# SHORT-TERM PAIN FOR LONG-TERM GAIN: THE IMPACT OF STRUCTURAL REFORM ON FISCAL OUTCOMES IN EMU

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### 1. Introduction

1. The disappointing compliance with the EU fiscal rules since the inception of the euro has prompted a lively debate, from which new rationales for allowing governments to temporary run deficits in excess of the 3 per cent of GDP rule emerged. Specifically, it has been argued that the long-run benefits from structural reform are often uncertain whereas the immediate budgetary costs – such as compensation schemes to offset redistributive effects – are perceived with greater precision. This asymmetry would discourage structural reform in the face of a tight fiscal rule. Allowing governments to run temporary deficits beyond the 3 per cent mark to finance the up-front cost of structural reform would therefore be welfare enhancing (Beetsma and Debrun, 2005 and Von Hagen, 2003).

These arguments have not fallen on deaf ears at the European authorities. In 2 September 2004, the European Commission put forward a proposal that encapsulated most of the ideas that had been around for some time (Van den Noord, 2006). Along with various other "exceptional circumstances", the budgetary upfront cost of countries' structural reform would have to be taken into consideration when assessing the fiscal situation. The interpretation of the "exceptional circumstances" clause enshrined in the Stability and Growth Pact (SGP) and the adjustment path towards compliance with the rules after a breach would both need to be adjusted. The reform that was adopted by the European Council in March 2005 went a long way towards incorporating these views. First, it explicitly included structural reform in the list of "other relevant factors" which the European authorities examine when deciding whether public deficits above 3 per cent of GDP are excessive or not. Second, while the SGP calls EU countries to maintain their public finances close to balance or to move towards that objective by a minimum benchmark adjustment each year, the 2005 reform opens the possibility of deviations from these requirements for countries that introduce structural reforms.

3. Obviously the underlying rationale is debatable. Countries not in breach of the rules (mostly the smaller countries) are not concerned, so with more fiscal leniency their better behaviour would not be rewarded, whereas the "sinners"

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(mostly the largest countries) would be off the hook for a while. The political economy behind this is straightforward (Buti and Pench, 2004). Owing to their greater trade exposure, smaller countries benefit more from international competitiveness gains associated with structural reform – they enjoy a first-mover advantage. This mechanism is much weaker in the large countries that, moreover, face larger multiplier effects on activity when forced to check their fiscal balance. As a result, big countries call for more fiscal "flexibility", whereas small countries do not.<sup>1</sup>

4. Against this backdrop it is useful to dispose of empirical estimates of the effect of structural reform on fiscal outcomes. Two categories of fiscal effects are relevant in this context:

- the short-term cost of compensating the expected losers of structural reform or more generally of "bribing" the electorate. This is seen as a potential deterrent of structural reform to the extent the fiscal rules are biting;
- the longer-term impact of structural reform on expenditure and revenue levels, either directly via tax and expenditure parameters or via the effect of better economic performance on the budget. This long-term benefit could help motivate structural reform, but this is strongly dependent of the degree of myopia of the government.

5. There are different approaches on which estimates of fiscal costs and benefits can draw: case studies, econometric estimates and estimates based on model simulations. The pros and cons of each of these approaches are well known. Case studies may not be fully representative and the validity of an (*ex ante*) model simulation is hard to ascertain – the good old Lucas critique still applies. In this paper basic econometrics is applied, complementing findings from case studies and model simulations reported by Giorno and Hoeller (2006). Econometric estimates suffer from selection bias since only structural reforms that actually have been implemented are included in the observations of whatever sample one uses. These are likely to be the least costly ones in terms of their short-run cost since the more costly ones have probably not been carried out. Hence econometric estimates may put a somewhat too favourable gloss on the short-term fiscal pain and long-term fiscal gain to the taste of policy makers. The results reported in this paper should be considered with this caveat in mind.

### 2. Methodology and data

6. The econometric technique used here tests for the existence of short-term cost and long-term benefits on the budget and gauges their respective size for a broad sample of OECD countries including euro-area members. We look at general government expenditure and revenues, which are both expected to respond to

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<sup>&</sup>lt;sup>1</sup> By the same token, large countries call for "coordination" of structural policies (in the absence of a first-mover advantage), while small countries care less.

structural reform. Given that we are interested in the short-run and long-run effects of structural reform, it is quite natural to apply an error-correction framework. Specifically, we estimate the following system of equations:

$$\Delta PRI_{it} = -\lambda^{p} \left( PRI_{it-1} - \alpha^{p} STR_{it} - \sum_{k} \gamma_{k}^{p} CON_{it-1}^{k} - \delta_{i}^{p} \right) + \beta^{p} \Delta STR_{it-1} + \varepsilon_{it}^{p}$$
(1)

$$\Delta REV_{it} = -\lambda^{R} (REV_{it-1} - \alpha^{R} STR_{it} - \sum_{k} \gamma^{R}_{k} CON^{k}_{it-1} - \delta^{R}_{i}) + \beta^{R} \Delta STR_{it-1} + \varepsilon^{R}_{it}$$
(2)

In the first relationship  $PRI_{it}$  is the level of cyclically-adjusted primary 7. expenditure as a per cent of GDP in country *i* in year *t*, and  $\Delta PRI_{it}$  is its change over the previous period. In the second relationship  $REV_{it}$  stands for the level of cyclically-adjusted current receipts of general government as per cent of GDP and  $\Delta REV_{it}$  is its change. Time series for these variables are readily available in OECD's Economic Outlook database. The variable STR<sub>it</sub> is the overall structural policy stance, with a higher value denoting a tighter stance. The term  $\Delta STR_{it}$  is the change in the structural policy stance indicator which serves to capture any upfront budgetary effects of structural reform.  $\delta_i$  are country fixed effects and  $\varepsilon_{it}$  is the normally distributed residual. Finally, CON<sub>it-1</sub> is a vector of control variables. We expect structural reform to generate, ceteris paribus, higher expenditure and lower tax revenues in the short run, hence  $\beta^{P} < 0$  and  $\beta^{R} > 0$ . We also expect the size of the public sector and therefore both public expenditure and tax revenues to be lower in the long run, so hence  $\alpha^P > 0$  and  $\alpha^R > 0$ . As a result, the fiscal position would deteriorate in the short run but would be broadly unaffected in the long run (this prediction can be further tested by estimating a reduced form equation for the fiscal position - see below).

8. Measuring structural policy has become a blooming new industry, so it is not obvious from the outset what indicator to use. The structural policy indicator capturing structural reform efforts referred to here is the one used by Duval (2006), which provides us with annual observations for the period 1985-2003 for 21 countries. The indicator is calculated as the sum of normalised OECD indicators in five fields (unemployment benefits, tax wedges, employment protection legislation, retirement incentives and product market regulation). They are displayed in Figure 1; a higher value corresponds to a tighter stance (more rigidity) and vice versa, and a decline in the indicator suggests that "appropriate" structural reforms have been implemented. Countries that stand out by relatively "tight" stances (high value of the indicator) all are European countries. Some of these countries have also implemented major structural reforms in the past decade (notably Spain, Sweden, Denmark, Belgium and the Netherlands), suggesting that poor initial conditions are a good "predictor" of future structural reform (as confirmed by Duval, 2006). This is encouraging and suggests some tendency towards global convergence, perhaps helped by the Lisbon agenda.

### Figure 1



**Aggregate Structural Policy Stance Indicator** 

Source: Duval (2006).

9. Obviously public expenditure and tax revenues are codetermined by a number of other structural variables (other than structural reform), for which we will need to control. Following Martinez-Mongay (2002), four controls have been considered:<sup>2</sup>

- *Per capita gross national income at 2000 purchasing power parities.* This captures "Wagner's law", which predicts that high-income countries will exhibit higher shares of public spending in GDP than low-income countries owing to a change in preferences in favour of public goods and services such as health care, education and social services. The expected sign is positive.
- *The dependency ratio*. Ageing puts pressure on notably health care and pension expenditure, hence a priori one expects public outlays to be higher in countries that portray a high dependency ratio (measured by the share of people older than 65 in the total population). The expected sign is again positive.

<sup>&</sup>lt;sup>2</sup> The type of electoral system is another factor that emerges from the literature as relevant for the size of government (majoritarian voting rules yield smaller welfare systems), but it will not be considered here (or rather this will be picked up by the country fixed effects). Baumol's "cost disease", which predicts that as an economy grows the relative price of public services and hence the share of public expenditure in GDP will increase, will be considered as already being captured by the per capita income effect.

Country	Primary Expenditure Ratio (percent)		Debt Ratio (percent)		Dependency Ratio (percent)		<b>Openness</b> (percent)		GDP Per Capita (at 2000 prices and PPP, US\$)	
· ·	1985-	1995-	1985-	1995-	1985-	1995-	1985-	1995-	1985-	1995-
	1994	2003	1994	2003	1994	2003	1994	2003	1994	2003
Australia	31	33	29	30	17	19	35	42	34388	40831
Austria	47	47	58	69	22	23	70	84	33799	40647
Belgium	43	42	131	122	22	25	134	152	31551	38420
Canada	38	35	79	89	15	17	55	78	33499	38188
Denmark	49	52	74	63	23	23	69	80	34999	41837
Finland	47	48	30	58	12	13	52	69	30869	36492
France	46	48	42	67	21	24	43	50	34517	40164
Germany	41	43	39	60	21	25	50	59	37342	37164
Greece	31	35	74	110	22	23	46	50	16521	19717
Ireland	35	29	99	51	18	17	112	160	24755	42852
Italy	39	39	95	128	21	26	40	51	24755	31696
itary	57	57	,,	120	21	20	10	51	20902	51070
Japan	24	28	73	122	17	24	19	20	33239	37961
Netherlands	47	42	86	72	18	19	108	121	34166	42149
New	40	36	64	40	16	17	56	61	28474	32274
Zealand										
Norway	53	55	34	37	15	12	71	72	34502	46292
Portugal	30	37	65	64	20	23	64	66	19418	25232
Spain	33	32	53	67	20	24	37	54	24358	30583
Sweden	56	54	65	72	16	14	61	79	36600	40637
Switzerland	28	31	36	51	21	22	69	77	41653	43892
United	38	37	43	48	24	24	51	56	32993	40808
Kingdom										
United	31	30	68	66	18	19	20	24	44591	52872
States	20	20	(2)	70	10	21	50	70	07470	22204
EUIS	38	39	62	70	19	21	59	72	2/4/3	33304
Average	39	40	64	71	19	21	60	72	31864	38129
Standard deviation	9	8	26	28	3	5	29	35	6670	7219

# **Primary Expenditure and Its Standard Determinants**

\* Unweighted average.

Source: OECD Economic Outlook database.

• Trade openness (sum of exports and imports of goods and services as a per cent of GDP). A standard finding in the literature is that more open economies will have bigger governments in order to protect their citizens against cyclical volatility in economic activity. However, in a globalising world small open economies, due to their greater exposure to international competition, will also be under pressure to keep public expenditure and taxes low so as to secure flexibility and resilience, as shown by Buti and van den Noord (2005) for evidence. Hence, the net effect on government size is ambiguous.

• *Public debt ratio to GDP*. There is a large body of literature providing evidence that governments whose debt position threatens to become unsustainable will rein in public expenditure or increase taxes. Hence in countries where public debt is high, expenditure will be negatively and revenues positively affected, and vice versa.

10. Table 1 provides and overview of the controls along with primary expenditure ratios to GDP. European countries which generally portray higher primary expenditure ratios also tend to score higher on debt, dependency, openness and lower on GDP per capita than the United States. This suggests that the control variables are unlikely to be able to explain the bulk of the cross-country variation in primary expenditure. Accordingly, country fixed effects should play an important role, as confirmed by the estimation results.

11. For the error-correction specification to be valid, primary expenditure and current receipts must be integrated time series of order one, hereafter abbreviated as I(1). Overall, the balance of evidence suggests that primary expenditure and current receipts are generated by an integrated process. Breitung's (2000), Im, Pesaran and Shin's (2003), the augmented Dickey-Fuller and Phillips and Perron's (1988) unit root tests fail to reject the null hypothesis of a unit root at standard confidence levels (Table 2). Furthermore, Hadri's (2002) test strongly rejects the null hypothesis of no unit root. Levin, Lin and Chu's (2002) test nuances these findings as it rejects the null hypothesis of a unit root at the 5 per cent level. The same battery of tests indicate that the first-differences of primary expenditure and current receipts are stationary. The upshot is that these two series can be safely modelled as being I(1).

12. The specification of the system (1) and (2) as error-correction equations further requires the presence of cointegration between primary expenditure or government current receipts, respectively, and the control and structural policy stance variables. Johansen's (1995) trace and maximum eigenvalue tests indeed find a cointegrating relationship between these variables. Equations (1) and (2) are best (and have been) estimated with the panel least squares estimator because they do not experience the type of feedback that necessitates a vector error-correction regression.<sup>3</sup>

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Such feedback effects (from deviations from the long-term relationship on control variables) could be thought to arise for income per capita because of the link between structural policy settings and long-term growth. To check this, an error-correction equation has been estimated: the change in income per capita has been regressed on its lag and a long-term relationship between the expenditure ratio, the stance indicator, income per head and the other controls (all lagged one period). The coefficient in front of the lagged expenditure ratio is not statistically different from zero. A similar equation has been estimated with the current receipts ratio replacing the expenditure ratio, with the same result. An important implication is that the contemporaneous correlation between structural policy and income does not affect the cointegrating parameters in equations (1) and (2), for which panel least squares are therefore an appropriate estimator. Detailed results are available from the authors.

# Panel Unit Root Tests on Cyclically-adjusted Primary Expenditure and Current Receipts

(test statistics, p-values between brackets)

	Primary expenditure ratio	Current receipts ratio	
Null hypothesis: unit root			
Levin, Lin and Chu t statistic	$-2.12^{**}$ (0.02)	-1.93** (0.03)	
Breitung t statistic	-0.91 (-0.9)	$1.56 \\ (0.94)^*$	
Im, Pesaran and Shin W statistic	-0.43 (0.33)	-0.71 (0.24)	
Augmented Dickey Fuller chi square	50.9 (0.16)	46.5 (0.29)	
Phillips and Perron chi square	26.4 (0.97)	48.2 (0.24)	
Null hypothesis: no unit root			
Hadri z statistic	9.0 <sup>***</sup> (0.00)	10.2 <sup>***</sup> (0.00)	

*Note:* \*, \*\* and \*\*\* denote rejection of the null hypotheses at 10, 5 and 1 per cent levels. Tests assume the presence of country fixed effects.

#### 3. Estimation results

### 3.1 Cyclically-adjusted primary expenditure and receipts

13. Estimation results for the primary expenditure and revenue ratios are shown in Table 3. In the expenditure equation the controls are all significant, and broadly in line with those reported by Martinez-Mongay (2002), except for the trade-openness indicator for which he finds the opposite sign. For revenues only trade openness and the debt ratio appear as significant, which may be due to data problems (see below).

	Change in the share in GDP	
	Primary expenditure	Current receipts
Primary expenditure ratio $(-1) (\lambda^{P})$	$-0.15^{***}$ (0.03)	
Current receipts ratio $(-1)$ ( $\lambda^{R}$ )		$-0.21^{***}$ (0.03)
Dependency ratio $(-1) (\lambda \gamma_k)$	0.16 <sup>***</sup> (0.04)	
Per capita income (-1) (log) $(\lambda \gamma_k)$	1.67 <sup>***</sup> (0.6)	
Trade–openness (–1) ( $\lambda \gamma_k$ )	$-0.017^{**}$ (0.007)	-0.01 <sup>**</sup> (0.005)
Debt ratio $(-1) (\lambda \gamma_k)$	-0.015 <sup>***</sup> (0.004)	0.01 <sup>***</sup> (0.004)
Structural policy stance $(-1)(\lambda \alpha)$	0.19 <sup>***</sup> (0.07)	0.23 <sup>**</sup> (0.09)
Change in structural policy stance $(-1)$ ( $\beta$ )	-0.22 (0.17)	0.12 (0.2)
Observations	357	357

# Estimated Error-correction Equations for Primary Expenditure and Current Receipts

Note: \*, \*\* and \*\*\* denote significance at 10, 5 and 1 per cent levels. Standard errors are reported between brackets.

14. The key result in Table 3 concerns the impact of the structural stance indicator on primary expenditure and current receipts. The sign is as expected *i.e.* a tighter stance leads to higher primary expenditure and revenues. The long-run impact is not negligible: a structural reform equivalent to a cut in the stance indicator by one standard deviation (roughly corresponding to half the difference between *e.g.* France and New Zealand, Figure 1) reduces the primary expenditure and revenue ratios by around 4 percentage points. One health warning is in place though, namely that a country with a good regulatory environment for product and labour markets will typically also have a sound fiscal framework in place, in which case we may be over-estimating the pure impact of structural policy stances on public expenditure. Either way, though, the basic message would be that sound structural policies are associated with less rather than more public expenditure.

15. The change in the stance indicator captures possible upfront budgetary costs of structural reform. The sign in the expenditure equation is indeed negative as expected, and the absolute value of the coefficient is relatively high: a one standard deviation reduction in the stringency of regulation is associated with a temporary budgetary cost of 2/3 per cent of GDP in the following year. Similarly, in the current receipt equation, the sign is positive as expected: making the economy more flexible (which often involves tax cuts) is associated with revenue losses. Despite their economic significance, however, the coefficients do not come out as statistically significant in the regressions. The lack of statistical significance suggests that, while occurring, upfront costs are not very stable over time or across countries.

### 3.2 A closer look at tax revenues

16. The fact that not all controls work in equation (2) is not satisfactory. It may be due to the fact that government receipts as reported in the National Accounts include receipts other than tax revenue such as transfers from international organisations (*e.g.* regional funds in EU countries) and seignorage payments by central banks, which may behave erratically. We have therefore re-estimated the equation with at the left-hand side receipts from an alternative source, the *OECD Revenue Statistics* database. Tax revenues in the *OECD Revenue Statistics* database do not suffer from the above distortions and also offer a stronger degree of cross-country comparability. One limitation is that they are not available on a cyclically-adjusted basis.

17. Panel unit root tests reported in Table 4 suggest that tax revenues as a share of GDP are an integrated series. Apart from the Levin, Lin and Chu t-statistic, all other tests either fail to reject the null of a unit root at usual confidence levels or strongly reject the null of no unit root. Johansen's (1995) trace and maximum eigenvalue tests find one cointegration relationship between tax revenues, the structural policy stance and the controls. The statistical evidence that the series is non-stationary and cointegrated with its likely determinants strongly suggests specifying the equation of interest in an error-correction form.

18. Estimation results for tax revenues in Table 5 confirm the findings obtained for general government current receipts but with a higher degree of statistical significance. Again less stringent regulation is associated with lower taxes in the long term, presumably reflecting the need to finance less public expenditure. In the short term, the result reported in Table 5 confirms that making markets more flexible comes at the cost of a temporary loss in tax revenues, as expected since the political acceptance of these reforms may require tax breaks. An interesting result is that the coefficient not only has the correct sign and a high absolute value but is now also statistically significant at the 10 per cent level.

# Panel Unit Root Tests on Tax Revenues

Test statistics, p-values between brackets

	Tax Revenues to GDP Ratio	
Null hypothesis: unit root		
Levin, Lin and Chu t statistic	$-1.9^{**}$ (0.03)	
Breitung t statistic	0.16 (0.6)	
Im, Pesaran and Shin W statistic	-0.7 (0.25)	
Augmented Dickey Fuller chi square	45 (0.33)	
Phillips and Perron chi square	51.6 (0.15)	
Null hypothesis: no unit root		
Hadri z statistic	9.1 <sup>***</sup> (0.00)	

Note: \*, \*\* and \*\*\* denote rejection of the null hypotheses at 10, 5 and 1 per cent levels. Tests assume the presence of country fixed effects.

## Table 5

## **Estimated Error-correction Equations for Tax Revenues**

	Change in the ratio of tax revenues to GDP
Tax revenues ratio (-1)	$-0.325^{***}$ (0.04)
Per capita income (-1) (log)	1.9 <sup>***</sup> (0.6)
Trade-openness (-1)	$-0.019^{**}$ (0.009)
Debt ratio (-1)	0.022*** (0.004)
Structural policy stance (-1)	0.19 <sup>**</sup> (0.09)
Change in structural policy stance (-1)	0.37 <sup>*</sup> (0.2)
Observations	357

Note: \*, \*\*\* and \*\*\*\* denote significance at 10, 5 and 1 per cent levels. Standard errors are reported between brackets.

### *3.3 A closer look at expenditure*

19 When looking at components of social public expenditure, drawn from the OECD's Social Expenditure Database (SOCX), the data confirm that inflexible structural policy settings are associated with higher levels of spending on social programmes and vice versa (Table 6). Statistically, the association is strongly significant for overall social expenditure and incapacity benefits. The close statistical relationship between the overall indicator of structural rigidities and spending on incapacity benefits is consistent with the view that disability pensions can be used as a form of income support for people who would otherwise find jobs in more flexible economies. Similarly, the link between spending on old age pensions and structural rigidities can be viewed as an outcome of the usually stronger incentive to retire earlier in more rigid economies (OECD, 2005). Expenditure on unemployment benefits is only weakly related to the structural policy stance with a lower confidence level and a smaller value of the coefficient, probably reflecting the presence of "Danish-model" labour markets that combine job flexibility with generous unemployment benefits.

### 3.4 Implications for the fiscal balance

20. Our estimates suggest that structural reform raises expenditure and lowers tax revenues in the short run, and therefore we expect to find some deterioration in the fiscal position following structural reform in the short run. Moreover, because in the long run both expenditure and revenues fall in response to structural reform, the long-run impact on the fiscal position should be small or negligible. This prediction can be directly tested by estimating a reduced form equation for the fiscal position. The equation has been specified in a partial-adjustment rather than error-correction form because panel unit roots tests give compelling indications that the cyclically-adjusted fiscal balance is stationary.<sup>4</sup>

$$BAL_{it} = \lambda BAL_{it-1} + \alpha STR_{it} + \beta \Delta STR_{it} + \sum_{k} \gamma_{k} CON_{it-1}^{k} + \delta_{i} + \varepsilon_{it}$$
(3)

21. The equation, which includes country fixed effects, has been estimated with Bun and Kiviet's (2003) bias-corrected least-squares estimator for dynamic panels. Correcting for bias was necessary because the model includes a lag of the dependent variable and the time dimension is relatively short (18 years). In such conditions, the standard fixed-effect panel OLS estimator suffers from a sizeable downward bias on the coefficient on the lagged endogenous variable, which in turns implies biases on the other coefficients.<sup>5</sup> Schematically, Bun and Kiviet's (2003) estimator is calculated in two steps. The first step is to run a regression without correcting for the Nickell bias. The results of the first-step regression are used to derive an estimate

<sup>&</sup>lt;sup>4</sup> Detailed test results are available from the authors upon request.

<sup>&</sup>lt;sup>5</sup> Originally described by Hurwicz (1950), this bias was rediscovered by Nickell (1981) for dynamic panel regressions.

	Change in the Ratio to GDP					
	Unemployment	Old Age	Incapacity	Overall Social		
	Benefits	benefits	Benefits	Expenditure		
Lagged ratio (-1)	-0.14 <sup>***</sup>	$-0.18^{***}$	-0.13 <sup>***</sup>	-0.15		
	(0.03)	(0.03)	(0.03)	$(0.03)^{***}$		
Dependency ratio (-1)	$0.004^{***}$ (0.01)	$0.056^{***}$ (0.02)		$0.19 \\ (0.05)^{***}$		
Per capita income (-1) (log)		$0.77^{***}$ (0.3)		1.4 <sup>**</sup> (0.6)		
Trade–openness	$-0.01^{***}$	$-0.001^{***}$		$-0.05^{***}$		
(–1)	(0.002)	(0.003)		(0.009)		
Debt ratio	$-0.006^{***}$		$-0.0024^{***}$	$-0.02^{***}$		
(-1)	(0.001)		(0.00078)	(0.005)		
Structural policy stance (-1)	$0.06^{***}$	$0.095^{***}$	0.063 <sup>***</sup>	0.33 <sup>***</sup>		
	(0.02)	(0.03)	(0.002)	(0.08)		
Change in the structural policy stance (-1)	-0.06 (0.05)	-0.11 (0.07)	0.04 (0.04)	-0.27 (0.18)		
Observations	315	315	315	315		

# **Estimating Error-correction Equations for Different Spending Items**

*Note:* \*, \*\*\* and \*\*\*\* denote significance at 10, 5 and 1 per cent levels. Standard errors are reported between brackets.

the bias (using Kiviet's (1995) formula), which is then subtracted from the first-step estimator to obtain the bias-corrected estimator. The probability distribution of the estimators and the resulting confidence levels have been obtained with a bootstrap procedure.

As expected, a move towards more flexible structural policy settings, as indicated by a decrease in the indicator value, is associated with a temporary deterioration of the fiscal balance (Table 7). The coefficient on the change of the structural policy indicator has the expected sign and is strongly significant. On the other hand, the level of the structural policy stance has no statistically significant impact on the fiscal balance. This is consistent with our view that in the long run the stance of structural policy is closely linked to government size but has little effect on the fiscal balance. These results also broadly concur with findings by Heinemann (2006) and Deroose and Turrini (2006).

	Cyclically–adjusted General Government Net Lending
Cyclically–adjusted government net lending (–1)	0.89 (0.03) <sup>***</sup>
Dependency ratio	-3.7
(-1) (log)	(1.2)
Debt ratio	0.036
(-1)	(0.006)***
Structural policy stance	-0.17 (0.1)
Change in structural policy stance	0.7 (0.2) <sup>***</sup>
Adjusted $R^2$	0.91
Observations	378

# Estimated Impacts of Structural Reform on the Cyclically-adjusted Budget Balance

*Note*: \*, \*\* and \*\*\* denote significance at the 10, 5 and 1 per cent levels. Standard errors are reported between brackets.

# 4. Conclusions

22. The econometric exercise in this paper offers evidence that the upfront budgetary cost of structural reform is small in comparison with the longer-term benefits for expenditure levels and the tax burden. For the sake of illustration, consider a country that fits the estimated parameter values for primary expenditure in the first column of Table 3 and where the primary expenditure to GDP ratio is 40 per cent initially. Suppose this country embarks on a determined programme of structural reforms and, in five years, reduces the policy stance indicator by one standard deviation. The short-term impact will briefly push up primary expenditure to 40.1 per cent of GDP in the first two years of the programme. But primary expenditure will decline afterwards to a lower long-term ratio of 35 per cent with half the reduction achieved in four years. In present value terms (with a conservative discount rate of 6 per cent), the cumulative expenditure savings amount to 44 per cent of GDP: investment in structural reform is worth making even on conservative assumptions.

23. What policy conclusions can be drawn? As noted upfront, at the margin the EU fiscal rules can occasionally act as a deterrent against structural reform. Even so, together with the analysis by Hoeller and Giorno (2006), the findings reported in this paper highlight the need for great caution when using the new wherewithal provided by the revised SGP to accommodate structural reform. Since the fiscal costs of successful structural reform tend to be small and short-lived in comparison with the long-run benefit, any related waiver from SGP rules should be limited, temporary and conditional on a detailed assessment of the short-term costs and long-term gains of the measures.<sup>6</sup> While this seems to be the intention of the 2005 reform of the SGP, it could usefully be complemented with a strategy to tackle myopia at the source, by committing governments to adopt medium-term fiscal frameworks holding them genuinely accountable.

One possible exception is the introduction of a fully-funded element in mandatory pension regimes, which may justify more substantial and slightly longer-lasting derogations from usual fiscal rules.

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