The Efficiency of Fiscal Policies:
a Survey of the Literature

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SUMMARY

The effectiveness of fiscal policy is often assessed in a context of discretionary fiscal policy. On the theoretical level, non keynesian fiscal multipliers can arise if expectations are rational, consumers fully aware of the government intertemporal budget constraint and if it exists supply constraints. Most empirical studies based on structural macro model simulations find little evidence of short term negative fiscal multipliers. However, during the second half of the nineties, the extent of fiscal multipliers was empirically questioned, based on structural VAR analysis and on the study of large fiscal adjustment episodes. Most of these studies conclude to expansionary fiscal consolidation. These episodes are likely to arise particularly when fiscal authorities are initially highly indebted and also when the measure comes from government expenditures cuts or indirect taxes increases, leading in this last case, households to consume more today and less in the future.

The efficiency of fiscal policy is also evaluated in a context of economic stabilisation. It is particularly the case for EMU countries which have lost monetary and exchange rate autonomy. As the Stability and Growth Pact de facto prevents discretionary fiscal policy, governments are left with fiscal stabilisers to help them in moderate upturns and downturns. There is an obvious argument for such stabilisation policy in the case of a country-specific recession, as money wages, and thus also prices, tend to be rigid downwards.

The fiscal stabilisation issue is often restricted to the operating of automatic stabilisers. Their extent depends theoretically on the size of the public sector, the progressivity of the tax system and the generosity of unemployment benefits. Empirically, automatic stabilisers dampen macroeconomic shocks only partially so that discretionary fiscal measures may be a desirable way of smoothing asymmetric shocks in the Euro area, if not badly scheduled.

ABSTRACT

The efficiency of fiscal policy has been studied through the assessment of multipliers associated with discretionary measures and through the smoothing power of automatic stabilisers. In the first case, studies generally highlight the expansionary impact of large fiscal contractions, especially when government expenditures are cut or indirect rather than direct taxes are increased. In the second case, automatic stabilisers are found efficient to cushion macroeconomic shocks but not enough to fully offset them. Discretionary actions may add to the stabilisation purpose.

L'EFFICACITE DES POLITIQUES BUDGETAIRES : UNE REVUE DE LA LITTERATURE

RESUME

L'efficacité des politiques budgétaires est souvent mesurée par les conséquences d'une mesure discrétionnaire. La plupart des études empiriques portant sur des simulations de modèles macro-économiques structurels ne mettent pas en évidence de multiplicateurs négatifs à court terme. Toutefois, des multiplicateurs négatifs ont été mis en évidence durant la seconde moitié des années 90 par les modèles VAR, ainsi que l'analyse par des ajustements budgétaire de grande ampleur. Ces travaux concluent, pour la plupart, à un effet positif sur la croissance d'un ajustement budgétaire. Ces épisodes se produiraient en particulier lorsque le gouvernement est initialement très endetté et lorsque la mesure provient d'une baisse des dépenses ou d'une augmentation de la fiscalité indirecte conduisant, dans ce dernier cas, les consommateurs à avancer leurs dépenses.

L'efficacité des politiques budgétaires est aussi étudiée sous l'angle des stabilisateurs automatiques. Cette question est d'un grand intérêt pour les pays formant l'UEM dans la mesure où, d'une part, ils n'ont plus d'autonomie en matière de politique monétaire et de change et, d'autre part, le Pacte de Stabilité et de Croissance les empêche de facto de mettre en œuvre des politiques discrétionnaires. Les stabilisateurs automatiques permettent, en particulier, d'atténuer les conséquences d'un choc asymétrique négatif.

La politique budgétaire destinée à stabiliser l'économie est souvent réduite au seul fonctionnement des stabilisateurs automatiques. Leur importance dépend théoriquement du poids du secteur public, de la progressivité des impôts et de la générosité des indemnités chômage. Les études empiriques montrent que les stabilisateurs automatiques n'absorbent pas entièrement les chocs macro-économiques. Des mesures discrétionnaires pourraient réduire les conséquences négatives de ces chocs, à condition que les délais de mise en œuvre ne les rendent pas procycliques.

RESUME COURT

L'efficacité des politiques budgétaires se mesure par l'importance du multiplicateur associé à une mesure discrétionnaire, mais aussi par la capacité des stabilisateurs automatiques à atténuer les chocs macro-économiques. Dans le premier cas, les études montrent généralement que les épisodes d'ajustements budgétaires de grande ampleur peuvent avoir des effets positifs sur la croissance, en particulier lorsque la mesure provient d'une baisse des dépenses publiques ou d'une augmentation des impôts indirects. Dans le deuxième cas, les stabilisateurs automatiques apparaissent efficaces pour atténuer les chocs macro-économiques mais pas pour les absorber complètement. La mise en œuvre de mesures discrétionnaires permettrait d'accroître la stabilisation.

THE EFFICIENCY OF FISCAL POLICIES:
A SURVEY OF THE LITERATURE

Stéphane Capet[1]

1. INTRODUCTION

The effectiveness of fiscal policy is often assessed in a context of discretionary fiscal policy. A fiscal measure is said to be efficient if the multiplier associated with the fiscal expansion is positive and large. In the 1990s, a view emerged that contractionary fiscal policy could have a positive impact on output. This opinion contradicts the keynesian view of fiscal policy but also the main belief among macroeconomists. The fist part of this paper examines the circumstances under which fiscal multipliers are expected to be large or small but also to turn negative. Attention is also paid to the empirical literature on channels that determine the sign and the size of fiscal multiplier.

The efficiency of fiscal policy can also be evaluated in a context of economic stabilisation. It is particularly the case for EMU countries which have lost monetary and exchange rate autonomy. The second part of this paper is devoted to the analysis of fiscal stabilisation effectiveness in EMU. We examine whether automatic stabilisers are sufficient to cushion asymetric shocks or whether discretionary fiscal policy should be implemented. We also examine the implications of labour market reforms implemented in most EMU countries on the working of automatic stabilisers.

2. THE FISCAL MULTIPLIER

The efficiency of discretionary fiscal measures has been assessed at both the theoretical and the empirical level. The theoretical impact of a fiscal policy on private demand depends on the specification of the model used, which can be keynesian or ricardian oriented. Fiscal multipliers computed with both models are obviously fairly different and not conclusive for the effectiveness of fiscal policy. Empirical approaches based on VAR models try to evaluate fiscal multipliers empirically.

2.1. Theoretical aspects

According to the keynesian approach, discretionary fiscal policy has a direct effect on current income under the following assumptions: price rigidity, excess capacity and liquidity constrained households and firms. The impact of a discretionary fiscal change and the extent of crowding out is well described by the standard IS-LM model.

Non keynesian effects of fiscal policy are theoretically justified by the new classical literature with supply-side oriented models, rational expectations and the ricardian equivalence theorem.

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[1] CEPII, 9 rue Georges Pitard – 75740 Paris cédex 15 – tél. : 01 53 68 55 56 – email : capet@cepii.fr

2.1.1. Keynesian approach and crowding out

According to the standard IS-LM model, the impact of a fiscal deficit on economic activity depends on the sensitivity of investment and money demand to the interest rate. The most sensitive the investment and the less sensitive the money demand to the interest rate, the larger the crowding out effect. In an open economy (Mundell-Fleming model), fiscal policy becomes inefficient when the exchange rate is completely flexible and capital perfectly mobile. A higher interest rate induces capital inflows which appreciate the exchange rate. With a fixed exchange rate, fiscal policy is more efficient because money supply increases in order to keep the interest rate at its pre-shock level.

Price flexibility is also a channel by which the fiscal multiplier can be reduced. In a closed economy, a fiscal expansion leads to higher prices which reinforce the crowding out through the interest rate. This channel is also present in neo keynesian model even if nominal rigidities prevent from complete market clearing. However, in an open economy with flexible exchange rate and prices, fiscal policy may be more efficient if the exchange rate pass through is high. The appreciation leads to lower prices and limits the crowding out trough the interest rate.

The extent of crowding out through the interest rate and the exchange rate also depends on wealth effects in the consumption behaviour. The increase in the interest rate reduces the nominal value of financial assets, which leads to a negative wealth effect if households are net creditors. The crowding out is reinforced by the exchange rate appreciation if parts of the assets are held in foreign currencies.

2.1.2. Non keynesian effects

This keynesian approach suffers from several drawbacks, mainly its lack of microeconomic foundations. Non keynesian models have emerged with such assumptions as rational expectations, ricardian behaviour and supply side effects.

2.1.2-a Rational expectations

When expectations are rational, the effect of fiscal policy depends on its duration. A transitory fiscal contraction would not affect expectations because it has no long term effects. However, the effect of a long lasting measure is different. The private sector realises that a budgetary consolidation implies less taxes in the future, as the government will face a lower debt service. Assuming that consumption depends on permanent income and investment demand is forward-looking, consumption and investment will rise relative to the pre-consolidation stance, compensating for fiscal contraction. This Ricardian effect is however more likely to apply when the pre-consolidation fiscal position is perceived as non-sustainable in the sense that it requires higher taxes in the future to serve the public debt.

The effects of a temporary government spending depends on the way it is financed. If it is financed by a reduction in future government spending, permanent income is not modified. However, a temporary increase in spending financed by higher future taxes lowers permanent income and consumption so as the spending multiplier can turn negative.[1]

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[1] Alternatively, households can spread over time the fall in consumption, which leads to a positive fiscal multiplier even in the case of Ricardian effects (Calmfors, 2003).

The ricardian equivalence has been criticised in several ways. Some households may be unable to smooth their consumption when facing a tax hike because they are liquidity constrained. Such households would reduce their consumption when taxes are raised. Another critic relies on the finite horizon for households and non altruistic desire to pass the fiscal burden onto the future generations.

Still, it is likely that private agents might have adopted some consumption smoothing behaviour under certain circumstances, at least in a less extreme form. It is the case for example when the government's debt is unsustainable and requires a fiscal adjustment soon. It is also the case when fiscal rules limit the government deficit or debt to GDP ratio. If the fiscal stance is near the threshold, private agents, even if they have short time horizon, may adjust their saving behaviour in order to face future increases in taxes.

2.1.2-b   *Supply-side effect*

The IS-LM framework is based on a fixed price assumption and it ignores the supply side of the economy. This assumption is questionable even in the short run when capacity utilization is already high. According to new classical models, prices and wages are fully flexible and clear market. One implication is that fully anticipated fiscal policies have no short term and long term effects on real output (Lucas, 1975 and Sargent and Wallace, 1975). Fiscal (and monetary) policies will only generate higher inflation. Therefore, greater flexibility in prices and wages reduces the effectiveness of fiscal stabilisation but also the need of it when economy is hit by shocks. Rapid price adjustment reduces the extent of output changes.

When firms operate at their potential production, a fiscal expansion is likely to be crowded out through higher prices if the measure has no effect on potential output. However, if a tax cut or increase in government spending (investment) promotes the supply of firms, then higher long term growth expectations may lead to positive short term demand effects, and a positive fiscal multiplier.

When the bargaining process is based on after-tax wages, a cut in labour taxes may have a positive supply side effect. Indeed, employees consider taxes as deductions rather than the counter part of a benefit or a public service supply. Hence, a decline in labour taxes reduces the labour cost because unions claim lower wages in the bargaining process. However, when the wage bargaining is based on before tax wages, a cut in labour taxes has no positive supply effects because labour cost remains unchanged.

A reduction in corporate profit taxes may lead to higher effects on potential output than a decrease in labour taxes because this measure has a direct impact on investment coming from a lower cost of capital.

2.1.2- c   *Institutional factors*

Important lags can result from the implementation of fiscal policies which may reduce the extent of the fiscal multiplier. Lags between the perception of the downturn by authorities and the fiscal measure to be carried out depend mainly on the political decision process. The government has to elaborate a budget bill which in turn has to be submitted to the parliament who passes, modifies or rejects the bill. When it is voted, the measure may hit the economic activity after the recovery. Hence, an ex ante counter cyclical discretionary fiscal policy could become pro cyclical ex post. Moreover, this pro cyclical effect is likely

to be strengthened by intertemporal reallocation of private spending decisions due to the fiscal measure. As a result, automatic stabilisers take less time to smooth the economic activity than a discretionary measure.

2.1.2-d   *Other non keynesian effects: risk premia, uncertainty and change in VAT*

When the government faces a high debt, the interest rate incorporates a risk premium which reflects the risk of default. Therefore, a fiscal expansion results in a higher indebtedness which increases the risk premium and reinforces the crowding out through the interest rate. In this context, of high indebtedness, government has to tighten fiscal policy in order to lower the interest rate and promote consumption and investment. However, even in a high government debt context, a temporary fiscal expansion associated with a credible contraction in the future may not lead to an increase in risk premium.

The uncertainty hanging over future incomes may lead consumers to accumulate a precautionary saving and firms to delay investment. The variability of unemployment rate and the viability of the pension system are important sources of uncertainty for households. More generally, fiscal stance influences private agents decisions. Hence, consumption and investment depend on households' and firms' confidence in government fiscal policies.

Finally, fiscal policy can also work by affecting relative prices. For instance, a temporary reduction in VAT rate reduces the relative price of spending today compared with spending in the future when VAT rate return to it initial level. This measure eggs on all consumers (including forward looking ones) to consume more today and less in the future. Similar effects are likely to be observed on the timing of investment in the event of a short lived reduction in investment tax (or a temporary increase in subsidies).

2.2.   Empirical literature

Many empirical studies evaluate the efficiency of fiscal policy through assessing the fiscal multiplier. These studies are based on various methodologies. First, the effects of fiscal shocks have been studied with structural macro econometric models. Second, less theoretical models based on a VAR approach aim at identifying the sources of growth fluctuation, namely supply shocks and demand shocks (monetary and fiscal impulses). A third set of studies looks at identifying large fiscal change episodes. Finally, some econometric studies have been implemented in order to test crowding out effects, consumption smoothing and Ricardian neutrality.

2.2-a   *Structural models*

According to most macro models, fiscal multipliers are positive in the short run but return to zero in the long run owing to crowding out effects. In the short term, fiscal multipliers range from 0.6 to 1.3 across models and countries (Table 1). Generally, empirical studies on this topic show a higher short term multiplier for Germany than for other European countries, ranging from 0.9 to 1.3. According to Barrell and others (2003), the larger size of the German multiplier (0.99 with the NiGEM model) reflects the smaller immediate impact of total final expenditure on imports in Germany than elsewhere that is reflected in the model and is discussed in Barrell and te Velde (2002). They argue that the German economy is more focused on manufacturing and has a wider variety of manufacturing sectors than other European countries. Hence it has less need to adjust its imports in response to an increase in demand.

Table 1: Government expenditure multiplier in structural models, a 1% of GDP increase in government consumption for one year

	Monetary policy	Germany		France		Italy	
		Short term*	Long term	Short term*	Long term	Short term*	Long term
MULTIMOD (IMF)	Nominal interest rate fixed at baseline value for one year, then inflation targeting. Tax rate fixed at baseline value for one year	1.33	0	1.26	0	1.32	0
QUEST (European Commission)	Nominal interest rate is fixed at baseline value	0.86	0	0.87	0	0.85	0
	Price level targeting	0.69	0	0.77	0	0.73	0
NiGEM (NIESR)	Nominal interest rate fixed at baseline value for one year then inflation targeting	0.99	0	0.87	0	0.85	0
INTERLINK (OECD)	Fixed nominal exchange rate and interest rate at their baseline values	1.1	-0.2	0.6	0.2	0.9	0

* one year

Comparing studies, there is a general agreement that the spending multiplier is larger than the tax multiplier, which is consistent with the standard keynesian theory. Bartolini, Razin and Zimanski (1995) examine the effect of different fiscal consolidation measures on output. They find that the tax multiplier is lower than the spending one. Increasing indirect taxes or reducing government spending leads to a large negative impact on output in the short run. On the contrary, increasing labour and capital taxes has a lower short term output cost. On the longer term, fiscal consolidation relying on an increase in labour and capital taxes is more costly than reducing spending. Roeger and In't Veld (2002) conclude in the same way. They assess the effect of several temporary positive fiscal shocks with the QUEST model. In this model, total consumption is represented as the aggregation of the responses of two groups of consumers, one forward looking group of consumers and another liquidity constrained group. The authors find that, in the short run, the impact of fiscal policy is larger on the expenditure side than on the tax side. The impact of temporary tax cuts on output is small because the intertemporal optimising behaviour of economic agents smooth away most of it.

Other simulations with QUEST highlight non keynesian effect of fiscal consolidations in EU countries. Guidice, Turrini and In't Veld (2003) find that if the consolidation comes

from a tax increase the growth rate is unlikely to be higher. On the contrary, expenditure cuts may exhibit non keynesian effects in the short or medium term. In 't Veld and Turrini (2004) evaluate the impact of the fiscal discipline provided by the EU's fiscal framework on economic activity. They find that EU fiscal authorities put a greater weight on the debt stabilisation motive after the start of phase II of EMU. The changes in fiscal behaviour observed after 1994 on average amounted to a reduction in deficits of almost 1 per cent of GDP. In a counterfactual scenario of an absence-of-fiscal-discipline simulated with the QUEST model, this would have led to a sizeable build-up of government debt. In the most optimistic case, a scenario ignoring an additional risk premium effect of higher government debt on interest rates, the short run gains of an absence of fiscal discipline would not have exceeded half a percent of GDP and would have faded away quickly. When risk premia effects of higher public debt on interest rates are included, the gains from an absence of fiscal discipline over the last decade would have been even smaller in the short run, and would have become negative in the medium term. This analysis suggests that the EU fiscal framework as provided by the Treaty and the SGP has not had long-term negative consequences, but instead has helped to avoid a situation in which accumulating public debt would have crowded-out private investment and reduced potential growth.

There is little empirical evidence of short term negative fiscal multipliers from structural macro model simulations. However, attention has to be paid on the assumptions made on monetary policy accompanying the fiscal measure. The nominal interest rate is often held fixed at baseline value during the first year so that real interest rate is likely to fall in case of a fiscal expansion. As a result, private demand is crowded in and the fiscal multiplier is higher than if the monetary authority follows a Taylor type rule (implying an increase in real interest rate). Guidice, Turrini and In't Veld (2003) find that a reduction in government purchases coupled with an accommodating monetary stance that reduces the real interest rate by 0.5 percentage point leads to a higher growth of 0.6% the first year than a situation where the real interest rate is unchanged. Moreover, the extent of short run spending multipliers depends on the assumptions made on transfers and taxes. The short term multiplier is likely to be higher if transfers and taxes are held fixed at their baseline values for a time. This is probably why the short term fiscal multiplier is somewhat large with the Multimod model (Hunt and Laxton, 2003).

Since the mid-nineties, the extent of fiscal multipliers has been questioned in several empirical studies, using structural VAR analysis and statistical analysis made on episodes of large fiscal changes.

2.2-b   VAR analysis

Studies based on a structural VAR approach show a fairly small positive effect of the fiscal deficit on economic activity. When the fiscal multiplier is positive, it accounts for 6% to 20 % of the variance in forecasting the GDP at the horizon of one year (Henin and N'Diaye, 2001). However, Fátas and Mihov (2001) find a larger than one spending multiplier for the United States using an identifying scheme based on the Choleski factorisation.

Another approach to identifying structural fiscal shocks is developed by Blanchard and Perotti (2002). Shocks are identified by exploiting decision lags and institutional information about the elasticity of fiscal variables to the economic activity. Estimating a structural VAR model for the US economy, they find that GDP reacts positively to a government spending shock, and negatively to a positive tax shock (Tables 2 and 3). The

multiplier is small however and the components of GDP do not react in the same way to the measure. Consumption increases with government spending whereas investment decreases. In the standard theoretical keynesian model, government spending is likely to increase or decrease investment, depending on the rise in interest rate. But, in either case, an increase in spending or in taxes should have opposite effects on investment, which is not the case empirically in their study. As a result, they argue that "the effects of fiscal policy on investment are inconsistent with a standard Keynesian approach."

Table 2: Spending multiplier in VAR models, shock equal to 1% point of GDP

		United States		Germany	
		Short term*	Long term	Short term*	Long term
Blanchard and Perotti (2002)	1960-1997	0.45	0.97		
Perotti (2002)	1960-2000	0.29	0.96	0.96	0.94
	1960-1979	0.55	-0.62	1.24	1.06
	1980-2000	0.20	-1.26	-0.72	-0.71

* one year

Table 3: Tax multiplier estimated in VAR models, shock equal to 1% point of GDP

		United States		Germany	
		Short term*	Long term	Short term*	Long term
Blanchard and Perotti (2002)	1960-1997	0.74	0.22		
Perotti (2002)	1960-2000	0.66	0.53	0.46	-0.05
	1960-1979	0.78	0.83	0.60	0.10
	1980-2000	0.37	0.11	0.49	0.32

* one year

Perotti (2002) estimated a structural VAR model for five OECD countries using the same identifying scheme as in Blanchard and Perotti (2002), and the confirms the weakness of the fiscal multipliers, except for Germany. In this country, the spending multiplier is higher than in the other countries and also greater than one in the short term. The spending multiplier is larger than the tax multiplier (in absolute value). For all countries, the fiscal multiplier has become considerably weaker over time: in the post-1980 period, negative spending multipliers and lower tax multipliers are frequent. The author explains this result in several ways: countries may have become more open; flexible exchange rates lead to less efficient fiscal policies (there is however no systematic crowding out of exports); a change in the behaviour of the monetary authorities (only for the Canadian case); development in credit market may have reduced the share of credit-constrained consumers.

Using a more sophisticated VAR approach, Hennin and N'Diaye (2001) examine whether size and the sign of the fiscal multiplier depend on the overall economic situation: expansion or recession, but also on the fiscal position: surplus or deficit. For this purpose, they estimate a Markov switching VAR model for four OECD countries and highlight non keynesian multipliers in most cases. However, the authors find that a fiscal deficit stance is often accompanied by a strong likelihood of protracting growth or recovery. A fiscal balance stance is often accompanied by a strong likelihood of entering or staying into a recession. Overall, fiscal stance may affect more the transition dynamic from a state to another than the activity itself.

As underlined by Perotti (2002), VAR analysis of fiscal policy is limited by the low frequency of fiscal data. More statistically relevant studies are based on panel estimations, correlations between episodes of large deficit to GDP ratio and growth, and lastly ricardian neutrality tests within a time series regression of consumption.

2.2-c   *Episodes of large fiscal changes*

This group of studies aims at identifying episodes of large fiscal changes for several OECD countries and assessing if they are expansionary or contractionary. Fiscal measures are defined as a specific percentage point of GDP change in primary structural deficit over a one to three years. The analysis is based either on statistical correlations between deficit to GDP ratio and growth or on panel regression. All studies point out episodes of expansionary fiscal contractions. The striking episodes of expansionary fiscal contraction highlighted by Giavazzi and Pagano (1990) concern Denmark (1983-86) and Ireland (1987-89).

Using a panel regression of saving rates for 18 OECD countries, Giavazzi, Jappelli and Pagano (2000) search the circumstances under which national saving responds to fiscal impulses in a non Keynesian way. They confirm that expansionary effects are associated with large and persistent fiscal contraction. Such non Keynesian effects are larger for tax and transfer changes than for government consumption changes. Moreover, non Keynesian responses are stronger for fiscal contractions than for fiscal expansions. On the whole, the results support the non-Keynesian view of fiscal policy during periods of large fiscal contractions, particularly when the fiscal impulse comes from the tax side. Episodes of large increases in taxes seem to have no effects on national saving.

Alesina and Perotti (1995) distinguish a successful from an unsuccessful fiscal consolidation referring to its impact to the debt-to-GDP ratio. They observe an important asymmetry between loose and tight fiscal policies. Loose policies come mainly from increases in government expenditures, particularly in transfers. Tight policies are essentially implemented through higher taxes, particularly direct taxes on households. Using a correlation analysis for 20 OECD countries, they find that successful adjustments rely mostly on cuts in transfer programs and in government wages and employment which are fairly not politically acceptable policies. Moreover, adjustments based on spending cuts are not associated with recessions, nor with hikes in unemployment. Investment is crowded in and competitiveness is improved. The most popular example is the successful adjustment in Ireland between 1986 and 1989. During this period, transfer programs were cut by 3.3 percentage points of GDP, government employment decreases by 12.4% and the debt to GDP ratio fell from 120% to 107%.

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These conclusions are confirmed in Alesina et al. (2002) who find that government consumption has a sizeable negative effect on private investment. Increases in public wages spill over private wages so that profits are cut and investment is down. They conclude that cuts in public spending, particularly in public wages and transfers, are expansionary. On the contrary, increases in labour taxes are contractionary because they increase the wedge between real wages and labour cost. As a result, workers ask for higher pre-tax real wages, which puts pressure on private profits and so on investment. The magnitude of these effects are smaller than those on the expenditure side.

Guidice, Turrini and In't Veld (2003) conclude their study in the same way. Using cross country correlation and probit regressions, they find that half of the consolidation episodes undertaken in the EU countries in the past three decades were followed by an acceleration in growth. Moreover, half of these expansionary fiscal contractions were undertaken without a decrease in real interest rate. The authors name these episodes as "pure expansionary", meaning that expansionary effect on output cannot be attributed to concomitant expansionary monetary policy or exchange rate depreciation. They also find that consolidations started in low phases of the cycle and based on expenditure cuts are more likely to be followed by higher growth.

Von Hagen, Hughes-Hallett and Strauch (2001) find more mitigate results concerning the non keynesian effects of fiscal policy. They analyse the interaction between fiscal policy, output and monetary policy within a system consisting of three equations describing fiscal policy, monetary policy and real output. The model is first estimated for a panel of 20 OECD countries from 1973 to 1998. They find that an increase in the fiscal surplus equal to one percent of GDP reduces the GDP by 0.1 percent the following year, which is a keynesian result despite the low size of the effect. The fiscal tightening has a direct negative effect on domestic demand and this decline reduces the output growth in other countries. This effect feeds back to the domestic economy and amplifies the impact of the fiscal contraction. However, when the model is estimated from 1990 to 1998 for the European countries, the output cost of fiscal contraction is insignificant. This result is consistent with the non-keynesian view but not strong enough to imply that a fiscal contraction is expansionary.

Finally, using panel regressions, Hemming, Mahfouz and Schimmelpfennig (2002) evaluate the effects of fiscal policy during recessions. They highlight the keynesian impact of some expansionary fiscal expansions during recessions for relatively closed economies. The multiplier is however likely to be weaker for more open countries with flexible exchange rate and no excess capacity.

Although most of these studies highlight evidence of expansionary fiscal contraction episodes, caution is needed in generalize these results. First, there is a possible sample selection bias in these studies because episodes of large fiscal adjustments selected are precisely those which are less costly for growth : these studies do not take into account aborted fiscal changes due to negative economic and social consequences (Cour, Dubois, Mahfouz and Pisani-Ferry, 1996). Second, Eichengreen (1998) points out a possible simultaneity bias in these studies insofar as economic growth may reduce fiscal deficit rather than fiscal deficit may reduce growth. Moreover, the apparent correlation between growth fiscal adjustment may be explained by omitted variables. In particular, a

depreciation of exchange rate accompanying a fiscal consolidation is likely to influence economic growth.

2.2-d   *Tests of Ricardian neutrality*

Empirical studies which try to verify or invalidate the ricardian equivalence theorem find that full ricardian equivalence is rejected by the data but that a partial version of the theorem seems to be consistent with consumption behaviour. Barro (1988) finds some indirect empirical evidence of the ricardian predictions for the Israeli economy. The stabilisation program in 1985 reveals a large offset between public and private saving which provides a strong support to the ricardian equivalence theorem.

More direct econometric tests have been implemented to assess the ricardian point of view. Using a panel regression of industrial and developing countries Masson, Bayoumi and Samiei (1995) find that public saving partially offsets private saving. However, the extent of the offset depends on whether changes in government positions come from the spending or the tax side. According to them, the offset is large but less than unity implying that a fiscal measure can have a significant impact on national saving, especially if it comes from the spending side.

This result is confirmed by Giavazzi, Jappelli and Pagano (1999) who carry out panel regressions for national saving rates for 18 OECD countries. Their study shows that a non keynesian response from the private sector is more likely when fiscal impulses are large and persistent. In normal time, the keynesian multiplier is strongly supported. Evans (1993) concludes in the same way. He develops a model which nests ricardian equivalence and a variant of the Blanchard's model which refers to an alternative non ricardian model. Using data from 19 OECD countries, the ricardian equivalence hypothesis is rejected. Afonso (2001) estimates Euler consumption equations for a panel composed of European Union countries. The consumption function includes a wealth variable defined as the government debt to GDP ratio. Estimation results reject the debt neutrality hypothesis for the EU-15 countries. However, Afonso finds that the wealth effect is weaker in more indebted countries than in less indebted ones. This result confirms the partial view of the ricardian equivalence theorem.

Other studies based on time series econometrics conclude in the same way. Cotis et al. (1996) estimate a consumption function for France in order to explain the co-movement between public deficit and private saving. According to them, the transition toward EMU may have increased the interest rate sensitivity to budget deficit and the households' fear for higher taxes.

Cuaresma and Reitschuler (2004) investigate the hypothesis that European consumers may have become more ricardian due to the introduction of the Stability Pact in 1992. The ricardian equivalence hypothesis is tested by estimating structural parameters of a model based on dynamic optimising agents. Estimations for the whole sample 1960-2002 show clear evidence of ricardian behaviour for three of the EU-15 countries. Moreover, the authors find structural breaks in the consumer behaviour during the nineties except for Spain and Denmark. However, the direction of the structural change is less evident: some countries become more ricardian and some others less.

2.2-e   Crowding out

Empirical studies on crowding out try to assess, on the one hand, the interest rate sensitivity to budget deficit, and on the other hand, the sensitivity of investment or consumption to the interest rate. There is little evidence for private demand crowding out effect in the empirical literature (Hemming, Kell and Mahfouz, 2002). First, studies fail to point out strong sensitivity between budget deficit and interest rates. Second, investment depends mainly on demand and other variables like the profit rate rather than on the cost of capital, which appears to be insignificant in most studies. Lastly, crowding out through the exchange rate is likely to be weak. No clear conclusion emerges from studies on this point (for more details on these elements, see Hemming, Kell and Mahfouz, 2002).

3.   FISCAL STABILISATION IN THE EURO ZONE

Over the last decades, fiscal policy as a stabilisation instrument seems to have become regarded with increasing scepticism by both economists and policy makers. Indeed, there seems to have developed a conventional wisdom according to which monetary policy should be the primary a stabilisation tool. The strongest argument in favour of fiscal policy in the Euro area is the risk of cyclical developments that affect individual countries in an asymmetric way. There is an obvious argument for such stabilisation policy in the case of a country-specific recession, as money wages, and thus also prices, tend to be rigid downwards. In the case of a cyclical upswing in a country, a fiscal stabilisation policy may be more appropriate for a temporary country-specific demand increase than a permanent one[2]. The main reason is again downward money wage rigidity: inflation in a temporary boom tends to cause "permanent" wage increases that are hard later to reverse and therefore "lock in" real exchange rate appreciations. This makes it more difficult to stabilise the economy in the next downturn, as the real exchange rate appreciation then requires a more expansionary fiscal policy with larger budget deficits than would otherwise be the case.

The fiscal stabilisation issue is often restricted to the operating of automatic stabilisers. Their extent depends theoretically on the size of the public sector, the progressivity of the tax system and the generosity of unemployment benefits. Empirically, automatic stabilisers may dampen macroeconomic shocks only partially so that discretionary fiscal measures may be a desirable way of smoothing asymmetric shocks in the Euro area.

3.1.   Theoretical aspects on automatic stabilisers

Since monetary policy is devoted to the ECB, fiscal policy plays a more important role within the UEM to smooth the activity when shocks hit a specific economy. However, the Stability and Growth Pact (SGP) imposes a structural budget close to balance or in surplus. As a result, automatic stabilisers appear to be the main fiscal tool to cushion economic shocks in the euro zone. Automatic stabilisers are particularly suitable for demand shocks when the public sector is developed, when the tax system is highly progressive and when unemployment benefits are generous. Using a standard AS-AD model of a country in a monetary union, Brunila, Buti and In't Veld (2002) assess the effects of a demand and a supply shock under high and low tax rate. In Figure 1-1, the slope of the demand curve is

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[2] In the case of a permanent increase in the relative demand for a country's output, for example, prices should be allowed "to do their job".

higher (in absolute terms) with a high tax rate than with a low one. The reason is that the higher tax rate, the stronger will be the cushioning effect of automatic stabilisers on demand after the economy has been hit by a rise in inflation. Automatic stabilisers reduce the impact of inflation on demand and make the demand curve steeper. A positive demand shock entails a shift to the demand curve to the right. The new equilibrium points are at A with a low tax rate and at B with a high one. As a result, higher automatic stabilisers are efficient to stabilise output and inflation because they entail a smaller output gap and a smaller deviation of inflation from target. The shift of the demand curve is smaller for a higher tax rate as the impact of the demand shock is muted by the automatic stabilisers. The authors also find that automatic stabilisers are more efficient in the event of consumption shocks than investment or export shocks because of its impact on indirect taxes. In the event of a supply shock, automatic stabilisers are less efficient because they are output stabilising but inflation destabilising (Figure 2-1). Structural reforms, particularly in the labour market, would help to cushion supply shocks. However, labour market reforms mainly require reduction in distorsive taxes and also in unemployment benefits (amount and duration). As a result, the smoothing power of automatic stabilisers would be reduced in the event of demand shocks. According to Buti and others (2002, 2003) and Buti and Van den Noord (2003), however, this trade-off between stability and flexibility does not necessarily exist. The fiscal reform should increase flexibility without negative impact on economic stabilisation. This conclusion comes from the AS-AD model in which taxes affect the supply side. When the tax rate is high, a supply shock is output and inflation destabilising (Figure 2-2). Moreover, a high tax rate coupled with a demand shock is inflation destabilising but output stabilising (Figure 1-2). The authors find that there exists a critical tax rate beyond which taxes and benefits have destabilising effects on output in the event of supply shocks and destabilising effects on inflation when supply and demand shocks occur. As a result, cutting high tax rate enhances the output stabilisation when supply shocks occur and the inflation stabilisation in the event of demand shocks. Nevertheless, demand shocks are always output destabilising when tax rates or benefits are cut (Table 4). Hence, if output stabilisation is the main goal of fiscal authorities, and if demand shocks prevail, a larger welfare state system would ensue. But, according to the authors, EMU may bring a change in the composition of shocks by increasing the relative frequency of supply compared to demand shocks.

Table 4: Effect of supply and demand shocks under low and high tax rate

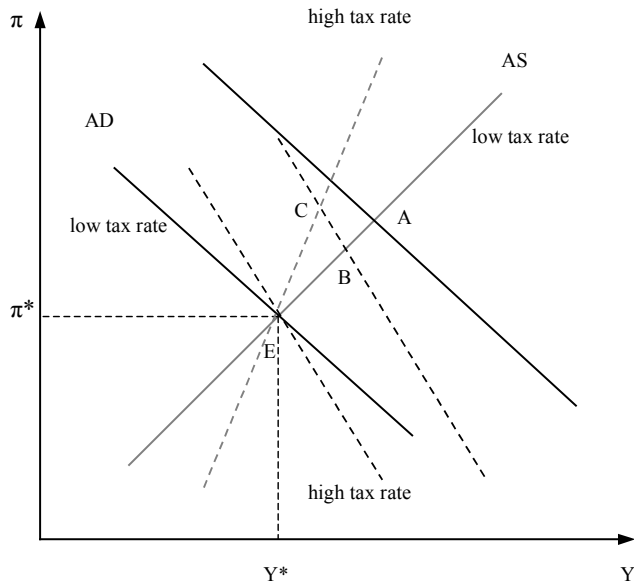|	output		Inflation	
Initial level of taxes	low	high	low	High
Demand shock	–	–	–	+
Supply shock	–	+	+	+

– stabilising effect
+ destabilising effect

Figure 1-1: Effect of a positive demand shock under alternative tax rates
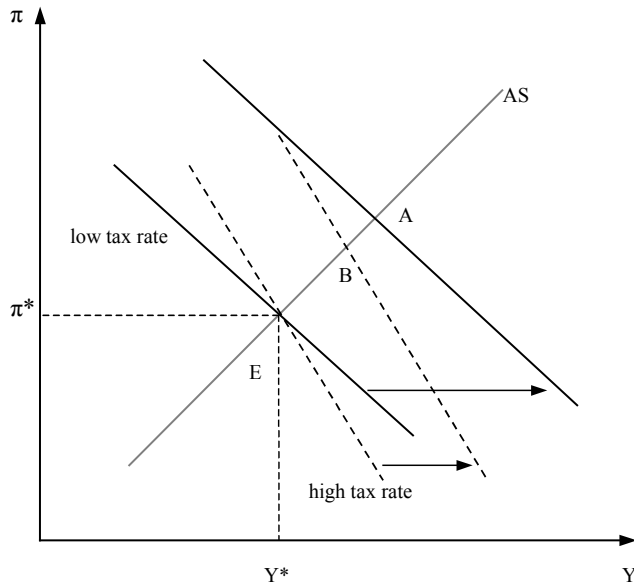
Source: Buti, Martinez-Mongay, Sekkat and Van der Noord (2003)

Figure 1-2: Effect of a positive demand shock under alternative tax rates, and when taxes affect supply

Source: Buti, Martinez-Mongay, Sekkat and Van der Noord (2003)

Figure 2-1: Effect of a negative supply shock under alternative tax rates
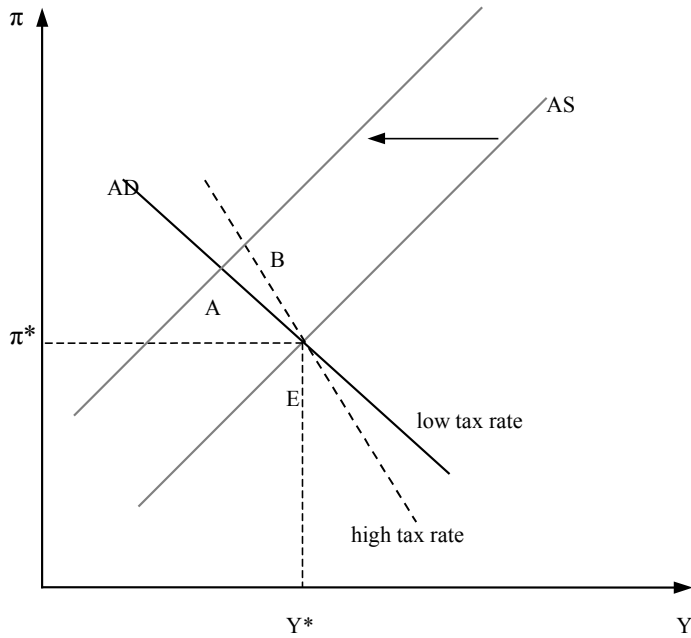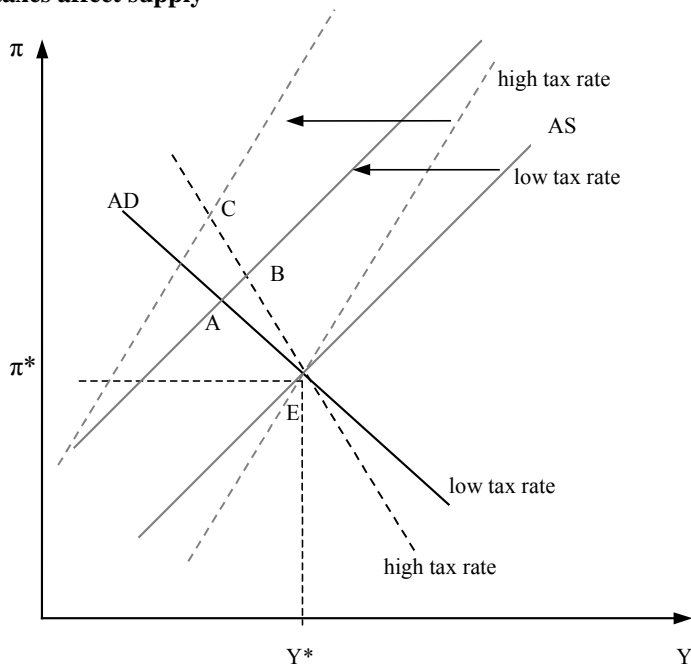

Source: Buti, Martinez-Mongay, Sekkat and Van der Noord (2003)

Figure 2-2: Effect of a negative supply shock under alternative tax rates, and when taxes affect supply

Source : Buti, Martinez-Mongay, Sekkat and Van der Noord (2003).

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3.2. Empirical smoothing power of automatic stabilisers

As the Stability and Growth Pact prevents discretionary fiscal policy, governments are left with fiscal stabilisers to help them moderate upturns and downturns. As it has been said before, automatic stabilisers increase with the size of the government sector and the share of cyclically sensitive components of taxation and spending. These specific factors coupled with the degree of openness and the flexibility of the labour market are likely to be different across countries and will affect the size of stabilisers. In general, more open economies will have lower multipliers and hence stabilisers. Empirically, the smoothing power of automatic stabiliser is not easy to evaluate.

Brunila, Buti and In't Veld (2002) use the European Commission Quest model to evaluate the automatic stabilisers effectiveness under several demand shocks and a supply shock. They estimate the smoothing power of automatic stabilisers as the proportion of change in GDP that is removed by the tax system. This is done by estimating the impact of each shock on different tax revenues weighted by the associated tax multipliers. They find that consumption shocks are better smoothed than investment and export shocks. However, results are different across countries depending primarily on the structure of taxes. Automatic stabilisation is larger for countries, like France, with higher share of revenue coming from indirect taxes, because they are directly affected by consumption shocks. Automatic stabilisers are less efficient to dampen permanent supply shocks because they delay the inevitable adjustment of GDP to its new potential. When the shock is negative, a conflict between fiscal stabilisation and monetary policy arise owing to the decline in growth and the increase in inflation. Large fiscal stabilisers are not equally desirable whether the supply shock hits a large or a small country member. If the large country is hit, the European Central Bank will fight inflation by increasing the interest rate. In the case of a small country, the rise in inflation will reduce its competitiveness. The larger the stabilisers, the stronger the competitiveness loss.

Using a similar methodology with the NiGEM model, Al-Eyd et al. (2004) find the same results as Brunila, Buti and In't Veld (2002). Automatic stabilisers are most effective in response to consumption shocks. However, these estimates suggest that fiscal stabilisers are generally weak and below those of Brunila, Buti and In't Veld (2002). Private demand is crowded out through the impact of fiscal policy on the interest rate, which reduces wealth and hence consumption and also investment. Much of the crowding out in fact comes through imports. Automatic stabilisers are relatively weak in France, Italy and the UK. In Germany, however, the stabilisers are larger and the authors attribute this to a larger portion of liquidity-constrained behaviour in this country. This is likely to change as European financial integration proceeds.

Buti et al. (2003) examine the same issue on how effective automatic stabilisers are. They ask this question for a small open economy (Belgium) and a large economy (France) in the Euro area with a similar fiscal size. The efficiency of automatic stabilisers is evaluated in two steps using the INTERLINK model. First, they simulate demand and supply shocks in the absence of automatic stabilisers, and second they simulate the same shocks allowing the budget balance to move freely in response to variation of economic activity. Comparing the two simulations provides an assessment of the extent to which the economic impact of demand or supply shocks is changed by the working of automatic fiscal stabilisers. They find that automatic fiscal stabilisers work better for the larger country in the event of

demand shock, which is not a surprising result. In response to a negative supply shock, output falls less in the large country than in the small one where the impact of the automatic stabilisers on output is destabilising, as predicted by the theoretical model (see Table 4). In both countries, automatic stabilisers have destabilising effect on inflation.

3.3. Discretionary fiscal stabilisation tools

Empirical studies on fiscal stabilisation show that automatic stabilisers dampen macroeconomic shocks only partially (Calmfors 2003), so that discretionary action may add to the stabilising potential. Second, although automatic stabilisers certainly succeed in smoothing cyclical fluctuations, they may face a trade-off between efficiency and macroeconomic stabilisation.

Herz, Roeger and Vogel (2004) do not restrict the role of fiscal policy to operating of automatic stabilisers. They explore the stabilising potential of time varying tax rates. They consider that monetary policy cannot react to asymmetric shocks in a monetary union and replace the interest rate rule by a fiscal rule in a small open economy model calibrated for a small Euro area country. The focus of the analysis is on the consumption tax rate which reacts when output and inflation are different from their targeted level. They find that time-varying consumer taxation may contribute to smooth economic fluctuations. However, the smoothing power of a monetary rule is larger than a fiscal rule in the event of a persistent demand shock. The increase in consumer taxation has a large dampening effect on the output gap but only a negligible impact on inflation owing to opposite effects: higher taxes reduce inflation pressures but increase real wage claims in the bargaining process. In the event of a negative and persistent supply shock, a fiscal rule is more efficient to stabilise output and inflation than a monetary rule because fiscal authorities face a weaker trade-off between output stabilisation and inflation.

The efficiency of a consumer tax rate rule is confirmed by Roeger and In't Veld (2002). They consider three alternative fiscal stabilising rules in which the fiscal variable reacts in a countercyclical way. The first rule supposes that the share of government purchases in GDP increases when the output gap is negative. The coefficient on the output gap is equal to minus one. In the second rule, the labour income tax rate is a positive function of the output gap. The coefficient on output gap is also equal to one and adjusted for the share of the tax base in GDP. The third rule assumes that VAT increases when the output gap is positive. The reaction coefficient is equal to one adjusted for the share of consumption tax base in GDP. Using the Quest model, they find that the VAT rate rule and the government consumption to GDP ratio rule are more efficient as stabilisation tools than the labour tax rate rule in the event of negative demand shocks. The impact of temporary income tax changes on output is small because the intertemporal optimising behaviour of economic agents smooth away most of it. Changes in the VAT rate act more like a relative price change and can be a very effective stabilisation tool in the model. A reduction in the VAT boosts consumer spending in the short term, as forward looking consumers front-load their spending to the current year in anticipation of higher indirect taxes again in following years.

The potential risk of using a temporary increase in VAT to dampen an *asymmetric boom* in the Euro area is that it could trigger a permanent increase in wages, and so accentuate the cycle rather than smooth it. This risk is however smaller than with a permanent rise in VAT. Another discretionary fiscal stabilisation measure may consist in a temporary

increase in employers' payroll taxes when an individual Euro area country experiences a boom. This measure is more appropriate than a change in VAT because domestic wage costs and output prices increase but not domestic wages. Both discretionary fiscal policies affect relative prices and real exchange rate vis-à-vis other Euro area countries.

It appears that discretionary fiscal policy may be a desirable way of dampening a country specific shock. Automatic stabilisers only cushion macroeconomic shocks, but do not fully offset them. Moreover, automatic stabilisers may not be an optimal stabilising tool when the size of government expenditures and unemployment benefits are small. At last, automatic stabilisers are likely to be destabilising when the economy is hit by a permanent supply shock, as it leads to a permanent budget imbalance.

However, from a stabilisation point of view, the effectiveness of discretionary fiscal policy is limited by long decision lags, irreversibility and fiscal biases. Taxes and government expenditures have to go through a lengthy process. The problem of decision lags is perhaps most obvious in the case of a temporary change in VAT. This measure can be decided only in a lengthy political process that is likely to produce opposite effects to those desired. As the anticipation of the measure leads households to consume more before the rise in VAT comes into action, the measure becomes procyclical. The problem of irreversibility is clear-cut for increases in government consumption in a cyclical downturn. As mentioned before, this measure is a more efficient stabilisation tool than a cut in personal income taxes (Roeger and In't Veld, 2002) but it is politically difficult to fire the government employees in the next boom. At last, it also exists a deficit bias which limits the use of discretionary fiscal policy for stabilisation purpose. It is more difficult to get political support for contractionary policy in booms than expansionary action in downturns.

On the whole, discretionay fiscal policy appears to be an efficient tool for economic stabilisation purpose but is likely to be badly timed and procyclical. Institutional reforms may be the best answer to this issue. The proposals range from improved transparency and rules for national governments to the idea of delegating fiscal stabilisation policy to an independent agency (Calmfors, 2003 and Wyplosz, 2001).

4. CONCLUSION

The efficiency of fiscal policy has been questioned on theoretical and empirical grounds. On the theoretical level, non keynesian fiscal multipliers can arise if expectations are rational, consumers fully aware of the government intertemporal budget constraint and if it exists supply constraints. Most of empirical studies conclude to the existence of expansionary fiscal consolidation. These episodes are likely to arise particularly when fiscal authorities are initially highly indebted and also when the measure comes from government expenditures cuts or indirect taxes increases. In this last case, households are lead to consume more.

The efficiency of fiscal policy has also been assessed on the economic stabilisation perspective, particularly through the working of automatic stabilisers. Empirical evidence shows that automatic stabilisers do not fully offset macroeconomic shocks so that discretionary action may add to the stabilising potential. However, discretionary stabilising actions suffer from considerable lags so that they appear to be badly timed and procyclical.

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