collar workers, part time work, an ageing workforce, and the rise of the schooling levels.

These changes do not simplify the use of the SAM labour data for projective purposes as do changes in productivity rates and the limited free capacity of the high skilled labour inputs. Taking into account the supply side limitations, productivity and price changes was needed to avoid erroneous projections, even on a term of a few years. The SAM labour data can be used to refine projections based on a macro-economic model as was illustrated by adding our schooling level detail to the Belgian mid-term projections.

The distinction between male and female employees allowed computing the gender wage gap in terms of hourly wages for the years from 1997 to 2005. It is original and

promising to approach the gender wage gap using this SAM sub-account for labour demand.

A first advantage of the SAM framework is that it offers data on the whole economy. Earlier studies that have attempted to estimate the gender wage gap have been seriously hindered by the fact that their survey or administrative database only covers a part of the economy. This is the case for the Structure of Earnings Survey that excludes large female employers like Public administration, Education and Health, social work and other services. Not being hindered by the volatility of survey data, the SAM sub-account for labour demand also yields more stable results for the gender gap and hourly wage costs in the period 1997-2005.

The second advantage of the SAM framework is that it is directly linked to the national accounts and its concepts. The existence of national account totals of wage costs (D1 or D11) or hours worked by detailed industry allows combining different administrative data sources (like RSZ and RSZPPO). These concepts can be compared to other national account data like output, value added or the input-output or SUT tables.

A possible drawback is that the SAM sub-account no longer has individual data on workers. Therefore it is important that gender can be crossed with other variables including the labour regime, the type of contract, the age class and the formation level at the industry level.

Our results are interesting in their own right. We confirm the existence of a decreasing gender gap in hourly wages. For all employees in all industries, the gender gap in hourly wages fell back from 18% in 1997 to 14.6% in 2005. Among full time workers the

gender gap in hourly wages is 11.6% in 2005, while among part time workers it is only 7.1% in 2005.

Part time work, that includes seasonal and student work here, has had a big influence on the overall hourly gender wage gap, since part time workers receive significantly lower hourly wages, and a much larger share of the women (50%) work part time than men (12%).

The inclusion of Public administration, Education and Health services in the data has had the effect of reducing the gender gap in hourly wages (by about the same amount as part time work increased it). In contrast to the results reported by the IGVM, we find that the different allocation of men and women over industries does not help to explain the gender wage gap. Within practically all industries a gender wage gap remains, and a larger frequency of women in some low wage industries is offset by a higher frequency of men in other low wage industries.

The gender wage gap is lower when labour compensation costs are reduced with social security contributions paid by employers and employees, possibly due to measures aimed at reducing social security contributions for low paid workers.

For blue-collar workers, the gender wage gap is present and large from the age class of 20-24 years, but it does not increase much afterwards. For white-collar workers, there is no gender wage gap in this age class, but a large and steeply raising one thereafter. Yet, a different pattern can be observed among civil servants, where hourly wage costs of women even slightly exceed those of men, except for the age classes between 55 and 65 years, where the gender gap reappears.

The SAM labour data are hampered by the lack of hours worked by skill level, but we do find that wage costs per head increase with the educational attainment level, while part time work decreases with it. Both in manufacturing and in the Public administration, Education and Health industries, the gender gap in wages per head among high skilled increases sharply in the age class of 30-50 years. This goes along with an increase in part time work for women compared to those below 30 years, an increase that is not observed for men.

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Table 1 Shares (%) of the employees per characteristic and industry, number of employees (x1000), and industry share (%), 2005

	A+B	C	D	E	F	G+H	I	J+K[1]	L+M	N+O+P	total
women	28	9	23	20	6	48	24	48	58	74	46
men	72	91	77	80	94	52	76	52	42	26	54
29 years or less	35	17	20	15	29	32	17	30	17	22	24
30-39 years	28	29	30	26	28	30	26	30	25	28	28
40-49 year	22	30	30	30	26	24	31	25	33	32	29
50-59 years	11	22	17	27	15	12	24	14	23	16	17
60 and older	5	2	1	1	2	2	2	2	2	2	2
Private sector, blue-collar	91	77	66	0	84	38	27	32	0	35	35
Private sector, white-collar	9	23	34	57	15	62	21	66	3	48	37
Public sector, non civil servants	0	0	0	7	0	0	16	1	41	13	12
Public sector, civil servants	0	0	0	35	0	0	36	0	56	5	16
Primary/ lower secondary	48	40	33	17	47	30	37	22	17	28	28
Upper secondary/tertiary short type	49	53	56	66	49	62	55	56	61	60	58
Tertiary long type/ university	3	7	11	17	4	9	8	22	22	12	14
Women, full time	25	60	65	79	55	42	69	53	59	38	50
Women, part time, seasonal & students	75	40	35	21	45	58	31	47	41	62	50
Men, full time	67	97	94	97	96	81	91	88	85	73	88
Men, part time, seasonal & students	33	3	6	3	4	19	9	12	15	27	12
Employees (x 1000)	26	3	577	24	191	583	280	530	743	569	3527
Industry share employees	1	0	16	1	5	17	8	15	21	16	100

A+B agriculture & fishing; C mining and quarrying; D manufacturing; E energy & water; F Construction; G trade, hotel & restaurants; I transportation, postal services & telecom; J+K financial services & business services; L+M public administration, social security & education; N+O+P health and social work, other community, social and personal services; private households work;

(1) 19% of the employees of the industry J+K are interim workers. The interim workers are for this table, based on the Labour Force Survey, split up into full time and part time workers. Unless stated otherwise, they are assumed to be part time workers in other data.

Source: SAM sub-account for labour.

Table 2 Shares (%) of (number of) self-employed per characteristic and industry, 2005

	A+B	C	D	E	F	G+H	I	J+K	L+M	N+O+P	total
women	32	29	30	0	10	46	22	27	68	60	37
men	68	71	70	0	90	54	78	73	32	40	63
29 years or less	8	7	9	0	10	9	10	10	11	11	10
30-39 years	19	23	24	0	26	25	24	26	28	25	25
40-49 year	26	28	28	0	31	29	29	30	30	30	29
50-59 years	24	26	24	0	21	24	23	22	19	22	23
60 and older	22	16	15	0	12	13	15	12	10	12	14
Primary/ lower secondary	52	27	32	0	42	36	40	17	9	13	27
Upper secondary/tertiary short type	45	61	58	0	53	55	50	49	38	42	50
Tertiary long type/university	3	12	10	0	5	8	10	34	53	45	24

A+B agriculture & fishing; C mining and quarrying; D manufacturing; E energy & water; F Construction; G trade, hotel & restaurants; I transportation, postal services & telecom; J+K financial services & business services; L+M public administration, social security & education; N+O+P health and social work, other community, social and personal services; private households work;

Source: SAM sub-account for labour

Table 3 Shares of the hours worked by employees per characteristic and industry (industry total =100), and hours worked per industry (million hours), 2005

	A+B	C	D	E	F	G+H	I	J+K	L+M	N+O+P	total
women	23	8	21	19	6	43	23	43	53	70	41
men	77	92	79	81	94	57	77	57	47	30	59
29 year or less	37	17	21	16	30	30	17	31	16	23	23
30-39 year	29	30	31	26	29	32	26	31	25	28	29
40-49 year	22	31	31	30	26	25	32	24	33	32	29
50-59 year	10	20	16	27	14	12	24	13	24	15	17
60 and older	2	1	1	1	1	1	2	1	2	1	1
blue-collar	90	75	65	2	83	35	32	29	10	34	37
white-collar	10	25	35	63	17	65	30	71	28	60	46
civil servants	0	0	0	35	0	0	38	0	62	5	17
non full time work[1]	32	5	9	5	5	26	11	35	21	43	23
full time work	68	95	91	95	95	74	89	65	79	57	77
hours worked	35	5	895	40	281	799	442	774	987	743	5002

A+B agriculture & fishing; C mining and quarrying; D manufacturing; E energy & water; F Construction; G trade, hotel & restaurants; I transportation, postal services & telecom; J+K financial services & business services; L+M public administration, social security & education; N+O+P health and social work, other community, social and personal services; private households work;

(1) includes part time work, seasonal labour and interim

Source: SAM sub-account for labour

Table 4 Relative hours worked per employee (total average = 100), 2005

	A+B	C	D	E	F	G+H	I	J+K	L+M	N+O+P	total
women	77	102	97	110	99	86	104	93	86	88	89
men	101	107	113	116	104	106	114	112	104	104	109
29 year or less	99	111	110	117	109	92	111	107	88	95	100
30-39 year	99	110	113	116	107	103	112	106	93	93	103
40-49 year	94	110	112	116	104	101	113	100	95	92	101
50-59 year	85	99	102	112	92	92	111	96	97	89	97
60 and older	49	62	68	99	49	64	84	75	94	65	74
blue-collar	93	104	107	106	102	89	106	91	70	86	95
white-collar	107	114	114	116	114	101	112	108	86	94	102
civil servants	138	151	116	115	129	144	116	118	104	108	106
non full time work[1]	68	76	77	87	77	67	81	85	66	75	74
full time work	115	109	114	117	106	115	117	116	105	111	112
hour/employee	94	107	109	115	104	97	111	103	94	92	100

A+B agriculture & fishing; C mining and quarrying; D manufacturing; E energy & water; F Construction; G trade, hotel & restaurants; I transportation, postal services & telecom; J+K financial services & business services; L+M public administration, social security & education; N+O+P health and social work, other community, social and personal services; private households work;

(1) includes part time work, seasonal labour and interim

Source: SAM sub-account for labour

Table 5 Shares of wage costs (D1) per characteristic and industry (industry total =100), and per industry (million euro), 2005, shares per schooling of 2003

	A+B	C	D	E	F	G+H	I	J+K	L+M	N+O+P	total
women	19	9	18	15	6	37	21	37	51	67	37
men	81	91	82	85	94	63	79	63	49	33	63
29 year or less	32	14	16	9	25	22	14	21	13	19	18
30-39 year	31	28	30	24	30	33	26	31	23	27	28
40-49 year	25	32	33	33	28	29	33	29	35	34	32
50-59 year	11	23	19	33	16	15	25	17	27	18	20
60 and older	2	2	1	1	1	2	2	1	2	2	2
blue-collar	83	64	54	1	77	28	28	19	6	22	28
white-collar	17	36	46	72	23	72	37	81	27	71	53
civil servants	0	0	0	27	0	0	35	0	67	7	19
non full time work[1]	18	4	8	4	4	19	9	25	21	38	19
full time work	82	96	92	96	96	81	91	75	79	62	81
wages	532	146	28984	2113	7242	21123	12670	25886	34327	18547	151570
Primary/ lower secondary	44	17	29	17	46	25	34	14	13	21	23
Upper secondary/tertiary short type	52	58	53	58	47	59	54	53	57	61	56
Tertiary long type/ university	4	25	18	25	7	16	12	34	30	18	22

A+B agriculture & fishing; C mining and quarrying; D manufacturing; E energy & water; F Construction; G trade, hotel & restaurants; I transportation, postal services & telecom; J+K financial services & business services; L+M public administration, social security & education; N+O+P health and social work, other community, social and personal services; private households work

(1) includes part time work, seasonal labour and interim

Source: SAM sub-account for labour and the Belgian EU-KLEMS database

Table 6 Relative wage costs (D1) per hour worked (total average = 100), 2005

	A+B	C	D	E	F	G+H	I	J+K	L+M	N+O+P	total
women	41	109	91	137	83	74	87	93	110	79	90
men	52	102	111	185	85	97	97	123	120	91	107
29 year or less	43	83	83	103	69	63	79	75	93	69	75
30-39 year	53	97	104	160	88	90	97	112	106	80	98
40-49 year	55	107	114	190	91	101	99	133	119	85	109
50-59 year	56	119	126	218	99	109	97	147	130	99	120
60 and older	33	141	161	208	120	111	100	142	132	110	126
blue-collar	46	88	89	82	79	69	84	73	71	52	75
white-collar	80	149	140	201	113	97	116	125	110	98	114
civil servants	113	92	85	137	96	96	86	111	124	104	116
non full time work[1]	28	93	92	165	77	65	84	78	114	73	82
full time work	60	103	108	177	85	95	96	127	115	90	106
wage cost/hour	50	103	107	176	85	87	95	110	115	82	100

A+B agriculture & fishing; C mining and quarrying; D manufacturing; E energy & water; F Construction; G trade, hotel & restaurants; I transportation, postal services & telecom; J+K financial services & business services; L+M public administration, social security & education; N+O+P health and social work, other community, social and personal services; private households work;

(1) includes part time work, seasonal labour and interim

Source: SAM sub-account for labour

Table 7 Output per labour input (1997=1), 1997-2005

	output per hour worked	output in constant prices (reference year 2004) per hour worked	output per wage cost
1997	1.00	1.00	1.00
1998	1.03	1.04	1.02
1999	1.06	1.06	1.02
2000	1.11	1.06	1.07
2001	1.14	1.08	1.06
2002	1.15	1.07	1.03
2003	1.16	1.07	1.03
2004	1.24	1.10	1.08
2005	1.31	1.12	1.12

Source: National Accounts (Belgostat database NBB) and own calculations

Table 8 Comparison employed versus unemployed, labour account and unemployment, 2000

	2000					2005
	employed	% of employed	unemployed	% of unemployed	free capacity	free capacity
Primary	472,766	11.6%	65,704	21.3%	13.9%	17.7%
Lower secondary	875,219	21.4%	88,440	28.7%	10.1%	12.3%
Upper secondary	1,478,141	36.1%	107,737	34.9%	7.3%	9.5%
Tertiary short type	668,850	16.3%	25,579	8.3%	3.8%	4.8%
Tertiary long type	148,549	3.6%	5,186	1.7%	3.5%	6.0%
University	447,801	10.9%	15,737	5.1%	3.5%	5.0%
Total	4,091,325	100%	308,383	100%	7.5%	9.3%

Source: Labour Force Survey, 2000 and 2005, and own calculations

Table 9 Evolution of the changes in schooling levels shares, 2000-2005

	annual changes (%points)					absolute change (x1000)
	00-01	01-02	02-03	03-04	04-05	00-05
Primary	-3.4%	-3.8%	-3.4%	-3.0%	-3.4%	-75
Lower secondary	-2.4%	-3.2%	-3.0%	-2.1%	-2.2%	-107
Upper secondary	2.9%	0.9%	1.0%	2.0%	2.2%	138
Tertiary short	4.6%	2.4%	2.2%	2.6%	3.0%	104
Tertiary long	4.0%	1.5%	1.7%	1.8%	2.8%	18
University	3.4%	1.4%	1.4%	0.8%	2.2%	42

Source: SAM sub-account for labour

Table 10 Evolution of the changes in schooling levels per industry, 2000-2005

Hermes industry	Primary	Lower secondary	Upper secondary	Tertiary short	Tertiary long	University
agriculture	80%	93%	114%	136%	141%	143%
energy	63%	72%	102%	121%	113%	113%
manufg. intermediate	77%	84%	112%	115%	112%	109%
manufg. equipment	79%	84%	110%	114%	110%	105%
manufg. consumption	80%	86%	112%	115%	114%	113%
construction	81%	89%	116%	120%	118%	115%
railroad transport	84%	90%	105%	125%	125%	126%
urban & road transport	85%	90%	117%	117%	114%	113%
water & air transport	78%	78%	96%	114%	122%	121%
auxil. transport & telecom	80%	86%	105%	119%	119%	115%
trade, hotels & restaurants	83%	85%	108%	114%	110%	108%
credit & insurance	66%	73%	91%	116%	110%	107%
health & care services	92%	88%	109%	106%	98%	89%
other market services	87%	89%	102%	110%	107%	104%
public & education	73%	82%	104%	106%	107%	107%
domestic servants	107%	98%	95%	100%	100%	102%
total	82%	85%	106%	112%	109%	106%

Source: SAM sub-account for labour and own calculations

Table 11 Projections per schooling for 2010 with evolving shares schooling levels and comparison with 2005 (x1000 workers)

estimates 2010								
Hermes industry	Primary	Lower secondary	Upper secondary	Tertiary short	Tertiary long	University	Total	change 05-10
agriculture	12	20	33	7	1	2	76	-10%
energy	1	3	12	7	2	5	29	-5%
mfg. intermediate	15	35	93	27	8	19	196	-5%
mfg. equipment	9	25	67	16	5	11	132	-6%
mfg. consumption	24	47	115	28	7	15	235	-7%
construction	35	64	129	17	4	8	258	8%
railroad transport	3	10	22	4	1	2	41	6%
urban & road transport	15	25	44	5	1	2	93	3%
water & air transport	0	1	4	2	1	1	9	9%
auxil. transp. & telecom	12	31	76	27	6	16	168	8%
trade & horeca	65	138	399	109	23	49	783	4%
credit & insurance	2	6	39	48	12	28	134	-2%
health & care services	35	54	183	164	25	72	532	13%
other market services	70	127	326	177	56	173	929	15%
public & education	26	77	228	250	39	136	757	2%
domestic servants	16	17	13	1	0	0	48	-17%
total	340	680	1,782	890	189	539	4,420	5%
change 2005-2010	-14%	-11%	10%	15%	13%	10%	5%	
absolute changes 05-10 (with evolving shares)								
agriculture	-5	-5	0	1	0	0	-8	
energy	0	-1	-1	1	0	0	-1	
mfg. intermediate	-6	-10	3	2	0	0	-10	
mfg. equipment	-3	-7	1	1	0	0	-9	
mfg. consumption	-9	-13	3	1	0	0	-17	
construction	-6	-5	23	4	1	1	18	
railroad transport	0	-1	2	1	0	0	2	
urban & road transport	-3	-2	7	1	0	0	3	
water & air transport	0	0	0	0	0	0	1	
auxil. transp. & telecom	-2	-3	8	6	1	3	12	
trade & horeca	-11	-20	40	16	3	5	33	
credit & insurance	-1	-2	-6	5	1	1	-3	
health & care services	1	-1	33	26	2	-1	61	
other market services	0	3	46	36	10	28	124	
public & education	-9	-16	10	16	3	10	12	
domestic servants	-2	-4	-4	0	0	0	-10	
total	-57	-88	165	117	22	49	207	

estimates 2010								
Hermes industry	Primary	Lower secondary	Upper secondary	Tertiary short	Tertiary long	University	Total	change 05-10
2010: fixed versus evolving shares (+ = higher with evolving shares)								
agriculture	-4	-2	3	2	0	1	0	
energy	0	-1	0	1	0	0	0	
mfg. intermediate	-5	-8	8	3	1	1	0	
mfg. equipment	-2	-5	5	2	0	0	0	
mfg. consumption	-7	-9	10	3	1	1	0	
construction	-9	-10	15	3	1	1	0	
railroad transport	-1	-1	1	1	0	0	0	
urban & road transport	-3	-3	6	1	0	0	0	
water & air transport	0	0	0	0	0	0	0	
auxil. transp. & telecom	-3	-5	2	4	1	2	0	
trade & horeca	-14	-27	24	12	2	3	0	
credit & insurance	-1	-2	-5	6	1	1	0	
health & care services	-3	-8	14	8	-1	-10	0	
other market services	-11	-16	3	15	3	6	0	
public & education	-10	-18	6	12	2	7	0	
domestic servants	1	0	-1	0	0	0	0	
total	-73	-117	92	72	11	15	0	
estimated unemployment								
total	107	142	257	79	12	47	644	-9%
change 2005-2010	-22	-29	-22	10	-7	2	-67	

Source: SAM sub-account for labour and own calculations

Table 12 The monthly and hourly wages for female and male employees by labour regime in 2004 and 2005

	Wages and salaries (D11) per hour			Monthly wages and salaries (D11) per head		
	Women	Men	Wage gap	Women	Men	Wage gap
Full time 2004, gross wages (IGVM-SES)	14.15	16.25	12.9%	2 343	2 757	15.0%
Part time 2004, gross wages (IGVM-SES)	12.32	13.66	9.8%			
Industries C-K (SAM)						
Full time 2004	19.99	23.54	15.1%	2 691	3 208	16.1%
Full time 2005	20.56	24.11	14.7%	2 769	3 272	15.4%
Part time 2004	17.28	18.97	8.9%	1 382	1 600	13.6%
Part time 2005	17.69	19.44	9.0%	1 436	1 653	13.1%
All 2004	19.06	23.26	18.0%			
All 2005	19.55	23.81	17.9%			
All industries (SAM)						
Full time 2004	20.57	23.49	12.4%	2 691	3 208	16.1%
Full time 2005	21.35	24.14	11.6%	2 769	3 272	15.4%
Part time 2004	18.05	19.52	7.5%	1 382	1 600	13.6%
Part time 2005	18.70	20.14	7.1%	1 436	1 653	13.1%
All employees 2004	19.61	23.17	15.4%			
All employees 2005	20.32	23.81	14.6%			

Source: Own calculations based on wages and salaries (D11) and hours worked by industry and gender in the SAM sub-account for labour 1997-2005 and gross hourly wages in the IGVM (2007) study.

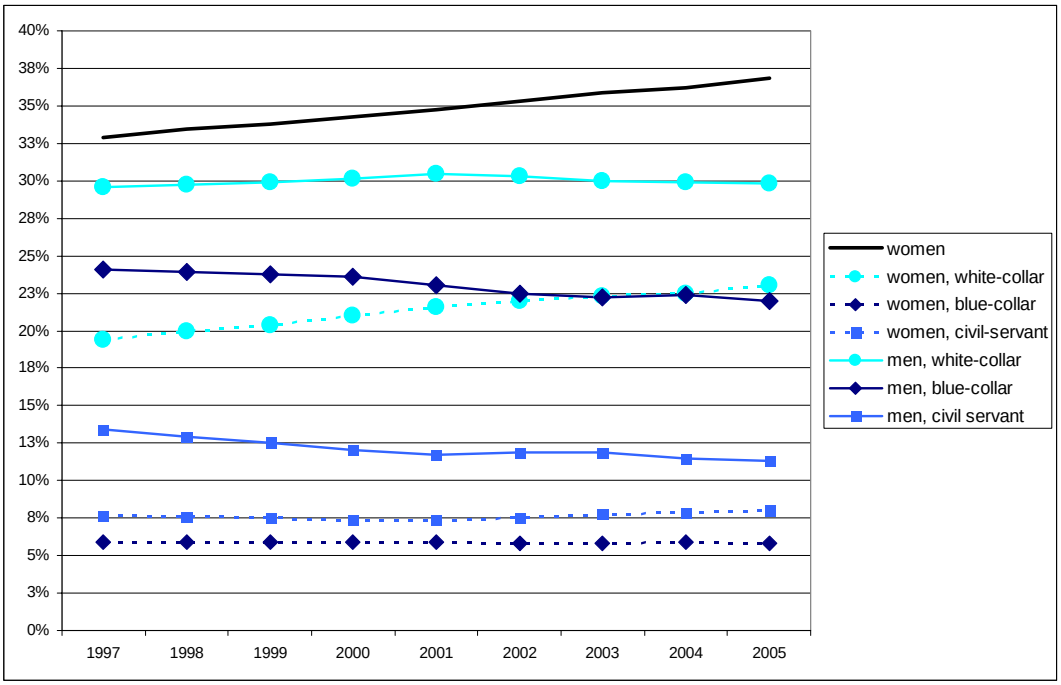
The part time work concept in our database differs in practice from that in the Structure of Earnings Survey. It includes seasonal work and student work, while in the Survey a distinction is made between labour regime and contract type. In the data underlying figure 4 and table 12, interim workers have been split up in part time and full time workers using LFS data.

Table 13 Hourly wages (D11), gender gap and female presence by industry in 2005

Industry by NACE (sub-)section	Hourly wages & salaries, women	Hourly wages & salaries, men	Gender hourly wage gap	Share women in hours worked	Share women in number of employees	Industry share in female employees
A+B Agriculture, forestry & fishing	10.2	12.9	21%	23%	28%	0.5%
C Mining and quarrying	24.4	23.4	-4%	8%	9%	0.0%
D Manufacturing	19.9	24.2	18%	21%	23%	8.3%
DA Food, beverages, tobacco	17.9	22.1	19%	31%	37%	2.0%
DB+DC Textile and leather products	15.1	19.2	21%	43%	47%	1.2%
DD+DE Wood, paper and paper products; Publishing & printing	20.3	22.4	10%	25%	27%	0.9%
DF Coke, refined petroleum products & nuclear fuel	37.2	51.0	27%	18%	20%	0.1%
DG Chemicals and chemical products	25.4	32.6	22%	25%	27%	1.2%
DH Rubber and plastics	20.4	24.0	15%	21%	23%	0.4%
DI Other non metallic mineral products	21.1	22.8	8%	10%	11%	0.2%
DJ Basic metals & fabricated metal products	19.8	22.4	12%	9%	10%	0.6%
DK Machinery and equipment n.e.c.	21.4	23.4	9%	11%	12%	0.3%
DL Electrical & optical equipment	20.1	26.5	24%	26%	29%	0.8%
DM Transport equipment	21.1	23.4	10%	10%	11%	0.4%
DN Other manufacturing	16.2	18.6	12%	21%	24%	0.4%
E Electrical energy, gas steam & water	25.9	35.0	26%	19%	20%	0.3%
F Construction	19.6	19.4	-1%	6%	6%	0.7%
G Trade	17.5	22.7	23%	42%	47%	14.0%
H Hotel & restaurants	17.8	19.0	7%	47%	52%	3.4%
I6063 Transport & storage	19.2	22.5	15%	21%	22%	2.8%
I64A Post and courier services	16.5	17.1	4%	29%	32%	0.9%
I64B Telecommunication	24.9	28.3	12%	27%	29%	0.5%
J Financial intermediation	26.6	37.3	29%	47%	50%	3.9%
K7071 Rental & real estate services	18.0	22.5	20%	44%	48%	0.9%
K7273 Computer & research & development services	25.3	30.7	18%	26%	28%	0.9%
Kz74AD Judicial, economic, technical & marketing services	17.0	19.9	14%	41%	48%	3.7%
K74E Provision of personnel services	16.2	19.9	18%	47%	53%	3.0%
K74F Security services, industrial cleaning & other services	22.6	31.4	28%	48%	51%	3.5%
L Public administration & defense	20.5	23.8	14%	44%	50%	12.8%
M Education	26.7	30.1	11%	66%	68%	13.9%
N Health and social work	20.3	22.2	9%	74%	78%	19.3%
O Other community, social & personal services	17.1	21.7	21%	50%	54%	3.7%
P Private household with employed persons	10.1	10.4	3%	82%	82%	3.0%
Total Economy	20.3	23.8	14.6%	40.9%	45.7%	100%

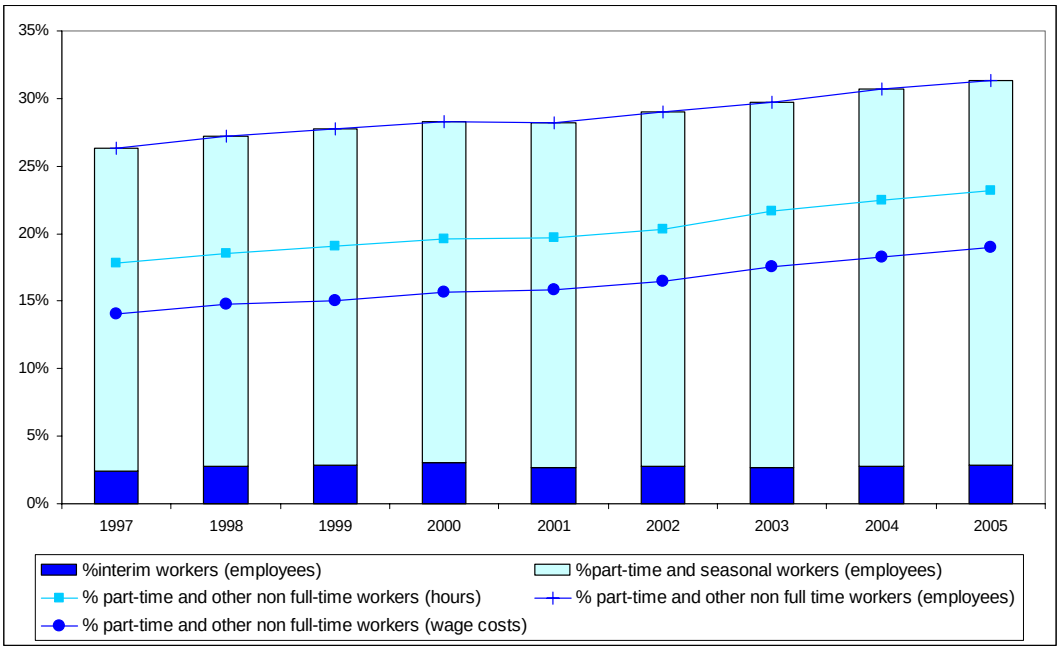
Source: Own calculations based on wages and salaries (D11) and hours worked by industry and gender in the SAM sub-account for labour 1997-2005.

Figure 1 Evolution of the shares per gender and type of contract in wage costs, 1997-2005



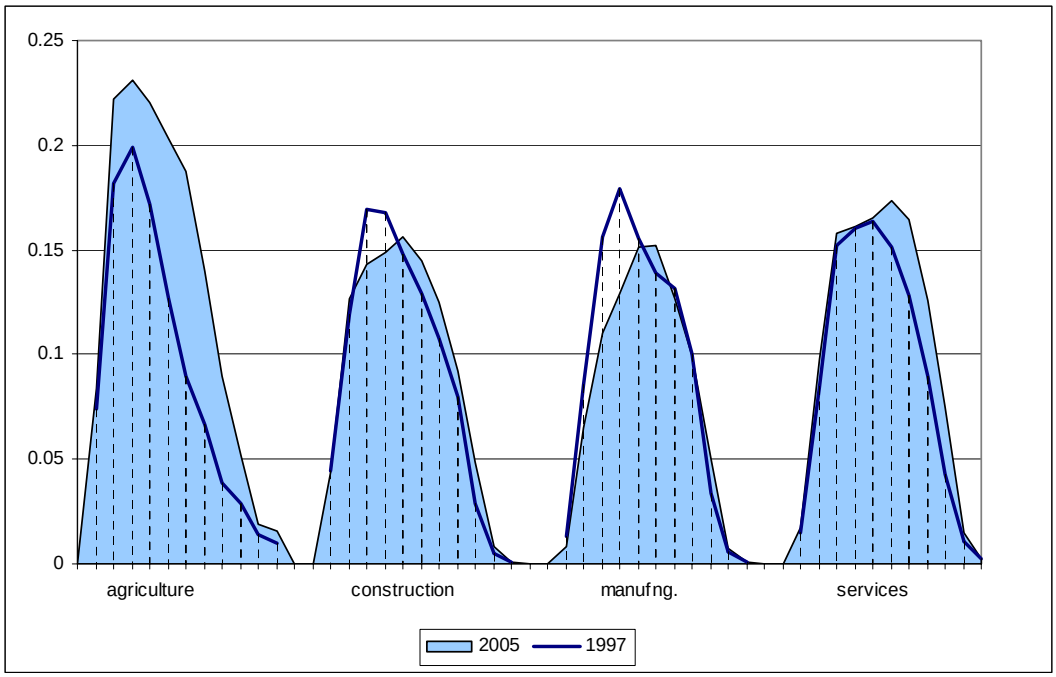
Source: SAM sub-account for labour

Figure 2 Evolution of the share of part time work, seasonal and interim work in number of employees, their hours worked and wage costs (% of total)



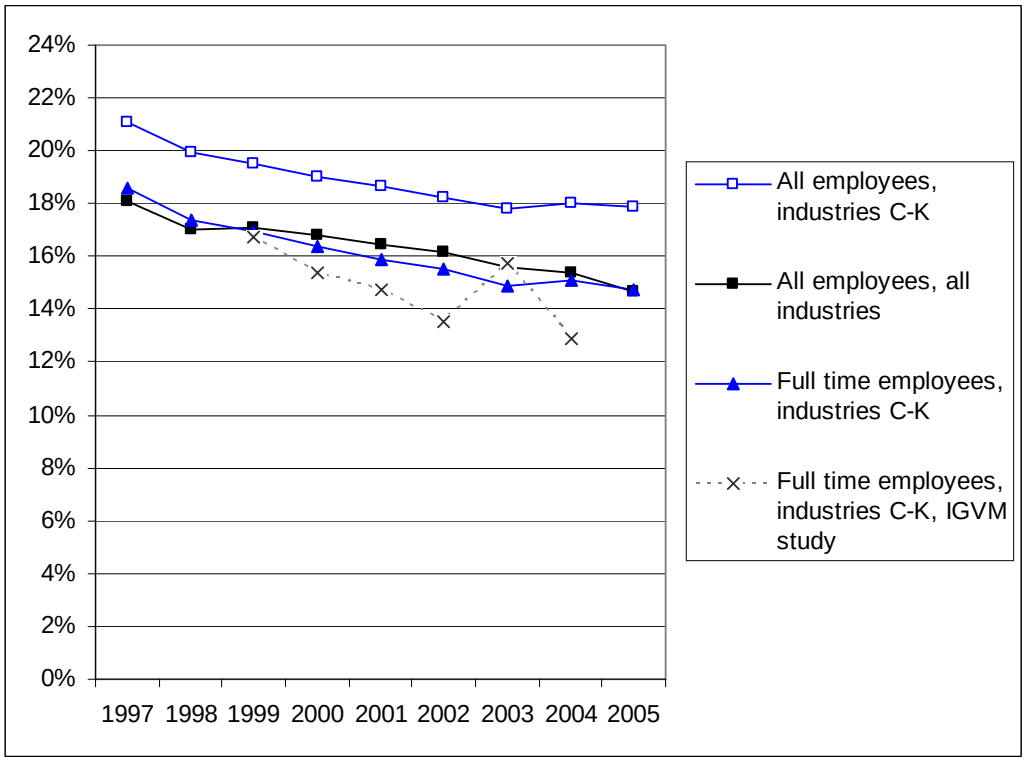
Source: SAM sub-account for labour

Figure 3 Relative age pyramids of hours worked per industry, 1997 and 2005 (industry total 1997=1)



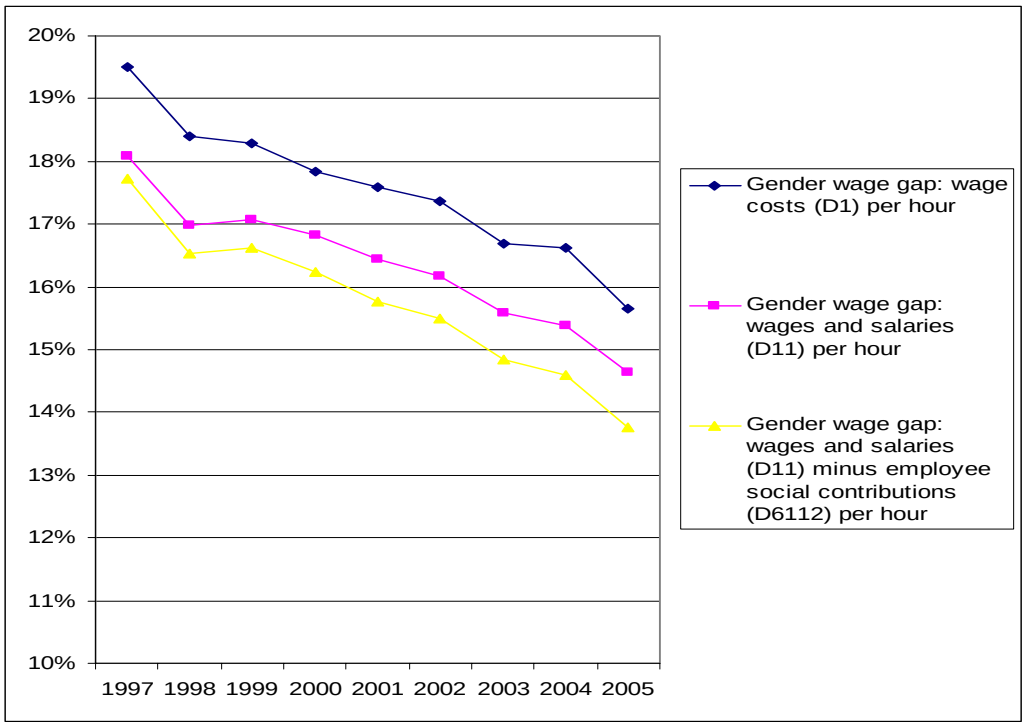
Source: SAM sub-account for labour

Figure 4 Evolution of the gender gap in hourly wages: SAM and IGVM results



Source: Own calculations based on wages and salaries (D11) and hours worked by industry and gender in the SAM sub-account for labour 1997-2005 (FPB, 2007) and gross hourly wages in the IGVM (2007) study.

Figure 5 The influence of social security contributions on the gender wage gap (1997-2005)



Source: Own calculations based on the SAM sub-accounts for labour (1997-2005)

Figure 6 Hourly compensation costs (D1) as a function of gender, age class and type of contract in 2000

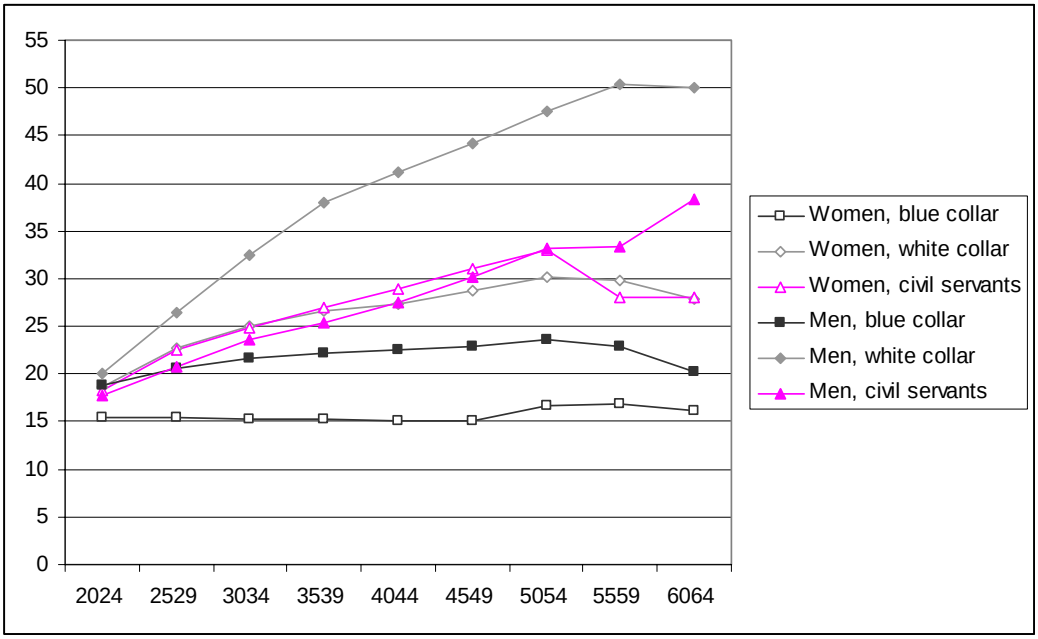


Figure 7 Hourly compensation costs (D1) as a function of gender, age class and type of contract in 2005

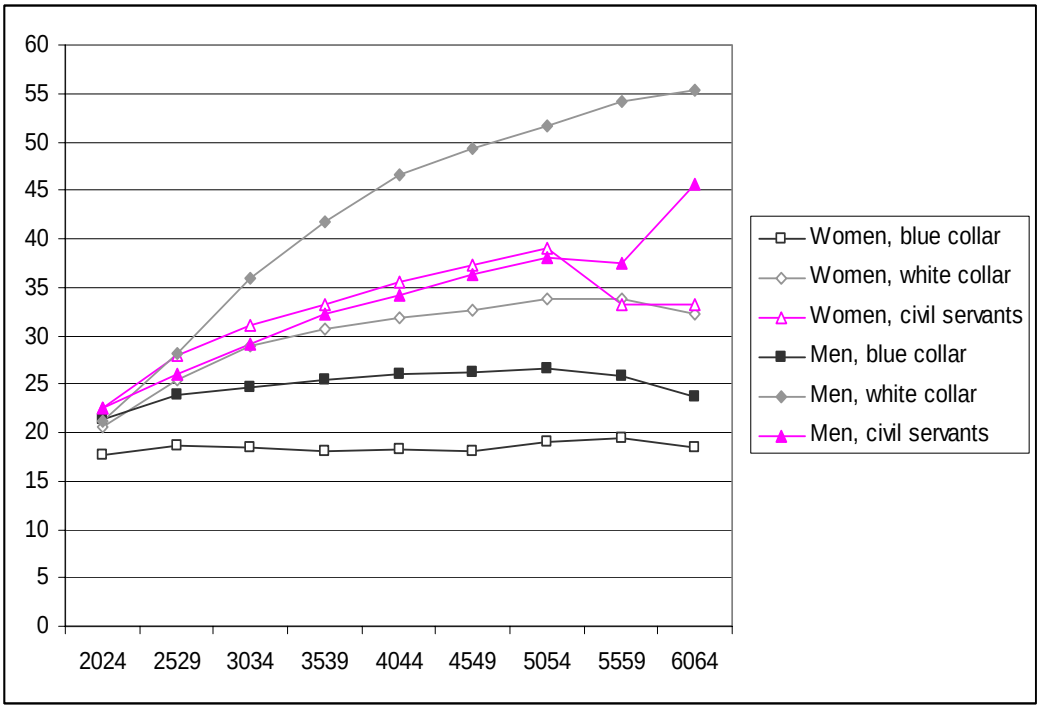


Figure 8 Wage costs (D1) per head & part time work by formation level, manufacturing

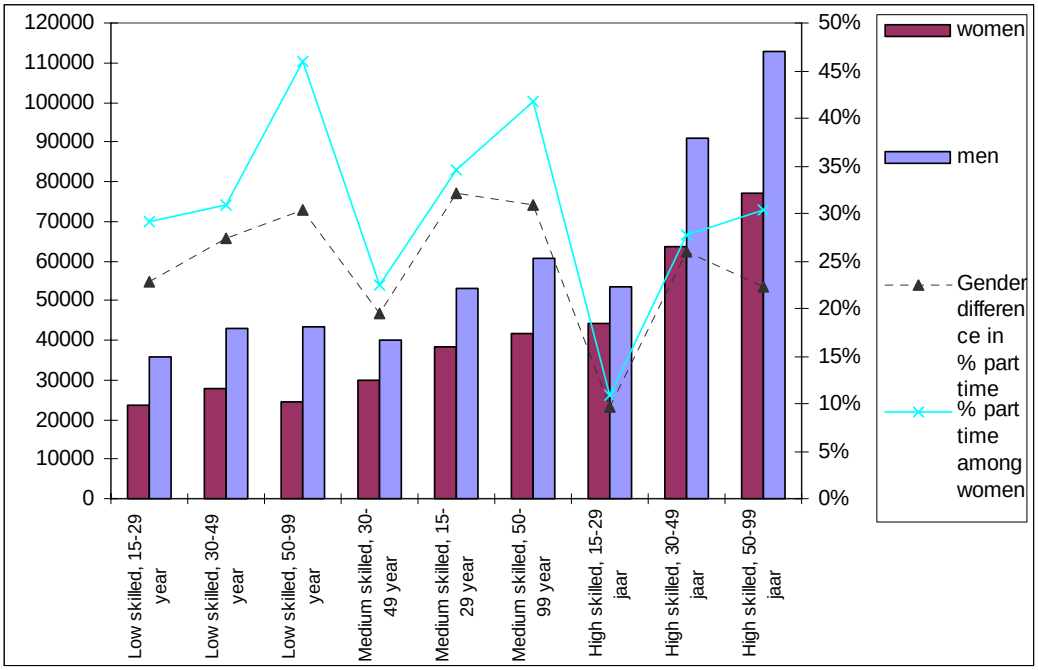
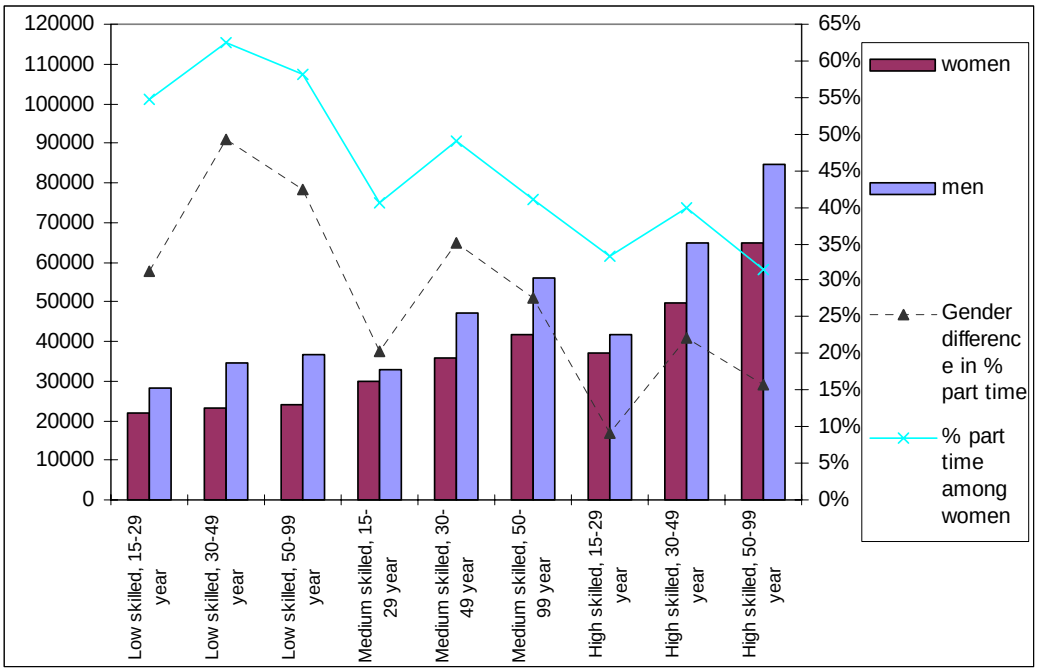


Figure 9 Wage costs (D1) per head & part time work by formation level, Public administration (L), Education (M) & health industries (N)



Source: Skill premiums based on the Structure of Earnings Survey for manufacturing and the Labour Force Survey for the public sectors, SAM sub-account for data on part time work