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The Case of Belgium**

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ABSTRACT

The Regional Dimension of Collective Wage Bargaining: The Case of Belgium

The potential failure of national industry agreements to take into account productivity levels of least productive regions has been considered as one of the causes of regional unemployment in European countries. Two solutions are generally proposed: the first, encouraged by the European commission and the OECD, consists in decentralising wage bargaining to the firm. The second solution, the regionalisation of wage bargaining, is frequently mentioned in Belgium or in Italy where regional unemployment differentials are high. The objective of this paper is to verify if the Belgian wage setting system, where industry bargaining has a national scope, indeed prevents regional productivity levels to be taken into account in wage formation. Using a very rich linked employer-employee dataset which provides detailed information on wages, productivity, and worker's and firm's characteristics, we find that regional wage differentials and regional productivity differentials within joint committees² are positively correlated. Moreover, this relation is stronger (i) for joint committees where firm-level bargaining is relatively frequent and (ii) for joint committees already sub-divided along a local line. We conclude that the current Belgian wage setting system (which combines interprofessional, industry and firm level bargaining) already includes mechanisms that allow regional productivity to be taken into account.

JEL Classification: D31, J31, J41

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² Joint Committees are permanent bodies at the industry level in which employers' associations and trade unions are represented. Their main task is to oversee the conclusion of industry collective agreements by the organizations represented.

Introduction

Within the framework of the debate over the relationship between the structure of wage bargaining and economic performances in Europe, the question concerning the regional dimension returns in a recurring way. The discussion often relates, in particular, to the capacity of wage-setting systems to take into account the important economic disparities between regions. Pench *et al.* (1999) support for example that a uniform fixation of wages across regions would not be adapted to local job markets. According to Davies and Hallet (2001), the important regional differences in unemployment observed in numerous European countries are due to the incapacity of the wage-setting systems to take into account the levels of productivity of the least productive regions.³ The predominance of national industry bargaining, in a large number of European countries, could explain this phenomenon. Accordingly, two types of answers are generally proposed in order to take into account the local environment in the establishment of wages. The first, supported by the European Commission (Davies and Hallet, 2001) and the OECD (OECD, 2006), consists of decentralising wage bargaining towards the company level. The second, which appears regularly in Belgium and in Italy⁴, two countries characterised by important regional differences in unemployment, consists of regionalising wage bargaining.

Within European countries, only Spain and Germany present a regionalised formation of wages. In Spain, Simón *et al.* (2006) note important variations in wages between regions as well as in wages agreed at the industry level as in actual paid wages. They deduce from this that the regional character of industry bargaining allows for a differentiation of wages between regions. However, these wage differences do not seem to fully reflect local conditions because of the phenomenon of inter-regional imitation within one same industry (Bande *et al.*, 2008). In the case of Germany the regional differences in industry

³ Other factors such as the differences in economic development, labour qualification and the lack of geographic mobility can also causes differences in unemployment between regions. (Davies et Hallet, 2001)

⁴ For Italy, see EIRO (1998).

agreed wages are rather weak although wage bargaining is held at the Landers level. The strongly coordinated character of wage bargaining between trade-union confederations and employer associations could explain this situation (Schnabel, 1999). In the countries where industry bargaining is not regionalised, the regional differences in wages vary significantly. In Italy, the important regional differences in unemployment do not seem to generate large wage disparities. For Dell'aringa and Pagani (2005), this can be explained by the existence of wages floor generated by industry agreements which would prevent wages from adapting themselves in the regions of low levels of productivity. The Italian example cannot, however, be carried over to all the countries without regionalised industry bargaining. Indeed, the level of regional wage differentials depends also in the degree of centralisation/coordination of wage bargaining. Vamvakidis (2008) analyses the relation between the degree of coordination of wage bargaining and the regional wage differentials⁵ in 10 European countries between 1980 and 2000. His results indicate a negative relation between the degree of coordination of wage bargaining and the level of regional wage differentials.⁶ To sum up, the organisation of the formation of wages at the regional level appears not to be a sufficient condition, neither a necessary condition, for generating high levels of regional wage differences. It seems in fact, in this debate, that the regional character of the wage-setting systems brings less than the degree of centralisation/coordination of wage bargaining.

In Belgium, the regionalisation of wage bargaining is at the heart of current negotiations relative to a de-federalisation of employment policy. The partisans for the regionalisation of wage bargaining⁷ argue that the differences in productivity between regions cannot be reflected in a formation of wages at the federal level. They add that a negotiation at the Walloon level would be more sensitive to unemployment and would thus involve lower wages for this region.

⁵ Expressed by the OECD index taking into account the level of bargaining and the formal or informal coordination between trade unions and employers.

⁶ Quiet logically, these results are only relevant for the countries characterized by strong differences in regional levels of productivity.

⁷ Notably the Flemish christian democratic party (CDNV-NVA) and the Flemish liberal party (VLD).

The present paper discusses the pertinence of a regionalisation of wage bargaining in Belgium in verifying, in an empirical manner, whether the actual wage-setting system (inter-professional agreement, followed by industry agreements, and eventually followed by firm-level agreements) is flexible enough to take into account the regional differences in productivity in the formation of wages.

A way of evaluating the pertinence of the regionalisation of wages in Belgium is to analyse its potential consequences. Bogaert (2008) supports for example that a regionalisation of wages would remove the moderating influence of “francophone” unemployment on Flemish wages. As an effect this would increase wages in Flanders and, through demonstration, would generate similar wage increases in Wallonia. The final result would be a higher increase of wages than in the current federal system. This phenomenon seems to be occurring in Spain where bargaining are already regionalized (Bande *et al.*, 2008). Deschamps (2003) suggests that a regionalisation of wage bargaining would also increase the complexity of the system and would lead to administrative costs for firms that have production sites in more than one region. Deschamps (2003) also argues that a regionalisation of wages would pave the way to the regionalisation of social security. It would be indeed incoherent to restrict regionalisation solely on wages, and not on total labour costs. Therefore, the contributions to social security, which represents a large part of the total labour costs, would also be regionalised. This could, finally, affect the level of social security spending in the different regions.

Another way of assessing the relevance of the regionalisation of wages would be to discuss the argument that the current system of wage formation is incapable of taking into account the different regional levels of productivity. This approach has the advantage of being tested empirically. Several recent studies have tried to answer this question (Dejemeppe and Van der Linden, 2006; Plasman *et al.*, 2007; Joskin *et al.*, 2008). Their results seem to indicate that the average labour productivity is lower in Wallonia (Dejemeppe and Van der Linden, 2006; Joskin *et al.*, 2008) but, in the same time, there already exists wage differences between regions (Dejemeppe and Van der Linden, 2006; Plasman *et al.*, 2007).

These wage differences, nonetheless, only take partially into account the differences in productivity. Indeed, according to Dejemeppe and Van der Linden (2006) and Joskin *et al.* (2008), the unit labour cost is, in average⁸ higher in Wallonia than in the rest of the country. The data used in this last analysis suffer nonetheless from two limitations: Firstly, they are macro-level data so they do not allow taking into account eventual composition effects. Secondly, they do not distinguish between salaried workers and self-employed workers whose revenues are not determined by collective bargaining.

Based on these empirical results, one can legitimately ask how the current system could take into account the regional differences in productivity. The possibility to complete the national industry agreements by agreements at the firm level could be the explanation (Dejemeppe and Van der Linder, 2006; Plasman *et al.*, 2007). Verly (2003) estimates that, in Belgium, approximately half of the employees is affected by a wage bargaining process on a level other than the national. On one hand, several joint committees are subdivided into sub-joint committees at the regional level. These joint committees cover nearly 16 % of employees in the private sector.⁹ On the other hand, industry agreements can be completed by agreements at the company level. These concern nearly 27 % of employees in the private sector.¹⁰ The existence of wage differences between regions could therefore be explained by these two mechanisms. In the current literature, only the study by Plasman *et al.* (2007) empirically establishes a link between the presence of regional wage differentials and company bargaining. However, no study investigates the influence of regional sub-joint committees.

The objective of this contribution is therefore double. First, we want to see if the current system of wage formation takes into account regional differences in productivity. To do so, we estimate regional wage differentials in each joint committee and we check if these differentials are correlated to regional productivity differentials in these joint committees. Second, we want to identify the mechanisms that allow for the regional differences in

⁸ There are differences across sectors.

⁹ Structure of Earnings Survey, 2003.

¹⁰ *Ibidem.*

productivity to be reflected in wages. For this, we check if the correlation between the regional differences in wages and in productivity varies according to the structure of collective bargaining. More precisely, we compare decentralised joint committees (i.e. joint committees where the percentage of employees covered by a firm agreement is relatively high) to centralised joint committees, as well as joint committees subdivided in regional sub-joint committees to those that are not.

The rest of the article is divided into five sections. In the first section, we present the dataset used for the estimations. In the second section we check if there exist differences in wages between regions. In the third section, we test if these differences in wages are explained by differences in productivity. In the fourth section, we question the mechanisms that allow for the regional differences in productivity to be reflected in wages. Finally, the fifth section concludes.

2. Data

The present study is based upon a unique combination of two large-scale data sets. The first, carried out by Statistics Belgium, is the 2003 *Structure of Earnings Survey* (SES). It covers Belgian firms employing at least 10 workers with economic activities within sections C to K of the Nace Rev.1 nomenclature. The survey contains a wealth of information, provided by the management of the establishments, both on the characteristics of the latter (e.g. region, industry, type of financial and economic control, size of the establishment) and on their workers (e.g. education, age, seniority, gross hourly wages, number of paid working hours, sex, type of employment contract, occupation). Therefore, it allows estimating regional wage differentials by taking into account compositions effects. Since the SES provides no financial information, it has been merged with the 2003 *Structure of Business Survey* (SBS). This is a firm-level survey, also conducted by Statistics Belgium, with a different coverage than the SES in that it includes neither the banking sector, nor the electricity sector, nor firms with less than 20 employees. The SBS provides firm-level information on value-added per employee, which will be used as a proxy for labour productivity. Since the dataset covers only firms whose employ salaried workers, the productivity is therefore only that of

salaried workers and not of self-employed workers. Let us finally note that the results are not biased by the phenomenon of the commuters (which is important in Belgium) because the data are provided by the companies and thus reflect the productivity of the workers at their workplace.

For the results to be sufficiently representative, we only analyse the joint committees which count at least 5 local units¹¹ in each region in the dataset. Only 25 joint committees (out of 83) are in this situation. If one excludes Brussels, the number of joint committees with at least 5 local units in both the Flemish and Walloon regions reaches 36. The difference comes mainly from joint committees from the manufacturing sector which are absent in the Brussels region. Considering that restricting the analysis to joint committees present in Brussels would make one miss a lot of information, we compare the regions two by two. The analysis is therefore based on 3 different samples that count for 25 joint committees for the Brussels–Wallonia comparison, 26 joint committees for the Brussels–Flanders comparison, and 36 joint committees for the Flanders–Wallonia comparison. After having eliminated the heads of companies (ISCO 1) who are not covered by collective agreements, and the observations with missing or abnormal values, the three analysed sub-samples account for 85.8%, 86.3% and 91.3% of the initial samples covering respectively Brussels and Wallonia, Brussels and Flanders, and Flanders and Wallonia.

3. Are there differences in wages between regions?

Without controlling for differences in characteristics between regions, the mean hourly wage¹² in Brussels is 8.2% higher than in Flanders and 11.1% than in Wallonia. The mean hourly wage is, in Flanders, 1.8% higher than in Wallonia. These differences in

¹¹ A local unit corresponds to all the establishments of a company situated in the same commune and coming from the same sector of activity.

¹² Gross hourly wage includes overtime paid, premiums for shift, night and/or week-end work, and regular bonuses. It does not include irregular payments which do not occur during each pay period, such as pay for holiday, 13th month, profit-sharing, etc.

wages can nonetheless be affected by differences in characteristics between the regions.¹³ In particular, employees in Brussels are on average more qualified than those that work in the other regions, which most likely comes from Brussels' status as a metropolis, capital of Belgium and seat of European institutions. Econometric estimations are thus necessary to isolate the impact of the regions from the effect of other variables. More precisely, we measure the regional wage differentials by estimating wage equations (an equation covering the population working in Brussels and in Flanders, an equation covering the population working in Wallonia and in Flanders and an equation covering the population working in Brussels and Wallonia) which contain controls for factors which intervene in the criteria determining the industry agreed wages (occupation, prior experience¹⁴, seniority in the company, type of contract, working hours, being working in a team or during night or weekend). The occupation variable is nonetheless not very disaggregated (9 functions for the workers and 12 for the employers) compared to many classifications of occupations in industries or firms. Consequently, it could be that our estimates are biased by the fact that the occupations are distributed differently in the three regions. In order to reduce this bias, we also control for the joint committee, the industry (NACE nomenclature -3 digits-), the gender, the level of education, the form of economic and financial control, and the size of the company. Moreover, we control for the fact that the employee works overtime. The results of these estimations are presented in the first column (model 1) in Table 1. Controlling for differences in characteristics, the differences between Flanders and Wallonia increases slightly (reaching 2.4 %) whilst the differential between Brussels and Wallonia falls to 2.6% and the differential between Brussels and Flanders disappear completely. Most of the wage differential between Brussels and the two other regions thus seems to be explained by differences in characteristics between regions.¹⁵

¹³ See table in Appendix 2.

¹⁴ Prior potential experience = age – seniority in the company – estimated number of years of schooling – 6.

¹⁵ The complete results of the wage equations are presented in appendix.

Table 1: Regional Wage Differentials, All Joint Committees Taken Together

	Model 1	Model 2
Wage differential ^a Flanders – Wallonia	2.4% *** (4.4)	1.9% *** (3.8)
Wage differential ^a Brussels – Flanders	-0.7% (-0.9)	-0.9% (-1.2)
Wage differential ^a Brussels – Wallonia	2.6% *** (2.9)	1.8% ** (2.1)
Productivity in the company ^b	no	yes

Notes: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$; T stats are reported between brackets; ^a: Regional wage differentials based on ordinary least squares estimates of wage equations. Standard errors are corrected for heteroscedasticity (White, 1980) and common variance components within groups (Moulton, 1990). The control variables of the wage equation are: sex; education (6 dummies); prior potential experience, its square and its cube; seniority within the current company and its square; a variable showing whether the individual received a bonus for shift work, night work and/or weekend work; a variable indicating whether the individual worked overtime; type of contract (2 dummies); a dummy indicating if the worker is part-time; occupation (20 dummies according to the ISCO classification); size of the establishment (i.e. number of workers); financial and economic control (2 dummies); industry (154 dummies according to the NACE classification); Joint Committee (35, 25 and 24 dummies respectively for the Flanders-Wallonia sample, the Brussels-Flanders sample and the Brussels-Wallonia sample). Gross hourly wage includes overtime paid, premiums for shift, night and/or week-end work, and regular bonuses. It does not include irregular payments which do not occur during each pay period, such as pay for holiday, 13th month, profit-sharing, etc. ^b: Firm's annual value added divided by the number of employees in the firm.

These results can nonetheless hide some disparities between joint committees. In order to verify this, we have estimated the wage differentials by joint committee. The choice of the joint committee is justified by the fact that this is the predominant level of bargaining in Belgium and that it is this level that could potentially be regionalised. Tables 2 to 4 synthesise the results. The complete denomination of the joint committees is given in the appendix. Nearly half of the Walloon workers¹⁶ from the sample work in a joint committee where there exists a significant statistical wage differential with Flanders

¹⁶ To be correct, they are “workers who are employed in Wallonia”: the data coming from the workplace and not the home place.

and/or with Brussels (see Table 2 and 3). In the majority of cases, wages are lower in Wallonia and the differentials are, on average, a bit more than 8 %. For the 3 joint committees where wages are higher in Wallonia (textile, cleaning, and big stores), the differentials are weaker and are around 4 %. Concerning the comparison between Brussels and Flanders, the proportion of employees who work in a joint committee where there exists a significant regional wage difference is smaller (31.2% of Flemish workers and 21.9% of workers from Brussels). Again, wages are most often higher in Flanders. However, one can see a bigger symmetry in the differentials: they are around 8% both when wages are higher in Flanders and in Brussels. It seems therefore that the absence of wage differentials between Flanders and Brussels that was obtained for all joint committees taken together is due to the fact that the differentials within each joint committee compensate each other. One thus sees here the relevance to lead an analysis at the joint committee level rather than at the aggregate national level.

To summarize, it seems that the Belgian system of wage bargaining does not prevent having differences in wages between the regions, even if the situation varies according to the joint committee and the regions that are compared.

Table 2: Wage differentials between Flanders and Wallonia by joint committee

	Joint Committees where wages are higher ^a in Flanders than in Wallonia (1)	Joint Committees where wages are lower ^a in Flanders than in Wallonia (2)	All Joint Committees with a statistically significant regional wage differential (1+2)
Number of Joint Committees (total in the sample = 36)	11	2	13
In % of employees in Flanders	43.6%	5.6%	49.2%
In % of employees in Wallonia	41.0%	3.4%	44.4%
Distribution of the regional wage differentials ^a :			
Mean	8.5%	-3.8%	
Median	8.1%	-3.8%	
Standard deviation	4.1%	1.3%	
Minimum	3.5% ^b	-2.9% ^d	
Maximum	17.2% ^c	-4.7% ^e	

Notes: Regional wage differentials are based on ordinary least squares estimates of wage equation (see notes of table 1 for more details); ^a: Differentials statistically significant at the 10% level; ^b: joint committee No 218; ^c: joint committee No 201; ^d: joint committee No 121; ^e: joint committee No 120.

Table 3: Wage differentials between Brussels and Wallonia by joint committee

	Joint Committees where wages are higher ^a in Brussels than in Wallonia (1)	Joint Committees where wages are lower ^a in Brussels than in Wallonia (2)	All Joint Committees with a statistically significant regional wage differential (1+2)
Number of Joint Committees (total in the sample = 25)	8	2	10
In % of employees in Wallonia	41.8%	4.7%	46.5%
In % of employees in Brussels	64.5%	5.4%	69.9%
Distribution of the regional wage differentials ^a :			
Mean	8.3%	-4.3%	
Median	8.1%	-4.3%	
Standard deviation	3.4%	1.9%	
Minimum	5.1% ^b	-3.0% ^d	
Maximum	14.7% ^c	-5.6% ^e	

Notes: Regional wage differentials are based on ordinary least squares estimates of wage equation (see notes of table 1 for more details); ^a: Differentials statistically significant at the 10% level; ^b: joint committee No 202; ^c: joint committee No 220; ^d: joint committee No 121; ^e: joint committee No 312.

Table 4: Wage differentials between Brussels and Flanders by joint committee

	Joint Committees where wages are higher ^a in Brussels than in Flanders (1)	Joint Committees where wages are lower ^a in Brussels than in Flanders (2)	All Joint Committees with a statistically significant regional wage differential (1+2)
Number of Joint Committees (total in the sample = 26)	3	8	11
In % of employees in Flanders	7.0%	24.2%	31.2%
In % of employees in Brussels	6.9%	15.0%	21.9%
Distribution of the regional wage differentials ^a :			
Mean	7.5%	-7.8%	
Median	7.8%	-8.1%	
Standard deviation	1.6%	1.3%	
Minimum	5.8% ^b	-5.6% ^d	
Maximum	9.1% ^c	-9.5% ^e	

Notes: Regional wage differentials are based on ordinary least squares estimates of wage equation (see notes of table 1 for more details); ^a: Differentials statistically significant at the 10% level; ^b: joint committee No 202; ^c: joint committee No 220; ^d: joint committee No 149; ^e: joint committee No 100.

4. Are the regional wage differentials explained by regional differences in productivity?

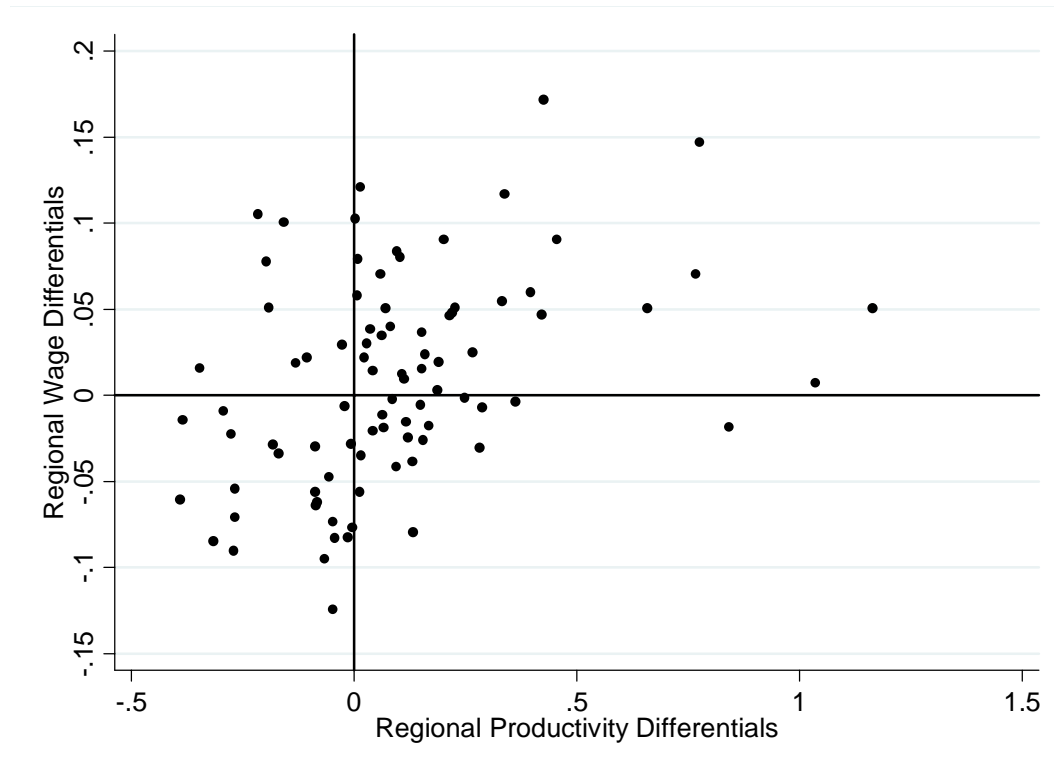
To answer this question, we, first, introduce the average firm's productivity in the wage equations in order to see if regional wage differentials vary in comparison to the basic specification. The wage differentials estimated via this specification are presented in the second row (model 2) in Table 1. The introduction of a firm's productivity in the wage equations makes the wage differentials between Flanders and Wallonia go from 2.4 % to 1.9 % and the differentials between Brussels and Wallonia go from 2.6% to 1.8%. The wage differential between Brussels and Flanders does not change when we control for firm's productivity. In other words, part of the wage differentials between Wallonia and the two other regions seems to be explained by differences in productivity between the firms situated in the different regions. One still needs to consider these results with prudence given the fact that the differences between the differentials of the two models are not statistically significant.¹⁷

This first result in mind, we want to see if the regional differentials in wage and productivity for each joint committee are correlated. Using the results from the 3 samples, the analysis is based on 87 wage differentials and 87 productivity differentials.¹⁸ Graphic 1 puts in relation the regional wage and productivity differentials within each joint committee. Each point on the graphic represents one joint committee. Most of the joint committees are represented several times as they are present in more than one sample. As the graphic shows, wage and productivity differentials seem to be positively correlated. This is confirmed by the coefficient of correlation between the two differentials which is 0.38 and significant at 1%.

¹⁷ In other terms, one cannot exclude the hypothesis in which the differentials of the two models are identical.

¹⁸ The methodology for the calculation of wage differentials per joint committee is presented in appendix 4. The wage and productivity differentials per joint committee are presented in appendix 5.

Graphic 1: Regional Differentials in Wage and Productivity by Joint Committee



Notes: Regional wage differentials are estimated using the regional dummy variables in the different wage equations (estimated by OLS). The per capita firm's value added serves as proxy to the productivity level.

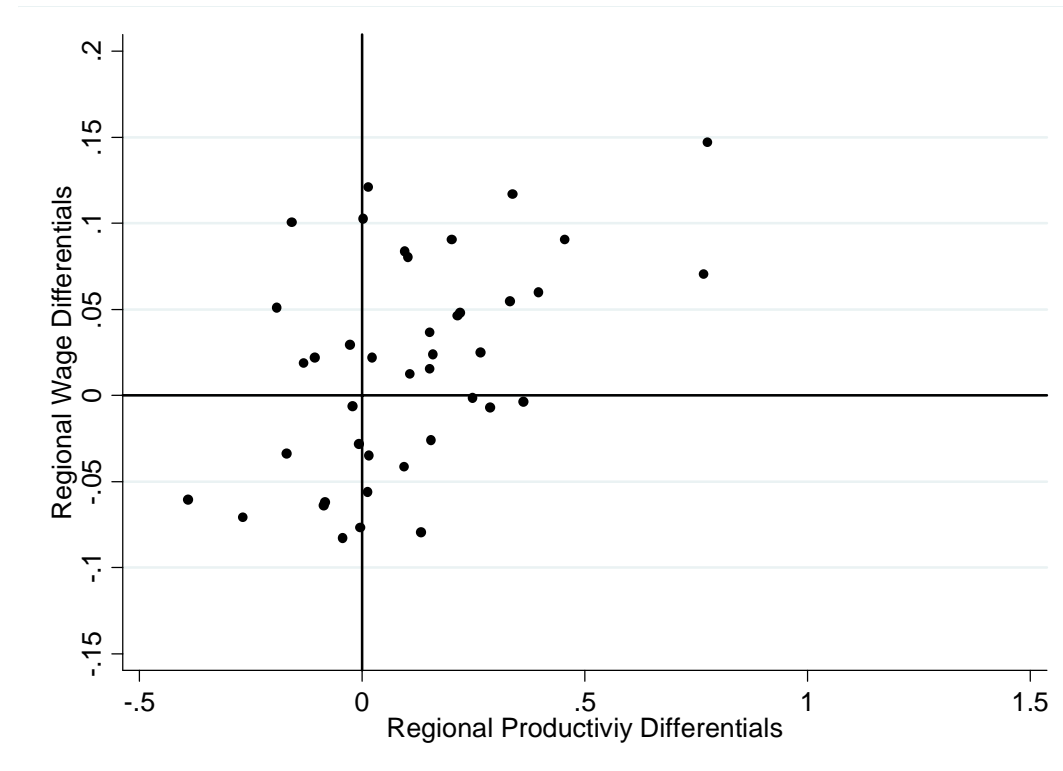
5. What mechanism allows for regional productivity differentials to be reflected in wages?

In addition to the inter-professional and industry bargaining levels that are national, two other levels of bargaining exist in Belgium. First, some joint committees are subdivided into regional sub-joint committees. Secondly, industry agreements can be completed through bargaining at the company level. The existence of regional wage differentials could therefore be explained by these two mechanisms.

Can bargaining at the company level explain how regional differences in productivity lead to regional wage differentials? In order to verify this hypothesis, we compare the relation between the regional wage and productivity differentials in the centralised joint committees and in the decentralised joint committees. We consider a joint committee to

be decentralised if the percentage of wages covered by firm-level collective agreement is superior to the median, which is to say 28%. If the hypothesis is correct, the relation between productivity differentials and wage differentials should be higher in decentralised joint committees, meaning where the level of the company has an important weight in determining wages.¹⁷ Our results show that the correlation between the two differentials is 0.50 and is significant at 1% for the decentralised joint committees, whilst it is only 0.30 and significant to the 5% for the centralised joint committees. Graphics 2 and 3 illustrate these results.

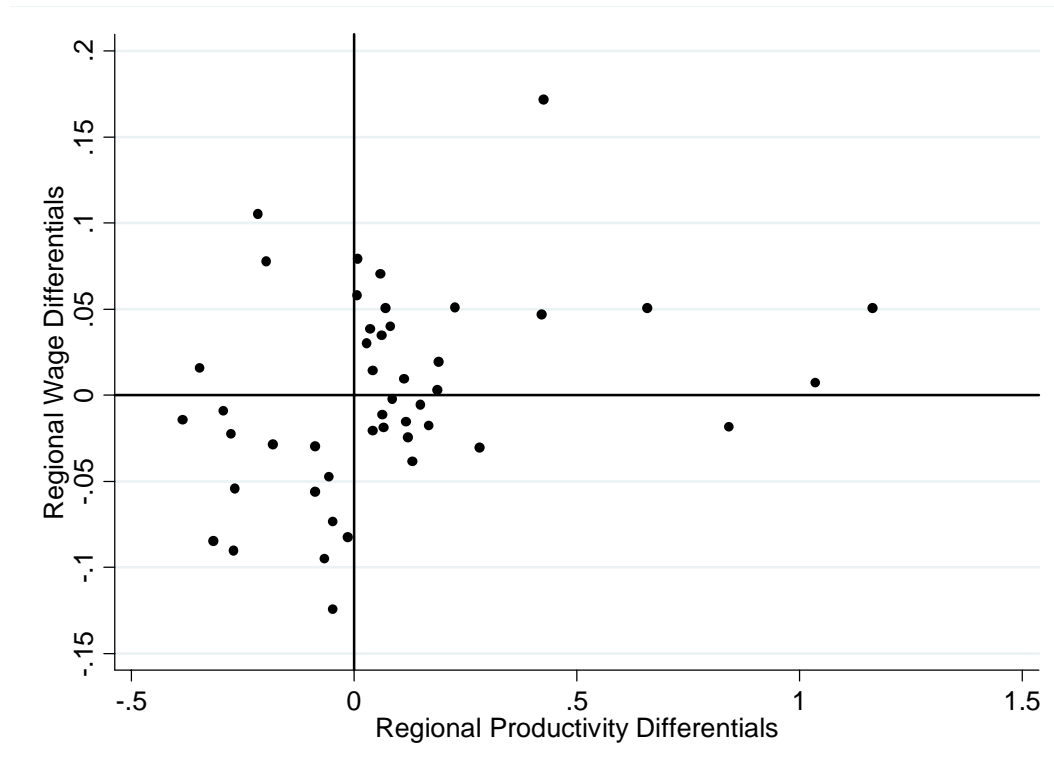
Graphic 2: Regional Differential in Wage and Productivity by Joint Committee, Decentralised Joint Committees.



Notes: Regional wage differentials are estimated using the regional dummy variables in the different wage equations (estimated by OLS). The per capita firm’s value added serves as proxy to the productivity level.

¹⁷ One must be aware that we cannot distinguish if the decentralization concerns wage levels (classification of functions and/or determination of regular bonuses), wage increases or both. The information from the database indicates only the eventual presence of a company-specific agreement, which could be carried on wages or on work time.

Graphic 3: Regional Differential in Wage and Productivity by Joint Committee Centralised Joint Committees.



Notes: Regional wage differentials are estimated using the regional dummy variables in the different wage equations (estimated by OLS). The per capita firm's value added serves as proxy to the productivity level.

The comparison of the two graphics shows a stronger relation between the wage and productivity differentials for decentralised joint committees than for centralised ones, where relatively high productivity differentials can be associated to relatively low wage differentials. These results seem to validate the hypothesis that the presence of company-specific agreement may allow wages to adapt to regional productivity differentials.

Nonetheless, it is possible that the subdivision of joint committees into regional sub-joint committees also allows wages to adapt to regional differentials in productivity. Only 3 joint committees are subdivided into regional sub-joint committees in our sample. This is the case of the Joint Committee for the manufacture of metal, mechanical and electrical products

(111), the Joint Committee for white collar workers employed in the manufacture of metal products (209) and the Joint Committee of urban and regional transport (328). One should note that this subdivision is not necessarily done according to the region. The metallic production sector (CP 111.1 and 111.2), for example, is divided into 10 regional committees.¹⁹ The correlation between regional wage and productivity differentials for these joint committees is 0.76 and is significant at 5%. It seems therefore that the subdivision of joint committees into regional sub-joint committees also allows wages to adapt to regional differentials in productivity. One must, nonetheless, consider this result with prudence since the number of observations used in this calculation is relatively low.²⁰ Considering that these 3 joint committees are classified in the decentralised joint committee category²¹, one can ask if the results relative to the degree of centralisation are not affected by the local subdivision of these joint committees. In order to verify this, we calculate the coefficient of correlation for the decentralised joint committees by excluding the 3 regional subdivided joint committees. The correlation diminishes very slightly from 0.50 to 0.49 and is still significant at 1%, which confirms that company-specific agreements equally allow for regional productivity differentials to be reflected in wage differentials.

Conclusion

Within the framework of the debate over the relationship between the structure of wage bargaining and economic performances in Europe, the question concerning the regional dimension returns in a recurring way. The discussion often relates, in particular, to the capacity of wage-setting systems to take into account the important economic disparities between regions.

¹⁹ Brabant, Flandre occidentale, Flandre orientale, Anvers-Limbourg, Saint-Nicolas, Charleroi-Namur, Liège-Luxembourg, Centre, Tournais, et Mons-Borinage.

²⁰ Considering the fact that these 3 joint committees are presented in the 3 samples, this correlation is based on 9 observations.

²¹ 47%, 38% and 64% of employees are covered by a company-specific agreement respectively for the joint committees 111,209 and 328.

In Belgium, the regionalisation of wage bargaining is at the heart of current negotiations relative to a de-federalisation of employment policy. The partisans for the regionalisation of wage bargaining argue that the differences in productivity between regions cannot be reflected in a formation of wages at the federal level. They add that a negotiation at the Wallonia level would be more sensitive to unemployment and would thus involve lower wages for this region.

In this article we have put forward the fact that an important proportion of Belgian employees are covered by joint committees which allow significant regional wage differentials. In addition, regional wage differentials and productivity differentials by joint committee are strongly correlated. These two results permit to conclude that the federal characteristic of the Belgian system of wage bargaining allow wages to adapt to differences in regional productivity. It could be argue, however, that this level of flexibility is not sufficient, in the sense that it does not remove the regional differences in terms of unit labour cost. Our results do not allow us to answer this question. Nevertheless our study has highlighted the mechanisms that allow wages to adapt to regional productivity. We observe that the correlation between regional wage differentials and regional productivity differentials is higher in decentralised joint commissions (whereby company-specific agreement has a significant impact on the wage setting) and in joint committees subdivided in regional sub-joint committees. Therefore, it seems that it is the possibility to negotiate wages at the company level and the existence of regional sub-joint committees that allow wages to adapt to the regional productivity differentials.

If wages are not enough sensitive to the local specificities, these two mechanisms could be extended. This solution has the advantage of avoiding increasing administrative complexities in joint committees where a more important wage differential is not necessary. Moreover, the decision to increase the weight of company-specific agreements or to subdivide joint committees is taken by the national joint committees, composed of those close to the reality on the field. In addition, these mechanisms allow not only taking into account differences between regions but equally differences between provinces,

labour pools or companies. Lastly, as already pointed by several authors, regionalisation of wage bargaining could create a higher increase in wages than in the current national system, and could open the path to the regionalisation of the social security. In conclusion, the current system already contains the mechanisms that allow for regional differences in productivity to be reflected in wages. It is therefore not certain that a regionalisation of the wage setting system is necessary.

Finally, let us note that increasing regional wage differentials will increase wage inequalities but the impact on unemployment is unknown. Future research should focus at the regional level on the impact of an increasing wage dispersion on the employment level. Nevertheless, other paths should also be followed in order to increase the level of employment, notably investment in education, training and R&D, or reductions of social security contributions aimed at low-skilled workers.

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Appendix 1: Description of the Joint Committees analysed

No of the Joint Committee	Name of the Joint Committee
100	Auxiliary joint committee for blue collar workers
105	Joint committee for the manufacture of non ferrous metals
109	Joint Committee for the clothing and apparel industries
111	Joint Committee for the manufacture of metal, mechanical and electrical products
112	Joint Committee for garage enterprises
115	Joint Committee for the glass industry
116	Joint Committee for the chemical industry
118	Joint Committee for the food industry
119	Joint Committee for the trade of food
120	Joint Committee for the textile and hosiery industries
121	Joint Committee for the cleaning industry
124	Joint Committee for the building industry
126	Joint Committee for the manufacture of furniture and wood products
129	Joint Committee for the manufacture of pulp and paper
130	Joint Committee for printing, graphic arts and newspapers
136	Joint Committee for the manufacture of pulp and paper products
140	Joint Committee for transport and logistics
142	Joint Committee for waste reprocessing
149	Joint Committee of sectors connected the manufacture of metal, mechanical and electrical products
201	Joint Committee for independent retailing
202	Joint Committee for white collar workers employed in food retailing
207	Joint Committee for white collar workers employed in the chemical industry
209	Joint Committee for white collar workers employed in the manufacture of metal products
210	Joint Committee for white collar workers employed in the steel industry
211	Joint Committee for white collar workers employed in the oil industry
214	Joint Committee for white collar workers employed in the textile and hosiery industries
215	Joint Committee for white collar workers employed in the clothing and apparel industries
218	National Auxiliary joint committee for white collar workers
220	Joint Committee for white collar workers employed in the food industry
221	Joint Committee for white collar workers employed in the paper industry
222	Joint Committee for white collar workers employed in the manufacture of pulp and paper
224	Joint Committee for white collar workers employed in the manufacture of non ferrous metals
226	Joint Committee for white collar workers employed in international trade, transport and logistics
302	Joint Committee of the hotel industry
307	Joint Committee for brokerage firms and et insurance agencies
311	Joint Committee of large retail firms
312	Joint Committee of department stores
313	Joint Committee for medicine shops
328	Joint Committee of urban and regional transport

Source: SPF Emploi, Travail et Concertation sociale.

Appendix 2: Means of selected variables

	Brussels	Flanders	Wallonia
Gross hourly wages (EUR)	14.4	13.2	13.0
Value added-per-worker (EUR)	91 990.9	62 302.0	56 082.6
Worker's characteristics			
Female	40.9%	36.0%	33.8%
Prior experience (years)	11.3	12.2	12.2
Education:			
Primary or no degree	5.4%	8.1%	9.6%
Lower secondary	22.5%	26.5%	29.2%
General upper secondary	20.5%	22.5%	19.3%
Technical/Artistic/Prof. upper secondary	14.0%	20.5%	21.3%
Higher non university short type, higher artistic training	21.5%	15.7%	13.9%
University and non-university higher education, long type	14.9%	6.4%	6.2%
Post-graduate	0.4%	0.2%	0.3%
Job's characteristics			
Seniority in the company (years)	7.8	7.8	8.5
Part-time	16.0%	17.2%	15.1%
Working in Shift, or During Night or Weekend	8.5%	12.9%	16.9%
Working overtime	2.7%	2.5%	2.6%
Type of contract:			
Unlimited-term employment contract	94.9%	96.2%	94.6%
Limited-term employment contract	4.8%	3.3%	4.5%
Other employment contract	0.4%	0.4%	0.8%
Occupation (ISCO 1 digit):			
Professionals	23.1%	11.0%	10.0%
Technicians and associate professionals	12.0%	9.7%	10.2%
Clerks	26.4%	19.8%	19.1%
Service workers and shop and market sales workers	13.0%	10.0%	9.8%
Craft and related trade workers	10.6%	20.2%	24.3%
Plant and machine operators and assemblers	7.6%	19.6%	15.5%
Elementary occupations	7.4%	9.7%	11.1%
Firm's characteristics			
Size of the establishment (number of employees)	299.9	304.4	180.2
Form of Economic and Financial control:			
100% private	94.2%	97.6%	96.2%
Partly State owned	0.1%	0.8%	0.4%
Other	5.7%	1.6%	3.4%
Industry (NACE 1 digit):			

Mining and quarrying	0.0%	0.0%	0.1%
Manufacturing	15.8%	38.3%	36.7%
Construction	5.6%	8.9%	11.3%
Wholesale and retail trade; Repair of motor vehicles, motorcycles and personal and household goods	28.9%	21.0%	23.5%
Hotels and restaurants	6.8%	3.1%	3.0%
Transport, storage and communication	10.7%	10.1%	9.3%
Financial intermediation	2.2%	0.4%	0.5%
Real estate, renting and business activities	29.9%	18.3%	15.7%

Note : means computed with sample weights

Appendix 3: Wage Equations for different samples

	Brussels + Flanders sample ^a	Brussels + Wallonia sample ^b	Flanders + Wallonia sample ^c
Region of the establishment			
Brussels	-0.009 (0.007)	0.017** (0.009)	n.a.
Flanders	Reference	n.a.	0.019*** (0.005)
Wallonia	n.a.	Reference	Reference
Worker's characteristics			
Female	-0.108*** (0.005)	-0.075*** (0.006)	-0.121*** (0.004)
Prior experience:			
Simple	0.018*** (0.001)	0.020*** (0.002)	0.016*** (0.001)
Squared/10 ²	-0.055*** (0.006)	-0.064*** (0.009)	-0.046*** (0.005)
Cubed/10 ⁴	0.057*** (0.010)	0.074*** (0.013)	0.050*** (0.009)
Education:			
Primary or no degree		Reference	
Lower secondary	0.021*** (0.007)	0.006 (0.010)	0.024*** (0.006)
General upper secondary	0.067*** (0.008)	0.048*** (0.012)	0.067*** (0.007)
Technical/Artistic/Prof. upper secondary	0.076*** (0.008)	0.077*** (0.011)	0.072*** (0.007)
Higher non university short type, higher artistic training	0.145*** (0.010)	0.148*** (0.014)	0.132*** (0.009)
University and non-university higher education, long type	0.276*** (0.012)	0.278*** (0.018)	0.276*** (0.012)
Post-graduate	0.524*** (0.053)	0.480*** (0.041)	0.491*** (0.048)
Job's characteristics			
Seniority in the company:			
Simple	0.017*** (0.001)	0.018*** (0.001)	0.016*** (0.001)
Squared/10 ²	-0.021***	-0.022***	-0.020***

	(0.002)	(0.003)	(0.002)
Working in Shift, or During Night or Weekend Working overtime	0.047*** (0.007)	0.067*** (0.009)	0.043*** (0.006)
	0.032*** (0.009)	0.037*** (0.012)	0.018** (0.008)
Part time	-0.003 (0.005)	-0.006 (0.007)	-0.002 (0.005)
Type of contract:			
Unlimited-term employment contract		Reference	
Limited-term employment contract	-0.042*** (0.012)	-0.058*** (0.014)	-0.032*** (0.009)
Other employment contract	-0.014 (0.017)	-0.036* (0.019)	-0.024 (0.016)
Firm's characteristics			
Value added-per-worker (ln)	0.087*** (0.008)	0.071*** (0.012)	0.099*** (0.007)
Size of the establishment ^e (ln)	0.012*** (0.002)	0.005 (0.003)	0.017*** (0.002)
Form of economic and financial control:			
100% Private		Reference	
Partly State owned	-0.031 (0.040)	-0.081* (0.043)	-0.018 (0.040)
Other	0.002 (0.018)	-0.019 (0.027)	0.011 (0.018)
R ²	0.58	0.60	0.56
F stat	5 346.7***	10 703.0***	72.5***
Number of observations	49 708	26 445	58 427

Notes : * p < 0.10; ** p < 0.05; *** p < 0.01; T stats are reported between brackets ; Standard errors are corrected for heteroscedasticity (White, 1980) and common variance components within groups (Moulton, 1990). ^a: covers the joint committees No 100, 111, 112, 116, 118, 119, 121, 124, 126, 130, 136, 140, 149, 201, 202, 207, 209, 211, 218, 220, 226, 302, 311, 312, 313 and 328; ^b: idem except No 211; ^c: idem plus No 105, 109, 115, 120, 129, 142, 214, 215, 222, 224 and 307; ^d: age minus seniority in the company minus estimated number of years of schooling minus 6; ^e: Number of employees; The wage equation also contains controls for the occupation (20 dummies according to the ISCO classification); the industry (154 dummies according to the NACE classification) and the joint committee (35, 25 and 24 dummies respectively for the Flanders-Wallonia sample, the Brussels-Flanders sample and the Brussels-Wallonia sample). Gross hourly wage includes overtime paid, premiums for shift, night and/or week-end work, and regular bonuses. It does not include irregular payments which do not occur during each pay period, such as pay for holiday, 13th month, profit-sharing, etc.

Appendix 4: Methodology used to estimate the regional wage differentials by joint committee:

In the first stage, we estimate the following wage equation by ordinary least squares, correcting standard errors for heteroscedasticity (White, 1980) and for common variance components within groups (Moulton,1990):

$$w_i = \alpha + \beta \text{Re gion}_i + \sum_j \gamma_j \text{JC}_{j,i} + \sum_j \delta_j (\text{Re gion}_i * \text{JC}_{j,i}) + \sum_k \theta_k X_{k,i} \quad (1)$$

where w is the logarithm of the gross hourly wages of October 2003, which includes overtime paid, premiums for shift, night and/or week-end work, and regular bonuses and does not include irregular payments which do not occur during each pay period, such as pay for holiday, 13th month, profit-sharing, etc ; Region is a dummy variable equal to 1 if the individual works in Brussels and 0 if he works in Wallonia when using the sample covering Brussels and Wallonia, 1 if the individual works in Brussels and 0 if he works in Flanders when using the sample covering Brussels and Flanders, and 1 if the worker works in Flanders and 0 if he works in Wallonia when using the sample covering Flanders and Wallonia; JC_j are dummy variables indicating to which joint committee the individual belongs. For the sample covering Brussels and Wallonia, they are joint committees number 100, 111, 112, 116, 118, 119, 121, 124, 126, 130, 136, 140, 149, 201, 202, 207, 209, 211, 218, 220, 226, 302, 311, 312, 313 et 328. For the sample covering Brussels and Flanders, this is the same except the joint committee 211. For the sample covering Flanders and Wallonia, there is also the joint committees number 105, 109, 115, 120, 129, 142, 214, 215, 222, 224, et 307 ; Finally X_k are the control variables, namely sex; education (6 dummies); prior potential experience, its square and its cube; tenure within the current company and its square; a variable showing whether the individual received a bonus for shift work, night work and/or weekend work; a variable indicating whether the individual worked overtime; type of contract (2 dummies); a dummy indicating if the worker is part-time; occupation (20 dummies according to the ISCO classification); size of the establishment (i.e. number of workers); financial and economic control (2 dummies); industry (154 dummies according to the NACE classification);

The regional wage differential in the joint committee No j is given by:

$$e^{\beta + \delta_j} - 1 \quad (2)$$

As an illustration, we estimate the wage differential between Flanders and Wallonia for the joint committee No 201, hence using the sample covering Flanders and Wallonia.

The mean logarithm of the gross hourly wages of individuals working in Flanders and belonging to the joint committee No 201 is given by:

$$E(w_i | \text{Flanders} \& \text{JC}_{201}) = \alpha + \beta + \gamma_{201} + \delta_{201} + \sum_k^K \theta_k X_{k,i} \quad (3)$$

The mean logarithm of the gross hourly wages of individuals working in Wallonia and belonging to the joint committee No 201 is given by:

$$E(w_i | \text{Wallonia} \& \text{JC}_{201}) = \alpha + \gamma_{201} + \sum_k^K \theta_k X_{k,i} \quad (4)$$

The difference in logarithm of gross hourly wages between Flanders and Wallonia in the joint committee No 201 is given by the difference between equation 3 and equation 4:

$$E(w_i | \text{Flanders} \& \text{JC}_{201}) - E(w_i | \text{Wallonia} \& \text{JC}_{201}) = \beta + \delta_{201} \quad (5)$$

Finally, the wage differential (in %) is given by :

$$e^{\beta + \delta_{201}} - 1 \quad (6)$$

All the regional wage differentials by joint committees are presented in the appendix 5. Complete wage equations are available on request.

Appendix 5: Regional wage differentials, Regional productivity differentials, and percentage of workers covered by a firm-level collective agreement by joint committee

Number of the Joint Committee	Comparison	Wage differentials^a	Productivity differentials^b	Percentage of workers covered by a firm-level agreement^c
100	Brussels-Flanders	-0.09	-0.07	0.08
100	Brussels-Wallonia	-0.05	-0.27	0.08
100	Flanders-Wallonia	0.11	-0.22	0.08
105	Flanders-Wallonia	-0.01	0.29	0.83
109	Flanders-Wallonia	-0.02	0.84	0.02
111	Brussels-Flanders	-0.06	-0.08	0.47
111	Brussels-Wallonia	-0.03	0.02	0.47
111	Flanders-Wallonia	0.01	0.11	0.47
112	Brussels-Flanders	-0.02	0.17	0.05
112	Brussels-Wallonia	0.05	0.66	0.05
112	Flanders-Wallonia	0.05	0.42	0.05
115	Flanders-Wallonia	-0.06	-0.09	0.67
116	Brussels-Flanders	-0.07	-0.27	0.68
116	Brussels-Wallonia	0.05	-0.19	0.68
116	Flanders-Wallonia	0.08	0.10	0.68
118	Brussels-Flanders	0.00	0.25	0.36
118	Brussels-Wallonia	0.05	0.21	0.36
118	Flanders-Wallonia	0.03	-0.03	0.36
119	Brussels-Flanders	0.08	-0.20	0.20
119	Brussels-Wallonia	0.03	0.03	0.20
119	Flanders-Wallonia	-0.03	0.28	0.20
120	Flanders-Wallonia	-0.05	-0.06	0.13
121	Brussels-Flanders	-0.02	0.12	0.22
121	Brussels-Wallonia	-0.03	-0.09	0.22
121	Flanders-Wallonia	-0.03	-0.18	0.22
124	Brussels-Flanders	-0.02	0.07	0.00
124	Brussels-Wallonia	0.00	0.19	0.00

124	Flanders-Wallonia	0.01	0.11	0.00
126	Brussels-Flanders	-0.01	-0.38	0.15
126	Brussels-Wallonia	-0.01	-0.29	0.15
126	Flanders-Wallonia	-0.01	0.15	0.15
129	Flanders-Wallonia	-0.06	-0.39	1.00
130	Brussels-Flanders	0.04	0.04	0.23
130	Brussels-Wallonia	-0.08	-0.01	0.23
130	Flanders-Wallonia	-0.12	-0.05	0.23
136	Brussels-Flanders	-0.03	-0.17	0.61
136	Brussels-Wallonia	0.10	-0.16	0.61
136	Flanders-Wallonia	0.12	0.01	0.61
140	Brussels-Flanders	-0.08	-0.32	0.14
140	Brussels-Wallonia	-0.02	-0.28	0.14
140	Flanders-Wallonia	0.07	0.06	0.14
142	Flandre-Wallonie	-0.07	-0.05	0.03
149	Brussels-Flanders	-0.06	-0.09	0.04
149	Brussels-Wallonia	-0.02	0.12	0.04
149	Flanders-Wallonia	0.05	0.23	0.04
201	Brussels-Flanders	-0.09	-0.27	0.01
201	Brussels-Wallonia	0.01	0.04	0.01
201	Flanders-Wallonia	0.17	0.43	0.01
202	Brussels-Flanders	0.06	0.01	0.25
202	Brussels-Wallonia	0.05	0.07	0.25
202	Flanders-Wallonia	-0.01	0.06	0.25
207	Brussels-Flanders	0.02	-0.13	0.45
207	Brussels-Wallonia	0.10	0.00	0.45
207	Flanders-Wallonia	0.04	0.15	0.45
209	Brussels-Flanders	-0.03	-0.01	0.38
209	Brussels-Wallonia	0.02	0.15	0.38
209	Flanders-Wallonia	0.02	0.16	0.38
211	Brussels-Flanders	0.02	-0.35	0.05
214	Flanders-Wallonia	0.02	0.19	0.06
215	Flanders-Wallonia	0.04	0.08	0.06

218	Brussels-Flanders	0.01	1.04	0.10
218	Brussels-Wallonia	0.05	1.16	0.10
218	Flanders-Wallonia	0.03	0.06	0.10
220	Brussels-Flanders	0.09	0.46	0.31
220	Brussels-Wallonia	0.15	0.78	0.31
220	Flanders-Wallonia	0.05	0.22	0.31
222	Flanders-Wallonia	0.08	0.01	0.20
224	Flanders-Wallonia	-0.03	0.16	0.82
226	Brussels-Flanders	0.06	0.40	0.35
226	Brussels-Wallonia	0.07	0.77	0.35
226	Flanders-Wallonia	0.03	0.27	0.35
302	Brussels-Flanders	0.00	0.09	0.00
302	Brussels-Wallonia	-0.04	0.13	0.00
302	Flanders-Wallonia	-0.02	0.04	0.00
307	Flanders-Wallonia	0.00	0.36	0.35
311	Brussels-Flanders	-0.08	-0.04	0.55
311	Brussels-Wallonia	-0.01	-0.02	0.55
311	Flanders-Wallonia	0.02	0.02	0.55
312	Brussels-Flanders	-0.08	0.13	0.69
312	Brussels-Wallonia	-0.06	0.01	0.69
312	Flanders-Wallonia	0.02	-0.11	0.69
313	Brussels-Flanders	-0.08	0.00	0.57
313	Brussels-Wallonia	0.05	0.33	0.57
313	Flanders-Wallonia	0.12	0.34	0.57
328	Brussels-Flanders	-0.04	0.10	0.64
328	Brussels-Wallonia	0.09	0.20	0.64
328	Flanders-Wallonia	0.08	0.10	0.64

^a: Computed on the basis on the wage equations estimates (cf. appendix 4); ^b Differential between the mean value added-per-worker in region 1 and in region 2, within the same joint committee. ^c: All regions taken together.