Non-discretionary Fiscal Policy in the EU and the OECD

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I. *Introduction*

The first step in the analysis of discretionary fiscal policy is often to set aside a part of the budget balance as having nothing to do with deliberate policy and reflecting an "automatic" response to events. Only the rest of the budget balance – the "cyclically adjusted balance," as it is known – serves as the basis for studying discretionary fiscal policy. This paper focuses exclusively on the adjustment to remove the part of the budget balance that supposedly does not reflect discretionary control. This part might not be entirely beyond potential discretionary control and therefore "automatic" in the full sense of the word. For this reason, I will refer to "non-discretionary fiscal policy" as a more general term than "automatic fiscal policy" or "automatic stabilization."

Two fundamental conclusions emerge. First, both the amplitude of non-discretionary fiscal policy and the contribution of various components of the budget to it depend very much on whether we choose to measure the responses of taxes and expenditures to the cycle in levels or as percentages of output. A hypothetical example will suffice. Suppose that a cyclical rise of output of one euro raises taxes by 30 cents. Consequently, the cyclical response of tax revenues to such an event is to raise taxes minus expenditures – or the budget balance in this sense – by an amount equal to 30 percent of the cyclical rise. Any adjustment for the cycle would then mean reducing the budget surplus accordingly. Suppose, however, that the ratio of taxes to output had been 40 percent prior to the cyclical rise in output. Then the cyclical impact leads the ratio of taxes to output to fall. In this event, any adjustment for the cycle would require raising the ratio of taxes to output. In the first case, the tax surplus goes up in response to the cycle, in the second (when the tax surplus is viewed as a percentage of output), it goes down. In terms of the usual conceptions, in the former case, the cyclical response is stabilizing, in the latter it is destabilizing. I will argue below that centering on the cyclical response of the ratio of taxes to output is more consistent with theory and professional work and of greater general relevance.

The second basic conclusion of the study relates to factors contributing to non-discretionary fiscal policy. Contrary to widespread impression, these factors are not limited to taxes and unemployment compensation. The entire OECD rubric "social benefits paid" is highly significant. This rubric goes beyond unemployment compensation to include payments to individuals for health, retirement, subsistence and invalidity. This is true independently of whether we adjust the budget balance for the cycle in levels or in ratios.

One further point is worth underlining. Based on the earlier example of taxes, we may get the impression that the non-discretionary response of the ratio of the government surplus to output must be lightly stabilizing at best. This impression is correct with regard to taxes. However, it is incorrect more generally: the percent of the total net government surplus to output moves in a stabilizing direction. Thus, it rises during expansions. But the reason lies on the spending side. The ratio of government spending to output goes down at these times. Moreover, a basic factor in this stabilizing movement is the behavior of the ratio of government consumption to output. Following a cyclical upswing, this ratio falls.[1]

In addition, a basic conceptual issue arises. We generally consider anything to do with government spending on goods and services as relating to discretionary rather than automatic fiscal policy. In that event, if we also insist on viewing automatic fiscal policy as depending only on taxes and unemployment compensation, we can only conclude, however reluctantly, that the automatic fiscal policy response to the cycle, measured as a percentage of output, is either perverse or weak. However, the same ceases to be true if we adopt the wider conception of non-discretionary fiscal policy which I will embrace in this paper, and which has already been suggested above in stating the second general conclusion, as encompassing the cyclical response of all transfer payments – health, retirement, subsidies, everything. In that case, the stabilizing response of the ratio of the budget balance to output to the cycle is important even if we drop the change in the ratio of government spending on goods and services to output as irrelevant (though it is less important than it is generally supposed to be).

The proposed wider conception of the cyclical response is also sound. The responses of transfer payments to the cycle within the same calendar year result predominantly from the ap-

[1] Arreaza *et al.* (1999), to which I will return in note 3, had already raised this issue before.

plication of existing laws apart from any discretionary behavior by government officials. By and large, whatever is automatic about the immediate responses of taxes and unemployment compensation to the cycle is also automatic about the immediate responses of the rest of transfer payments besides unemployment compensation.

The study will rest on the annual data in the OECD CD-rom for 2004 containing the *Economic Outlook* databank. As distinct from the practice of official bodies, including the EC and the CBO in the US as well as the OECD, I will examine the automatic responses of budget balances both in levels and as ratios of output separately. The habit is to focus strictly on levels. Moreover, I will rely predominantly on simultaneous-equation estimates. This is also a deviation. In general, official estimates distinguish 5 different elements of the government budget balance and then study each of them separately: household direct taxes, business direct taxes, social security contributions, indirect taxes and unemployment compensation (see Giorno *et al.* (995)). There are two reasons to do differently. First, the responses of the 5 elements to the cycle will be correlated. Hence, the residuals in the separate estimates will be correlated too. Thus, seemingly unrelated regression would be more fitting. Second, despite the disaggregation, an important object in these official studies is always that of estimating the response of the aggregate budget balance to the business cycle. Accordingly, once the separate responses of the 5 separate components of the budget have been estimated, the official bodies sum up the estimates to obtain an aggregate. In that case, however (if not independently), the reciprocal influence of aggregate taxes minus unemployment compensation on the business cycle remains relevant. Therefore, simultaneous-equation estimation is warranted.

II. *The framework*

What we are after is how much government revenues and expenditures respond to environmental factors independently of discretionary policy. Thus, the specification must not reflect the aims of the authorities. Nothing concerning official expected values and official objectives, as such, should enter. There are three variables that are likely to affect government revenues and expenditures even within a year and fairly automatically: output, inflation and the nominal rate of interest. Deviations of output (Y) from potential output (Y*) are especially to interesting, since ultimately we wish to distinguish between discretionary and non-discretionary fiscal pol-

icy. The automatic effect of these next deviations will preoccupy us rather than the effect of Y as such.

For statistical reasons, I decided to study the impact of first differences in Y–Y* (as present in the OECD database), or the output gap, on first differences in government receipts and expenditures. Accordingly, I also considered the impact of inflation in first differences. However, I kept the interest rate in levels since any automatic influence of the interest rate on the government budget will depend largely on initial debt and therefore could be cumulative. In this case, the level of the interest rate would affect the first difference of the budget balance just as well as the level. While I stuck to these initial choices, the use of levels or first differences for inflation and the rate of interest makes almost no difference. I also included the lagged level and the lagged first difference of the dependent variable in the estimates, a trend and dummies for six-year intervals (1973-78, 1979-84, 1985-90, 1991-96, 1997-2002). The data relates to a panel of different countries. Therefore, I included country fixed effects too. It may be noted, right from the start, that the lagged level and first difference of the dependent variable and the time trend are almost always insignificant and do not affect the results. However, the six-year intervals sometimes matter and the country fixed effects generally do.

All of the country data entering into the statistical analysis goes up through 2002. Most of it begins in the early seventies. But though some of the series in the database begin in 1960, only a scattering of observations dating prior to 1970 enter in the econometric tests (because of lack of other series that start as early). The results concern 20 OECD countries, and include 14 of the 15 members of the European Union. The missing EU member is Luxembourg, and the 6 OECD countries outside the EU are Australia, Canada, Japan, New Zealand, Norway and the US.

III. *The estimates in levels and ratios*

a. *Levels*

Tables 1 and 1a contain the most aggregative results. Table 1 does so for the 20 OECD countries, Table 1a for the 14 members of the European Union alone. The top half shows the results in levels; the bottom half in percentages. The notes to Table 1 recapitulate the entire specification. Let us examine the levels first. In this case, the dependent variable on the left and

the output gap on the right are in identical units, namely, home currency at current prices. Thus, the coefficient of the output gap gives a meaningful figure. For example, for the members of EMU, it states by how many cents the budget will respond to a movement of the output gap of one euro. But the coefficients of the change in inflation ($\Delta\pi$) and the interest rate (r_L) do not have any clear meaning and are not reported. The measure of the inflation rate is the implicit price of GDP. That of the interest rate r_L is the long term interest rate. I experimented with both the short term and the long term interest rate in the OECD database, and the long term one is much more important. The table omits the coefficients of all the explanatory variables besides the output gap, inflation and the rate of interest. The parenthetical figures concern statistical significance: *t* statistics in case of single-equation estimates, *z* ones in the 3SLS analysis.

In rows 1, the dependent variable is the net public surplus. The results are simple least squares. As seen, according to the estimate, a one-euro rise in output above potential output increases the net surplus by 55 cents in the OECD20 and by 35 cents in the EU14 alone. Both coefficients are highly significant. Both estimates are also comforting, since they are in the general vicinity of figures that are typically reported. However, these estimates ignore any reciprocal influence. The next ones, in rows 2, correct for this neglect by introducing instruments for $\Delta(Y-Y^*)$, $\Delta\pi$ and r_L. The chosen instruments are listed in the notes to Table 1. They include, among others, the lagged values of aggregate taxes and spending – the two variables whose reciprocal effect on $\Delta(Y-Y^*)$, $\Delta\pi$ and r_L is our main concern. Being that the output gap is difficult to forecast by construction, the instruments concerning this variable require a special word. With regard to the gap, I made two special choices. First, I assumed that fiscal policy does not affect unemployment within the current year. Accordingly, I included current unemployment among the instruments. Second, in line with Galí and Perotti (2003), I used the current output gap in the US as an instrument for the other 19 countries in the study and the current output gap in the EU (as reported by the OECD) as an instrument in the case of the US. These particular two instruments, relating to contemporary values, notably improve the fit. In their presence, the R^2s for $\Delta(Y-Y^*)$ approximately double, going up to around 50 percent. The R^2s for $\Delta\pi$ and r_L that result from the instruments (even without those two) are always notably higher, often above 90 percent.

As seen from rows 2, after introducing the instruments, the estimates of the influence of the output gap on the net public surplus rise from .55 to .64 for the OECD20 and from .35 to .44 for the EU14. This is not a satisfactory result. The failure to consider the reciprocal influence of fiscal policy on current performance in rows 1 should have led to overestimates, not underestimates, of non-discretionary fiscal policy. To explain, suppose that a cyclical rise in output raises net government receipts. In principle, the rise in the government surplus should limit the increase in output. If it does, then the correction for the reciprocal influence means raising the swings in $\Delta(Y-Y^*)$ above observed levels: that is, substituting higher positive values of $\Delta(Y-Y^*)$ in expansions and higher negative values of it in contractions. On the other hand, following the cyclical corrections, the series for the net government surplus stay the same. Thus, regressing the latter series on the corrected (larger absolute) values for $\Delta(Y-Y^*)$ should yield lower coefficients. The opposite happens. Notwithstanding, I consider the estimates with the instruments preferable on general statistical grounds.

The next four equations relate to the elementary decomposition of the net government surplus between taxes and spending. In rows 3 and 4, taxes and spending are estimated separately with the same instruments as before for $\Delta(Y-Y^*)$, $\Delta\pi$ and r_L. The decomposition yields precisely the same estimate as before for the impact of the output gap on the net public surplus for the OECD20 (.47 in row 3 minus –.17 in row 4 gives .64) and a somewhat higher estimate of this impact for the EU14 (.54 instead of .44). However, as mentioned before, these last two equations should be estimated simultaneously.

Rows 5 and 6 provide the right sort of estimates. These estimates rest on three-stage-least-squares for a 5-equation system containing separate equations for $\Delta(Y-Y^*)$, $\Delta\pi$ and r_L, where these last 3 equations depend on the earlier instruments. Following the use of 3SLS, we can see that the separate effects of $\Delta(Y-Y^*)$ on taxes and expenditures in the OECD20 (Table 1) appear exactly as they were before in rows 3 and 4, but the precision of the estimates shoots up. In the case of the EU14, or Table 1a, the precision of the estimates also goes up, though perhaps not as spectacularly. But things are more complicated in this next table. The impact of the cycle on taxes stays the same but that on expenditures rises (in absolute terms, from –.22 to –.3). Taking stock of the two tables as a whole, the basic outcome of using 3SLS is to improve

precision and to narrow the differences between the estimates of the impact of the output gap on the net public surplus in the EU14 and the OECD20. After introducing 3SLS, the impact on the public surplus approximates .6 in both cases. Still, in the strictly European part of the sample, taxes respond notably less and expenditures notably more than in the full sample.

It is interesting to compare these last results in rows 5 and 6, for taxes and expenditures, with received ideas. In general, the results conform to standard views about automatic stabilization on the tax side but not the spending one. As regards taxes, the respective coefficients of the output gap of .47 and .3 for the OECD20 and the EU14 (lines 5) are about as we would anticipate from earlier work on automatic stabilization (though we would not necessarily have expected a higher tax response in the OECD as a whole than in the EU part of the sample). However, unemployment compensation is generally considered as the only part of government spending that responds automatically to the cycle, and therefore the –.17 estimate for the OECD20 looks high, to say nothing of the –.3 estimate for the EU14 (lines 6). We shall come back to this issue below. But for the moment let us turn our attention to the revised estimates when we simply substitute ratios of output as the dependent variables and correspondingly substitute Y/Y* as the output gap.

b. *Ratios*

To begin with, the reason for using ratios deserves a general word. Stabilization policy relates to smoothing economic performance or keeping output close to potential. It does not essentially concern long run production and growth. Accordingly, usual analysis of fiscal policy focuses on keeping the ratio of output to potential output close to a value of one. As a result, the critical fiscal policy variable tends to be the ratio of the net budget balance to output, and the critical problem is often to determine this ratio in the absence of non-discretionary responses to the environment. Notwithstanding, it is common in studies of discretionary fiscal policy to adopt official data about levels of non-discretionary responses, correct the budget balance in levels for those responses, and subsequently simply divide by output in order to obtain the ratios of cyclically adjusted figures to output (or potential output). Two clear examples are Taylor (2000) and Galí and Perotti (2003). Both explicitly proceed from cyclically adjusted figures in levels based on official numbers to subsequent division by potential output in analyzing discre-

tionary fiscal policy. Yet if the object of interest is the impact of the ratio of the government budget balance to output, then direct estimates of the correction of this ratio for the cycle would yield far more efficient estimates. Such estimates also produce a completely different picture of the right adjustments for non-discretionary (and automatic) responses to the cycle, as we will see.[2]

Rows 7 of Tables 1 and 1a repeat the OLS estimates of rows 1. As evident, a cyclical expansion notably raises the ratio of the net public surplus to output. A one percent rise in Y/Y* increases this ratio by over one-third of a percent (.36). So far, so good: the impact of the cycle on the government balance is stabilizing and about three-quarters as high as before. Moreover, the impact of the cycle is now identical for the EU14 and the full sample. All the better. Once again, if we introduce instrumental variables for $\Delta(Y/Y^*)$, $\Delta\pi$ and r_L (rows 8), the cyclical influence goes up. It rises to .46 (or .45), that is, by a greater percentage (10/36 or 9/36) than it did previously. There is no need to pause once more on the separate IV estimates of taxes and spending (rows 9 and 10). If we go directly to the preferable simultaneous-equation estimates of the two in rows 11 and 12, we find that the impact of the cycle on the net public surplus is around .41-.42 for the OECD20 and the EU14 (–.07 – (–.49) or –.11 – (–.53)) or close to the corresponding separate estimates (of .45-.46) in rows 8. However, as was also true before in levels, the response of taxes is somewhat lower in the EU14 than it is for the OECD20 while the opposite is true for spending (though the difference is now more muted than before).

But the most striking result of all relates to the size of the respective responses of taxes and expenditures. Taxes move moderately less than output in response to the cycle. Thus, they move in a destabilizing direction. They do so to the tune of .07 to .11. By contrast, government spending moves in the stabilizing direction. This too results from a small adjustment in levels,

[2] There is also the question whether to divide taxes and expenditures by observed output or potential output in moving to ratios. For the moment, I centre on ratios of observed output. This is not because of any objection to the opposite choice, but because the estimates of automatic effects of Y/Y* on the original data deserve priority, in my opinion. In addition, the use of ratios of measured output is more in line with the usual study of effects of the level of the output gap on the observed level of taxes and spending. Quite significantly too, some tax obligations and claims to government compensation are defined as percentages of income or activity to begin with. Of course, once we take Y/Y* as given, then it is easy to pass from a division by either Y or Y* to a division by the other: there is not the issue.

but in this case, the smallness of the adjustment is stabilizing. The stabilizing movement of the ratio of government spending to output is also marked: on the order of .49 to .53.[3] How much automatic stabilization is there therefore in terms of ratios? Unfortunately, no answer is possible yet if we continue to insist that the contribution of the ratio of government consumption and investment should not count as automatic stabilization or non-discretionary policy. In that case, we need to proceed further in the analysis and to isolate the contribution of government spending on goods and services from the rest of government spending.

IV. *Further decomposition of government receipts and expenditures*

Since further decomposition of government spending between goods and services and transfers is essential, why not exploit all of the information available in the OECD CD-rom? On the tax side, the OECD provides separate figures for household direct taxes, business direct taxes, social security tax receipts, transfers received, and indirect taxes. On the spending side, it offers figures for public wages, non-wage consumption, investment, social benefits paid, subsidies, other transfer payments, and net interest payments. This makes 12 rubrics in all. However, there is also a statistical discrepancy. If we add up the 5 receipt items and we deduct the 7 disbursement items, we do not obtain the difference between total taxes and total disbursements in the OECD CD-rom. The 6 receipt items agree with the total for taxes but the 7 spending ones do not agree with the total for disbursements. The discrepancy is negligible for a few countries but not the majority. Therefore, I introduced the statistical discrepancy as a separate rubric which stands for the part of spending that is not otherwise allocated between the other rubrics.

The division of transfer payments between social benefits paid, subsidies and other transfer payments requires a further word. As indicated earlier, "social benefits paid" includes payments to individuals for health, retirement benefits, subsistence, child care and invalidity as well as unemployment compensation. The "subsidies" are payments to firms. The "other transfer payments" are then a residual category collecting everything that has not been filed into the

[3] Arreaza *et al.* (1999) obtain the same general result and interpret it the same way: taxes are destabilizing and government spending is stabilizing in the OECD and the EU. Interestingly too, they make no point of this at all. Driven by the logic of their argument that ratios are the critical consideration since the concern is with the smoothing of output and consumption over time, they simply take their interpretation of stabilizing fiscal policy for granted. Mélitz (2000) notes the unorthodoxy of their stand (without siding with them). But they clearly led the way.

other two and better-defined rubrics. It notably includes transfers to lower-level governments.[4]

Once again, Tables 2 and 2a show separate results in levels and ratios. The ones in levels correspond exactly to those in rows 5 and 6 of the preceding tables and those in ratios correspond exactly to those in rows 11 and 12 of those tables. More precisely, the estimates in rows 11 and 12 of Tables 2 and 2a are joint estimates with joint equations for $\Delta(Y - Y^*)$ or $\Delta(Y/Y^*)$, $\Delta\pi$ and r_L based on the same instruments as before. The new estimates rest on 3SLS. Thus, these estimates concern a 16-equation system, including a separate equation for the 12 different tax and spending items, a 13th for the statistical discrepancy, and three more for the sources of non-discretionary effects. For the sake of legibility, I omit the results for r_L from Tables 2 and 2a. (These are almost always insignificant except for the effects on net interest payments). The results on the left sides of both tables concern levels (and the impact of $\Delta(Y–Y^*)$), while those on the right sides concern ratios (and the impact of $\Delta(Y/Y^*)$).

With respect to levels, all of the tax items have the expected positive signs. They are also all significant for the OECD20 but only household and business direct taxes are so for the EU14. On the spending side, wages are highly significant with a positive sign and non-wage consumption is highly significant with a negative sign for the OECD20. But both influences are small and cancel each other out. As regards the EU14, the corresponding two effects are smaller and statistically insignificant. With respect to transfer payments, social benefits paid enter very significantly with a negative sign both for the OECD20 and EU14. The other two categories of transfer payments also bear significant signs (marginally so in the case of "other transfer payments" at conventional confidence levels). But the signs are opposed between the OECD20 and EU14, those for the OECD20 (positive) going in the destabilizing direction. The latter signs are also much smaller than the corresponding ones for the EU14, which go the "right" way.

[4] "Other current transfers" include many other things besides "transfers between different levels of government, such as frequently occur between central and state or local government units." Also incorporated are payments by the central government for damages resulting from natural causes, such as fires and floods (which may be associated with insurance (net of insurance payments) or with emergency relief). Another element is "annual or other regular contributions paid by member governments to international organizations (excluding taxes payable to supranational organizations)". Still another factor are fines and penalties. The quotation marks are from a text from the Statistics Division of the UN, which is applicable according to the services of the OECD.

Unfortunately, the statistical discrepancy also happens to be significant both for the OECD20 and the EU14. To make matters worse, this variable enters with opposite signs in Tables 2 and 2a, and with large coefficients to boot. In the case of the EU14, the coefficient is enormous: .19. There are some basic implications. For the OECD, where the sign of the statistical discrepancy is negative (–.09), the estimates of the itemized spending items are too high, while for the EU14, where the discrepancy is positive, the estimates are too low. This could well explain the conflicting signs for subsidies and other transfer payments in the two samples (too high for the OECD20 where the statistical discrepancy is negative, too low for the EU14 where the discrepancy is positive). Quite generally, the strong significance of the statistical discrepancy casts a shadow over the interpretation of all of the spending items on the left sides of Tables 2 and 2a.[5] Still, the stabilizing movement of "social benefits paid" on the left-hand sides remains difficult to contest. The signs of influence of $\Delta(Y - Y^*)$ on this variable are negative in both tables despite the opposite signs of the statistical discrepancies in the two. In addition, both coefficients are large, and both have exceedingly high statistical significance – especially the one closer to zero (–.066) (which concerns the OECD20 and should therefore probably be even more negative). Whatever the doubts about exact magnitudes, a stabilizing movement of "social benefits paid" of no less than .066 in levels is thus evident.

The results on the right-hand sides, concerning the ratios, are far more satisfactory. The statistical discrepancies become insignificant. Thus, it would seem that though those discrepancies move with the cycle, they do so approximately in step with output, and when calculated as percentages of output, their importance vanishes. Very significantly too, there is a remarkable conformity all down the line between the estimates of the impact of $\Delta(Y/Y^*)$ in Tables 2 and 2a. If we add up the coefficients for taxes on the right-hand sides in Table 2 and we do the same

[5] Is the problem really concentrated on the spending items? I think so. If we sum up the respective coefficients of the 5 tax items in Tables 2 and 2a, the emerging gap between the two estimates for total taxes is .2. This then corresponds closely to the gap of .17 between the two estimates for taxes in the earlier Tables 1 and 1a (lines 5). This is striking agreement in light of the vast difference in the statistical discrepancy between Tables 2 and 2a (–.09 as opposed to .2). (The similar comparison of the sums of the 7 identified spending items necessarily shows a wide difference with the gap in lines 6 between Tables 1 and 1a.) Thus, apart from the reasoning in the text that is based on the data itself, the problem does seem to be essentially on the spending side.

in Table 2a, we get the identical figure, –.07, in both cases. Looking back at lines 11 of tables 1 and 1a, the estimates of the impact of Y/Y* on total taxes there were respectively –.07 and –.11, which is not very different either. If we repeat the same operation for the 7 itemized elements of spending, the respective totals of the coefficients in Tables 2 and 2a are –.51 or –.53. This compares with estimates of –.49 and –.53 in lines 12 of Tables 1 and 1a. In sum, not only do the results on the right-hand sides of Tables 2 and 2a agree with one another, but they agree well with the earlier results in Tables 1 and 1a too. The decomposition on the right-hand sides in Tables 2 and 2a merits confidence.

What story do those estimates tell us? First, household direct taxes move in a destabilizing way. They do not keep up with the cycle. Social security taxes do so even less. But indirect taxes keep up, while business direct taxes do better than just keep up. These results may carry conviction. We would expect profits to move more than wages with the cycle, and therefore business direct taxes to be more stabilizing (less destabilizing) than household direct taxes. Turning to the spending side, the results for transfer payments are the most striking. Social benefit payments fall markedly as a percentage of income during cyclical upswings. Further, subsidies and other transfer payments also both move significantly in the stabilizing direction. While the contribution of these last two rubrics to stabilization is important, it is less than half as large as the contribution of social benefits paid alone. The results regarding wages and non-wage consumption are also interesting. Neither class of government expenditures keeps up with the cycle but non-wage consumption does so less than wages – by far.

With these results in hand, we may return to the question of the extent to which the aggregate stabilizing response of the budget in ratios depends on the contribution of government spending on goods and services. Evidently, the overall stabilizing response of the budget as a ratio of output does indeed owe a great deal to government spending on goods and services. If we sum over all the 6 tax and the 7 (identified) spending items, the stabilizing response of the budget balance is of the order of .42-.45. But if we drop government spending on goods and services as having nothing to do with automatic policy and therefore irrelevant, then the figure falls to around .25. Consequently, judged in terms of ratios, automatic stabilization is weaker than it is generally perceived to be. A one percent rise in the ratio of output to potential output

increases the government surplus as a ratio of output by about a quarter of one percent at most. In addition, the stabilization comes entirely from transfer payments. The 30 to 33% response of these payments suffices to overcome a 7% move in the ratio of taxes to output in the destabilizing direction.

The decision to dismiss the cyclical response of government spending on goods and services as irrelevant in calculating non-discretionary policy deserves a further word. If this spending response is not automatic, how should we interpret it instead? It would be difficult to say that the response reflects discretionary fiscal policy. By general consensus, discretionary fiscal policy moves slowly and with a lag (see also Canzoneri *et al.* (2002)). The present analysis concerns contemporaneous responses in first differences. It thus would seem to relate to non-discretionary behavior. Most probably, what the econometric analysis is picking up is an effect of inertia. Based on the left-hand side estimates of Tables 2 and 2a in levels, there is little current response of government spending on goods and services to the cycle in the aggregate (except for government investment in Table 2 but not Table 2a).[6] If then government spending on goods and services does not respond at once to the cycle, the spending will move in a stabilizing direction as a percentage of output. Inertia seems to be the key.

V. *Some individual-country analysis*

The study would also suggest the importance of drawing national distinctions. National distinctions obviously matter greatly in case of the usual conception of automatic stabilization too, since tax structures and systems of unemployment compensation differ by country. But national distinctions are still more important if the central element in non-discretionary fiscal policy in ratios is aggregate transfer payments. Whole programs of central government financing of retirement, health, unemployment, poverty, child care, regional assistance and subsidies to firms that are highly significant in some countries do not even exist in others.

Unfortunately, however, it is impossible to replicate the analysis for individual countries. The national data series are too short. The previous 3SLS analysis proves impracticable. The most comparable tests by country I was able to perform depend on seemingly unrelated re-

[6] The significant negative coefficient of .09 for investment in Table 2 on the left-hand side – for the OECD20 in levels – is a mystery.

gressions (SUR) with instruments for the environmental factors $\Delta(Y-Y^*)$ or $\Delta(Y/Y^*)$, $\Delta\pi$ and r_L. Even then, 5 of the countries in the previous work needed to be dropped because of insufficiently long time series (Denmark, Greece, Ireland, New Zealand, and Spain). Table 3 displays a few of the results for the other 15 countries, each separately. These results pertain to 4 separate estimates per country: two in levels, two in ratios. One pair of estimates in levels and ratios relates to the net government surplus and corresponds exactly to lines 2 and 7 of table 1. The other pair relates to the 14 dependent variables in Table 2, and rest on SUR with IV instead of 3SLS. With respect to those SUR estimates, I only display the results for 5 of the 14 variables, and I only report them for the impact of $\Delta(Y-Y)$ or $\Delta(Y/Y^*)$. This selectiveness in reporting avoids reams of pages that would be difficult to digest and to comment seriously. The five chosen variables for display focus on the spending rubrics that have emerged as of special interest: wages, non-wage consumption, social benefits, subsidies and other transfer payments. Even limited in this way, the table still contains a large number of figures. Therefore, I highlight the significant z values at the 10% confidence level with the use of bold letters and the significant z values above the 5% confidence level with bold letters for the coefficients as well as the z values.

All these estimates obviously deserve much less confidence than those in Tables 2 and 2a. There are too few degrees of freedom. Each equation contains estimates of 10 or 11 separate coefficients (for $(\Delta(Y-Y^*)$ or $\Delta(Y/Y^*)$, $\Delta\pi$, r_L, the lagged level and first difference of the dependent variable, the trend, and 4 or 5 six-year dummies). But there are only around 28 observations altogether. (The table reports the exact number of observations per country (N)). As a result, the typical number of degrees of freedom is around 16. Notwithstanding, a few points can be made. The stabilizing response of the net public surplus to the cycle emerges – in levels or ratios, one or the other – for 12 of the 15 countries (all but Australia, Norway or Sweden). In 8 of the countries, it emerges in both forms. Wages and non-wage consumption often appear as moving in the stabilizing direction. Thus, despite the scarcity of data, the problem of isolating "automatic stabilization" shows up as important in these individual-country estimates. In addition, the stabilizing influence of at least one of the three classes of transfer payments always emerges – that is, if we go down to the 10% level of significance. In 10 of the countries, the

significance of one or more classes of transfer payments is clear above the 95% confidence level.

I propose to take a closer look at the estimates for the U.S. As in many other instances of closed-economy macroeconomics, the U.S. has been the outstanding individual-country laboratory for studies of automatic stabilization. Some especially careful estimates are available for this country, even at the microeconomic level (see, especially, Auerbach and Feenberg (2000)). It is reassuring, therefore, that the stabilizing response of the net public surplus to the output gap comes out plainly both in levels and in ratios for the U.S. The country is thus a good laboratory in this regard. However, the U.S. happens to be particularly untypical in another respect. It is one of the few countries in the sample where the impact of transfer payments emerges faintly if at all. Measured in levels, transfer payments are totally insignificant for the U.S., and in ratios, the significance of these payments appears for only one of the three rubrics, "social benefits paid," and then only near the 10% confidence level.[7] Thus, the tendency to focus on the U.S. could have something to do with the usual failure to give proper attention to transfer payments. On the other hand, principal focus on this country will not explain the general disregard of the issue of levels or ratios. This issue emerges as capital in the U.S. When judged in terms of ratios, the government spending on goods and services in the country contributes greatly to the stabilizing movement of the budget balance. Indeed, nowhere does the significance of public wages and non-wage consumption in stabilization come out more plainly. Thus, the sources of automatic stabilization in ratios in the U.S. remain an open issue for consideration.

VI. *Concluding discussion*

Output (Y) and potential output (Y*) tend to move together and necessarily maintain an average of one over long enough time. Taxes and government expenditures do not stay constant as a percentage of output or potential output over any period of time. Hence, whether we proceed in levels or in ratios in measuring fiscal activity will often affect the sign of movement of the fiscal variables, and depending on the decision to measure one way or the other, we can easily get a plus or a minus for the respective responses of taxes and spending to changes in the output gap. But can this truly be entirely a matter of arbitrary choice? I have reasoned that if the

[7] Why there is no data for the U.S. for "other transfers paid" is not clear.

issue of interest is the impact of policy on the ratio Y/Y*, the proper step in adjusting for the cycle is to correct for the cyclical response of the ratio of the fiscal policy variables to income. In that case, as we have seen, the whole issue of "non-discretionary fiscal policy" assumes a radically different appearance. Most important of all, transfer payments and not taxes emerge as the key factor in the OECD.

Two sorts of questions clearly demand further investigation. One concerns the respective contributions of specific transfer programs to stabilization. The OECD classification of social benefits paid, subsidies, and other transfer payments is inadequate. Social benefits paid embrace too many things: payments for pensions, health, invalidity, unemployment, subsistence and child care. Transfer payments for some of these objects can be expected to respond quite differently to the business cycle than for others. For example, we would expect pensions to respond to the cycle in a stabilizing manner. Cyclical upswings likely induce people to work longer and to delay pension receipts. Pensions are also very expensive. In addition, unemployment compensation as a percentage of output probably also responds counter-cyclically. (For the moment, I cannot say to what extent since the OECD does not provide the data for unemployment compensation that it uses (and no other) in adjusting total social benefits paid for the cycle.) However, health is a non-inferior good and does not necessarily move counter-cyclically if the patient bears a non-negligible fraction of the cost. Nor is it clear that payments for child care should move counter-cyclically. The stabilizing response of social benefits paid in levels raises particular questions of its own. What are the social benefits for which people qualify less (more) during expansions (contractions)? According to my assumption that unemployment does not respond currently to the cycle, unemployment compensation should not be part of the answer – not unless there is a rise in qualifications for benefits during contractions among those who are already unemployed (which is possible).

The stabilizing influence of subsidies to firms poses similar interrogations. Subsidies can cover many diverse programs going from agricultural price supports to help for labor training. What are the subsidy programs at work? Finally, it would be nice to know too where the stabilizing impact of "other transfer payments" comes from. Is it primarily the support to regions in difficulty through transfers to lower-level governments during recessions? What else?

The second sort of questions relate to discretionary fiscal policy. I have attributed the stabilizing response of the ratio of government spending on goods and services to income to inertia. Government spending on goods and services fails to respond to the cycle at once. Therefore, the ratio of this government spending to output moves in a stabilizing direction. Yet studies of discretionary fiscal policy, as such, do not give the impression of a strong stabilizing tendency of government spending on goods and services at any horizon. In fact, the results of these studies in the OECD sometimes point to irresponsible, pro-cyclical spending behavior. There is no necessary inconsistency. Following an initial stabilizing response because of inertia, there could be a destabilizing movement as public-sector wages and non-wage spending catch up with the cycle. Studies of discretionary fiscal policy, as such, could possibly miss the initial stabilizing movement because of differences in specification and focus on official objectives, politics, and delays in implementing plans. Still, the proposed dynamic sequence of responses needs confirmation.

Most important perhaps, the present article says that cyclically adjusted budget balances should be calculated differently. This is true regardless whether we study fiscal policy in levels or ratios. But it is especially true if we study it in ratios, as it is right to do if the ultimate concern is the impact of fiscal policy on the ratio of output to potential output.

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TABLE 1

TAXES, SPENDING AND GOVERNMENT DEFICITS: THE AGGREGATES OECD20

Dependent Variable: 1st Differences		**Test Method**	$\Delta(Y - Y^*)$	$\Delta\pi$	r_L	R^2	N
(1)	Net public surplus	OLS	.55 (4.3)	+n.r. (1.83)	-n.r. (-.66)	.58	553
(2)	Net public surplus	IV 2SLS	.64 (3.8)	+n.r. (1.08)	+n.r. (.44)	.58	513
(3)	Taxes	IV 2SLS	.47 (4.2)	+n.r. (.85)	-n.r. (-.61)	.82	513
(4)	Expenditures	IV 2SLS	-.17 (1.89)	-n.r. (-.26)	-n.r. (-1.43)	.89	514
(5)	Taxes	3SLS	.47 (17)	+n.r. (1.06)	-n.r. (-.69)	.82	513
(6)	Expenditures	3SLS	-.17 (7.5)	+n.r. (.89)	-n.r. (-.47)	.89	513
Dependent Variable: 1st Differences		**Test Method**	$\Delta(Y / Y^*)$	$\Delta\pi$	r_L	R^2	N
(7)	Net public surplus ÷ Y	OLS	.36 (9.5)	.16 (4.6)	~0 (.08)	.35	553
(8)	Net public surplus ÷ Y	IV 2SLS	.45 (8)	.09 (1.95)	.03 (.61)	.35	513
(9)	Taxes ÷ Y	IV 2SLS	-.07 (-1.87)	.08 (2.6)	.06 (1.73)	.19	513
(10)	Expendi-tures ÷ Y	IV 2SLS	-.5 (-10.9)	.02 (.58)	.04 (1.19)	.52	514
(11)	Taxes ÷ Y	3SLS	-.07 (-2.15)	.07 (2.63)	.04 (1.74)	.19	513
(12)	Expendi-tures ÷ Y	3SLS	-.49 (-13.9)	-.1 (-.23)	.04 (1.24)	.54	513

Notes:

Y = output (GDP) in current prices Y* = potential output in current prices

π = rate of inflation of price of GDP (percentage) r_L = long term rate of interest (percentage)

N = number of observations n.r. = not reported

All the dependent variables are in current prices. *t* or *z* statistics in parentheses (*z* in case of 3SLS estimates). In case of 3SLS, the R^2s are also adapted.

All dependent variables are in first differences. The other regressors in all the equations, besides

$\Delta(Y - Y^*)$ or $\Delta(Y / Y^*)$ **,** $\Delta\pi$ and r_L, are: country fixed effects, time trend, dummies for 6-year intervals (1973-78, 1979-84, 1985-90, 1991-96, 1997-2002), the lagged level and the lagged first difference of the dependent variable.

The instruments for $\Delta(Y - Y^*)$ or $\Delta(Y / Y^*)$**,** $\Delta\pi$ and r_L (in the IV estimates), which apply in common to all three of them, are: all the aforementioned regressors, the twice-lagged value of all three of them, the once- and twice-lagged growth of Y, the lagged level of inflation π, the lagged level and change of total government spending, the lagged level of taxes, the current and lagged rate of unemployment, and the current US gap or value of Y/Y* (except for the US, in which case the current EU gap instead).

The 3SLS estimates of equations (5)-(6) and (11)-(12) are both part of a 5-equation system including additional equations for either $\Delta(Y^*-Y)$ or $\Delta(Y / Y^*)$**,** as the case may be, and for $\Delta\pi$ and R_L. The common regressors in these last three equations are the aforementioned instruments.

Source: OECD *Economic Outlook* CD-ROM.

TABLE 1a

TAXES, SPENDING AND GOVERNMENT DEFICITS: THE AGGREGATES EU14

Dependent Variable: 1st Differences		**Test Method**	$\Delta(Y - Y^*)$	$\Delta\pi$	r_L	R^2	N
(1)	Net public surplus	OLS	.35 (2.9)	+n.r. (1.02)	-n.r. (-.43)	.49	364
(2)	Net public surplus	IV 2SLS	.44 (3.2)	+n.r. (.84)	-n.r. (-.66)	.49	341
(3)	Taxes	IV 2SLS	.32 (2.2)	+n.r. (2.44)	+n.r. (2.7)	.66	341
(4)	Expenditures	IV 2SLS	-.22 (-1.94)	+n.r. (2.3)	+n.r. (2.27)	.74	341
(5)	Taxes	3SLS	.3 (3.9)	+n.r. (2.2)	+n.r. (2.4)	.65	341
(6)	Expenditures	3SLS	-.3 (-3.9)	+n.r. (2.1)	+n.r. (1.9)	.72	341
Dependent Variable: 1st Differences		**Test Method**	$\Delta(Y / Y^*)$	$\Delta\pi$	r_L	R^2	N
(7)	Net public surplus ÷ Y	OLS	.36 (7.3)	.14 (4)	~0 (.05)	.35	364
(8)	Net public surplus ÷ Y	IV 2SLS	.46 (6)	.16 (2.2)	.06 (1.13)	.37	341
(9)	Taxes ÷ Y	IV 2SLS	-.12 (-2.45)	.13 (2.96)	.04 (1.93)	.17	341
(10)	Expendi-tures ÷ Y	IV 2SLS	-.53 (-8.2)	.04 (.81)	.05 (1.16)	.54	341
(11)	Taxes ÷ Y	3SLS	-.11 (-2.73)	.12 (3.2)	.07 (2.19)	.18	341
(12)	Expendi-tures ÷ Y	3SLS	-.53 (-11.5)	-.01 (-.31)	.03 (.97)	.57	341

See Notes to Table 1

TABLE 2

TAXES, SPENDING: THE DECOMPOSITION
OECD20 : 3SLS ESTIMATES

	Dependent Variables in Levels: First Differences			**Dependent Variables as a Percentage of Y: First Differences**		
Dependent Variable:	$\Delta(Y - Y^*)$	$\Delta\pi$	R^2	$\Delta(Y / Y^*)$	$\Delta\pi$	R^2
Household Direct Taxes	.21 (21)	+n.r (2.4)	.73	-.04 (-1.8)	.015 (2.75)	.14
Business Direct Taxes	.17 (17)	+n.r. (5.2)	.52	.04 (2.3)	-.01 (-.59)	.13
Social Security Tax Receipts	.07 (7.9)	-n.r. (-1.08)	.75	-.08 (-5.1)	~0 (.39)	.24
Transfers Received By Government	.001 (3.6)	+n.r. (.86)	.27	-.02 (-1.64)	-.01 (-1.3)	.09
Indirect Taxes	.07 (7.2)	+n.r. (.34)	.61	.03 (1.7)	-.02 (-1.86)	.12
Wages	.014 (5.3)	+n.r. (3.3)	.93	-.06 (-6.2)	~0 (.45)	.21
Non-Wage Consumption	-.013 (-3.5)	+n.r. (1.66)	.94	-.12 (-9.4)	0.01 (.81)	.39
Investment	-.09 (-7)	-n.r. (-2.03)	.29	-.02 (-1.94)	~0 (.35)	.14
Social Benefits Paid	-.066 (-17.5)	-n.r. (-1.92)	.94	-.21 (-13.9)	-.03 (-2.84)	.55
Subsidies	.012 (5.1)	+n.r. (.92)	.34	-.05 (-5.5)	~0 (.65)	.21
Other Transfer Payments	.006 (1.89)	+n.r. (~0)	.24	-.04 (-3.8)	-.01 (-.98)	.20
Net Interest Payments	.03 (1.66)	-n.r. (-.42)	.13	-.01 (-.81)	-.01 (.01)	.26
Statistical Discrepancy	-.09 (-5.6)	-n.r. (-1.2)	.21	.04 (1.26)	-.01 (.25)	.33

Both sets of 3SLS estimates include additional equations for $\Delta(Y - Y^*)$ or $\Delta(Y / Y^*)$ and $\Delta\pi$ and r_L. There are other regressors for the 13 dependent variables shown, and for $\Delta(Y - Y^*)$ or $\Delta(Y / Y^*)$, $\Delta\pi$ and r_L. These are the same as in Table 1. *z* statistics in parentheses. The R^2s are adapted. Number of observations: 415

TABLE 2a

TAXES, SPENDING: THE DECOMPOSITION
EU14: 3SLS ESTIMATES

	Dependent Variables in Levels: First Differences			**Dependent Variables as a Percentage of Y: First Differences**		
Dependent Variable:	$\Delta(Y - Y^*)$	$\Delta\pi$	R^2	$\Delta(Y / Y^*)$	$\Delta\pi$	R^2
Household Direct Taxes	.19 (5.9)	+n.r (2)	.50	-.04 (-1.87)	.04 (1.97)	.15
Business Direct Taxes	.08 (3.2)	+n.r. (.75)	.12	.05 (3.38)	.01 (1.28)	.10
Social Security Tax Receipts	.05 (1.3)	+n.r. (1.9)	.43	-.09 (-4.7)	.01 (.49)	.27
Transfers Received By Government	-.007 (-1.2)	+n.r. (.79)	.16	-.01 (-1.2)	~0 (.5)	.15
Indirect Taxes	.05 (1.3)	+n.r. (.47)	.33	.02 (.95)	-.03 (-1.78)	.10
Wages	-.009 (-.44)	+n.r. (3.8)	.68	-.05 (-4.9)	~0 (.32)	.23
Non-Wage Consumption	-.005 (-.25)	+n.r. (1.92)	.54	-.13 (-9.33)	.2 (1.74)	.43
Investment	.003 (0.35)	+n.r. (2.85)	.29	-.01 (-1.27)	.01 (1.37)	.16
Social Benefits Paid	-.2 (-7.2)	+n.r. (1.44)	.64	-.23 (-13.5)	-.05 (-3.9)	.56
Subsidies	-.054 (-5.4)	-n.r. (-.96)	.24	-.05 (-4.8)	-.01 (-.66)	.23
Other Transfer Payments	-.05 (-3.12)	-n.r. (-3.06)	.07	-.05 (-3.8)	-.03 (-2.7)	.23
Net Interest Payments	.03 (0.79)	+n.r. (1.42)	.31	-.01 (-.63)	~0 (-.29)	.29
Statistical Discrepancy	.19 (5.35)	-n.r. (-.17)	.35	.05 (1.26)	-.03 (-1.06)	.34

Both sets of 3SLS estimates include additional equations for $\Delta(Y - Y^*)$ or $\Delta(Y / Y^*)$ and $\Delta\pi$ and r_L. There are other regressors for the 13 dependent variables shown, and for $\Delta(Y - Y^*)$ or $\Delta(Y / Y^*)$, $\Delta\pi$ and r_L. These are the same as in Table 1. *z* statistics in parentheses. The R^2s are adapted. Number of observations: 335

TABLE 3: SELECTED INDIVIDUAL-COUNTRY RESPONSES TO Y-Y* OR Y/Y*
Levels in columns 1; percentages of Y in columns 2

Dependent Variable: First Differences	AUS		AUT		BEL		CAN		FIN		FRA		GER		ITA	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Net Public Surplus	.036 (.23)	.01 (.18)	.105 (.58)	.30 **(1.69)**	**.29 (2.52)**	**.45 (2.15)**	**.40 (2.94)**	**.45 (1.97)**	**.94 (2.59)**	**.43 (1.97)**	**.39 (2.84)**	.26 (1.53)	**.26 (2.53)**	**.46 (1.98)**	**.49 (2.1)**	**.50 (3.85)**
Wages	.024 (1.4)	-.014 (-.03)	.027 (.60)	.006 (.32)	-.015 (-.84)	**-.058 (-2.8)**	.029 (1.42)	-.034 **(-1.58)**	**-.045 (-2.43)**	-.20 (-1.38)	-.016 (-1.03)	-.005 (-.17)	.007 (.57)	-.024 (-1.17)	-.077 (-1.44)	-.021 (-.90)
Non-Wage Consumption	**-.13 (-3.1)**	**-.046 (-4)**	-.03 (-1.07)	-.053 **(-1.85)**	**-.056 (2.68)**	**-.042 (-2.64)**	**-.034 (-2.11)**	**-.09 (-4.41)**	**-.036 (-3.2)**	**-.054 (-2.18)**	-.042 (-1.17)	**-.058 (-3.77)**	-.018 (-.84)	**-.032 (-2.7)**	**-.78 (-2.14)**	-.021 (-.77)
Social Benefits Paid	**-.08 (-3)**	**-0.64 (-2.54)**	**-.11 (-3.48)**	**-.14 (-4.19)**	**-.04 (-2.51)**	**-.145 (-6.78)**	-	-	-0.48 (-1.69)	-.048 (-1.23)	**-.065 (-3.36)**	**-.101 (-3.25)**	-.053 **(-1.85)**	**-.091 (-2.01)**	-.065 (-1.55)	.064 **(1.79)**
Subsidies	.005 (.63)	**-.02 (-2.9)**	**-.05 (-2.42)**	**-.05 (-3.28)**	-.01 (-1.22)	.006 (.81)	**-.051 (-3.06)**	-.016 (-.99)	-.004 (-.46)	.017 (1.49)	**-.024 (-1.97)**	-.224 **(-1.71)**	**.036 (3.8)**	**.025 (2.66)**	**-.045 (-2.59)**	-.066 (-.28)
Other Transfer Payments	**-.026 (-2.17)**	-.01 (-1.12)	-.04 **(-1.66)**	**-.03 (-2.15)**	.001 (1.20)	.001 (.18)	-.028 (-1.54)	**-.128 (-3.63)**	.025 (1.44)	.001 (.03)	-.001 (-.16)	.01 **(1.63)**	.007 (.22)	.002 (.93)	**-.049 (-3.48)**	-.005 (-.49)

	JAP		NETH		NOR		POR		SWE		UK		US		N	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)		
Net Public Surplus	**.47 (4.5)**	.175 **(1.73)**	**.51 (2.65)**	**.41 (1.94)**	-.075 (-.12)	.56 (1.4)	.17 **(1.59)**	.09 (.55)	.11 (.35)	.22 (.74)	**.50 (2.54)**	.28 (.99)	**.42 (2.80)**	**.48 (3.07)**	AUS	24
Wages	-.003 (-.44)	**-.035 (-2.77)**	**-.058 (-2.2)**	-.054 (-1.52)	-.042 (-1.04)	.005 (.17)	**.091 (2.16)**	.013 (.58)	-.052 (-1.42)	-.002 (-.07)	**-.112 (-3.04)**	-.047 **(-1.83)**	**-.015 (-2.26)**	**-.061 (-5.48)**	AUT	27
Non-Wage Consumption	-.008 (-.70)	**-.029 (-4.35)**	**-.107 (-2.63)**	**-.085 (-2.93)**	.019 (.57)	-.051 (-.95)	**.156 (3.87)**	**-.048 (-3.33)**	.042 (1.1)	**-.149 (-3.47)**	-.019 (-.36)	-.069 **(-1.89)**	-.021 (-1.54)	**-.093 (-10)**	BEL	28
Social Benefits Paid	**-.031 (-2.71)**	**-.047 (-2.78)**	**-.127 (-2.36)**	**-.10 (-2.02)**	-.048 **(-1.74)**	-.013 (-.18)	.007 (.21)	-.01 (-.60)	.018 (.42)	.05 (.71)	**-.083 (-2.08)**	-.044 (-1.1)	.019 (.49)	-.041 **(-1.71)**	CAN	28
Subsidies	.002 (.28)	**-.018 (-2.22)**	**-.044 (-1.94)**	-.004 (-.18)	.022 (1.14)	-.01 (-.39)	~0 (~0)	.02 (.80)	.033 **(1.60)**	-.007 (-.41)	.008 (.65)	**-.05 (-3.25)**	-.01 (-1.04)	.002 (.38)	FIN	24
Other Transfer Payments	.001 (.09)	.001 (.14)	-.009 (-.52)	-.001 (-.07)	-.058 **(-1.72)**	**-.058 (-1.98)**	**-.254 (-6.71)**	-.056 **(-1.67)**	.041 (1.24)	.06 **(1.58)**	**.048 (3.48)**	.01 (.87)	-	-	FRA	28
															GER	33
															ITA	36
															JAP	29
															NETH	27
															NOR	26
															POR	28
															SWE	31
															UK	29
															US	30

For notes, see next page

Notes:

The coefficients in columns 1 are responses to $\Delta(Y-Y^*)$; those in columns 2 are responses to $\Delta(Y/Y^*)$. All dependent variables are in first-difference form. *z* statistics in parentheses. Denmark, Greece, Ireland, New Zealand and Spain figure in the previous estimates but not here because the time series for them are too short. In the case of net public surplus, the specifications correspond exactly to those in rows 2 and 8 of Table 1. They are 2SLS with the same instruments as before for $\Delta(Y-Y^*)$, $\Delta(Y/Y^*)$, $\Delta\pi$ and r_L. The estimates of the other 5 dependent variables are obtained simultaneously, together with estimates of the other 8 dependent variables in Table 2. But these estimates are based on SUR (seemingly unrelated regressions) with instruments for $\Delta(Y-Y^*)$ or $\Delta(Y/Y^*)$, $\Delta\pi$ and r_L. The regressors and the instruments are the same as those in Table 2 except for the omission of the twice-lagged variables as instruments in order to preserve degrees of freedom.