Automatic Fiscal Stabilizers

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Automatic Fiscal Stabilizers:

How Can They Be Enhanced Without Increasing the Size of Government?

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CONTENTS   PAGE

EXECUTIVE SUMMARY

Fiscal policy can play an important role to help stabilize the economy during cyclical swings. Discretionary policy, however, typically involves implementation lags and is not automatically reversed when economic conditions change. In contrast, automatic fiscal stabilizers ensure a prompter, and self-correcting fiscal response. A simple rule of thumb applies: the larger government is, the larger are the automatic stabilizers. Government size is determined by several factors, however, typically unrelated to stabilization goals, and increasing it beyond a certain level may have efficiency costs.

This paper discusses how to enhance automatic stabilizers without increasing the size of government. We distinguish between permanent changes in the parameters of the tax and expenditure system (e.g., changes in tax progressivity) that will enhance the traditional automatic stabilizer, and temporary changes triggered by certain economic developments (e.g., tax measures targeted at credit and liquidity constrained households, triggered during a severe downturn). We argue that, with some exceptions, the latter are preferable as they can be implemented with lower disruptions in other fiscal policy goals (e.g., economic efficiency). Moreover, countries should also avoid introducing procyclicality as a result of fiscal rules, as these would offset the effect of existing automatic stabilizers.

I. INTRODUCTION

1.   The global economic crisis has shown that during large demand shocks, monetary policy may not provide a sufficient response, particularly, when its transmission mechanism is impeded by the conditions of the financial system. Discretionary fiscal policy can be used in these cases, but has two shortcomings: it suffers from implementation lags, including a political decision-making process influenced by multiple (possibly contradictory) considerations; and is not automatically reversed when the economic cycle improves, giving rise to a potential deficit bias. Automatic stabilizers do not suffer from these shortcomings. However, stabilizers are by-products of choices regarding fiscal policy and institutions that are not focused on macroeconomic stabilization. The automatic stabilizers depend on the size of government and the cyclical responsiveness of the tax system—a rule of thumb is that the size of the stabilizers approximately equals the share of government in the economy times the output gap.[2] In turn, the size of government and the design of the tax system reflect societal, philosophical, and political views on the role of the state, equity, and social safety nets. Increases in government size beyond a certain level may also weaken economic efficiency. An important policy question is, therefore, how the automatic stabilizers can be increased *without* raising the size of government.

2.   In considering this, we will look at:

- Permanent changes to the tax and expenditure rules that enhance the traditional automatic stabilizers (Box 1 provides a conceptual overview). These would enhance the automatic response by tax collections or transfer payments (especially related to unemployment) to cyclical changes; and

- Temporary changes to tax and expenditure rules triggered by specific macroeconomic thresholds being reached. An example is fiscal legislation predetermining changes to tax rates or transfer rules contingent upon the occurrence of a macroeconomic event (a recession or an increase in unemployment beyond the trigger level).

3.   The rest of the paper is structured as follows. Section II discusses the case for enhancing the automatic stabilizers. Section III discusses how the stabilizers can be enhanced without increasing the size of government looking at tax, expenditure, and fiscal rules. Section IV explores the scope for automating the fiscal policy response by linking some measures to macroeconomic triggers, and Section V concludes.

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[2] In the special case where tax collections change proportionally to changes in the output gap (an elasticity of one relative to the output gap) and primary expenditure is unchanged (an elasticity of zero), the automatic stabilizers are given by the revenue share in potential GDP times the change in the output gap. See Fedelino et al. (2009, forthcoming) for a fuller discussion.

Box. 1 Automatic Fiscal Stabilizers—Some Conceptual Issues

The automatic stabilizers reflect revenue and some expenditure items that adjust automatically to cyclical changes in the economy—for example, as output falls, revenue collections will decline, and unemployment benefits will increase. These changes will have a direct impact on the income of businesses and households. The effect of the automatic stabilizers will depend on the size of government but also on how responsive taxes and expenditures are to cyclical changes—one important, albeit not the sole, determinant of that is the progressivity of the tax system.

The automatic stabilizers widen the budget deficit when the output gap increases, and vice versa for a decrease in the output gap. This provides an appropriate fiscal response when the output gap is caused by demand shocks. However, if the economy is hit by a supply shock, offsetting this by fiscal demand changes will have inflationary consequences. As Blanchard (2000) shows, with a supply shock, the automatic stabilizers will slow down the convergence to the new potential GDP, hence requiring a fiscal adjustment.

How to estimate the size of fiscal stabilizers is an important issue, for example impacting the assessment of the proportion of a targeted fiscal expansion that will come from the stabilizers and what is needed in the form of discretionary measures. Reaching common understanding on the methodology for estimating the stabilizers across different countries will facilitate efforts to coordinate fiscal policy responses during a crisis. The automatic stabilizers are most commonly estimated with the elasticities approach, which are discussed in Appendix 1. More comprehensive guidance on how to estimate automatic stabilizers are contained in Fedelino et al. (2009).

II. THE ADVANTAGES OF STRONG AUTOMATIC FISCAL STABILIZERS

4. Automatic stabilizers do not suffer from the shortcomings of discretionary fiscal policy highlighted in the introduction. With large fiscal stabilizers, implementation is timely and gradual as tax and expenditure react in a countercyclical manner to changing economic conditions. No political decisions are required, and implementation lags are minimized. From a fiscal sustainability perspective, automaticity also provides a timely reversal of any fiscal expansion—the fiscal loosening in bad times is automatically followed by a tightening in good times. This may enhance the impact of a fiscal expansion on demand with respect to discretionary action, as the latter may raise solvency concerns and affect interest rates.

5. Altogether, there seems to be a case to increase the automatic stabilizers, not only in advanced countries but also in low-income and emerging market countries, where empirical evidence points to the prevalence of procyclical fiscal policies.[3] To the extent this procyclicality reflects a bias in discretionary fiscal policy, enhancing the automatic stabilizers would provide some countercyclical pushback. Of course, the decision as to whether the stabilizers should be raised needs to be made in light of an assessment of their initial level.

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[3] See for example Kaminsky et al. (2004) and Ilzetzki and Végh (2008).

6.   This said, there are some important caveats:

- Constraints on fiscal space, financing, and debt solvency may prevent a country from letting the automatic stabilizers operate (which would make the goal of raising the automatic stabilizers pointless). This also reinforces the importance of following prudent fiscal policies during good times. Financing constraints are typically more binding in developing economies with shallow domestic debt markets or limited access to external financing. Evidence of procyclicality in fiscal policy in these countries could also be a symptom of more severe financing and debt sustainability-related constraints.[4]

- Expanding fiscal policy would not be appropriate in the presence of large supply shocks, as this would simply create inflation. Thus, prudence is needed in raising the automatic stabilizers in countries exposed to large supply shocks.

- Raising the automatic stabilizers may have effects on other fiscal policy goals. This is particularly true if the increase is achieved by raising the tax (and spending) level. Equity goals might be enhanced by a larger size of government, particularly if it comes with higher progressivity. But, beyond a certain level, a larger size, and related higher taxes, would have efficiency costs.[5] This raises a key policy issue, namely how it is possible to boost the automatic stabilizers without increasing the government size.

III. ENHANCING AUTOMATIC STABILIZERS WITHOUT RAISING GOVERNMENT SIZE

7.   An increase in the automatic stabilizers can be achieved through tax and expenditure policy changes, as well as by an appropriate design of fiscal rules.

Tax Policy and Structure

8.   The more responsive tax collections are to changes in economic conditions, the larger are the revenue-related stabilizers. Taxes on income have higher output gap elasticities reflecting the progressive rate structure for personal income taxes and the close link to profitability for corporate income taxes (although there may be collection lags). Taxes on goods and services (particularly if consumption is less volatile than income) and payroll taxes and social security contributions (particularly if capped at a nominal level) have lower

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[4] Countries that rely on natural resource revenue face the additional impact of price and volume volatility in mineral extraction beyond the non-mineral economic cycle. These issues are not addressed further here.

[5] Indeed, while there is evidence of a negative relationship between government size and macroeconomic volatility, there are decreasing returns to fiscal stabilization beyond some level of government. The seminal contribution is in Galí (1994), further extended by Fatás and Mihov (1999). Buti et al. (2003) raise the issue of decreasing return to fiscal stabilization in the EMU context, while Debrun et al. (2008) provide evidence on this for OECD countries. They suggest that once the size of public expenditure approaches 40 percent of GDP, an increase in government size by one percentage point yields a reduction in output growth volatility of less than 0.1 percentage point.

elasticities. Taxes on capital gains, financial transactions, and real property may respond to volatile asset prices over and above the economic cycle (IMF, 2009, Appendix V). There is also some evidence that taxpayer compliance deteriorates during sharp recessions, leading to an additional loss in revenue (Brondolo, 2009). While this in principle would reinforce the impact of the automatic stabilizers, noncompliance can easily become entrenched, and it is therefore important for tax administrations to take steps to counter the recession-related deterioration in compliance.

9.   Tax levels and structures differ across countries, with tax ratios and revenue-related stabilizers being generally higher in advanced economies (Figure 1). Personal income taxes and payroll/social security contributions are more important in advanced economies, whereas in some emerging economies, corporate income taxes are relatively more important. Taxes on goods and services constitute a relatively larger share of revenue in emerging economies. Some countries also have high shares of revenue from property taxes (e.g., Canada, France, the U.K., and the U.S.) and taxes on capital gains or the financial sector (e.g., Australia, Italy, Korea, the U.K., and the U.S.).

Figure 1. Selected G-20 Countries, Tax Composition, General Government, 2000–2007
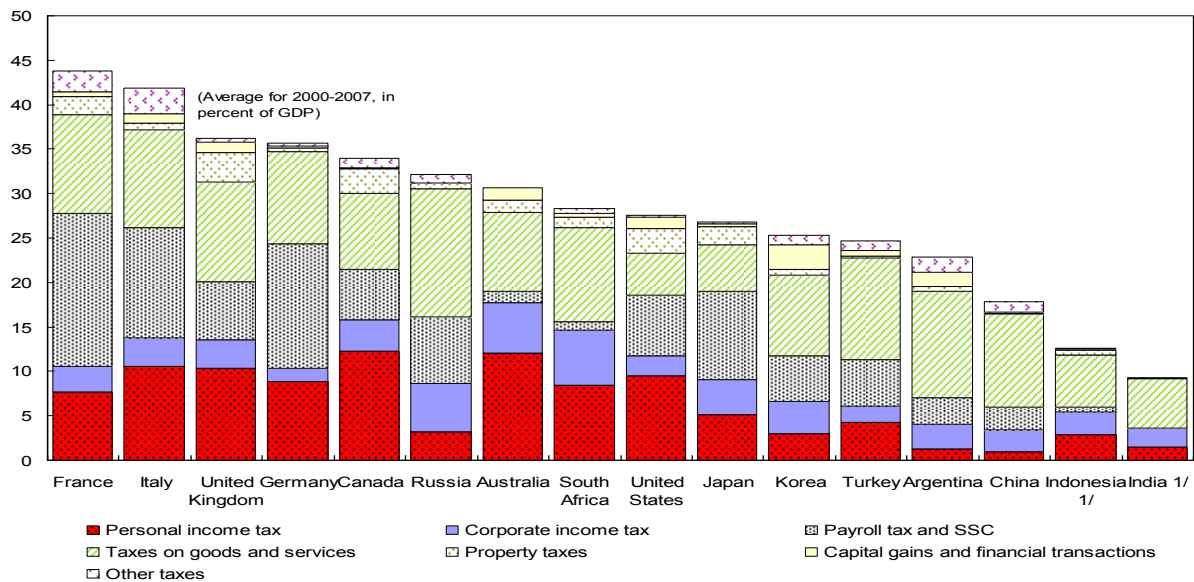
Sources: OECD Revenue Statistics, and IMF Government Finance Statistics.
1/ Central government only.

10.   In principle, the automatic stabilizers could be enhanced by raising the share of taxes collected from income-based taxes, given their higher income elasticities. However, the increase in the automatic stabilizers would be small.[6] Moreover, tax reforms in many

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[6] A shift in the composition of tax revenue by 5 percentage points (which is a very large change) from indirect taxes to personal income tax across G-20 countries would increase the automatic stabilizers on average by about 0.05 percent of GDP.

countries have aimed at rebalancing the tax burden toward taxes on consumption seeking efficiency gains, and a reduction in income tax progressivity (Norregaard and Khan, 2007). There are also structural and institutional impediments in many developing countries that limit the achievable increase in personal income tax collections. Efficiency and revenue considerations therefore provide an upper limit to how much the tax composition can be shifted toward income taxes.

Personal income tax

11.   Personal income tax rate schedules vary across G-20 countries from top marginal tax rates of 45 percent in Australia, China, and Germany to a flat tax of 13 percent in Russia (Table 1). There is even greater heterogeneity across countries in social security contributions (low thresholds and upper limits on contributions are common and make these less progressive).

Table 1. G-20 Countries: Features of the Income Tax System

	Personal income tax 1/		Social security contributions 1/	
	Top marginal tax rate	Number of non-zero income bands	Employee contributions	Employer contributions
Argentina	35	7	17	23-27
Australia	45	4	1.5 (Medicare)	9 (Superannuation)
Brazil	27.5	4	8-11	20-23
Canada	29	4	4.95	4.95
China	45	9	10.1 (Beijing)	20.4
France	40	4	18-24	20.6
Germany	45	4	20.075	20.075
India	30	3	13.75	17.25
Indonesia	30	4	2	7.24-11.74
Italy	43	5	8.9	40-45
Japan	40	6	12.2-12.9	12.5-13.3
Korea	35	4	7.335	8.2
Mexico	28	8	2.115	8.95
Russia	13	1	10-2	26-2
Saudi Arabia	…	…	9	11
South Africa	40	6	1	
Turkey	35	4	14	19.5-27
United Kingdom	40	2	0-11	0-12.8
United States	35 (fed.)	6	7.65	7.65

Sources: International Bureau for Fiscal Documentation; and PricewaterhouseCoopers.
1/ Tax and social security contribution rates in percent.

12.   Increasing the progressivity of the personal income tax would in principle enhance the automatic stabilizers, but does not seem to be the best way to achieve this goal. Progressivity can be increased by raising the marginal tax rates, or by expanding income-related benefits that act like a negative tax—such as the Earned Income Tax Credit in the U.S. or the Working Tax Credit in the U.K. Tax base broadening that reduces tax benefits favoring better-off households will have the same effect. Higher progressivity will reinforce both equity and stabilization objectives. However, increasing the marginal tax rates worsen the distortionary impact of taxes on labor supply and savings. The key problem, though, is that the increase in the automatic stabilizers that can be realized from reasonable increases in the level of progressivity is modest—simulations suggest that increasing the elasticity of the

personal income tax by 10 percent would increase the automatic stabilizers by only 0.01 percent of GDP (in response to a one percentage point increase in the output gap); for example, if income tax progressivity in the U.S. were equal to that of Germany, the U.S. automatic stabilizers would only increase by 0.03 percent of GDP (Appendix 2).

13.   Flat tax reforms have an ambiguous impact on progressivity and the stabilizers. Some countries have replaced progressive tax rates by a flat rate tax (among the G-20, only Russia). The intent has been to reduce distortions to labor supply and increase taxpayer compliance. While there is a common perception that this leads to lower automatic stabilizers, Keen et al. (2008) note that this is often not the case: if the flat tax is combined with a tax-exempt threshold, the automatic stabilizers can either increase or decrease depending on the progressivity of the pre-reform tax rate schedule, the level of the new threshold, and the taxpayer distribution.[7] With respect to taxpayer distribution, the effect on the stabilizers will be stronger the higher is the concentration of taxpayers just above the threshold.

14.   Progressivity also depends on whether governments seek to encourage socially-valued activities through taxable deductions or refundable tax credits. Many countries allow the deduction against taxable income of mortgage interest, retirement savings, education, and medical expenses. The value of the deductions depends on the top marginal tax rate provides larger monetary benefits to high income earners—and none at all to people with income below the taxable threshold. But this makes the tax deductions procyclical, to the extent that more taxpayers move into higher income tax brackets during an economic upturn. An alternative mechanism is to provide uniform, refundable tax credits, which would be relatively more important for low-income earners. By acting as transfer payments in downturns, they would smooth disposable household income and have a stabilizing macroeconomic impact (Batchelder et al., 2006).

Corporate income tax

15.   Another tax that responds strongly to changes in the economic cycle is the corporate income tax. However, while corporate profits are highly cyclical, there are usually lags in the transmission of cyclical changes to the collection of corporate income taxes. Collection practices vary across countries, but typically companies pay their income taxes in installments during the year assessed on either last year's actual income or on the basis of estimated income for the current year.[8] To strengthen the links between corporate tax

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[7] While the marginal tax rate will be reduced for high and often also low wage earners, flat tax reform typically implies an increase in the marginal tax rate for some taxpayers at the intermediate level of the income distribution. This must hold as long as the tax reforms increase the exempt amounts and are designed to be revenue neutral.

[8] For example, advance corporate income tax payments could be payable during year t at the end of Q2, Q3, and Q4 on the basis of estimated income for year t rather than the outturn from the previous year, with a final

payments and the economic cycle, the latter treatment would be preferable. Any change in corporate profits would then quickly be reflected in changes to the corporate tax collections.

16.   Firm losses increase during a slowdown, and their tax treatment will influence the automatic stabilizers. Companies that incur losses are typically allowed to write these off against taxable profits in future years (under loss carry-forward provisions). All G-20 countries allow at least 5 years of carry-forward, with many providing indefinite carry-forward. Some countries also allow losses to be offset against past profits (loss carry-backward), restricted to profits in the most recent 2–3 tax years (Table 2). The carry-backward provision qualifies a loss-making company for an immediate tax refund. There is a lively debate as to the merits in principle of loss carry-forward and back (IMF, 2009b). In practice, carry back is often limited by fear of abuse and reluctance to treat current tax payments as effectively contingent on future profitability. Nevertheless, allowing loss carry-backward does increase the automatic stabilizers. Where the capacity of the tax administration is sufficiently strong, it could be considered to provide loss carry-backward against the last 2–3 tax years, but possibly only on a temporary basis during recessions (see Section D). More generally, a fairly permissive approach to the use of tax losses in times of recession—in relation to mergers and acquisitions, for instance—can act as a form of stabilization and catalyze restructurings often needed in hard times.

Table 2. G-20 Countries: Features of the Corporate Tax

	Loss offset provisions		Corporate income tax (ordinary) 1/
	Carry-forward	Carry-backward	
Argentina	5 yrs.	None	35
Australia	Indefinitely	None	30
Brazil	Indefinitely	None	15-25
Canada	10 yrs.	3 yrs.	29-35
China	5 yrs.	None	20-25
France	Indefinitely	3 yrs. (tax credit)	33.3
Germany	Indefinitely	1 yr.	15.83
India	8 yrs.	None	30
Indonesia	5-8 yrs.	None	28
Italy	5 yrs.	None	27.5
Japan	7 yrs.	1 yr. (suspended)	22-30
Korea	10 yrs.	None	11-22
Mexico	10 yrs.	None	28
Russia	10 yrs.	None	20
Saudi Arabia	Indefinitely	None	20
South Africa	Indefinitely	None	28
Turkey	5 yrs.	None	20
United Kingdom	Indefinitely	3 yrs.	28
United States	20 yrs.	2 yrs.	35

Source: International Bureau for Fiscal Documentation.
1/ Tax rates in percent.

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payment at the end of Q1 in year $t+1$ adjusted to reflect final income in year t (and interest charges to penalize deliberate postponement of payments).

Expenditure Policy and Structure

17.　　Some expenditure programs, in particular unemployment benefits, have a stabilizing impact on disposable household income. Unemployment insurance programs are important in advanced economies, although much less widespread in developing economies. Even among advanced economies, there are noticeable differences—in particular, the duration of benefits in the U.S. is shorter than in most other advanced economies (Table 3). While this provides stronger incentives to increase job search efforts, typically one-third of unemployment insurance recipients exhaust their benefits before finding new jobs, it lowers the automatic stabilizers (Kletzer and Rosen, 2006). Other kinds of social spending may also be cyclical—e.g., if retirement goes up during recessions or health care demand switches from private to public sector providers, and possibly health conditions deteriorate.

Table 3. G-20 Countries: Unemployment Programs

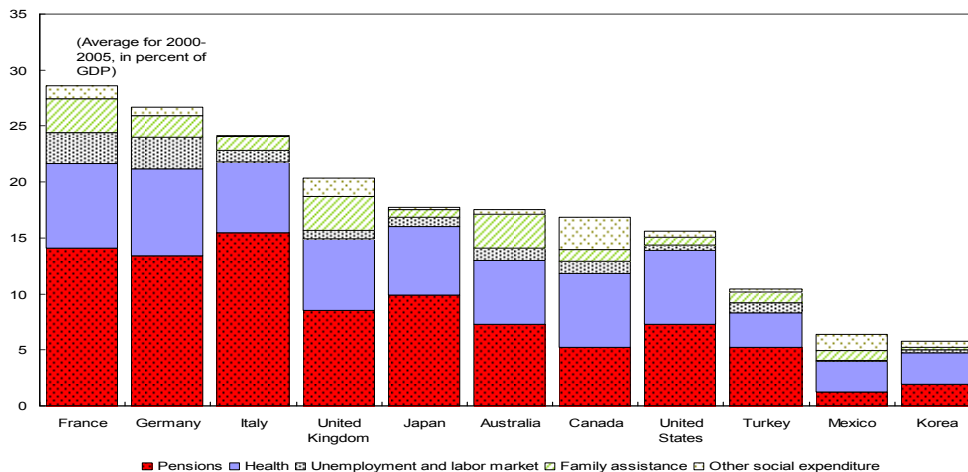|	Unemployment insurance			Unemployment assistance	
	Duration (in months)	Initial Payment (percent of EB)	Earnings Base (EB) 1/	Duration (in months)	Max. Benefits (percent of average wage)
Australia				No limit	20
Canada	9	55	Gross	N/A	
France	23	57-75	Gross	6	17
Germany	12	60	Net	No limit	10
Italy	7	50	Gross	N/A	
Japan	10	50-80	Gross	N/A	
Korea	7	50	Gross	N/A	
Turkey	10	50	Net	N/A	
United Kingdom 2/	6	10	Average wage	No limit	10
United States	6	53	Gross	N/A	

Source: Benefits and Wages 2007 (OECD)

1/ Either on gross income or net basis excluding taxes and social security contributions.

18.　　Differences in social spending patterns across countries therefore impact the automatic stabilizers. The level of social spending is highest in Europe, much lower in emerging markets, with Japan and Anglophone advanced economies roughly in the middle (Figure 2). Most of the differences between countries relate to spending on pensions and unemployment insurance, whereas public spending on health is more uniform (relative to GDP).

Figure 2. Selected G-20 Countries: Public Sector Social Spending, 2000–2005 [1]

1/ Data for Turkey for 1995−1999.
Source: OECD

19.   Although the standard unemployment insurance is less generous in the U.S., during recessions policymakers have typically taken discretionary actions to enhance unemployment benefits temporarily.[9] During recessions Congress has usually enacted a federally funded extension of unemployment benefits, a practice that was repeated with the Extended Unemployment Compensation program in July 2008 (Burtless, 2009).[10] The effect has been to make the unemployment insurance program more countercyclical. However, unless policymakers act in a timely manner, the cyclical response is likely to come with a lag.

20.   In emerging economies without comprehensive unemployment support, introducing a well-designed unemployment insurance program could have macroeconomic gains.[11] But where the implementation of more comprehensive reforms of the social safety net is likely to take time, a targeted cash transfer program could be applied or scaled up temporarily during economic crises.[12] In low-income countries, introducing comprehensive unemployment insurance may further exacerbate the segmentation between formal and informal labor markets. However, well-designed public work programs (with cash or in-kind remuneration ensuring an appropriate self-targeting at the poor) could be used in response to an economic shock.[13]

Fiscal Rules and Fiscal Federalism Arrangements

21.   Fiscal rules, including those related to fiscal federalism arrangements, can require discretionary policy changes that offset the operation of the automatic stabilizers. The impact of fiscal rules on the automatic stabilizers will differ depending on the specific type of rule.

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[9] The maximum duration of unemployment insurance is 26 weeks, funded by state-level taxes. The Extended Benefits program (co-funded with the federal government) provides an additional 13 or 20 weeks of unemployment insurance in states where the unemployment rate exceeds a trigger threshold. This was intended to provide a cyclical response to a pickup in unemployment. However, the countercyclical response has been muted as state governments have had incentives to adjust trigger conditions under the constraint of state level balanced budget rules.

[10] This program temporarily extended unemployment insurance by between 20 and 33 extra weeks, with increased weekly benefit payments, fully financed by a federal transfer to the states.

[11] In Korea, following the 1997 crisis, the adjustment process was eased by the introduction of an unemployment insurance program.

[12] For example, the response in Jordan during the food and fuel price crises in 2007.

[13] As was done in Malawi during the food crisis in 2005–06. On a larger scale, India has a regular program (National Rural Employment Guarantee Scheme) guaranteeing 100 days of work at basic pay which provides an important safety net.

- Expenditure rules that set a ceiling on the level of spending will prevent cyclically-sensitive expenditure items (foremost unemployment insurance) from responding in a downturn (while ceilings would allow the automatic stabilizers to operate in an upturn).

- The effect of debt ceilings depends on whether they are initially binding. If debt is below the ceiling, there is no immediate constraint imposed on the automatic stabilizers. However, if debt is close to the ceiling, a weakening in the cyclical balance would require offsetting discretionary tightening, limiting the stabilizers.

- Simple rules on the fiscal balance will also work against the stabilizers. If the cyclical fiscal balance deteriorates, a fiscal balance rule—or any rule involving a ceiling of the balance in nominal terms or in percent of GDP—will require offsetting discretionary tightening.[14] The same holds for budget rules imposed at the subnational level. An example of this are the balanced budget rules for state governments in the U.S.

22.   Avoiding procyclicality in a balanced budget (or equivalent) rule is a major issue in fiscal rule design (see Kumar and Ter-Minassian, 2007). Solutions essentially involve (i) balance-over-the-cycle rules; and (ii) rules on structural (cyclically-adjusted) balances.

23.   Balancing the budget over the economic cycle provides a medium-term orientation to fiscal policy, offsetting deficits during downturns by surpluses during upswings. The rule ensures fiscal policy is countercyclical by allowing the automatic stabilizers to operate freely. Discretionary countercyclical action is also allowed. The practical constraints on the applicability of this type of rule arises from the inherent difficulties in judging start and end points of the economic cycle; this is sensitive to the projected growth trend and impacted by frequent data revisions. This uncertainty increases the perception, occasionally reflecting reality, that policymakers seek ways to circumvent the rule given this ambiguity about the cycle. One way to counter this credibility gap is to establish an independent fiscal council to determine the dating of the cycle and to monitor compliance of fiscal policy vis-à-vis the rule.

24.   Targeting the structural balance also allows the automatic stabilizers to work. The rule is built around annual targets for the balance after removing the cyclical components of revenue and expenditure. The overall budget balance will then weaken during downturns and strengthen through upturns. The implementation of the structural balance rule will be weakened by any deficiencies in the underlying cyclical adjustment to the fiscal data (Appendix 1). Given the potential data shortcomings and uncertainties, it is important that efforts are taken to build strong support and understanding of the approach used in adjusting the fiscal data for the purpose of the structural balance rule. The credibility of a potentially

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[14] Likewise, revenue rules, including linking expenditure to earmarked revenues (e.g., for road maintenance), will also typically involve procyclicality.

contentious adjustment would be boosted if an independent fiscal agency was tasked by overseeing this.

25.   Neither of these solutions could be applied at the subnational level. For the latter, the best approach involves increasing transfers from the central government in response to cyclical swings. By mid-2009, worsening revenue forecasts required most states of the U.S. to implement expenditure cuts to balance their budgets. Federal government funds from the 2009 stimulus package have thus been transferred to states partially reducing their need to cut unemployment insurance, health and education, and other expenditure programs. 24 out of 25 states reporting to the National Conference of State Legislatures have used federal transfers to close their budget gap (NCLS, 2009). In this case, the system could be made more automatic through triggers (see below).

IV. AUTOMATING THE DISCRETIONARY FISCAL RESPONSE

26.   An alternative to enhancing the traditional automatic stabilizers is to have temporary fiscal policy changes triggered by economic developments.[15] The aim of such proposals is a faster decision making process, shielded from political interference, that ensures a timely fiscal response. Another advantage is that by committing in advance to specific fiscal policy action contingent on economic developments, uncertainty about the fiscal policy framework during a recession should be reduced. By removing the lags that constrain the discretionary policy response, this would be similar to increasing the automatic stabilizers. Admittedly, this equivalency would not necessarily apply to the scale of the fiscal response: automatic stabilizers would still allow for a more gradual response closely related to the evolving output gap, whereas any discretionary response would be more lumpy.[16]

27.   To avoid adding to the deficit bias, the automatic measures could be symmetric—an expansionary measure during a downturn could be offset by a tightening during the cyclical upswing, leaving the fiscal balance unchanged over the cycle. However, the advantages of this must be weighted against the cost of too frequent policy changes, especially to the tax system. A better approach may be to underpin the trigger-based fiscal framework with an explicit objective of creating sufficient fiscal space for the triggers to operate during a downturn (e.g., anchored by an appropriate medium-term fiscal rule).

28.   There are several design issues to consider. The macroeconomic trigger must be carefully chosen, capturing the underlying economic deterioration while being sufficiently forward looking. To avoid too frequent changes to tax and expenditure rules, a cautious

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[15] Such a proposal is not new (for example see Blanchard, 2000), but has so far had limited application.

[16] Elmendorf and Furman (2008) observe that automatic stabilizers operate like a dial with gradual adjustments to shocks, whereas an automatic discretionary policy operates more like a switch—with a substantial fiscal effort being applied above a trigger threshold.

approach is probably also warranted so that only severe recessions trigger the fiscal response. The tax and expenditure policy packages should contain fiscal items with high multipliers to ensure the maximum fiscal impact. These measures could be perceived controversially, as they require policymakers to preapprove fiscal policy changes contingent on the state of the economy. Indeed, there may be political economy reasons why policymakers prefer to be seen as acting forcefully after a crisis hits.

- *The economic trigger indicator.* Where an independent agency determines whether a country is in a recession, the temporary fiscal measures could be linked to such a determination.[17] But as the official dating of a recession is often only made months after it has actually started, the fiscal response would not be timely. A more mechanical approach would be to use quarterly GDP growth. For example, Seidman and Lewis (2002) proposed that a transfer (or tax rebate), with the size varying depending on the output gap, would be triggered by a decline in real GDP "below normal." The problem with this trigger is that the compilation of GDP also involves a time lag, usually of several months, again delaying the fiscal response. More timely data are available for monthly employment or unemployment data, typically with a lag of, at most, weeks. For example, Feldstein (2007) proposed a conditional fiscal stimulus package for 2008 to be triggered by a three-month cumulative decline in payroll employment, and end when employment begin to rise or when it reaches its pre-downturn level.[18] This is a more appealing approach, although changes in employment may lag output developments. A more timely fiscal response could instead be achieved by using forward-looking triggers. Although this increases the chances of projection errors, giving rise to a credibility problem if data revisions subsequently imply that a fiscal policy measure was implemented erroneously, this would ensure a more timely fiscal response. In many developing countries, however, it will take time to develop the capacity to forecast economic variables. In general, the credibility of the economic forecast may be enhanced if this is prepared by an independent fiscal council.

- *The design of an automatic tax policy.* Temporary tax policies targeted at low-income households, that are more likely to be credit or liquidity constrained, would have larger multipliers. Rebates of personal income or payroll taxes, as proposed by Feldstein (2007), preferably providing tax refunds to wage earners with no current tax

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[17] In the U.S., the National Bureau of Economic Research dates the business cycle turning points using a variety of monthly indicators in addition to quarterly GDP. The approach is retrospective, with the start of a recession usually only being identified many months after it actually has started.

[18] Elmendorf and Furman (2008) illustrate a variant of Feldstein's proposal with fiscal stimulus triggered when the three-month change in employment is negative for three months in a row. When applied to U.S. data for the last 40 years, this revised trigger would have led to nine episodes of fiscal stimulus compared to 15 under Feldstein's formulation, removing the shortest stimulus periods.

liability, would seem suitable. A temporary reduction in consumption taxes (such as the VAT) would provide a short-term boost to consumption.[19] Temporary investment tax incentives, especially if aimed at overcoming liquidity and credit constraints that are more prevalent during a recession, may be powerful. Cyclical investment tax incentives could play a role,[20] although they may have unintended effects by reducing current investment if firms anticipate that the trigger threshold is close to being reached.[21] Temporary job creation tax credits when unemployment exceeds a certain level would seem well-targeted, although they may provide incentives for employers to fire people as the unemployment threshold is approached, only to rehire staff later to benefit from the subsidy. It could also be considered to temporarily allow losses to be offset against profits from the last 2–3 years resulting in tax refunds. As with all tax measures, the detailed design would be important to limit the scope for abuse.

- ***The design of an automatic expenditure policy.*** Depending on how comprehensive existing safety nets are, temporary transfers could be targeted at low-income or liquidity-constrained households. For example, unemployment benefits could be enhanced whenever unemployment exceeds certain thresholds. In the U.S., this would automate the discretionary response that has anyway taken place during recessions. A similar approach could be applied in other countries with more generous unemployment systems. However, to avoid exacerbating job search disincentives a symmetrical application may be needed, requiring benefits to be scaled back in the baseline situation. Rules-based transfers to states in federal structures could reduce the need for offsetting fiscal cuts at the state government level. Ideally, the transfers should reflect the regional depth of a recession (e.g., based on differences in the unemployment rate or regional measures of GDP growth), to avoid rewarding past fiscal profligacy.

29.   There has also been some discussion in the academic literature seeking more comprehensive ways to automate fiscal policy. Solow (2005) considered the implications of an "automated" Fiscal Policy Board that would have a "standard stabilization package" allowing for discretionary expansionary or contractionary adjustments automatically keyed to change in some economic indicator. However, Solow himself expressed some skepticism

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[19] In the U.S. where sales taxes are assigned to the states, this would require offsetting increases in federal transfers to avoid state-level expenditure cuts given balanced budget rules.

[20] One (albeit dated) example of a countercyclical investment tax incentive that addresses the cash flow and credit constraint is the Swedish Investment Fund in the 1950s and 60s (Taylor, 1982). This allowed firms to deduct from taxable profits an additional capital allowance with a fraction of this to be deposited with the central bank interest free. During recessions, firms were then permitted to withdraw funds tax-free for investment.

[21] Auerbach (2005) discusses evidence of this for temporary bonus depreciation schemes in the U.S.

about how effective frequent changes in expenditure programs and temporary changes in tax rates would be in influencing private behavior. There are also practical challenges in turning these ideas into reality, with likely resistance to any proposals that would be seen as removing too much discretionary authority from policymakers.

V. CONCLUSIONS

30.   In our search for ways to enhance the automatic stabilizers without raising the size of government, one first conclusion is that permanent changes in tax and spending parameters— the first approach we considered—are unlikely to be effective and could involve undesirable side-effects. Fore example, shifts from indirect to direct taxes or increases in the progressivity of the personal income tax have very limited impact on the stabilizers, and may weaken economic efficiency. This said, measures in this class that could be considered include:

- Switching from tax deductions to uniform, refundable tax credits for socially-valued activities.

- Assessing the corporate income tax on the basis of estimated current income rather than last year's actual income.

- Developing alternative safety net mechanisms in countries without comprehensive unemployment insurance (e.g., targeted cash transfer programs in emerging market economies and public works programs in low-income countries).

- Designing fiscal rules that would avoid the need for discretionary actions that would offset the automatic stabilizers (e.g., targeting the cyclically adjusted fiscal balance).

31.   A more promising approach seems to be changing temporarily tax and expenditure parameters in response to macroeconomic developments. This includes:

- Temporarily providing a time-bound rebate in personal income tax or a reduction in VAT or sales tax rates during severe recessions.

- Temporarily allowing corporate tax losses to be offset against past profits (loss carry-backward) during recessions qualifying some taxpayers for tax refunds, and possibly a more permissive attitude to transfer of losses.

- Providing a state-contingent response in unemployment insurance extending and/or scaling up benefits when unemployment exceeds a certain threshold.

- For federal structure countries, automating a system of federal transfers to states during severe recessions.

Even in these cases, care would have to be paid in selecting the appropriate trigger, although practical constraints do not seem to be insurmountable.

APPENDIX 1. ESTIMATING AUTOMATIC STABILIZERS

32.   The size of the automatic stabilizers is commonly estimated by the elasticities or the econometric approaches. Under the elasticities approach, the elasticities with respect to the output gap of different components of the budget are estimated separately. This provides a measure of the overall sensitivity of the budget to changes in the output gap. The OECD has over the years refined a methodology to estimate the cyclical sensitivity of the budget (Box 1), which is used to derive cyclically adjusted data series for revenue and expenditure. The European Commission applies the same methodology for the budgetary surveillance of EU member states (EC, 2005). For cross-country fiscal analysis, the IMF uses a similar approach with simplifying assumptions on revenue and expenditure elasticities for countries where more detailed data are not available (IMF, 2009, Appendix V).

33.   There are appealing features of the elasticities approach, not least that it ensures methodological consistency in cross-country comparisons. It also captures the heterogeneous impact on the automatic stabilizers of different taxes. But a shortcoming is that the elasticities become effectively time-invariant, as the estimates are updated only infrequently, and methodological refinements make it difficult to compare different vintages of the elasticity estimates. More recent tax policy changes that influence the elasticities may not be fully reflected in the estimates—e.g., the most recent elasticities prepared by the OECD reflect tax legislation in 2003. Moreover, the approach is quite restrictive on the expenditure side by taking a narrow view of the expenditure categories that are cyclical in nature (including only unemployment benefits). There is some evidence that other expenditure categories also can be cyclical, with age- and health-related social expenditure as well as incapacity and sick benefits responding to the cycle (Darby and Melitz, 2008).

34.   The regression-based approach instead estimates the automatic stabilizers directly. In most empirical applications, this has been done by regressing changes in a fiscal measure against changes in the output gap. The fiscal measure can take various forms: either some measure of the budget balance (typically the primary) or some decomposed fiscal variables. An issue with this regression is the likely endogeneity between fiscal variables and GDP, and the possibility of reverse causality: while changes in the output gap will affect the fiscal variables, fiscal changes will also affect the output gap—this may be less of concern for quarterly data given the fiscal policy lags, but most regression estimates of stabilizers use annual data. Another issue is how to separate the exogenous from endogenous fiscal policy changes. Most studies attempt to correct for this by removing the cyclically adjusted components to separate the cyclical and structural fiscal policy variables. However, for cross-country studies, this imposes a significant constraint on the number and types of countries To the extent that there are shortcomings in the elasticities approach used to derive the cyclically adjusted data, this of course will also have a bearing on the econometric results.

Box 2. Elasticities Approach to Estimating Automatic Stabilizers

The first step is to estimate the reduced-form elasticities for tax and expenditure categories relative to the output gap. The OECD estimates this for four categories of tax revenue (personal income tax, corporate income tax, social security contributions, and indirect taxes), and for the impact of unemployment insurance on expenditure. The reduced-form tax elasticities are the product of the elasticity of tax revenue with respect to the tax base and the elasticity of the tax base with respect to the output gap. $\varepsilon_{t_i,gap} = \varepsilon_{t_i,tb_i} \varepsilon_{tb_i,gap}$.

The tax elasticities for income tax and social security contributions are derived by calculating the marginal and average tax rates for a representative household at several points in an estimated earnings distribution. The tax elasticity is then calculated as the weighted average of the marginal and average tax rates across the earnings distribution. For corporate tax, it is assumed that tax proceeds adjust proportionally to the profit share in GDP. The OECD assumes a unitary elasticity for indirect tax revenue for all countries, whereas there is relatively large heterogeneity in the elasticity estimates for other tax categories between countries.

The OECD assumes that only unemployment assistance is cyclically sensitive, $\varepsilon_{G,gap} = \varepsilon_{G,u}\varepsilon_{u,gap}$, With a proportionality assumption, the elasticity of government expenditure with respect to unemployment assistance (u) is equal to the share of unemployment assistance in current primary expenditure ($\varepsilon_{G,u} = \dfrac{u}{G}$). The estimated elasticities for 26 OECD member countries are summarized below.

Summary of Tax and Expenditure Elasticities, and Fiscal Balance Semi-Elasticities, OECD Member Countries

	Corporate income tax	Personal income tax	Social secuty contributions	Indirect tax	Current expenditure	Total fiscal balance 1/
Average (unweighted)	1.49	1.25	0.68	1.00	-0.11	0.44
Median	1.52	1.18	0.69	1.00	-0.11	0.45
Min	1.08	0.70	0.00	1.00	-0.23	0.22
Max	2.08	1.92	0.92	1.00	-0.02	0.59

Source: Girouard and André, Table 9, (2005)
1/ Semi-elasticities given by the difference between the four tax and the expenditure elasticities weighted by their share in the budget.

The revenue and expenditure elasticities measure nominal changes in the level of budgetary items with respect to the output gap. However, the elasticities can then be transformed into budgetary sensitivity parameters scaling the elasticities by the share in GDP of current revenue and current primary expenditure.

$$\eta_T = \varepsilon_{T,gap}\frac{T}{Y} = \sum_{i=1}^{n}\varepsilon_{t_i,gap}\frac{t_i}{T}, \quad \eta_G = \varepsilon_{G,gap}\frac{G}{Y}$$

The difference between the revenue and expenditure sensitivity parameters provides a measure (in the form of a semi-elasticity) of the overall cyclical sensitivity of the budget. On average, an increase in the output gap by one percentage point, would lead to a deterioration in the budget balance by 0.44 percentage point of GDP.

APPENDIX 2. IMPACT ON AUTOMATIC STABILIZERS OF INCREASING THE PROGRESSIVITY OF PERSONAL INCOME TAX

35.   The most intuitive way to increase the automatic stabilizers is by having a higher progressivity of the personal income tax (PIT). However, simulations for a group of advanced economies suggest that for reasonable increases in progressivity, the resulting boost to the automatic stabilizers would be modest.

36.   Table A1 provides an estimate of the weighed revenue elasticities for 26 OECD member countries. This has been calculated using the latest OECD estimates of the tax elasticities with respect to changes in the output gap for personal income tax, corporate income tax, social security contributions, and indirect taxes (the last column shows the PIT tax elasticities, which is our key focus here). The revenue elasticities (weighted by the share in total revenue of each of the tax categories) on average equal 1.07 percent (Germany is relatively high with 1.13; the U.S. falls in the middle with a revenue elasticity of 1.07).

37.   By multiplying the tax and expenditure elasticities by the share of tax and current expenditure in GDP, an estimate of the budgetary sensitivity to changes in the output gap can be derived. This provides a measure of the automatic stabilizers normalized for a one percent increase in the output gap relative to GDP. In the base case, an increase in the output gap of one percent would be associated with a deterioration in the budget balance of 0.44 percent of GDP (Germany has higher automatic stabilizers at 0.48 percent of GDP; the U.S. much lower at 0.33 percent of GDP).

38.   Three illustrative simulations have been undertaken to explore the impact of changing the progressivity of the PIT.[22] The simulations are done under simplifying assumptions, in particular that there is no behavioral response to the assumed changes in progressivity. In the first case, the elasticity of the PIT is set equal to one across all countries (this would imply a significant drop in the progressivity in most countries). The weighted revenue elasticity across all tax categories falls from 1.07 to 1.02, with a drop in the automatic stabilizers from 0.44 to 0.42 percent of GDP. Of course, the decline in the stabilizers would be larger for countries with relatively higher tax progressivity or a larger share of revenue from PIT collections in the base case. This provides a crude measure of the contribution to the automatic stabilizers from the existing PIT progressivity.

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[22] In the simulations, the tax elasticity of the PIT has been adjusted. The tax elasticity with respect to the output gap will depend not only on the PIT progressivity, but also on the underlying income distribution and the responsiveness of the PIT tax base to the output gap.

Table A1. Illustrative Impact of Personal Income Tax Progressivity Changes on Automatic Stabilizers,
2005–2007 Average

	Weighted revenue elasticities 1/				Impact on budget balance 2/				
	Base case	I. PIT elasticity is unitary 3/	II. PIT elasticity increased by 10 percent 4/	III. PIT elasticity as in Germany 5/	Base case	I. PIT elasticity is unitary 3/	II. PIT elasticity increased by 10 percent 4/	III. PIT elasticity as in Germany 5/	Elasticity of PIT in base case 6/
Australia	1.01	1.00	1.05	1.23	0.36	0.36	0.38	0.43	1.04
Austria	1.05	0.98	1.08	1.11	0.47	0.45	0.49	0.50	1.31
Belgium	1.11	1.09	1.15	1.27	0.56	0.55	0.57	0.63	1.09
Canada	0.99	0.95	1.03	1.18	0.37	0.36	0.38	0.43	1.10
Czech Republic	1.13	1.11	1.15	1.18	0.43	0.42	0.43	0.45	1.19
Denmark	1.00	1.02	1.05	1.33	0.60	0.61	0.62	0.76	0.96
Finland	1.02	1.05	1.05	1.24	0.53	0.54	0.54	0.62	0.91
France	1.07	1.04	1.09	1.15	0.52	0.51	0.53	0.56	1.18
Germany	1.13	0.98	1.17	1.13	0.48	0.42	0.49	0.48	1.61
Greece	1.15	1.03	1.17	1.12	0.37	0.34	0.38	0.36	1.80
Iceland	0.95	1.00	0.98	1.21	0.40	0.42	0.41	0.50	0.86
Ireland	1.12	1.00	1.16	1.17	0.39	0.35	0.40	0.40	1.44
Italy	1.23	1.03	1.27	1.19	0.53	0.45	0.55	0.52	1.75
Japan	1.00	0.97	1.02	1.08	0.29	0.28	0.30	0.32	1.17
Korea	0.98	0.91	1.00	1.01	0.27	0.26	0.28	0.28	1.40
Netherlands	1.12	0.99	1.16	1.11	0.53	0.48	0.54	0.53	1.69
New Zealand	0.95	0.99	0.99	1.24	0.41	0.42	0.42	0.51	0.92
Norway	1.15	1.15	1.17	1.28	0.52	0.52	0.53	0.58	1.02
Poland	1.00	1.00	1.02	1.08	0.39	0.39	0.39	0.41	1.00
Portugal	1.16	1.08	1.19	1.17	0.44	0.41	0.44	0.44	1.53
Slovak Republic	0.99	1.01	0.99	1.06	0.32	0.33	0.32	0.34	0.70
Spain	1.15	0.98	1.19	1.09	0.47	0.41	0.48	0.45	1.92
Sweden	1.05	1.07	1.08	1.26	0.59	0.60	0.60	0.69	0.92
Switzerland	1.05	1.02	1.09	1.23	0.37	0.36	0.38	0.42	1.10
United Kingdom	1.09	1.04	1.12	1.21	0.42	0.40	0.43	0.47	1.18
United States	1.07	0.96	1.12	1.18	0.33	0.30	0.34	0.36	1.30
Country average 7/	1.07	1.02	1.10	1.17	0.44	0.42	0.45	0.48	1.23

Sources: OECD data; and IMF staff estimates.

1/ The revenue elasticities are weighted average of tax elasticities for personal income tax, corporate income tax, social security contributions, and indirect taxes, weighted by the share of each tax in total revenue collections during 2005-2007

2/ The impact on the budget balance in percent of GDP of a one percentage point change in the output gap (automatic stabilizers).

3/ Assumes that the tax elasticities for personal income tax in all countries equals 1.

4/ Assumes an increase in each country in the elasticities of 10 percent relative to the base case.

5/ Assumes that all countries have the same PIT elasticity as Germany.

6/ Tax elasticities for the PIT estimated by the OECD (Girouard and Andre, 2005).

7/ Unweighted average across countries

39.   The second case instead assumes that PIT elasticities are increased by 10 percent in all countries (a high, but feasible increase in progressivity). The weighted revenue elasticities would increase to 1.10 percent (from 1.07). However, the impact on the stabilizers would be very small with an increase in the budgetary sensitivity of only 0.01 percent of GDP (to 0.45 percent of GDP). The magnitude of the increase is roughly equal in most countries, including in the U.S. This suggests that the gain in additional stabilization from feasible increases in the progressivity is likely to be quite modest.

40.   The third case assumes a larger increase in the tax elasticities illustrating the impact if all countries had the same PIT elasticity as in Germany. The weighted revenue elasticities would increase by almost 10 percent (to 1.17), resulting in a larger increase in the automatic stabilizers by 0.04 percent of GDP (to 0.48 percent). In the U.S., the automatic stabilizers

would increase by 0.03 percent of GDP. However, it should be emphasized that the underlying increase in the progressivity of the PIT in this simulation would be very large, and highly unlikely to be implemented solely with a view to enhance the stabilizers. There would likely also be efficiency losses outweighing any gains in stabilization.

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