Centro Euro Mediterraneo
Cambiamenti Climatici

Issue 2008/09
November 2008

Divisione Impatti sul Suolo e sulle Coste

A EUROPEAN RECOVERY PROGRAMME

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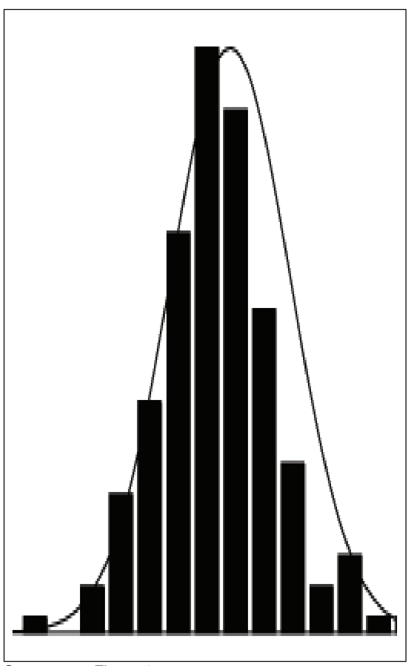
SUMMARY As a severe recession unfolds in the aftermath of the financial crisis, Europe must avoid entering a vicious circle. To that end, a budgetary boost is needed on top of the rescue package for the financial sector and further lowering of interest rates by central banks. This budgetary boost should be closely coordinated at EU level to ensure consistency and avoid free-riding behaviour. However, structural deficit levels in some EU member states are already high. There is a risk, therefore, that a budgetary stimulus could undermine budgetary sustainability. To address this concern, the stimulus needs to go hand in hand with a strengthened budgetary framework, complementing and reinforcing the Stability and Growth Pact (SGP).

Policy Challenge



Source: see Figure 1

Budgetary boost: **Harmonized VAT cut of one percentage point across the board plus national measures, especially targeted relief, tailored to country-specific circumstances in order to reach a total of one percent of GDP, to become effective by 1 Jan.** *Reform Commitment:* **Compensation for deficits above three percent of GDP through sustainability enhancing reforms.** *Enforcement:* **Correction of excessive deficits to be implemented as early as 2010 if reform commitment is broken.** *Prudent borrowing:* **Agreement by all euro-area countries not to borrow at more than 200 basis points above the lowest euro-area government bond yield.**

The work here presented, carried out in close cooperation with dr. Pasquale Schiano and CIRA researchers (dr. Paola Mercogliano and dr. Gabriella Ceci).

OF THE MANY IMPACTS OF CLIMATE CHANGE sea level rise is often seen as one of the more threatening. The impacts of sea level rise are straightforward—more coastal erosion and sea floods, unless costly adaptation is undertaken—and unambiguously negative. Sea level rise could have very substantial impacts in river deltas, on coastal zones which are often more densely populated and richer of infrastructures and may wipe out entire islands and island nations.

THE IMPACT OF SEA LEVEL RISE

Therefore, sea level rise figures prominently in assessments of the impacts of climate change, and the costs of sea level rise figures equally prominently in estimates of the costs of climate change.

AMENITY OF CLIMATE AS DETERMINANT

Climate change plays an obvious role in tourist destination choice as well. Indeed the “amenity of climate” is recognised as one of the major determinants of tourism flows. The Mediterranean particularly profits from this, being close to the main holidaymakers of Europe’s wealthy, but cool and rainy Northwest. Tropical islands are another example, where in the recipe of a dream holiday their ‘perfect’ climate is a fundamental ingredient.

FOOTLOOSE TOURISTS. Climate change would alter that, as tourists are particularly footloose. The currently popular holiday destinations may become too hot, and destinations that are currently too cool would see a surge in their popularity. This could have a major impact on some economies. Just consider that about 10% of world GDP is now spent on recreation and tourism.

In two previous papers: Bosello et al. (2004) and Berrittella et al. (forthcoming), we analyzed the impact on the world economic system of, respectively, climate-change induced increase in sea level and change in tourism flows. Both studies are characterised by the use of CGE models, which allow assessing the “systemic” effects induced by changes in resources, technologies and consumption patterns. There are no other papers that look at the general equilibrium effects of climate-change-induced changes in tourism.[1]

In this paper, we follow the same approach, for a joint analysis of climate change impacts on tourism and sea level. Combining the two impact studies into a single, integrated analysis provides two main advantages: (1) the

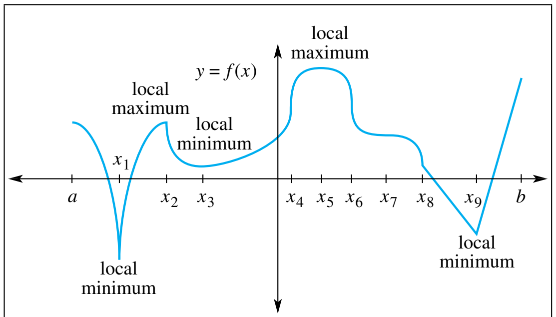


Figure 1:
This is a sample caption
for the sample figure and
now we see where it wraps.

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Table 2
Binary Breakage with the finite volume scheme and
$S(v) = v, t = 1000$

	Grid Points, I	Error, L_1	OC
Spring[1]	61	33.8559	-
Summer[2]	122	8.8548	1.93
Fall	244	2.2363	1.98
Winter[1]	488	0.5612	1.99

[1] Here is a table note $\alpha\beta\gamma\Delta$.
[2] This is the second note.

[1] Darwin and Tol (2001) and Deke et al. (2001) study the general equilibrium effects of sea level rise, but not as comprehensively as do Bosello et al. (2004).

Table 1
Growth assumptions for the euro area (in percent)

	2007	2008	2009	2010
European Commision forecast 10/2008	2.7	1.2	0.1	0.9
IMF forecast 11/2008	2.5	1.2	−0.5	n/a
Bruegel scenario		1.2	−0.9	0.4

Table 3
Again, Binary Breakage with the finite volume scheme and $S(v) = v$, $t = 1000$, and this time the caption is longer so it will wrap.

	Grid Points, I	Error, L_1	OC
Spring	61	33.8559	-
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possibility of highlighting the complex interactions between the two adjustment processes; and (2) the potential for considering a direct effect of sea level rise on tourism destination choices. Jorgenson et al. (2004) and Kemfert (2002) study the combined impacts of climate change using a computable general equilibrium model, but they do not look at the impacts separately – and therefore do not estimate the interaction. Besides, Jorgenson et al. (2004) is limited to the USA, while neither Jorgenson et al. (2004) nor Kemfert (2002) includes tourism. Fankhauser and Tol (1996) first lamented the lack of integration between the different impacts of climate change, a point repeated by Tol et al. (2000) and Tol (2005); this is the first study of the economic interactions between the impacts of climate change.

In addition, this paper improves upon the two previous studies, in terms of methodology: an updated data base is used, to compute land losses; a more detailed geographical disaggregation is adopted (16 regions instead of 8) and a new procedure to model demand shifts in tourism destination choices is introduced. In what follows section 2 describes the setting up of the benchmark for our CGE model, section 3 briefly introduces the sources for climate change impacts, section 4 describes the simulation exercises, section 5 presents results, finally section 6 concludes.

The distribution function must satisfy a number of requirements:

- $0 \leq F(x) \leq 1$ for all x.
- $F(x)$ is nondecreasing.
- $F(x)$ is right-continuous.[2]
- $\lim_{x\to-\infty} F(x) = 0$ and $\lim_{x\to\infty} F(x) = 1$.

Because it need not be left-continuous, it is possible for the distribution function to jump. When it jumps, the value is assigned to the top of the jump.

$$F_1(x) = \begin{cases} 0, & x < 0, \\ 0.01x, & 0 \leq x < 100, \\ 1, & x \geq 100. \end{cases} \tag{1}$$

In concrete terms, we suggest the following.

[2] Right-continuous means that at any point x_0 the limiting value of $F(x)$ as x approaches x_0 from the right is equal to $F(x_0)$. This need not be true as x approaches x_0 from the left.

On 11 November 2008 the World Bank revised its growth forecast for 2009 downward to one percent more than one percentage point lower still than the November forecast of the IMF released on 6 November 2008.

BUT IT WOULD BE RISKY TO RELY on monetary policy alone given the clogging of key monetary transmission mechanisms.

To be effective, action needs to be bold, timely and significant. As far as Europe is concerned, it should also be coordinated in order to ensure consistency and avoid free-riding behaviour. The decision on whether to act now through a budgetary stimulus should be viewed as a watershed, as was the downward adjustment in turn further weighs on the balance sheets of financial institutions, leading to additional losses, added strains in the interbank market, and supplementary credit constraints.

This exceptional Keynesian situation requires an exceptional Keynesian budgetary stimulus in addition to the financial rescue package.

BOX 1: CORRECTION OF EXCESSIVE DEFICITS UNDER THE STABILITY AND GROWTH PACT (SGP)

The Stability and Growth Pact (SGP), provided for in Article 104 of the Nice Treaty, was adopted by the euro area in 1997 in order to safeguard budgetary sustainability for the common currency. The Pact prescribes a ceiling for annual budget deficits of three percent of GDP and sets out procedures for enforcing corrective action in case this ceiling is breached, with the ultimate sanction of hefty fines for non-compliance.

During the 2003 economic downturn both France and Germany fought to introduce more budgetary flexibility into the Pact and to inject economic judgement into mechanical rules. They were ultimately successful and the SGP was reformed in 2005.

According to the reformed SGP any breach of the three percent deficit threshold leads to the opening of an excessive deficit procedure (EDP), unless the excess over the reference value is exceptional, temporary and close to the threshold value (Article 104.2 (b) and 104.3 of the Treaty). However, this clause providing for exceptional circumstances offers relatively little budgetary flexibility since it only applies when the deficit is close to the three percent limit. The real flexibility in the SGP instead lies in the long time lag before full application of the EDP. This procedure states that the breach of the three percent threshold is only established the year after the breach has occurred, once reliable data is available. A deadline for correction is then usually set for the following year, ie the second year after the breach. Furthermore, the "code of conduct on the SGP" permits the deadline for corrective action to be 'as a rule' postponed to the third year after the breach in case of exceptional circumstances. Hence, countries with large budget overruns in the current crisis might, in effect, face no substantive constraint under the SGP until the year 2012, or even later.

The increasingly accommodating stance of central banks has been helpful.

We propose that the European Council in December 2008 adopt these ad-hoc agreements to ensure that the proposed coordinated budgetary boost is embedded in a framework of strengthened budgetary sustainability. The elements of this agreement could then be evaluated by 2011 with a view formally to incorporating them into the SGP once they have passed the test of the current crisis.

As a severe recession unfolds in the aftermath of the financial crisis, Europe must avoid entering a vicious circle. To that end, a budgetary boost is needed on top of the rescue package for the financial sector and further lowering of interest rates by central banks. This budgetary boost should be closely coordinated at EU level to ensure consistency and avoid free-riding behaviour. However, structural deficit levels in some EU member states are already high. There is a risk, therefore, that a budgetary stimulus could undermine budgetary sustainability. To address this concern, the stimulus needs to go hand in hand with a strengthened budgetary framework, complementing and reinforcing the Stability and Growth Pact (SGP).

In concrete terms, we suggest the following:

1 Compensation of budgetary overruns with countervailing reforms to enhance budgetary sustainability

Countries expected to exceed the three percent deficit limit with the proposed budgetary stimulus in 2009 would commit to table immediate reforms to improve budgetary sustainability, offsetting the short-term overrun. Such reforms would have to be submitted to the European Commission for evaluation and would be assessed in light of the projected deficit overrun. Reforms may include, for example, a decision to cut specified public spending items and benefit entitlements in the future or to increase specified taxes and social security contributions. However there is no commonly agreed metric to evaluate any savings generated by such reforms. We thus propose to entrust the Commission with the task of proposing and implementing a methodology for evaluating the budgetary equivalent of the reforms. Conceptually, the method should rely on an evaluation of the future effects of reforms and a standardised computation of the present value of future budgetary savings. Measures introduced to improve the medium-term sustainability of public finances could imply a reduction of the implicit, rather than the explicit public debt. The financial debt of a country in the form of government bonds makes up only a fraction of total government liabilities. Commitments to pay out future benefits, such as pensions, over and above future contributions, are part of an implicit debt and are not included in the Maastricht Treaty definition of government debt. However, implicit and explicit debt should not be treated in the same way, first because the computation of a present value relies on technical assumptions, and more importantly because the implicit debt can often be reduced by simple changes in legislation (such as pension reforms). One euro of explicit debt must therefore be considered to be more serious from the perspective of budgetary sustainability than one euro of implicit debt8. A workable approach could thus be, for example, to apply a 50 percent haircut when counting reform-related reductions in the stock of implicit debt. With such an approach the stimulus would increase the deficit in the short run but it would at least preserve sustainability in the medium run.

2 Accelerated corrective action in the aftermath of the budgetary stimulus In our proposed package, the stimulus would come first and the reforms would follow, because the urgency of the situation calls for rapid budgetary action.

But in order to enhance the credibility of their commitment to compensate the stimulus by sustainability-enhancing reforms, member states would agree upfront to dispense with the time lag of the SGP’s excessive deficit procedure. Normally, corrective action would be required only in 2012 or later in case of a substantial budgetary overrun above the goal.

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AN ACTION PLAN FOR THE EUROPEAN COUNCIL

The final question is how the ambitious package proposed in this paper could realistically be implemented by January 2009. For this, the proposed budgetary boost and the strengthened budgetary framework would need to be included in the Action Plan for the current crisis due to be presented by the European Commission on 26 November.[3]

Subsequently, the main parts of the package would need to be agreed by the European Council at its meeting on 11-12 December. Specifically, such an agreement by the European Council should contain the following items:

- As many EU member states as possible10 and at the very least all countries of the euro area are to agree to participate in a temporary European Recovery Programme (ERP) with national budgetary support amounting to one percent of GDP.
- Part of the ERP is implemented through a harmonised one percentage point cut in VAT rates across the board, effective January 2009, to be reversed in all participating countries in the course of 2010. The remainder of the ERP is to be implemented by national measures selected from a commonly agreed menu which includes targeted relief especially to the working poor, and incentives to improve energy and CO_2 efficiency.
- The measures introduced within the framework of the ERP are to be phased out or financed by equivalent receipts in the course of 2010. In particular, incentives to improve energy and CO_2 efficiency introduced as part of this package may be made permanent if budgetary improvements of equal value are enacted.
- All countries whose deficit would exceed three percent in 2009 after the ERP is implemented are to undertake to submit by 30 March 2009 the reforms they intend to implement to improve budgetary sustainability and compensate the overrun above the three percent threshold. The Commission certifies the budgetary equivalent of the reforms within two months.
- If by 1 September 2009 a member state whose budgetary deficit exceeds three percent of GDP has implemented the budgetary stimulus but failed to enact commensurate flanking reforms, it is subject to an accelerated excessive deficit procedure and the deadline for the adoption of corrective measures is brought forward to 2010.

[3] Realistically, this would have to exclude countries currently subject to an IMF programme, such as Hungary.

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