

# How does offshoring shape labour market imperfections? A comparative analysis of Belgian and Dutch firms\*



By Sabien Dobbelaere (Vrije Universiteit Amsterdam, Tinbergen Institute and IZA), Catherine Fuss (National Bank of Belgium) and Mark Vancauteran (Universiteit Hasselt and Statistics Netherlands)

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*This paper examines the relationship between offshoring and labour market imperfections at firm level in two small, open European economies - Belgium and the Netherlands - that differ in terms of their labour market institutional setup and internationalisation scope. We found that offshoring tends to benefit employers in that imports are associated with a higher prevalence and intensity of wage markdowns and a lower prevalence of wage markups. The effect of offshoring on wage markdowns is felt through increased productivity that is only imperfectly passed through to higher wages. This effect is more pronounced in Belgium, where the labour market is characterised by more regulated wage formation. For Belgian firms, the origin of imports impacts the prevalence of labour market imperfections. This is far less the case for Dutch firms, a finding which could be explained by their more global focus and vertical integration.*

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The deepening of globalisation is reflected in the internationalisation of production through increased imports of finished and intermediate goods or, in other words, offshoring. However, the development of global value chains has raised concerns about negative impacts on labour market outcomes, such as wages and employment, in particular for low-skilled workers. Complementing research analysing the reduced-form effects of offshoring on such end points, we take a more structured approach and examine how offshoring affects labour market imperfections at firm level. Our analysis sheds light on the impact of offshoring on the labour market power of firms and workers.

To that end, we follow the approach developed by Dobbelaere and Mairesse (2013) which uses production function estimates to measure labour market imperfections. Specifically, we assume that labour market imperfections drive a wedge between the output elasticity of labour and intermediate inputs and their revenue shares that is informative on the source of such imperfections (either monopsony power enabling firms to implement a wage markdown or monopoly power in the hands of workers, obliging employers to agree to a wage markup) and their magnitude (the intensity of firm monopsony/wage-setting power under wage-markdown pricing and the intensity of worker monopoly/bargaining power under wage-markup pricing).

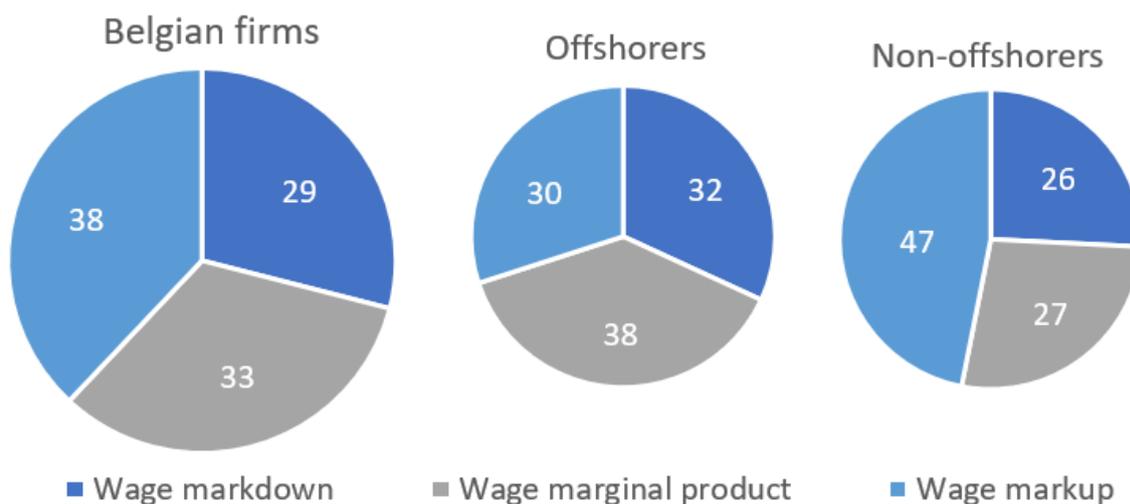
For purposes of this study, we relied on rich, cross-country comparative firm-level data for manufacturing firms over the period 2009-2017, with detailed information on the type of imports and their origin. Offshoring was measured as the ratio of the value of imports to the value of production and defined at firm level. It was further decomposed by type of product and region of origin of imports. More precisely, the richness of the data allowed us to distinguish between imports of intermediate inputs and imports of final goods, with the type of good identified at firm level. In addition, we were able to consider different regions of origin of imports, in particular neighbouring countries, OECD countries, non-OECD countries and China.

The analysis was performed for Belgium and the Netherlands separately. Both countries are small, open European economies; however, they differ in terms of their labour market institutional setup and internationalisation scope. In short, Belgium is characterised by a highly regulated system of collective wage bargaining (essentially at industry level) complemented by automatic wage indexation. Further, union density is higher and employment legislation more protective of permanent contracts than in the Netherlands. In terms of internationalisation, the Netherlands has a more global scope in that it has more outward FDI, with a higher FDI share outside the EU and China playing a more important role.

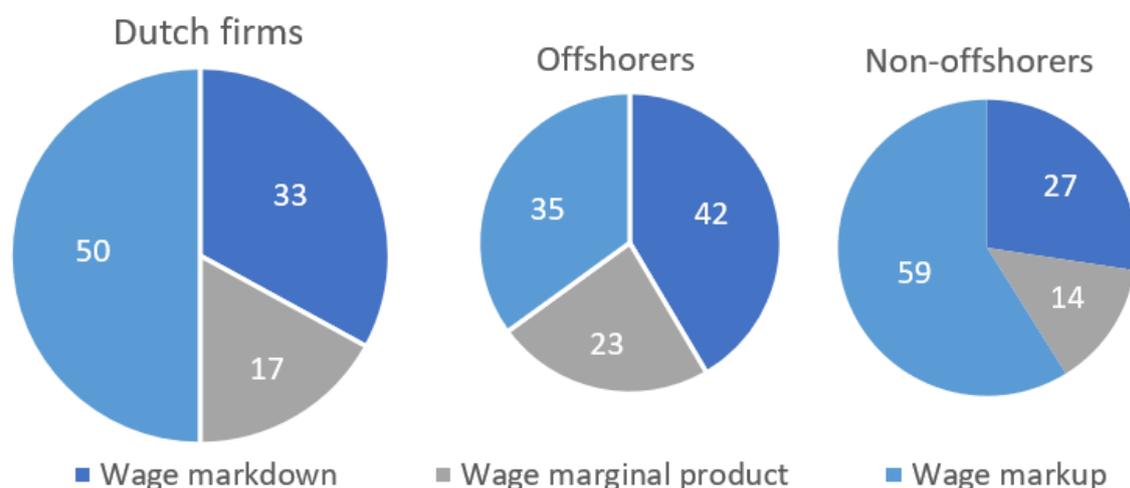
### **Labour market imperfections are the rule, not the exception**

Our results indicate that a labour market setting in which firms pay the marginal employee a real wage equal to the marginal product of labour (wage-marginal product pricing) is the exception rather than the rule in both countries. Rather, imperfectly competitive labour market settings prevail, regardless of whether firms pay the marginal employee a real wage lower than the marginal product of labour (wage-markdown pricing) or in excess of this product (wage-markup pricing). Of these imperfectly competitive labour market settings, wage-markup pricing arising from the monopoly power of workers is more prevalent than wage-markdown pricing stemming from the monopsony power of firms.

**Figure 1(a): Labour market settings Belgium (% of firm-year observations per setting)**



**Figure 1(b): Labour market settings in the Netherlands (% of firm-year observations per setting)**



*Note: Percentage of firm-year observations involving wage-markdown, wage-marginal product or wage-markup pricing. The results are based on estimated output elasticity and revenue shares for labour and intermediate inputs for manufacturing firms in Belgium and the Netherlands over the period 2007-2009.*

Distinguishing between offshoring and non-offshoring firms and classifying observations into three labour market settings (wage-markdown, wage-markup and wage-marginal product pricing) reveals that a labour market setting favouring employers is much more prevalent amongst offshoring firms than non-offshoring ones (23% higher in Belgium and 56% in the Netherlands), while a labour market setting favouring employees is around 40% less prevalent amongst offshoring firms compared to non-offshoring ones. These figures suggest that offshoring tends to benefit employers and work to the detriment of employees.

### Offshoring benefits employers in both countries

Going beyond these descriptive statistics, we conducted a regression analysis to estimate the marginal effects of offshoring on the probability and intensity of labour market imperfections. In doing so, we controlled for firm-level observables, such as the export-to-sales ratio, firm size (number of employees), capital intensity, the share of employees with higher education, and total factor productivity as well as industry observables, such as import competition, in addition to year and industry fixed effects. Table 1 shows the marginal effects of offshoring on the probability of a wage markdown (column 1) and a wage markup (column 2).

Consistent with the descriptive evidence presented in Figure 1, we found that offshoring is associated with an increase in the conditional probability of a wage markdown and a decrease in the probability of a wage markup in both countries. This effect is most pronounced in the Netherlands.

The same qualitative findings hold true for the effect of offshoring on the monopsony power of firms (intensity of wage markdowns) and the bargaining power of workers (intensity of wage markups). An increase in offshoring is associated with significantly higher monopsony power (as mirrored in labour supply elasticity) in both countries and lower worker bargaining power in Belgium.

A closer look at the type of offshored goods reveals that offshoring of either finished or intermediate goods is associated with a higher prevalence and intensity of wage markdowns and a lower prevalence of wage markups in both countries. In the Netherlands, offshoring of intermediate goods is especially beneficial to employer monopsony power and detrimental to employee bargaining power compared to the offshoring of final goods.

To examine the channels through which offshoring shapes labour market imperfections, we decomposed the ratio of the average wage paid by firms to the equilibrium marginal revenue product of labour (reduced-form representation of labour market imperfections) into four components (the average wage paid by the firm, the price-cost markup, the value of the marginal product of labour, and the industry-level output price), following the methodology of Caselli et al. (2021), and estimated the effect of total imports on each component, including the same set of control variables indicated above.

We found there to be a negative relationship between offshoring and labour market imperfections that was only significant for the subsample of wage-markdown firms in both countries: an increase in the one-year lagged total import share by 0.1 widens the gap between the wage paid by the firm and the marginal revenue product of labour by 19.3% in Belgium and 16.8% in the Netherlands. This effect occurs through an increase in productivity (41% in Belgium and 49% in the Netherlands) that is imperfectly passed through to higher wages (15% in Belgium and 35% in the Netherlands). This imperfect productivity-wage pass-through is most pronounced in Belgium and can be explained by more regulated wage formation and greater wage rigidity.

**Table 1: Average marginal effect of a 0.1 increase in offshoring on the probability of a wage markdown and a wage markup (in percentage points)**

	Wage markdown	Wage markup
<u>Belgium</u>		
Offshoring <sub>t-1</sub>	2.1	-3.9
- Intermediate goods <sub>t-1</sub>	2.1	-4.0
- Final goods <sub>t-1</sub>	2.4	-3.4
<u>The Netherlands</u>		
Offshoring <sub>t-1</sub>	6.4	-8.8
- Intermediate goods <sub>t-1</sub>	8.2	-10.5
- Final goods <sub>t-1</sub>	4.1	-6.1

*Note: Estimates are based on multinomial logit regressions. Control variables include both firm-level observables, such as the export-to-sales ratio, firm size (number of employees), capital intensity, the share of employees with higher education, and total factor productivity, and industry observables, such as import competition, in addition to year and industry fixed effects. All coefficients are significant at the 1% level.*

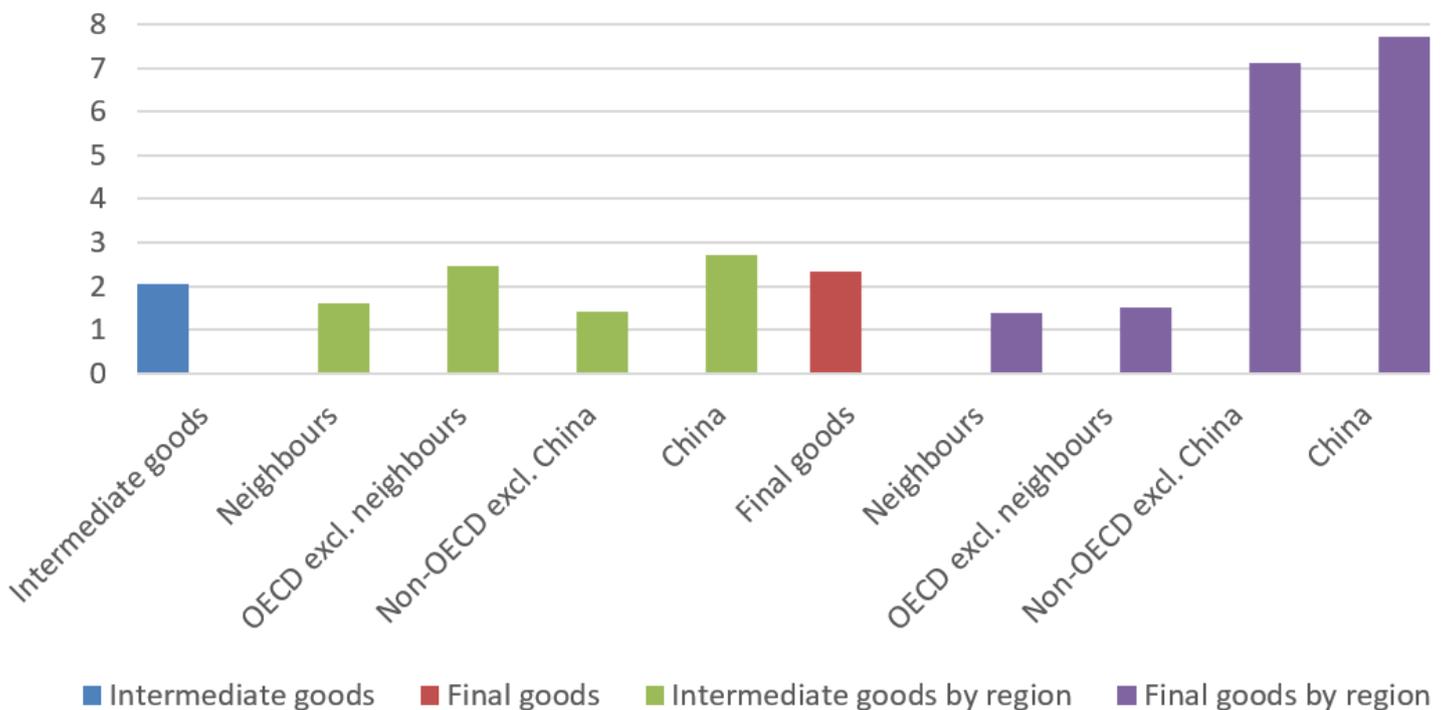
## Importance of the origin of imports: two small countries with two different stories

Belgium and the Netherlands are both small, open economies which however differ in the scope of their openness and exposure to foreign markets and their position in global value chains. Compared to Belgian firms, Dutch firms are more international in scope with a higher percentage of trade and/or FDI outside the EU and with China playing a more prominent role in internationalisation patterns.

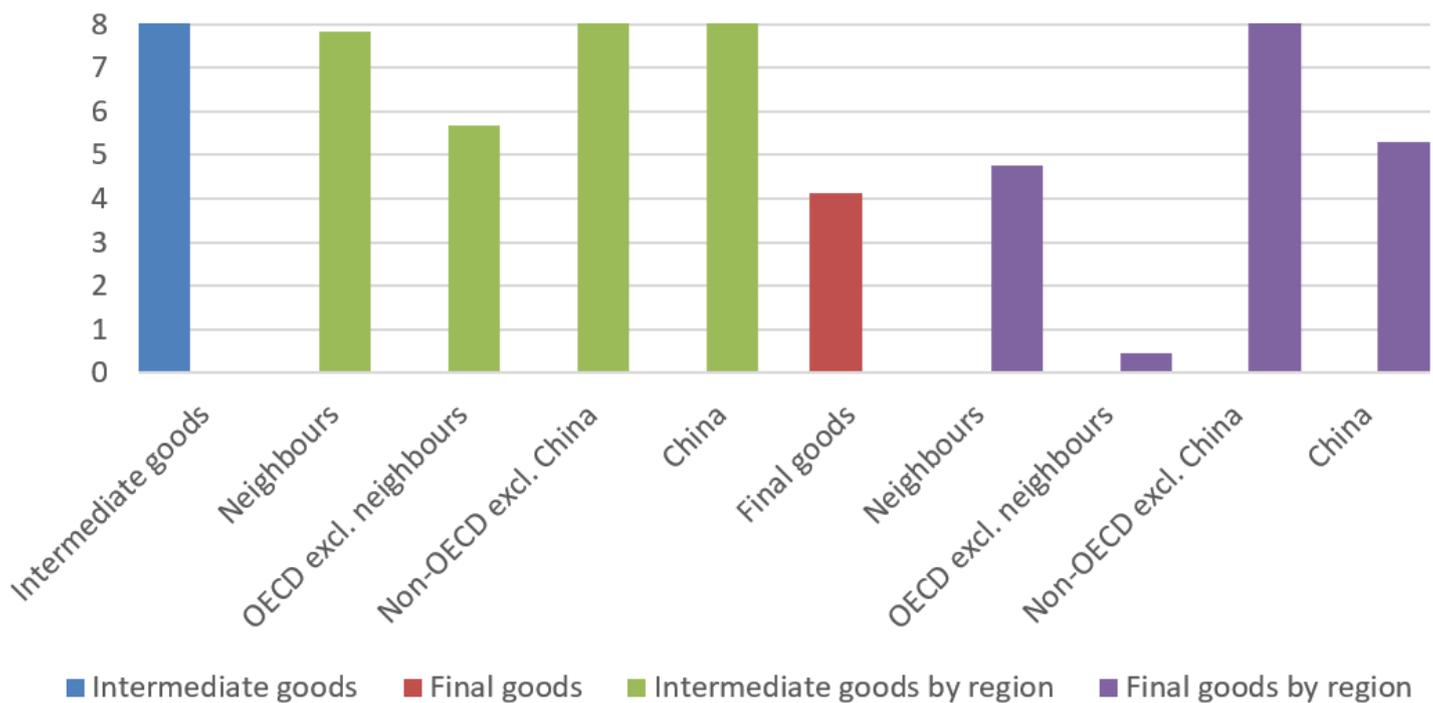
These features shape the impact of offshoring on labour market imperfections. First, the size of the effect of offshoring is greater in the Netherlands than in Belgium, as shown above. Second, the offshoring of intermediate goods has a much larger effect than the offshoring of final goods in the Netherlands (see above). Third, for Belgium, the region of origin of imports matters, which is not the case for the Netherlands.

Figure 2 illustrates these findings for the impact of firm-level offshoring on wage markdowns where we distinguish between offshoring by type and origin. The effect of offshoring on wage markdowns by Belgian firms is significantly higher when intermediate inputs are imported from OECD countries, excluding neighbouring countries.<sup>1</sup> More noticeably, the impact is three to four times higher when imports of final goods originate from non-OECD countries and China, as opposed to OECD countries. The origin of imports matters less in determining the impact of offshoring on wage markdowns for Dutch firms, except for a smaller effect in the case of OECD countries excluding neighbours.

**Figure 2(a): Average marginal effect of a 0.1 increase in offshoring on the probability of a wage markdown in Belgium (percentage points by type of goods and region of origin)**



<sup>1</sup>The estimated impact of the offshoring of intermediate goods imported from China on the probability of wage markdowns is not significant for Belgium.

**Figure 2(b): Average marginal effect of a 0.1 increase in offshoring on the probability of a wage markdown in the Netherlands (percentage points by type of goods and region of origin)**

Note: Estimates are based on multinomial logit regressions. Control variables include both firm-level observables, such as the export-to-sales ratio, firm size (number of employees), capital intensity, the share of employees with higher education, and total factor productivity, and industry observables, such as import competition, in addition to year and industry fixed effects.

## Conclusion

In view of the concern that the monopsony power of firms has been rising in recent years, this paper demonstrates how different facets of firm-level offshoring (type and origin of imports) influence the prevalence and intensity of this monopsony power in Belgium and the Netherlands. We found that firm-level offshoring favours employers, regardless of the nature of imports. Firms with offshoring activities are more likely to impose wage markdowns and less likely to pay wage markups. The aggravating effect of offshoring on wage markdowns (that is, its tendency to magnify monopsony power) occurs via productivity increases that are not fully passed through to higher wages. This imperfect pass-through is most pronounced in Belgium, where the labour market is characterised by more regulated wage formation. The origin of imports also affects the prevalence of monopsony power of Belgian firms, but far less so that of Dutch firms, which tend to have a more global focus and scale of vertical integration. ■

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## About the authors

**Sabien Dobbelaere** is an associate professor in the Department of Economics at the Vrije Universiteit Amsterdam and a research fellow at the Tinbergen Institute (TI) in Amsterdam and the IZA (Institute of Labour Economics) in Bonn. She is an applied microeconomist studying topics related to labour, productivity and industrial organisation. Firm production, pricing and labour-management relations, and the observed gap between the marginal product of an input and its pricing, as well as the ubiquity and persistence of variations in firm-level productivity, are but some of the empirical regularities that shape her research agenda.

**Catherine Fuss** is head of the Econometrics and Modelling division in the Economics and Research Department at the National Bank of Belgium and a member of the National Productivity Board and the Société Royale d'Economie Politique Belge. She holds a PhD in economics from the Université Libre de Bruxelles (ULB), and her microeconomic research is regularly published in international peer-reviewed journals. Her research interests include firm investment decisions, price setting, wage formation, trade, markups and productivity issues.

**Mark Vancauterem** is an associate professor of econometrics in the Department of Economics at Hasselt University and a part-time senior researcher at Statistics Netherlands. He holds an MA and a PhD in economics from the Université Catholique de Louvain (UCL). His field of specialisation is applied econometrics in the areas of industrial organisation, innovation, international trade and the agri-food markets. His research combines a variety of themes, including productivity and unions, ownership status (e.g., family firms), migrant mobility, diversity and corporate strategy, and climate change.

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