

**Riccardo Fiorito**  
**Fiscal Policy and Recessions**  
**MEBS, Faculty of Economics and Banking**  
**University of Siena**  
**November 2011**

**1. Goals and motivations**

- **Recessions are different from negative cycles**
- **Negative (and positive) cycles involve 50% of cases.**
- **The growth cycle and the NBER approach**
- **Recessions are much less frequent**
- **This has important fiscal implications**

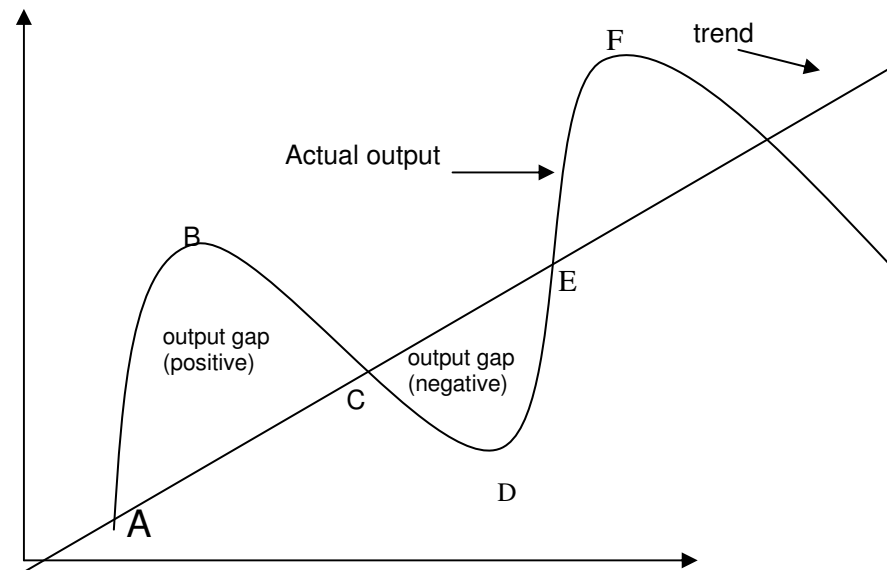
**Oecd annual data are used to show:**

- **the frequency and the depth of recessions**
- **Number of countries involved in major episodes**

**Government Spending:**

- **Really countercyclical?**
- **Always useful?**
- **Discretionary spending: measure, timing and possible effects.**

**Graph 1: Textbook business cycle phases**



**AB = expansion from A to *peak* point B → output gap (+)**

**BC = contraction from B to the equilibrium point C → output gap (+)**

**CD = contraction from C to the *trough* point D → output gap (-)**

**DE = expansion until the equilibrium point E → output gap (-)**

**Business cycles are symmetric zero-mean fluctuations:**

- **expansions (AB+DE) have the same 50% frequency than recessions (BC + DE) and**
- **include both positive and negative output gaps.**

## 2. What the data say instead?

**Table 1 – Recessions in the Oecd (1961-2010)**

Country	Recessions	Strong recessions	Country	Recessions	Strong recessions
Australia	61, 83, 91		Korea 70-10	80, 98	98
Austria	77, 81, 09	09	Luxembourg	75, 81, 09	75, 09
Belgium	75, 93, 09	09	Mexico	82, 83, 86, 95, 09	83, 86, 95, 09
Canada 61-10	82, 91, 09	82, 91, 09	Netherlands	75, 81, 82, 03, 09	09
Czech Republic 93-10	09	09	New Zealand 62-10	67, 68, 77, 78, 91, 08, 09	67, 68, 78,
Denmark 66-10	75, 80, 81, 93, 08, 09	81, 09	Norway	88, 09	09
Finland	76, 90, 91, 92, 93, 09	91, 92, 09	Poland 90-10	91	91
France 63-10	75, 93, 09	09	Portugal	75, 83, 84, 93, 03, 09	75, 93, 09
Germany	67, 75, 82, 93, 03, 09	09	Slovenia 93-10	09	09
Greece	74, 81, 82, 83, 87, 93, 09, 10	74, 87, 09, 10	Spain	81, 93, 09, 10	09
Hungary 91-10	92, 93, 09	92, 09	Sweden	77, 81, 92, 93, 08, 09	93, 09
Iceland	61, 83, 92, 02, 09, 10	92, 02, 09, 10	Switzerland 65-10	75, 76, 82, 91, 93, 03, 09	75
Ireland	86, 08, 09, 10	08, 09	Turkey	79, 80, 94, 99, 01, 09	80, 99, 01, 09
Italy	75, 93, 08, 09	75, 09	United Kingdom	74, 75, 80, 81, 91, 09	80, 09
Japan	74, 98, 99, 02, 08, 09	09	United States	74, 75, 80, 82, 91, 09	09

\* *Fonte: Oecd, Economic Outlook Database.* Strong recessions indicates at least 2% real GDP contractions with respect to previous year.

## Recessions: a few stylized facts

- Using annual data, years recessions are about 10% of cases (10.8) in the last 50 years. Even less if data stop to 2007 (4.7%).
- If the sample excludes last crisis stopping to 2007, recessions and strong recessions are 8.2% and 2.5% of cases, respectively. This is much less than 50% of cases implied by negative cycles

Before last crisis, there are 3 major recession episodes, involving several countries in the meantime:

1. 1974-75 → first oil shocks → 12 countries over 26
2. Early 80s: a mixture between the 2<sup>nd</sup> oil shock and a (regional) Northern countries crisis
3. Early 90s crisis: EMS fall → Lira, Peseta and UK Pound devaluation → 12 countries
4. Last crisis peak in 2009: 27 Oecd countries over 30 have been involved!

Tabella 2 - Maggiori episodi di recessione per il numero dei paesi coinvolti

Year	Recession	Strong recessions	Year	Recession	Strong recessions
1974	4/26	1/26	1992	4/28	3/28
1975	12/26	4/26	1993	12/30	2/30
1981	8/26	1/26	2003	4/30	
1982	6/26		2008	6/30	1/30
1983	5/26	1/26	2009	27/30	23/30
1991	7/28	3/28	2010	4/34	2/34

Source: See Table 1. 1997-98 crisis in Asia for non-Oecd countries is not calculated

## Length of recessions

- From Table 1 appears that most recessions last 1-2 years: three years exceptions are Greece (1981-3) and Finland (1990-2). Last crisis in Greece is exceptional since it should last 4 years, given bad 2012 prospects.
- Using quarterly data, recessions are more frequent but are still less frequent than negative output cycles (50%)
- A distinction between contractions and recessions (at least two consecutive quarters, Shiskin, 1974) is made.

**Tabl 3: G-7 recessions frequency for quarterly data \***

Country	Sample	Number of observations	Number of contractions	Number of recessions	Longest recession phase
Canada	1980.1-2010.3	122	22 (.18)	17 (.14)	1990.1-1990.4
United States	1980.1-2010.4	123	15 (.12)	10 (.08)	2008.3-2009.2
Japan	1980.1-2010.3	122	34 (.28)	13 (.11)	2008.2-2009.2
United Kingdom	1980.1-2010.4	123	18 (.15)	15 (.12)	2008.2-2009.3
Germany	1991.1-2010.3	78	22 (.28)	13 (.17)	2008.2-2009.1
France	1980.1-2010.3	122	13 (.11)	10 (.08)	2008.2-2009.1
Italy	1981.1-2010.3	118	30 (.25)	20 (.17)	1992.2-1993.3

\*Source: Oecd, *Economic Outlook* database (s.a. real GDP data)

### 3. A Possible Reconciliation: Growth Cycle Decomposition

Let both actual ( $y$ ) and potential output ( $y^*$ ) be a unit root process:

- (1)  $y_t = d_t + y_{t-1}$ ,
- (2)  $d_t = d + a(L)e_t$ ,  $e_t \sim \text{WN}(0, \sigma^2)$ ,
- (3)  $y_t^* = d_t + y_{t-1}^*$
- (4)  $d_t^* = d + a^*(L)e_t^*$ ,  $e_t^* \sim \text{WN}(0, \sigma^{2*})$ ,  $\sigma^{2*} < \sigma^2 < \infty$ .

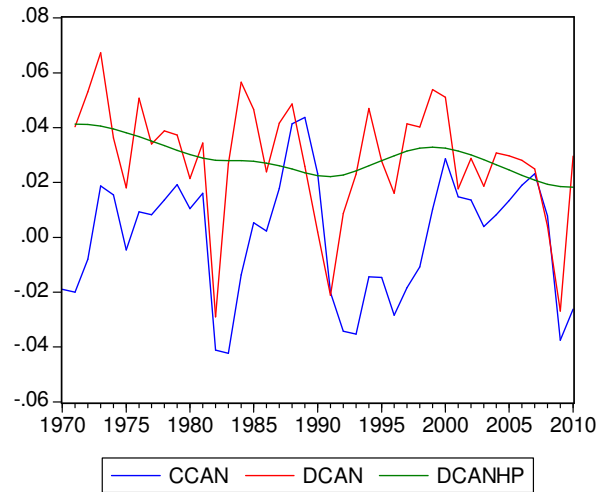
Variables are in logs and then cycles can be expressed as the sum of the growth gap ( $d_t - d_t^*$ ) and of the previous cycle, it being  $c_{t-1} = y_{t-1} - y_{t-1}^*$  (Coricelli-Fiorito, 2009):

$$(5) \quad c_t = (d_t - d_t^*) + (y_{t-1} - y_{t-1}^*), \quad d_t^* > 0,$$

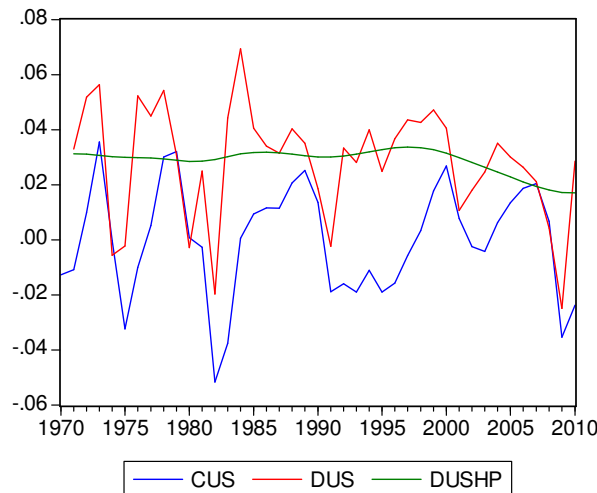
where  $d^*$  can be obtained by the HP filter (Hodrick - Prescott, 1997).

→ recessions are more volatile since the growth gap ( $d_t - d_t^*$ ) variance must be necessarily bigger since potential growth ( $d_t^*$ ) is always positive while recessions sometimes occur ( $d_t < 0$ ).

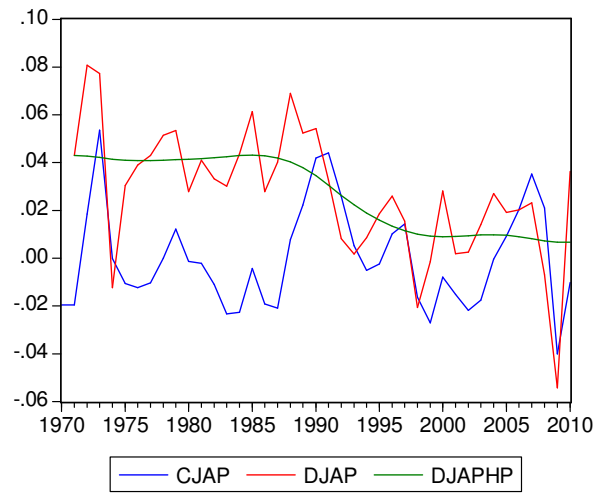
**Fig. 1 – Canada: Business cycles (CCAN), actual (DCAN) and potential (DCANHP) rates of growth**



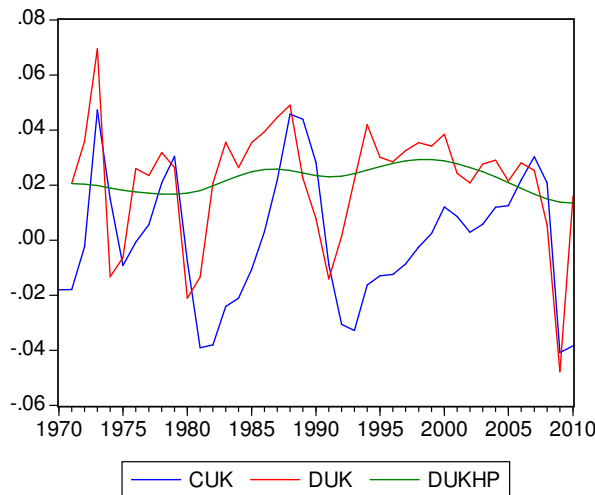
**Fig. 2 – United States: Business Cycles (CUS), actual (DUS) and potential (DUSHP) rates of growth**



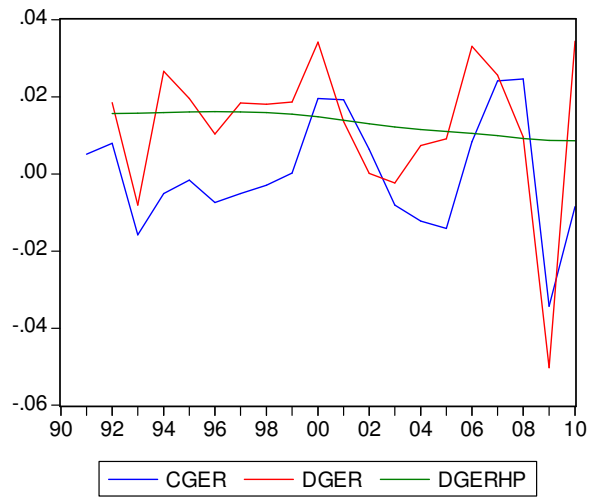
**Fig. 3 – Japan: Business Cycles (CJAP), actual (DJAP) and potential (DJAPHP) rates of growth**



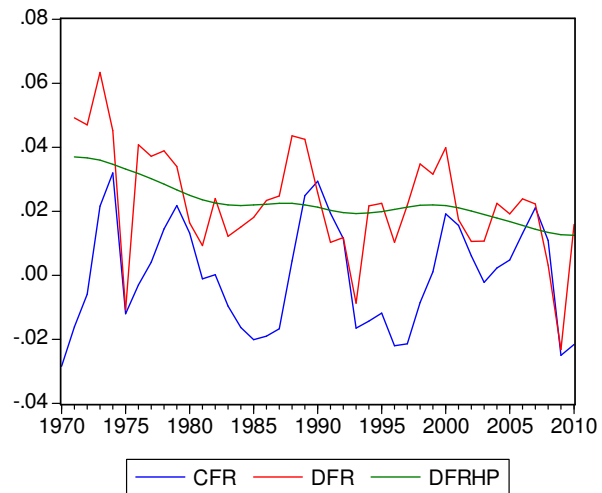
**Fig. 4 – United Kingdom: Business Cycles (CUK), actual (DUK) and potential (DUKHP) rates of growth**



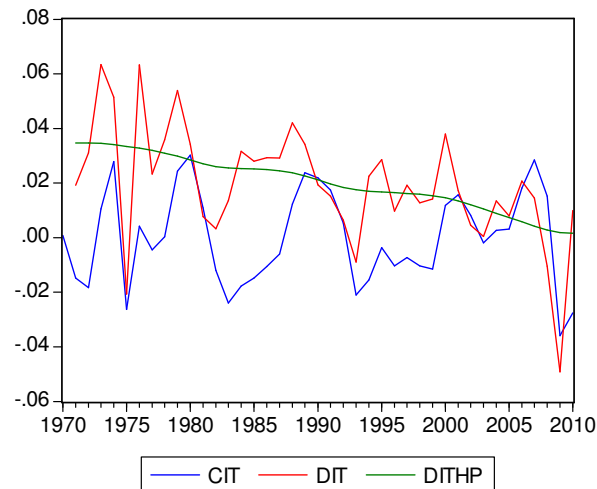
**Fig. 5 – Germany: Business Cycles (CGER), actual (DGER) and potential (DGERHP) rates of growth**



**Fig. 6 – France: Business cycles (CFR), actual (DFR) and potential (DFRHP) rates of growth**



**Fig. 7 – Italy: Business cycles (CIT), actual (DIT) and potential (DITHP) rates of growth**



#### **4. Fiscal Implications**

##### ***Automatic Stabilizers* advantages:**

- **They are timing and there is no need of making a (wrong) forecast**
- **Data release takes time and forecasting involves current situation too**
- **There is no need of obtaining political consensus.**

##### **Limits:**

- **Apply in nominal terms only and are more useful on the revenue side.**
- **If they apply too much to government spending, spending becomes procyclical, i.e. not stabilizing and rather difficult to cut.**

### **Government spending: is it really *countercyclical*?**

- **Standard views are that government spending is countercyclical in developed countries, being countercyclical in developing countries only because of inefficiency and corruption (Talvi - Vegh, 2000; Alesina, Campante, Tabellini, 2008).**
- **Careful analysis of disaggregated spending (Fiorito, 1997; Lane 1993) shows that government spending is not countercyclical in the Oecd area too, though there are differences by variable and country.**
- **The fact that government debt is high shows that government spending is not countercyclical but often acyclical or inertial.**

### ***Wrong remedies: cyclically adjusted (primary) balances (CAPB)***

**Basically, cyclically corrected measures produce government balances that are corrected for the output gap:**

$$f^*(t) = f(t) - (1/2)*[\text{output gap}],$$

**and usually referring to primary spending only (Blanchard, 1990; Girouard-André, 2005).**

- **Despite differences, these measures refer to the government balance (e.g. deficit in most cases), correcting actual data for the cyclical component and ignoring the fact that actual data do not conform to this scheme, since contractions are much less frequent than negative cycles.**
- **Despite their weak methodology, these measures are frequently used by Oecd, IMF and European Commission.**
- **The 1/2 output gap correction implicitly assume a zero government spending elasticity to the business cycle and a unit tax elasticity. As a result, CAPB is not a good way for evaluating *discretionary* spending.**

### **5. Discretionary spending**

- Here, fiscal discretion applies only to spending, being negligible *lump sum* taxes in modern economies.
- Actually most revenues are distortionary, being based on spending, income and employment which also explains why most spending is also automatic.

**In the fiscal literature there are basically three ways to measure discretionary spending:**

- Cyclically adjusted deficits (see above)
- Regression residuals fo fiscal variables (Fatás and Mihov, 2003)
- *Event Studies* (Romer and Romer, 2010; Ramey, 2011).

**Fatás and Mihov (2003) use a 2-stage procedure:**

- 1st stage: government consumption changes are regressed in a panel of countries on gdp changes and other controls (foreign trade share, CG/Y, per capita GDP).
- Residuals are meant to be independent of business cycles and regressed in the 2nd stage and their volatility in each country approximates in a cross section discretionary spending: as a result discretionary spending – i.e. unexplained consumption variance in each country – makes more unstable the economy and reduces growth.

**Two major limits:**

- **Government spending is confined to consumption only and**
- **discretion is measured by whatever is not explained in the chosen regression.**

***Event studies:***

- **informations are taken by laws, presidential speeches and then translated into quantitative assessments: this was done by Romer and Romer (2010) post-war reconstruction on tax legislation in the US. The estimates so obtained accentuate the depressive effects of taxation on the economy.**
- **A similar study has been made on US spending components by Valerie Ramey (2011) and she obtains estimates reducing VAR spending multipliers (Blanchard - Perotti, 2002) and showing that transient government spending (purchases) can help economy recovery.**

**However, event studies are difficult to be evaluated quantitatively and even more so for different countries, despite there is an IMF study (2010) which is critical on the idea that fiscal contraction can help growth (Alesina - Ardagna, 2010).**

## ***6. A simple alternative***

**Confining discretion to government spending only, definition naturally applies to spending decided to face crisis or emergency, bound to be transitory and not to last for long. In this perspective, discretion should apply more to recessions than to simple cyclical swings that can be faced by automatic stabilizers.**

**This intuitive definition has been defined and measured for Oecd countries by Coricelli and Fiorito (2009) on the basis of few criteria:**

- i) Methods should be easily applied to several countries**
- ii) Different spending items should be evaluated**
- iii) Criteria do not have to be too subjective or ad hoc.**

**These criteria comply with a few conceptual requirements and are basically three:**

- Discretionary policy does not have to be so inertial as many macroeconomic time series are, including government spending components (Fiorito, 1997). An implicit requirement is also that spending components must be evaluated separately and cannot be confined to consumption expenditure only.**
- The second, related, requirement is that discretionary spending should not reflect any type of *obligation*, regardless if legal, contractual or even moral: typical obligations are not only the payment of *debt interests* but also *payment of employees* (usually, 2/3 of government consumption) and pensions (majority of money transfers).**
- The third requirement of discretionary spending is that it must be *temporary* and *revocable*: as when a specific spending aims at obtaining an immediate goal and does not need to keep on after the goal is achieved.**

**These requirements do not imply that discretionary spending must be a white noise process: they simply imply that discretionary spending must be less persistent than real GDP fluctuations are. In particular, discretionary spending must be less persistent than the *automatic* stabilizers that are strictly related to GDP fluctuations.**

- **In a few words discretionary spending should be confined to financing unusual or exceptional events: recessions as far as the economy is concerned or natural disasters, wars and alike when other reasons of crisis occur.**
- **This implies that, in normal times, the economy (and the society) does not need extra financing from the government.**

**In the light of these assumptions, discretionary spending is measured (Coricelli-Fiorito, 2009) the basis of the following three components:**

1. ***Government purchases* i.e. about 1/3 of government consumption in the Oecd countries. Purchases buy on the market the intermediate inputs which are necessary for providing government services.**
2. ***Capital expenditure*: it is a potential growth enhancing factor (e.g. infrastructures). Thus, single projects must be activated only when necessary and then stopped once the project is realized.**
3. ***Welfare and unemployment insurances*: empirically this (heterogeneous) variable can be calculated as the difference between household transfers and pensions. These transfers (in Italy, e.g. CIG) must be temporary and *conditional* to make more flexible labor market adjustment.**

**This measure of discretionary spending can be evaluated in terms of some persistence test to be compared with GDP components and – especially with other spending components. Results show that the chosen variable are actually much less persistent than the excluded government spending variables.**

- **This measure roughly corresponds to 1/3 of total spending so that most of government spending seems to be *automatic*, i.e. resulting more from habits than from decisions.**

### ***7. Conclusions***

- **Main conclusion is that discretionary government spending should be used in recessions only to be stopped afterwards. This implies that this type of spending is *revocable* and has also some *efficacy*.**
- **This study does not produce evidence on the efficacy and this is why I am trying to evaluate this point in a new research.**
- **My previous stylized facts evidence (Fiorito, 1997) on government spending in the G-7 seems to exclude that most government spending items anticipate procyclically real GDP changes: the only variable obtaining this result for all countries is the government purchases and this is also what has been recently obtained by Ramey (2011) for the US.**
- **The Italian paradox is that it is impossible to help the economy when it seems necessary because most of the excess spending was done when it was *not* necessary, at least for economic reasons.**
- **This is basically the main reason why Italy's government debt is so big and so dangerous for the Euro future.**

## *References*

**Alesina, A., Campante F.R. and Tabellini, G. (2008), *Why Is Fiscal Policy Often Procyclical?*, “Journal of the European Economic Association”, September, 1006-36.**

**Alesina, A. and Ardagna S. (2010), *Large Changes in Fiscal Policy: Taxes versus spending*, NBER WP # 15438.**

**Blanchard, O.J. (1990), *Suggestions for a New Set of Fiscal Indicators*, Oecd WP # 79.**

**Blanchard, O.J. and Perotti R. (2002), *An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes on Output*, “Quarterly Journal of Economics”, 113(3): 869-902.**

**Coricelli, F. and Fiorito, R. (2009), *Output Gap, Recessions and Fiscal Discretion*, Case Conference, Warsaw, November.**

**Fatás, A. and Mihov, I. (2003), *The Case for Restricting Fiscal Policy Discretion*, “Quarterly Journal of Economics”, 118(4), 1419-47.**

**Fiorito, R. (1997), *Stylized Facts of Government Finance in the G-7*, IMF Working Paper # 97/142.**

**Gavin, M. and Perotti, R. (1997), *Fiscal Policy in Latin America* in: B. Bernanke and J. Rotemberg (eds.), *NBER Macroeconomics Annual 1997*, MIT Press.**

**Girouard, N. and André, C. (2005), *Measuring Cyclically Adjusted Budget Balances for Oecd Countries*, Oecd Working Paper # 434.**

**IMF (2010), *Will It Hurt? Macroeconomic Effects of Fiscal Consolidation* in: *World Economic Outlook*, Ch. 3, October, 93-124.**

**Hodrick, R. and Prescott, E. (1997), *Post-war US Business Cycles: An Empirical Investigation*, “Journal of Money, Banking, and Credit”, 29:1-16.**

**Lane, P.R. (2003), *The Cyclical Behaviour of Fiscal Policy: Evidence from the Oecd*, “Journal of Public Economics”, 87: 2661-75.**

**Ramey, V.A. (2011), *Identifying Government Shocks: It's All in the Timing*, “Quarterly Journal of Economics”, 1-50.**

**Romer, C., and Romer, D. (2010), *The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks*, “American Economic Review”, 100: 763-801.**

**Shiskin, J. (1974), *The Changing Business Cycle*, New York Times, December 12.**

**Talvi, E. and Vegh. C.A. (2005), *Tax Base Variability and Procylical Fiscal Policy in Developing Countries*, “Journal of Development Economics”, 78, 156-90.**