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Macro-economic Effects of the Fiscal Stimulus Measures in Austria

In response to the current financial and economic crisis, Austria, like most industrialised countries and many developing countries, has taken measures to stabilise financial markets and to mitigate the sharp fall in economic activity. Totalling 4.2 percent of 2008 GDP, these measures attain considerable size in an international comparison. Model simulations show that, together with fiscal measures adopted in the 10 major trading partner countries, the national stimulus packages have slowed the decrease in Austrian GDP by 2.1 percentage points in 2010. In the same year, a cumulated 41,500 jobs are preserved that may otherwise have been lost, decreasing the rise in the rate of unemployment by 0.7 percentage points. At the same time, the share of investment geared towards raising potential growth in the future, accounting for 30 percent of the total amount spent, remains below the average for a sample of 11 OECD countries. Dominating in this category is infrastructure investment along the lines of traditional counter-cyclical stimulus programmes, claiming in the case of Austria a share slightly above 75 percent.

This article summarises the main findings of the WIFO study commissioned by the Federal Ministry of Economics, Families and Youth: Fritz Breuss, Serguei Kaniovski, Margit Schratzenstaller, *Gesamtwirtschaftliche Auswirkungen der Konjunkturpakete I und II und der Steuerreform 2009* (August 2009, 40 pages, € 40, free download: http://www.wifo.ac.at/www/jsp/index.jsp?fid=23923&id=36361&typeid=8&display_mode=2) • Fritz Breuss is Jean Monnet professor for Economics of European Integration at WU Vienna and WIFO. Serguei Kaniovski and Margit Schratzenstaller are economists at WIFO. The authors are grateful to Karl Aiginger for helpful and constructive comments. • The data were processed and analysed with the assistance of Christine Kaufmann. • E-mail addresses: Fritz.Breuss@wifo.ac.at, Serguei.Kaniovski@wifo.ac.at, Margit.Schratzenstaller@wifo.ac.at

Like most countries, Austria has been adversely affected by the financial and economic crisis, albeit somewhat less severely than the euro area on average. Other than in the wake of the Great Depression 80 years ago, economic policy reacted in a determined and timely manner: rather than exacerbating the crisis by a restrictive fiscal stance and protectionism, most countries took action to stabilise financial markets and switched to fiscal expansion counter the recession. Likewise, the Austrian government has reacted swiftly, taking measures as from November 2008 to ensure the viability of the banking sector and to cushion the downturn by comprehensive fiscal stimuli, which were gradually being implemented.

Part of the federal government's stabilisation programme is the carrying-forward of income tax cuts into 2009, accompanied by two fiscal stimulus packages and a rescue package for the banking sector. In addition, the Länder have adopted own programmes that focus on infrastructure investment. By means of its macro-economic model, WIFO has carried out an ex-ante evaluation of the overall economic effects of the measures planned or in part already implemented (except the banking rescue package and leaving aside the effects of the loose monetary policy by the ECB) on the federal and the Länder (regional) level (Breuss – Kaniovski – Schratzenstaller, 2009). Furthermore, the economic impact (spill-overs) of the stimulus programmes adopted by Austria's ten most important trading partners on the Austrian economy has been estimated using the Oxford model in order to quantify the total effect of the national and external stimulus measures on the domestic economy. The calculations rest upon the assumption that all measures decided at home and abroad are actually implemented as planned.

In late March 2009, *OECD* (2009A) published with an interim edition of its *Economic Outlook* an overview of size and time schedule of stimulus programmes implemented or planned by the 30 OECD member countries as of 24 March 2009. The size of a programme is defined as the net effect on the general government balance, cumulated over the period from 2008 to 2010, as percent of 2008 GDP, presented as total and broken down by expenditure- and revenue-related measures within the national accounts framework. The main findings of this cross-country overview are:

- Stimulus programmes have been set up in almost all OECD countries. The budgetary effect of these programs is in many cases smaller than that of the automatic stabilisers or non-crisis-related discretionary fiscal measures. Their size differs markedly across countries. An unweighted average of the stimulus packages in the OECD countries (i.e., those sets of measures giving a positive impulse to growth) cumulated over the period 2008 to 2010 correspond to about 2.7 percent of GDP, of which 1.6 percent of GDP is due to tax cuts and 1.1 percent of GDP to spending increases. The largest package has been adopted by the USA (5.6 percent of GDP), the smallest one by Switzerland (0.5 percent of GDP). In five countries (USA, Australia, Canada, Korea and New Zealand), the packages exceed an amount of 4 percent of 2008 GDP. On the contrary, four countries (Italy, Ireland, Iceland and Hungary) pursue during the observation period a neutral or restrictive fiscal policy stance.
- An estimate on the basis of the crisis-induced low fiscal multipliers produces a growth contribution from the discretionary measures taken in the OECD area of around 0.5 percent of GDP. The comparatively large US stimulus package is expected to raise GDP by more than 1 percent (2009: 1.3 percent, 2010: 1.5 percent). This estimate of the multiplier effects does, however, not include cross-border spill-overs.
- The more effective the automatic stabilisers, the smaller are, as a rule, the national discretionary stimulus packages. On average, the impact of the automatic stabilisers is three times as high as that of the discretionary measures.
- Most OECD countries outside the G-7 put the emphasis in their stimulus packages on tax cuts; among the G-7, tax cuts are less dominant. Priority is generally given to cuts in personal income tax against cuts in business taxes. Almost all OECD countries resort to additional public investment or to the carrying-forward of planned projects. In many cases, transfers to private households are being increased, particularly for low-income earners. Some countries have also increased business subsidies.
- Most countries planned the bulk of their stimulus programmes for the year 2009.

Table 1 gives an overview of the size and time profile of the budgetary effects of the stimulus programmes initiated in Austria's ten major trading partner countries (*OECD*, 2009A, p. 111). The measures planned for the period from 2008 to 2010 range from strong fiscal expansion (5.6 percent of nominal GDP of 2008) in the USA to fiscal contraction of 4.4 percent of GDP in Hungary. Germany, Austria's most important trading partner, has decided on stimulus measures totalling 3.0 percent of nominal GDP. In most countries, the measures take effect in 2009, with the largest part of the impulse also materialising in 2009. On (unweighted) average of the 11 countries sampled, the stimulus packages for 2008 to 2010 correspond to 1.4 percent of 2008 GDP; if the comparison is confined to those countries where fiscal policy is expansionary, the budgetary impact is 2.2 percent of 2008 GDP. The expenditure-increasing measures account for 0.3 percent and 0.9 percent of GDP, respectively, the revenue concessions for 1.1 percent and 1.3 percent.

According to the analysis by the OECD, the Austrian package totalling 1.1 percent of GDP (expenditure increase 0.3 percent, tax cuts 0.8 percent) is both below the OECD average and below the average for the 11 countries shown in Table 1. This may be explained by the following factors:

- The OECD compilation does not include any off-budget measures, which, however, play an important role in Austria. Investment projects undertaken by the

Stimulus programmes adopted by the main trading partners

road financing agency (Asfinag), the Federal Real Estate Agency (BIG) and the Austrian Railways (ÖBB) belong to this category.

- Although the aim of the OECD was to include all government activities, it does not include the fiscal packages adopted by the Länder.
- Only the revenue shortfall for 2009 is taken into account, i.e., that part that derives from the advancement of the tax reform into 2009 due to the crisis; the OECD argues that the tax cuts for 2010 would have been implemented anyway, independent of the crisis.
- Lastly, the OECD compilation includes only part of the measures designed to lower the financing costs of companies¹.

Table 1: Size and time profile of the stimulus programmes adopted by Austria's main trading partners

| | Net impact on general government balance | | | Distribution 2008-2010 | | |
|----------------------|--|-------|-------|--------------------------------|------|------|
| | Expenditure | Taxes | Total | 2008 | 2009 | 2010 |
| | 2008-2010 | | | Percentage share of net impact | | |
| | As a percentage of GDP of 2008 | | | | | |
| Germany | - 1.4 | - 1.6 | - 3.0 | 0 | 46 | 54 |
| Italy | - 0.3 | 0.3 | 0.0 | 0 | 15 | 85 |
| USA | - 2.4 | - 3.2 | - 5.6 | 21 | 37 | 42 |
| Switzerland | - 0.3 | - 0.2 | - 0.5 | 0 | 68 | 32 |
| France | - 0.4 | - 0.2 | - 0.6 | 0 | 75 | 25 |
| Czech Republic | - 0.5 | - 2.5 | - 3.0 | 0 | 66 | 34 |
| UK | 0.0 | - 1.5 | - 1.4 | 15 | 93 | 8 |
| Hungary | 4.4 | 0.0 | 4.4 | 0 | 58 | 42 |
| Spain | - 1.9 | - 1.6 | - 3.5 | 31 | 46 | 23 |
| Poland | - 0.6 | - 0.4 | - 1.0 | 0 | 77 | 23 |
| Austria | - 0.3 | - 0.8 | - 1.1 | 0 | 84 | 16 |
| OECD 11 | | | | | | |
| Unweighted | - 0.3 | - 1.1 | - 1.4 | 6 | 61 | 33 |
| Only positive impact | | | | | | |
| Unweighted | - 0.9 | - 1.3 | - 2.2 | 7 | 66 | 29 |
| G 7 | - 1.6 | - 2.0 | - 3.6 | 17 | 43 | 40 |
| OECD total | | | | | | |
| Unweighted | - 0.7 | - 1.2 | - 2.0 | 10 | 53 | 37 |
| Weighted | - 1.5 | - 1.9 | - 3.4 | 17 | 45 | 39 |
| Only positive impact | | | | | | |
| Unweighted | - 1.1 | - 1.6 | - 2.7 | 9 | 53 | 38 |
| Weighted | - 1.7 | - 2.0 | - 3.7 | 17 | 45 | 39 |

Source: OECD, WIFO.

In line with efforts at the international level to support aggregate demand, Austria resorts to a fiscal policy mix of tax cuts and spending increases. The measures include the stimulus packages I and II as well as the tax cuts carried forward from 2010 into 2009. They can be regrouped into four categories (total amount 2009-10 in € billion):

- increase in infrastructure investment (€ 1,435 million),
- lowering of companies' financing cost (€ 2,080 million),

Stabilisation measures taken by Austria

Stabilisation measures adopted by the federal government

¹ The difficulties of an international comparison and the dependence of estimation results from the definition of the measures taken are illustrated by a comparison of the OECD findings with those of Saha – von Weizsäcker (2009) which for Austria obtain a budgetary impact of 1.3 percent of GDP for 2009 only. Also the estimates by the IMF of the fiscal cost of discretionary measures taken by the G-20 (IMF, 2009) differ substantially from those of the OECD. The actual size of the Austrian stabilisation measures is best approached by an overview published in June 2009 by the European Commission (European Commission, 2009A, 2009B): according to this, the Austrian stimulus measures of 1.8 percent of GDP each for 2009 and 2010 are for both years the second-largest ones adopted across the EU (in 2009, only the Spanish package of 2.3 percent of GDP is larger, in 2010 that of Germany amounting to 1.9 percent of GDP).

- increase in private household disposable income (€ 5,953 million),
- increase in public consumption and subsidies (€ 370 million).

Table 2 gives an overview of the size and incidence in time of these packages². Taken together, the two packages and the tax cuts amount to 3.5 percent of nominal GDP, rising to 4.2 percent of GDP with the measures by the Länder included. Austria thereby figures among the countries having adopted a sizeable stimulus programme as measured by the size of their GDP.

Table 2: Tax reform and measures included in stimulus "package" I and II

| | 2009 | 2010 | |
|---|-----------|---------|---------------------|
| | Million € | | |
| <i>Federal level (government programme)</i> | 4,702.5 | 5,135.0 | |
| Infrastructure investment | 690 | 745 | |
| ÖBB | 175 | 175 | Stimulus package I |
| Asfinag | 50 | 50 | Stimulus package I |
| BIG | 355 | 520 | Stimulus package II |
| Broadband services | 10 | 0 | Stimulus package I |
| Energy-saving renovation | 100 | 0 | Stimulus package II |
| Lowering of corporate financing cost | 840 | 1,240 | |
| Accelerated depreciation | 0 | 250 | Stimulus package II |
| Profit tax allowance | 0 | 150 | Tax reform |
| Third-party credits EIB ¹ | 200 | 200 | Stimulus package I |
| Interest-subsidised ERP credits | 200 | 200 | Stimulus package I |
| Higher guarantee ceiling aw's | 400 | 400 | Stimulus package I |
| Silent participations aw's | 40 | 40 | Stimulus package I |
| Increase in private disposable income | 2,987.5 | 2,965 | |
| Income tax cuts | 2,300 | 2,300 | Tax reform |
| Family "package" | 510 | 510 | Tax reform |
| Tax deductibility of sponsoring | 100 | 100 | Tax reform |
| Subsidised homebuilding | 20 | 20 | Stimulus package I |
| Regional employment "package" | 35 | 35 | Stimulus package II |
| Car scrapping premium | 22.5 | 0 | |
| Government consumption | 120 | 120 | |
| Compulsory pre-school year free of charge | 70 | 70 | Stimulus package II |
| Research and development | 50 | 50 | Stimulus package II |
| Subsidies | 65 | 65 | |
| Regional employment "package" | 40 | 40 | Stimulus package II |
| Globalisation "campaign" | 25 | 25 | Stimulus package I |
| <i>Länder</i> | 1,073.2 | 1,007.7 | |
| Infrastructure investment | 876.8 | 876.8 | |
| Increase in transfers | 196.3 | 130.9 | |
| <i>Total</i> | 5,775.7 | 6,142.7 | |

Source: Federal Ministry of Economics, Families and Youth, IHS, WIFO. – Asfinag ... Autobahnen- und Schnellstraßen Finanzierungs-Aktiengesellschaft, BIG ... Federal Real Estate Agency, ÖBB ... Austrian Railways. – ¹ Small and medium-sized enterprises, research and development.

The investment initiative of the federal government provides for an increase in building and infrastructure investment by € 1.4 billion over the period 2009-10, of which € 1,015 billion will have a direct budgetary impact. Asfinag and ÖBB will invest € 450 million in transportation networks. Unlike the investment by ÖBB, that by Asfinag will be financed out of current revenues and therefore not burden the federal budget, whereas a small part of the ÖBB investment will have an impact on the budget. Further investment plans concern the insulation for the purpose of energy conservation of buildings owned by the Federal Real Estate Agency (BIG) as well as the construction or renovation of school, university and legal administration buildings.

² For the tax measures raising private disposable income of households, Table 2 refers to the respective amounts after full implementation as from the year of introduction, since it is not the budgetary effects that are relevant (which may lag due to conventions of tax collection) but the economic effect. For this reason, the data partly differ from those presented in Schratzenstaller (2009).

The federal government programme creates incentives for private construction investment. Budget outlays of € 50 million for energy conservation in commercial buildings and of another € 50 million for private households are to generate an additional € 300 million in industrial and residential construction output in 2009-10. In 2009, € 10 million are foreseen for investment in broadband technology.

The measures designed to lower financing cost and strengthen corporate liquidity in Austria may be summarised into three groups: strengthening of the equity base through silent partnerships, interest-subsidised loans and accelerated depreciation rules.

Among the measures supporting the purchasing power of private households, the tax reform carried forward into 2009 is the most important one. When fully implemented, the cut in tax rates will lower the tax burden on households by € 2.3 billion per year. Additional tax concessions for families will boost disposable income by € 510 million each year. To this category also belong a number of (tax) subsidies such as for sponsoring, saving for private homebuilding, elements from the employment "package" and the car scrapping premium.

Finally, there is € 370 million in additional federal spending that is recorded partly as government consumption and partly as subsidies. This includes the commitment to co-finance a newly-introduced compulsory year of pre-schooling (free of charge for parents) and the reinforcement of funds for research by € 70 million and € 50 million for 2009 and 2010, respectively, as well as € 65 million per year for the regional employment "package" and the "campaign" for greater external economic openness.

The federal states are planning a series of cyclical stabilisation measures which in the simulations with the WIFO macro-economic model are captured in a simplified way either as investment or as addition to private disposable income. The measures at the Länder level are predominantly investment programmes, notably construction; of lower importance are commercial subsidies and transfers to households. In 2009 and 2010, the Länder plan additional infrastructure investment of nearly € 880 million, respectively, and an increase in transfer payments by almost € 200 million in 2009 and € 130 million in 2010. In total, the Länder "packages" amount to € 1,073 billion in 2009 and € 1,008 billion in 2010, together € 2,081 billion.

For a simulation of the overall effects of the expansionary fiscal measures described above, two macro-economic models are used in the present context: the impact of measures taken by Austria's key trading partners on the domestic economy are estimated on the basis of the Oxford World Macroeconomic Model (OEF, 2005), the effects of the measures taken in Austria by the federal government and the Länder using the WIFO macro-economic model (Baumgartner – Breuss – Kaniowski, 2004). The simulation results are summarized in Table 3.

The federal government's investment initiative will raise gross fixed capital formation by a cumulated 1.8 percent above baseline, i.e., a scenario without these government measures. As could be expected, investment in construction will post the strongest increase. Investment in machinery and equipment increases due to an accelerator effect.

The increase in investment has a direct impact on real GDP. Stronger domestic demand will give rise to additional imports to the tune of 0.3 percent of GDP. Both effects will on balance raise GDP by a cumulated 0.3 percent by 2010. The positive demand shock will lead to an increase of 7,200 jobs and a decline in the unemployment rate by 0.1 percentage points. Labour productivity and real per-capita wages will edge up only modestly, such that the increase in the wage bill is mainly due to the job creation. The marginal inflation-enhancing effect can be neglected.

Underlying the calculations is the assumption of early implementation of the planned investment. In the case of delay, the macro-economic impulse will materialize only with a lag.

Measures taken by the Länder

Simulation of macro-economic effects

Investment initiative

Table 3: Macro-economic effects of the fiscal stimulus programmes

| | Total | | Stimulus packages I and II, tax reform ¹ | | | | Measures by Bund and Länder ¹ | | Stimulus programmes of main trading partners | | Grand total | | | |
|---|--|-------|---|-------|-------|-------|--|-------|--|-------|-------------|-------|-------|-------|
| | 2009 | 2010 | 2009 | 2010 | 2009 | 2010 | 2009 | 2010 | 2009 | 2010 | 2009 | 2010 | | |
| | Cumulated deviation from baseline in percent | | | | | | | | | | | | | |
| <i>Aggregate demand, volume</i> | | | | | | | | | | | | | | |
| Gross domestic product | + 0.9 | + 1.0 | + 0.4 | + 0.3 | + 0.4 | + 0.6 | + 0.0 | + 0.1 | + 1.2 | + 1.4 | + 0.7 | + 0.8 | + 1.9 | + 2.1 |
| Consumption | + 0.8 | + 1.1 | + 0.1 | + 0.1 | + 0.7 | + 0.9 | + 0.0 | + 0.1 | + 0.9 | + 1.2 | + 0.1 | + 0.1 | + 1.0 | + 1.2 |
| Private households | + 1.0 | + 1.4 | + 0.1 | + 0.2 | + 0.8 | + 1.1 | + 0.0 | + 0.1 | + 1.0 | + 1.5 | + 0.2 | + 0.1 | + 1.2 | + 1.6 |
| Government | + 0.5 | + 0.3 | + 0.1 | + 0.0 | + 0.3 | + 0.3 | + 0.0 | + 0.0 | + 0.5 | + 0.4 | + 0.0 | + 0.0 | + 0.4 | - 0.0 |
| Gross fixed investment | + 3.1 | + 3.1 | + 2.0 | + 1.8 | + 0.7 | + 1.0 | + 0.4 | + 0.3 | + 5.1 | + 5.1 | + 0.7 | + 0.7 | + 5.7 | + 5.7 |
| Equipment ² | + 2.4 | + 2.4 | + 0.8 | + 0.7 | + 1.0 | + 1.3 | + 0.5 | + 0.4 | + 3.1 | + 3.1 | + 1.1 | + 1.1 | + 4.1 | + 4.0 |
| Construction | + 3.8 | + 3.7 | + 3.0 | + 2.6 | + 0.5 | + 0.8 | + 0.3 | + 0.3 | + 6.7 | + 6.6 | + 0.4 | + 0.5 | + 7.0 | + 7.0 |
| Exports | + 0.0 | + 0.1 | + 0.0 | + 0.0 | + 0.0 | + 0.0 | + 0.0 | + 0.0 | + 0.0 | + 0.1 | + 1.7 | + 1.8 | + 1.7 | + 1.9 |
| Imports | + 0.8 | + 1.0 | + 0.3 | + 0.3 | + 0.4 | + 0.6 | + 0.1 | + 0.1 | + 1.1 | + 1.2 | + 1.0 | + 0.9 | + 2.0 | + 2.1 |
| Gross domestic product, nominal | + 0.8 | + 1.1 | + 0.3 | + 0.4 | + 0.4 | + 0.6 | + 0.0 | + 0.1 | + 1.1 | + 1.5 | + 0.8 | + 1.2 | + 1.9 | + 2.6 |
| Consumer prices | - 0.1 | + 0.1 | - 0.0 | + 0.0 | + 0.0 | + 0.1 | - 0.0 | + 0.0 | - 0.1 | + 0.1 | + 0.2 | + 0.7 | + 0.1 | + 0.8 |
| <i>Labour market and income</i> | | | | | | | | | | | | | | |
| Dependent active employment ³ | + 0.3 | + 0.6 | + 0.1 | + 0.2 | + 0.2 | + 0.3 | + 0.0 | + 0.0 | + 0.4 | + 0.8 | + 0.3 | + 0.5 | + 0.7 | + 1.3 |
| 1,000 persons | +10.7 | +19.7 | + 4.7 | + 7.2 | + 5.4 | +10.9 | + 0.6 | + 1.5 | +14.7 | +26.6 | + 9.1 | +16.4 | +23.5 | +41.5 |
| Labour supply | + 0.1 | + 0.2 | + 0.0 | + 0.1 | + 0.1 | + 0.1 | + 0.0 | + 0.0 | + 0.2 | + 0.3 | + 0.1 | + 0.2 | + 0.2 | + 0.4 |
| Unemployment rate in percent of dependent labour force ⁴ | - 0.2 | - 0.3 | - 0.1 | - 0.1 | - 0.1 | - 0.2 | - 0.0 | - 0.0 | - 0.3 | - 0.5 | - 0.2 | - 0.3 | - 0.4 | - 0.7 |
| Real wage per capita of dependent employees | + 0.2 | + 0.3 | + 0.1 | + 0.1 | + 0.1 | + 0.2 | + 0.0 | + 0.0 | + 0.3 | + 0.4 | + 0.0 | - 0.0 | + 0.3 | + 0.4 |
| Unit labour cost, private sector | - 0.4 | + 0.0 | - 0.2 | + 0.1 | - 0.2 | + 0.0 | - 0.0 | - 0.0 | - 0.5 | + 0.1 | - 0.2 | + 0.4 | - 0.8 | + 0.5 |
| Average labour productivity, private sector | + 0.5 | + 0.4 | + 0.2 | + 0.1 | + 0.3 | + 0.2 | + 0.0 | + 0.0 | + 0.7 | + 0.5 | + 0.5 | + 0.3 | + 1.2 | + 0.7 |
| Real disposable income, private households | + 1.9 | + 2.1 | + 0.3 | + 0.2 | + 1.6 | + 1.6 | + 0.0 | + 0.2 | + 2.1 | + 2.2 | + 0.4 | + 0.1 | + 2.4 | + 2.3 |
| <i>Government</i> | | | | | | | | | | | | | | |
| Expenditure | - 1.5 | - 1.3 | + 0.2 | + 0.3 | - 1.8 | - 1.4 | + 0.0 | - 0.2 | - 1.2 | - 0.9 | + 0.5 | + 1.1 | - 0.7 | + 0.2 |
| Revenue | + 0.5 | + 0.6 | + 0.3 | + 0.4 | + 0.1 | + 0.2 | - 0.0 | - 0.0 | + 1.2 | + 1.3 | + 0.0 | + 0.1 | + 1.2 | + 1.4 |
| Government balance as a percentage of nominal GDP | | | | | | | | | | | | | | |
| Percentage points | - 0.9 | - 0.9 | - 0.1 | - 0.0 | - 0.9 | - 0.8 | + 0.0 | - 0.1 | - 1.2 | - 1.0 | + 0.3 | + 0.5 | - 0.9 | - 0.5 |
| Saving ratio | + 0.8 | + 0.6 | + 0.1 | + 0.0 | + 0.7 | + 0.4 | + 0.0 | + 0.1 | + 0.9 | + 0.6 | + 0.2 | - 0.0 | + 1.0 | + 0.6 |

Source: WIFO. – ¹ Including subsidies and government consumption. – ² Including immaterial investment, other equipment, industrial cattle and plants. – ³ Excluding early child care benefit recipients. – ⁴ Public Employment Service Austria.

According to the results of simulations run with the WIFO macro-economic model, the relief measures taken by the federal government raise real disposable income of households by 1.6 percent. Since only part of the gain is used for higher consumption, private consumption grows by a cumulated 1.1 percent in volume. Because of the relatively low short-term propensity to consume of 0.34, the saving ratio goes up by 0.7 percentage points in 2009. Part of the rise in private consumption is covered by imports. Including all additional accelerator and import effects, real GDP will be boosted by 0.4 percent in 2009 and a further 0.2 percent in 2010.

Increase in private disposable income

Table 4: Comparative estimates of fiscal multipliers for Austria

| | Government expenditure | | Wage and income tax | |
|------|--|--------------------------|---------------------|--------------------------|
| | First year | Second year ¹ | First year | Second year ¹ |
| | Impact of 1 percent change on GDP in percent | | | |
| OECD | 0.70 | 1.10 | 0.20 | 0.60 |
| OeNB | 0.78 | 1.40 | 0.45 | 0.64 |
| WIFO | 1.19 | 1.31 | 0.40 | 0.56 |
| IHS | 0.96 | 0.98 | 0.29 | 0.41 |

Source: WIFO compilation. – ¹ Cumulated.

As a consequence of the positive demand shock, the number of people in dependent active employment rises by a cumulated 10,900 from baseline, and the

jobless rate decreases by 0.2 percentage points. Per-capita wages in the private sector continue to increase moderately, therefore the higher wage bill is also in this case largely due to the creation of new jobs.

The Role of Multipliers

The macro-economic effect of higher investment in infrastructure is particularly strong since the respective measures have a direct impact and are relatively labour-intensive (particularly for the building of new structures). Moreover, the import ratio for construction investment is low.

Cuts in wage and assessed income tax have generally a more limited effect on growth than an increase in government spending, since they do not directly raise demand but rather personal disposable income. Like with most international or national macro-economic models, the GDP multiplier is markedly higher for government expenditure than for cuts in direct taxes also in the WIFO model (Table 4). GDP increases only if the additional income is spent rapidly for purchases of domestically-produced consumer goods. Decisions on higher government expenditure will, however, exert their full effect only if the measures are implemented as planned.

The effectiveness of tax cuts to boost disposable income and thereby private purchasing power largely depends on the readiness of private households to increase consumption. The marginal propensity to consume is the change in consumption in response to a small variation in income. It is to an important extent determined by the overall economic environment. Sluggish income growth and heightened uncertainty may encourage precautionary saving and thus lead to a rise in the saving ratio (e.g., *Bartzsch, 2006*). The uncertainty about the effectiveness of fiscal measures, as reflected by GDP and employment multipliers, is higher at the present juncture than before the economic crisis or for "normal" cyclical variations.

Furthermore, private households' propensity to consume differs substantially by income brackets. Low-income households typically have a higher consumption/lower saving propensity than higher-income earners. Tax cuts will thus have a stronger impact on growth and employment the more they benefit the lower income brackets.

A recent study by *Oesterreichische Nationalbank (OeNB)* arrives at somewhat higher cumulated multipliers than the present analysis (*Köhler-Töglhofer – Reiss, 2009*). For government expenditure, the *OECD (2009A, p. 138)* assumes lower multipliers for Austria than those incorporated in the WIFO model. The fiscal multipliers in the LIMA model of the Institute for Advanced Studies (*Hofer – Kunst, 2004, Berger et al., 2009*) are lower than the other multipliers presented in Table 4.

Beyond the investment initiative and the income tax cuts referred to above, the programme adopted by the federal government includes the following measures designed to improve the financing conditions for companies and thereby support private investment:

- For growth projects of Austrian companies, a fund for medium-sized enterprises has been established with the *Austria Wirtschaftsservice (aws, Austria Economic Service)* endowed with € 40 million each for 2009 and 2010. From this fund, Austrian companies may draw equity capital in the form of silent participation.
- In a move to support small and medium-sized enterprises, the European Investment Bank (EIB) offers € 30 billion in financing capital for the whole of Europe until 2011. The European Investment Fund (EIF) offers € 1 billion Europe-wide as mezzanine capital. From these resources, Austria intends to make available up to € 200 million per year for small domestic companies.
- The regular budget of the ERP Fund for interest-subsidised loans for investment projects of Austrian companies amounts to € 400 million per year. This amount has been increased by an annual € 200 million.
- With the "stimulus package I", the ceiling for guarantees offered by the Austria Economic Service (aws) has been lifted in the *Garantiegesetz (Guarantee Act)* and the *KMU-Fördergesetz (Act for the Promotion of SMEs)*. Henceforth, the aws takes on some additional € 400 million in guarantees per year.

Companies: financing cost lowered, equity base strengthened

- For the period 2009-10, companies may take advantage of an accelerated depreciation for movable capital goods. The budgetary cost is estimated at € 250 million for 2010. Since corporate earnings are assessed and taxed ex-post, no revenue losses will yet accrue in 2009.

Overall, the measures designed to lower financing costs and strengthen the equity capital base raise gross fixed capital formation by a cumulated +0.3 percent from baseline (Table 3). The effect is somewhat stronger for Investment in machinery and equipment than for construction since some of the measures are confined to movable goods.

In order to quantify the impact of stimulus packages adopted by Austria's main trading partner countries on the domestic economy, the increase in Austria's foreign markets has been estimated using the OEF model. For this purpose, the tax-related measures have been taken into account to the same degree of detail as presented in OECD (2009A). The additional government expenditure has entirely been counted as public consumption. Such simplification is deemed warranted since in the OEF model the GDP and employment multipliers are of similar magnitude for public investment and consumption. Both aggregates exhibit a rather low import content in comparison with other demand components.

Cyclical stimulus from abroad

Table 5: Impact of stimulus programmes adopted by Austria's major trading partners

| | Percentage share in Austrian exports 2007 | Gross domestic product, volume | | |
|--|---|--------------------------------|-------|-------|
| | | 2008 | 2009 | 2010 |
| Cumulated deviation from baseline in percent | | | | |
| Germany | 30.0 | + 0.1 | + 0.9 | + 1.0 |
| Italy | 8.9 | ± 0.0 | ± 0.0 | - 0.3 |
| USA | 5.0 | + 0.6 | + 2.3 | + 3.6 |
| Switzerland | 3.9 | + 0.1 | + 0.5 | + 0.1 |
| France | 3.6 | ± 0.0 | + 0.2 | - 0.2 |
| Czech Republic | 3.6 | ± 0.0 | + 0.8 | + 0.6 |
| UK | 3.5 | + 0.1 | + 0.4 | - 0.4 |
| Hungary | 3.5 | ± 0.0 | - 0.5 | - 1.0 |
| Spain | 2.9 | + 0.8 | + 1.2 | + 0.5 |
| Poland | 2.6 | ± 0.0 | + 0.7 | + 0.3 |
| Japan | 1.0 | ± 0.0 | + 0.8 | + 0.1 |
| Other countries | 31.4 | + 0.2 | + 1.0 | + 1.2 |
| Export markets total ¹ | | + 0.2 | + 0.8 | + 0.8 |

Source: OECD, WIFO. – ¹ Impact on GDP, weighted by Austrian export shares.

Table 5 shows the impact of fiscal stimulus programmes on real GDP of Austria's main trading partners and Japan³). Weighted by the each country's export share in Austria's overall exports, demand on Austria's foreign markets is boosted from baseline by 0.8 percent each for 2009 and 2010.

The transmission effects for the Austrian economy have been estimated using the WIFO macro-economic model (Table 3). The increase in demand abroad leads to a cumulated gain in Austria's exports by 1.8 percent from baseline in 2010. The higher exports trigger a positive income effect leading to an increase in private consumption and investment mostly in 2009. As imports will rise at the same time, the gain in real GDP is 0.8 percent from the baseline. These transmission effects harmonise well with simulation results from OECD (2009A, p. 133) for the euro area where a fiscal impulse of the order of 1 percent of GDP in all industrialised countries lifts euro area real GDP by 0.76 percent, of which 0.24 percentage points are due to transmission effects from abroad.

³ Japan's fiscal package has been included in order to illustrate more explicitly its effect on the euro/yen exchange rate.

Table 6 summarises the respective size as well as GDP and employment effects of the measures taken by the federal government and the Länder and of the stimulus programmes adopted by Austria's main trading partners.

Table 6: Overall economic effects of stimulus measures by category

| | Size ¹ | | Deviation from baseline ¹ | |
|--|-------------------|--------------------------------|--------------------------------------|--|
| | Million € | As a percentage of GDP of 2008 | GDP, volume In percent | Dependent active employment Persons |
| <i>Total</i> | | 4,2 | + 2.1 | 41,500 |
| Measures by Bund and Länder | 11,918.4 | 4,2 | + 1.4 | 26,600 |
| Infrastructure investment | 1,435 | 0,5 | + 0.3 | 7,200 |
| Lowering of corporate financing cost | 2,080 | 0,7 | + 0.1 | 1,500 |
| Increase in private disposable income | 5,952.5 | 2,1 | + 0.6 | 10,900 |
| Measures taken by the Länder | 2,080.9 | 0,7 | + 0.4 | 6,900 |
| Stimulus programmes of main trading partners | | | + 0.8 | 16,400 |

Source: WIFO. – ¹ Cumulated over 2009 and 2010.

Observers, notably from international organisations, underline the opportunity offered by the fiscal stimulus programmes to reinforce forward-looking investment, i.e., investment that raises the economies' growth potential in a longer-term perspective. Thus, the OECD in its innovation strategy emphasises the need to reconcile the immediate concerns of overcoming the recession with a long-term perspective of promoting investment enhancing growth and employment opportunities (OECD, 2009B). The focus in this respect is on infrastructure, research and development, education and green technologies, whereby infrastructure investment is in the more conventional Keynesian tradition, whereas other forward-looking spending not only includes physical infrastructure (e.g., new roads), but also immaterial sources of growth.

About 29 percent of all Austrian stimulus measures of 2009 and 2010 can be classified as forward-looking (1.2 percent of 2008 GDP; Table 7). A large part of it, some 22 percent, is accounted for by infrastructure investment (undertaken by Asfinag and BIG). The investment projects of the Austrian Railways (OeBB) are not included in this category, but rather in green technologies; moreover, it is assumed that one-third of the investment of BIG is taking the form of energy-saving insulation of buildings which can also be subsumed under the green expenditures. The latter account for nearly 5 percent of all fiscal stimulus measures (0.2 percent of 2008 GDP). The areas of science (research and development), innovation and education claim only a small share of the entire fiscal stimulus programme.

Table 7: Forward-looking investment in the context of the Austrian fiscal stimulus programme 2009 und 2010

| | Million € | As a percentage of GDP of 2008 | Percentage share | |
|---|-----------------|--------------------------------|------------------|--------------------------------|
| | | | Of total | Of forward-looking expenditure |
| Infrastructure | 2,610.30 | 0.97 | 21.9 | 76.1 |
| Science, research and development, innovation | 110 | 0.04 | 1 | 3.2 |
| Education | 140 | 0.05 | 1.2 | 4.1 |
| "Green" technologies | 568.3 | 0.16 | 4.8 | 16.6 |
| Total | 3,428.60 | 1.21 | 28.9 | 100.0 |

Source: WIFO.

Composition of Austria's stimulus measures

Table 8: Forward-looking investment in the fiscal stimulus programmes of selected OECD countries 2009 and 2010

| | Infrastructure | Science, research and development, innovation | Education | "Green" technologies | Forward-looking investment total | Overall size of stimulus programme |
|--|----------------|---|-----------|----------------------|----------------------------------|------------------------------------|
| As a percentage of GDP | | | | | | |
| <i>11 OECD countries</i> | 0.50 | 0.09 | 0.32 | 0.16 | 1.04 | 2.9 |
| Australia | 0.82 | 0.25 | up to 1.4 | 0.48 | 2.95 | 4.6 |
| Canada | 1.27 | 0.05 | 0.12 | 0.18 | 1.62 | 4.1 |
| Finland | 0.48 | 0.01 | 0.02 | 0.02 | 0.53 | 3.1 |
| France | 0.24 | 0.00 | 0.04 | 0.00 | 0.28 | 0.7 |
| Germany | 0.50 | 0.10 | 0.60 | 0.20 | 1.40 | 3.1 |
| Norway | 0.16 | 0.01 | 0.01 | 0.06 | 0.24 | 0.8 |
| Sweden | 0.27 | 0.29 | 0.02 | 0.06 | 0.64 | 3.3 |
| Poland | 0.072 | 0.013 | . | 0.002 | 0.087 | 1.0 |
| Portugal | 0.03 | 0.13 | 0.41 | 0.16 | 0.73 | 0.8 |
| USA | 0.70 | 0.11 | 0.58 | 0.41 | 1.80 | 5.6 |
| Austria | 0.97 | 0.04 | 0.05 | 0.16 | 1.21 | 4.2 |
| Percent of overall size of stimulus programmes | | | | | | |
| <i>11 OECD countries</i> | 17 | 4 | 12 | 6 | 38 | |
| Australia | 18 | 5 | 30 | 10 | 64 | |
| Canada | 31 | 1 | 3 | 4 | 40 | |
| Finland | 15 | 0 | 1 | 1 | 17 | |
| France | 34 | 0 | 6 | 0 | 40 | |
| Germany | 16 | 3 | 19 | 6 | 45 | |
| Norway | 20 | 1 | 1 | 8 | 30 | |
| Sweden | 8 | 9 | 0 | 2 | 19 | |
| Poland | 7 | 1 | – | 0 | 9 | |
| Portugal | 4 | 16 | 51 | 20 | 91 | |
| USA | 13 | 2 | 10 | 7 | 32 | |
| Austria | 22 | 1 | 1 | 5 | 29 | |
| Percent of forward-looking investment | | | | | | |
| <i>11 OECD countries</i> | 57 | 11 | 19 | 13 | | |
| Australia | 27 | 8 | 48 | 16 | | |
| Canada | 79 | 3 | 7 | 11 | | |
| Finland | 91 | 2 | 3 | 4 | | |
| France | 86 | 1 | 13 | 0 | | |
| Germany | 35 | 4 | 44 | 17 | | |
| Norway | 65 | 3 | 5 | 27 | | |
| Sweden | 43 | 45 | 2 | 10 | | |
| Poland | 83 | 15 | – | 2 | | |
| Portugal | 4 | 18 | 56 | 21 | | |
| USA | 39 | 6 | 32 | 23 | | |
| Austria | 76 | 3 | 4 | 17 | | |

Source: OECD, WIFO.

An international comparison with 10 selected OECD countries (Table 8) reveals marked differences in governments' spending priorities. Thus, the share of forward-looking investment in the total of stimulus programmes varies from 9 percent in Poland to 91 percent in Portugal; in Austria, the share is at nearly 30 percent, below the 11-country average of 38 percent. In this category, the dominating element is infrastructure investment along the lines of conventional counter-cyclical policy (on average 57 percent of forward-looking investment, 17 percent of the stimulus programmes total). In Austria, infrastructure claims a share above 75 percent of forward-looking investment. Investment in education accounts on average for nearly one-fifth of forward-looking investment (12 percent of all measures), in Austria for 4 percent. Spending on green technologies and research/innovation, accounting for 13 percent and 11 percent, respectively, of forward-looking investment (6 percent and 4 percent of all measures) play a minor role on average for 11 countries as well as in Austria (green technology 17 percent, research/innovation 3 percent of forward-looking investment).

Model calculations suggest that the fiscal stimulus measures analysed above dampen the recession in Austria by a cumulated 2.1 percent of GDP in 2009 and 2010. Almost half of the fiscal impulse is generated by the fiscal packages I and II

Concluding remark

and the tax cuts introduced at the federal level, 0.4 percentage points by measures taken by the Länder and 0.8 percentage points by the stimulus programmes implemented by Austria's main trading partners. The total impact on GDP secures 41,500 jobs and holds back the rise of the unemployment rate by 0.7 percentage points (in each case from a baseline without government measures). Inflation picks up moderately. According to the simulations, the federal government balance weakens in 2010 by an amount of 0.5 percent of GDP.

Infrastructure investment at the federal level raises GDP by 0.3 percent and employment in 2010 by a cumulated 7,200 persons. The measures to lower corporate financing cost boost GDP by 0.1 percent and employment in 2010 by a cumulated 1,500.

The ex-ante simulation results rest on the assumption of the measures decided being fully implemented in 2009 and 2010. In addition, some measures – such as the introduction of a compulsory pre-school year free of charge – and the active employment policy in general have a direct positive impact on employment which cannot be captured by the kind of models used. Hence, the results presented here should be taken as the lower limit of the overall employment effects generated by the fiscal stimulus programmes. A more precise estimate of these effects would require a more sophisticated analysis.

The fiscal stimulus measures adopted in Austria address the short-term concerns while tentatively also including a longer-term perspective. First steps are being taken in favour of forward-looking investment, refraining however from a structural shift in spending priorities. Among the measures included in the fiscal programmes, only a small fraction of expenditure is allocated to items enhancing the future growth potential, with conventional Keynesian infrastructure investment dominating and additional spending on research and education only playing a minor role. The stimulus programmes introduced since autumn 2008 should be taken as a base for a wider-reaching re-adjustment of fiscal policy in favour of investment strengthening the sources of economic growth in the longer run.

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Macro-economic Effects Of the Fiscal Stimulus Measures in Austria – Summary

The recent financial crisis has caused a serious economic recession in Austria. In an internationally-coordinated effort to counter the economic slump, the Austrian government enacted extensive fiscal "packages" as well as measures aimed at stabilisation of the banking sector. The fiscal packages are now gradually being implemented and shall develop their full effect in the years 2009 and 2010.

The fiscal measures comprise the economic stimulus packages I and II and the tax reform, which has been brought forward from 2010 into 2009. The measures broadly fall in the following categories:

- expansion of investment into infrastructure (total amount 2009 and 2010: € 1,435 million),
- reduction of financing costs for businesses (€ 2,080 million),
- increase of private households' disposable income (€ 5,953 million),
- increase of government consumption and subsidies (€ 370 million).

The combined size of both stimulus packages and the tax reform amounts to 3.5 percent of the nominal GDP of 2008 (of which the tax reform: 2.1 percent of the GDP of 2008). Including the measures of the federal states (Länder), Austria's government budgets allocate 4.2 percent of GDP of 2008 to the stabilisation of the economy. This places Austria in the group of countries that set a strong fiscal impulse relative to the size of their economy.

Model simulations suggest that the fiscal packages will reduce the cyclical slump by a total of 2.1 percent of real GDP in 2009 and 2010. Just under half of this impulse results from the stimulus packages implemented at the federal level and the tax reform, 0.4 percentage points can be attributed to the measures of the Länder, while the remaining 0.8 percentage points are due to stimulus programmes of Austria's 10 main trading partners. This impulse secures the employment of 23,500 persons in 2009 and 41,500 persons, cumulatively, in 2010 and slows the increase of the unemployment rate by 0.7 percentage points in 2010. Inflation accelerates moderately from a very low level.

One of the big challenges of this crisis consists in implementing those measures that bring the economy closer to a sustainable growth path in the long run. On the public expenditure side this applies particularly to investment in "green" technologies and infrastructure, innovation and education. Compared with a group of 11 OECD countries, in which the share of such investment in the stimulus packages reaches 38 percent, this share is slightly below 30 percent in Austria. Moreover, Austria's expenditures towards sustainable growth are dominated by infrastructure investment, a category that arguably belongs to the traditional stabilisation policy. In the group of OECD countries, infrastructure investment accounts for more than half of the expenditures towards sustainable growth on average, in Austria its share is 76 percent. Investment into education has an average share of one fifth, in Austria this share is only 4 percent. With average shares of 13 percent and 11 percent, expenditures on "green" technologies, science and R&D play a relatively minor part. This also applies to Austria, where they comprise 17 percent and 3 percent, respectively.