On Italy's Flat Tax Needs and Sustainability of the Public Budget

Marco Mele[1]

[1] University of Teramo, Italy

Correspondence: Marco Mele, University of Teramo, Italy.

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Abstract

This paper aims to empirically investigate the sustainability of Italian national accounts with a hypothetical Flat Tax. After an introduction, where we will describe the Italian situation relatively before and after the euro introduction, we will tackle the problem of high tax pressure. In particular, we use a time series approach and Toda-Yamamoto test to check if the high tax pressure causes low growth in Italy. Finally, with ISTAT' dataset, we will check sustainability on Italian revenue with a Flat Tax, considered it one of the possible solutions to low Italian economic growth.

Keywords: fiscal policy, sustainability, time series, Italy

JELclassification: C22; H11; H60; O52

1. Introduction

Italy's signing of the Maastricht treaty marked a withdrawal from the state's actions on financial activities under the banner of the slogan "more market-less state". This led to choices that are attributable to: a review of the lines that inspired the policies of income through greater consultation and the abolition of the extraordinary interventions in the south of the country.

Despite the rebalancing of the public accounts began in the 1980s, since 1992 this was manifested by a drastic rebalancing begun with the great budget by the Amato government known as the "mother of all budgets", that continued for five years with the purpose of allowing conformity with the parameters of the Maastricht treaty needed for entry into the EMU by 1998. Specifically, in the arc of five years the Italian economy discharged a total budget of 338,700 billion lire that, in 2007, allowed the country to bring the ratio of deficit/GDP within the limit of 3%, as well as in respect to the other parameters required for entry into the Euro area.

Therefore, despite constantly restating in all the DPEFs (Economic and Financial Planning Document), the need to launch structural reforms in the main sectors of spending, in fact the rebalancing of the public accounts was based essentially on increasing income through a policy directed at fiscal pressure. So, new taxes were introduced (ICI, the minimum tax of self-employed workers – Amato government), extraordinary taxes, increased rates for the existing taxes and amnesties. From the part of public expenditure, an important contribution on the reduction of the deficit came from the burden of interest. The lowering of rates internationally, together with progress controlling inflation allowed the reduction of interest rates on public debt. The adjustment on the side of expenditure was also carried out on capital expenditure by penalizing the public transfers to companies, local authorities and public investments.

In this way we can state that, despite the budgets having allowed entry into the Euro, these were translated into an increase in financial pressure that, at the end of 1998, already placed Italy above the European average with a value of 42.2% (Figure 1). Specifically, large part of the increase in fiscal pressure can be attributed to the growth of levies on labour. The total levies, in fact, went from 36% in the period 1980-84 to about 44% in 1990-1996 (Figure 2).

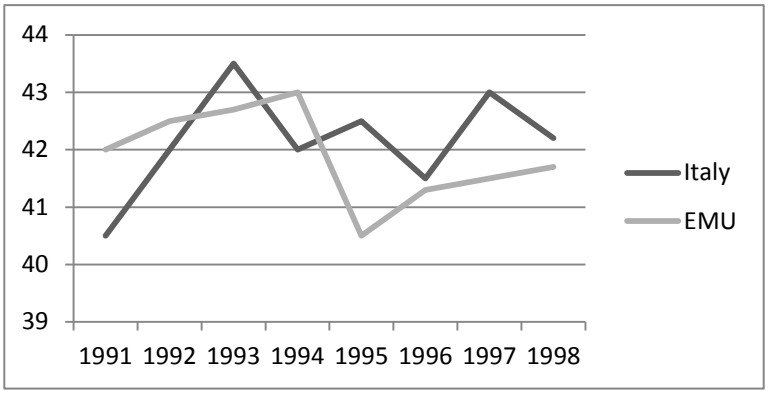

Figure 1. Fiscal pressure % GDP

Source: Bank of Italy, 2013

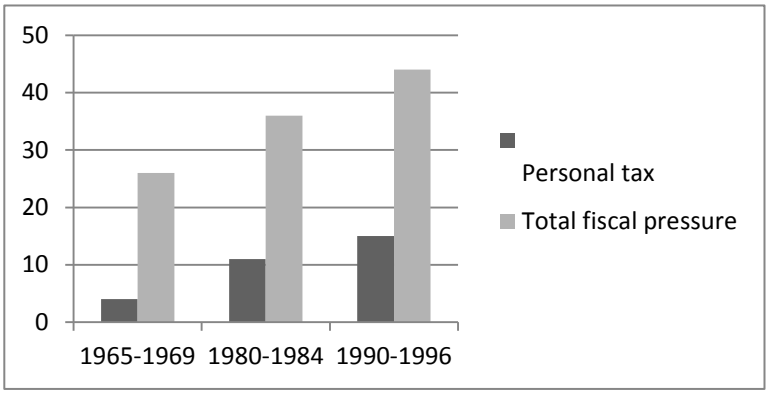

Figure 2. Tax rate on work, %

Source: Bank of Italy, paper n. 373, 2000.

High taxation, increases in fiscal pressure, stagnation of public investments and decline in the transfer to companies had subsequent effects on the growth of real GDP and employment that decreased in the period.

2. Fiscal and Growth Policies: The Years of the Euro Zone

The first years of the Euro, 1999-2007, were substantially virtuous from the point of view of monetary and fiscal values. Therefore, the results regarding the real economy were disappointing. In fact, if from the monetary point of view, the rates on inflation and interest were significantly reduced and the rapport deficit/GDP and debt/GDP recorded sensible improvement, recording lower valued equal to 1.6% and 103%, the real economy slowed down with a real GDP that on average was about 1.5% per year (Figure 3).

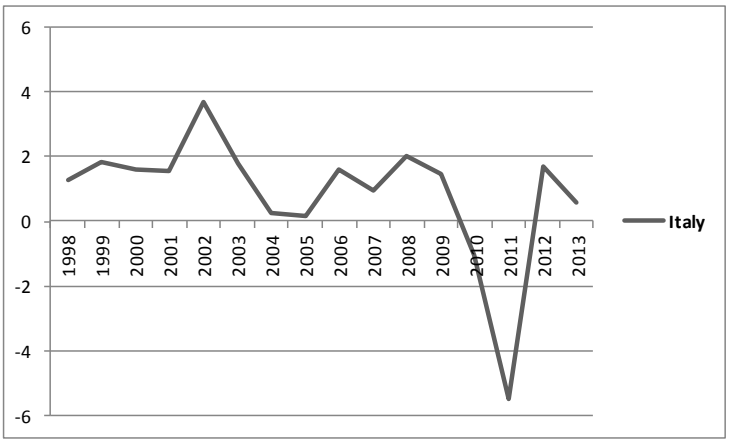

Figure 3. GDP growth (annual %)

Source: World Bank, dataBank Italy

Various factors influenced this disappoint result. Firstly, the fiscal adjustment was due to the increase of current income and the contraction of capital expenditure, while the current expenses nett of interest increased. At the same time the austerity policies moved by the Rogoff-Reinhart approach (2010) decrees continued and these were transformed into tax pressure that grew until it reached levels higher than 45% (Bank of Italy, 2013). This mainly burdened income from employment. In fact, there was an increase in the tax wedge that grew higher than the average of the EU countries. This was accompanied by a decrease in productivity that fell below that of the other main European partners. The result was an increase in the cost of labour and lower competiveness.

In this framework the arrival of the Sovereign Debt crisis worsened the situation. The fragile Italian economy clashed with the problems posed by a general international and European crisis that was characterized by speculative movements of capital that attacked the market of sovereign titles and increased the spread up to values of 572 base points compared to German titles. In this context the gap between growth of the debt/GDP ratio and the contraction of real income grew.

Therefore, with reference to the Italian experience, the slow growth that characterized its economy at the end of the 1980s cannot be ascribed to the simple causal relation between high debt and slow growth, as is often stated by the supporters of austerity, but must be traced back to other more complex internal and international causes that, in the presence of inefficient national *governance* and strict limits set by European governance, were translated into a systematic lose of competitiveness. In fact, insufficient public expenditure policy, crushed by the call for austerity were transformed into high taxation and systematic penalization of investments in the sectors of infrastructure, research, and education with heavy repercussions on the costs of labour and the company system.

In this context if the slowing down of growth derived from fiscal policy that suffocated the economy, a reform of the same would represent the suitable choice for a path to growth of GDP. Specifically, we follow the conviction that those, including – Friedman (1962); Frenkel and Assaf (1986-1989); Frenkel, Assaf and Symansky (1990-1991) - recognize the Flat Tax as a possible solution to the lack of economic growth.

3. The Flat Tax: A Solution for Low Growth: Literature Review

The Flat Tax came from the idea that the application of a system of progressive taxation cannot be the sole acceptable solution.

Designed by Friedman (1956 and 1962) and successively broadened empirically and practically by Alvin Rabushka and Robert. E. Hall (1983) this tax poses the need for order, even moral, to respond in some way to what is seen as an absolute identity, in other words that the fiscal imposition based on income is the most desirable form of social acceptance. In fact, the amount of income is seen not in relation to the value of the performance/service but to the individual's social adequacy.

The application of the flat tax, according to its supporters (Rabushka & Hall, 2005; Gillespie, 1991; Bradford, 2003; Gaddy, 2005), would mainly guarantee three objectives:

-1) Simplification of the taxation system in that the division into brackets naturally brings about a multiplication of the system's management costs and those of the relative organization. In addition, if associated with forms of guaranteed minimum income for the poorer members it would therefore substitute the various forms of assistance present and it would draw further benefits with the reduction of "administrative chaos";

-2) Stimulate economic activity since if it is set on relatively low rates would have positive effects on entrepreneurial investments given that more often than not the latter would not occur since they are discouraged by the current system;

-3) A reduction of the tax evasion: due to the relative inconvenience on the part of the great evaders not to pay taxes if they are lower and if there were not an adequate systems of sanctions, This would bring about an increase in income, therefore supporting the "Laffer Curve" according to which an increase in taxation does not always coincide with an increase in income but there is an optimal point for maximizing the latter to a determined level of fiscal pressure.

At the present time the Flat tax has been applied in a number of East European countries, with rates that differ between them but in line with medium-low levels of about 20%. It must be borne in mind that the economies of these countries are certainly not as developed as those of western countries. In about the middle of the 1990s countries such as Estonia, Lithuania, Latvia, Russia and the Ukraine decided to apply this system to attract foreign investments since, at the time, the low rates were inviting for attracting foreign investors to the latter countries. In Europe the first country to apply it was Estonia in 1994 with a rate of 26%. Generally, the introduction of the Flat tax brought about an increase in the tax base to which however corresponded a reduction in income as would have been expected, except for three countries, Lithuania, Latvia and Russia that had results that were not really clear.

As far as the first was concerned, the increase in revenue was the consequence of the level of the flat tax that was set at about 33% that corresponded with the highest level set by the previous system. The same occurred in Latvia where the level was set at 25%. Therefore, with this type of setting it is obvious that other results could not have been achieved in that rather than the application of a relatively low flat tax there was a sort of "standardization" of the fiscal pressure at the highest levels.

Added to this was the use of deduction systems for the poorer classes, as an element of difference from the original formula, which guaranteed progressive steps on the part of the system that in many ways made it resemble the previous system rather than the new one. Therefore, excluding these phenomena, it can be stated that the tax revenue stayed at the same level and the positive effects expected of the new system did not seem truly visible.

Now in the case of Russia, in 2001 the imposition of the rate at 13% eliminated the three previous brackets of taxation of 12, 20 and 30 per cent. The increase in income added to the growth in the GDP brought about effective growth for the country up to 2003, however, the latter contained three variables that influenced this development. As far as income was concerned, the increase in the income base and the reduction in exclusions strongly continued to influence it and as far as the GDP was concerned the increase in the price of hydrocarbons following the petrol crisis brought a lot of income into the state.

Similar effects, in other words the forced attribution of these positive effects to the Flat tax, also occurred in Slovakia in 2004 that with a rate of 19% put into effect Rabushka and Hall's idea generally directed at companies, persons and VAT. However, the country's development up to 2009 was not attributed to this, rather, the single tax had a negative impact on public debt and the deficit such that to repair the damage there was a sudden increase in the VAT that was wanted for the very purpose of recovering the income lost and in 2014 forced the country to return to the progressive system.

4. Empirical Analysis: Is Taxation Reform Necessary?

Acting on the belief that low growth represents the result of adverse conditions deriving from a policy of increasing fiscal pressure, the analysis that follows is an econometric model in historical sequence aimed at verifying the causal connection between Italy's growth of GDP (at constant prices) and a series of regressive factors in an arc of time that goes from 1970 to 2017. Specifically, the variables considered as independent are : the monetary aggregate M3 "*Bank of Italy, data*", (M3); fiscal pressure as a percentage of GDP "*OECD, 2017*" (FS); nominal interest rates in the USA in brief that are representative on international interest rates "*Federal Reserve, Economic & Research data, 2017*", (USi); the real effective exchange rate as an index of competitiveness "*Bruegel Database*", (REER); the rate of literacy "*World Bank, data country*", (KF); the research and developments costs as a percentage of GDP "*OECD, 2017*", (R&D); internal investments "*OECD, 2017*", (I); public debt at constant prices "*AMECO*", (Debt).

Before proceeding with the study in historical sequence and adapting the data to the most suitable simulator, it was necessary to test the immobility of the variables through numerous tests (Dickey Fuller, 1979; Phillips and Perron,

1988; Elliot, Rothenberg and Stock, 1996 and KPSS) for verifying the existence of potential structural breakages in the series (Table 1) and subsequently a correlation analysis was carried out (Table 2).

Table 1. Results for unit roots and stationarity tests

	ADF	**ERS**	**PP**	**KPSS**
Level				
GDP	-2.125 (-3.468)	-1.257 (-3.258)	-2.155 (-3.160)	0.450***(0.146)
Debt	-2.164 (-3.455)	-1.365 (-3.961)	-2.765 (-3.005)	0.375***(0.146)
M3	-1.754 (-3.235)	-1.557 (-3.189)	-3.176 (-3.456)	0.150***(0.146)
FS	-2.684 (-3.164)	-1.985 (-3.461)	-2.916 (-3.164)	0.175***(0.146)
USDi	-1.919 (2.164)	-1.157 (-3.027)	-3.194 (-3.015)	0.350***(0.146)
REER	-2.946 (3.187)	-1.946 (-3.049)	-2.916 (-3.164)	0.475*(0.146)
KF	-3.946 (-3.946)	-1.913 (-3.097)	-3.615 (-3.165)	0.175**(0.146)
R&D	-1.167 (-3.922)	-1.249 (-3.130)	-2.953 (-3.161)	0.125***(0.146)
I	-3.913 (-3.005)	-1.923 (-3.167)	-3.094 (-3.197)	0.250***(0.146)
First Differences				
GDP	-6.255*** (-2.023)	-5.822***(-2.543)	-6.222***(-2.043)	0.340*(0.463)
Debt	-3.085*** (-2.468)	-1.505 (-2.152)	-8.075***(-2.537)	0.250 (0.463)
M3	-3.346**(-1.975)	-2.315*** (-2.015)	-8.165***(-2.973)	0.150 (0.463)
FS	-3.498*(-1.456)	2.461*(-2.616)	-7.651***(-2.942)	0.155 (0.463)
USDi	-3.149** (-1.956)	-2.481** (-2.646)	-8.064***(-2.454)	0.450 *(0.463)
REER	-3.095***(-2.443)	-2.994**(-2.462)	-7.465**(-2.649)	0.350*(0.463)
KF	-3.194*(-1.942)	-2.913*(-2.965)	-8.016***(-2.515)	0.250 (0.463)
R&D	-4.941 (-2.919)	-2.494**(-2.941)	-7.975* (-2.648)	0.155 (0.463)
I	-3.497**(2.646)	-2.799 (-2.946)	-8.064*(-2.558)	0.350*(0.463)

As proved by the test table, they failed to reject the null hypothesis for all the variables relative to the 5% significance levels except for the KPSS test. However, this last test, using a different approach, reject the I (0) value at the 95% confidence level, indirectly confirming the previous tests.

Table 2. Correlation analysis

Var.	GDP	Debt	M3	FS	USDi	REER	KF	R&D	I
GDP	1								
Debt	*0,8246	1							
M3	-0,2605	3,46875	1						
FS	*-0,588	*-0,2276	0,0856	1					
USDi	*-0,1689	0,1942	0,4006	-0,3978	1				
REER	-0,4382	-0,1761	*0,5172	0,4336	*-0,2737	1			
KF	0,1001	0,1185	0,1595	0,1185	0,0598	0,0974	1		
R&D	0,0602	0,09885	0,2896	0,0598	0,2896	0,0756	0,0985	1	
I	-0,0456	0,3504	0,6236	0,0249	0,0059	0,6445	0,4949	0,0865	1

*P<0.05

The results in Table 2 show, in the sense of Pearson, a significant and positive dependence between the growth of GDP and the debt of about 80% and the variation of the monetary aggregate M3 and the real effective exchange rate for an internal value of about 50%. On the other hand, the following are significant, even with a negative correlation, fiscal pressure and growth of GDP with a value close to 60%; the change in nominal short term US interest rates and the growth of GDP of about 17%; public debt and fiscal pressure that instead recorded a negative dependence of about 22% as did the nominal short term US interest rates and the real effective exchange rate.

Subsequently, for the purpose of analysing the reciprocal relations between the variables under investigation and to verify the causal relations the Granger test and the Toda and Yamamoto (1995) test were conducted (tab.3). In particular, to estimate the causal relationship among the variables object of our study we will apply the following regressions:

$$X_{1t} = \delta_1 + \sum_{i=1}^{p} a_i X_{1t-i} + \sum_{i=1}^{p} b_i X_{2t-i} + u_{1t}$$
$$X_{2t} = \delta_2 + \sum_{i=1}^{p} c_i X_{1t-i} + \sum_{i=1}^{p} d_i X_{2t-i} + u_{2t}$$
$$X_{3t} = \delta_3 + \sum_{i=1}^{p} e_i X_{1t-i} + \sum_{i=1}^{p} f_i X_{2t-i} + u_{3t}$$
$$X_{4t} = \delta_4 + \sum_{i=1}^{p} g_i X_{1t-I} + \sum_{i=1}^{p} h_i X_{2t-I} + u_{4t}$$
$$X_{5t} = \delta_5 + \sum_{i=1}^{p} i_i X_{1t-I} + \sum_{i=1}^{p} l_i X_{2t-I} + u_{5t}$$
$$X_{6t} = \delta_6 + \sum_{i=1}^{p} m_i X_{1t-I} + \sum_{i=1}^{p} n_i X_{2t-I} + u_{6t}$$
$$X_{7t} = \delta_7 + \sum_{i=1}^{p} o_i X_{1t-I} + \sum_{i=1}^{p} p_i X_{2t-I} + u_{7t}$$
$$X_{8t} = \delta_8 + \sum_{i=1}^{p} q_i X_{1t-i} + \sum_{i=1}^{p} r_i X_{2t-i} + u_{8t}$$
$$X_{9t} = \delta_9 + \sum_{i=1}^{p} s_i X_{1t-i} + \sum_{i=1}^{p} v_i X_{2t-i} + u_{9t}$$

Where $X_{1t} \dots X_{9t}$ are the regressors used in our analysis and which become variable in the causality analysis. $\delta_1 \dots \delta_9$ are constant terms, $u_{1t} \dots u_{9t}$ are white noise series and p represents the lag order.

Table 3. Toda and Yamamoto Test

Dep/Ind.	GDP	Debt	M3	FS	USDi	REER	KF	R&D	I
GDP	1	*7,0096	**4,6525	***8,1648	***2,6552	**2,6552	4,6326	7,4626	*11,1955
Debt	***6,1355	1	**7,4653	**10,564	**7,5544	7,2648	7,1247	4,4654	4,6265
M3	5,6534	4,6212	1	9,4857	9,5137	5,3647	5,3654	6,4654	2,4656
FS	9,5615	*1,5685	5,6211	1	4,6167	1,5698	1,2697	4,4653	9,5646
USDi	1,8855	8,1626	4,1987	1,1426	1	4,2697	6,2697	6,1681	7,6423
REER	10,662	5,5595	7,1862	3,4197	6,2197	1	9,4668	2,6654	8,2294
KF	*5,9956	5,5698	9,5473	4,1673	5,3659	3,2569	1	6,7635	6,1166
R&D	4,6589	3,9626	4,2975	7,2497	7,4973	9,5116	2,4569	1	2,7594
I	1,6985	4,6896	5,8137	6,4655	*2,6598	8,1379	7,4688	6,1188	1

***P<0.01, **P<0.05, *P<0.1

As we can see from Toda and Yamamoto's approach, there is a connection of high causality (1%) between USA international interest rates and the variation in the growth of GDP, but also and above all, between fiscal pressure and the GDP. Equally, the loss of international competitiveness explained by the real effective exchange rate caused, in the sense of Granger, the dependence of the GDP for a level of significance of 5%, just as the variation of the monetary aggregate M3 and the reduction of investments (10%). On the other hand, although the public debt causes the performance of the growth of GDP in the Toda and Yamamoto test, it presents a very low level of significance that is lower compared to the three variables under consideration, for a level of p-value of only 10%.

In conclusion, it emerged that the high levels international interest rates and particularly the increase of fiscal pressure aimed at respecting public budget restraints of the criteria of Maastricht first and then of austerity with the subsequent loss of international competitiveness verified by the REER, they represent the true determining factors of the crisis and therefore of the contraction of Italy's GDP.

5. Flat Tax and Sustainability on the Italian Public Budget

While retaining that the application of a Flat tax is useful for Italy, we have tried to estimate the sustainability of this idea on Italy in respect to state income. Starting from the base year of 2015, the data from cadastral codes A001 +…no…+ M375 and from ISTAT local council code 28001, 8002 for each category were analysed. This analysis was carried out by taking as the point of reference Italy's local councils and the relative regions of origin where the variables used for estimating the concrete results are as follows: Income of buildings; Income from employment or similar; Income from pensions; Income from freelance work; Income from entrepreneurial work with ordinary accounting; Income from shares; Taxable income; Nett Income; Additional taxable income.

Further variables were added to the income listed above amongst which are the regional and local council surcharges, calculated on specific brackets of income beginning from 0 and reaching to more than 120,000 Euros:

- Total income lower or equal to zero Euros
- Total income from 0 to 10,000 Euros
- Total income from 10,000 to 15,000 Euros
- Total income from 15,000 to 26,000 Euros
- Total income from 26,000 to 55,000 Euros
- Total income from 55,000 to 75,000 Euros
- Total income from 75,000 to 12,000 Euros
- Total income from 120,000 Euros

Subsequently, always for the same year, the variables cited above were calculated in relation to the normal income but, in particular they were analysed in relation to an income with a rate of 25% with a No Tax Area up to 10,000 Euros and an income with a flat tax of 25% with a No Tax Area of 15,000 Euros. The results obtained are as follows

Table 4. Sustainability on the public budget

	Flat Tax 25% - without deductions/allowances after 2 years		
Tax Revenue	Without No Tax Area	No Tax Area 0-10,000 €	No Tax Area 0-15,000 €
176,175 mld €	208,388 mld €	193,951 mld €	176,175 mld €

As we can see from the results, after two years, with a No Tax Area 0-15,000 €, a Flat Tax fiscal policy is sustainable for the Italian public budget. This situation coincides with the fact that the low tax burden is able to bring out the potential of tax evasion. In fact, the tax evasion that in Italy has a value of 107 billion Euros, would be reduced thanks to a tax evasion. This situation coincides with the Laffer Curve theory. The highest income that would flow into the state coffers over time is the result of the fact that in the face of a tax rate reduced to 25%, most tax evaders would have no interest in taking risks, hiding the income generated by the tax authorities.

In other words, and finally, a tax model thus conceived would present a simple (given the single presence of the individual rate) tax system, democratic and social and efficient (eliminating the incentive to "pretend to be poor" to end up in a lower echelon and therefore pay fewer taxes).

6. Conclusion

The road to recovery can no longer be that of austerity tied to rigid parameters but must be that of policies aimed at recovering competitiveness and that increase production and reduce production costs. The increase in productivity cannot be separated from actions that allow resuming the road that the country had started in the early years of the 1980s in terms of technological competitiveness. This requires interventions that stimulate research and new

technologies and favour their insertion in the production process. The reduction of costs in turn can also be entrusted to a reduction of taxation that today heavily burdens the cost of labour with a taxation burden that is 5.4% higher than the average of the other countries in the Euro area.

Obviously, these measures require reforms and time to achieve results and cannot be separated by a more flexible vision of austerity on the part of European *governance*. A vision based on rigid quantitative constraints should be replaced by one based on qualitative verification of the ongoing reform process and its consequences on the growth of income and on the awareness that today the increase of GDP is the main response to the reduction of the debt/GDP ratio. The empirical analysis has shown that fiscal pressure causes low growth. This situation recommends the use of a Flat Tax. In fact, lower taxation would be an important stimulus for companies, which having to pay less taxes, could use more economic resources in investments and personnel training and in addition, the fact of having to pay fewer taxes would encourage everyone to honour their debts with the tax authorities. In this way, the phenomena of tax evasion and avoidance would be opposed. We are aware that in the first period, the revenues will decrease due to lower fiscal pressure. However, following the Laffer curve, the public budget could return to being sustainable after two years of applying the Flat Tax.

References

Bradford, D. (2003). The X-Tax in the World Economy. *CEPS Working Paper No. 93* (Brussels: Centre for European Policy Studies).

Dickey, D. A., & Fuller, W. A. (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root. *Journal of the American Stat. Association*, *74*, 427-431. https://doi.org/10.1080/01621459.1979.10482531

Elliot, G., Rothenberg, T. J., & Stock, J. H. (1996). Efficient Tests for an Autoregressive Unit Root. *Econometrica*, *64*(4), 813-836. https://doi.org/10.2307/2171846

Frenkel, J., & Assaf R. (1988). Spending, Taxes and Deficits: An International Intertemporal Approach. *Princenton Studies in International Finance*, No. 63. Princenton, NJ: International Finance Section.

Frenkel, J., & Assaf, R. (1986a). The International Transmission and Effects of Fiscal Policies. *American Economic Review*, *76*, 330-335. https://doi.org/10.3386/w1799

Frenkel, J., & Assaf, R. (1986b). Fiscal Policies in the World Economy. *Journal of Political Economy*, *94*, 564-594. https://doi.org/10.1086/261390

Frenkel, J., & Assaf, R. (1987). Fiscal Policies and the World Economy: An Intertemporal Approach (1st ed.). Cambridge: MA, MIT Press.

Frenkel, J., & Assaf, R. (1989). International Effects of Tax Reforms. *Economic Journal*, *98*, 38-58. https://doi.org/10.2307/2234069

Frenkel, J., Assaf R., & Symansky, S. (1990). Simulations of International VAT Harmonization. In Horst Siebert (Ed.), *Reforming Capital Income Taxation*. Tübingen, J. Mohr Publsihing.

Frenkel, J., Assaf, R., & Symansky, S. (1991). The International Effects of VAT Harmonization. *IMF Staff Papers.* https://doi.org/10.2307/3867125

Friedman, M. (1962). *Capitalism and Freedom*. Chicago, IL: University of Chicago Press.

Gaddy, C. G., & Gale, W. G. (2005, March 14). Demythologizing the Russian Flat Tax. *Tax Notes International*, 983-88.

Gillespie, I. (1991). *Tax, Borrow, and Spend: Financing Federal Spending in Canada 1867-1990*. Ottawa: Carelton University Press.

Hall, R. E., & Rabushka, A. (1983). *Low Tax, Simple Tax, Flat Tax.* New York: McGraw Hill.

Hall, R., & Rabushka, A. (2005). *The Flat Tax* (2nd ed.). Stanford: Hoover Institution Press & Stanford University, p. 244.

Phillips, P. C. B., & Perron, P. (1988). Testing for a unit root in a time series regression. *Biometrika*, 75(2), 335-346. https://doi.org/10.1093/biomet/75.2.335

Reinhart, C. M., & Rogoff, K. S. (2010a). Growth in a Time of Debt. *American Economic Review*: *Papers & Proceedings*, 100. https://doi.org/10.1257/aer.100.2.573

Reinhart, C. M., & Rogoff, K. S. (2010b). Growth in a Time of Debt. *Working Paper 15639*, National Bureau of Economic Research. https://doi.org/10.3386/w15639

Toda, H.Y., & Yamamoto, T. (1995). Statistical inference in vector auto regressions with possibly integrated processes. *Journal of Econometrics*, *66*(1-2), 225-250. https://doi.org/10.1016/0304-4076(94)01616-8

Internet

http://bruegel.org/publications/datasets/

https://data.oecd.org/

https://data.worldbank.org/

https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/macro-economic-database-ameco/ameco-database_en

https://fred.stlouisfed.org/

https://www.bancaditalia.it/statistiche/basi-dati/bds/index.html