

Automatic *fiscal stabilizers*

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In this article, indicators of fiscal discretionality are estimated using a simple methodology, and in this way the cyclical component of the public accounts balance (i.e., the amounts of income and expenditure associated with transitory movements of the level of activity) is identified for a number of Latin American countries in the 1990s. The difference gives a measure of the discretionary balance, which represents a medium-term indicator of the state of the public accounts. Budgetary rules which take account of these mechanisms not only ensure sustainability over time but also reduce the cyclical nature of the public finances, provided they are applied in a transparent and symmetrical manner. This method provides series which make it possible to follow up the structural and cyclical components of public deficits in Latin America, using a standard methodology and with minimal information needs, in order to focus the relevant discussions (and the necessary adjustments) on a medium-term horizon.

I

Introduction

The challenge of reconciling macroeconomic stability with satisfactory growth and improvements in income distribution can only be faced by shaping a new “fiscal covenant” in the region (ECLAC, 1998). This fiscal covenant must be based on solid foundations, with an institutional design which takes due account of the two sacred principles of stability and responsibility. The principle of stability means that the government must manage the public finances in a transparent and predictable manner, in keeping with the objectives of high and stable rates of growth and employment. The principle of responsibility, for its part, means ensuring the long-term sustainability of decisions, while avoiding disproportionate tax burdens or excessive levels of public debt. Fiscal policy has two macroeconomic objectives: sustainability of the fiscal accounts and regulation of aggregate demand; clearly, efforts have been concentrated on the first of these, leaving the stabilization role –when it has existed at all– to monetary policy. In order to construct this new fiscal covenant, governments must recover greater degrees of freedom and take on a more active role in the task of reducing the volatility of the economies and improving their macroeconomic performance.

In this article, emphasis is placed on the importance of creating suitable conditions for the full operation of the automatic fiscal stabilizers in the design and application of fiscal policy (section II below). As in previous studies (Martner, 1996 and 1998), the aim is to prepare some simple indicators that will make it possible to assess the importance of the cyclical component in the public sector accounts in Latin America. Fluctuations in the level of economic activity have a significant influence on the public accounts and also have a stabilizing effect on GDP. The automatic fiscal stabilizers may thus be defined as those types of public income and expenditure which are directly linked with the economic cycle. For a given budget, when there is lower economic growth

there will be a public deficit whose counterpart is lower tax payments by the private agents. This apparent fall in taxes avoids a reduction in those agents’ income and excessive contraction of their expenditure, thus moderating fluctuations in their demand.

The automatic fiscal stabilizers help to stimulate the economy in periods of recession and moderate it in booms, thus exercising a regulatory function. Governments have the option of allowing these automatic stabilizers to operate without intervention, or strengthening or restricting their effects through discretionary policies. During a recession, for example, the instinctive reflex reaction of the authorities is to avoid an increase in the public deficit by applying pro-cyclical policies that tend to make the situation worse. It is therefore vital to weigh the mechanisms applied carefully in order to avoid over-adjustments that can seriously harm the general economic situation and the efficacy and efficiency of public policies.

If the aim is to seek a balanced budget in “normal” economic conditions, it is necessary to assess the influence and persistence of these automatic fiscal stabilizers in Latin America. The importance of these mechanisms depends on many factors, including the weight of the public sector in the economy, the progressiveness of the tax system, the existence of public employment and unemployment benefit schemes, and the sensitivity of unemployment to variations in the gross domestic product (GDP). These structural characteristics vary considerably from one country to another, and also over time.

What must be done above all, however, is to define what “normality” means, and with it the position of the economy in the cycle. Economic policy management is inconceivable without a due distinction between trends and cycles (section III). The old concept of the product gap is defined as the distance between the effective GDP and the trend GDP, and it seeks to provide a simple summary measure of such normality. Many methods have been proposed –both statistical and structural– for identifying the position of the economy with respect to its growth potential. In order to make a proper diagnosis it is of crucial importance to distinguish between three concepts

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that tend to be confused with each other: the potential GDP, the trend GDP and the mean GDP. The potential GDP is defined as the level of activity compatible with a stable level of inflation. The trend GDP may be distinguished from the mean GDP because it incorporates stochastic components, which means that the most recent years are assigned greater weight than those further back in the past. If trend growth and mean growth are confused with each other, this gives a linear representation of the GDP gap which may not properly describe the situation of economies subject to continual supply disturbances. The statistical methods used to estimate the potential GDP assume that it oscillates around the effective GDP, so that a sustainable growth rate cannot depart very much from the recent past, as recorded in the trend GDP. Subject to these clarifications, we can speak indifferently of the trend and potential GDPs, in so far as the former is the direct consequence of the latter. If what is sought is an elementary and immediate measurement of the GDP gap, the Hodrick-Prescott (HP) filter provides an estimate of the trend GDP, which is assimilated to the potential GDP through the assumption of symmetry of the macroeconomic cycle.

In this article, a detailed analysis is made of the estimation of the GDP gap for twelve countries of the region in the 1990s (section III). In order to facilitate comparative analysis, we have used the method of estimation employed by the European Commission, which (leaving aside the question of the virtues or shortcomings of this method) defines the GDP gap as the difference between the effective GDP and the potential GDP, expressed as a percentage of the latter.

In Latin America, the relative size of the cyclical public deficit depends on the magnitude of macro-

economic fluctuations and the sensitivity of public income to the level of activity. Using a number of simplifying assumptions, in this article we calculate the magnitude of the automatic fiscal stabilizers and present estimates of the cyclical balance of the non-financial public sector for twelve Latin American countries in the 1990s (section IV). According to these calculations, the cyclical component reaches maximum levels exceeding one percentage point of GDP in the countries with the highest tax rates and/or the greatest volatility, such as Argentina, Brazil, Chile, Peru and Uruguay. Although these figures are lower than those for the countries of the Organization for Economic Cooperation and Development (OECD), they are nevertheless quite significant, in view of the limited leeway for fiscal policy management in our region. Applying anti-cyclical policies is usually a complex matter in practice, but failing to do so may be even more harmful. What is involved is the creation, through explicit mechanisms, of the spaces necessary for the full operation of the automatic fiscal stabilizers. When short-term fiscal balance goals are fixed, both the national authorities and international agencies should take the effects of the prevailing situation into account.

Budgetary rules which provide for these mechanisms can not only ensure sustainability over time but also reduce the cyclical nature of the public finances, provided they are applied in a transparent and symmetrical manner. It is therefore necessary that there should be ongoing monitoring of the structural and cyclical components of public deficits, using standardized methods and up-to-date information, in order to focus discussion (and the required adjustments) on a medium-term horizon (ECLAC, 1998).

II

Creating spaces for the operation of the automatic fiscal stabilizers

As we have seen in the case of a number of countries of the region in recent decades, the budget may be involved in a situation of explosive (“snowballing”) growth of the public debt, in which a growing proportion of income is generally absorbed by interest

payments. Unless irresponsibly expansionary policies are being applied, this perverse dynamic is usually exogenous to the public sector. The stability of the debt/GDP coefficient depends of course on the difference between the growth rate of the economy

and the real interest rate at which the public sector is contracting debt. When the former rate is higher than the latter (positive differential) it is possible to finance a certain level of deficit by indebtedness without increasing the public debt burden, but when the differential is negative, the persistence of a primary deficit gives rise to explosive growth of the debt and of interest payments which endangers the solvency of the public sector. In this way, if the interest rate rises and the growth rate falls, the sustainability of fiscal policy is immediately brought into question.

Thus, a restrictive monetary policy has an adverse impact on the public sector, especially if the exchange rate rises and the public debt has a significant external component. The efficiency of exclusive and/or excessive use of monetary policy to stabilize the economy is open to doubt. Management of the interest rate helps to correct unsustainable movements in private expenditure, but it can also generate or aggravate a dynamic which is potentially destabilizing on the fiscal side. Lack of coordination between monetary and fiscal policies leads to a situation marked by excessively high interest rates and a high public deficit.

So, if the objective is to stabilize the public debt but monetary financing is not available, a situation of stagnation and high interest rates makes it necessary to generate increasingly large primary surpluses. When a public balance target is fixed independently of the evolution of the level of activity and the rest of the macroeconomic variables, budgetary policy becomes markedly pro-cyclical, reducing expenditure or increasing taxes every time the interest rate rises or the level of activity goes down. This type of budgetary management heightens the uncertainty of the environment in which private decisions are taken. By rationally anticipating this policy, the private agents will tend to act in a pro-cyclical manner, since a slackening of public demand will foreshadow a reduction in private demand. Thus, adopting deficit and public debt targets without considering their effects on macroeconomic stability pushes the economy towards a recessionary trap in which the deficit targets cannot be fulfilled because of the private sector adjustment and the fiscal adjustment further depresses private activity. The stabilizing potential of fiscal policy has not been sufficiently used in our region, which is marked by excessive fluctuations that adversely affect long-term growth.¹

¹ For an analysis of the correlation between real volatility and growth, see Martner (forthcoming).

1. Reducing the severity of economic cycles

The sustainability of fiscal policy is usually defined as a state of stability of the public debt in a deterministic world, but it can also be interpreted as a stationary state of that debt in a stochastic world (Hémin, 1997). The government is solvent if the public debt/GDP or public balance/GDP ratios are stationary variables. Sustainability is simply the long-term solvency of the government, which means that it must respect its inter-temporal budgetary constraints. What endangers the government's solvency is not so much a deficit as the persistence of deficits at an excessive level.

The neoclassical theory of tax smoothing holds that tax rates should be kept constant over the economic cycle in order to minimize the costs arising from distortive taxes. Optimal fiscal policy gives priority to sustainability over time, thus leaving room to adapt the public balance to the macroeconomic circumstances. The normative component is flexible, with a constant rate of taxation being preferred to an annual budget balance rule. Bohn (1995) considers that fixing ceilings for the deficit and the debt with a probability of 1 is an over-restrictive rule in a stochastic world.

The Keynesian view of this stochastic world is not very different from the foregoing. For traditional Keynesians, fiscal policy should ensure surpluses in situations of full employment and accept deficits in recessions, giving a zero average balance over the cycle. Although some authors do not emphasize it as much as it deserves, the principle of fiscal responsibility is an integral part of the traditional Keynesian message. As noted by Tobin (1993), the Keynesian macroeconomic concept applies to both sides of the medal: a fiscal surplus is the right means for containing excess expenditure, while a deficit is an element which can help to overcome situations of recession. Macroeconomic stabilization calls for counter-cyclical regulation of demand, applied in a reasonably symmetrical manner. The difference from the neoclassical view is that in this case it is legitimate to adopt more active regulatory policies, leading to more pronounced fluctuations in the fiscal balance, but always giving a result of zero over the cycle as a whole.

The degree of smoothing of the economic cycle achieved through the automatic fiscal stabilizers differs significantly from one country to another, depending on the structure of taxes and expenditure

and the degree of openness of the economy. Fiscal policy is naturally less efficacious in more open economies: much larger budgetary fluctuations are needed in order to obtain the same degree of stabilization of GDP. The OECD (1993) considers that, in the case of the European economies, the operation of the automatic stabilizers reduces the magnitude of cycles by 25%; Pisani-Ferry, Italianer and Lescure (1993) estimate a stabilizing effect of over 35% in Germany and France. In the case of more closed economies, such as the United States and Japan, the effect is even more significant, even though the fiscal stabilizers are smaller (OECD, 1993). In the case of the United States, Weise (1996) calculates that elimination of the anti-cyclical reaction of the public balance (offsetting the deficit with smaller expenditure) would increase the magnitude of recessions by between one-third and one-half. Finally, the European Commission (1997), using simulations carried out with the QUEST model, calculates that the stabilizing impact is around 30%: in other words, fluctuations in GDP are reduced by almost a third in comparison with a situation where the changes in public expenditure and income are not offset by others which compensate for them. As we can see, the role of the automatic stabilizers in fiscal policy management is once again being actively debated in the industrialized countries.

Let us now write the equation for the public deficit as follows (European Commission, 1997):

$$d = d_e - (\alpha + \beta)GAP \quad (1)$$

where d_e represents the fixed structural component of the public balance, α is the marginal sensitivity of the public balance to the GDP gap, β is the discretionary reaction of the authorities to the cycle, and GAP is the GDP gap, as defined below. The fixed structural component should be zero, if there is no deficit skew. The tax smoothing theory also assumes that there are no discretionary policies, so that $\beta=0$. In this case, the aim of fiscal policy is to maintain a constant tax rate, so that, as a corollary, the public debt absorbs the cyclical fluctuations, allowing the spontaneous automatic stabilizer mechanisms to come into action.

Curiously enough (albeit using different arguments), both old Keynesians and supporters of the new classical economics prescribe similar rules for fiscal policy. This kind of "theoretical agreement",

which gives priority to the objectives of tax smoothing and/or regulation of the level of activity rather than annual deficit targets, seeks consistency over time through explicit agreements on the control of the public debt throughout the cycle. A policy of this type, though optimal for the efficient management of the public finances, is based however on vulnerable and/or controversial assumptions, such as the need for a certain symmetry in the cycles and the absence of lasting effects of the latter.

Such theories accept that deficits may be legitimate or even necessary in periods of crisis, but the recommendation that surpluses should be generated in periods of full employment has been less successful, since there is ample evidence of a bias towards a structural negative balance. The absence of fiscal discipline in modern democracies has been analysed on the basis of the linked concepts of fiscal illusion and asymmetrical stabilization policies (Buchanan and Wagner, 1977). Fiscal illusion means that voters do not fully grasp the implications of the government's constraints over time. When they are invited to support a programme of expenditure to be financed with a larger deficit, voters overestimate the advantages of that expenditure and underestimate the future tax burden it will involve. Opportunistic politicians take advantage of this situation to increase expenditure more than income. According to this view, Keynesianism greatly encouraged the appearance of excessive deficits and the abandonment of the responsible rule of balanced fiscal accounts. In the past, Keynesian recipes have been asymmetrical: politicians are always ready to accept deficits in periods of recession, but they forget to generate surpluses once the recession is over. An argument close to the concept of the fiscal illusion is that of the policy cycle. Voters reward demagogic politicians without understanding, or without learning from the experience of their own or other countries, that expansionist policies must be paid for some day. At election time, politicians in the government expand public expenditure, which has to be financed by voters after the elections.

Recent publications explain the persistence of deficits and debts by institutional considerations. In this respect, Von Hagen (1992) investigated the importance of budgetary institutions in the evolution of indebtedness and prepared structural indexes for twelve OECD countries as a function of five national characteristics: i) the power of the Prime Minister, or

of the Minister of Finance, in negotiations within the government; ii) the limitations on parliamentary amendments; iii) the way the budget is voted in parliament (globally, or item by item); iv) the degree of transparency of the budget, and v) the flexibility of the budget implementation process. The information put forward in support of the structural hypothesis is convincing: the indicators on the type of budgetary institutions do indeed help to explain the differences in deficits and debt/GDP ratios between the OECD countries.

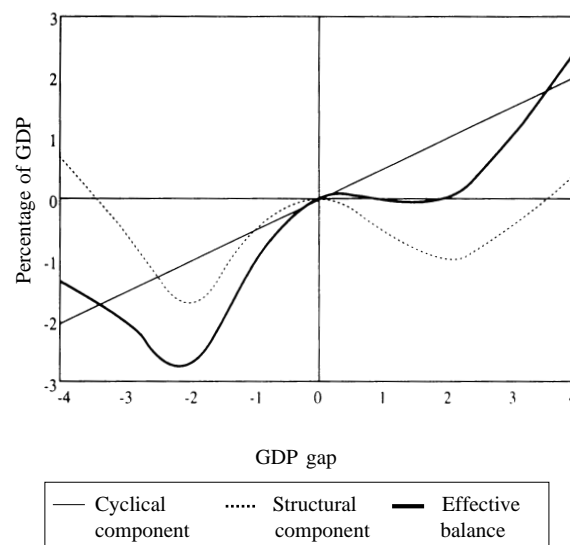
Alesina, Haussman, Hommes and Stein (1999) made a similar study for the Latin American countries, using information on legislation and effective budgeting practices obtained through questionnaires answered by the persons responsible for budgetary policy in the various countries. Indicators of budgetary procedures were constructed for twenty countries, on the basis of ten particular features of the process, ranging from restrictions and controls on public indebtedness to requirements for the adoption of amendments in Congress and including the degree of autonomy of local governments and public enterprises as regards decisions on indebtedness. The empirical results were consistent: when considering the various economic determinants of the deficit it was confirmed that procedures which are more clearly defined and/or transparent help to secure greater control over the fiscal deficit. Naturally, except in a few cases, the procedures are not responsible for the deficits, but it is also a fact that the prevailing institutional arrangements do facilitate or impede the capacity to react to imbalances arising from exogenous disturbances. The correction of excessively rigid procedures and of such common defects as lack of transparency and of cooperation among the different levels of government is essential if it is desired to recover control over budgetary processes, keep public indebtedness under control and, of course, improve the efficacy of public policies.

2. A transparent and consistent institutional design

However, discretionary fiscal policies usually display an asymmetrical approach which is reflected in an increase in the public debt/GDP ratio, even in periods of above-average growth. A study made in the European Union countries on the evolution between 1970 and 1990 of the cyclical and structural components

FIGURE 1

European Union: GDP gap and public balance



Source: European Commission, 1997.

of the public balance according to the GDP gap (European Commission, 1997) leads to some interesting conclusions (figure 1).

In this figure, the straight line represents the evolution of the cyclical component of the public balance in the European Union, as measured by the GDP gap, with the marginal sensitivity of the public balance to changes in the level of activity standing at 0.5. In other words, for the member countries as a whole, a variation of two points in the GDP gap is reflected in a deterioration of one percentage point of GDP in the public balance.

The benchmark situation is one where the discretionary component is zero: in that case the automatic stabilizers operate freely and the cyclical component will be equal to the effective balance.² As will be noted, this has not been the case in the European Union, where discretionary fiscal policies have been of a counter-cyclical nature when the GDP gap has been moderately negative (up to 2% of the potential GDP) or strongly positive (over 2% of the potential GDP). When there have been moderate contractions, in addition to the action of the auto-

² Figure 1 represents a stylized situation in which it was assumed that the discretionary deficit was zero in "normal" conditions during the period studied, although in reality it was close to three points of GDP.

matic stabilizers there has been a tendency to adopt expansionary fiscal policies, but when the GDP gap has been strongly negative governments have adopted pro-cyclical policies giving priority to short-term objectives of creditworthiness rather than regulation. In acute recessions, conflicts are heightened and it is very likely that the tendency to reduce the deficit will adversely affect the functioning of the economy. In these situations it is important to determine which is the lesser evil.

When the GDP gap is moderately positive, “mirages” tend to arise and fiscal policy tends to be relaxed, neglecting the opportunity to take action to deal with the structural component of the deficit. This is probably the commonest situation in which symmetry of fiscal policy could be secured. More determined action is called for when the economy is far above its trend level of growth, since this limits the effectiveness of economic policies and generates a bias towards a deficit and heavy public indebtedness.

As the consistency of fiscal policy over time is not something that takes place spontaneously, mechanisms must be established to secure this. The initial conditions of the public finances largely determine the reaction to episodes of recession. In the European Union, countries with moderate deficits and debts have managed to use the available room for action by applying stabilization policies. Contrary to what might be expected, the main stabilization instrument has been public expenditure in recessions, since the discretionary component of taxes has even increased (Buti, Franco and Ongena, 1997).

Preserving the intervention capacity needed to tackle adverse economic events calls for strict discipline in normal circumstances. Fiscal discipline and flexibility are thus two fundamental principles of budgetary policy in the present process of economic and financial globalization. Fiscal discipline is essential in order to give credibility to monetary policy, while flexibility is essential in order to cope with unexpected situations in a highly changeable macroeconomic environment. The first of these principles was expressed in the Maastricht Treaty, in the transitional phase to the European Monetary Union, while the second was a complement to the creation of the Euro in the Stability and Growth Pact signed in Amsterdam in the summer of 1997.

The aim of securing fiscal discipline meant that it was first of all necessary to establish eligibility cri-

teria for the formation of the single currency zone, imposing maximum limits for the deficit and public debt in terms of GDP, and then lay down penalties for countries that do not comply with them. The Maastricht Treaty established a ceiling of 3% for the public deficit, while the Stability and Growth Pact provided for a scale of penalties in the event of persistent excessive deficits. Continuing with the efforts to secure “fiscal virtue”, the Dublin Declaration of the European Council (Dublin, May 1998) recommends members to consolidate the situation in order to arrive in the medium term at a financial position close to balance or surplus. The fiscal situation sought by the European Union countries in “normal” economic conditions corresponds to a balanced budget corrected to take account of the influence of cyclical fluctuations in economic activity.

Although this latter condition is a stricter criterion than that of the Maastricht Treaty, it provides quite a broad degree of flexibility in fiscal policy management compared with models based on permanent balance. Since the historical average rate of public investment in Europe has been 3% of GDP, a reference value of 3% of GDP for the deficit is something like a “golden rule” in public finances: indebtedness is authorized if it stays within the limits of capital expenditure (Corsetti and Roubini, 1996). If investment is profitable for the public sector, it will assure future current income flows to cover the cost of the debt. The Maastricht Treaty may thus be interpreted as an implicit rule on current account balance in the public accounts. This golden rule, which is more flexible than those calling for a balanced budget and sustainable deficits, is based on a macroeconomic rationale: the budget must be neutral with regard to the consumption and saving decisions of private agents.

In England, the rules adopted for the budget since 1998 are as follows: i) throughout the cycle, the government will only contract debt for investment and not for financing current expenditure; ii) as a proportion of GDP, the public debt will be kept at a stable and prudent level throughout the cycle (see United Kingdom, 1998). The government undertakes to act within well-defined limits, but not in absolutely strict terms. A certain degree of discretionality is maintained, as the characteristics of the cycle are not precisely defined.

In contrast, the Stability and Growth Pact, which was signed by the countries making up the Euro

zone, defines an optimal medium-term path to follow, and in this sense it is stricter than the “golden rule” and the Maastricht Treaty itself, since they only define ceilings for the deficit. The Pact does however allow for more flexible interpretation of the requirements in terms of the balance, since it accepts higher (though limited) deficits due to transitory cyclical factors. The procedures for the acceptance of such deficits are clearly laid down in the “Protocol on Excessive Deficit Procedure”, which establishes the criteria on exceptions (excessive deficits must be due to situations outside the normal range of circumstances) and their transitory nature (the deficit can be kept outside the 3% limit only for a specified length of time). The exception clause can be invoked when the excessive deficit is due to some unusual situation which is beyond the control of the member State and has a significant impact on the financial position of the public sector. In the event of a recession which is more severe than expected, governments can exceed the 3% limit for a reasonable length of time, explaining the reasons for this. The Pact gives countries with an excessive deficit some leeway for adjusting their public accounts: they are not subject to sanctions when they suffer a recession of over 2% per year, and they can claim exceptional circumstances when the recession is between 0.75% and 2% (European Commission, 1997). As regards the clause on the transitory nature of the deficits, countries can maintain excessive deficits only during the year of the recession. If the Commission’s forecasting service indicates that the country is going to continue with an excessive deficit in the year following the period of recession, it is presumed that sanctions may be in order. Thus, correction of the excessive deficit must be completed within two years after its occurrence or one year after its identification, save when there are exceptional circumstances.

As Buti, Franco and Ongena (1998) point out, the ceiling of 3% of GDP for the effective deficit is not much different from a target for the structural deficit. The only difference is that the latter can be selected by the countries themselves, fixing the optimum “buffer” in line with their own preferences. In order to identify a safe medium-term target, the magnitude of the cyclical component of the deficit must be estimated. The establishment of spaces for the full operation of the automatic fiscal stabilizers in periods of recession would provide a further instrument for securing a more stable monetary policy. The

combined impact of monetary measures and the above-mentioned stabilizers should normally be enough to relieve transitory situations of recession (European Commission, 1997). As already noted, the efficacy of these policies depends to a large extent on the initial conditions, which is why it is so important to seek mechanisms that ensure dynamic consistency.

The Stability and Growth Pact was a significant advance in this direction. It establishes medium-term objectives in terms of balanced or surplus fiscal positions, and binds its members to present three-year stabilization programmes which specify how these objectives are to be attained. This combination of medium-term goals with annual follow-ups of the measures applied could be a very useful example for the Latin American countries, which are just beginning to address the question of macroeconomic coordination in the context of integration agreements.

In Latin America, countries have been unwilling or unable to use fiscal policy as a counter-cyclical tool. When countries are in recession, their main concern is to control episodes of financial insolvency, while in boom periods they tend to increase public expenditure. The automatic fiscal stabilizers must be understood in the strict sense, that is to say, as symmetrical mechanisms which operate in both phases of the cycle. Rather than defining the cycle precisely, it is necessary to recognize the close links between public income and expenditure, on the one hand, and the level of activity on the other, accepting a certain amount of deficit in exceptional circumstances but limiting it to a certain maximum level. This ensures sustainability over time, while at the same time maintaining enough flexibility to deal with situations of recession without making excessive adjustments.

If the condition of convergence of the effective GDP and the potential GDP is fulfilled in the medium term and the automatic stabilizers are allowed to operate symmetrically, the balance will average zero for the cycle and the country will retain its capacity to contract debt to deal with unforeseen situations. In this context, it is important to establish maximum limits for the deficit, with provision for cyclical fluctuations and some degree of fiscal discretionality. It does not seem desirable to fix strict annual numerical criteria, but rather ranges of values which ensure that the basic principles of policy management listed earlier are respected. A realistic attitude calls for the

maintenance of some flexibility in economic policy in order to keep open the possibility of intervention in an uncertain environment.

Active intervention policies may be arbitrary, with a possible bias towards excessive intervention, exaggerated public expenditure or deficits that it is hard to keep under control. Asymmetrical fiscal policies are not sustainable, giving rise to well-known consequences as regards economic/political cycles and/or the build-up of imbalances. Either for intellectual reasons or on the grounds of experience, many analysts tend to reject the model based on discretionary intervention because of the dangers of populism and fiscal irresponsibility that it involves. It seems desirable that outside limits should be established or that Congress or other State bodies should control possible excesses in the management of public expenditure and tax rates, in order to avoid potentially destabilizing fiscal cycles.

It is thus desirable to have mechanisms that ensure the consistency of fiscal policy, such as tax revenue stabilization funds (ECLAC, 1998). Compensatory mechanisms like these make it possible to save transitory income during boom periods and use it later to stabilize expenditure in times of crisis, thus helping to keep the public accounts "out of the red" by injecting the accumulated income into the budget when income is lower than expected and acting as automatic stabilizers of expenditure, thus avoiding the continuous "stop and go" syndrome in fiscal management; they also have the advantage of reducing the political costs of the cyclical deficit, since the way the system operates will be more transparent and will limit the inevitable debates on the budget in Parliament. Such funds would be built up with tax surpluses not foreseen in the budgets officially adopted during the period in question, and would be used when conditions become adverse.

Ireland has an emergency fund equivalent to 0.7% of GDP in order to deal with changes in the prevailing conditions (Ford, 1998). In Argentina, the 1999 Fiscal Responsibility Law included the establishment of the Fiscal Counter-cyclical Fund, which can be used to help out the regular budget in recessions which amount to three percentage points of GDP or more. The resources of the Fund cannot be used to finance permanent increases in current expenditure. In other countries, such a fund could be smaller, if the objective is to establish automatic mechanisms to soften macroeconomic fluctuations.

The estimated impact of the economic cycle on the budget for a GDP gap of 5%, a tax rate of 20% and an income-elasticity of taxes of 1 is one percentage point of GDP. It does not appear to be necessary to build up large amounts of reserves, but rather to ensure the continuity of public programmes, at least within the annual budget cycle.

In addition to the role of the traditional automatic stabilizers, an expenditure budget programmed for several years and less sensitive to short-term fluctuations would heighten the stabilizing impact of the public finances during the cycle and would undoubtedly increase the efficiency of public expenditure. As noted in a forthcoming ECLAC document: "the management of public expenditure should be governed, on the one hand, by clear criteria of long-term stability, especially in the case of operating expenditure. Its main counter-cyclical component should be social safety nets. Consequently, these safety nets, together with public revenue stabilization funds, should be the basic instruments for the counter-cyclical management of the public finances during the economic cycle".

Because of the weakness of the institutional machinery for social protection in Latin America, in some cases the operation of the automatic stabilizers alone might not be sufficient: in this event, it might be necessary to increase public employment or transfers discretionally. The thought of deficits or increases in public expenditure or transfers during period of recession might cause cold shivers, but what is needed is to prepare efficient plans of high social profitability which can absorb at least a significant part of cyclical unemployment. The mechanisms for this must be of a transitory nature, in order not to endanger the progress already made, and should be backed by the necessary political consensus in situations of excessive unemployment. In such cases, rather than trying to stimulate demand by reducing taxes, fiscal policy should seek ways of expanding demand through expenditure on public investment or incentives for private investment in infrastructural sectors.

If some degree of transitory deficit is accepted, subject to the commitment to generate a corresponding surplus later, or if there is a tax stabilization fund, programmes of this type would be sustainable. Suitable instruments for this purpose should combine various characteristics, such as being reversible and being capable of rapid intervention, in order not to

act too late and thus have a pro-cyclical effect on GDP. Such interventions call, on the one hand, for banks of duly evaluated projects, in order to avoid faulty resource allocation which would prejudice long-term growth, and on the other for due coordination with the decentralized agents responsible for making the investments. It must also be borne in mind that direct or indirect measures to stimulate demand produce their effects on the economy with a lag which is difficult to estimate, so that there is a danger of over-reaction.

Quite apart from complying with numerical objectives regarding the balance, a more active fiscal policy can help to regulate the short-term situation more effectively. In order for macroeconomic management to be efficient (especially when there are different types of disturbances), a growing consensus on taxation must be achieved among the economic agents, which means that instruments must be available for reducing private and public expenditure in conditions of excess demand. Such instruments could include taxes on households and companies and the fiscal adjustment itself.

Tax instruments can be used to check oscillations in private expenditure if the authorities have some degree of freedom to fix tax rates. Some interesting proposals have been made to establish ranges of permissible tax rates by law, so that the rates actually applied can be varied according to the current conditions. There may, however, be a dangerous temptation for the authorities to keep the rates always at their highest level in order to cover expenditure or achieve a surplus. In practice it has been very difficult to reach an agreement between the Executive and the Legislature on how to use tax rates efficiently for the purpose of stabilization. Although these rates are the most powerful instrument for managing the evolution of private expenditure directly and efficiently, they are only used to a very limited extent in Latin America.

The idea of flexible taxes is an attractive concept and would aid in macroeconomic management, but its application raises many problems. Thus, for example, if the flexible tax is the Value Added Tax (VAT) –say, in a range between 16 and 20%– its downward rigidity could be enormous as long as such strict deficit targets as those currently existing in Latin America are maintained. In other words, it may be very difficult to explain why a reduction in taxes is necessary when there is a risk that the public

balance may deteriorate in a situation of recession or why tax rates should be raised when there is a surplus in the upper part of the cycle.

From a macroeconomic viewpoint, management of personal income taxes withheld at source is the best instrument for short-term regulation. But how can this be explained to the few wage-earners who are subject to such taxes, who would bear the whole burden of the adjustments and whose take-home pay would vary from month to month? In these circumstances, consensus on taxation would be achieved with greater horizontal and vertical equity by broadening the tax base and reducing evasion. Flexible tax policies are only justifiable when tax collection ceases to be concentrated on only a few taxpayers. At present, it would seem to be simpler to progress in the direction of the establishment of stabilization funds or the creation of longer-term debt instruments. As already noted, expenditure is used much more than taxes as a counter-cyclical instrument. Furthermore, a temporary increase in expenditure on public employment or transfers would seem to have less regressive effects on income distribution than the (transitory?) reduction of taxes for the middle or high income deciles.

One of the main questions with regard to fiscal policy, as noted earlier, is the need for a clear separation between the transitory and permanent components of the public finances. The economic evolution of the Latin American countries in the 1990s has clearly shown once again that fluctuations due to events which are transitory or not sustainable in the medium term have played a dominant role in the performance of the public accounts. The challenge is to design instruments which guide the budget process towards a state of discipline with flexibility in which the transitory factors are clearly identified and which ensures a form of management consistent with the indispensable “fiscal covenant” required by society in the region (ECLAC, 1998).

Fiscal policy offers a powerful instrument for counteracting the temptation to apply expansive policies in boom periods and recessionary ones in times of crisis. In the words of Ocampo (1999): “paying too much attention to crisis management ignores a fact which ought to be evident: that national authorities’ freedom of action is greater in booms than in crises”. As the same author goes on to say: “national policies for coping with vulnerability should therefore be aimed at reducing the impact of domestic

macroeconomic cycles, reducing expansionary pressures on expenditure in boom periods, adopting monetary and fiscal policies and arrangements for the supervision and prudential regulation of financial systems which have the same effect, and avoiding the tendencies to exchange rate appreciation generated by an abundance of external resources”.

Rules may be defined as formal, observable restrictions on the behaviour of the economic authorities which should remain in force for a substantial period of time and involve substantial changes in conditions. In managing economic policies in general and fiscal policies in particular, imposing deterministic rules in a stochastic world can only mean introducing unnecessary rigidities. In contrast, a policy which retains a certain degree of discretion within the context of explicit rules (“rule-based discretion”), which seeks to ensure the application of

counter-cyclical rules in normal times but maintains the capacity to respond to unexpected situations, can improve global macroeconomic performance and prevent harmful fluctuations. We could think in terms of developing an increasingly “prudential” style of economic policy management (Boyer, 1999), with a form of management which is relatively autonomous but governed by explicit and socially agreed rules so as to minimize systemic risks, integrate positive and negative externalities, and facilitate policy coherence and coordination among the different powers. It must not be forgotten that the economic policy objectives in terms of inflation and unemployment form a public policy of the greatest importance and that it is therefore necessary to stimulate at this level too a style of management based on results which includes among its features transparency, responsibility and clear mechanisms for rendering accounts.

III

Estimation of the potential GDP

Economic policy management is inconceivable without proper distinction between trends and cycles. This distinction makes it possible to analyse the evolution of most of the macroeconomic aggregates, such as inflation, employment, the external deficit and the public deficit. In order to take decisions it is essential to be able to discriminate between the conjunctural component of a phenomenon, whose effects will go away with the return of the level of activity to its trend path, and the structural component, which is permanent and therefore calls for specific policies. Thus, in order to identify transitory phenomena, such as a temporary rise in the rate of inflation, a change in cyclical unemployment, a transitory increase in the external deficit or an increase in the cyclical public deficit, it is necessary to have a point of reference, a medium-term horizon which we may call “normality”. The old concept of the product gap, defined as the distance between the effective GDP and its normal level, represents a simple summary measure of the position of the economy in the cycle. For this reason, it is frequently used by empirical economists, and a large variety of methods have been proposed for making a diagnosis of the

position of the economy with respect to its growth potential.

This exercise is no trivial matter, especially in the Latin American countries. The question as to the potential growth of the economies of the region has given rise to various answers, ranging from near-euphoria to excessive pessimism. In view of the extraordinary volatility of the economies of the region, the task of identifying a medium-term path and then taking decisions in the light of that abstract concept might seem a complex and even useless exercise in periods of great turbulence and upsets, but it nevertheless contains an undeniable fact: that all agents, both public and private, need a medium-term horizon in order to take their decisions in a rational manner and thus provide suitable conditions for raising the potential growth rate.

Because of the importance of this matter –as Barrell and Sefton (1995) noted, in view of its importance it is a pity that the product gap cannot be measured directly– most international agencies and national planning bodies of the industrialized countries which engage in macroeconomic analysis publish their own estimates of the potential product of

those countries.³ This is not the case in Latin America, for at least three reasons. The first of these is economic: the degree of volatility has been so great in recent decades that it is very difficult to identify the economic cycle (in graphical terms, the evolution of GDP resembles a roller coaster rather than a landscape of gently rolling hills). The second is political: the concept of the potential product (the growth that could be achieved in view of the evolution of the global productivity of the factors of production) is often confused with a voluntaristic objective (the growth that needs to be attained in order to take care of social demands and reduce poverty, for example). The third reason is ideological: many analysts believe that economic reforms such as greater openness, privatization and reform of the labour market will raise the potential GDP, although in reality the restrictions have much more to do with difficulties in expanding the production frontier: excessive sluggishness of the capital accumulation process, slow spread of technical progress, and consequent stagnation of the global productivity of the factors of production.

This is why this exercise seems particularly important for the Latin American countries. In the final analysis, the potential GDP cannot depart much from the trend GDP (the two variables converge in the medium term), so that the estimation and use of the latter in taking decisions represents in itself an advance towards prudent management of fiscal and monetary policies. Ultimately, a sustainable growth rate cannot be very different from the average for recent years, and this should be reflected in the monetary and fiscal planning of the public authorities.

The potential product may be defined as the maximum level of product that can be sustained on a lasting basis without causing tensions in the economy and, more precisely, without causing inflation to speed up (Le Bihan, Sterdyniak and Cour, 1997). Thus, the potential product corresponds to the level of activity compatible with stable inflation. It may be defined as an indicator of aggregate supply, in a normal growth path, with a NAIRU-type natural unemployment rate (*non-accelerating inflation rate of unemployment*) and without situations of excess or

insufficient demand or the consequent inflationary or deflationary pressures. The growth rate of the economy would be constantly at “cruising speed”, with a stable rate of utilization of the capital and labour factors and a constant interest rate. The product gap (GAP) is simply the difference between the effective GDP (Y) and the potential GDP (Y^*), and the relation between the two may be written as follows:

$$GAP = \frac{Y - Y^*}{Y^*} \quad (2)$$

As the level of the potential product is an indicator of supply, the product gap represents the excess or insufficiency of aggregate demand, thus giving an indicator of the position of the economy in the cycle. In this sense, the potential GDP may be assimilated to the recent past performance registered in the trend GDP: the two variables converge in the medium term. It is also important to distinguish the potential GDP from the natural or optimum GDP, or the GDP at flexible prices, which may be defined as the maximum level of product attainable if the distortions in the economy due to the existence of positive marginal tax rates or imperfect markets are eliminated. This distinction is of fundamental importance: macroeconomic policy seeks to guide the economy in the short and medium term towards its trend GDP path and not towards its optimum level of flexible prices. To obtain the latter it is necessary to make structural reforms designed to improve the efficiency of markets by stimulating competition and reducing the rigidities associated with the process of fixing prices and nominal wages.

There are various methods of a statistical (trend adjustment, movable averages, Hodrick-Prescott filter) or structural nature (aggregate production functions) for estimating medium-term growth.⁴ The statistical methods define potential growth by calculating a past production trend, assuming that the observed GDP fluctuates around the potential GDP and that the latter can be evaluated as the observed trend GDP.

The most traditional way of calculating the trend GDP is by adjustment of the product logarithm over a linear trend. In this case, the trend and potential growth is constant and identical with the average

³ *World Economic Outlook*, of the International Monetary Fund; *Economic Perspectives*, of the Organization for Economic Cooperation and Development; *European Economy*, of the European Commission, and other estimates by the central banks and ministries of finance of the industrialized countries.

⁴ For an appraisal of the various methods, see Giorno, Richardson, Roseveare and Van de Noord (1995).

growth during the estimation period. In long series the observed growth rate has many points of change, however, so the segmented trends method is usually used instead. This method has the following stages: i) identification of past cycles; ii) estimation of the successive average growth rates for each cycle; iii) definition of a rule for the calculation of this average growth rate for the current cycle, and iv) calculation of the GDP gap from the difference between the observed series and the estimated series of average GDP levels. The potential GDP is estimated by means of a simple regression between the effective GDP and the trend variable; the cyclical component is simply the remainder of this equation.

The problem with this method is that it imposes a deterministic trend which does not provide for the occurrence of structural breaks within each cycle. It is generally accepted, however, that the GDP trend has stochastic and not only deterministic components. It is assumed that structural breaks in aggregate supply, although discrete, represent disturbances that have permanent effects. Consequently, as it confuses potential growth with average growth, a linear representation of the GDP gap does not appear to be a suitable description when the economy is subject to continual supply disturbances.

The Hodrick-Prescott (HP) filter, in contrast, seeks to identify the stochastic component of the trend by adjusting a series which varies over time without the need to define the structural break points. It estimates a trend which simultaneously minimizes a weighted average of the variance in the gap between the GDP and the trend GDP and the change in the growth rate of the trend GDP. The trend Y^* for $t = 1, 2, \dots, T$ is estimated by solving the following minimization problem:

$$\begin{aligned} \text{Min} \quad & \sum_{t=1}^T (\ln Y_t - \ln Y_t^*)^2 + \\ & \lambda \sum_{t=2}^{T-1} [(\ln Y_{t+1}^* - \ln Y_t^*) - (\ln Y_t^* - \ln Y_{t-1}^*)]^2 \end{aligned} \quad (3)$$

where λ is the weighting factor controlling the degree of smoothing of the trend curve obtained. A small value of λ gives a series close to the original (if $\lambda = 0$, then the two are identical), while a high value of λ reduces the sensitivity of the trend to fluctuations in the effective GDP (if $\lambda = \infty$, the trend

merges with the average growth rate of the effective GDP series). The value of the multiplier λ defines the number of years included in the weighted movable average: if its value rises, so too does the weight of the most distant years in the estimation of the trend GDP.

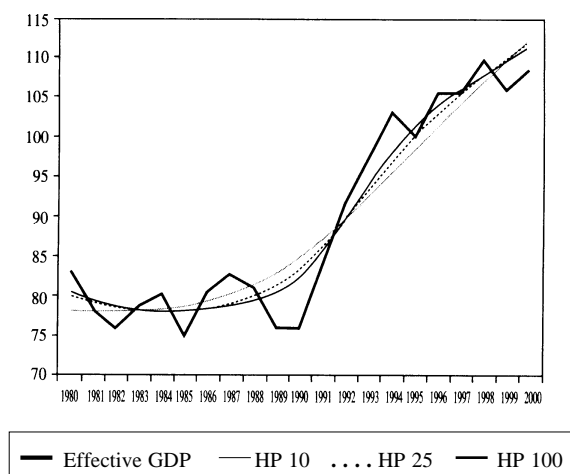
The problem is that an arbitrary value is assigned to λ , which determines the variance of the trend GDP estimation. The variance of the trend GDP falls as λ rises, and the size of the GDP gap thus increases. Hodrick and Prescott (1997) recommend values of $\lambda = 1600$ for quarterly series and $\lambda = 100$ for annual series. The empirical studies dealing with international comparisons use various values ranging from $\lambda = 100$ (Ongena and Roger, 1997) to $\lambda = 25$ (Giorno, Richardson, Roseveare and Van de Noord, 1995), $\lambda = 10$ (Doménech, Gómez and Taguas, 1997) and even $\lambda = 6.5$ (Pedersen, 1998). So far, there are no satisfactory statistical tests that make it possible to identify which trend-cycle breakdown is better than others. The selection criteria are not very clear: the main thing is to select a value of λ which generates cycles similar to those estimated with other methods (Giorno, Richardson, Roseveare and Van de Noord, 1995). The same value is generally chosen for all countries.

The Hodrick-Prescott filter is a symmetrical operator, similar to a movable average, and the GDP gap therefore comes to zero over the estimation period as a whole. Furthermore, GDP gaps are smaller in relative terms when estimation of production functions, for example, is used in the comparison. A classic problem of these filters arises when the behaviour of the starting and finishing points is not like the other observations in the cycle, so that the trend is stuck to the initial and final observations. Thus, for example, if there is less growth in the last year of the series the filter will underestimate the potential GDP for that year. The solution to this problem would be to make "reasonable" growth projections for two or more years. In our case, the results are presented with a lag of one year.

Series were available for twelve countries of the region,⁵ obtained from the GDP calculated by ECLAC for the period 1980-1998, the estimated GDP for 1999, and the projected GDP for the year 2000

⁵ Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Paraguay, Peru, Uruguay and Venezuela.

FIGURE 2

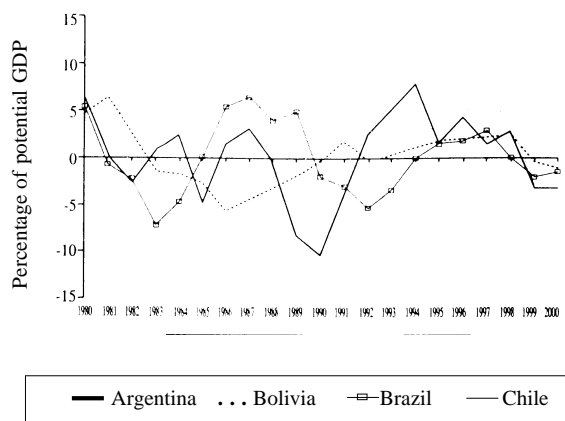
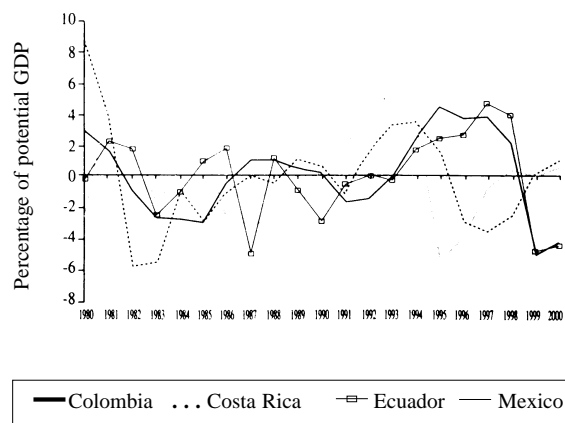
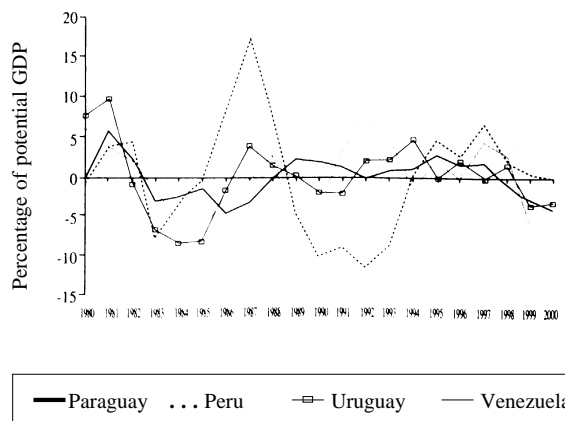
Argentina: Estimation of potential GDP for different values of λ


(ECLAC, 1999a and b). In order to give greater stability to the estimates for the end of the period, we generally try to close the gap in the projection period, assuming for this purpose that all the countries grow at the rate of 5% in 2001 and 2002.

The sensitivity analyses show that the value obtained for the GDP gap is quite uneven in the countries where there was the greatest variability. Figure 2 shows the GDP gap for Argentina, for different values of the parameter λ , and the differences are very marked. Thus, for example, in 1990 the GDP gap fluctuated between -10.5% for $\lambda = 100$ and -7.8% for $\lambda = 10$: a distance of over 25% between the two estimates. It is well known, of course, that any statistical estimation method has a very high degree of uncertainty. In order to facilitate the comparative analyses, we chose a value of $\lambda = 100$ for all the countries, as the European Commission does. It may be recalled that these calculations are the accepted reference values for all the signatories of the Stability and Growth Pact.

Let us now look at the results obtained for the GDP gap in the twelve countries in question (figure 3). This gap has fluctuated markedly in some Latin American countries: in the 1980s it varied between -11% and +17% in Peru, and in the 1990s it fluctuated between -10.5% and +7.5% in Argentina, contrasting with absolute values that rarely exceed 4% of the potential GDP in the industrialized countries (Buti, Franco and Ongena, 1998). This indicator is a

FIGURE 3

Latin American countries: GDP gap
A. Argentina, Bolivia, Brazil and Chile

B. Colombia, Costa Rica, Ecuador and Mexico

C. Paraguay, Peru, Uruguay and Venezuela


valuable instrument for identifying potential imbalances in the goods market, which show up first in the trade account and later in the prices of non-tradeable goods, and as an advance indicator it is useful for identifying episodes of excess demand which could foretell future inflationary pressures on the one hand and external sector imbalances on the other.

The GDP gap is calculated on the level of the trend GDP, with a filter which is similar to a movable average, is symmetrical and incorporates lags; consequently, cycles of excess demand or supply can last as long as seven years. The symmetrical nature of the filter is crucial when evaluating the GDP gap. The Chilean case is instructive in this respect. After uninterrupted growth at an average rate of 7% per year between 1990 and 1997, the 1998 slowdown and the subsequent fall in 1999 reduced the trend GDP. Thus, looking back, there was a positive GDP gap between 1991 and 1997 which symmetrically offsets the negative GDP gap of the years 1999 and 2000. Consequently, the period which was defined as “normal” was really a prolonged but transitory boom. It will be recalled that, with the Hodrick-Prescott filter, discrete breaks represent disturbances which have permanent effects. As already noted, it is not wise to confuse potential growth with average past growth without taking into account discrete episodes when the economy is subject to continual disturbances in supply. This means that the episode of recession is not neutral in the evaluation of future growth, so it is necessary to lower the estimate for the years to come.

The great virtue of the Hodrick-Prescott filter for generalized application in non-stationary time series is its simplicity. Many authors criticise the method because it does not involve estimation but rather an arbitrary separation between trend and cycle, without taking into account the properties of the series being studied. Furthermore, the estimation of the potential GDP does not incorporate any economic

structure, thus seriously limiting its use as an indicator of imbalances in the goods market. As an alternative to univariate estimation techniques, the method for estimation of an aggregate production function relates the potential GDP with the total productivity trends of the factors and the amounts of labour and capital used in the production process. As this filter is generally used to calculate exogenous technical progress and other elements of the production function, however, in practice the estimates turn out to be quite similar (European Commission, 1995).

A “third way” is to use semi-structural methods, like those used by the Central Bank of New Zealand (Conway and Hunt, 1997). The idea is to use a multivariate filter which uses the information contained in some macroeconomic relations to identify the variations in GDP which are attributable to disturbances in supply and demand. These authors enhance the Hodrick-Prescott filter with information on a Phillips curve, Okun’s Law, and a measure of the degree of utilization of installed capacity. To be more precise, they use the remainders of these three relations (between expected inflation and the GDP gap, between deviations of unemployment from its trend and deviations of GDP from its trend, and between deviations of the degree of utilization of installed capacity from its trend and the GDP gap) to calibrate a filter which makes it possible to identify disturbances in supply and demand. Although it is an interesting proposition, this methodology suffers from some weak points, such as the difficulty in determining the relative weight of each macroeconomic relation in the evolution of potential GDP and the greater demands in terms of information, especially when making comparisons between countries. In spite of its limitations, the Hodrick-Prescott filter seems an adequate solution if what is sought is an elementary and immediate measure of macroeconomic fluctuations which will make it possible to identify a “normal” horizon.

IV

The magnitude of the automatic fiscal stabilizers in Latin America

Variation in a component of public income or expenditure is cyclical when it is due to the difference between the observed product and the trend product. In the OECD methodology (Giorno, Richardson, Roseveare and Van de Noord, 1995), the deficit is broken down into a cyclical component and a structural one. The GDP gap is calculated as a percentage of the potential GDP, so that the cyclical balance is positive when the effective GDP is greater than the trend GDP and negative when it is smaller than it. Expressed as a percentage of GDP, the structural deficit is obtained from the difference between the global deficit and the cyclical deficit. The idea is that the structural or discretionary deficit constitutes a suitable indicator of the fiscal thrust: that is to say, the direction fiscal policy is taking.

In the case of many Latin American countries, this information is not enough, because there are many sources of non-tax income, ranging from the profits of public enterprises that export commodities to the income from privatization operations; furthermore, the variation in tax income is also due to other variables, such as inflation. For this reason, the concept of the structural deficit, as defined earlier, may not be a good indicator of the thrust of fiscal policy. Hereinafter, we will use "structural deficit" to refer to an indicator which could be described more exactly as the deficit "corrected for the influence of cyclical fluctuations in the level of activity". Nonetheless, fixing deficit targets which are independent of other short-term oscillations (such as commodity prices) is of prime importance. It is also necessary to define what is "normal" for these forms of non-tax income.

A decisive element in analysis of the magnitude of the automatic fiscal stabilizers is the weight of tax income in the economy and in the total resources of the public sector. In 1997, tax revenue of the non-financial public sector represented between 17 and 20 points of GDP in Argentina, Chile, Colombia, Uruguay and Costa Rica; between 12 and 14 points in Bolivia, Peru and Paraguay, and close to 10 points

in Venezuela, Mexico and Ecuador (table 1). In the last three countries, as also in Bolivia, tax revenue of that sector did not amount to even half of its total income. In Argentina, Chile, Colombia, Peru and Uruguay, in contrast, the proportion was much higher. Brazil is a special case: in 1997, tax revenue of the non-financial public sector was equivalent to 25 points of GDP, and this figure has now risen to nearly 30 points.

Once we know the relation between tax income and the GDP, all that is needed to obtain this breakdown is to estimate the income elasticity of taxes. The OECD indicator of discretionality breaks down taxation into its main components (taxes on goods and services, on companies and on households) and econometrically estimates the respective income elasticities, whose values depend basically on the tax structure and the progressiveness of the system. Table 2 shows these values as estimated by the OECD for some of its member countries. The income and profits of enterprises are very sensitive to the level of activity, which explains the high elasticity of revenue from taxes on companies, ranging from 2.4 to 4.5, depending on the country. Although the table shows total elasticity, the importance of the lags between the operations subject to tax and the actual collection of the tax should be noted. This means that the short-term or spot elasticity is much less than the long-term elasticity in the case of taxes on companies. The income elasticity of taxes on households, for its part, depends on the progressiveness of the system. The OECD estimates range from 0.4 to 1.4, with a simple average of 0.9.

In contrast, it may be assumed that indirect taxes have an elasticity of one (instantaneous). In reality, the elasticity of VAT, for example, depends on the breakdown of private consumption between durable and non-durable goods (in a recession, consumption of durable goods goes down more sharply and the elasticity of VAT with respect to total consumption is therefore greater than unity at such times, if there are differentiated tax rates); on the elasticity of the vol-

TABLE 1

Latin America (12 countries): Tax income and total income of the non-financial public sector, 1997
(Percentages)

	Percentages of GDP		B as a percentage of A
	A. Total income	B. Tax income	
Argentina	17.2	17.0	98.84
Bolivia	30.3	14.0	46.20
Brazil	28.9	24.8	85.81
Chile	33.5	19.4	55.94
Colombia	33.6	19.5	58.04
Costa Rica	29.8	16.5	55.37
Ecuador	23.8	9.1	38.24
Mexico	23.0	9.8 ^a	42.61
Paraguay	21.1	11.8 ^a	55.92
Peru ^a	14.2	12.0	84.51
Uruguay	32.0	18.4	57.50
Venezuela	31.9	10.1	31.66
<i>Total Latin America and the Caribbean</i>	23.3	13.9	53.46

Source: ECLAC, on the basis of official figures (see ECLAC, 1999a).

^a Refers to central government.

TABLE 2

Organization for Economic Cooperation and Development (7 countries): Elasticity with respect to GDP

	Taxes on companies	Taxes on households	Indirect taxes	Social security contributions	Current expenditure
United States	2.5	1.1	1.0	0.8	-0.1
Japan	3.7	1.2	1.0	0.6	-0.1
Germany	2.5	0.9	1.0	0.7	-0.2
France	3.0	1.4	1.0	0.7	-0.1
Italy	2.9	0.4	1.0	0.3	-
United Kingdom	4.5	1.3	1.0	1.0	-0.1
Canada	2.4	1.0	1.0	0.8	-0.3
Simple average	3.1	0.9	1.0	0.7	-0.1
Euro Zone	1.2	1.0	1.0	0.8	-0.2

Source: Giorno and Suyker (1997) for the countries and OECD (1999) for the Euro Zone.

ume of imports with respect to GDP (if this elasticity is greater than unity, the VAT collected on imported goods grows more rapidly than GDP; and on the relation between tax evasion and the economic cycle: aspects which are not usually taken into account in comparative analyses but which can be highly significant in some situations. Many of the recessions in Latin America are marked by drastic external adjustments in which private consumption –and above all its imported component– falls much more than GDP.

In this case, the elasticity would be much greater than unity. These factors must be taken into account when making analyses of the sensitivity to the level of activity in each country and each situation. The income elasticity of taxes with respect to GDP is an aggregate which seeks to represent a structural parameter, but it can vary on account of the many factors that affect the tax bases, both on the side of the components of aggregate demand and on the side of income. Finally, the elasticity of social security

contributions with respect to GDP is less than unity, which shows that they are less sensitive to the economic cycle.⁶

The mean aggregate elasticity depends on the tax structure of the country. An aggregate elasticity of one is estimated for the European Union, varying from 1.38 for Great Britain to 0.77 for Italy (European Commission, 1995). In countries where direct taxes, and above all taxes on companies, predominate this elasticity will be greater than unity, but in those where indirect taxes are more important this parameter is generally close to unity, on average. This is so in the case of the Latin American countries.

Tax reforms, of which there have been many in the region in the recent past, change the rates or bases of the main taxes, thus making the econometric estimation of tax elasticities very difficult. It is important to note that the results of breaking down the deficit are less sensitive to changes in the values of these elasticities than to changes in the measurements of the GDP gap (Giorno and Suyker, 1997). For this reason, we assume an income elasticity of one for all the countries. On the expenditure side, total elasticity in the OECD countries is -0.1 on average and varies as a function of the size of the transfers provided for under the unemployment insurance legislation. These protection mechanisms are practically non-existent in Latin America, so there are virtually no expenditures or transfers automatically linked to the economic cycle. Consequently, cyclical expenditure is not taken into account in the calculations below.

The methodology adopted tends to underestimate the cyclical component, by assuming an income elasticity of taxes equal to unity for all countries. Under this hypothesis, the relative size of the cyclical deficit depends only on two factors: i) the gap between the effective and potential GDP, which measures the distance between the effective growth of the economy and its medium-term path, and ii) the weight of taxes in total public income, which represents the proportion of revenue directly linked to the level of activity.

The marginal sensitivity of the public balance to changes in the level of activity is obtained by multiplying the aggregate elasticity by the rate of taxation.

Thus, for example, if the elasticity of taxes with respect to GDP is one, the tax rate is 40% and the product gap is -5%, the cyclical deterioration of taxes is two points of GDP. For the average tax rates in the region, which are of the order of 20%, the cyclical balance would be one point of GDP for a GDP gap of 5% and two points for a gap of 10%. In other words, the sensitivity of the public balance to changes in the level of activity is close to 0.2 (for each percentage point of the GDP gap, the public balance varies by 0.2 points of GDP), compared with the value of 0.5 calculated for the European Union on average (Buti, Franco and Ongena, 1998). Table 3 shows the marginal sensitivity of the public balance to changes in the level of activity in some European countries (for 1995) and in Latin America (for 1997). It also shows the size of the GDP gap and the cyclical deficit, with their maximum and minimum values, for 1960-1996 in the case of Europe and 1980-1999 in the case of Latin America.

On average, the cyclical balance fluctuated between -0.5 and 0.8 points of GDP during the 1985-1996 period in the OECD countries (Giorno and Suyker, 1997) and between -1.3 and 1.6 in the European Union in the period from 1960 to 1996 (European Commission, 1997). The range of variation is enormous, with maximum and minimum values of -4.1 and 3.2 for Sweden and -1.1 and 1.6 for Italy. These differences are connected with the size of the GDP gap and the marginal sensitivity of the budget to changes in the level of activity.

In the case of the Latin American countries, the size of the estimated GDP gap is noteworthy, with minimum values close to or greater than 10% in countries such as Argentina, Peru, Chile and Uruguay, and maximum values consistently over 5% of the potential GDP. This marked volatility of the level of activity (figure 4) has adverse consequences for the public deficit, even though the marginal sensitivity of the public balance in the region is far below that of the European Union.

If we combine these two elements –tax rate and volatility of GDP– the application of this methodology to the Latin American countries (table 4) brings out a cyclical component of the deficit which was significant in the 1990s, with values close to or higher than one point of GDP in Argentina, Brazil, Chile, Colombia, Costa Rica and Peru. It therefore seems worth estimating this component in order to evaluate the public accounts results properly. In

⁶ Other authors, however, estimate elasticities greater than unity for social security contributions: see, for example, Bosca, Doménech and Taguas (1998).

TABLE 3

European countries and Latin America: Magnitude of the automatic stabilizers ^a

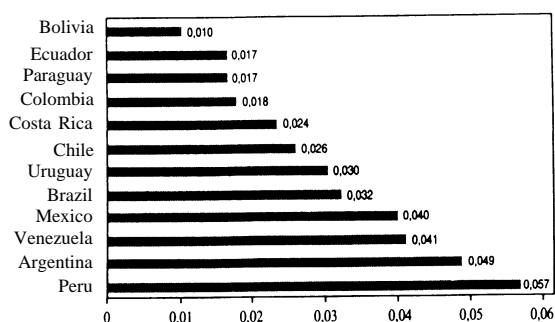
	Marginal sensitivity of public balance to GDP	GDP gap (as % of potential GDP)		Cyclical component of public balance (% GDP)	
		Minimum	Maximum	Minimum	Maximum
Sweden	0.9	-4.6 (93)	3.7 (90)	-4.1 (93)	3.2 (90)
Holland	0.8	-3.4 (83)	2.4 (74)	-2.9 (83)	1.8 (74)
Denmark	0.7	-3.6 (81)	3.8 (86)	-2.4 (81)	2.6 (86)
United Kingdom	0.6	-4.0 (82)	5.1 (88)	-2.7 (82)	3.1 (89)
Spain	0.6	-4.5 (60)	5.3 (74)	-2.1 (85)	2.7 (90)
Germany	0.5	-3.8 (67)	4.3 (91)	-1.8 (67)	2.4 (91)
France	0.5	-2.1 (85)	3.2 (90)	-1.1 (85)	1.6 (90)
Italy	0.5	-3.4 (75)	3.1 (80)	-1.2 (75)	1.1 (80)
European Union	0.5	-2.2 (83)	3.2 (73)	-1.3 (83)	1.6 (90)
Brazil	0.25	-7.3 (83)	5.5 (80)	-1.2 (92)	0.7 (80)
Colombia	0.19	-5.1 (99)	4.5 (95)	-1.0 (99)	0.9 (95)
Chile	0.19	-7.5 (83)	13.4 (81)	-1.3 (83)	2.6 (81)
Uruguay	0.18	-8.5 (84)	9.7 (81)	-1.1 (84)	1.6 (81)
Argentina	0.17	-10.5 (90)	7.5 (94)	-1.3 (90)	1.3 (94)
Costa Rica	0.16	-5.7 (82)	8.7 (80)	-0.7 (82)	0.9 (80)
Bolivia	0.14	-5.7 (86)	6.4 (81)	-0.6 (86)	0.6 (86)
Paraguay ^b	0.12	-4.5 (86)	5.7 (81)	-0.4 (86)	0.4 (95)
Peru ^b	0.12	-11.2 (92)	17.4 (87)	-1.1 (92)	1.5 (87)
Mexico ^b	0.10	-5.6 (95)	5.2 (81)	-0.5 (95)	0.6 (81)
Venezuela	0.10	-7.4 (89)	8.0 (92)	-0.6 (99)	0.5 (97)
Ecuador	0.09	-5.0 (99)	4.7 (97)	-0.5 (99)	0.4 (97)

Source: For the European countries: European Commission (1997). For Latin America: Economic Commission for Latin America and the Caribbean (ECLAC) and calculations by the author.

^a Numbers in brackets indicate year.

^b Refers to central government.

FIGURE 4

Latin America (12 countries):
Standard deviation of GDP, 1990-1999

Bolivia, Paraguay, Ecuador and Venezuela, in contrast, the cyclical component is only a little over 0.5 points of GDP. In Bolivia and Paraguay there were only moderate macroeconomic fluctuations in the 1990s, and in Ecuador and Venezuela the income from oil exports was equal to or greater than tax income. The breakdown presented here leads in some cases to a radically different interpretation of the public accounts results. In some situations, their deterioration is due to factors of a conjunctural nature rather than deliberate actions of the authorities. Thus, for example, the increase in the deficit in 1999 in Argentina was due exclusively to its conjunctural component. In this and other cases the position in the cycle conceals a structural effort to improve the public accounts.

The cyclical component is significant not only because of its importance in the annual budget but also because of its persistence over various periods.

TABLE 4

Latin America (selected countries): Cyclical and structural components of the non-financial public sector accounts,^a 1990-1999
(As a percentage of GDP)

Country and coverage	Variable	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999 ^b
Argentina NPS	Observed balance	-3.8	-1.6	-0.1	1.4	-0.2	-0.6	-1.8	-1.4	-1.2	-2.1
	Cyclical balance	-1.3	-0.5	0.4	0.9	1.3	0.2	0.6	0.2	0.4	-0.5
	Structural balance	-2.5	-1.1	-0.5	0.5	-1.5	-0.8	-2.4	-1.6	-2.8	-1.6
	Tax revenue	12.4	14.2	16.6	17.4	17.0	16.0	14.7	17.0	15.4	
	GDP gap	-10.5%	-3.7%	2.4%	5.1%	7.8%	1.5%	4.1%	1.3%	2.6%	-3.4%
Bolivia (operational)	Observed balance	-4.5	-4.3	-4.4	-6.1	-3	-1.8	-2	-3.4	-4.0	-4.2
	Cyclical balance	-	0.1	-	-	0.1	0.2	0.2	0.2	0.3	-0.1
	Structural balance	-4.5	-4.4	-4.4	-6.1	-3.1	-2.0	-2.2	-3.6	-4.3	-4.1
	Tax revenue	7.3	7.6	9.5	10.3	10.4	11.5	12.1	12.8	14.0	
	GDP gap	-0.4%	1.7%	-0.1%	0.3%	1.0%	1.6%	2.0%	1.9%	2.4%	-0.7%
Brazil NFPS	Observed balance	1.4	-0.2	-1.8	-0.8	1.1	-5.2	-3.8	-4.3	-7.5	-8.5
	Cyclical balance	-0.5	-0.7	-1.2	-0.8	-	0.4	0.4	0.7	-	-0.6
	Structural balance	1.9	0.5	-0.6	-	1.1	-5.6	-4.2	-5.0	-7.5	-7.9
	Tax revenue	25.0	21.5	21.5	22.7	25.2	25.3	24.6	24.8	26.7	
	GDP gap	-2.1%	-3.1%	-5.5%	-3.5%	-0.1%	1.4%	1.6%	2.7%	-0.1%	-2.3%
Chile NFPS	Observed balance	1.3	1.7	2.7	2.2	2.1	2.7	1.8	0.9	-0.8	-1.5
	Cyclical balance	-0.3	-0.2	0.5	0.5	0.2	0.7	0.9	1.1	0.7	-0.6
	Structural balance	1.6	1.9	2.2	1.7	1.9	2.0	0.9	-0.2	-1.5	-0.9
	Tax revenue	15.7	17.8	18.6	19.5	18.8	18.4	19.7	19.4	19.2	
	GDP gap	-1.8%	-1.1%	2.8%	2.7%	1.2%	3.8%	4.7%	5.9%	3.6%	-2.9%
Colombia NFPS	Observed balance	-0.5	0.2	-0.2	0.1	1	-0.6	-2	-3.1	-3.4	-4.6
	Cyclical balance	-	-0.3	-0.2	-	0.5	0.9	0.7	0.7	0.4	-1.0
	Structural balance	-0.5	0.5	-	0.1	0.5	-1.5	-2.7	-3.8	-3.8	-3.6
	Tax revenue	14.9	16.2	16.9	19.1	19.4	19.6	19.2	19.5	20.1	
	GDP gap	0.2%	-1.7%	-1.5%	-%	2.5%	4.5%	3.6%	3.7%	2.0%	-5.1%
Costa Rica NFPS	Observed balance	-2.5	-0.1	0.7	0.6	-6.6	-2	-2.7	-1.5	-1.1	-
	Cyclical balance	0.1	-0.2	0.3	0.5	0.5	0.2	-0.5	-0.6	-0.5	-
	Structural balance	-2.6	0.1	0.4	0.1	-7.1	-2.2	-2.2	-0.9	-0.6	-
	Tax revenue	14.0	14.4	15.1	15.4	14.7	15.7	16.4	16.5	17.0	
	GDP gap	0.6%	-1.2%	1.7%	3.3%	3.5%	1.5%	-3.0%	-3.7%	-2.7%	-0.1%
Ecuador NFPS	Observed balance	0.1	-0.6	-1.2	-0.1	-0.2	-1.4	-3.1	-2.6	-6.2	-4.0
	Cyclical balance	-0.2	-	-	-	0.1	0.2	0.2	0.4	0.4	-0.5
	Structural balance	0.3	-0.6	-1.2	-0.1	-0.3	-1.6	-3.3	-3.0	-6.6	-3.5
	Tax revenue	7.5	7.4	7.1	7.4	7.7	8.6	7.2	9.1	9.8	
	GDP gap	-2.9%	-0.5%	-%	-0.3%	1.7%	2.4%	2.6%	4.6%	3.9%	-5.0%
Mexico NFPS	Observed balance	-2.8	3.3	1.6	0.7	-0.3	-0.2	-0.1	-0.6	-1.2	-1.3
	Cyclical balance ^c	0.1	0.3	0.4	0.2	0.4	-0.5	-0.3	-0.1	-	-
	Structural balance	-2.9	3.0	1.2	0.5	-0.7	0.3	0.2	-0.5	-1.2	-1.3
	Tax revenue ^c	11.5	12.0	12.4	11.4	11.3	9.2	8.9	9.8	10.5	
	GDP gap	0.5%	2.1%	3.1%	2.0%	3.7%	-5.6%	-3.9%	-0.9%	0.3%	-0.1%
Paraguay NFPS	Observed balance	5.2	2.9	0.1	1.2	2.4	2.5	1.7	0.5	0.2	-1.5
	Cyclical balance ^c	0.2	0.1	-	0.1	0.1	0.4	0.2	0.2	-0.1	-0.3
	Structural balance	5.0	2.8	0.1	1.1	2.3	2.1	1.5	0.3	0.3	-1.2
	Tax revenue ^c	9.5	9.4	9.3	9.3	10.7	12.2	11.6	11.8	11.1	
	GDP gap	2.1%	1.3%	-%	1.0%	1.2%	3.1%	1.8%	2.0%	-0.7%	-2.7%

TABLE 4 (Concluded)

Country and coverage	Variable	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999 ^b
Peru CG	Observed balance	-2.1	-1.5	-1.5	-1.5	2.9	-0.6	-1.5	-0.8	-0.9	-2.6
	Cyclical balance	-0.8	-0.8	-1.1	-0.8	-	0.6	0.3	0.8	0.3	0.1
	Structural balance	-1.3	-0.7	-0.4	-0.7	2.9	-1.2	-1.8	-1.6	-1.2	-2.7
	Tax revenue	7.9	8.8	9.6	9.8	11.1	11.5	12.0	12.0	12.0	
	GDP gap	10.0%	-8.8%	11.2%	-8.6%	0.4%	4.9%	2.9%	6.9%	2.3%	0.7%
Uruguay NFPS	Observed balance	0.3	1.3	1.4	-0.8	-2.4	-1.3	-1.1	-1.3	-0.5	-2.5
	Cyclical balance	-0.3	-0.3	0.4	0.4	0.8	-	0.4	-0.1	0.3	-0.6
	Structural balance	0.6	1.6	1.0	-1.2	-3.2	-1.3	-1.5	-1.2	-0.8	-1.9
	Tax revenue	15.9	16.5	16.5	16.5	16.4	15.7	15.9	18.4	18.6	
	GDP gap	-1.9%	-1.9%	2.3%	2.4%	5.0%	0.1%	2.3%	-0.3%	1.7%	-3.2%
Venezuela NFPS	Observed balance	0.1	-2.2	-5.9	-1.3	-13.8	-6.8	7.2	2.6	-6.6	-4.0
	Cyclical balance	-0.1	0.2	0.4	0.3	-0.1	0.2	-	0.5	0.3	-0.6
	Structural balance	0.2	-2.4	-6.3	-1.6	-13.7	-7.0	7.2	2.1	-6.9	-3.4
	Tax revenue	4.0	4.6	5.0	5.8	8.8	9.2	8.7	10.1	11.0	
	GDP gap	-3.6%	3.7%	8.0%	4.9%	-1.3%	2.3%	-	4.8%	3.0%	-5.6%

Source: For public sector and tax revenue figures: ECLAC, on the basis of official data. For the GDP gap: calculations by the author, on the basis of ECLAC data, in 1995 dollars.

^a NPS = national public sector. NFPS = non-financial public sector. CG = central government.

^b The cyclical balance is obtained by multiplying the tax rate of the preceding year by the GDP gap. The values for the observed balance are naturally preliminary values.

^c Refers to central government.

Countries such as Argentina, Brazil, Chile, Colombia, Ecuador, Paraguay, Uruguay and Venezuela registered declines in their GDP in 1999 and hence strongly negative GDP gaps and cyclical balances. These were offset in some cases by a positive cyclical balance in previous years (since 1992 in Argentina and Chile and since 1994 in Colombia and Brazil): the condition of symmetry applied in these calculations should be borne in mind.

The reading of the results obtained is simple: in general terms, the cyclical component is seen to be an important factor in the improvement in the public accounts in the latter part of the 1990s. In many countries the reactivation of the economy at rates above the medium-term trend values led to positive fiscal results, although these were partly due to tran-

sitory resources. The 1999 recession is a factor which clearly shows the difficulty of establishing a "normal" horizon. For example, three or four boom years in succession tend to foster the perception of a higher growth potential, prompting slacker fiscal behaviour, but subsequent events show that these perceptions were over-optimistic. This is an important point to bear in mind in view of the fact that the failure of attempts at pluri-annual budgetary planning (to say nothing of political programmes) is due mainly to over-optimism about medium-term growth. It seems necessary to question this bias, using methods like those described above, in order to ensure a more consistent and transparent form of monetary and fiscal planning. The importance of this matter is beyond doubt.

V

Conclusions

Estimation of the potential GDP with the Hodrick-Prescott method provides an elementary and immediate measure of macroeconomic fluctuations. According to the results obtained, the GDP gap (as a percentage of the potential GDP) varied between -11% and 17% in the Latin American countries in the 1980-1999 period. In the European Union, in contrast, the same indicator measured by the same means did not exceed 4% of the trend GDP. Such marked volatility of the level of activity has adverse consequences for the public deficit, and these are even greater when tax revenue represents a considerable proportion of public income. It is essential to identify a "sustainable" medium-term path and to formulate fiscal policy as a function of permanent sources of income generated when the economy is on its trend path.

According to the calculations presented here, the cyclical component of the central government deficit amounts to a maximum of one point of GDP in Argentina, Brazil, Chile, Peru and Uruguay. Although this amount is less than the levels registered in the OECD countries (which may be explained both by the method used, which may introduce a downward bias in the results, and by the relatively lower importance of tax revenue in the GDP) it is nevertheless by no means negligible in absolute terms. The elasticity of the public balance to changes in the level of activity is estimated to be around 0.2 (for every percentage point of the GDP gap the public balance varies by 0.2 points of GDP). The average value calculated for the European Community is 0.5. The magnitude of the automatic fiscal stabilizers and the uncertainty of the macroeconomic environment therefore warrant the

adoption of prudent criteria regarding the management of the public finances, not so much in terms of precise annual deficit targets but rather in terms of simple and transparent rules which ensure their medium-term stability.

In this respect, the rules on fiscal policy should not be based on the observed deficit, but rather on its discretionary component. The most important criterion seems to be to seek a balanced budget in normal conditions, which means planning expenditure and income in the light of a medium-term view of public finance management, thus avoiding constant variations in its formulation and execution. In economies as volatile as those of Latin America, the public sector cannot become a sounding board for short-term fluctuations. Full operation of the automatic fiscal stabilizers in Latin America would help to smooth out cyclical fluctuations, thus increasing long-term growth, improving global macroeconomic performance, and preventing the generation of harmful disturbances.

Imposing deterministic rules in a stochastic world can only bring in unnecessary rigidities; what is needed instead is to construct a set of institutions which ensure the application of counter-cyclical rules in normal times, while at the same time maintaining the capacity to respond to unforeseen situations. Economic policy management must be increasingly cautionary and prudential, with a form of management which is flexible but subject to socially concerted rules and clear accountability mechanisms, so as to put into practice the principles of transparency, stability and responsibility.

(Original: Spanish)

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