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Fiscal adjustment – strategies and consequences: empirical evidence for European Union economies

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Abstract:
The current economic context brings new challenges for all countries in order to take action for fiscal adjustment, as a reaction for decreasing of public revenues, through lowering the tax base and the capacity to collect taxes, and for the inability to adjust the public expenditures.
Fiscal adjustment could be done through increasing public revenues, decreasing public expenditures or applying a mixed strategy. The effectiveness and the consequences of a fiscal adjustment depends on the adopted strategy, but also on the size and the composition of the fiscal adjustment.
In this paper, we identify the fiscal adjustment strategies applied in European Union countries and we examine the evidence on fiscal adjustments in order to determine the relevant factors for the success and expansionary effects.

Keywords: fiscal policy, fiscal discipline, fiscal adjustment, public revenues, public expenditures,

JEL Code: H20, H30, H50, H62

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1.Introduction

The current economic context brings new challenges for all countries in order to take action for fiscal adjustment, as a reaction for decreasing of public revenues, through lowering the tax base and the capacity to collect taxes, and for the inability to adjust the public expenditures. In this complicate context, most of the countries face the debt and deficit challenges, and as a consequence there appears the necessity for fiscal adjustment. An episode of fiscal adjustment is defined the situation in which there are taken actions to significantly reduce the public deficit. The composition of fiscal adjustment – reducing the public expenditures vs. increasing the public revenues – is very relevant for its effects. There is evidence that it is effective if it consists on mixed measures to reduce expenditures, to improve revenues mobilization, to improve the resource allocation and efficiency of public sector.

The scope of this paper is to identify the fiscal adjustment episodes, to analyze the applied strategies for obtaining fiscal adjustment in European Union countries for the period 1996-2011, and to identify the relevant factors for the effectiveness of fiscal adjustment (measured by the success and consequences on economic growth).

In section 2 there are the most relevant definitions for fiscal adjustment and for adjustment's success. In Section 3 there is presented the empirical study on episodes of fiscal adjustment in the context of the EU27 during 1996-2011. Section 4 concludes and section 5 contains the bibliography.

2.Literature review

Fiscal adjustment is described as a significant decrease of budget deficit. This section contains the definition of fiscal adjustment in the context of the classification of fiscal policy, the definition of the fiscal adjustment's success depending on the sustainability of deficit reduction.

Definitions for fiscal adjustment

- Alesina, Perotti (1995) define the stance for fiscal policy depending on the changes of the budget deficit (called fiscal impulse, denoted by FI): (a) neutral if the FI is in the range (-0.5pp; +0.5pp); (b) relaxed, if FI is in the range (+0.5pp;+1.5pp); (c) very relaxed, if FI is greater than 1.5pp, (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.
- Purfield (2003) defines the very restrictive fiscal policy episode as an episode of fiscal adjustment characterized by an improvement of budget primary balance by at least 1.5 percentage points of GDP in a year or at least 1.25 percentage points of GDP in at least two consecutive years.
- Alesina, Perotti (1995) – fiscal policy is considered to be: (a) neutral if the FI is in the range ($-\mu i-0.5\sigma i$; $-\mu i+0.5\sigma i$); (b) relaxed, if FI is in the range ($\mu i+0.5\sigma i$; $\mu i+\sigma i$); (c) very relaxed, if FI is greater than $\mu i+\sigma i$, (d) restrictive or moderate adjustments, if FI is in the range ($\mu i-\sigma i$; $\mu i-0.5\sigma i$); (e) very restrictive or strong adjustments, if FI is less than $\mu i-\sigma i$.

- Alesina, Ardagna (1998) defines a period of fiscal adjustment as a year in which the cyclically adjusted primary balance improves by at least 2 pp of GDP or a period of two consecutive years in which the cyclically adjusted primary balance improves by at least 1,5 pp of GDP per year, in both years,

Definitions for a successful fiscal adjustment

- Alesina, Perotti (1995) define the successful fiscal adjustment as the situation in which a very restrictive fiscal policy generates gross debt ratio to GDP after 3 years lower than in the year of fiscal adjustment with at least 5 percentage points of GDP.
- Alesina, Perotti (1996) define the successful fiscal adjustment as the situation in which an episode of very restrictive fiscal policy meets the following conditions: (i) within three years after the restrictive episodes, the cyclically adjusted primary deficit is on average 2% lower compared to last year of the restrictive fiscal policy, (ii) three years after the last year of the restrictive fiscal policy, the debt to GDP is 5% below the level registered last year of the restrictive fiscal policy.
- Alesina, Ardagna (1998) consider that a period of tight fiscal policy is successful if (a) in the three years after the tight period, the ratio of the cyclically adjusted primary deficit to GDP is on average at least 2 pp of GDP below its value in the year of tight policy, or (b) three years after the tight period, the ratio of the debt to GDP is 5 pp of GDP below its level in the year of the tight period.
- Purfield (2003) defines a successful episode of fiscal adjustment as the situation in which the average of the general government balance after two years is at least 2 percentage points lower than in the two years preceding the adjustment.

Definitions for expansionary fiscal adjustment

- Alesina, Ardagna (1998) consider that a period of tight fiscal policy is expansionary if the average growth rate of GDP, in difference from the G7 average (weighted by GDP weights), in the period of the tight policy and in the two years after is greater than the average value of the same variable in all episodes of tight policy.
- Purfield (2003) defines an episode of fiscal adjustment as being expansionary if the average growth rate of real GDP during the adjustment period and over the next two years is at least one standard deviation above the average growth rate recorded for the country throughout the period.

In order to analyze the consequences of the fiscal adjustment process, there must be taken into consideration the following: the size of the adjustment, the applied strategy - reduced public expenditures or increased public revenues, and changed structure of public revenues and expenditures, the sustainability of fiscal adjustment, macroeconomic consequences of fiscal adjustment.

3.Empirical research

The database consists on all 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.

Notation for variables used is presented below:

Variables for fiscal indicators:

balance = public budget balance in GDP (data source: AMECO)
primary_balance = public budget balance in GDP (data source: AMECO)
cyclically_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)
debt = general government consolidated gross debt (data source: AMECO)
d_x=delta x = absolute change of variable x
dr_x=delta relative x = percentage change of variable x

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
adjustment_exp = dummy variable for fiscal adjustment achieved through greater public spending than the public revenue adjustment
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 (d_balance)
exp_contrib = proportion of fiscal adjustment achieved by diminishing expenditure to GDP
= (- d_ exp)/d_balance

Economic growth indicators

growth = real GDP growth rate (data source: AMECO)
gdppcpps = GDP per capita in constant price at PPS (data source: AMECO)

Qualitative indicators

govva = governance indicators - Voice and Accountability (data source: World Bank)
govps = governance indicators - Political Stability (data source: World Bank)
govge = governance indicators - Government Effectiveness (data source: World Bank)
govrq = governance indicators - Regulatory Quality (data source: World Bank)
govrl= governance indicators - Rule of Law (data source: World Bank)
govcc = governance indicators - Control of Corruption (data source: World Bank)
cpi = corruption perception index (data source: Transparency International)

In the next tables there are presented average values for the budget balance, conventional, primary and cyclically adjusted and public debt in the EU27 countries, for the intervals 1996-2006 and 2007-2011. For most of the countries, the last five years interval represents the situation of worsening fiscal balance and public debt – only CY, CZ, DE, HU, MT, SK, SE have better average values for conventional budget balance for the period 2007-2011 comparing with 1996-2006, only CY, CZ, EL, IE, NL have better average values for primary balance, only CY, DK, EL, IE, LV, NL, UK have better average values for cyclically adjusted balance. Regarding public debt, the situation is better in the last five years than in the previous eleven in the case of BE, BG, CY, DK, EE, FI, SK, ES and SE. In most of the countries, there are serious problems of budgetary imbalances and public debt.

We can say that the member states of EU have serious fiscal and indebtness problems that have to be resolved through fiscal adjustments.

Table 1: Public balance – conventional, primary and cyclicaly adjusted – and public debt in UE27 countries

	balance		Primary_balance		Cyclically_balance		debt	
	1996-2006	2007-2011	1996-2006	2007-2011	1996-2006	2007-2011	1996-2006	2007-2011
AT	-2.15	-2.79	1.24	-0.07	-2.05	-2.72	65.38	67.52
BE	-1.01	-3.06	5.14	0.58	-1.15	-2.88	106.41	92.52
BG	-0.38	-1.42	4.37	-0.59	-0.16	-1.26	58.36	15.86
CY	-3.65	-2.74	-0.49	-0.12	-3.69	-3.03	62.69	58.52
CZ	-4.19	-3.53	-3.14	-2.30	-3.83	-4.20	21.63	33.70
DK	1.27	-0.34	4.82	1.41	0.79	0.81	51.64	38.33
EE	0.46	-0.30	0.72	-0.13	0.25	-0.19	5.67	5.57
FI	2.24	0.50	1.56	-0.97	-2.51	-3.50	45.71	41.94
FR	-2.84	-5.32	4.91	1.91	1.81	1.10	60.73	75.83
DE	-2.61	-1.73	0.16	-2.69	-3.34	-4.94	62.49	74.25
EL	-5.24	-10.43	0.50	0.91	-2.41	-1.59	100.58	131.48
HU	-6.37	-2.80	1.53	-4.92	-5.23	-9.57	60.60	75.35
IE	1.63	-12.61	-0.69	1.40	-6.96	-2.28	41.40	67.50
IT	-3.37	-3.60	3.75	-10.38	0.53	-11.77	109.85	112.66
LV	-1.22	-5.31	3.27	1.16	-3.70	-3.14	12.73	31.01
LT	-3.00	-5.16	-0.42	-4.17	-1.25	-5.22	19.40	27.48
LU	2.41	0.84	-1.88	-3.88	-2.61	-5.05	6.58	14.74
MT	-6.46	-3.46	2.70	1.21	1.93	1.04	58.85	66.13
NL	-0.79	-2.84	-3.15	-0.28	-6.56	-3.25	57.07	58.33
PL	-4.42	-5.27	2.71	-0.76	-0.79	-2.48	42.62	50.93
PT	-3.71	-6.54	-1.12	-2.73	-4.41	-5.51	55.13	83.55
RO	-2.90	-5.88	-0.66	-3.29	-3.95	-5.94	18.69	22.97
SK	-6.10	-5.08	-0.15	-4.62	-2.58	-6.53	39.84	35.68
SI	-2.43	-3.92	-3.34	-3.70	-5.70	-5.84	25.46	32.91
ES	-1.13	-5.95	-0.39	-2.46	-2.91	-4.06	55.00	52.15
SE	0.34	1.09	2.01	-4.13	-1.45	-4.84	57.93	39.55
UK	-1.51	-7.77	3.61	2.42	0.43	1.57	43.05	66.55

Data source: AMECO

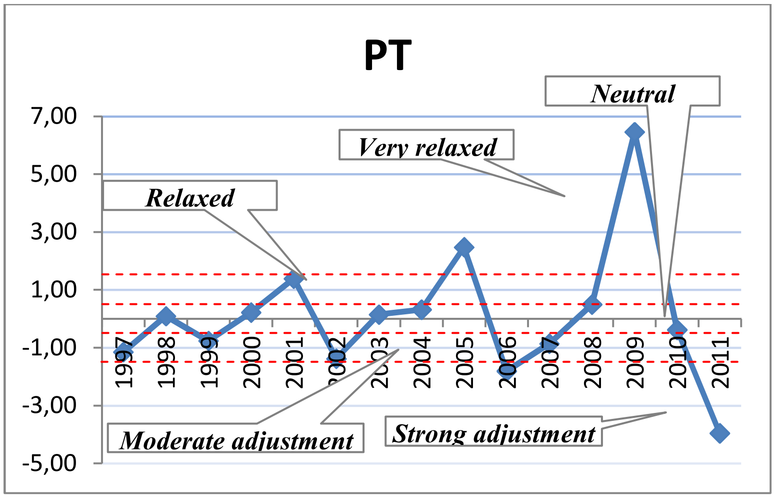
For European Union countries, in the period 1996-2011, there are identified the fiscal adjustment episodes. The methodology that we use consists in determining the stance of fiscal policy depending on the values of fiscal impulse (changes of public deficit):
(a) neutral if the FI is in the range (-0.5pp; +0.5pp);
(b) relaxed, if FI is in the range (+0.5pp;+1.5pp);
(c) very relaxed, if FI is greater than 1.5pp,
(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.
In the next table there are fiscal policies applied in UE 27 countries.

Table 2: Stance of fiscal policy in European Union countries – 1996-2011

	No.e	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*
AT	3	e	b	c	d	e	b	b	a	e	c	d	c	a	c	d
BE	3	e	d	c	d	c	b	c	c	a	e	c	b	a	e	d
BG	3	e	c	b	b	e	a	d	e	b	d	b	d	a	d	d
CY	4	a	d	c	e	c	a	a	e	e	d	e	a	a	d	b
CZ	2	c	b	d	c	a	b	c	e	c	d	e	b	a	d	d
DK	2	d	d	d	d	b	b	c	e	e	c	c	a	a	c	b
EE	3	e	a	a	e	c	c	d	c	c	d	c	a	d	e	d
FI	4	e	e	c	e	a	b	a	c	c	d	d	b	a	c	e
FR	0	d	d	d	c	c	a	b	c	d	d	c	b	a	c	d
DE	4	d	c	d	e	a	b	c	c	c	e	e	c	a	b	e
EL	4	d	e	d	b	b	c	b	a	e	c	b	a	a	e	e
HU	5	b	a	e	e	b	a	e	d	a	b	e	d	b	c	e
IE	3	e	d	c	e	a	b	d	d	c	d	a	a	a	a	e
IT	2	e	c	d	d	a	c	c	c	b	d	e	b	a	d	d
LV	2	e	b	a	d	d	c	d	d	d	c	c	a	a	d	e
LT	4	a	e	c	c	c	e	d	c	d	c	b	a	a	e	e
LU	3	e	c	c	e	c	a	a	a	d	d	e	b	a	c	c
MT	4	c	a	e	e	b	d	a	e	e	c	c	a	d	c	d
NL	1	d	c	d	e	a	a	b	d	d	d	c	c	a	d	d
PL	3	c	c	e	b	a	c	b	d	d	c	e	a	a	c	e
PT	2	d	c	d	c	b	d	c	c	a	e	d	c	a	c	e
RO	2	b	d	b	c	d	d	d	c	c	b	b	a	a	e	e
SK	4	e	d	a	a	e	a	e	c	c	c	d	c	a	c	e
SI	1	b	c	b	b	c	e	c	c	d	c	d	a	a	c	c
ES	3	d	d	e	c	c	c	c	c	d	d	c	a	a	e	e
SE	5	e	e	c	e	a	a	c	e	e	c	d	b	a	d	d
UK	3	e	e	d	e	a	a	b	c	c	d	c	a	a	d	d

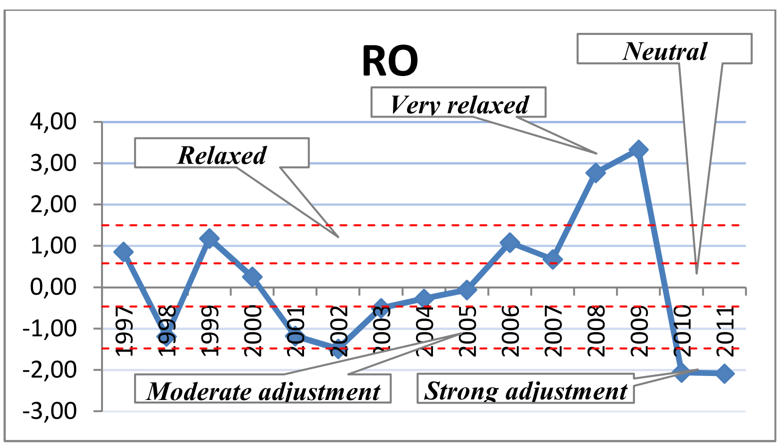
For the period 1996-2011, Portugal had only 2 fiscal adjustments. The fiscal policy might be caracterized as being:

- ⇨ Very relaxed – 2005, 2009
- ⇨ Relaxed – 2001
- ⇨ Neutral – 1998, 2000, 2003, 2004, 2008, 2010
- ⇨ Moderate adjustment – 1997, 1999, 2002, 2007
- ⇨ Strong adjustment – 2006, 2011



For the period 1996-2011, Romania had only 2 fiscal adjustments. The fiscal policy might be caracterized as being:

- ⇨ Very relaxed – 2008, 2009
- ⇨ Relaxed – 1997, 1999, 2006, 2007
- ⇨ Neutral – 2000, 2004, 2005
- ⇨ Moderate adjustment – 1998, 2001, 2002, 2003
- ⇨ Strong adjustment – 2010, 2011



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, for Romania and UE27 average.

A special attention must be paid in fiscal policy analysis to the countries with vulnerability of fiscal policy - Stoian (2011). In this study there are analyzed the features of fiscal policy in Romania and in the EU27 countries.

- ⇨ Very relaxed – 2005, 2009
- ⇨ Relaxed – 2001
- ⇨ Neutral – 1998, 2000, 2003, 2004, 2008, 2010
- ⇨ Moderate adjustment – 1997, 1999, 2002, 2007
- ⇨ Strong adjustment – 2006, 2011

Table 3: Average levels for public revenues, expenditures and economic growth in each of the stances of fiscal policy in Portugal, Romania and UE27 – 1996-2011

			TOTAL EXPENDITURES		*TOTAL REVENUES*		*GROWTH RATE*		*GDP per capita PPS in CP 2000*		
fiscal	*balance*	*debt*	*exp*	*d_exp*	*rev*	*d_rev*	*growth*	*d_growth*	*gdppcpps*	*d_*	*dr_*

policy										*gdppcpps*	*gdppcpps*
PT											
a	-8.02	72.88	47.83	3.09	39.81	-1.38	-0.85	-1.65	15.16	0.04	0.4%
2 (13,3%)	3.03	14.32	2.91	2.81	0.12	0.01	2.33	1.20	0.24	0.84	5.6%
b	-4.32	51.20	42.48	1.35	38.16	-0.04	2.00	-1.90	15.31	-0.13	-0.8%
1 (6,7%)											
c	-4.40	62.88	44.43	0.68	40.03	0.53	1.82	0.45	15.07	0.11	0.8%
6 (40%)	2.65	16.98	3.81	0.73	1.79	0.89	2.26	2.37	0.49	0.45	3.0%
d	-3.06	56.52	42.20	-0.27	39.14	0.77	2.90	-0.13	14.99	0.33	2.4%
4 (26,7%)	0.30	8.12	1.55	0.47	1.50	0.42	1.71	1.14	0.82	0.33	2.4%
e	-4.95	82.74	46.83	-1.73	41.88	1.15	0.20	-0.85	15.42	0.00	0.0%
2 (13,3%)	1.24	26.61	3.25	0.69	2.01	0.83	1.70	2.05	0.24	0.37	2.4%
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 (13,3%)	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 (26,7%)	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 (20%)	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 (26,7%)	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 (13,3%)	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%

Each row contains two values: average and standard deviation for the indicator.

In order to determine the composition and the effects of fiscal adjustment, there are analyzed only the episodes of fiscal adjustment, "e" from the previous table.

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

	Episodes of fiscal adjustment	
	d_balance>1,5pp	d_cyclically_balance>1,5pp
AT	1997, 2001, 2005	2000
BE	1997, 2006, 2010	1998, 2006,
BG	1997, 2001, 2004	2004, 2010
CY	2000, 2004, 2005, 2007	2004, 2005, 2007
CZ	2004, 2007	2004
DK	2004, 2005	2005
EE	1997, 2000, 2010	2000, 2009, 2010
FI	1997, 1998, 2000, 2011	
FR		1998, 2000,
DE	2000, 2006, 2007, 2011	
EL	1998, 2005, 2010, 2011	2000
HU	1999, 2000, 2003, 2007, 2011	1998, 2005, 2010
IE	1997, 2000, 2011	1999, 2000, 2003, 2007, 2008, 2009
IT	1997, 2007	1998, 2000
LV	1997, 2011	1997
LT	1998, 2002, 2010	
LU	1997, 2000, 2007	1998, 2010
MT	1999, 2000, 2004, 2005	1997
NL	2000	1999, 2004, 2009
PL	1999, 2007, 2011	

PT	2006, 2011	1999, 2005
RO	2010, 2011	2002, 2006
SK	1997, 2001, 2003, 2011	1998, 2010
SI	2002	1997, 2001, 2003
ES	1999, 2010, 2011	
SE	1997, 1998, 2000, 2004, 2005	2010
UK	1997, 1998, 2000	1998, 2000

Because we intend to analyze the size and the composition of fiscal adjustment, and according to available data, we consider the episodes of fiscal adjustment determined by the significantly decrease of conventional balance (>1,5 pp).

The following table contains the situations of fiscal adjustment in European Union 27 countries, regarding the success (success = dummy variable for success if fiscal adjustment is successful, this success is defined by the condition that a year after adjusting the deficit remains below 3% of GDP), the effect on economic growth (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) and the applied strategy for fiscal adjustment (exp_contrib = proportion of fiscal adjustment achieved by diminishing expenditure to GDP = (- d_exp)/d_balance). 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 72,15% 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 no. 5: Fiscal adjustments

success	expansionary	adjustment_exp	no.	%
			79	100%
1			51	64,56%
0			28	35,44%
1	1		31	39,24%
1	0		20	25,32%
0	1		17	21,52%
0	0		11	13,92%
1	1	1	23	29,11%
1	1	0	8	10,13%
1	0	1	13	16,46%
1	0	0	7	8,86%
0	1	1	12	15,19%
0	1	0	5	6,33%
0	0	1	9	11,39%
0	0	0	2	2,53%
	1		48	60,76%
	0		31	39,24%
	1	1	35	44,30%
	1	0	13	16,46%
	0	1	22	27,85%
	0	0	9	11,39%
		1	57	72,15%
		0	22	27,85%

Obreja Bra□oveanu, 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).

The following table contains the average values for the relevant indicators.
Comparing the expansionary with the contractionary episodes of fiscal adjustment, there can be noticed that in the case of the first one(a year after the adjustment the growth rate is greater than in the previous year of adjustment): the size of the fiscal adjustment is smaller, but the contribution to the public deficit reduction is more from decrease of public expenditures, economic growth (measured by growth rate and GDP per capita in constant price in PPS) is greater, all qualitative indicators have worst values, public expenditures are greater and the expenditure adjustment is greater, public revenues are smaller and the revenue adjustment is smaller.
Comparing the successful with the unsuccessful episodes of fiscal adjustment, there can be noticed that in the case of the first one (a year after adjusting the deficit remains below 3% of GDP): the size of the fiscal adjustment is smaller, but the contribution to the public deficit reduction from decrease of public expenditures is similar, economic growth (measured by the growth rate and of the value and the change of GDP per capita in constant price in PPS) is greater, all qualitative indicators have better values, public expenditures are smaller and the expenditure adjustment is smaller, public revenues are greater and the revenue adjustment is greater.

Table no. 6: Fiscal adjustments
- successful and unsuccessful, expansionary and contractionary caracteristics

success			***1***	***0***
expansionary	***1***	***0***		
no	48	31	51	28
size	3.14 (3.15)	2.75 (1.54)	2.80 (1.88)	3.32 (3.64)
exp_contrib	0.80 (0.49)	0.71 (0.43)	0.77 (0.48)	0.76 (0.46)
growth (t+1)-(t-1)	3.10 (4.02)	-2.16 (2.06)	0.60 (4.21)	1.83 (4.28)
growth (t+1)	4.05 (1.93)	2.28 (2.07)	3.61 (2.09)	2.89 (2.23)
d_gdppcpps (t+1)-(t-1)	0.76 (1.21)	0.49 (0.93)	0.89 (1.21)	0.23 (0.73)
dr_ gdppcpps ((t+1)-(t-1))/(t-1)	4.34 (7.70)	2.14 (4.80)	4.44 (7.25)	1.72 (5.48)
govva	1.16 (0.34)	1.19 (0.28)	1.25 (0.32)	1.02 (0.25)
govps	0.88 (0.48)	0.97 (0.46)	1.03 (0.45)	0.72 (0.45)
govge	1.13 (0.69)	1.24 (0.65)	1.38 (0.69)	0.79 (0.44)
govrq	1.21 (0.39)	1.25 (0.48)	1.35 (0.43)	0.99 (0.29)
govrl	1.09 (0.63)	1.16 (0.61)	1.27 (0.65)	0.83 (0.43)
govcc	1.01 (0.87)	1.18 (0.87)	1.33 (0.91)	0.61 (0.56)
cpi	6.25 (2.05)	6.46 (2.03)	7.00 (2.05)	5.11 (1.31)
exp	45.13 (6.62)	44.35 (5.79)	44.65 (7.32)	45.14 (3.83)
d_exp	-2.62 (3.43)	-2.04 (1.83)	-2.16 (2.06)	-2.82 (4.03)
rev	42.63(7.66)	43.44 (6.12)	44.81 (7.63)	39.54 (4.21)
d_rev	0.51 (1.54)	0.71 (1.13)	0.64 (1.45)	0.50 (1.29)

Each row contains two values: average and standard deviation for the indicator.

The following table contains the average values for different components of public expenditures.
Comparing the expansionary with the contractionary episodes of fiscal adjustment, there can be noticed that in the case of the first one (a year after the adjustment the growth rate is greater than in the previous year of adjustment): collective consumption expenditures is greater but the change is smaller, final consumption expenditure is greater but its change is also greater, social transfers are greater but its change is also greater, intermediate consumption is greater but its change is smaller, gross fixed capital formation is greater and the change is also greater, capital transfers paid is smaller and its change is also smaller, total current expenditure is greater and its change is greater, interest expenses are higher but its change is greater, subsidies are greater and its change is greater.
Comparing the successful with the unsuccessful episodes of fiscal adjustment, there can be noticed that in the case of the first one (a year after adjusting the deficit remains below 3% of GDP): collective consumption expenditures is smaller and its change is greater, final consumption expenditure is greater and its change is smaller, social transfers are greater and its change is smaller, intermediate consumption is greater but its change is smaller, gross fixed capital formation is smaller and the change is also smaller, capital transfers paid is smaller and its change is also smaller, total current expenditure is greater and its change is smaller, interest expenses are smaller but its change is greater, subsidies are greater and its change is smaller.

Table no. 7: Fiscal adjustments episodes - successful and unsuccessful, expansionary and contractionary - public expenditures

	success			***1***	***0***
	expansionary	***1***	***0***		
	no	48	31	51	28
	exp	45.13 (6.62)	44.35 (5.79)	44.65 (7.32)	45.14 (3.83)
	d_exp	-2.62 (3.43)	-2.04 (1.83)	-2.16(2.06)	-2.82(4.03)
collective consumption expenditures	uccg0	8.81 (1.53)	8.62 (1.68)	8.41(1.58)	9.32(1.45)
	d_uccg0	-0.11 (1.12)	-0.38 (0.76)	-0.24(0.35)	-0.17(1.63)
	uccg0/exp	0.20 (0.04)	0.20 (0.04)	0.19(0.05)	0.21(0.03)
	d_uccg0/exp	0.01 (0.03)	0.00 (0.02)	0.00(0.02)	0.01(0.04)
final consumption expenditure	uutgo	20.22 (3.20)	19.30 (2.86)	20.11(3.46)	19.40(2.23)
	d/expo	-0.56 (0.70)	-0.51 (0.73)	-0.49(0.68)	-0.63(0.76)
	uutgo/exp	0.45 (0.06)	0.44 (0.05)	0.45(0.06)	0.43(0.04)
	d/expo/exp	0.01 (0.03)	0.01 (0.03)	0.01(0.03)	0.01(0.03)
Social transfers	ucigo	11.41 (3.38)	10.67 (2.51)	11.69(3.29)	10.08(2.32)
	d_ucigo	-0.45 (1.20)	-0.14 (0.53)	-0.25(0.50)	-0.46(1.54)
	ucigo/exp	0.25 (0.05)	0.24 (0.04)	0.26(0.05)	0.22(0.05)
	d_ucigo/exp	0.00 (0.02)	0.01 (0.02)	0.01(0.02)	0.00(0.02)
Intermediate consumption	uctgi	6.37 (1.86)	6.07 (2.00)	6.55(2.19)	5.71(1.08)
	d_uctgi	-0.17 (0.50)	-0.27 (0.45)	-0.17(0.48)	-0.29(0.47)
	uctgi/exp	0.14 (0.04)	0.14 (0.04)	0.15(0.05)	0.13(0.02)
	d_uctgi/exp	0.00 (0.02)	0.00 (0.01)	0.00(0.02)	0.00(0.01)
Gross fixed capital formation	uiggo	3.08 (1.25)	2.92 (0.92)	2.71(0.96)	3.57(1.22)
	d_uiggo	-0.21 (0.69)	-0.13 (0.52)	-0.12(0.50)	-0.28(0.81)
	uiggo/exp	0.07 (0.03)	0.07 (0.02)	0.06(0.03)	0.08(0.03)
	d_uiggo/exp	0.00 (0.02)	0.00 (0.01)	0.00(0.01)	0.00(0.02)
Other capital expenditure, including capital transfers	ukog	0.96 (0.78)	0.95 (0.96)	0.73(0.73)	1.37(0.92)
	d_ukog	-1.13 (3.14)	-0.51 (1.08)	-0.49(0.90)	-1.58(4.02)

	ukog/exp	0.02 (0.02)	0.02 (0.02)	0.02(0.02)	0.03(0.02)
	d_ukog/exp	-0.02 (0.05)	-0.01 (0.02)	-0.01(0.02)	-0.03(0.06)
Capital transfers paid	uktgt	1.03 (0.70)	1.14 (0.71)	0.91(0.53)	1.46(0.90)
	d_uktgt	-0.73 (1.43)	-0.85 (2.35)	-0.67(1.85)	-1.03(1.87)
	uktgt/exp	0.02 (0.01)	0.03 (0.02)	0.02(0.01)	0.03(0.02)
	d_uktgt/exp	-0.01 (0.03)	-0.02 (0.05)	-0.01(0.04)	-0.02(0.03)
Total current expenditure	uucg	41.09 (7.05)	40.48 (5.94)	41.21(7.56)	40.20(4.40)
	d_uucg	-1.08 (1.20)	-1.04 (1.12)	-1.12(1.20)	-0.96(1.09)
	uucg/exp	0.91 (0.04)	0.91 (0.04)	0.92(0.03)	0.89(0.04)
	d_uucg/exp	0.02 (0.05)	0.02 (0.04)	0.01(0.04)	0.03(0.06)
Total current expenditure excluding interest	uucgi	37.90 (6.50)	37.38 (5.60)	38.26(7.09)	36.68(3.73)
	d_uucgi	-0.94 (1.23)	-0.92 (1.03)	-0.90(1.11)	-0.99(1.22)
	uucgi/exp	0.84 (0.05)	0.84 (0.05)	0.85(0.04)	0.81(0.05)
	d_uucgi/exp	0.02 (0.05)	0.02 (0.04)	0.02(0.03)	0.02(0.05)
Other current expenditure	uuog	1.94(0.77)	2.05(0.69)	2.07(0.76)	1.83(0.67)
	d_uuog	0.05(0.44)	0.01(0.42)	0.05(0.48)	0.02(0.32)
	uuog/exp	0.04(0.02)	0.05(0.02)	0.05(0.02)	0.04(0.02)
	d_uuog/exp	0.00(0.01)	0.00(0.01)	0.00(0.01)	0.00(0.01)
Interest	uyig	3.19(1.96)	3.10(1.64)	2.96(1.84)	3.51(1.78)
	d_uyig	-0.39(1.84)	-0.12(0.52)	-0.46(1.76)	0.04(0.57)
	uyig/exp	0.07(0.04)	0.07(0.04)	0.07(0.04)	0.08(0.04)
	d_uyig/exp	0.00(0.03)	0.00(0.01)	-0.01(0.03)	0.00(0.01)
Social benefits other than social transfers	uytgh	14.35(2.95)	14.41(3.09)	14.16(3.23)	14.75(2.50)
	d_uytgh	-0.36(0.67)	-0.39(0.61)	-0.45(0.60)	-0.23(0.71)
	uytgh/exp	0.32(0.04)	0.32(0.05)	0.31(0.04)	0.33(0.04)
	d_uytgh/exp	0.01(0.02)	0.01(0.02)	0.00(0.01)	0.01(0.03)
Subsidies	uyvg	1.34(0.75)	1.32(0.84)	1.41(0.69)	1.18(0.92)
	d_uyvg	-0.05(0.22)	-0.01(0.24)	-0.02(0.22)	-0.05(0.24)
	uyvg/exp	0.03(0.01)	0.03(0.02)	0.03(0.01)	0.03(0.02)
	d_uyvg/exp	0.00(0.00)	0.00(0.01)	0.00(0.00)	0.00(0.01)

Each row contains two values: average and standard deviation for the indicator.

The following table contains the average values for different components of public revenues.

Comparing the expansionary with the contractionary episodes of fiscal adjustment, there can be noticed that in the case of the first one (a year after the adjustment the growth rate is greater than in the previous year of adjustment): capital transfers received are greater and its change is also significant, total current revenue is smaller and its change is also smaller, actual social contributions received are smaller and its change is greater but negative, total tax burden excluding imputed social security contributions is smaller and its change is also smaller and positive, current tax burden is smaller and its change is smaller and positive, imputed social contributions are greater and its change is smaller and negative, capital taxes are greater and its change is greater and positive.

Comparing the successful with the unsuccessful episodes of fiscal adjustment, there can be noticed that in the case of the first one (a year after adjusting the deficit remains below 3% of GDP): capital transfers received are smaller and its change is greater and positive, total current revenue is greater and its change is smaller, actual social contributions received are smaller and its change is similar and negative, total tax burden excluding imputed social security contributions is greater and its change is also greater and positive, current tax burden is greater and its change is smaller and positive, imputed social contributions are smaller and its change is greater and negative, capital taxes are greater and its change is greater and positive.

Table no. 8: Fiscal adjustments episodes - successful and unsuccessful, expansionary and contractionary - public revenues

	success			***1***	***0***
	expansionary	***1***	***0***		
	no	48	31	51	28
	rev	42.63(7.66)	43.44(6.12)	44.81(7.63)	39.54(4.21)
	d_rev	0.51(1.54)	0.71(1.13)	0.64(1.45)	0.50(1.29)
Capital transfers received	ukttg	1.07(1.80)	0.57(0.72)	0.82(1.73)	0.98(0.92)
	d_ukttg	0.28(1.47)	0.02(0.19)	0.30(1.33)	-0.04(0.71)
	ukttg/rev	0.03(0.04)	0.01(0.02)	0.02(0.04)	0.03(0.02)
	d_ukttg/rev	0.01(0.03)	0.00(0.00)	0.01(0.02)	0.00(0.02)
Total current revenue: general government	urcg	41.56(7.81)	42.86(6.29)	44.00(7.80)	38.56(4.32)
	d_urcg	0.23(1.07)	0.69(1.09)	0.34(1.12)	0.53(1.05)
	urcg/rev	0.97(0.04)	0.99(0.02)	0.98(0.04)	0.97(0.02)
	d_urcg/rev	-0.01(0.03)	0.00(0.00)	-0.01(0.02)	0.00(0.02)
Other current revenue: general government	urog	2.38(0.94)	2.57(1.40)	2.57(1.27)	2.25(0.83)
	d_urog	-0.06(0.44)	0.00(0.67)	-0.07(0.55)	0.04(0.52)
	urog/rev	0.06(0.02)	0.06(0.03)	0.06(0.03)	0.06(0.03)
	d_urog/rev	0.00 (0.01)	0.00(0.02)	0.00(0.01)	0.00(0.01)
Actual social contributions received: general government	utag	10.52 (3.54)	11.66(3.29)	10.76(3.73)	11.34(2.97)
	d_utag	-0.14 (0.40)	0.08(0.63)	-0.05(0.42)	-0.05(0.66)
	utag/rev	0.25 (0.08)	0.27(0.07)	0.24(0.08)	0.29(0.06)
	d_utag/rev	-0.01 (0.01)	0.00(0.01)	0.00(0.01)	0.00(0.02)
Total tax burden excluding imputed social security contributions	utat	36.57 (7.28)	37.46(5.82)	38.95(6.84)	33.30(4.74)
	d_utat	0.40 (1.02)	0.74(1.20)	0.54(1.12)	0.53(1.09)
	utat/rev	0.85 (0.05)	0.86(0.04)	0.86(0.04)	0.84(0.05)
	d_utat/rev	0.00 (0.03)	0.00(0.02)	0.00(0.02)	0.00(0.02)
Current tax burden	utct	37.29 (7.29)	37.94(5.71)	39.40(6.95)	34.24(4.65)
	d_utct	0.35 (1.02)	0.71(1.20)	0.48(1.10)	0.52(1.12)
	utct/rev	0.87 (0.05)	0.87(0.04)	0.87(0.05)	0.86(0.04)
	d_utct/rev	0.00 (0.03)	0.00(0.02)	0.00(0.02)	0.00(0.02)
Imputed social contributions	utig	0.82 (0.84)	0.62(0.80)	0.61(0.64)	0.98(1.06)
	d_utig	-0.01 (0.09)	-0.04(0.06)	-0.02(0.06)	-0.01(0.10)
	utig/rev	0.02 (0.02)	0.01(0.02)	0.01(0.01)	0.02(0.03)
	d_utig/rev	0.00 (0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)
Capital taxes	utkg	0.18 (0.20)	0.14(0.17)	0.19(0.20)	0.11(0.16)
	d_utkg	0.03 (0.11)	0.00(0.05)	0.03(0.11)	-0.01(0.03)
	utkg/rev	0.00 (0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)

Each row contains two values: average and standard deviation for the indicator.

4.Conclusions

This paper use statistical analysis for fiscal adjustment episodes in order to determine the relevant factors for the success and expansionary effects of the adjustments.
The size and the composition of the adjustment episodes are relevant for the success and expansionary caracteristics of adjustments? There are logical reasons to belive that significant adjustments lead to sustainable reduction of budget deficit – there is a signal of credible commitment of the authorities to address budgetary imbalances, which could enhance their success. Contrary to this logic, the successful adjustments have smaller size than the unsuccessful ones, and the expansionary adjustments have greater size than the contractionary ones. On the other hand, both the successful and the expansionary fiscal adjustments are obtained through a greater contribution of the expenditures – there are

applied strategies of decreasing public expenditures and increasing public revenues, but the proportion of fiscal adjustment achieved by diminishing expenditure to GDP is greater.

Are fiscal adjustments contractionary? 61% from fiscal adjustment episodes are expansionary and 65% are successful. So most of the fiscal adjustments are expansionary, at least on the short run. The expansionary adjustments determine an increase of growth rate of 3,1 pp and an increase of GDP per capita in constant price in PPS of 4,34%. The effects – the successful and expansionary caracter – of the fiscal adjustments depend on the composition – there are compared the public revenues and public expenditures values and changes.

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