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What is the macroeconomic impact of ambitious structural reforms on product and labour markets ?

Gilbert CETTE
Banque de France and Aix-Marseille School of Economics, CNRS & EHESS

Jimmy LOPEZ
Banque de France and University of Bourgogne (LEDI), CNRS

Jacques MAIRESSE
CREST-ENSAE, Maastricht University (UNU-MERIT), Banque de France and NBER

What impact would ambitious structural reforms implemented on product and labour markets have on growth? The authors propose an assessment, using a panel of 14 countries, of the consequences of the adoption of "best practices", defined as the average level of regulations observed in the three economies where they are the least cumbersome. Their simulations show that the implementation of such reforms should lead to a very significant increase in productivity in many countries, in particular in the euro area.

Direct and indirect effects of regulations

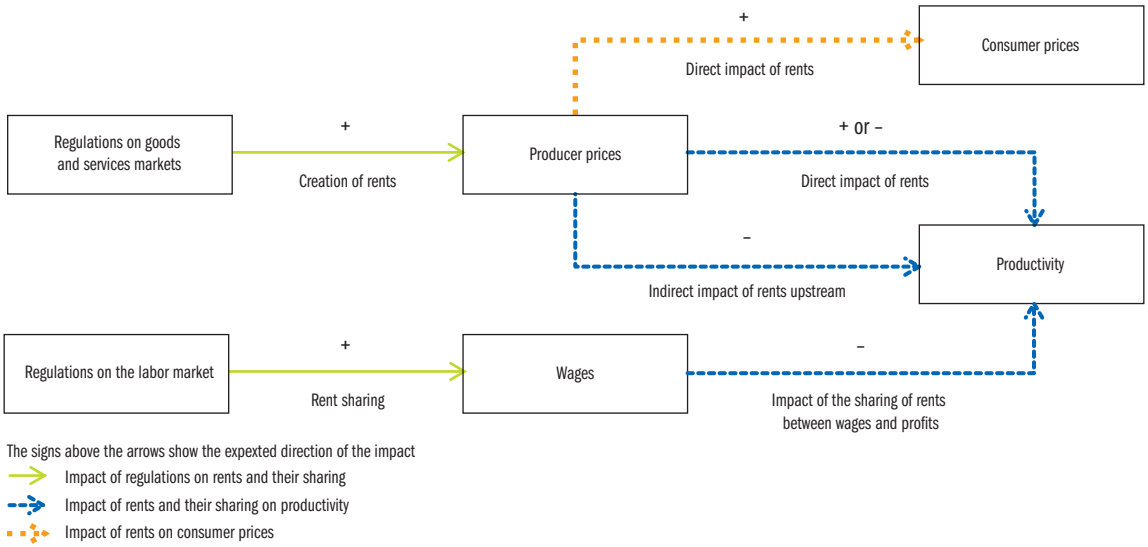
Product and labour market regulations have direct and indirect effects on productivity (see Aghion and Howitt 2009). They have a direct impact on the productivity of regulated sectors because they ease competitive pressures. They also have indirect effects on the performances of other sectors: lower competitive pressures increase the bargaining power of firms in regulated sectors, which can capture a share of the innovation rents of the sectors using the goods and services that they produce via higher intermediate goods prices. Downstream activities have less incentive to innovate, which lowers their productivity.[1] Furthermore, labour market regulations result in increased wage bargaining power: corporate profits decline, which reduces innovation incentives.[2] According to Blanchard and Giavazzi (2003), product market regulations lead to rent creation, with labour market regulations largely influencing how these rents are shared between wages and profits. Labour market regulations only have an impact on production performances if anti-competition regulations result in the creation of rents. This approach is empirically corroborated by Askénazy, Cette and Maarek (2013) using country*sector panel data.

NB *This issue of* Rue de la Banque *summarises the authors' analyses in a Banque de France working paper ("Product and Labor Market Regulations, Production Prices, Wages and Productivity" – Gilbert Cette, Jimmy Lopez and Jacques Mairesse, Banque de France working paper No. 514, October), and in the Banque de France* Quarterly Bulletin*, No. 199, 2015, first quarter.*

1 *On this subject, see, for empirical studies on macroeconomic data Allegra* et al. *(2004), Forlani (2010), Arnold* et al. *(2011) or, for country sector panels, Faini* et al. *(2006), Bourlès* et al. *(2013), Barone et Cingano (2013) or Cette, Lopez and Mairesse (2013).*

2 *See, inter alia, Bassanini and Venn (2007), Griffith and Macartney (2014) or Fiori* et al. *(2012).*

C1 Logic of the model: the main relationships



Our assessment aims to characterise the direct and indirect effects on productivity of product and labour market regulations. It draws on the work of Bourlès *et al*. (2013) and Cette, Lopez and Mairesse (2013) to estimate the indirect effects of product market regulations, and on the work of Blanchard et Giavazzi (2003) and Askénazy, Cette and Maarek (2013) to characterise the relationship between the creation of rents and their sharing between wages and profits and between upstream and downstream sectors. In this respect, one important contribution of our study is to propose a measurement of rent and rent-sharing. The logic of the estimated model is presented in Chart 1. Rents are characterised by their impact on producer prices. Rents in the manufacturing and services sectors directly and indirectly influence total factor productivity (TFP). The latter is also influenced by the sharing of rents between wages and profits.

The data

Considering data availability, the study is carried out on 14 countries (Austria, Canada, Czech Republic, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, Spain, Sweden, United Kingdom, United States), over the period between 1987 and 2007 for the estimation of the model. The simulation of the structural reforms uses data on 2013 regulations. Data on labour market regulations, wages (high-skilled workers and other workers, source Eurostat) and consumer prices, are national. However, the estimates were made using data distinguishing between 13 manufacturing sectors and 5 services and network sectors.

The regulation indicators used are those of the OECD. They cover the services, network and manufactured goods, and labour markets. Since each of these markets is governed by specific regulations, we had to use a variety of indicators to obtain an overall assessment:

■ The services and network sectors are captured by anticompetitive non-manufacturing regulation (NMR) indicators that measure barriers to competition and barriers to entrepreneurship that do not appear a priori justified on economic ground or whose aim could be achieved through less coercive measures. They use detailed information on the laws, rules and actions on the markets and sectors or activity (see Conway and Nicoletti, 2007, for an in-depth presentation).

■ Manufactured goods market regulations are captured by an indicator of harmonised tariffs (HT) on imported goods. The degree of trade openness is indeed an important factor for competition in these markets. These indicators are constructed using ad valorem rates applied to the most favoured nation.

■ Lastly, labour markets are subject to a vast array of regulations (Bassanini and Venn, 2007). We use the usual

indicators of Employment Protection Legislation (EPL), which is likely to affect the rent sharing between workers and firms. These indicators measure the procedures and costs involved in dismissing individuals or hiring workers on fixed-term or temporary work agency contracts (*OECD Employment Outlook*).[3]

For each of these indicators, we define a "best practice" value, i.e. the regulatory practices that appear to be the most flexible and competition-friendly. The "best practice" values are obtained for each sector taking an average of the three lowest values observed in our data. The reform proposals given below are based on the differences between the "best practice" values and the observed values.

We use a sector's producer price developments relative to the price of GDP (referred to hereafter as relative producer prices) as an index of product and service market imperfections. Similarly, we assume that real wage developments are an index of changes in rent sharing between workers and firms and thus of labour market imperfections.

The impact of rents upstream is assumed to be all the greater on the productivity of a downstream sector if this downstream sector makes intensive use of the goods and services of these upstream sectors. We construct impact indicators that allow us to characterise the effects of rents upstream. For each downstream sector, a weighted average of upstream relative producer prices is calculated, with the weightings corresponding to the intensity of use of the products and services of each upstream sector, and more specifically the ratio of the volume of intermediate goods from this upstream sector to the level of production of the downstream sector. For each downstream sector, two impact indicators are constructed; one taking account of relative producer prices of the services and network sectors, and the other of the relative producer prices of manufacturing sectors.

As regards the labour market, we assume that the impact of workers' bargaining power on the productivity of a sector increases in line with the labour intensiveness of the sector. Two impact indicators are calculated, for highly-skilled workers on the one hand and for medium- and low-skilled workers on the other. For each of the two groups of workers, the impact indicator corresponds to the product of a worker's real average wage multiplied by the share of the corresponding labour cost in the production of the sector.

The estimated model

The model is estimated in four distinct stages.

■ The first stage, which constitutes the heart of the model, is the estimation of the direct and indirect effects on total factor productivity (TFP) of rents and their sharing. Six indicators influence TFP:[4] two indicators (direct and indirect) of producer prices of the services and network sectors, two indicators (direct and indirect) of producer prices of the manufacturing sectors and two indicators (skilled and unskilled workers) of wages. This estimation is carried out by cross-referencing country, sector and year data, based on 2,800 observations. It shows a negative impact of the six rent indicators on TFP.

■ The second stage, essential for characterising the impact of structural reform scenarios on productivity, consists in estimating the rent building process. This stage consists in four estimations.

– The first is the estimation of the direct impact on producer prices of regulations in the non-manufacturing sectors (measured by the NMR indicator mentioned above). This estimation is carried out by cross-referencing data on countries, five services and network sectors and years, based on around 800 observations. It shows a positive direct impact of regulations on producer prices.

– The second is the estimation of the direct impact on producer prices of the regulations in the manufactured goods sectors (measured by the Harmonised Tariffs – HT – indicator mentioned above). This estimation is carried out by cross-referencing data on countries, thirteen manufacturing sectors and years, based on around 2,200 observations. It also shows a positive direct impact of regulations on producer prices.

– The third is the estimation of the impact on the average wage of skilled workers of labour market regulations (measured by the Employment Protection legislation – EPL – indicator mentioned above).

3 The data on collective redundancies cannot be used in our analysis as they are only available as of 1998.

4 TFP corresponds to the combined capital and labour inputs considered here.

– The fourth is an identical estimation for unskilled workers. Both of these estimations are carried out by cross-referencing data on countries and years, based on around 240 observations. They show a positive impact of regulations on wages. It should be noted that the impact on the average wage of labour market regulations is much greater (around four times higher) for skilled workers than unskilled workers. This difference can be explained by the greater relative scarcity of skilled workers and by the fact that, in many countries (and particularly in France), the wages of unskilled workers are highly influenced by minimum wage standards, which are not taken into account in the regulation indicator used.

■ The third stage enables us to identify the impact of rents on consumer prices. It consists in estimating the influence of overall producer prices on consumer prices (as measured by the Harmonised Index of Consumer Prices). This estimation is carried out by cross-referencing data on countries and years, based on around 230 observations. It also shows a positive impact broadly corresponding to the share of domestic production in national consumption.

■ The fourth stage enables us to determine the dynamic effect of the changes in regulations and hence in rents on productivity and consumer prices. It consists in estimating the short-term relationships for all the equations of the three previous stages. For each dependent variable, a long-term target is defined by predictions stemming from the previous estimations (e.g. the target producer price is the producer price predicted by the observed level of regulation), then the impact of the deviation from this target on the changes in the dependent variable is estimated. An observed value that is lower than the target leads to an increase in the variable.

Assessing the impact of the ambitious structural reforms

The changes in the indicators generated by the adoption of "best practices" are then analysed in the light of the estimation results of the model to obtain the impact on TFP and prices. The impact of the reforms on TFP is calculated at the sectoral level then aggregated at the national level by using the share of the different sectors in the relevant economy. This means that it corresponds, all else being equal, to the potential impact of the reforms on the overall level of GDP.

Structural reform programmes corresponding to the adoption of "best practices" would naturally be very ambitious for many countries, including France. Moreover, whether they could be implemented all at once is debatable. However, staggered implementation would only affect the dynamics of the assessed effects and not the overall long-term impact, shown in Chart 2, of the reforms on TFP. The impact differs across countries. It is below 1.5% in the two countries in which the level of regulations is the lowest: the United Kingdom (1.1%) and the United States (1.3%). Conversely, it is above 5% in the four countries where the initial level of regulations is the highest: Germany (5.8%), France (5.9%), Italy (6.2%) and the Czech Republic (7.0%). The other countries show impacts between these two groups.

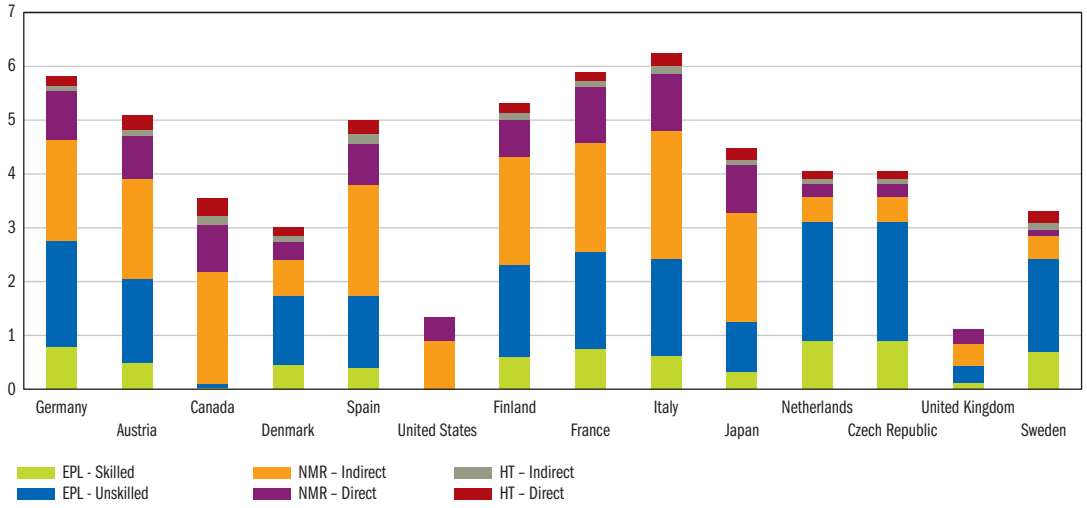
In the majority of countries, the reforms in the services and network sectors contribute the most to TFP gains. This is due to both the magnitude of the corresponding reforms and to the strong influence of this type of regulation. Conversely, the reforms in the manufacturing sectors have a lower impact on TFP, owing both to the limited magnitude of the reforms needed and to the low influence of this type of regulation. The contribution of labour market reforms is significant in the majority of countries. It is higher than that of the reforms in the services and network sectors in four countries: the Czech Republic, Denmark, the Netherlands and Sweden. In all countries, the impact of the reforms on the labour market is mainly transmitted through the impact on low-skilled wages, both because these wages are more sensitive to the regulations than those of more highly-skilled workers, and through a size effect, because highly-skilled workers are relatively scarce.

The dynamic effects of the reforms are influenced by two transmission lags: the lag in the pass-through of reforms to producer prices and that of the decline in producer prices to TFP.

While these dynamic effects are weak in the United Kingdom, they are very close for the four euro area countries, albeit a little less pronounced in Spain due to the slightly more limited magnitude of structural policies. They increase before peaking between four to eight years (where they are greater than 0.3 percentage point per year) before declining continually (to 0.1 percentage point over the following 20 years).

C2 Long-term impact on TFP (or PIB) of the adoption of regulatory "best practices"

(in %)



EPL corresponds to the impact of the reforms of Employment Protection Legislation. Their impact of these regulations varies for the wages of skilled workers (EPL – skilled) or unskilled workers (EPL – unskilled).
NMR corresponds to the impact of the reforms of the regulations of non-manufacturing sectors, depending on whether it is indirect (NMR – Indirect) i.e. corresponding to the impact of the reforms of upstream sectors on the productivity of downstream sectors, or direct (NMR – Direct) i.e. corresponding to the impact via the reforms on the productivity of the reformed sectors themselves.
HT corresponds to the impact of the reforms in the manufacturing sectors, via the Harmonised Tariffs indicator, depending on whether it is indirect (HT – Indirect) i.e. corresponding to the impact of the reforms of upstream sectors on the productivity of downstream sectors, or direct (HT – Direct) i.e. corresponding to the impact via the reforms on the productivity of the reformed sectors themselves.

Conclusion

The estimations above suggest that the implementation of ambitious structural reforms on product and labour markets may have, in the long term, a significant impact on the level of potential output and, in the short to medium term, a marked impact on growth. Obviously, our results are mainly illustrative in nature since they are obtained from a large number of simplifying assumptions.

The magnitude of the impact of the structural reforms assessed is consistent, when comparable, with that of our previous assessments based on other approaches (see for example Bourlès *et al*., 2013, and Cette, Lopez and Mairesse, 2013). Furthermore, foreign experiences of implementing ambitious structural reform programmes usually concerning both the goods and services market and the labour market, as in this study, as well as government, are often associated with a greater increase in productivity and GDP growth than that obtained in our analysis. Four examples can be given in this respect: the Netherlands, following the reforms associated with the Wassenaar arrangement, in 1982, Australia, Canada and Sweden, after the reforms carried out in the early 1990s. In these four countries, average annual productivity growth increased from 0.9 percentage point to 1.5 percentage point over at least a decade following the implementation of the reforms (Bergeaud, Cette and Lecat, 2014).

These results highlight the potential interest of ambitious structural reforms, both to raise the level of per capita GDP and, via this impact on growth, to facilitate the consolidation of public finance.

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