

## GERMANY: SELECTED ISSUES



## GERMANY

### SELECTED ISSUES

July 2015

This Selected issues paper on Germany was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on June 22, 2015.

Copies of this report are available to the public from

International Monetary Fund • Publication Services

PO Box 92780 • Washington, D.C. 20090

Telephone: (202) 623-7430 • Fax: (202) 623-7201

E-mail: [publications@imf.org](mailto:publications@imf.org) Web: <http://www.imf.org>

Price: \$18.00 per printed copy

**International Monetary Fund**  
**Washington, D.C.**



# GERMANY

## SELECTED ISSUES

June 22, 2015

Approved By  
**European Department**

Prepared By Emine Boz, Dirk Muir (both RES), Selim Elekdag (MCM), and Joana Pereira (EUR)

## CONTENTS

### GERMANY'S SUSTAINED CURRENT ACCOUNT SURPLUS: AN INTERNATIONAL COMPARISON

	<a href="#">3</a>
A. Main Macroeconomic Indicators	<a href="#">4</a>
B. Relative Prices	<a href="#">5</a>
C. Exits from Surplus Episodes	<a href="#">6</a>

### FIGURES

1. Large and Persistent Current Account Surpluses: Expenditure Items	<a href="#">8</a>
2. Large and Persistent Current Account Surpluses: Effective Exchange Rates and Terms of Trade	<a href="#">9</a>
3. Large and Sustained Surpluses: Advanced Economies	<a href="#">10</a>

### TABLE

1. List of Large and Sustained Current Account Surpluses in AEs	<a href="#">11</a>
---	--------------------

References	<a href="#">12</a>
------------	--------------------

### WOULD HIGHER GERMAN WAGES HELP EURO AREA REBALANCING AND RECOVERY?

A. An Exogenous Increase in Workers Bargaining Power	<a href="#">14</a>
B. Higher Private Consumption	<a href="#">15</a>

### FIGURES

1. An Exogenous Increase in German Workers Bargaining Powers	<a href="#">17</a>
2. An Exogenous increase in German Private Consumption	<a href="#">18</a>

<b>References</b>	<b><a href="#">19</a></b>
-------------------	---------------------------

## **TOWARDS A BETTER INSTITUTIONAL FRAMEWORK FOR PUBLIC INVESTMENT IN GERMANY: THE ROLE OF PPPS** **[20](#)**

A. Current Public Investment Patterns	<a href="#">20</a>
B. Use of Public Private Partnerships (PPP) in Germany	<a href="#">22</a>
C. Towards a Better Institutional Framework for PPPs	<a href="#">23</a>

### **FIGURES**

1. Germany: Public Investment Trends	<a href="#">20</a>
2. PPP Investment Contracts by Level of Government, 2002April 2015	<a href="#">23</a>

<b>References</b>	<b><a href="#">26</a></b>
-------------------	---------------------------

## **WOMEN IN THE LABOR MARKET AND THE DEMOGRAPHIC CHALLENGE** **[27](#)**

A. The Challenge of an Aging Society	<a href="#">27</a>
B. Female Employment—High Participation, Low Hours	<a href="#">28</a>
C. Can Women Save Germany's Future Growth?	<a href="#">31</a>

### **FIGURE**

1. Germany: Selected Female Labor Force Indicators	<a href="#">29</a>
--	--------------------

<b>References</b>	<b><a href="#">34</a></b>
-------------------	---------------------------

# GERMANY'S SUSTAINED CURRENT ACCOUNT SURPLUS: AN INTERNATIONAL COMPARISON<sup>1</sup>

1. **This paper identifies episodes of large and sustained current account surpluses in advanced economies (AEs) and compares Germany's ongoing surplus with those episodes.** In doing so, it aims to put Germany's external position in a historical and cross-country context drawing from 55 years of data across 20 AEs. This comparison shows that the real growth of all domestic demand components, particularly of private investment, was remarkably weak during the latest sustained surplus episode in Germany in comparison with both "normal times" and other AE surplus episodes. Neither Germany's nor a typical AE surplus episode has been accompanied by visible, broad-based competitiveness or terms of trade gains; however, when competitiveness is measured by the ULC based REER for the manufacturing sector, a depreciation is in evidence in the run-up to and early years of Germany's surplus episode. Around the time of exits from these episodes, in the typical case, imports and exports growth both slowed down, the trade surplus narrowed, output gaps turned from negative to positive and potential growth accelerated.
2. **Large and sustained current account surplus episodes are defined as periods when the current account balance exceeds 2 percent of GDP for at least 5 years.** These criteria identify 21 episodes.<sup>2</sup> Among these, 5 took place in financial centers (Singapore, Switzerland, Hong Kong SAR) and 7 continue to date, including Germany's (Table 1). Despite the relatively low thresholds set for a surplus to qualify as large and sustained, the identified episodes have been long, with a median duration of 13 years, and large, with a median surplus of 5.3 percent of GDP. Excluding financial centers from the sample has no impact on median duration and reduces the median surplus only slightly.

<b>AEs' Large and Sustained Surpluses</b>	Mean	Median
Duration (yrs)	13.1	13
excl. financial centers	11.1	11
Avg. CA/GDP (%)	6.1	5.3
excl. financial centers	4.9	4.6
<b>Germany's 2004-2014 Surplus</b>		
Duration (yrs)	11	
Avg. CA/GDP (%)	6	

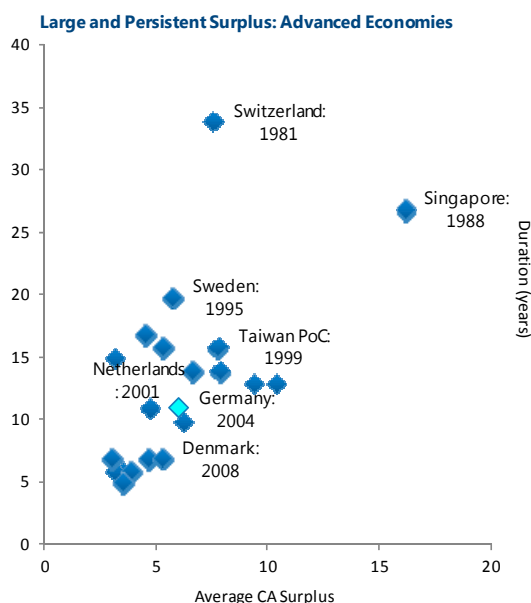
<sup>1</sup> Prepared by Emine Boz (RES).

<sup>2</sup> This definition follows Chapter 3 of the 2007 *World Economic Outlook*.

3. **Germany's current large and sustained surplus episode began in 2004 and continues to date.** The duration of this episode so far (11 years) matches exactly the median duration for AEs excluding financial centers. Its size exceeds the median and is somewhat above the mean for the AEs excluding financial centers. Though it is hard to predict the evolution of Germany's current account going forward, the latest projections suggest that both its duration and size will exceed historical medians.

4. **Compared to the ongoing surplus episodes in Europe, Germany's surplus does not stand out in terms of its size or duration.** Sweden, the Netherlands, and Denmark have experienced large and sustained surpluses since 1995, 2001 and 2008 respectively, with average current account surpluses of 5.7, 6.6 and 5.3 percent of GDP, respectively. Germany's surplus, with an average size of 6 percent, is right around the mean of these episodes.

5. **Germany had a previous large and sustained surplus episode during 1985-1991.<sup>3</sup>** It is interesting to note that even in the absence of the factors that are commonly viewed as playing a role in the current episode, such as demographic changes, wage moderation or the EMU, Germany experienced a large and sustained current account surpluses, albeit shorter and smaller than the ongoing one. Understanding the drivers of the 1985 episode could be a fruitful avenue for future research and could shed light on the question of whether there are any very persistent factors common across these two episodes.



## A. Main Macroeconomic Indicators

6. **In a typical AE surplus episode and in that of Germany, import and export performance was robust both within and outside of the episodes.** It is not surprising for strong import growth to go hand-in-hand with strong export growth as exports tend to have high import intensity. Comparing the AE median and Germany *within* the episodes, Germany's surplus was characterized by mildly weaker export performance and noticeably weaker import growth (Figure 1).

<sup>3</sup> The end to this episode at the time of the re-unification was most likely driven by a change in the coverage of WEO's balance of payments data that referred only west Germany until June 1990 and started to include the eastern Lander thereafter.

7. **Germany's surplus has been characterized by remarkably weak domestic demand.**<sup>45</sup> In fact, Germany's real domestic demand growth during its surplus episode was less than half of its growth in "normal times." The weakness was broad based, involving all domestic expenditure components. While this pattern is typical of other surplus episodes, it is much starker for Germany. The weakest performance has been that of private investment, which grew by a small fraction of its typical growth rate. Private consumption and government expenditure, on the other hand, during the surplus episode grew by only about 1/3 and 1/2 of the growth rate experienced outside of surplus episodes, respectively. Part of the reason why government expenditures have fared somewhat better than private consumption and investment may be due to the fiscal stimulus observed during the global financial crisis. Looking at the structural fiscal balance confirms that Germany's fiscal position has been stronger during its surplus episode than outside, a difference more pronounced in the case of Germany than in other surplus episodes.

8. **The global financial crisis may have contributed to the weakness in Germany's domestic demand during its surplus episode.** Since the global financial crisis and Germany's current account surplus episode overlapped for the most part, some of the observed weakness in aggregate demand may be attributed to the crisis. However, because the crisis was a global shock it cannot have been the only factor explaining the stronger current account in Germany, as all countries cannot improve their current accounts at the same time in the face of weak domestic demand. Hence, Germany specific factors must have played a role, too.

## B. Relative Prices

9. **Neither a typical surplus episode nor Germany's surplus episode have been associated with terms of trade improvements or nominal exchange rate depreciation.** Somewhat surprisingly, during the surplus episode the terms of trade deteriorated and the nominal effective exchange rate (NEER) appreciated (Figure 2). Germany's NEER was on an appreciation trend during 1980-1996. Hence, the average NEER growth for that period was positive and somewhat large driving the "outside" average up. Other countries having surplus episodes must have also had NEER appreciations on average as evidenced by a positive NEER growth rate for the AE median both during and outside of the surplus episodes. Germany's terms of trade data suggest a mild downward trend starting in early 1970s. Both export and import prices of Germany in USD increased gradually in this period with the import prices increasing slightly faster. This trend continued during the surplus episode suggesting terms of trade losses during this period.

10. **The surplus episode was associated with competitiveness gains as measured by relative unit labor costs.** Unlike the NEER, the CPI based real effective exchange rate (REER) of Germany depreciated overall in the entire sample, on average by 0.8 percent in 1980-2003 but

<sup>4</sup> Excluding the financial centers from the analysis does not change the results shown in the figure significantly.

<sup>5</sup> The statistics reported in Figure 1 for Germany refer only to the 2004-2014 episode and do not include the 1985-91 episode. The later is also excluded from statistics referring to "outside of episodes" periods.

mostly in the early 1980s owing to inflation rates above 5 percent during 1980-1982. *Within* its surplus episode, Germany's REER continued to depreciate on average but the rate of depreciation was lower than outside of the episode. The ULC based REER, on the other hand, points to competitiveness gains for Germany during its surplus episode and losses outside of it. In contrast, in other advanced countries ULC-based competitiveness improves within and outside of surplus episodes.<sup>6</sup> The pattern for Germany is consistent with the fact that Germany experienced significant competitiveness gains relative to the rest of the euro area after the launch of the euro. Between 2000 and 2007, Germany's manufacturing ULC *declined* by 11 percent while that for the Netherlands, France and Italy *increased* by 6.4, 0.6 and 19.4, respectively.

### C. Exits from Surplus Episodes

11. **With the help of the dataset, it is possible to shed light on what factors were associated with exits from large current account surplus episodes.** Even though Germany is not expected to exit its surplus episode in the medium term as its current account is projected to remain well above the 2 percent threshold in the next 5 years, it is nonetheless interesting to establish patterns of past experiences. It should be noted that these historical patterns may be of limited usefulness for the case of Germany, to the extent that rapidly aging population is a major factor driving the current surplus: "aging out of current account surpluses" is still uncharted from an empirical perspective.

12. **For the analysis of exits, we rely on 14 complete episodes (Figure 3).** In this figure, date  $t=0$  corresponds to the last year of the surplus episode while  $t=1$  is the first year after exit. Hence, each plot covers the last 6 years of surplus episodes and the first 5 years after exit. Given that the number of complete episodes is only 14, the analysis focuses on the medians as the means would be particularly susceptible to the influence of outliers. The downside of this approach, however is that the usual identities do not necessarily hold for the medians even though they hold for the means. For example, the identity  $tb = x - m$  holds for each individual country and also for the mean across countries. However, this need not be the case for the medians.

13. **Exports and imports to GDP ratios start falling gradually four years before exit, with the difference between the two narrowing progressively.** In the year of exit, a more abrupt adjustment takes place, entirely driven by a sharp (but short-lived) pickup in the imports-to-GDP ratio, while the exports-to-GDP remains unchanged. Even after exiting, in the typical episode the trade balance remains in a surplus between 1-2 percent of GDP. In the run-up to the exit, real investment bounces strongly. The strong investment performance lasts for about 4 years, from year -3 to 0, ending sharply afterwards and in fact registering a negative value in year 3. Consumption growth also appears solid, while government spending is the strongest component in the year of exit; hence fiscal policy may be one of the drivers of external adjustment.

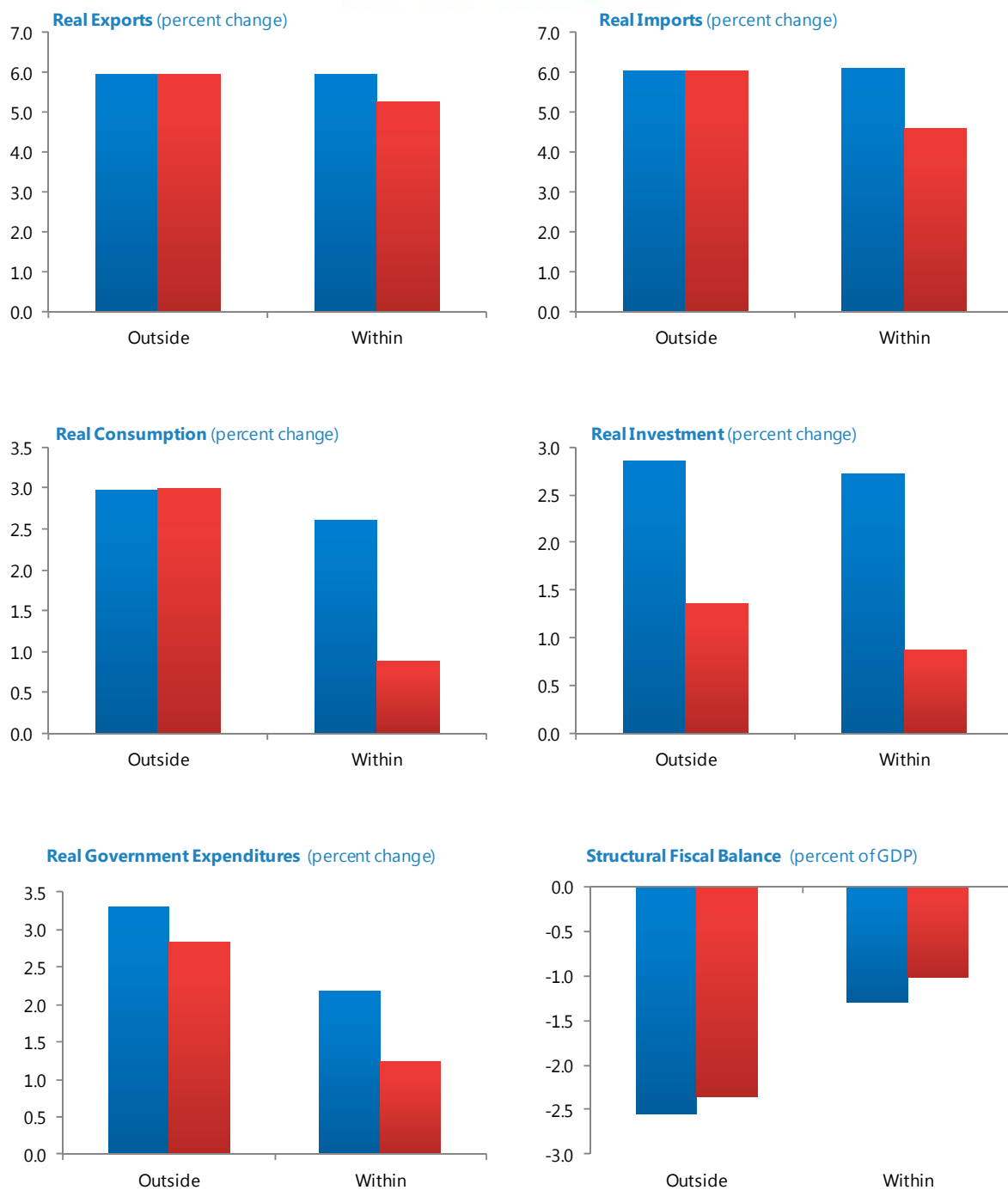
<sup>6</sup> Note that ULC based REER data are limited and available for only 11 of the 21 surplus episodes this note identifies. For Germany it covers 1993-2014.

14. **Both cyclical and structural factors seemed to be at work during exits.** In terms of comparisons with potential GDP, the first two years of the typical adjustment were associated with positive output gaps of 0.6-0.7 percent of GDP. Afterwards, output gaps turned negative. The fast growth period from year -2 to +1, as highlighted above, started with a negative output gap of -1.4 percent in year -2 and ended with a positive gap of 0.6 percent in year +1. During the same period, potential growth also accelerated, particularly from year -1 to +1. Overall, the strong growth observed around exits appears to have cyclical as well as structural components, evidenced by the reversal of the output gap and the strengthening of the potential growth.

15. **To conclude, a key characteristic of the ongoing large and sustained current account surplus of Germany is the weakness of its domestic demand.** In particular, slow growth in private investment stands out in comparison with “normal times” as well as other AE episodes. On the other hand, relative price changes appear to be muted, perhaps with the exception of ULC based REER for the manufacturing sector which depreciated in the run up to and early years of Germany’s episode. Focusing on the complete episodes, which excludes Germany’s, reveals that exits from current account surpluses have been associated with a shrinking of the trade surplus and strengthening of both cyclical and potential GDP growth.

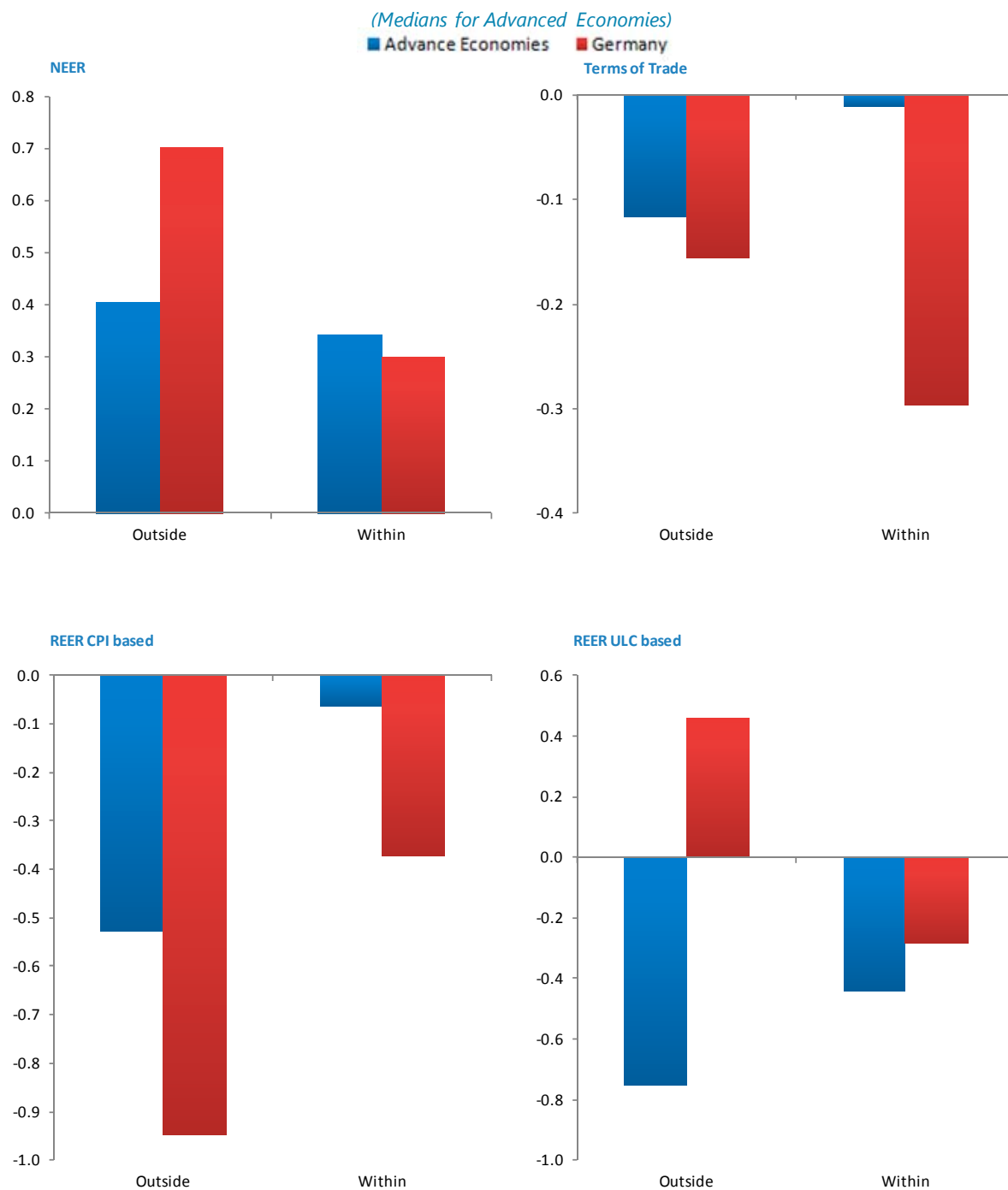
**Figure 1. Large and Persistent Current Account Surpluses: Expenditure Items***(Medians for Advanced Economies)*

■ Advanced Economies ■ Germany

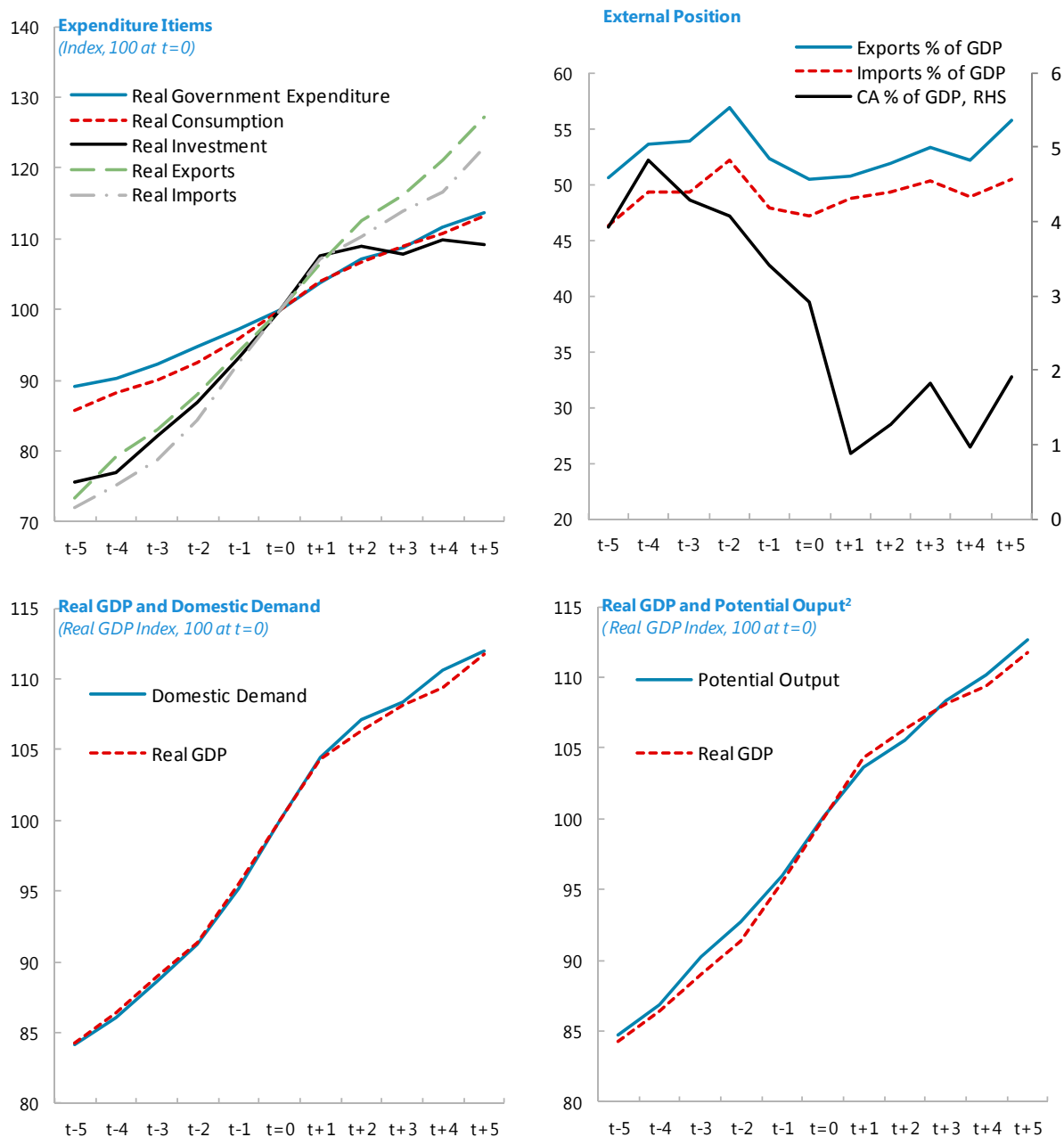


Source: IMF Staff Calculations

**Figure 2. Large and Persistent Current Account Surpluses: Effective Exchange Rates and Terms of Trade**



Source: IMF Staff Calculations

**Figure 3. Large and Sustained Surpluses: Advanced Economies<sup>1</sup>**

Source: IMF Staff Calculations

1/ Date t=0 corresponds to the end of the large and sustained imbalance episode.

2/ The Index for output is such that it takes the value of 100 at t=0. This need not be the case for potential output which is computed by applying the median output gap to the output index. Hence, the percentage difference between actual and potential output is the output gap.

Note: Excludes ongoing episodes.

**Table 1. List of Large and Sustained Current Account Surpluses in AEs**

Country	Start	Duration (yrs)	CA/GDP (avg, %)
Hong Kong SAR	1965	13	10.3
Switzerland	1969	11	4.7
Netherlands	1981	6	3.5
Switzerland*	1981	34	7.5
Hong Kong SAR	1984	10	6.2
Japan	1984	6	3.1
Taiwan Province of China	1984	14	7.8
Germany	1985	6	3.8
Singapore*	1988	27	16.1
Belgium	1991	17	4.5
Ireland	1993	5	3.5
Netherlands	1993	7	4.6
Finland	1995	16	5.3
Sweden*	1995	20	5.7
Japan	1997	15	3.1
Hong Kong SAR	1999	13	9.3
Taiwan Province of China*	1999	16	7.7
Netherlands*	2001	14	6.6
Austria	2004	7	3
Germany*	2004	11	6
Denmark*	2008	7	5.3

\*Episodes marked with an asterisk still continue.

## References

International Monetary Fund, 2007, *World Economic Outlook: Exchange Rates and the Adjustment of External Imbalances* (Washington: International Monetary Fund, April).

## WOULD HIGHER GERMAN WAGES HELP EURO AREA REBALANCING AND RECOVERY?<sup>1</sup>

*Using model-based simulations, this note illustrates how the spillovers from higher wages in Germany to the rest of the euro area depend crucially on what causes the increases in wages. Although it would help reduce the current account surplus in Germany, an exogenous increase in German wages (as may arise, for instance, from labor market reforms strengthening union bargaining power) would be contractionary both domestically and for the rest of the euro area. In contrast, higher wages arising from policies that induce greater labor demand (by stimulating German private consumption or investment) help raise domestic GDP and generate beneficial regional spillovers—which are even larger if monetary policy remains accommodative.*

1. This note explores the quantitative implications of higher German wages for euro area rebalancing. In particular, it asks whether an acceleration of wages in Germany would help lift growth in the rest of the currency union, thereby reducing output gaps and increasing employment, and whether this effect may also be accompanied by a realignment of competitive positions and current account imbalances within the monetary union.
2. Specifically, model-based simulations are used to trace out and compare the domestic impact and spillover implications of two separate shocks that give rise to an increase in wages in Germany (to be detailed below). The simulations use an extended version of the IMF's Global Integrated Monetary and Fiscal model (GIMF). The model is calibrated to capture the main features of six separate geographic areas: (i) Germany, (ii) a group of five euro area countries which experienced high borrowing spreads during the 2010-11 sovereign debt crisis (Greece, Ireland, Italy, Portugal, and Spain, or EA-5) (iii) other euro area countries, "OEA", (iv) the United States, (v) Emerging Asia, and (vi) the rest of the world, "ROW".<sup>2</sup>
3. Two policy experiments are investigated: i) an exogenous increase in the bargaining power of workers – modeled as a wage markup shock, and ii) a positive shock to private consumption which endogenously leads to higher wages. To facilitate comparison across experiments, the shocks are scaled so that the peak increase in real wages is 1 percent (which occurs in the second or third year as discussed below).

<sup>1</sup> Prepared by Selim Elekdag and Dirk Muir.

<sup>2</sup> For further details on this version of GIMF, see Elekdag and Muir (2014b). For more general information on the behavior and structure of the model, see Anderson and others (2013).

## A. An Exogenous Increase in Workers Bargaining Power

4. To capture the effects of deliberate policies aimed at raising wages in Germany, such as reforms to give trade unions greater bargaining power, an exogenous and permanent increase in the wage markup (by  $3\frac{1}{3}$  percent) is simulated which results in a 1 percent increase in the real wage (Figure 1).

5. The shock can be decomposed into two competing short-run effects. First, higher wages lead to higher aggregate demand. At constant employment (hours worked), a redistribution from profits to wages induces greater consumption because more income is allocated to liquidity constrained “hand to mouth” consumers, thereby increasing the economy’s average propensity to consume. The second force pertains to the supply side: higher nominal wages, because of sticky prices, result in higher real wages—the canonical cost-push shock. This induces firms to cut back on employment (hours) reducing output, income, and aggregate demand.<sup>3</sup>

6. The simulations show that the contractionary effect dominates. Despite the temporary rise in consumption, the supply-induced increase in real wages is overall contractionary as real GDP and hours worked decline in tandem in Germany. This result is consistent with many other studies, including those that are based on estimated models of the euro area (Smets and Wouters, 2003; Smets and Wouters, 2007; Gali, Smets, and Wouters, 2011).<sup>4</sup> The shock also leads to a modest appreciation of the real exchange rate and a worsening of the current account.

7. Turning to spillovers, lower growth in Germany – via its effects on German imports – weighs on growth in the rest of the euro area. While inflation temporarily rises in Germany, it drops in the rest of the region due to a widening of output gaps. In other words, a German supply shock that increases German real wages manifests itself as a negative demand shock in the rest of the euro area. Because of the detrimental effect on output gaps, the shock triggers an accommodative monetary policy response from the ECB, dampening the negative spillovers somewhat. However, if the zero lower bound is binding and non-conventional monetary policies are not available or not effective, then real interest rates decline by less which amplifies the initial shock. To see this, the simulation is repeated holding the policy interest rate fixed for 2 years. In this case, real interest rates in the rest of the euro area would actually increase (owing to lower inflation rates), suppressing domestic demand further with negative spillovers across the region. Though overall contractionary, this shock would lead to a modest depreciation of the real exchange rate in the rest of the euro area (EA-5, OEA) and a slight improvement in the current account.

<sup>3</sup> If a coordinated increase in wages and prices could be engineered, the real wage for producers would not increase and this adverse supply effect would not occur. This type of shock is explored in the context of discussing wage moderation policies in some parts of the euro area in Decressin et al. (forthcoming).

<sup>4</sup> See also, for example, Schmitt-Grohé and Uribe (2012).

8. To summarize, policies that aim at exogenously raising wages in Germany would help realign real exchange rates and current account imbalances within the monetary union, but at the cost of reduced economic activity, both in Germany and in the rest of the euro area.

## B. Higher Private Consumption

9. The second shock we consider is a temporary shift in consumer preferences from saving towards consumption, which could be thought of as reflecting greater consumer confidence in the short run. The shock is calibrated to generate a 2 percent temporary consumption increase (relative to the baseline), resulting in a real GDP increase of 0.6 percent (Figure 2). At the same time, firms' labor demand increases, immediately raising hours worked by 1.2 percent and with a lag (due to sticky wages and prices) the real wage. Hence, this shock also gives rise to higher wages in Germany, but the source of the increase is fundamentally different. As is the case with favorable demand shocks, both inflation and the output gap end up higher than in the baseline.<sup>5</sup>

10. Spillovers are transmitted via several channels in the model:

- **Trade channel:** The increase in German consumption raises import demand which implies positive spillovers to its trading partners. The strength of this channel is determined by the share of German imports from the specific trading partner. In particular, Germany's trade linkages with the EA-5 are small (less than 1/10 of Germany's imports are from the EA-5).
- **Exchange rate channel:** At the same time, the positive German output gap yields a higher inflation rate relative to the rest of the currency union, and is thereby associated with a real effective exchange rate (REER) appreciation. The implied REER depreciation in the rest of the euro area stimulates their (net) exports thus contributing to higher output.
- **Monetary policy channel:** The monetary stance tightens given the prevailing higher inflation rates across Germany, OEA, and the EA-5. Higher real interest rates across the monetary union depress regional domestic demand, but they are also associated with an appreciation of the REER vis-à-vis the rest of the world which depresses EA exports in favor of foreign production. Note that the tightening of monetary policy can dominate the first two channels mentioned above—especially when trade linkages are weak (like with the EA-5)—such that higher German consumption could temporarily result in negative growth spillovers to European trading partners.

11. While greater German consumption boosts euro area real GDP, there are differences within the region. The exogenous increase in German consumption results in higher aggregate

<sup>5</sup> For the implications of other demand shocks, for example greater private and public investment (that have more persistent effects), see Elekdag and Muir (2014a).

euro area activity: overall, real GDP rises by 0.2 percent. However, while positive spillovers are seen immediately in the OEA, real GDP declines initially in the EA-5. As noted above, given the weak trade ties between Germany and the EA-5, the contractionary effects of the higher real interest rates triggered by the monetary tightening dominates the beneficial spillovers operating through the trade channel in the short run.

12. Spillovers associated with an exogenous increase in German consumption are larger if monetary policy remains accommodative. In the present circumstances, in which there is still a sizable negative output gap in the euro area and inflation is well below the level consistent with price stability, it may be more plausible to assume that increase in domestic demand in Germany will not lead to immediate monetary tightening. Therefore, the simulation is repeated with accommodative monetary policy whereby policy rates are kept unchanged for two years. In this case, the spillovers to the euro area are larger, pushing real GDP upwards by over 0.3 percent. Moreover, real GDP in the EA-5 increases at the outset, and the spillovers to the OEA increase fourfold. With constant nominal policy rates, higher inflation rates are characterized by lower real interest rates boosting domestic demand in the region, while the attendant REER depreciation (vis-à-vis the rest of the world) increases the growth contribution from net exports.

13. Turning to the real exchange rate and the current account, the consumption shock appreciates the real exchange rate in Germany and depreciates it in the rest of the region. The current account therefore declines by about 0.5pp of GDP in Germany and increases very modestly elsewhere. Given the temporary nature of the shock, these effects gradually reverse over time.

14. To summarize, a temporary shift in consumer preferences toward more consumption in Germany would have positive demand spillovers to the rest of the euro area and would also contribute to rebalancing the real exchange rate and the current account.

Figure 1. An Exogenous Increase in German Workers Bargaining Powers

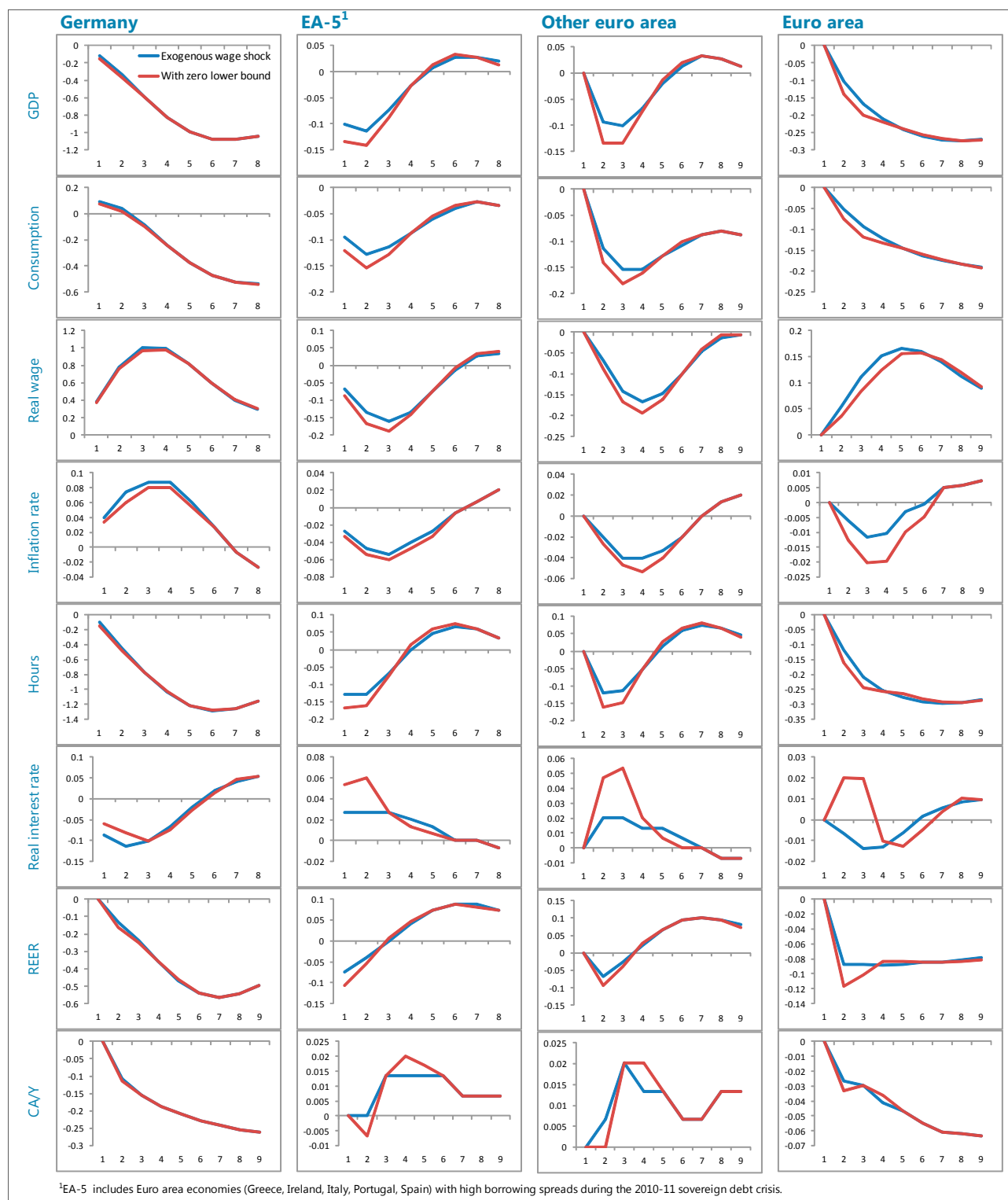
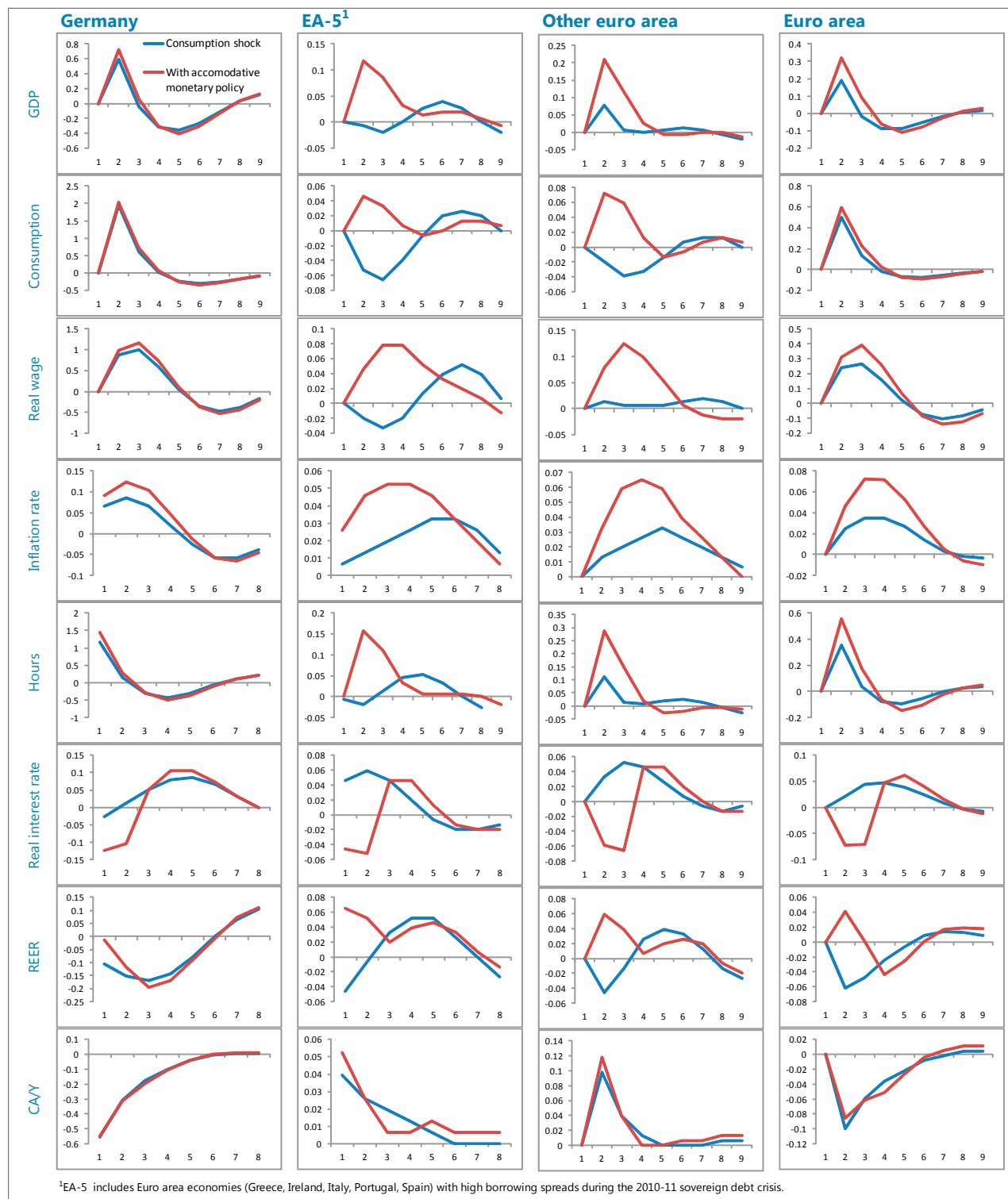


Figure 2. An Exogenous increase in German Private Consumption



## References

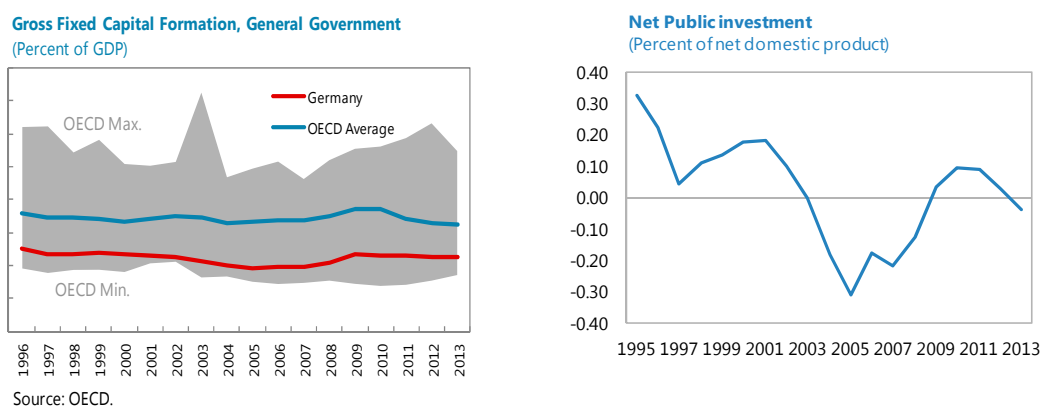
- Anderson, D., B. Hunt, M. Kortelainen, M. Kumhof, D. Laxton, D. Muir, S. Mursula, and S. Snudden, 2013, "Getting to Know GIMF: The Simulation Properties of the Global Integrated Monetary and Fiscal Model." IMF Working Paper No. 13/55.  
<http://www.imf.org/external/pubs/cat/longres.aspx?sk=40357.0>
- Decressin, J., R. Espinoza, I. Halikias, M. Kumhof, D. Leigh, P. Loungani, P. Medas, S. Mursula, M. Schindler, A. Spilimbergo, and T. Xu, forthcoming, Wage Moderation in Crises: Policy Considerations and Applications to the Euro Area, Staff Discussion Note, International Monetary Fund.
- Elekdag, S. and D. Muir, 2014a, "Which Policies Can Boost German Growth and Reduce the Current Account Surplus?" IMF Country Report No. 14/217 (Germany: Selected Issues)  
<http://www.imf.org/external/pubs/cat/longres.aspx?sk=41767.0>
- Elekdag, S. and D. Muir, 2014b, "Das Public Kapital: How Much Would Higher German Public Investment Help Germany and the Euro Area?" IMF Working Paper 14/227.  
<https://www.imf.org/external/pubs/cat/longres.aspx?sk=40987.0>
- Gali, J., F. Smets, and R. Wouters, 2011, "Unemployment in an Estimated New Keynesian Model," *NBER Macroeconomics Annual 2011*, pp. 329–60.
- Schmitt-Grohé, S. and M. Uribe, 2012, "What's News in Business Cycles," *Econometrica*, Vol. 80, No. 6, pp. 2733–64.
- Smets, F. and R. Wouters, 2003, "An Estimated Dynamic Stochastic General Equilibrium Model of the Euro Area," *Journal of the European Economic Association*, Vol. 1, No. 5, pp 1123–75.
- Smets, F. and R. Wouters, 2007, "Shocks and Frictions in US Business Cycles: A Bayesian DSGE Approach," *American Economic Review*, Vol. 97, No. 3, pp. 586–606

# TOWARDS A BETTER INSTITUTIONAL FRAMEWORK FOR PUBLIC INVESTMENT IN GERMANY: THE ROLE OF PPPS<sup>1</sup>

## A. Current Public Investment Patterns

1. **Public investment in Germany is relatively low among advanced economies.** Having risen above 3 percent of GDP in the aftermath of reunification, it fell to less than 2½ percent of GDP by the mid 1990s and has hovered around the 2 percent mark since then. While international comparisons are imprecise because the perimeter of the general government differs across countries, public investment in Germany as a share of GDP has been consistently close to the minimum among OECD countries. Since 2003, estimated net public investment has been mostly negative, leading to a small decline in net public capital. Although Germany does not suffer from overall poor infrastructure, experts have pointed out important investment needs, particularly in transport infrastructure and energy (see e.g. Kunert and Link, 2013 and the 2015 report by the Expert Commission<sup>2</sup>). The 2015 SGP envisages public gross fixed capital formation to rise by an average rate of 4.6 percent over the next 5 years, bringing its ratio to GDP up from 2.2 percent to 2.3 percent.

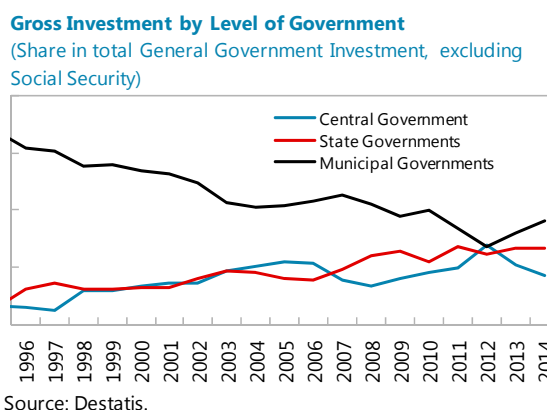
**Figure 1. Germany: Public Investment Trends**



<sup>1</sup> Prepared by Joana Pereira (EUR).

<sup>2</sup> *Increasing Investment in Germany*, <http://www.bmwi.de/DE/Mediathek/publikationen.did=702188.html>.

2. **As in most federations, sub-national governments undertake a large share of public investment.** Most public investment in Germany is executed by the municipalities, which historically have spent at least as much as the states and the federal government. Even in the transportation sector, where the federal government plays a relatively more prominent role, only half of the infrastructure is federal. However, the role of municipalities has been steadily declining over the last decades – local governments capital spending fell by 0.4 percent of GDP since 1996, equivalent to a third of its initial level (coinciding with waning investment in local public transportation). The decline in general government investment has broadly followed that of municipalities.



3. **Looking ahead, budget constraints faced by some of the federal states and municipal governments may continue to limit the capacity to expand public investment.** The fiscal position of individual states and municipalities varies reflecting regional economic differences, and will be further affected by the limits imposed under the national 'debt brake' fiscal rule. The rule mandates that a structural balanced budget has to be observed by all federal states by 2020. Regional budget constraints, therefore, may hamper the expansion of general government investment even if there is fiscal space at the federal level. In addition, lack of financial resources in some federal states may be an obstacle to the realization of national investment projects, particularly in infrastructure, which require coordinated financial contributions by all levels of governments. In this context, financial support from the central government can play a crucial role. For instance, taking advantage of a better-than-expected budgetary outturn and more favorable budget forecasts, the federal government has recently announced the set up of a Municipal Investment Promotion Fund, which will receive 3.5 billion euro in 2015. Further transfers of 1.5 billion euro are planned for 2017.

4. **Alternative financing, planning, and execution mechanisms, such as partnerships with the private sector, can help boost local infrastructure investment on a lasting basis.**<sup>3</sup> Public private partnerships (PPP) allow the public sector to leverage private financing. The

<sup>3</sup> Although this note focuses solely on the role of PPPs in promoting infrastructure spending, other forms of institutional support to infrastructure development would be complementary. These include the creation of public sectoral infrastructure companies (such as the infrastructure corporation for German highways currently under consideration) and/or institutions to secure long-term funding for infrastructure, particularly at the regional and local level (specific suggestions are included the 2015 report by the Expert Commission – see footnote 2).

associated stability in financing sources also means that the build-up and maintenance of public infrastructure can be decoupled from budgetary cycles. PPPs may also ensure that private sector expertise is brought to bear more effectively in the management and execution of projects, resulting in shorter execution periods and lower cost overruns, as private partners bear part of the investment and execution risk.<sup>4</sup> The design, construction, operation, and maintenance of infrastructure assets can thus be made more cost-effectively than under traditional public provision. In addition, PPPs may enhance investment opportunities for savers seeking long-term investment opportunities, which may be particularly valuable in the current low interest rate environment.

5. **While PPPs hold much promise, they may be difficult to use, especially for local authorities.** For PPPs to be successful, project risks need to be clearly identified, priced, and transferred to private partners, to avoid situations in which the overall public sector ultimately bears a disproportionate share of such risks (the appropriate level of risk transfer from the government to the private sector will be project specific). This may be quite a complex task especially for small local governments. Moreover, the effective use of PPPs in projects that cut across various levels of government or involve multiple local governments may require substantial coordination, including reporting and *ex-post* monitoring.

## B. Use of Public Private Partnerships (PPP) in Germany

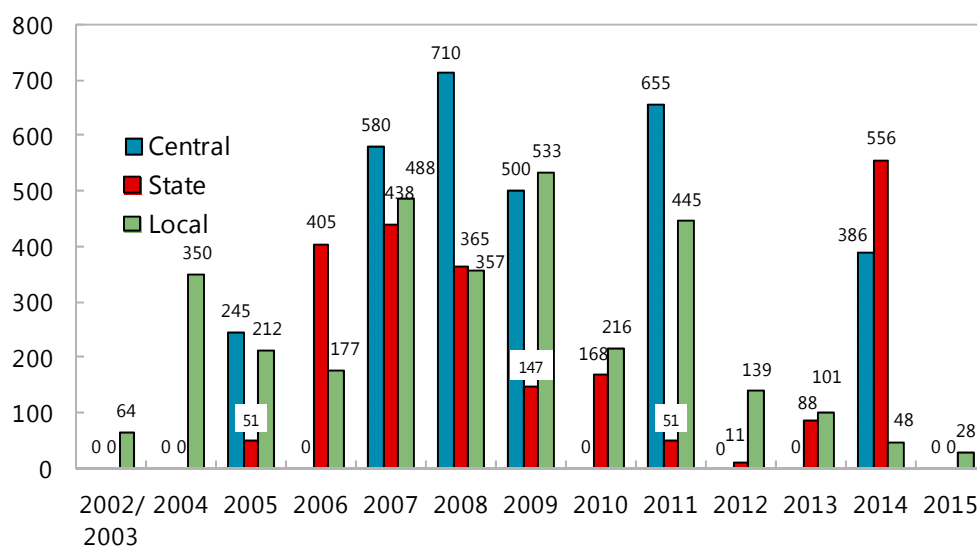
6. **In Germany, the use of PPPs has been growing but is still relatively limited.** Federal Budget documentation reports 19 active projects with accumulated expenditures of 23.5 billion euro (less than 1 percent of 2014 GDP). Consolidated information for the general government is not available, but data reported by *Partnerschaften Deutschland* – the main German PPP agency – reports a total of 200 construction and engineering PPPs, with total contracted investment volume of 8.7 billion euro as of April 2015. Thus, PPP contracts have a small weight in the German economy. Nevertheless, according to data from the European PPP Expertise Center (EPEC), the German PPP market was the third largest in Europe in 2014 by amount transacted, and in 2013 by number of transactions. The number of (reported) contracts has also been growing over time (from 30 in 2005 to 160 in 2010 and 200 today).

7. **The bulk of reported PPP investments was contracted with the federal government, but municipalities have also resorted extensively to private funding in the past.** Available data shows that historically the federal government has accounted for the largest share of PPP contract volumes in spite of its modest share in overall public investment (Figure 2). Since there is no reporting requirement at the sub-central level (OECD, 2014), however, this could either reflect a lower volume of projects or underreporting. With this *caveat*, available data suggests

<sup>4</sup> For a discussion of success factors in the implementation of PPPs, see for instance Hemming et al. (2006), Corbacho et al. (2008), IMF (2015). Best practices on budgeting and reporting of PPP are discussed in Funke et al. (2013).

that PPP investment volumes contracted by local governments have fallen substantially over recent years, in tandem with the decline in local government investment ratios.

**Figure 2. PPP Investment Contracts by Level of Government, 2002April 2015**  
(Millions of Euros)



Source: PPP-Projektdatenbank.

### C. Towards a Better Institutional Framework for PPPs

8. **Germany's institutional framework for PPPs is strong by international standards at the federal level.** Federal investment projects taking place through PPPs are included in the annual budget, and federal budget documentation contains an annex with an overview of current and future PPP-related spending obligations (OECD, 2014). Federal PPP projects are subject to an economic feasibility analysis, so that PPP procurement is only used if it is expected to yield a larger return than traditional procurement. In addition, the Federal Court of Auditors can audit PPP contracts, as with any other federal expenditure. Importantly, at the federal level there are no minimum revenue guarantees granted by the government to private operators, ensuring that risks are shared.

9. **The framework, however, could be improved further, particularly at the subnational level.** At the level of the federal states, minimum revenue guarantees are used in PPPs (OECD, 2014) and reporting requirements are not as stringent as at the federal level. At the municipal level, oversight is provided by the relevant federal state with no direct control by the federal government. The latter promotes adequate management of PPPs at the local level by providing guidance on best practices, including through Germany's main PPP agency *Partnerschaften Deutschland* (PD, an independent agency created in 2008 by the Ministry of Finance, with a minority private ownership). Consulting with PD is subject to user fees (PD's primary

source of financing), and is done on voluntary basis.<sup>5</sup> Some federal states have also established their own PPP units, and a federal PPP network (*Föderales PPP Netzwerk*) exists to promote exchange of information between the federal government and those units. But the scope of competencies of these units is very heterogeneous, and the recommendations of *Föderales PPP Netzwerk* are merely indicative.

10. **Against this background, the creation of a centralized PPP agency with a strictly advisory role to support infrastructure development at all government levels – particularly municipalities – might be beneficial.**<sup>6</sup> Such an agency could be a modified and expanded version of PD and would embrace the following responsibilities: (i) centralize and share expertise<sup>7</sup> (the task currently performed by PD); (ii) promote consistent reporting practices; (iii) ensure the effective management of fiscal risks from Germany's overall PPP portfolio; and (iv) enhance intergovernmental coordination in project assessment and implementation. The new agency could also help mobilize and/or structure financing for individual projects, including by raising market awareness of PPP projects. As is the case for PD, the agency would provide non-binding recommendations for all levels of government. Such a strict advisory role would help confer independence to the agency and avoid competency conflicts within Germany's federal structure. It would be desirable for the agency to be publicly financed, ideally through co-financing (as a voluntary partnership) by all levels of government, while still maintaining an independent status. Public financing (allowing for lower user costs) and a strictly advisory mandate would both help secure for it a comprehensive role – encouraging procuring governments to seek its advice (EPEC, 2014), particularly for small projects – and minimize potential biases for or against PPPs.

11. **The agency would report directly to the Stability Council.**<sup>8</sup> By centralizing information on projects under way in different localities, the agency could inform the public debate on the economic feasibility of each project, highlighting its positive or negative externalities, as well as the overall budget affordability. As PD, the agency would be an independent body, but should periodically report to the Stability Council, which overlooks the overall stability of public finances. Such structure could also facilitate infrastructure projects whose implementation requires coordination across the three levels of government.<sup>9</sup> Integrating the agency in the Federal

<sup>5</sup> The Federal government has recently established a temporary and financially limited investment program for public authorities (in municipalities, regions, and at federal level) where PD can give advice and the Federal Ministry of Finance is paying the advice out of the program.

<sup>6</sup> See overview of dedicated PPP units in OECD member countries in OECD (2010).

<sup>7</sup> Provide guidance on why and when a PPP might be more effective than traditional procurement, how to design specific contracts, and how to operationally manage projects (to ensure continued delivery), promoting a coherent approach across regions, municipalities, and type of projects.

<sup>8</sup> The Stability Council is a joint body of the Federal government and the Federal states in charge of ensuring the overall sustainability of public finances.

<sup>9</sup> To improve public investment efficiency, IMF (2015) highlights the importance of institutions that ensure public investment is fiscally sustainable and effectively coordinated across sectors, levels of government and between public and private sectors.

Ministry of Finance would be an alternative option, which may facilitate control of overall risks to the general government (as some of the risk may ultimately be absorbed by the federation). Such an option was taken in the UK, for instance, with the creation of *Infrastructure UK* in 2010.

12. **An important role of the agency would be to promote consistent reporting standards, thereby improving transparency and allowing a more effective management of fiscal risks.** From a general government perspective, one of the key advantages of a centralized agency is to foster a more consistent and transparent reporting of commitments associated with PPPs at sub-central level, making it possible to monitor the overall exposure of the public sector to fiscal risks stemming from PPPs. This is of particular importance in the German context, where no reporting obligation currently exists for federal states and municipalities.

## References

- Corbacho, A, Funke, K., and Schwartz, G., 2008, "Public Investment and Public-Private Partnerships: Addressing Infrastructure Challenges and Managing Fiscal Risks" (Palgrave MacMillan).
- European PPP Expertise Centre, 2014, "Establishing and Reforming PPP Units: Analysis of EPEC Member PPP Units and Lessons Learnt."
- Funke, K., Irwin, T., Rial, I., 'Budgeting and Reporting for Public-Private Partnerships', International Transport Forum Discussion Paper No 2013-7.
- Hemming, R., and others, 2006, "Public-Private Partnerships, Government Guarantees, and Fiscal Risk" (Washington: International Monetary Fund).
- International Monetary Fund, 2015, "Making Public Investment More Efficient," IMF Policy Paper (forthcoming; Washington).
- Kunert, U., and Link, L., 2014, "Transport Infrastructure: Higher Investments Needed to Preserve Assets", DIW Economic Bulletin 10.2013
- OECD, 2010, "Dedicated Public-Private Partnership Units: A Survey of Institutional and Governance Structures", OECD Publishing, Paris.
- OECD, 2014, "Budget Review: Germany", OECD Journal on Budgeting, Volume 2014, Issue 2

# WOMEN IN THE LABOR MARKET AND THE DEMOGRAPHIC CHALLENGE<sup>1</sup>

## A. The Challenge of an Aging Society

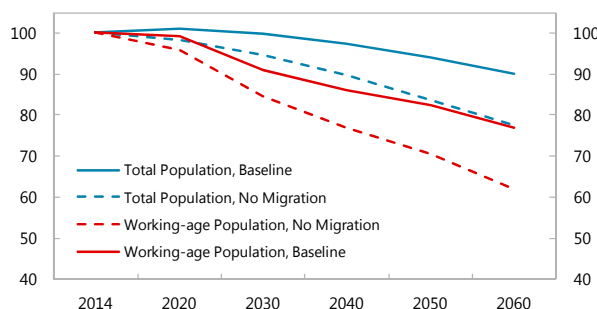
### 1. **The German population is expected to decline markedly over the coming decades.**

The latest Federal Statistical Office projections for 2040 place Germany's working age (15-65) population at 14 percent (about 7½ million) less than current levels.

Eurostat numbers show the projected decline in Germany's population to be the third largest in Western Europe, after Greece and Portugal. Without immigration, the natural decline would be almost 25 percent. In tandem, population will age rapidly, with the old age dependency ratio shifting from the current 32 percent to about 55 percent by 2040 (and broadly stabilizing thereafter).

**Population and Labor Force Projections**

(Index, 100=2014)



Source: Destatis.

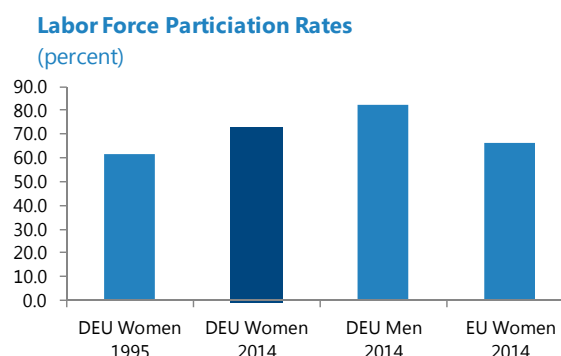
2. **Potential GDP growth will decline concomitantly, and fiscal expenditures on pensions and health care will show a significant rise.** Through a simple growth accounting exercise, assuming a labor share of 2/3 in production, and at constant employment rates, the decline in working population alone is expected to reduce yearly potential growth by 0.5 percent on average through 2040 relative to a current potential growth estimate of 1.3 percent. At the margin, aging may also affect productivity and composition of demand. Furthermore, the shift in the old-age dependency ratio will put pressure on public finances. Using similar population projections, the authorities estimate old-age related spending to rise between 2½ and 4 percent of GDP by 2040 (depending on labor market and other economic assumptions), which, if unaddressed, will eventually lead to higher social security contributions, reductions in other government spending, or a steep rise in debt.

3. **How can these trends be mitigated?** This paper focuses on the scope for increases in female labor to counteract the economic impact of aging in Germany, abstracting from the relative importance of complementary factors such as immigration, elderly labor participation, or fertility. Based on labor force statistics and insights from existing analytical studies, policy options to boost female labor supply are presented and discussed.

<sup>1</sup> Prepared by Joana Pereira (EUR).

## B. Female Employment—High Participation, Low Hours

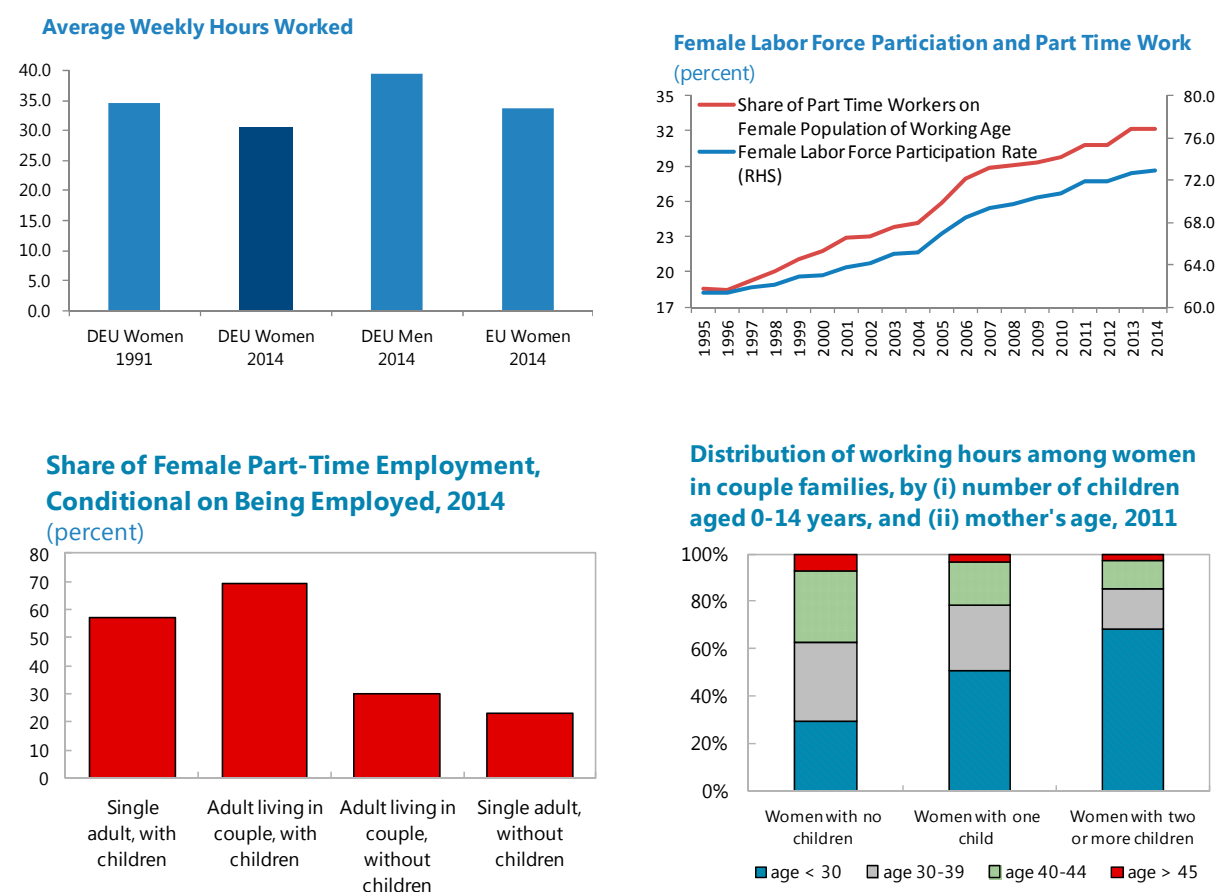
4. **Female labor participation rates are relatively high in Germany.** In 2014, about 73 percent of working-age women in Germany either had or were actively searching for a job, compared with a participation rate of 83 percent for men. Within Western Europe, female participation rates are only higher in the Scandinavian countries, Switzerland and the Netherlands. Starting at about 61 percent in 1995, German female labor participation has been steadily increasing, with some acceleration in the mid 2000s. By contrast, male participation rates have been mostly stable.



Source: Eurostat.

5. **In contrast, average working hours are relatively low for women, particularly for those with family responsibilities.** About 46 percent of female workers are not employed full time. Consequently, women work on average 30.5 hours per week, contrasting to almost 39.4 hours worked by men (Figure 1). Unlike the participation rate, average working hours by women have been declining since reunification (though stabilizing at current levels since 2008), as the share of part time workers increased over time. Indeed, the rise in participation rates over the last two decades coincided with an ever larger share of part-time female workers (Figure 1). One explanatory factor seems to be the expansion of mini jobs since the mid 2000s, as 2/3 of exclusive mini jobs workers are women.<sup>2</sup> Other possible reasons include the increased availability of childcare facilities – encouraging previously non-working women to work part time – and some structural shift in the economy towards services (more favorable to part time work arrangements). The gender gap in working hours develops early in women’s careers, having a persistent impact over time for married women with children (Figure 1): while the average number of working hours by childless married women remains broadly constant through their working life, for married mothers it almost halves when we compare the 30–39 cohort to the under-30 cohort, and falls further for older cohorts. Thus, part-time employment is estimated to contribute to half of the 22 percent gender wage gap in Germany (OECD, 2014b).

<sup>2</sup> *Mini* jobs are exempt from social security contributions, including for health care insurance, up to a certain monthly wage (currently 450 euros; thus, corresponding to only a few hours per week).

**Figure 1. Germany: Selected Female Labor Force Indicators**

Sources: Eurostat, OECD.

6. **Fiscal disincentives for secondary earners deter stronger female labor market participation.** Germany has the third largest marginal effective tax rates on secondary earners among advanced economies – lower only to that of the Netherlands and Switzerland, where the number of hours worked by women is even smaller. The German marginal effective tax rate for secondary earners is over 50 percent, leading to a tax wedge difference between primary and secondary earners of 21 percent (Hüfner and Klein, 2012, and OECD (2013, 2014a)).<sup>3</sup> The high burden on secondary earners is explained by two factors: the system of joint taxation among married couples with very different income levels (as a consequence of the constitutional

<sup>3</sup> The marginal rate refers to net income loss for a couple in which the primary earner receives the average wage and the secondary earning shifts to work from a non working situation. The difference in tax wedge is calculated by comparing single tax payers receiving the average salary and secondary workers receiving 2/3 of the average salary.

provision for income splitting among couples – *Ehegattensplitting*<sup>4</sup>), and the loss of free health care insurance of non-working spouses upon taking up work other than in *mini* jobs (see footnote 2). A recent report prepared for the Ministries of Finance and Family Affairs evaluated the socio-economic effects of various family public policies in Germany; it estimates that the overall effect of *Ehegattensplitting* on labor supply – relative to fully individual taxation – is the equivalent to 161 thousand full-time equivalent (FTEs) working women (the effect on male labor supply is positive but much lower, at 33 thousand FTEs).<sup>6</sup> The above-mentioned distortions from the health insurance scheme are evaluated as driving an equally sizable loss in labor supply. For women with children, the cost of child care is an additional disincentive to take up work, but subsidized child care is provided by the government (see below). On the other hand, other elements of the tax/benefit system, in particular child benefit payments for non-working parents work in the opposite direction, although they contribute to income stability through early childhood, when parents (mothers) may wish to spend more time off work.

7. **While subsidized childcare is provided by the government, insufficient supply of childcare services and after-school programs is another important constraint.** There is a wide-spread perception that the supply of high-quality childcare services is insufficient to meet demand. Under the current tax/benefit system, 11.5 percent of currently employed women (1/4 of part time workers) would like to work longer hours, according to a recent government report.<sup>7</sup> The lack of after school programs is another important factor discouraging women with children from working full time. For example, according to the OECD *Family Database*, pre-primary (childcare plus pre-school) education spending in Germany was 0.5 percent of GDP in 2011, below the OECD average of 0.8 percent. Only 0.1 percent of GDP was allocated to childcare. Although the latter has recently increased (by an estimated 0.1 percent over the last 3 years), the average OECD spending ratio on childcare is much higher (0.4 percent).<sup>8</sup> In addition, the government has introduced in 2013 a home care allowance (*Betreuungsgeld*) for parents of

<sup>4</sup> The German constitution foresees that married couples cannot be at a tax disadvantage in Germany, while each member of a couple is entitled to half total earnings (*Ehegattensplitting*). Since the incomes of husband and wife are summed up and divided by two, and given the progressivity of the German tax code, the household's total tax burden is reduced, but the marginal tax rate for the secondary earner is higher (subject to a higher tax bracket than under individual taxation, in a context where the secondary income is lower than the primary income). Correspondingly, the primary earner's marginal tax rate is lower, but this is unlikely to stimulate labor supply since these workers are typically already employed full time.

<sup>5</sup> We refer to the joint taxation on an annual basis (i.e., independent of the modality chosen for monthly tax payments).

<sup>6</sup> The report can be found here: <http://www.bmfsfj.de/BMFSFJ/familie,did=209192.html>. Various academic studies have also studied this issue, with consistent conclusions – see, for example, Bick and Fuchs-Schündeln (2015), Thevenon (2013).

<sup>7</sup> *Fortschrittsbericht 2014 zum Fachkräftekonzept der Bundesregierung*: <http://www.bmas.de/DE/Service/Publikationen/a758-14-fortschrittsbericht-fachkraeftekonzept.html>.

<sup>8</sup> Comparisons made on the basis of spending per child (in PPP terms) present a similar picture. Although spending in pre-primary education is at about OECD average, spending on childcare is less than half the average.

young children who do not use childcare services. Although the subsidy is not large – 100 to 150 euro per month – it adds to disincentives to seek formal care and take up a full time job. The enrolment rate of children under-3 years of age in formal childcare was about 23 percent in 2010, compared to 33 percent on average in the OECD. The above mentioned government report (see footnote 6) assesses positively the labor supply impact of publically subsidized childcare in Germany, estimating the total gain in the equivalent of 100 thousand FTEs – i.e., a 2 percentage point increase in the participation rate and a 16 percent increase in hours worked of mothers with children under 12 years –, with an annual cost of slightly less than 0.1 percent of GDP. The vast academic literature on this subject – see for example Wrohlich (2008, 2011), Bick (2015)<sup>9</sup>, for Germany, or Thevenon (2013) for the OECD - points to similar conclusions.

### C. Can Women Save Germany's Future Growth?

#### 8. A menu of options is available to raise female labor supply in Germany.

- Regarding childcare and after-school programs, an expansion of (high-quality) publicly-provided services may be preferable to a policy of simply offering more generous subsidies, as the estimated impact on labor supply would be larger (Wrohlich, 2011), in particular among higher income households.
- Targeting other forms of financial support to non-working parents, such as the home care allowance, narrowly to low-income households would also tilt incentives in favor of seeking or retaining full time employment, which would allow parents to preserve skills, thereby accruing more income in the long term.
- Moving towards a system of individual taxation would minimize distortions on secondary earners' (mostly women) labor supply. Although pure individual taxation may not be compatible with the German constitution, a system of tax credits for secondary (or lower-paid) spouses which are phased out as individual income increases, as proposed in Hüfner and Klein (2012), could be an alternative option.
- Limiting or eliminating the different treatment of health care insurance beneficiaries would also reduce incentives for women to stay out of the labor force (or in a mini job). Options range from equalizing contribution rates for all insured persons, regardless of work status, to introducing some differentiation in single contribution rates according to the number of family members insured. Targeted support could be provided for low income households.

<sup>9</sup> Bick (2015) argues that the impact of expanding subsidized childcare on the labor participation rate of mothers (extensive margin) would probably be limited; however, a larger share of working mothers would shift to a full-time job (intensive margin) with greater access to subsidized childcare.

9. **Policies to address disincentives to work in full time jobs are complementary.** Both fiscal disincentives for secondary earners and childcare/after-school-programs undersupply constitute important barriers to an increase in number of hours worked by women in Germany. Lifting one or the other restriction alone, however, may have only limited impact on labor supply. Therefore, addressing both problems in tandem is important to broaden the choice set of women. For example, the success of Scandinavian countries, most notably Sweden, in sustaining relatively high fertility rates together with a large share of female full time work has been attributed to the combination of a relatively low tax wedge for secondary earners and comprehensive support to working couples with young children (including high childcare government spending per child).

10. **Reducing the incidence of part time work while keeping or rising current participation rates would significantly lessen the economic impact of aging.** Assuming constant labor market structures (employment shares across men and women, average hours worked), the projected 14 percent decline in working-age population by 2040 represents an equally large fall in total hours worked. What would happen if by 2040 German women could be induced to work as much as Swedish women (79 percent participation, with 34 working hours on average per week) or as many hours as German men? Both scenarios would suffice to undo the expected decline in Germany's working age population<sup>10</sup>: Swedish women work in total 23 percent more hours than German women (the joint effect of higher participation rates and more average working hours per woman), while there is a 29 percent difference between female and male working hours in Germany. Considering that 47 percent of employment is currently held by women, the two scenarios would lead to, respectively, a 9 or 12 percent increase in total hours worked, largely mitigating the effect of demographics. The benefits would go beyond the mechanical impact on potential growth. For example, increased contributions to social security would help finance the expected increases in pension and health spending, and provide a better balance overall between the coverage of beneficiaries and contributors.

11. **These policies would entail a potentially limited, if positive, fiscal cost.** The assessment of relative merits of different policy options requires a measure of their cost-effectiveness, in turn based on estimated female labor supply elasticities to specific measures as well their fiscal cost. Although the qualitative assessment of each type of elasticity is broadly consistent in the literature, there is considerable variation on quantitative estimates, depending on the methodology employed. It is therefore impossible to provide a definitive conclusion. Nevertheless, as an illustration, Wrohlich (2011) estimates that expanding the availability of childcare while making access conditional on the mother taking up work brings female labor supply by 16 percent (hours worked by 12.4 percent and participation rate by 3.9 percent) – that is, over half of the total gap to Swedish women – and entails an annual fiscal cost of 0.1 percent

<sup>10</sup> The exercise abstracts from potential differences in productivity across groups, and assumes constant employment rates over time.

of GDP. The impact is slightly smaller than the one implied by the report discussed in paragraph 7. Turning to after-school programs – a policy which has been less studied by the literature – while education spending per child increases steeply with age, the cost of after-school programs is likely not be as elevated as that of regular instruction. By contrast, removing the current disincentives for full time work does not necessarily imply a revenue loss, and may often generate a direct fiscal gain. Bick and Fusch-Schundeln (2015) estimate a strong labor supply response among married women (16 percent higher participation and 9 percent more hours worked) with a revenue neutral reform of taxation of married couples (from joint to separate filling). By the same token, reforming the system for providing health-insurance coverage to married couples does not necessarily imply an overall revenue loss.

## References

- Bick, A., 2015, "The Quantitative Role of Child Care for Female Labor Force Participation and Fertility", *Journal of the European Economic Association*, forthcoming.
- Bick, A., Fuchs-Schündeln, N., 2015, "Taxation and Labor Supply of Married Women across Countries: A Macroeconomic Analysis", CEPR Discussion Paper 9115.
- Hüfner, F. and C. Klein (2012), "The German Labour Market: Preparing for the Future", OECD Economics Department Working Papers, No. 983.
- OECD, 2013, *Taxing Wages*.
- \_\_\_\_\_, 2014a, *OECD Economic Surveys: Germany 2014*. OECD Publishing.
- \_\_\_\_\_, 2014b, *Germany, Keeping the Edge: Competitiveness for Inclusive Growth*. OECD Better Policies series.
- Thévenon, O., 2013, "Drivers of Female Labour Force Participation in the OECD", OECD Social, Employment and Migration Working Papers, No. 145, OECD Publishing.
- Wrohlich, K., 2008, "The excess demand for subsidized child care in Germany", *Applied Economics* 40:10, 1217-1228.
- \_\_\_\_\_, 2011, "Labor Supply and Child Care Choices in a Rationed Child Care Market", DIW Discussion Paper 1169.