

# Discussion of “Fiscal Consolidation in a Low-Inflation Environment: Pay Cuts versus Lost Jobs”

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This paper brings new insights into the extent to which the recent experience of countries in the periphery of the euro area has been driven by large adverse shocks, the policy response to them (the fiscal consolidation), and the interplay among the shocks and the policy response. The focus is on labor market mechanisms and the way these mechanisms kick in, depending on both the fiscal instrument used to consolidate the government budget and the aggregate state of the economy.

## **1. What Does This Paper Do?**

More specifically, the paper develops a New Keynesian model that features a two-block monetary union with a periphery and a core area; two sectors, a public and a private one; and search-and-matching frictions in the labor market, including also a participation margin, with hiring and wage bargaining that are endogenous in the private sector and exogenous in the public sector. The key shock considered in the paper is a consolidation shock, modeled as a gradual 10 percent decrease in the debt-to-GDP ratio. Finally, the economy can be in two states: in normal times or at the zero lower bound (ZLB), the second state being induced by negative demand shocks.

The model provides a suitable framework to study the effects of a reduction in public debt obtained via a cut in the public-sector wage bill. The reduction in the public wage bill, in turn, can be obtained through either a cut in public-sector hiring or a cut in public-sector wages. Further, the authors compare the effects of the consolidation at the ZLB and in normal times. They also compare a consolidation obtained reducing the public-sector wage bill to one that makes

use of more traditional fiscal instruments, specifically labor income tax hikes and government spending cuts. The comparison among the fiscal instruments is conducted by comparing impulse response functions. The authors also perform a number of important robustness exercises.

## 2. What Do We Learn?

The main result of the paper is that a consolidation obtained via cuts in the public wage bill, either by reducing hiring or wages, delivers better outcomes—for unemployment, output, and consumption—than one obtained with traditional instruments. The key mechanism behind this result is the boost in private-sector vacancies and private-sector output resulting from cutting the public-sector wage bill. However, at the ZLB these advantages are obfuscated by the very large contraction, except for the more favorable response of unemployment in the case of public-sector wage cuts.

There are three key new mechanisms present in the model. The first is a reallocation of labor from the public to the private sector. The second is an internal devaluation resulting from the private-sector wage decline. The third is a wealth effect from the smaller wage bill.

I will now briefly describe these key three mechanisms. I will then dig deeper into the results, highlighting in each circumstance the key mechanism at work. Finally, I will present some more general comments concerning mainly the general framework and some potentially important elements that are missing from the picture.

## 3. Three Key Mechanisms

### 3.1 *Labor Reallocation*

Workers can search in both sectors without restrictions but need to direct their search. Thus, their expected values of search in the public and the private sector must be equalized. The associated equilibrium condition can be used to illustrate how a reduction in the public-sector wage bill boosts private-sector hiring and employment, and thus reduces unemployment, through labor reallocation:

$$\underbrace{E_t(V_{n^g,t+1}^H)\psi_t^{hg}}_{\text{Expected value of search in public}} = \underbrace{E_t(V_{n^p,t+1}^H)\psi_t^{hp}}_{\text{Expected value of search in private}}.$$

A change in public vacancies that affects the job-finding rate acts through the following mechanism. A decrease in vacancies leads to a lower job-finding rate in the public sector,  $\psi_t^{hg}$ . The lower job-finding rate leads to a decrease in the expected value of search in the public sector and causes a reallocation of job searchers from the public to the private sector. More searchers in the private sector raise the job-filling rate for firms, inducing them to post more vacancies. More vacancies and searchers in the private sector lead to more matches this period and higher private employment next period.

A change in public wages has a similar effect. A decrease in the public wage reduces the value of employment in the public sector,  $V_{n^g,t+1}^h$ . The lower value of employment leads to a lower expected benefit from search in the public sector. In response, searchers reallocate from the public sector to the private sector. The rest follows as in the case of vacancies cuts.

### 3.2 *Internal Devaluation from Wage Moderation*

The second key mechanism in the model is an internal devaluation resulting from wage moderation in the private sector, associated in turn with the public wage bill cut. The reduction in private wages limits the production costs and exerts downward pressure on prices. The lower prices in the periphery cause a real exchange rate depreciation. This stimulates net exports and the demand for private-sector goods, which in turn leads to an increase in private-sector vacancies and employment, and a reduction in unemployment.

But what explains the wage moderation in the private sector? To answer this question we can look at the equation determining wages in the private sector:

$$w_t^p = (1 - \vartheta) p_{x,t} (1 - \phi) \frac{y_t^p}{n_t^p} + \frac{\vartheta}{(1 - \tau_t^n) \lambda_{c,t}} \Phi l_t^{-\varphi}.$$

The reduction of the public wage bill eventually reduces the value of search in both sectors. This causes a lower participation in the

labor market—captured in the equation by an increase in  $l_t$ . The lower participation makes private wages go down.

At the same time, the increase in private employment leads to a fall in the marginal product of labor—a decrease in  $y_t^p/n_t^p$  in the equation. This also puts downward pressures on wages.

Note that the fall in wages, whatever the reason, further boosts hiring, vacancies, and employment in the private sector.

### 3.3 *Wealth Effect*

The third key mechanism is a wealth effect. The reduction in the public wage bill leads to a positive wealth effect. In response, households raise the demand for private goods and reduce labor force participation. The larger demand for private goods induces firms to post more vacancies, leading to higher employment in the private sector and lower unemployment. At the same time, a fall in the labor force participation also decreases the unemployment rate.

## 4. Digging Deeper into the Results

### 4.1 *Vacancy versus Wage Cuts*

Comparing the response of the economy to vacancy versus wage cuts, two important differences emerge. First, searchers react more to wage cuts on impact, implying that private vacancies, private employment, and participation also rise more and more rapidly. Second, there is a much larger reduction in unemployment with wage cuts. Why do we observe these differences?

The first difference must be necessarily due to a larger drop in the expected value of search in the public sector with wage cuts than with vacancy cuts, for the given consolidation. Qualitatively, however, there is no difference in the mechanism, and it seems likely that this first result will not be robust to changes in the calibration.

The second difference, instead, has more substance. When the government cuts wages, both public wages and public employment adjust. Instead, when the government cuts vacancies, only public employment adjusts. As a consequence, for a given public wage

bill cut, wage cuts must be associated with a lower drop in public employment. Since private employment rises similarly in the two cases, unemployment will drop more with wage cuts.

But what about total employment (public plus private)? This is an important question since the response of unemployment in the model is largely driven by changes in the participation margin. To be clear, what one would like to learn is whether the *crowding in* of private employment more than compensates for the reduction of public employment.

#### *4.2 Public Wage Bill versus Standard Instruments*

Comparing the response of the economy obtained via a cut in the public wage bill with the response obtained using more standard instruments, for the given consolidation, also highlights two important differences. First, tax hikes and spending cuts reduce private vacancies, private employment, and GDP, while public wage bill cuts increase them. That is, there is no expansion in the private sector with tax hikes and spending cuts. Second, tax hikes reduce consumption and decrease participation more than other fiscal instruments do.

The reason for this remarkable difference is the absence of reallocation between the public and the private sector when standard instruments are used to consolidate. With no reallocation, internal devaluation is also absent or more limited. Regarding more specifically the effects of tax hikes, they induce no positive wealth effect on consumption and reduce work incentives directly.

Again, one unanswered question is, what happens to total employment?

#### *4.3 ZLB versus Normal Times*

Finally, the authors compare the response of the economy at the ZLB and in normal times. Four key results emerge: (i) consumption, private vacancies, private employment, and GDP all go down with a binding ZLB; in that case, there is also a smaller or even inverse reallocation of workers; (ii) participation rises and unemployment rises when the economy is at the ZLB; (iii) the economy experiences a deflation, a rise in real rates, and a rise in debt despite

the consolidation; (iv) however, after the ZLB is over, the dynamics resemble those in normal times.

What is going on? The large negative demand shocks that bring the economy to the ZLB induce a large contraction in the private sector, causing an inverse reallocation of searchers—this time from the private to the public sector—notwithstanding the public wage bill moderation. The rise in participation and the drop in both public- and private-sector employment all increase the unemployment rate. Finally, the binding ZLB causes monetary policy to be powerless and leads to the well-known deflation dynamics that make the consolidation more difficult.

The demand shocks dominate over the ZLB period, masking any difference among the fiscal instruments in terms of effects on consumption, output, and unemployment. The only notable difference is the very robust result that the response of the unemployment rate is more favorable with public wage cuts.

It is also evident that the consolidation helps the recovery at the ZLB: reallocation and internal devaluation raise private employment and lower unemployment. However, it has to be said that these effects mostly materialize when the economy emerges from the ZLB, while the length of the ZLB spell is unchanged.

## 5. General Comments

### 5.1 *Useful Public Goods*

Public goods do not play any role in the baseline model. Is this assumption reasonable? Likely not. Public goods are likely to be productive—that is, entering production complementary to private capital and employment—or utility generating—that is, entering utility, possibly in a non-separable manner from private goods consumption.

Public employment, in particular, is key for basic social services such as health and education. Consider, for example, Greece. According to the Human Resources Register of the Ministry of the Interior and Administrative Reconstruction, the number of public employees fell by 125,994 between 2009 and 2015, that is, about 20 percent of permanent public servants. This must have had adverse effects on the provision of basic services. Several organizations, for

example, have highlighted staff shortages. In 2015, there were 26,347 vacant positions in hospitals and about 3.6 nurses per 1,000 capita compared to a European Union average of 8 nurses per 1,000. At the same time, the number of teachers decreased by 34 percent since 2009, leading to a shortage of 1,164 teachers in junior and senior high schools by 2015. Besides longer-term effects on human capital and productivity, such shortages must also have affected productivity in the short run (think, for example, of waiting lines).

The authors conduct some robustness exercises in the paper and conclude that allowing public goods to be productive matters for the results, while having utility-enhancing public goods does not. What is the reason for this disparity? In addition, should not useful public goods appear prominently in the baseline specification?

## *5.2 Skills, Wage Premiums, and Selection*

The model in this paper does not feature a wage distribution. At the same time, the calibration seems to imply a negative public-sector wage premium.

On one hand, these assumptions are likely to be counterfactual. In fact, the existing empirical evidence points toward a more compressed wage distribution in the public sector, with a positive public-sector wage premium for low-skilled workers and a lower (or even negative) wage premium for high-skilled workers.

On the other hand, the relative wage distribution over skills across sectors has important implications. A public-sector wage premium that decreases with skills clearly implies negative selection in the public sector. Low-skilled workers will tend to search in the public sector, while high-skilled workers will tend to search in the private sector. With negative selection, moreover, it will matter how public wages are cut. Wage cuts taking place across the board will affect employment composition and relative productivity across sectors differently from, say, wage cuts targeted at specific skill groups. For example, progressive wage cuts will tend to exacerbate negative selection in the public sector.

Now, how selection affects aggregate outcomes and the optimal allocations of workers across the public and private sector will depend on the “usefulness” of public output (that is, on how public goods enter production and preferences). If public output is pure

waste, it may be optimal to hire only low-skilled workers in the public sector (essentially as a form of transfers). Instead, a productive public output will generate more interesting tradeoffs between the size of the public wage bill and the relative public to private productivity.

### *5.3 Is Internal Devaluation Effective?*

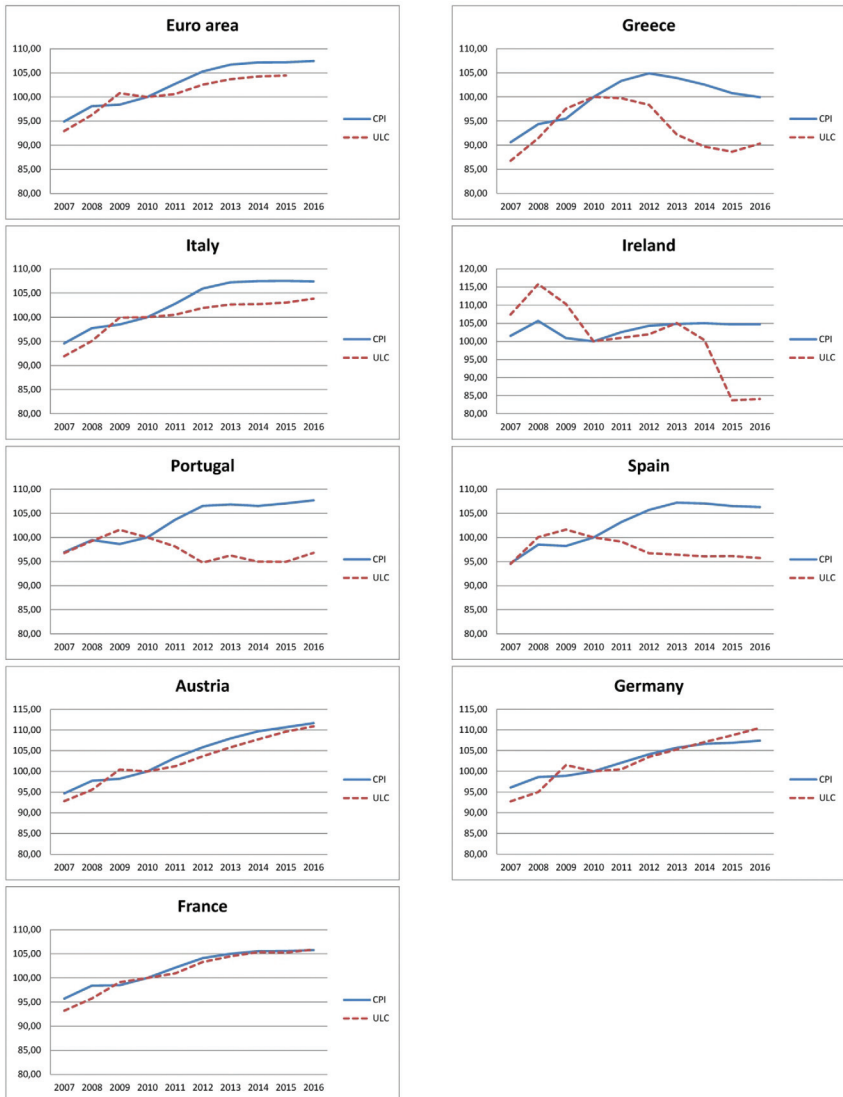
Internal devaluation has been a pillar of the policy response recommended by the European Commission, the European Central Bank, and the International Monetary Fund to the periphery countries in recent years. The recommended policies to stimulate internal devaluation have included fiscal consolidation and structural reforms in labor and product markets. Structural reforms were designed to facilitate adjustment of wages and prices to economic pressures.

Has this worked in practice? Some evidence suggests that it has not. For example, in the periphery area, nominal unit labor costs declined after 2009, but this effect has not been fully passed on to prices. Figures 1 and 2 plot unit labor costs and prices for the euro zone and for a sample of countries, including both countries from the core and countries from the periphery, from 2007 to 2016. The figures clearly emphasize that unit labor costs and prices—measured in figure 1 by the CPI (relevant for consumers) and in figure 2 by the GDP deflator (relevant for exports)—moved together during the crisis in the core countries and in the euro zone as a whole. At the same time, however, unit labor costs and prices displayed divergent movements in the periphery countries starting from 2010. Despite the fact that labor costs have been falling (or, in Italy, have been growing more slowly), prices remained constant or even rose during the period.

What could be the reasons? There can be several explanations. First, limited product market competition may allow firms to increase profits rather than decrease prices when labor costs go down. There is some evidence that profit margins persisted at high levels in Greece during the recent years (Myant, Theodoropoulou, and Piasna 2016). Second, wage costs may not constitute a substantial part of production costs, implying that a reduction in wages may not have large effects on total costs. For example, labor costs constitute only 33 percent of production costs for exporters



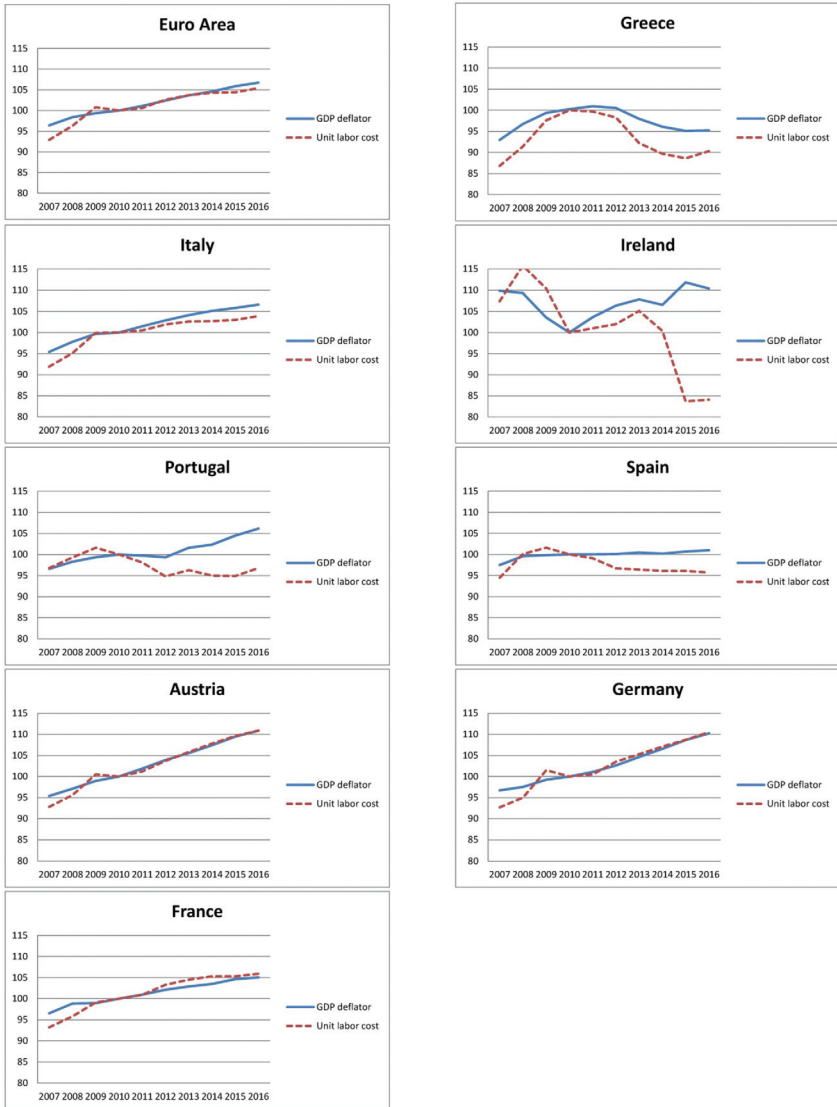
**Figure 1. Nominal ULC and CPI:  
Periphery and Core, 2007–16**



Source: OECD.

Note: Normalized: 2010 – 100.

**Figure 2. Nominal ULC and GDP Deflator:  
Periphery and Core, 2007–16**



Source: Eurostat.  
Note: Normalized: 2010 – 100.

in Portugal (Myant, Theodoropoulou, and Piasna 2016). Third, contemporaneous increases in indirect taxes due to the consolidation may also contribute to keep prices from falling.

#### 5.4 *Labor Market Reforms*

In practice, consolidation often coincides with labor market reforms. Labor market reforms are typically intended to achieve one or more of the following objectives: fostering reallocation of labor across sectors—not only across public and private—via, for example, training or licensing reforms for selected occupations; promoting private job creation, via reductions in firing and hiring costs; moderating wages, via decreases in minimum wages or decentralization of bargaining, in turn reducing unions' bargaining power.

This paper lends itself naturally to study the interaction between consolidation and labor market reforms. In particular, the authors could ask the following questions: Is consolidation more or less harmful in a reformed labor market? Is internal devaluation more effective in reformed labor markets? Are private wages more responsive to reforms targeted at the private-sector labor market or to pressures from the public sector?

#### 5.5 *More Comments and Some Questions*

I now conclude this discussion with some additional comments and questions.

Is there any evidence that reallocation between the public and the private sector takes place in relevant numbers? While the mechanism is very powerful in the model, the authors do not provide any independent empirical evidence in its support.

Is there instead evidence of reallocation between the periphery and the core? While this is ruled out in the model, individuals may be more likely to reallocate to a different country than to a different sector. Emigration is indeed an important phenomenon within Europe. It would be interesting to investigate how results would change if workers would also be allowed to reallocate across countries.

There are no layoffs in the public sector in the model. On one hand, layoffs did take place in important proportions. For example, they doubled in Greece since 2009. On the other, layoffs may be

more suitable than hiring cuts to target employment reductions in specific segments of the public sector. It would be relatively easy to introduce layoffs in the model, through exogenous changes in the separation rate in the public sector.

The calibration implies symmetry between periphery and core. Does it matter?

Are results robust to a positive public-sector wage premium?

How are the shock properties set (autocorrelation and size)?

What drives wages and the marginal product in the model? A more systematic discussion of wage determinants is missing from the paper. What is the role of the relative value of work and non-work? How does the marginal product evolve?

Why assume capital utilization as opposed to instant hiring? Instant hiring, in fact, could also allow the economy to adjust to shocks instantaneously. However, with instant hiring public wage cuts and public vacancy cuts would have more similar effects, especially right after shocks hit.

Why does wage rigidity not matter? The footnote regarding this issue in the paper is not convincing, as the key mechanism of internal devaluation in the paper goes through, precisely, wages. Is it nominal as opposed to real wage rigidity that would matter?

## Reference

Myant, M., S. Theodoropoulou, and A. Piasna, eds. 2016. *Unemployment, Internal Devaluation and Labour Market Deregulation in Europe*. Brussels: European Trade Union Institute.