
Fiscal Policy In European Union Countries – A Comparative Analysis Of Adjustment And Expansions Fiscal Policy Episodes

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Current financial and economical context brings new challenges for most of the countries - the decrease of public revenues and the incapacity to adjust the public expenditures. This article aims to identify the applied strategies for large discretionary fiscal changes - fiscal adjustments and fiscal expansions for the period 1996-2011 in European Union countries - through changes in public revenues or public expenditures, and the effects on the economic growth process. Using data for fiscal adjustments (improve more than 1.5 percentage points of the budget balance) and for fiscal expansions (deterioration more than 1.5 percentage points of the budget balance), there are analysed the strategies and the consequences for reducing/increasing the deficit.

Keywords: *fiscal policy, fiscal adjustment, fiscal expansions, public revenues, public expenditures*

JEL Code: *H20, H30, H50, H62*

1. Introduction

Current fiscal context sustain the need for fiscal adjustment, which may be obtained by increasing the public revenues or by decreasing the public expenditures (as a share in GDP). The scope of this paper is to identify the applied strategies for fiscal policy in European Union countries for the period

1996-2011, and determine their consequences on the economic growth. In Section 2 we present the empirical study on fiscal policy and underground economy in the context of the EU27 during 1996-2011. Section 3 concludes and section 5 contains the bibliography.

2. Empirical research

In this section we analyze the applied strategies of fiscal policy, depending on the fiscal impulse. Notation for variables used is presented below:

Variables for fiscal indicators:

balance = public budget balance in GDP (data source: AMECO)

exp = public expenditures share in GDP (data source: AMECO)

rev = public revenues in GDP (data source: AMECO)

Dummy variables

success = dummy variable for success if fiscal adjustment is successful, this success is defined by the condition that a year after the adjustment the deficit remains below 3% of GDP

dbalance_dexp = dummy variable for the case that the increase of the deficit (in the case of fiscal expansions) and the decrease of the deficit (in the case of fiscal adjustments) is obtained by a more increase of the public expenditures / a more decrease of the public expenditures

expansionary = dummy variable for expansionary aspect of a fiscal adjustment, this expansionary adjustment is defined by the condition that a year after the adjustment the growth rate is greater than in the previous year of adjustment

Fiscal adjustment indicators:

size = size of fiscal adjustment, measured as the change in budget balance (delta balance)

exp_contrib = proportion of fiscal adjustment achieved by diminishing expenditure to GDP

$$= (- \text{delta exp}) / \text{delta balance}$$

rev_contrib = proportion of fiscal adjustment achieved by diminishing expenditure to GDP

$$= \text{delta rev} / \text{delta balance}$$

In this context,

$dbalance_dexp = 1$ if $exp_contrib > rev_contrib$

Economic growth indicators:

growth = real GDP growth rate (data source: AMECO)

gdppccp = GDP per capita in constant price (data source: AMECO)

The database consists on countries from European Union - EU27: AT, BE, BG, CY, CZ, DK, EE, FI, FR, DE, EL, HU, IE, IT, LV, LT, LU, MT, NL, PL, PT, RO, SK, SI, ES, SE, UK. The data base contains annual data for the period 1996-2011 for EU27 countries.

For European Union countries, in the period 1996-2011, there are identified the fiscal adjustment and relaxed episodes. The methodology consists in determining the stance of fiscal policy depending on the values of fiscal impulse (changes of public deficit):

a - very relaxed or very expansionary, if FI is greater than 1.5pp,

b - relaxed, if FI is in the range (+0.5pp;+1.5pp);

c - neutral if the FI is in the range (-0.5pp; +0.5pp);

d - restrictive or moderate adjustments, if FI is in the range (-1.5pp; -0.5pp);

e - very restrictive or strong adjustments, if FI is less than -1.5pp.

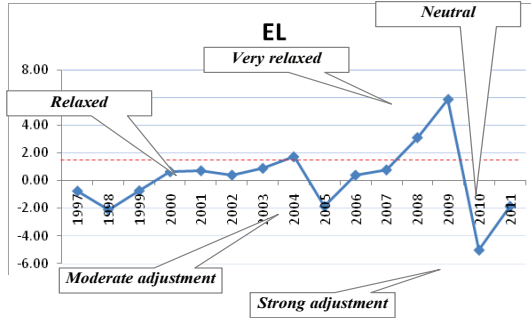
Table 1: Stance of fiscal policy in European Union countries – 1996-2011

	No.e	No.a	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
AT	3	2	e	b	c	D	e	b	b	a	e	c	d	c	a	c	d
BE	3	2	e	d	c	D	c	b	c	c	a	e	c	b	a	e	d
BG	3	2	e	c	b	B	e	a	d	e	b	d	b	d	a	d	d
CY	4	5	a	d	c	E	c	a	a	e	e	d	e	a	a	d	b
CZ	2	2	c	b	d	C	a	b	c	e	c	d	e	b	a	d	d
DK	2	2	d	d	d	D	b	b	c	e	e	c	c	a	a	c	b
EE	3	3	e	a	a	E	c	c	d	c	c	d	c	a	d	e	d
FI	4	3	e	e	c	E	a	b	a	c	c	d	d	b	a	c	e
FR	0	2	d	d	d	C	c	a	b	c	d	d	c	b	a	c	d
DE	4	2	d	c	d	E	a	b	c	c	c	e	e	C	a	b	e
EL	4	3	d	e	d	B	b	c	b	a	e	c	b	A	a	e	e
HU	5	3	b	a	e	E	b	a	e	d	a	b	e	D	b	c	e
IE	3	5	e	d	c	E	a	b	d	d	c	d	a	A	a	a	e
IT	2	2	e	c	d	D	a	c	c	c	b	d	e	B	a	d	d

LV	2		3	e	b	a	D	d	c	d	d	d	c	c	A	a	d	e
LT	4		3	a	e	c	C	c	e	d	c	d	c	b	A	a	e	e
LU	3		4	e	c	c	E	c	a	a	a	d	d	e	B	a	c	c
MT	4		3	c	a	e	E	b	d	a	e	e	c	c	A	d	c	d
NL	1		3	d	c	d	E	a	a	b	d	d	d	c	C	a	d	d
PL	3		3	c	c	e	B	a	c	b	d	d	c	e	A	a	c	e
PT	2		2	d	c	d	C	b	d	c	c	a	e	d	C	a	c	e
RO	2		2	b	d	b	C	d	d	d	c	c	b	b	A	a	e	e
SK	4		4	e	d	a	A	e	a	e	c	c	c	d	C	a	c	e
SI	1		2	b	c	b	B	c	e	c	c	d	c	d	A	a	c	c
ES	3		2	d	d	e	C	c	c	c	c	d	d	c	A	a	e	e
SE	5		3	e	e	c	E	a	a	c	e	e	c	d	B	a	d	d
UK	3		4	e	e	d	E	a	a	b	c	c	d	c	A	a	d	d

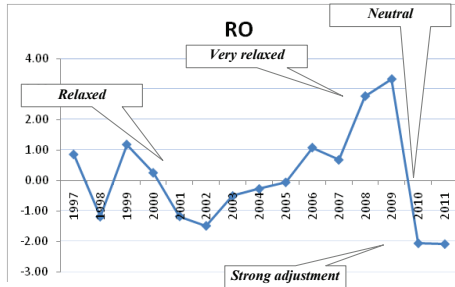
Greece is characterized by the maximum level of public deficit for the period 1996-2011 (8,91% of GDP) and it had only 4 episodes of fiscal adjustment – in 1998, 2005, 2010, 2011.

Figure 1: Fiscal policy in Greece



Romania had only 2 fiscal adjustments:

Figure 2: Fiscal policy in Romania



For these countries, in the following table there are determined the average level of total expenditures and revenues, growth rate in each of the stances of fiscal policy.

Table 2: Average levels for public revenues, expenditures and economic growth in each of the stances of fiscal policy in the selected countries – 1996-2011

fiscal policy	balance	debt	TOTAL EXPENDI- TURES		TOTAL REVENUES		GROWTH RATE			GDP per capita PPS in CP 2000				
			uutg	d_uutg	Urtg	d_urtg	growth	d_growth	Gdpppcpps	d_gdpppcpps	dr_gdpppcpps			
EL														
A	-11.06	114.02	50.11	2.33	39.05	-1.24	1.13	-2.60	17.38	-0.46	-2.5%			
(3)	4.27	14.80	3.96	1.34	1.43	1.30	3.20	0.96	0.83	0.97	5.5%			
B	-5.20	103.70	46.40	0.74	41.19	-0.01	4.73	0.60	17.04	0.49	3.3%			
(4)	1.35	3.83	1.16	1.92	1.64	1.96	0.79	1.52	1.03	0.64	4.3%			
C	-5.45	104.96	45.35	0.20	39.90	-0.19	4.30	1.05	17.86	0.75	4.4%			
(2)	0.81	3.35	0.21	0.58	1.02	0.58	1.27	2.62	0.71	0.04	0.1%			
D	-4.54	96.17	45.04	0.43	40.50	1.17	3.50	0.60	14.30	0.05	0.3%			
(2)	2.00	1.86	0.34	0.51	1.66	0.53	0.14	0.85	0.43	0.14	1.0%			
E	-7.29	126.09	47.46	-1.35	40.17	1.35	-0.45	-0.83	15.81	-0.24	-1.3%			
(4)	3.12	32.98	3.23	1.57	1.13	0.59	3.89	1.85	1.30	0.66	4.4%			
RO														
A	-7.34	18.52	40.20	1.44	32.85	-1.61	0.10	-6.70	5.62	0.30	5.6%			
(2)	2.35	7.23	1.29	0.55	1.06	0.15	10.18	10.89	0.13	0.16	3.2%			
B	-3.50	15.47	36.90	2.37	33.40	1.43	2.23	-1.08	5.53	-0.22	-2.0%			
(4)	1.10	4.31	2.18	0.87	2.31	0.83	5.96	5.17	0.44	0.83	12.8%			
C	-2.35	19.00	35.24	-0.17	32.89	-0.14	5.03	0.60	5.49	-0.37	-6.2%			
(3)	2.01	3.34	2.88	0.41	0.87	0.67	3.13	4.25	0.66	0.68	11.2%			
D	-2.55	22.22	35.11	-0.98	32.56	0.11	3.48	1.40	5.38	-0.09	-0.9%			
(4)	0.96	4.06	1.21	1.52	0.44	1.64	3.73	1.94	0.43	0.79	13.3%			

E	-5.90	32.50	39.86	-1.14	33.96	0.93	0.10	4.30	5.45	-0.14	-2.5%
(2)	1.48	2.06	1.47	1.33	0.00	1.31	1.98	2.12	0.04	0.13	2.2%
UE27											
A	-5.15	49.41	46.48	3.06	41.32	-0.69	-0.19	-3.43	19.16	-0.31	-1.7%
76 (19%)	5.12	27.72	6.00	2.81	6.20	1.39	4.74	4.41	9.88	1.23	6.0%
B	-2.65	52.65	45.65	0.90	43.00	-0.05	2.54	-0.45	17.22	0.06	0.6%
50 (13%)	2.91	29.62	5.91	1.31	6.28	1.34	3.05	2.74	8.98	0.81	5.8%
c	-1.89	48.10	44.25	-0.07	42.35	-0.06	3.76	0.68	18.95	0.34	1.6%
106 (26%)	2.82	27.66	6.39	1.27	6.50	1.27	2.58	3.16	8.74	0.64	4.0%
d	-1.88	49.92	43.98	-0.81	42.11	0.13	3.64	0.93	18.35	0.42	2.3%
94 (23%)	2.79	28.87	6.66	1.22	6.59	1.22	3.13	3.04	8.72	0.65	4.6%
e	-1.88	57.51	44.82	-2.40	42.94	0.59	3.63	1.35	17.82	0.44	2.2%
79 (19%)	3.87	30.65	6.28	2.91	7.07	1.39	2.98	3.32	8.79	0.81	4.5%

Table 3: Statistic descriptives for each type of fiscal policy, in the context of UE countries for the period 1997-2011

fiscal policy	TOTAL EXPENDITURES				TOTAL REVENUES		GROWTH RATE				GDP per capita PPS in CP 2000		
	balance	d_balance	debt	d_debt	uutg	d_uutg	urtg	d_urtg	growth	d_growth	gdppc pps	d_gdppc pps	dr_gdppc pps
a (76)													
Minim	-31.31	-17.13	4.52	-13.61	33.02	-1.02	31.39	-4.17	-18	-17.6	5.524	-5.207	-12.79%
Maxim	4.96	-1.52	129.31	29.66	66.82	17.92	56.11	4.71	7.5	6.6	49.637	2.992	20.25%
Average	-5.15	-3.75	49.41	4.41	46.48	3.06	41.32	-0.69	-0.19	-3.43	19.159	-0.315	-1.71%

Stdev	5.12	2.37	27.72	6.94	6	2.81	6.2	1.39	4.74	4.41	9.878	1.227	6.00%
b (50)													
Minim	-9.4	-1.48	9.6	-9.51	33.35	-1.64	30.18	-2.59	-6.7	-8.1	5.118	-1.51	-17.88%
Maxim	4.14	-0.51	107.42	9.53	58.16	5.39	55.37	4.67	9.8	8.3	52.266	2.42	16.49%
Average	-2.65	-0.96	52.65	0.71	45.65	0.9	43	-0.05	2.54	-0.45	17.218	0.056	0.62%
Stdev	2.91	0.28	29.62	4.03	5.91	1.31	6.28	1.34	3.05	2.74	8.983	0.81	5.84%
c (106)													
Minim	-9.79	-0.5	3.69	-25.45	33.22	-4.57	31.69	-4.33	-1.1	-8.7	4.961	-1.089	-15.20%
Maxim	6.11	0.5	114.94	13.16	58.47	6.49	58.9	6.94	12.2	11.3	47.85	3.211	11.05%
Average	-1.89	0.02	48.1	-0.36	44.25	-0.07	42.35	-0.06	3.76	0.68	18.947	0.342	1.65%
Stdev	2.82	0.29	27.66	4.19	6.39	1.27	6.5	1.27	2.58	3.16	8.744	0.639	3.96%
d (94)													
Minim	-10.28	0.51	4.41	-11.22	33.04	-4.28	31.77	-3.21	-13.9	-8.8	4.867	-1.41	-20.78%
Maxim	5.18	1.5	120.47	10.22	56.68	5.75	56.78	6.68	10.6	17.7	51.947	2.345	13.76%
Average	-1.88	0.94	49.92	-0.66	43.98	-0.81	42.11	0.13	3.64	0.93	18.353	0.417	2.30%
Stdev	2.79	0.3	28.87	3.32	6.66	1.22	6.59	1.22	3.13	3.04	8.718	0.646	4.56%
e (79)													
Minim	-10.76	1.51	5.12	-10.52	31.18	-21.13	32.71	-2.86	-5.6	-3.2	5.424	-2.717	-21.26%
Maxim	6.83	21.02	162.83	17.95	60.66	0.71	59.66	6.98	11.7	17	53.775	3.345	8.64%
Average	-1.88	2.99	57.51	-0.36	44.82	-2.4	42.94	0.59	3.63	1.35	17.82	0.44	2.24%
Stdev	3.87	2.63	30.65	5	6.28	2.91	7.07	1.39	2.98	3.32	8.793	0.806	4.51%

Table 4: Episodes of fiscal adjustment and expansions for UE27 countries – 1996-2011

	Fiscal adjustments	Fiscal expansions
	d_balance>1,5pp	d_balance<-1,5pp
AT	1997, 2001, 2005	2004, 2009
BE	1997, 2006, 2010	2005, 2009
BG	1997, 2001, 2004	2002, 2009
CY	2000, 2004, 2005, 2007	1997, 2002, 2003, 2008, 2009,
CZ	2004, 2007	2001, 2009
DK	2004, 2005	2008, 2009
EE	1997, 2000, 2010	1998, 1999, 2008
FI	1997, 1998, 2000, 2011	2001, 2003, 2009
FR	-	2002, 2009
DE	2000, 2006, 2007, 2011	2001, 2009
EL	1998, 2005, 2010, 2011	2004, 2008, 2009
HU	1999, 2000, 2003, 2007, 2011	1998, 2002, 2005
IE	1997, 2000, 2011	2001, 2007, 2008, 2009, 2010
IT	1997, 2007	2001, 2009
LV	1997, 2011	1999, 2008, 2009
LT	1998, 2002, 2010	1997, 2008, 2009
LU	1997, 2000, 2007	2002, 2003, 2004, 2009
MT	1999, 2000, 2004, 2005	1998, 2003, 2008
NL	2000	2001, 2002, 2009
PL	1999, 2007, 2011	2001, 2008, 2009
PT	2006, 2011	2005, 2009
RO	2010, 2011	2008, 2009
SK	1997, 2001, 2003, 2011	1999, 2000, 2002, 2009
SI	2002	2008, 2009
ES	1999, 2010, 2011	2008, 2009
SE	1997, 1998, 2000, 2004, 2005	2001, 2002, 2009
UK	1997, 1998, 2000	2001, 2002, 2008, 2009

In the next table there are registered the episodes of fiscal expansions and their characteristics: success vs. no success, depending on the condition that a year after the adjustment the deficit remains below 3% of GDP,

expansionary vs. contractionary, depending on the condition that a year after the adjustment the growth rate is greater than in the previous year of adjustment and adjustment realized through expenditures vs. revenues.

Table 5: Fiscal expansions

success	expansionary	dbalance_dexp	no. 76	% 100%
1			22	28,95%
0			54	71,05%
1	1		12	15.79%
1	0		10	13.16%
0	1		44	57.89%
0	0		10	13.16%
1	1	1	3	3.95%
1	1	0	9	11.84%
1	0	1	4	5.26%
1	0	0	6	7.89%
0	1	1	8	10.53%
0	1	0	36	47.37%
0	0	1	1	1.32%
0	0	0	9	11.84%
	1		56	73.68%
	0		20	26.32%
	1	1	11	14.47%
	1	0	45	59.21%
	0	1	5	6.58%
	0	0	15	19.74%
		1	16	21.05%
		0	60	78.95%

The previous table contains the situations of fiscal expansions in European Union 27 countries, regarding the success (success = dummy variable for success, depending on the condition that for the next year the deficit remains below 3% of GDP), the effect on economic growth (expansionary = dummy variable for expansionary aspect, defined by the condition that for the next year the growth rate is greater than in the previous year of adjustment) and the applied strategy for fiscal policy (exp_contrib = proportion of balance

change achieved by expenditure to GDP = $(-d_exp)/d_balance$).

From the total fiscal expansion episodes, 28,95% had success, respectively one year after the adjustment the deficit remains below 3% of GDP, 73,68% were expansionary (a year after the adjustment the growth rate is greater than in the previous year of adjustment) and 78,95% had been realized through greater public revenue than the public expenditure adjustment (the total fiscal impulse is influenced more of public revenue decrease than public expenditure increase).

In the next table there are registered the episodes of fiscal adjustments and their characteristics.

Table 6: Fiscal adjustments

success	expansionary	dbalance_dexp	no.	%
			79	100%
1			51	64,56%
0			28	35,44%
1	1		36	45.57%
1	0		15	18.99%
0	1		21	26.58%
0	0		7	8.86%
1	1	1	26	32.91%
1	1	0	10	12.66%
1	0	1	9	11.39%
1	0	0	6	7.59%
0	1	1	12	15.19%
0	1	0	9	11.39%
0	0	1	4	5.06%
0	0	0	3	3.80%
	1		57	72.15%
	0		22	27.85%
	1	1	38	48.10%
	1	0	19	24.05%
	0	1	13	16.46%
	0	0	9	11.39%
		1	51	64.56%
		0	28	35.44%

From the total fiscal adjustment episodes, 64,56% had success, respectively one year after the adjustment the deficit remains below 3% of GDP, 60,76% were expansionary (a year after the adjustment the growth rate is greater than in the previous year of adjustment) and 64,56% had been realized through greater public spending than the public revenue adjustment (the total fiscal impulse is influenced more of public expenditure decrease than public revenue increase).

Table 7: Fiscal expansions

- successful and unsuccessful, expansionary and contractionary characteristics

Success	1	0		
expansionary			1	0
no	22	54	16	60
Size	-3.09	-4.02	-4.01	-3.68
Exp_contrib	0.60	0.83	0.65	0.80
growth (t+1)-(t-1)	-2.48	-3.82	1.46	-4.76
growth (t+1)	0.74	-0.58	3.88	-1.3
d_gdppcps (t+1)-(t-1)	-0.274	-0.331	0.456	-0.520
dr_gdppcps ((t+1)-(t-1))/(t-1)	-0,91%	-2.04%	1.41%	-2.55%
exp	46.75	46.37	47.22	46.28
d_exp	2.21	3.41	3.40	2.97
rev	45.78	39.51	41.02	41.41
d_rev	-0.88	-0.62	-0.61	-0.71

Obreja Braşoveanu, L. (2011) obtains the empirical results that sustain that the probability of success is determined by a complex set of factors: the size of the consolidation effort (significant adjustments should be more successful in supporting deficit reduction, while representing a signal change in regime, maintaining policy credibility and irreversibility) and the need of fiscal adjustment (the necessity of applying an adjustment should significantly influence the credibility of the changes).

Table 8: Fiscal adjustments

- successful and unsuccessful, expansionary and contractionary characteristics

Success	1	0		
Expansionary			1	0
No	51	28	51	28
Size	2.8	3.32	3.33	2.36
exp_contrib	0.77	0.76	0.79	0.73
growth (t+1)-(t-1)	1.40	1.25	2.58	-1.07
growth (t+1)	4.41	2.1	3.83	3.24
d_gdppcpps (t+1)-(t-1)	0.569	0.206	0.425	0.468
dr_gdppcpps ((t+1)-(t-1))/(t-1)	2.64%	1.51%	2.28%	2.16%
Exp	44.65	45.14	43.99	46.34
d_exp	-2.16	-2.82	-2.73	-1.78
Rev	44.81	39.54	42.29	44.13
d_rev	0.64	0.50	0.59	0.59

Obreja Braşoveanu, L. (2011) obtains the empirical results that sustain that the probability of success is determined by a complex set of factors: the size of the consolidation effort (significant adjustments should be more successful in supporting deficit reduction, while representing a signal change in regime, maintaining policy credibility and irreversibility) and the need of fiscal adjustment (the necessity of applying an adjustment should significantly influence the credibility of the changes).

3. Conclusions

In this study, we use data for fiscal adjustments (improve more than 1.5 percentage points of the budget balance) and for fiscal expansions (deterioration more than 1.5 percentage points of the budget balance) in order to analyze the strategies and the consequences for reducing/increasing the deficit.

From the total fiscal expansion episodes, 28,95% had success, respectively one year after the adjustment the deficit remains below 3% of GDP, 73,68% were expansionary (a year after the adjustment the growth rate is greater than in the previous year of adjustment) and 78,95% had been realized through greater public revenue than the public expenditure adjustment (the total fiscal impulse is influenced more of public revenue decrease than public

expenditure increase).

From the total fiscal adjustment episodes, 64,56% had success, respectively one year after the adjustment the deficit remains below 3% of GDP, 60,76% were expansionary (a year after the adjustment the growth rate is greater than in the previous year of adjustment) and 64,56% had been realized through greater public spending than the public revenue adjustment (the total fiscal impulse is influenced more of public expenditure decrease than public revenue increase).

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