*Quarterly Report on the Euro Area*
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# I. Maximising the impact of labour and product market reforms in the euro area – sequencing and packaging

*Well-functioning labour and product markets ensure the efficient allocation of resources, contribute to making economies more resilient and strengthen growth potential in the long run. Structural reforms are beneficial because they improve the functioning of markets in the longer term but some reforms can have negative short-term effects, notably on aggregate demand, that need to be carefully considered in policy design. This section focusses on these shorter-term effects. It first provides a review of the transmission channels through which structural reforms may affect aggregate demand in the short term and then highlights how the negative effects could be at least partly offset through an appropriate 'sequencing' and 'packaging' of reforms that takes advantage of synergies and complementarities. Packaging also increases the political acceptability and ownership of reforms, thereby facilitating their implementation. Econometric analysis suggests that the simultaneous implementation of labour and product market reforms can indeed improve growth dynamics in the short run. Well-functioning labour and product markets are also found to increase the estimated speed of adjustment of GDP growth towards potential, thus providing support to the idea that structural reforms increase resilience. The latter is a particularly important feature for euro area members as they cannot use the nominal exchange rate as a tool for adjustment against shocks. Finally, supportive macroeconomic policies also play an important role in the successful delivery of structural reforms. ([1])*

## I.1. Introduction

It is widely accepted that well-functioning labour and product markets ensure the efficient allocation of resources and that they improve the capacity of economies to adjust to shocks by limiting the depth and duration of deviations from potential output. ([2]) This is particularly relevant for the economies of the euro area as they are unable to use nominal exchange rates as an autonomous adjustment mechanism to cushion country-specific shocks.

Structural reforms ultimately strengthen economies' growth potential over the longer run. ([3]) Nevertheless, their short-term effects, notably on aggregate demand, deserve careful consideration. While exerting positive effects in the longer term, some structural reforms can have a negative short-term impact on demand. A question to be addressed is whether there are ways to offset, at least partly, these short-term negative effects through appropriate 'sequencing' and 'packaging' of reforms, and whether supportive macroeconomic policies can play a role in this. A thorough understanding of these aspects is crucial to devising an appropriate economic policy mix that would allow policy makers to achieve long term gains while avoiding short-term pain. Crucially, such an approach would also help to increase the political acceptability and ownership of structural reforms and therefore facilitate their sustained implementation until their positive effects are clearly visible.

While most of the literature on structural reforms focuses on their impact on economic growth by considering the medium-term effects on potential output, this section focusses on two shorter-term effects, namely on aggregate demand and the speed of adjustment of growth towards potential (taken here as a proxy for the resilience of the economy). Possible transmission channels through which structural reforms may exert shorter-term effects on demand are reviewed. An econometric analysis is also carried out to test empirically the extent to which structural reforms, and in particular interactions between them ('packaging'), affect GDP growth and economic resilience in the shorter run.

The section is structured as follows. Sub-section III.2 provides an introductory analysis of structural reforms in the euro area in recent years, in terms of types of labour and product market reforms

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([1]) This section was prepared by Katia Berti and Eric Meyermans. The authors wish to thank Erik Canton for useful comments.

([2]) European Commission (2016), 'The Economic Impact of Selected Structural Reform Measures in Italy, France, Spain and Portugal', *European Economy Institutional Paper* 23 shows how structural reforms may induce significant output gains through higher productivity and/or higher employment rates in the medium to long run. See also, Anderson, D., Barkbu, B., Lusinyan, L., and D. Muir (2013), 'Assessing the Gains from Structural Reforms for Jobs and Growth', in IMF, Jobs and Growth: Supporting the European Recovery.

([3]) Structural reforms are defined here as reforms that trigger (permanent) changes in the way markets and governments function. The focus is restricted here specifically to product and labour market reforms.

introduced and reform efforts across Member States. Sub-section III.3 then reviews the different transmission mechanisms via which structural reforms may affect aggregate demand in the shorter term. In this respect, the benefits that can be achieved through sequencing and packaging of structural reforms, and their interactions with supportive macroeconomic policies, are the object of analysis in Sub-section III.4. Sub-section III.5 then presents the econometric analysis, and Sub-section III.6 concludes.

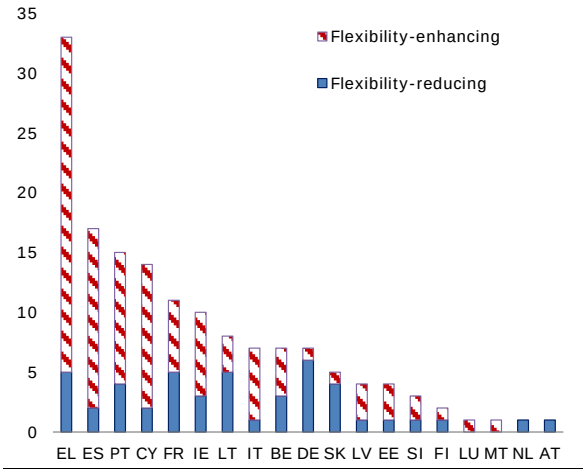
## I.2. Structural reforms in the euro area: a selective overview

### I.2.1. Labour market reforms

Since the onset of the economic and financial crisis in 2008, a significant part of labour market reforms in the euro area Member States with unsustainable external deficits has focussed on regaining competitiveness. This has been done primarily via changes in the rules affecting wage setting and promoting the reallocation of labour to more productive jobs/sectors by, for example, reforming employment protection legislation and strengthening active labour market policies. In the rest of the euro area, labour market reforms have been driven primarily by the objective of making it easier for firms to attract skilled workers and to adjust to fast-changing markets (via adequate employment protection legislation), while providing the necessary security to employees (for example, through well-designed unemployment benefit schemes and active labour market policies).

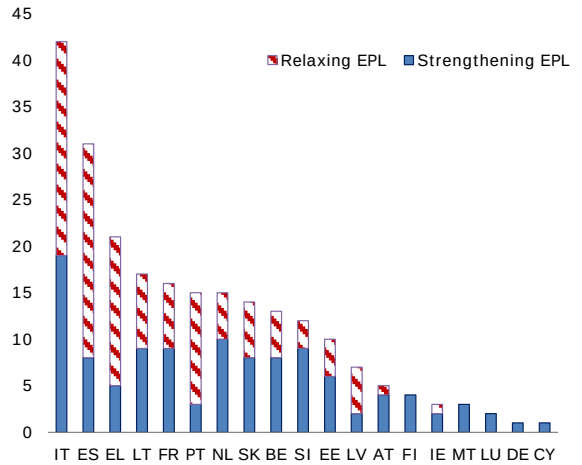
Focussing on the period 2008-2014 (currently the last available year), the LABREF database ([4]) shows a strong variation in reform intensity across the euro area, which also reflects differences in initial conditions. ([5]) As one would expect, Member States that experienced excessive growth in nominal unit labour costs in the run-up to the crisis have since then recorded by far the highest number of wage setting reforms. Greece, for instance, introduced 33 measures in this area (ranging from cutting the minimum wage to setting a maximum duration of collective agreements at three years), followed by Spain, Portugal and Cyprus, all with around 15 measures each (Graph I.1). The majority of the reforms introduced since the crisis have focussed on reinforcing the framework conditions for wage setting in order to strengthen the economies' adjustment capacity.

Graph I.1: **Wage setting**
*(Number of reforms 2008-2014)*




***Source:*** Labref

Graph I.2: **Employment protection legislation (EPL)**
*(Number of reforms 2008-2014)*




***Source:*** Labref

The number of employment protection reforms introduced since the crisis also varies greatly across the euro area.. Italy, for instance, implemented as many as 43 measures ranging from putting limitations on on-call duty to increasing the maximum duration of temporary contracts. Spain and Greece, the next most active reformers, introduced more than 30 and 20 measures

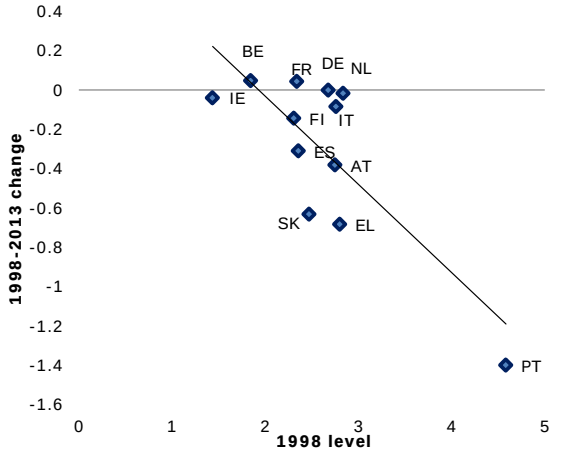
([4]) The LABREF database is managed by the European Commission in cooperation with the Employment Committee. The latest version provides information on the type of labour market measures enacted in EU Member States in a particular year between 2000 and 2014.

([5]) See Turrini, A., Koltay, G., Pierini, F., Goffard, C., and A. Kiss (2014), 'A Decade of Labour Market Reforms in the EU: Insights from the LABREF database', *European Economy Economic Papers* 522.

respectively (Graph I.2). As shown in the chart, and as one would expect, most reforms to employment protection legislation in the euro area periphery were flexibility-enhancing. Additional information is provided by the OECD synthetic indicator on procedures and costs for dismissals and hiring procedures related to fixed-term or temporary contracts. The indicator shows that Portugal and Greece, among the euro area Member States with the most restrictive employment protection in 1998, appear to have introduced strong reforms between 1998 and 2013, the last available year (Graph I.3).

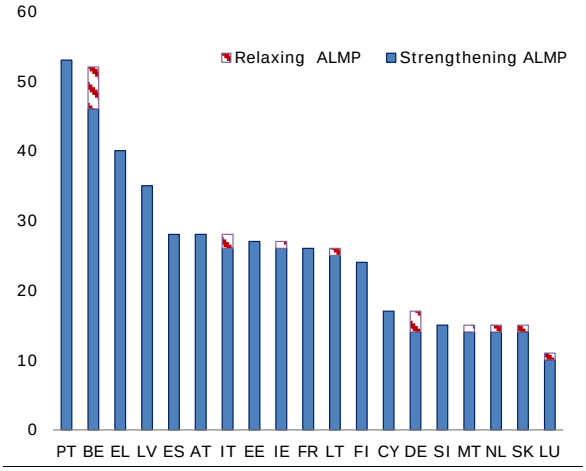
Finally, looking at all Member States, the vast majority of active labour market reforms (6) aimed to increasing their availability, generosity and/or effectiveness, with the highest number of reforms recorded in Portugal, Belgium, Greece, and Latvia (Graph I.4).

Graph I.3: **Change in employment protection legislation**




(1) Indicator ranging from 0 for least restrictions to 6 for most restrictions
***Source:*** Authors' calculations based on OECD indicators on employment protection legislation

Graph I.4: **Active labour market policies**
*(Number of reforms 2008-2014)*




***Source:*** Labref

## I.2.2. Product market reforms

Product market reforms cover a broad range of measures primarily aimed at reducing the regulatory burden and increasing competition in product markets, including through privatisation and measures that reduce the cost and administrative burden of starting, operating or expanding a business.

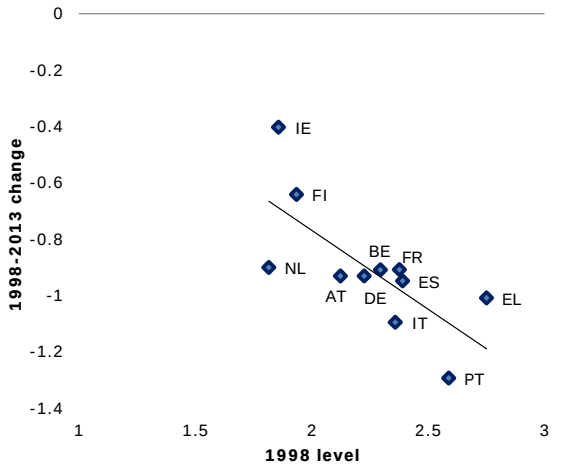
The OECD product market regulation indicator suggests that Portugal, followed by Italy and Greece (all countries with relatively restrictive regulations in 1998) recorded the strongest decrease in the rigidity of their product markets between 1998 and 2013 (Graph I.5). On average, there appears to be a negative relationship between the level of product market regulation in 1998 and the change between 1998 and 2013, meaning that in general, euro area Member States with higher initial levels of regulation are the ones that introduced greater flexibility. Overall, this has led to some convergence in economic structures among euro area countries.

Although the dispersion has decreased significantly since the crisis in almost all Member States, data from 2016 show that the number of days and procedures required to start a business still differs significantly across the euro area. In 2016, it took as many as 28 days to start a business in Malta and around 20 days in both Austria and Luxembourg, compared to just 2.5 days in Portugal (Graph I.6). Between 2007 and 2016, among the Member States for which data are available, Slovenia, Spain, Estonia, Greece and Belgium made the most

(6) Based on the OECD definition, "active labour market programmes includes all social expenditure (other than education) which is aimed at the improvement of the beneficiaries' prospect of finding gainful employment or to otherwise increase their earnings capacity. This category includes spending on public employment services and administration, labour market training, special programmes for youth when in transition from school to work, labour market programmes to provide or promote employment for unemployed and other persons (excluding young and disabled persons) and special programmes for the disabled".

progress in reducing the number of days required to start a business.

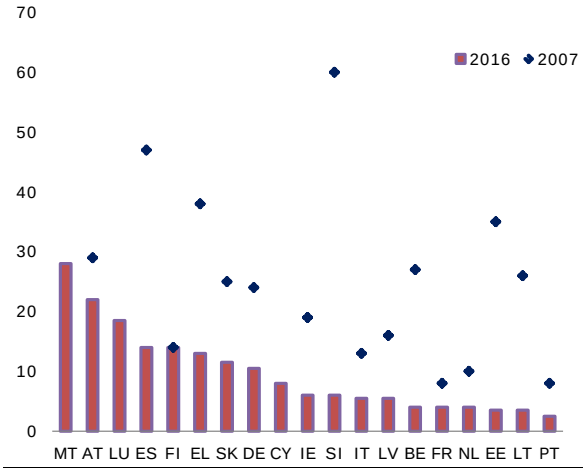
Graph I.5: **Change in product market regulation**




(1) Indicator ranging from 0 for least restrictions to 6 for most restrictions

***Source:*** Authors' calculations based on OECD indicators on product market regulation

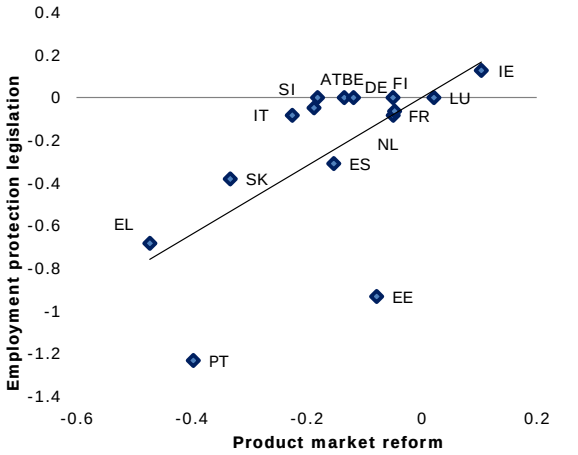
Graph I.6: **Number of days to start a business**




***Source:*** World Bank Doing Business database

Finally, by looking at the interactions between structural reforms, over the period 2008-2013 (the last year for which data is available) product market reforms displayed a positive correlation with reforms to employment protection legislation, meaning that on average the two tended to go hand in hand (Graph I.7).

Graph I.7: **Labour and product markets: reform effort over 2008-2013**




(1) Indicator ranging from 0 for least restrictions to 6 for most restrictions. Negative values indicate a reduction in restrictions.

***Source:*** Authors' calculations based on OECD indicators on product market regulation and employment protection legislation

## I.3. Shorter-term effects of structural reforms on aggregate demand

While in the longer run, well-designed and effectively implemented labour and product market reforms of the type described above strengthen growth potential and speed up the reallocation of labour and capital to more productive uses, in the transition to the new equilibrium there will also be jobs and firms that may be transformed or destroyed because they are no longer profitable. Structural reforms, by facilitating such an adjustment, may therefore also have important effects on aggregate demand in the short run (for instance, through their effects on employment and wages), of which the contractionary or expansionary nature depends on several factors explored below. (7)

### I.3.1. The expectations channel

Expectations are clearly one of the channels through which structural reforms can affect demand in the shorter term. Forward-looking economic agents formulate expectations as to how

(7) This should be considered also against possible longer-term factors affecting aggregate demand, for instance the increasing propensity to save and declining propensity to invest caused by, inter alia, demographic changes, rising income inequality, etc. (the so-called 'secular stagnation hypothesis'). See Summers, L. (2016), 'The Age of Secular Stagnation: What It Is and What to Do About It', *Foreign Affairs*, February; Teulings, C., and R. Baldwin (2014), 'Secular stagnation: Facts, causes, and cures', Vox eBook.

structural reforms will affect future prices and incomes and adjust their expenditures and savings accordingly to smoothen consumption over the life-cycle and reap higher returns on investments.

However, two necessary conditions for the expectations channel to be operational are: i) reforms need to be credible; and ii) agents need to have access to financial markets. In order for structural reforms to be seen as credible they need to be coherent and have enough political support to make it likely that future governments remain committed to them. The second condition, access to financial markets, is necessary to support economic agents in adjusting their inter-temporal allocation of consumption and investment. ([8]) When operational, this expectations channel has the potential to dampen the possible negative short-term side effects of some structural reforms on aggregate demand, ([9]) which highlights the importance that the two aforementioned pre-conditions are fulfilled.

### I.3.2. The role of the business cycle

The state of the business cycle also influences the short-term impact of structural reforms on aggregate demand. Some of the transmission mechanisms identified have positive effects while others have a negative impact, pointing to an ambiguous overall net effect:

- **Direct aggregate demand effects.** Some structural reforms have a direct impact on aggregate demand. For example, they can increase the profitability of investment or raise the disposable income of liquidity-constrained households, or to the contrary, facilitate dismissals which may in the short run lead to higher unemployment and lower consumption. ([10])

- **Price effects.** Structural reforms that improve potential productivity may decrease expected and actual inflation in the near future. As lower prices increase real disposable income, aggregate demand may get a boost, especially in case a significant part of economic agents is liquidity constrained.

- **Rising real interest rates at the zero lower bound.** With falling (expected) inflation, there may be upward pressure on the real interest rate. This is particularly the case when further decreases in the nominal interest rate are constrained by the zero lower bound of interest rates. ([11]) In turn, this real interest rate rise may induce an appreciation of the euro exchange rate in the short run. Both effects may have a negative impact on aggregate demand. In addition, lower (than expected) inflation also increases the real debt burden, which in turn may reduce (domestic) aggregate demand. ([12])

- **Financial constraints.** The materialisation of consumption and investment effects from expected changes in future incomes related to structural reforms may depend on the financial constraints faced by economic agents. If many are unable to borrow and spend due to excessive debt or elevated uncertainty, the anticipation of future increases in income triggered by structural reforms may not translate into short-term increases in spending. ([13])

- **Wealth effects.** Supply-side policies that open up new opportunities and/or raise overall productivity may generate wealth effects (such as increases in stock value), raising the value of what can potentially be used as collateral to

([8]) See Buti, M., Turrini, A., Van den Noord, P., and P. Biroli (2008), 'Defying the 'Juncker Curse': Can Reformist Governments Be Re-elected?', *Economic Papers* 324.

([9]) For instance, Fernández-Villaverde, J, Guerrón-Quintana, P., and J. Rubio-Ramírez (2011), 'Supply-Side Policies and the Zero Lower Bound', *NBER Working Paper* No. 17543, argue that reforms that improve productivity in the future may generate wealth effects that increase consumption and reduce savings today.

([10]) See Vogel, L. (2014), ' Structural reforms at the zero bound', *Quarterly Report on the Euro Area*, Vol. 13, No. 3; Duval., R., and D. Furceri (2016), 'The Effects of Labor and Product Market Reforms: The Role of Macroeconomic Conditions and Policies', International Monetary Fund.

([11]) See Eggertsson, G., Ferrero, A., and A. Rao (2014), 'Can Structural Reforms Help Europe?', *Journal of Monetary Economics*, Vol. 61, pp. 2–22. However, not all structural reforms will induce a price decrease. For example, structural reforms reducing labour-market duality strengthen labour market efficiency and also workers' bargaining power, and can therefore also put upward pressure on wages and prices. See, for example, for the case of Japan, Porcellacchia, D. (2016), 'Wage-Price Dynamics and Structural Reforms in Japan', *IMF Working Paper* 16/20.

([12]) This is based on the assumption that the marginal propensity of debtors to spend is greater than that of creditors.

([13]) See Koo, R. (2014), 'The Escape from Balance Sheet Recession and the QE Trap: A Hazardous Road for the World Economy', John Wiley &Sons.

finance contemporaneous consumption and investment, thereby boosting demand. ([14])

### I.3.3. The role of cross-border spillovers

Structural reforms may also generate shorter-term effects on demand through cross-border spillovers via, such channels as changes in international prices and financial flows. ([15]) Simulations run with dynamic stochastic general equilibrium models nonetheless suggest that cross-country spillovers from structural reforms might be small. However, a simultaneous and coordinated implementation of structural reforms throughout the euro area would have a bigger effect on output than if reforms were implemented by Member States in isolation. ([16])

The effectiveness of structural reforms introduced in one Member State might nonetheless be affected by reforms elsewhere. For example, structural reforms that reduce labour costs in one Member State, such as a cut in labour taxes financed by an increase in value added taxes, may generate reactions in other Member States, which could trigger second-round effects on domestic aggregate demand. In this respect, a well-balanced coordination of structural reforms across Member States (seeking a symmetric rebalancing between current account surplus and deficit countries) appears important to promote sustainable growth in the area.

## I.4. Complementarities between structural reforms and supportive macroeconomic policies

### I.4.1. Benefits expected from sequencing and packaging of structural reforms

The possible short-term side effects on aggregate demand described above can be at least partly offset by exploiting synergies and complementarities between different types of structural reforms.

Labour and product markets are clearly closely related to each other: the wages that employees earn are used to buy goods and services, while the revenues of these sales are used to pay labour and capital. As such, there are inevitable interactions between reforms in labour and product markets (including with regard to shorter-term effects on demand), which should be accounted for when designing reform packages. ([17])

Product market reforms can be expected to lower prices, thereby creating a cushion for labour market reforms that trigger a decrease in nominal wages. However, the price effects of product market reforms may take significant time to materialise, while labour market reforms seem to have a faster impact on wages. As such, an appropriate sequencing would be useful to limit the impact on real wages. This can importantly help not to depress domestic demand (especially in a macroeconomic context already characterised by subdued aggregate demand), make necessary labour market reforms politically more acceptable and contain possible social costs of the reforms (again with beneficial effects in terms of domestic demand and growth). ([18])

To the extent that product market reforms create new opportunities, facilitate firms' entry and increase competition, output and employment may be expected to increase, thus strengthening the case for introducing product market reforms before flexibility-enhancing labour market reforms. On the other hand, if product market reforms increased the price-elasticity of product demand, labour demand could also become more wage–elastic, which could weaken employees' bargaining power and put downward pressure on wages, potentially offsetting at least some of the gains obtained from the initial price decrease. ([19]) In general terms, nevertheless, in rigid economies where both product and labour market reforms are needed, having product market reforms preceding labour market reforms can be expected to make more likely that the long-term benefits from

([14]) See Fernández-Villaverde, J, Guerrón-Quintana, P., and J. Rubio-Ramírez (2011), 'Supply-Side Policies and the Zero Lower Bound', *NBER Working Paper* No. 17543.

([15]) See European Commission (2014), 'Cross-border spillovers in the euro area', *Quarterly Report on the Euro area*, Vol. 13, No. 4, pp. 7-22.

([16]) See European Commission (2014).

([17]) Interactions are complex. Those with financial markets and the public sector are also relevant, for instance, even though not assessed in detail here.

([18]) See Blanchard, O., and F. Giavazzi (2003), 'Macroeconomic Effects of Regulation and Deregulation in Goods and Labour Markets', *Quarterly Journal of Economics*, Vol. 118, pp. 897-907; Alesina, A., Ardagna, S., and V. Galasso (2011), 'The Euro and Structural Reforms', *Review of Economics and Institutions*, Vol. 2, No. 1, pp. 1-37.

([19]) See Knell, M. (2004), 'Institutional Interactions in Open Economies: Implications for EMU', Chapter 4 in Solow, R. (2004), 'Structural Reforms and Economic Policy', Palgrave MacMillan.

reforms are reaped while containing possible short-term side effects. ([20])

Given that the potential for synergies between product and labour market reforms are evident in terms of their pass-through from one market to the other, this calls for an appropriate combination and synchronisation, or 'packaging' of reforms. If wages, for instance, decreased under the effect of labour market reforms and output prices adjusted only sluggishly due to rigidities in product markets, the delayed price adjustment would lead to a decrease in the purchasing power of employees. As a consequence, aggregate demand could weaken in the short run. Labour market reforms are therefore better accompanied by appropriate product market reforms that strengthen the pass-through. ([21])

Vice versa, when product market reforms create the conditions to reallocate production factors to more productive activities they should be accompanied by labour market reforms that improve the smooth reallocation of labour so as to exploit the new opportunities as soon as possible and contain the costs of transition to the new equilibrium. Here too appropriate packaging is key to maximising the benefits of reforms.

Building upon mutually reinforcing reform incentives in product and labour markets can also help ease the implementation of reform packages. Product market reforms related to the further opening of domestic markets to foreign competition, for instance, may strengthen incentives to decentralise wage bargaining to better set wages in line with productivity, supporting competitiveness and growth. ([22]) In turn, if wage setting becomes more decentralised, firms may have stronger incentives to operate in open product markets, again with beneficial effects on growth.

Appropriate packaging of reforms is clearly important also within policy areas, not only across them. For instance, reforms that lead to a reduction in unemployment benefits, which may reduce aggregate demand in the short term, should take place after active labour market policies reforms and in combination with macro-policies that are supportive of aggregate demand. Also, as in the short run some structural reforms in labour markets might involve less job security and more wage moderation, reforms that strengthen flexibility should at least be complemented – if not preceded - by reforms that improve security for workers, along flexicurity principles. This calls, for instance, for well-designed life-long learning policies, active labour market policies (including career guidance during job transitions), modern labour laws (including more flexible and secure contractual arrangements for employers and employees), as well as social security provisions that strengthen occupational and geographical mobility within and between firms (including the portability of social security rights).

More generally, well-functioning social welfare systems have the potential to temper precautionary savings associated with the uncertainty inherently related to the implementation of structural reforms. This can be expected to have a positive impact on aggregate demand in the short run.

### I.4.2. Reform packaging and political economy barriers to reforms

The packaging of structural reforms can also prove beneficial for reasons related to the political economy of reforms. Past experience clearly shows that, while certain structural reforms are expected to provide substantive net benefits at aggregate level over the medium term, it can nonetheless remain politically very difficult to implement them. The economic literature has identified a whole range of political economy considerations explaining this sub-optimal outcome. They range from the fact that voters might prefer the familiar status-quo to the uncertainty inherent to structural reforms ([23]) and the fact that ageing societies (like those in the euro area Member States) may provide less political support for these reforms (as older people may discount the future uncertain benefits of structural reforms at a higher rate than the young), ([24]) to the short-termism of politicians (the

([20]) Coere', B. (2016), 'Structural reforms on the way to a complete Economic and Monetary Union', speech delivered at the International Conference on Structural Reforms in Advanced Economies, Hertie School of Governance, Berlin, 17 June.

([21]) A slow pass-through may be due to, inter alia, menu costs, rigid price regulations, or strong market power.

([22]) See Knell, M. (2004).

([23]) See Fernandez, R., and D. Rodrik (1991), 'Resistance to Reform: Status Quo Bias in the Presence of Individual-Specific Uncertainty', *American Economic Review*, Vol. 81, No. 5, pp. 1146-1155; Banerji, A. et al. (2015), 'Building a Better Union: Incentivizing Structural Reforms in the Euro Area', *IMF Working Paper* 15/2015.

([24]) See Høj, J., Galasso, V., Nicoletti, G., and T. Dang (2006), 'The Political Economy of Structural Reform, Empirical Evidence

costs of reforms might immediately hit society while gains are expected to materialise only beyond the electoral cycle). (25) Distributive issues have also been identified as potentially affecting the smooth implementation of structural reforms, especially when the costs of reforms are up-front and concentrated on specific well-organised groups, while the benefits are longer-term and more diffused. (26)

Political economy factors that hinder the effective implementation of structural reforms may in turn raise precautionary savings (thus lowering demand), and also lead to a polarisation of the political debate that can create significant uncertainty and make the implementation of the reforms even more difficult, or simply not possible. (27) Packaging reforms can temper these risks. Structural reforms that increase labour market flexibility may face less resistance if accompanied by reforms that strengthen the social welfare system (for instance, measures that facilitate job transitions associated with measures that strengthen coverage and adequacy of the unemployment benefit scheme). Structural reforms that increase product market flexibility may face less resistance if accompanied by reforms that help to bring forward some of the benefits of the reforms and help to reallocate resources to growing sectors (like measures that improve the functioning of financial markets). The packaging of structural reforms should also factor in political economy considerations as appropriate packaging and sequencing could limit any short-term side effects from the structural reforms and thereby raise the political acceptability of the reforms and ease their implementation.

### I.4.3. The role of supportive macroeconomic policies

When designing structural reforms, due consideration should also be given to the interactions between structural reforms and macro-economic policies. Supportive monetary and fiscal policies have the potential to ease the short-term costs of structural reforms. (28) The latter may in turn increase the effectiveness of fiscal and monetary policies, further highlighting the synergies between micro- and macro-economic policies (structural reforms that strengthen the working of the price mechanism, for instance, tend to make the transmission of the common monetary policy across the euro area more effective). (29)

There is evidence that supportive macroeconomic policies enhance the positive effects of structural reforms on employment in the short run. (30) If policy space is available, structural reforms should therefore better be implemented together with supportive macroeconomic policies.

On the fiscal side, to the extent that fiscal space is available, a supportive fiscal policy can be used to offset potential short-term contractionary effects of structural reforms. In countries with no or limited fiscal space, on the contrary, the focus should clearly be on implementing productivity-enhancing structural reforms that are budgetary neutral or carry the least budgetary impact.

Additionally, from a political economy perspective, providing financial compensation to those that stand to lose from socially beneficial reforms may ease resistance and facilitate reform implementation. (31) (32) This is nonetheless not possible when fiscal authorities face public finance constraints. (33)

### I.5. Shorter-term effects of structural reforms: an econometric analysis

The shorter-term effects of structural reforms are further investigated in this sub-section through a simple econometric analysis on euro area countries. The focus is on the shorter-term impact of such reforms on output growth (as the synthesis of

from OECD Countries', OECD *Economics Department Working Papers* No. 501.

(25) See Bouis, R., Causa, O., Demmou, L., Duval, R., and A. Zdzienicka (2012), 'The Short-Term Effects of Structural Reforms: An Empirical Analysis', *OECD Economics Department Working Papers* No. 949; Høj et al. (2006).

(26) See OECD (2014), 'The Political Economy of Reform'.

(27) See Mian, A., Sufi, A., and F. Trebbi (2014), 'Resolving Debt Overhang: Political Constraints in the Aftermath of Financial Crises', *American Economic Journal: Macroeconomics*, Vol. 6, No.2, pp. 1–28.

(28) IMF (2016), 'World Economic Outlook: Too Slow for Too Long', April.

(29) See Draghi, M. (2015), 'Monetary policy and structural reforms in the euro area', speech at Prometeia, Bologna, 14 December 2015.

(30) Bordon, A.R., Ebeke, C., and K. Shirono (2016), 'When do structural reforms work? On the role of the business cycle and macroeconomic policies', *IMF Working Paper* 16/62.

(31) See Grüner, H. (2013), 'The Political Economy of Structural Reform and Fiscal Consolidation Revisited', *European Economy Economic Papers* 487.

(32) See IMF (2015), 'Structural Reforms and Macroeconomic Performance: Initial Considerations for the Fund'.

(33) See Poplawski Ribeiroa, M., and R. Beetsma (2008), 'The political economy of structural reforms under a deficit restriction', *Journal of Macroeconomics*, Vol. 30, No 1, pp. 179–198.

demand and supply conditions), considering both the direct impact of reforms as well as their interactions with the speed of adjustment towards potential and the macroeconomic environment. As the focus is on short-run effects, the impact of structural reforms on potential output is not analysed.

It would be clearly beyond the scope of this section to specify and estimate all the transmission mechanisms reviewed in the previous sub-sections, partly due to difficulties related to the non-observability of expectations and the lack of sufficiently detailed quantitative information on structural reforms. The econometric analysis presented below therefore simply aims to capture the relevant transmission channels via reduced form regression analysis, relying on the following assumptions:

- The change in output towards potential is only partially achieved in the short run. Such partial adjustment reflects the sluggish reallocation of labour and capital in the absence of perfectly flexible markets. In the specification of the regression equation it is explicitly modelled that the transition speed towards potential depends on product, labour and financial market efficiency. ([34])

- In the short run, structural reforms are assumed also to have an impact on economic activity through the behavioural changes they trigger, such as firms starting to enter and exit markets, new jobs being created and old jobs being transformed or eliminated. These effects are only indirectly captured here by explanatory variables that measure the change in labour, product and financial market efficiency and their interactions, as specified in Box I.1.

- Finally, other macroeconomic variables that may affect output growth in the short run are included as control variables in the regression. These include the nominal short-term interest rate, the real effective exchange rate, inflation, public sector balance and stock market index.

### I.5.1. Estimation results

Structural reforms are difficult to measure in quantitative terms that can be used for regression analysis. ([35]) In what follows, they are measured indirectly through outcome variables. The World Economic Forum (WEF) ([36]) publishes its annual competitiveness index, which covers a whole range of sub-indicators including measures of product and labour market efficiency as well as financial market development. It is the level and change of these indicators, giving an indication of the underlying structural reforms that are used in the empirical analysis.

Table I.1 shows the estimated coefficients and significance levels from a pooled instrumental variables regression of GDP annual growth on a set of explanatory variables, including indicators measuring labour, product and financial market efficiency (see Box I.1 for more details). ([37]) The analysis covers the euro area Member States (except Greece) for the period from 2008 until 2015. ([38]) Estimation results are presented in Table I.1 for different variants as a sensitivity analysis around the baseline variant 1, on which the following discussion is based (unless differently specified).

Focussing on the speed at which the gap between potential and lagged GDP is closed (keeping all other factors constant), the first four point estimates of variant 1 in Table I.1 ([39]) suggest that increases in the efficiency of labour markets and in product market competition ([40]) have a highly significant positive impact on the adjustment speed towards potential. ([41]) The insignificant point

([34]) See Box II.1, equation (2).

([35]) See European Commission (2016c), ' The Economic Impact of Selected Structural Reform Measures in Italy, France, Spain and Portugal', *Institutional Paper* 023, for a methodology to translate actual reform measures into model shocks.

([36]) Using and aggregating data from a variety of sources such as the World Bank Doing Business database.

([37]) Apart from the short-term interest rate and government deficit the point estimates of the other variables are not shown in Table III.1 in order to keep it concise. They are available upon request.

([38]) 2008 is the earliest year for which the regressions (with lagged variables) can be run. Other datasets such as the OECD Indicators of Product Market Regulation provide data on product market reforms going back to 1998, but these indicators are only published every 5 years.

([39]) Labelled respectively as GAP, GAP_LM, GAP_PM and GAP_FM.

([40]) These indicators are interacted with the gap relative to potential in the regression.

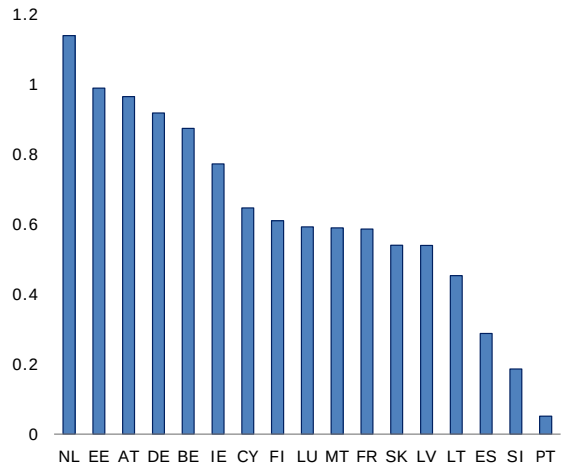
([41]) For variants V2, V3, V4, V6 and V7 in Table III.1, the estimate attached to the gap between potential output and output the year before (GAP) provides a direct measure as to how much of the gap will be closed each year. The higher this value, the faster the economy will reach potential. If this coefficient were smaller than 0, output would tend to diverge away from its equilibrium, while if it would be (much) larger than 1, output would converge along an oscillating path towards its equilibrium. For variants V1, V5 and V6, the estimates have to be added up taking into account the

estimate on financial market development, on the contrary, does not permit any conclusions to be drawn with regard to this dimension. Evaluating the speed of adjustment to potential ([42]) at the value of the labour, product and financial efficiency indicators in each of the Member States suggests strong differences across euro area countries, with a relatively high speed of adjustment in the Netherlands, Estonia, Austria and Germany, and a relatively slow adjustment in Portugal, Slovenia and Spain. ([43])

The next three estimated coefficients in Table I.1 capture the immediate impact of structural reforms. ([44]) They suggest that changes in the efficiency of financial markets have a significant estimated positive impact on GDP growth. The estimated coefficient on labour market reforms, on the contrary, suggests a significant negative short-run impact. While it would certainly require more in-depth analysis to identify the exact transmission mechanisms that trigger this result, the estimate could suggest that labour market reforms may have involved, on average, measures that on impact induced a stronger job loss than job gain in the short run, which in turn may have restrained aggregate demand and output.

The short-run impact of the interaction between the three different markets is captured by the following three estimated coefficients in Table I.1. ([45]) The interaction between product and labour markets shows that simultaneously improving product and labour market efficiency has a statistically significant positive impact on growth in the short run.

Graph I.8: **Estimated adjustment speed towards potential**




(1) The parameter of adjustment is the weighted sum of the point estimates of the indicators GAP, GAP_LM, GAP_PM and GAP_FM in Table II.1. This parameter measures the proportion of the gap between potential output and output the year before that will be closed – keeping all other factors constant. The higher the value the faster the economy will reach its equilibrium. No convergence if coefficient < 0, oscillating if >1.
(2) EL not included. IT not converging.
***Source:*** Authors' estimate.

Finally, variants 6 and 7 of the econometric specification focus more on the interactions between structural reforms and macroeconomic policies. The estimation results suggest a rather low statistical significance of the growth impact of the interaction between market efficiency and monetary policy (captured by the nominal short-term interest rate). This low significance can partly be explained by the weak variability of short-term interest rates during the 2008-2015 sample period, when interest rates remained at their lower bound in most Member States. The estimation results suggest, on the contrary, a significant interaction between fiscal policy, ([46]) on the one hand, and product market and financial market efficiency on the other.

While no definitive conclusions can be drawn from this simple reduced form econometric analysis, the estimation results suggest the following: i) in the short run, well-functioning labour and product markets have the potential to bring GDP growth quickly in line with potential growth (i.e. to make the economy more resilient); ii) deepening of financial markets appears to have a significant

values of the indicators measuring labour, product and financial market efficiency (see equation (2), Box III.1). The estimation results suggest that for IT the value of this parameter is negative, which implies that output will not converge to its equilibrium.

([42]) This is coefficient α in equation (2), Box II.1.

([43]) A negative value would suggest that the economy does not converge to its long-run equilibrium (the case of IT that is therefore not considered). EL is not included in the sample.

([44]) Labelled respectively as LM, PM and FM. The values of these indicators range from 1 to 7 with 7 best. In other words, a rise by 1 unit implies an efficiency gain of about 14 percentage points. Hence, for a point estimate of 0.1 a rise in the indicator by 1 unit would induce GDP growth of 1.4%.

([45]) Labelled respectively LM_FM, PM_FM and LM_PM.

([46]) Fiscal policy is captured by the public sector balance as percentage of GDP, with positive values indicating net lending. A negative estimate (as in Table III.1) implies that net borrowing yields a positive impact on growth.

positive effect on GDP growth in the short run; iii) simultaneously implementing labour and product market reforms (i.e. packaging of labour and product market reforms) appears to improve growth dynamics in the short run; iv) individually, the effects of labour and product market reforms in the short run are less clear-cut as they both appear to have negative effects (not highly significant for the latter though).

## I.6. Conclusions

Well-functioning labour and product markets ensure the efficient allocation of resources, contribute to making economies more resilient by increasing their shock-absorption capacity and strengthen growth potential in the longer run.

While beneficial in the longer term, some structural reforms might nonetheless also have some negative short-term effects, notably on aggregate demand. A number of transmission channels have been reviewed in this section, through which structural reforms can affect aggregate demand in the short run in a contractionary or expansionary way. Expansionary effects of structural reforms may, for instance, be triggered by bringing forward the expected rises in permanent income and wealth (conditional on smooth access to well-functioning financial markets). Contractionary effects, on the contrary, may be triggered by rises in real interest rates stemming from decreases in the general price level, and reduced job security.

Negative shorter-term effects of structural reforms can nonetheless be at least partly offset through appropriate 'sequencing' and 'packaging' of reforms, as well as interactions with supportive macroeconomic policies. In general terms, having product market reforms preceding labour market reforms, for instance, when both needed, can be expected to make more likely that long-term benefits from structural reforms are reaped while containing possible short-term side effects of some labour market reforms. Also, product market reforms importantly strengthen the pass-through of reforms on the labour market to product markets, thus containing possible negative short-term demand effects, while at the same time labour market reforms can ensure a smooth reallocation of labour in response to adjustments triggered by product market deregulation. Synergies and complementarities between reforms are apparent.

The packaging and sequencing of reforms within policy areas is also important. Reforms that lead to a reduction in unemployment benefits, which may reduce aggregate demand in the short term, should take place after active labour market policy reforms and in combination with macro policies that are supportive of aggregate demand. Also, because some structural reforms in labour markets might involve less job security and more wage moderation in the short run, reforms that strengthen flexibility should be complemented by reforms that improve security, along flexicurity principles. This calls, for instance, for well-designed life-long learning policies, active labour market policies, modern labour law (including more flexible and secure contractual arrangements for employers and employees), as well as social security provisions that strengthen occupational and geographical mobility within and between firms (including the portability of social security rights).

From a political economy perspective, containing and/or compensating for the short-term side effects of some structural reforms through packaging and sequencing is also key to increasing the political acceptability and ownership of the reforms and therefore their implementation. Structural reforms that increase labour market flexibility may face less resistance if accompanied by reforms that strengthen the social welfare system. Structural reforms that increase product market flexibility may face less resistance if accompanied by reforms that help to bring forward some of the benefits of the reforms and help to reallocate resources to growing sectors (like measures that improve the functioning of financial markets).

The beneficial effects of packaging of reforms are indeed suggested by the reduced form econometric analysis presented in this section: the simultaneous implementation of labour and product market reforms is estimated to improve growth dynamics in the short run. At the same time, well-functioning labour and product markets are found to increase the estimated speed of adjustment of GDP growth towards potential, thus providing support to the idea that structural reforms increase resilience, which is particularly important for euro area members as they cannot independently use the nominal exchange rate as an adjustment mechanism against asymmetric shocks.

Table I.1: **GDP growth impact of structural reforms**

| **Dependent variable: GDP growth** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | V1 | V2 | V3 | V4 | V5 | V6 | V7 | V8 |
| **Gap between potential and lagged observed GDP (GAP)** | -5.80 *** | 0.73 *** | 0.72 *** | 0.74 *** | -3.06 | 0.75 *** | 0.78 *** | -3.36 *** |
| | (-3.92) | ( 8.66) | ( 9.11) | ( 9.39) | (-1.34) | ( 8.65) | ( 9.41) | (-3.60) |
| **GAP_labour market efficiency interaction (GAP_LM)** | 0.74 *** | | | | 0.2 | | | 0.56 *** |
| | ( 4.44) | | | | ( 0.68) | | | ( 4.48) |
| **GAP_ intensity of local competition interaction (GAP_PM)** | 0.57 *** | | | | 0.27 | | | 0.31 ** |
| | ( 2.83) | | | | ( 0.77) | | | ( 2.37) |
| **GAP_financial market development interaction (GAP_FM)** | 0.02 | | | | 0.31 | | | -0.04 |
| | ( 0.12) | | | | ( 1.19) | | | (-0.37) |
| **Change in labour market efficiency (LM)** | -0.57 ** | -0.3 | -0.05 ** | | -0.73 * | 0.17 | -0.33 | -0.23 * |
| | (-2.09) | (-1.04) | (-2.08) | | (-1.76) | ( 0.42) | (-1.18) | (-1.70) |
| **Change in intensity of local competition (PM)** | -0.39 * | -0.39 | 0.04 * | | -0.31 | -0.2 | -0.28 | -0.08 |
| | (-1.69) | (-1.63) | ( 1.82) | | (-0.86) | (-0.75) | (-1.18) | (-0.64) |
| **Change in financial market development (FM)** | 0.43 * | 0.81 *** | 0.02 | | 0.70 ** | 0.62 ** | 0.68 *** | 0.22 * |
| | ( 1.93) | ( 3.61) | ( 1.54) | | ( 2.12) | ( 2.01) | ( 2.80) | ( 1.95) |
| **Change in LM_FM interaction (LM_FM)** | -0.05 | -0.12 *** | | | -0.06 | -0.12 *** | -0.09 ** | -0.02 |
| | (-1.45) | (-3.80) | | | (-1.22) | (-3.44) | (-2.61) | (-0.89) |
| **Change in PM_FM interaction (PM_FM)** | -0.03 | -0.04 | | | -0.08 ** | -0.01 | -0.05 | -0.02 |
| | (-1.31) | (-1.63) | | | (-2.25) | (-0.15) | (-1.66) | (-1.63) |
| **Change in LM_PM interaction (LM_PM)** | 0.13 ** | 0.14 ** | | | 0.17 * | 0.06 | 0.12 ** | 0.05 * |
| | ( 2.53) | ( 2.55) | | | ( 1.98) | ( 0.73) | ( 2.23) | ( 1.74) |
| **Short-term nominal interest rate** | -0.01 | 0.22 | 0.07 | -0.13 | 0.59 ** | 0.17 | 0.33 * | 0.02 |
| | (-0.05) | ( 1.12) | ( 0.39) | (-0.74) | ( 2.34) | ( 0.06) | ( 1.70) | ( 0.18) |
| **LM_Short-term nominal interest rate interaction** | | | | | | -0.72 | | |
| | | | | | | (-1.35) | | |
| **PM_ Short-term nominal interest rate interaction** | | | | | | 0.78* | | |
| | | | | | | -1.7 | | |
| **FM_Short-term nominal interest rate interaction** | | | | | | -0.18 | | |
| | | | | | | (-0.36) | | |
| **Public sector balance** (net lending (+) or net borrowing (-)) | -0.14 | -0.04 | -0.03 | 0.02 | -0.36 * | 0.02 | -1.74 | -0.04 |
| (% of GDP) | (-1.65) | (-0.43) | (-0.41) | ( 0.25) | (-1.93) | ( 0.22) | (-0.79) | (-0.64) |
| **LM_Public sector balance interaction** | | | | | | | -0.26 | |
| | | | | | | | (-1.20) | |
| **PM_Public sector balanceg interaction** | | | | | | | 0.95*** | |
| | | | | | | | (2.90) | |
| **FM_Public sector balance interaction** | | | | | | | -0.49*** | |
| | | | | | | | (-3.71) | |
| **Additional macro-economic variables** | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **Adjusted R-squared** | 0.74 | 0.69 | 0.71 | 0.71 | 0.71 | 0.68 | 0.71 | 0.77 |
| **Fixed country effects** | No | No | No | No | Yes | No | No | No |
| **Least squares with instrumental variables** | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| **Number of observations** | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 144 |

(1) Additional macro-economic variables are nominal interest rate, inflation, real effective exchange rate, stock price, EA Membership dummy, population growth and change in share of older people in population
(2) t-values between brackets; *** for p < 0.01, ** for p < 0.05, * for p < 0.1.
(3) GAP measures % difference between potential output and observed output year before; GAP_XX: GAP multiplied with value of XX indicator, with XX= LM for labour market indicator, XX= PM for domestic product market competition, and XX=FM for financial market development. XX ranges from 1 to 7 with 7 best. XX_YY: variable XX multiplied by variable YY with XX and YY = LM, GM and FM.
(4) EA share price is indicator of euro area share price, source OECD. More technical details on regression analysis in Box 1.
***Source:*** Authors' estimates; pooled regression analysis using instrumental variables.

### *Box I.1:* Specification of output responses to structural reforms in the shorter run

The regression analysis is based on the assumption that output adjusts only gradually to its potential due to inefficiencies in product, labour and financial markets. As a consequence, the actual change in output is only a fraction of the desired change:

(1) $\left(ln(Y_t) - ln(Y_{t-1})\right) = \alpha \left(ln(\overline{Y_t}) - ln(Y_{t-1})\right)$

where $Y_t$ is GDP in constant prices in year $t$, $\overline{Y_t}$ is potential GDP in $t$ and $0 < \alpha \leq 1$. ([1]) The closer $\alpha$ is to 1, the quicker adjustment will occur. Here it is assumed that $\alpha$ is not constant but conditioned by developments in product, labour and financial markets efficiency:

(2) $\alpha = b + g_1 LM_t + g_2 PM_t + g_3 FM_t$

where $LM_t$, $PM_t$ and $FM_t$ measure respectively labour, product and financial market efficiency (gauged by respectively pillars 6.1, 7 and 8 of the World Economic Forum database). $g_1$ , $g_2$, and $g_3$ are parameters.

In the shorter run output adjustment is also affected by changes in labour, product and financial market efficiency as well as by changes in the interaction between markets. As macro-economic conditions may speed-up or delay adjustment, the regression also includes macro-economic variables, i.e. nominal short-term interest rate (IR), inflation (INFL), the real effective exchange rate (REER), public sector balance (as % of GDP) (PB) and share price (adjusted for consumer price index) (SP) (data from AMECO, integrated with OECD for SP). Population growth has also been included as explanatory variable (Eurostat data).

On collecting terms, the regression equation is specified as follows:

(3) $$\left(ln(Y_t) - ln(Y_{t-1})\right) =$$

$$\alpha \left(ln(\overline{Y_t}) - ln(Y_{t-1})\right) + \sum_{zi=LM,PM,FM} g_{zi} \; ZI_t \; \left(ln(\overline{Y_t}) - ln(Y_{t-1})\right)$$

$$+ \sum_{zi=LM,PM,FM} h_{zi} \; (ZI_t - ZI_{t-1})$$

$$+ k_1 \left[(LM_t \; FM_t) - (LM_{t-1} \; FM_{t-1})\right] + k_2 \left[(PM_t \; FM_t) - (PM_{t-1} \; FM_{t-1})\right]$$

$$+ k_3 \left[(LM_t \; PM_t) - (LM_{t-1} \; PM_{t-1})\right]$$

$$+ \sum_{xi=IR,INFL,REER,SP,PB,EA\_DUM,pop,pop\_65} l_{xi} \; (XI_t - \overline{XI_t}) + e_t + c$$

Equation (3) states that observed output growth is driven by the speed at which the economy transits to its potential output, whereby better-functioning markets speed-up the transition, shorter-term behavioural feedbacks in response to changes in labour, product and financial market efficiency, and macro-economic conditions that may speed-up or delay the transition.

Table III.1 shows estimation results for parameters *b*, *g*, *h*, *k* and *l* applying pooled instrumental variables regression analysis (instrumental variables include lagged variables). In variants 6 and 7, it is assumed that parameter *l* (in case of nominal interest rate and net public lending) is not constant but conditioned by developments in product, labour and financial market efficiency.

In the regression, macro-economic variables X are measured relative to their long-run equilibrium value, which is assumed to be constant over the sample period.

([1]) Adding and subtracting lagged potential GDP, $\ln(\overline{Y_{t-1}})$, in the left-hand side of equation (1) one gets:
$\left(ln(Y_t) - ln(Y_{t-1})\right) = \alpha \left[(ln(\overline{Y_t}) - \ln(\overline{Y_{t-1}})) + (ln(\overline{Y_{t-1}}) - \ln(Y_{t-1}))\right]$,
i.e., the desired change in output is equal to the change in potential output plus the output gap in t-1.