



**THE ORIGINS OF THE SOVEREIGN DEBT OF ITALY: A
COMMON POOL ISSUE?**

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The Origins of the Sovereign Debt of Italy: a Common Pool Issue?

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Abstract

Italy has the third largest public debt of the World in absolute terms and the eighth when it is GDP weighted. In addition, Italy presents the largest and most persistent development gap among its regional economies in the group of the advanced countries.

Is there a link between these two facts? We present evidence in favor of a relationship between these two empirical facts by reconstructing the entire dynamics of national public deficit as a weighted sum of four macro regional deficits (Northeast, Northwest, Centre and South) . We show that the ultimate cause of the accumulation of public debt in Italy lies in the extraordinary fiscal imbalance of the Southern regions.

We then focus on the determinants of the regional public deficits and their persistence. Thanks to the reconstruction of the regional deficit time series we are able to test empirically many of the several theoretical approaches suggested in the literature, including the geographically dispersed interest approach not yet considered for the Italian case. This approach turns out to be one of the best candidates to account for the size and persistence of Southern regional deficits. The whole evidence suggests the existence of a pork barrel mechanism coupled with a complex geo-political equilibrium that has allowed the Southern regions of Italy to generate deficits so large and persistent that they hoard the entire Italian National debt.

Keywords: Italian Public Deficit, Italian Public Debt, Common Pool

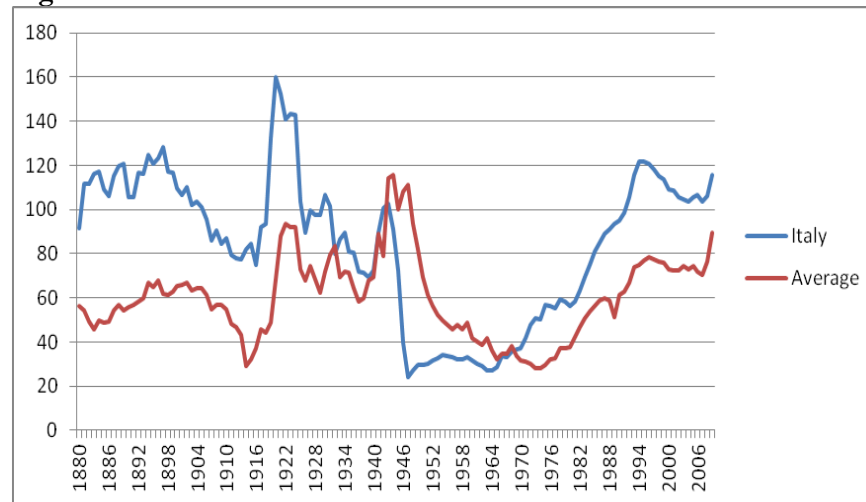
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1. Introduction

Italy displays the third largest sovereign debt in the World, a stock that has been built in a very long period of large deficits. This makes the Italian case an important case study when discussing the origins and causes of persistent deficits and consequent large public debts. Apparently Italy shares this common dynamics with several other developed countries, although the Italian case appears somewhat amplified (see Figure 1). In what follows we put some evidence against this alleged similarity.

Figure 1. Public debt Ratio over GDP



Average of Belgium , France, Germany, Greece, Ireland, Japan, Spain, Sweden, UK, USA (source IMF)

The positive trend in the accumulation of public debt of many developed countries, typically from the seventies onward, questioned the traditional normative theories of public debt or deficits either of Keynesian or Neoclassical stream and opened up the field to the positive theories of public debt. In an important survey, Alesina and Perotti (1994) singled out several theories potentially able to account for this behavior and discussed their pros and cons. The first theory Alesina and Perotti (1994) consider is one where opportunistic policy makers facing an electoral body with fiscal illusion raise spending financed by debt in order to acquire consensus. Then, theories of intergenerational redistribution are considered, models where Ricardian equivalence

typically does not hold and there is no intergenerational altruism. The third group of models concerns the strategic role of public debt. In a system of two parties with different spending preferences, the party in office could issue debt in order to limit the resources available for the other party's own policies. In this context the effect on debt is increasing with polarization and political instability. Thereafter, Alesina and Perotti (1994) considered models where decision making is shared at the same time among different agents as it is the case of coalition governments. In this setting, fragmentation and disagreement among the components of these governments leads to delayed fiscal adjustments to shocks (Roubini and Sachs (1989 a, b), Van Hagen (1992)). The fifth field of research has to do with the budgetary institutions which vary among countries affecting policy formation and could explain the size of budget and the level of debt.

The last set of theories are models of decentralization and geographically dispersed interests. As in many common pool problems, whenever decision making lies with representatives of different geographic constituencies, budget formation could be conducive to excessive spending (Weingast, Shepsle, and Johnsen (1981), Tanzi (1996), PISAURO (2001)). In fact, the advantages of public projects whose costs are spread nationwide but which benefit particular districts are overestimated by holders of those geographic interests. Indeed, from a particular project in favor of district i , with $i = 1, \dots, N$, voters of that district receive total benefit B_i but only front a share of the total costs

equal to $\frac{1}{N}$. Thus, there is an incentive for geographic representatives to oversupply geographic based projects and this, in turn, raises the level of the so called "pork barrel" spending¹. Alesina and Perotti (1994) left open the discussion over the decentralization approach. Nevertheless, in order to reach a sound conclusion, some specification on the fiscal federalism arrangements is necessary. In particular, at which level of government is the budget defined? Who decides to spend? Who ultimately has to pay or bail out? These are the typical questions the research field of Fiscal federalism tries to answer (Oates (1999)). In general, it is expected that local governments, being closer to people, have greater awareness of citizens' preferences and thus would provide better services. In this perspective, scholars of this research field laid out

¹ "Pork barrel" spending denotes the usually unproductive public expenditure devoted to the constituencies with electoral purposes.

a general normative framework for the division of functions and fiscal instruments among levels of government² (Pisauro (2001)). A typical issue that arises in this debate is the issue of hard versus soft budget constraint for decentralized governments, which was analyzed by Weingast (1995), and McKinnon (1997) among others. Hard budget constraint means that clear rules about who bears the cost of what are defined but also that lower-level policy makers should not have access to unlimited credit and central government should not bail them out in every case of fiscal distress. But what if a central government is not able to commit not to bail out³? The lack of commitment opens the room for fiscal looseness and pork barrel policies. Scholars also consider some positive theories of transfers from the center to the periphery and the role played by electoral systems in such a context. According to Cox and McCubbins (1986) transfers should favor those political districts which are more stably pro government whereas Lindbeck and Weibull (1987) and Dixit and Londregan (1996) contest this view suggesting that scarce resources should be more conveniently invested where they can make the difference, i.e. towards more unbalanced districts and voter types. Golden and Picci (2008) tested the two theories on the Italian case, and the institutional conditions for their application. They find that “when districts elect more powerful individuals off the lists of governing parties, they secure more infrastructure investments. The parties of the incumbent government are not more successful in securing resources for districts when they receive larger vote shares.” In summary, according to Golden and Picci (2008), the fact that a region is firmly in the hand of the incumbent coalition parties is a necessary but not sufficient condition to observe a large flow of funds from the central government. It is also necessary that the power is in the hand of influential politicians. Nonetheless, in all approaches any conclusion about fiscal federalism and the size of public debt depends on how the fiscal system is arranged, and in particular on the strength of the budget constraint. Without it, eventually, governments would compete on pork barrel policies only to

² Gains from decentralization appear also in the perspective of the Tiebout’s model (Tiebout (1956)), according to which households are highly mobile and they choose as residence the jurisdiction with the revenue-expenditure pattern more suited to their preferences in so doing policy formation in a competitive framework of decentralized governments are chosen by consumers that “vote with their feet”.

³ An interesting formal analysis of this kind of commitment is in Cooper, Kempf and Peled (2008); see also Pisauro (2001) for a survey.

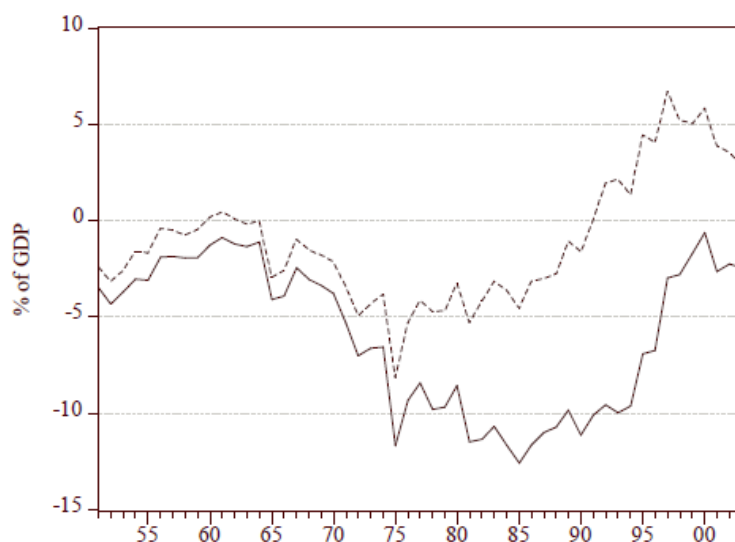
attract economic units, and the cost of such policies would not be a matter of concern for decentralized governments. But at the end of the story, the impact on public budget would be critical.⁴ In what follows, we discuss which set of theories seems to best fit the Italian experience and we will bring evidence in favor of the geographically dispersed interest approach.

2. The Italian Public Debt: how well do theories explain historical trends?

According to Francese and Pace (2008), in the first part of the 20th century, the evolution of Italian Public finances seemed in line with the normative theories of Tax smoothing. Indeed, the graph in Figure 1 presents three peaks followed by a recovery, that occurred in correspondence of the First World War, the Great Depression and the Second World War. After the latter, also the period of the so called “Italian Miracle” was in accordance with Tax smooth theory. But later on, since the end of the 60s, Italy began with the puzzling rising indebtedness: a behavior that is to some extent, but not completely, shared with other advanced countries. The first difference is that Italy’s positive trend started well in advance of all other countries but Japan (see Figure 1) and well before the October 1973 oil shock which is commonly blamed as the origin of all advanced countries’ fiscal issues. Italy’s exception is also confirmed by looking at Primary and Total deficit paths which signal a marked increase after 1969-70 (see Figure 2). The reason why this large deficit increase did not turn readily into large debt-GDP ratio increases is well explained by Francese and Pace (2008). In a nutshell, the loose monetary policy adopted by the Bank of Italy in those years induced an inflation tax that kept the debt ratio under control (see Figure 2).

⁴ Among the many examples of federal systems that are inefficient due to exactly what we discussed, the Argentina case has been a topic of particular interest in the literature (Nicolini, Posadas, Sanguinetti J. and P. and Tommasi (2002), Tommasi, Saiegh and Sanguinetti (2001)).

Figure 2 . Primary and Total deficits 1951-2003



Source Galli and Padovano (2008)

Whatever the initial cause of the persistent deficits series and positive trend of the debt-GDP ratio, it was not the oil shock but had to be something preceding it and also permanent, as its effects lasted for more than two decades (see Figure 2).

In this context a question arises: which are the true causes of this peculiar dynamics? Which of the several theoretical approaches we formerly discussed best fits the Italian experience? The contributions of Galli and Padovano (2002, 2005) try to answer these questions employing time series econometric analysis to empirically test different explanatory models. The two contributions differ in the econometric techniques used, but are comparable because of the variables utilized. In Galli and Padovano (2002) the Keynesian approach was tested assuming Keynesian policy makers pursue two equilibria: the natural level of unemployment and the full employment GDP growth, any deviation from those policy targets is expected to be correlated with the deficits so as to determine suited countercyclical effects. Instead, in the Tax smoothing model of Barro (1979) the rationale behind deficits is only the minimization of taxation deadweight losses obtained maintaining the tax rate constant. Therefore, the authors in this case expect deficits to rise with public expenditure above its trend value or when recession lowers

the tax revenue since the income is below its normal level. Their empirical analysis tested also policy formation theories developed by the Public choice school. The authors test whether the weight of the interest group of the elderly account for larger deficits, since this group will retain the benefits and the younger generations the burden of it. The percentage of over-65 individuals over the total population as well as expected life time were used as proxies. Then the wars of attrition, the classical framework where fragmented governments delay fiscal stabilization was tested, also considering the fragmentation of the opposition and controlling for the strength of the finance minister. All three components of the theories were tested. A further theory to test was that of fiscal illusion. If voters don't understand that deficit spending today would require debt repayment and thus more taxation tomorrow, an increase of expenditure in electoral periods would reward the government in charge. This implies political budget cycles, driven by the electoral terms and in this case an electoral dummy variable would turn out significant. Also the budget rules importance was considered. Modifications in the regulation of the budgetary formation were captured by a qualitative variable. Finally, the authors took into consideration the constraints put on budget formation by institutional agreements and commitments such as joining the EMU and the EU. In this category, they encompassed all the external factors that impose limitations to the discretion of policy makers.⁵

Galli and Padovano (2002) assayed the relationship of all these variables with the dependent variable 'real annual par value of the deficit', whereas in cross countries studies the deficit over GDP is typically used instead. They conclude that the largest contributions were given by the level of unemployment and by deviations of the public expenditure from its trend. Also, the indicators of war of attrition were significant, and an important role was played by external constraints and internal budget institutions. Therefore, in Galli and Padovano (2002) the Keynesian theory emerges to be rather powerful in the Italian case.

⁵ In the model, a qualitative variable was used that is increasing as the strength of external constraints increases. The pattern follows the Italian foreign exchange policy during the major periods: Bretton Woods period, when Lira had a floating exchange rate, the so called Monetary Snake, the European Monetary System and the Maastricht Treaty.

Moreover, there is evidence that policy choices went in the direction of more deficit spending to lower unemployment and less to reinforce growth. The empirical evidence concerning deviation from growth trend weakens the credibility of the optimal taxation theory as a determinant of fiscal policy behavior. Finally, a larger share of elderly individuals over total population shows a positive correlation with deficit, but the quantitative contribution is not large. Conversely, the conclusions from Galli and Padovano (2005) differ substantially from those of Galli and Padovano (2002). In fact, they claim in 2005 that “Keynesian variables do not seem to play an important role” since “neither deviation from growth nor unemployment rates have explanatory power”. The optimal finance variables turn out with a correct sign and significant, a point in favor of the Barro’s Theory (Galli and Padovano (2005)). All in all, the results of the two contributions are somehow contradictory although more weight should be put on the latest since the econometrics of Galli and Padovano (2005) is clearly superior to Galli and Padovano (2002). What can we conclude about the driving forces behind the persistent Italian large deficits and debt dynamics? At most, that a definitive explanation of their origins and causes has not been reached yet.

Nevertheless, it is worth remarking that the approach of geographically dispersed interest listed in Alesina and Perotti (1994) was not tested. Why is that? One possible explanation could lie in the fact that the local administration debt has been far from worrisome (Francese and Pace (2008)). However, the low level of local government debt is not a sufficient condition to dismiss the geographical approach as a whole. In fact, in the case of soft budget constraints, transfers from the central government could hide large implicit deficits. This could be the case for Italy. In fact, very recently the relationship between public finance and the different levels of government in the various Italian areas has been addressed. In particular, the so called fiscal residuals, the balance between how much a community contributes in terms of taxation and how much it receives in terms of public services (Buchanan (1950)), have been analyzed by Staderini and Vadalà (2009). The authors made a disaggregation of the budgets of all the Public Administrations to reclassify the overall inflows and outflows on a regional basis. They considered the financial statements data computed by Istat⁶, net of

⁶ Istat is the National Institute of Statistics and a component of the Sistan, the system of national statistics. The CPT are the territorial public accounts, managed by the Ministry of Economic Development.

interest payments, for the years from 2004 and 2006. By computing the fiscal residuals, Staderini and Vadalà (2009) were able to evidence the redistribution flows across Italy, data that usually are implicit because of the centralization level of Italian fiscal policy. Based on the demographic series by Istat, Table 1 reports our transformation of the per capita figures of Staderini and Vadalà (2009) in absolute terms and the percentage ratios of the fiscal residuals to the Gross Domestic Products for each part of Italy and for the total. The values are impressive.

Table 1

	POPULATION	FISCAL RESIDUALS (millions of euros)	GDP (millions of euros)	FISCAL RESIDUAL/GDP
NORTH	26'413'323	-66'549,80	805'681,27	-8,26%
CENTRE	20'723'669	-16'239,23	306'867,76	-5,29%
SOUTH	11'230'452	56'217,97	343'349,19	16,37%
ITALY	5'8367'444	-26'849,02	1'428'251,35	-1,88%

Average values for years 2004-2006

The ratio for Italy as a whole is approximately equal to the weighted average of the ratios of the macro-areas, with weights equal to the proportion of each regional GDP with respect to the National one.⁷ It is worth noting that, aside from the disparity in absolute magnitude, in the years between 2004 and 2006 the North and the Centre generated on average a consistent primary surplus, while the South was in deep deficit, in fact so large a deficit that it almost nullified the primary surplus. This brief argument suggests that the formation of budget deficits could be analyzed from a “disaggregate” perspective, based on the impact of each region or macro region. Indeed, whether this limited empirics of the 2004-2006 period implies anything, as far as the history of Italy’s public finance is concerned, remains to be established and further evidence in favor of the importance of total regional imbalances and their

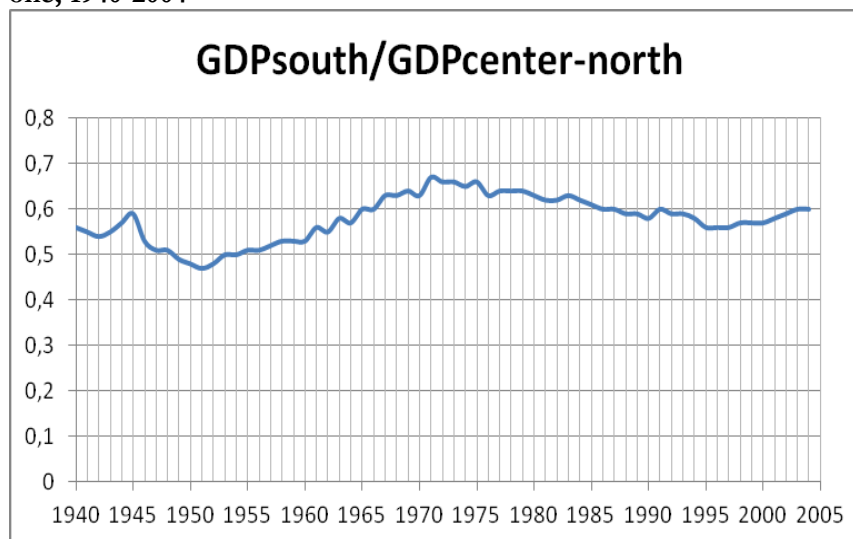
⁷ Fiscal residual is equal to the primary expenditure by the government minus its total revenues. Therefore, aggregating all fiscal residuals leads to the opposite of the public primary balance.

persistence must be brought in. This is the objective of the next paragraph.

3. The Dualism of the Italian economy and its effects on Public debt

Two main points emerge from the discussion above: the peculiar timing of the path of the Italian debt ratio, if compared to other countries' experience, as well as the size of the regional fiscal residuals imbalance between the Italian Macro regions. Are the two points connected? The first clue of a possible connection between Italy's fiscal problems and its regional development are the several empirical facts affecting regional economies which took place almost simultaneously with the rising trend of the Italian public debt. Of these, the first and most important fact is the halted convergence of per capita income in the Southern regions, which we can observe at the end of the Sixties, as reported in Figure 3.

Figure 3. Per capita Southern GDP relative to Center-Northern one, 1940-2004



Source: Daniele and Malanima (2007)

Most of the imbalance of regional fiscal residuals found by Staderini and Vadalà (2009) is obviously caused by the lack of regional income

convergence coupled with a progressive fiscal system (Staderini and Vadalà (2009)) which was put in place, coincidentally, just in the early seventies⁸ and that constitutes the second empirical fact. This evidence signals a possible connection between the aggregate deficits dynamics and regional development. Clearly, had the Southern regional per capita income and labor productivity converged to those of the North, such a large fiscal residual could not have been present in 2004-2006. The fiscal reform we mentioned introduced the direct income taxation, its final formulation dating back to 1974. This reform was somehow anticipated by an important shift of tax revenue from indirect to direct which started in 1970 (Cerniglia (2005)) and introduced important elements of progressivity in the system. This indeed represented, on average, an implicit windfall for the residents of the backward regions. Finally, also in 1970 an important institutional innovation took place: the birth of the regional governments. Although the Italian Constitution contemplates the establishment of the Regions since its inurement in 1948, only four out of the five autonomous regions were initially in place. This reform shifted many functions from the central government to the regions, even though not immediately, and with that reform the Italian Republic made a decisive step toward decentralization. Decentralization, however, was not carried out within a framework of hard budget constraint, but - quite the opposite - in a set up of soft budget constraint (Bordignon and Cerniglia (2004)). Whether the empowerment of regional governments after 1970 has been a positive or negative fact for regional convergence remains to be clarified. Mauro and Pigliaru (2011) calibrate an endogenous growth model to mimic the very long run growth of Center-Northern and Southern regions. They conclude that decentralization ignites the effects of Social Capital (SK) thus for the poorly endowed regions decentralization was growth-depressing whereas the SK-rich regions gained. According to the authors, the overall result is that decentralization in Italy favored regional divergence.⁹ The last evidence to add to the picture is the skyrocketing regional unemployment

⁸ The fiscal reforms took place in the period from 1973 to 1974, they were contained in a sequence of rules (Dpr 597, 598, 599 of 1973, 643, 633 of 1972), which established the following taxes : Irpef (Direct Personal taxation) , Irpeg (Direct corporate Taxation), Ilor (Direct Income local taxation), Invim (Real estate income taxation) and VAT.

⁹ Their results put evidence in favor of a negative impact of decentralization on the Southern regions development in line with Helliwell J., Putnam R. (1995) and Tanzi (1995).

differentials which started also in the late Sixties. A non-marginal contribution was given by the new Labor Legislation called “Statuto dei Lavoratori” which imposed a common national wage in the face of large differences in productivity and cost of living among regions (Mauro and Pigliaru (2011)). The unemployment differentials among regions, which were almost zero at the end of the Sixties, reached up to about 15 percent points in a decade, and presently are still double without considering discouraged workers and participation rates. As a consequence, informal labor markets in the Southern economies flourished and so did the share of non-taxed area with clearly negative effects on the already unbalanced fiscal residual. Finally, unemployment called for larger flows of grants to boost occupation, deteriorating fiscal residuals even further.

In summary, within a very short time span Italy experienced three important institutional innovations or permanent shocks affecting its regional development: 1) an increase of the rigidity of labor market both in a temporal but above all in a spatial sense¹⁰, 2) a decentralization reform with soft budget constraint 3) a progressive fiscal reform with large and permanent effect on the regional fiscal residuals. Nevertheless, although the evidence presented so far seems to point to the fiscal residual imbalance among regions as the cause of the Italian debt dynamics, in order to reach a clear cut conclusion a much longer time series of the regional fiscal imbalances should be presented. Unfortunately, these data are not available. The method of reconstructing the fiscal residuals from the public administration accounts is cumbersome and it is almost impossible to go very far back in the past. Moreover, this method underestimates the deficit for it considers only primary deficits. Nevertheless, we wondered whether using the available macro regional data sets it was possible to reconstruct the deficit time series indirectly, at least for the main macro areas of Italy, looking at the National Accounting Identities. We found a positive answer in *Conti Economici Nazionali* computed by Istat. Moving from such accounts it is possible to reconstruct the public deficit of a macro region, although not without some corrections and caveats.

¹⁰ One could define temporal labor market rigidity as the slowness of wages to change in face of unemployment increase along time. This is the standard definition of labor market rigidity. However, also the sluggishness of wage to change across regions in the face of different regional unemployment rates could be considered a rigidity: in fact a spatial rigidity .

The steps we followed were firstly to find a formula based on information available also at a regional level over time, then compare it with official national figures. In the next step, we proceeded with the regionalization of the national figures, discussing the necessary assumptions which had to be made and comparing our results with the national official data from the Bank of Italy once again re-aggregating the regional figures (all details are given in the Appendix). The difficulties we encountered were many, due to the limited availability of digital data, the variety and heterogeneity of data sets. The data sets are from: Wolleb and Wolleb (1990), Istat Conto *Economico Consolidato delle Amministrazioni Pubbliche*, Istat Conti Economici regionali, Ministero Tesoro, Banca d'Italia, Prometeia.¹¹ From the national account identity as defined in the US- NAS system of account, public savings S^G is:

$$S^G = -S^P + I + NX = -(Y - NT) + C + I + NX = -YDh + C - S^e + I + NX \quad (1)$$

Where S^P stands for Private Savings (Households + Corporate), I for Private Gross Fixed Investment, C for Private Consumption, Y for GNP, YDh National Disposable Income of households and NX for Current Account balance¹², NT for Net taxes and S^e for Corporate savings. Shifting from US National Accounting System (NAS) to the Italian National Accounts *Conti Economici Nazionali*, requires accounting for the differences between NAS and Sec95 and adjusting for such differences.

$$S^G = -(Y - NT) + C - S^e + (I^{TOT} - I^G) + NX \quad (2)$$

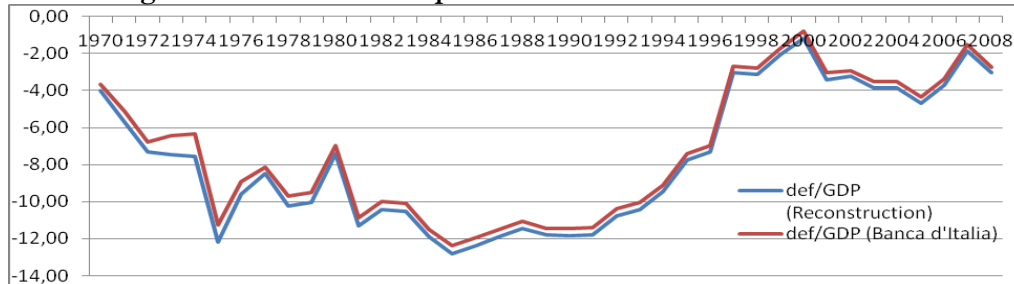
Does equation (2) with our available data fit the official figures from the Bank of Italy relative to GDP (market prices)? A simple glimpse at Figure 4 where our estimates are compared with the Bank of Italy series seems quite reassuring.¹³

¹¹ Prometeia data set is a five years old data set. They indeed own a very large and updated regional data set but they refuse to share it with us.

¹² When data are not available we will refer to Domestic Disposable Income and accordingly the NX will be Trade Balance.

¹³ The expenditure of the non-profit sector (*Istituti sociali privati*) is a content of the public spending in the *Conti Economici Nazionali*, this item is not recorded in the public financial statements, and therefore it is disregarded in the computation of net taxes. This is surely a cause of the slight observed error.

Figure 4. Government Surplus over GDP

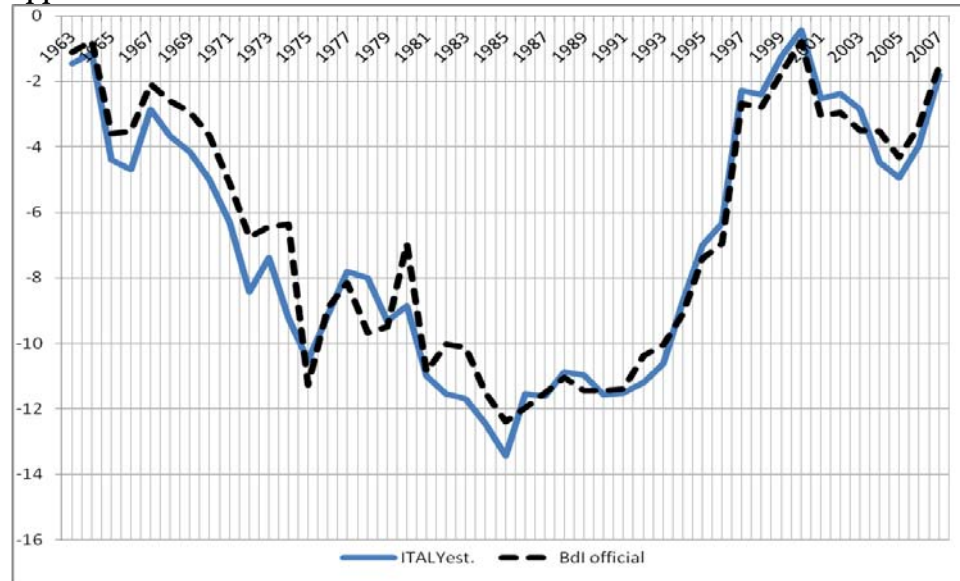


Nevertheless, not all the balance items available at National Level are also so at regional level. In order to check the impact of the lack of data availability, we reconstruct the national aggregate figures under the same information set available at regional level. The first issue that arises when considering “regionalizing” the deficits is the first addendum on the right side of equation (2): NT net taxes (see the Appendix for details). An official disaggregation on the macro-areas of each item of the public consolidated financial statements is not available from the official statistics but for very recent years. Therefore, we have to employ other information from other sources. Wolleb and Wolleb (1990) provide an estimation of the regional disposable income of households for the years 1970, 1975 and each year in the time span 1980-87, and time series of the same item for each region can be found in *Conti Economici Regionali* by Istat from 1995. Using interpolation for the missing years, we reconstruct backwards, up to 1963. Clearly the critical time span is the 1963-1969 period, when we hold the regional disposable income to GDP constant and equal to 1970 data from Wolleb-Wolleb. With all the caveats, this decision is logical, because the ratio of direct-indirect taxes, which had the strongest impact on the fiscal residuals, stayed constant in the sixties. We believe the distortion in the regional figures from 1963 to 1970 is counterbalanced by the information gain we can derive from going back to the sixties.

In order to assess our source Figure 5 reports the results of our regional approximation formula, using Wolleb and Wolleb (1990) still aggregate data with respect to official Bank of Italy figures. The result

seems quite satisfactory as the error is contained within a reasonable margin and limited to the initial sample period as expected.

Figure 5. Government Surplus over GDP with regional approximation formula



The above results make us more confident that we will be able to obtain sensible deficit figures at macro regional levels although as a first approximation. Nevertheless, when moving from national to regional level some words of caution are necessary. In fact, the deficit equation needs some modification when referred to a region. The first issue is that all available regional income figures refer to National Disposable Income but Current Account Figures are not available so Trade Balance is to be considered. Had Net Income from Abroad been available at regional level, it would have been inserted but, as we discuss in what follows, the aggregate figures are very small (0.01 of Italian GDP in the period considered). Moreover, the macro region i -th trades with the other regions and also the net Income flows among them must be considered. We, therefore, must consider the interregional current

account: $\left(\frac{NX}{GDP}\right)_{i,INTER}$. Equation (2) for region i becomes:

$$\left(\frac{S^G}{GDP}\right)_i = -\left(\frac{Y-NT}{GDP}\right)_i + \left(\frac{C}{GDP}\right)_i - \left(\frac{S^f}{GDP}\right)_i + \left(\frac{I^{TOT}}{GDP}\right)_i - \left(\frac{I^G}{GDP}\right)_i + \left(\frac{NX}{GDP}\right)_i + \left(\frac{NX}{GDP}\right)_{i,INTER} \quad (3)$$

where $i = \{\text{NORTHWEST, NORTHEAST, CENTRE, SOUTH}\}$. The Interregional Current Account, NX_{inter} , would record the exports and the imports of goods and services as well as net flows of income from other macro-areas or regions but it is not available. Omitting interregional Current account would imply an error. The bias can be inferred, at least for the Trade Balance, from the expected sign of interregional trade flows estimation done by Cherubini, Ghezzi, Paniccià and Rosignoli, employing the data base of Irpet¹⁴. Table 2 presents some of their results. It is a matrix of flows of net exports among the four macro-areas and the rest of the world. For the years considered 1995, 2001, 2006 the North and even the Centre had positive Net export, while the imports of the South always exceeded its exports for all destinations, within Italy and internationally. Even if three periods are too few to infer a general conclusion, nonetheless these data provide us with important information: the lack of this balance item in the model will induce an error that is positively biased for the Centre-North and negatively biased for the South.

¹⁴ Istituto Regionale Programmazione Economica della Toscana.

Table 2 Net Export as a percentage of GPD of the region¹⁵
Esportazioni nette interregionali ed estere in percentuale del PIL della macroarea di destinazione

		Area di destinazione								
Area di origine		Nord-Ovest	Nord-Est		Centro		Sud e isole	ITALIA		
1995	Nord-Ovest		-4,3	(-4,3)	0,4	(-1,7)	-4,8	(-4,9)		
	Nord-Est	2,9	(3,0)		0,5	(-0,5)	-2,8	(-2,8)		
	Centro	-0,3	(1,1)	-0,5	(0,5)		-4,7	(-4,6)		
	Sud e isole	3,5	(3,6)	3,0	(3,0)	5,4	(5,3)			
	Totale aree	6,1	(7,7)	-1,8	(-0,8)	6,3	(3,1)	-12,3	(-12,3)	
	Resto del mondo	7,2		7,6		-0,6		-7,0		2,2
2001	Nord-Ovest		-3,7	(-3,8)	0,4	(-1,3)	-4,1	(-4,2)		
	Nord-Est	2,6	(2,6)		0,7	(-0,3)	-2,9	(-3,0)		
	Centro	-0,3	(0,8)	-0,6	(0,2)		-4,1	(-4,0)		
	Sud e isole	3,1	(3,2)	3,2	(3,2)	4,7	(4,6)			
	Totale aree	5,4	(6,6)	-1,1	(-0,4)	5,8	(3,0)	-11,1	(-11,2)	
	Resto del mondo	4,2		5,4		-1,9		-8,8		0,0
2006	Nord-Ovest		-3,6	(-3,5)	0,7	(-1,1)	-3,5	(-3,4)		
	Nord-Est	2,6	(2,5)		0,9	(-0,4)	-2,3	(-2,3)		
	Centro	-0,5	(0,8)	-0,9	(0,4)		-4,5	(-3,5)		
	Sud e isole	2,6	(2,5)	2,5	(2,4)	5,0	(3,9)			
	Totale aree	4,7	(5,8)	-2,0	(-0,7)	6,6	(2,4)	-10,3	(-9,2)	
	Resto del mondo	2,4		3,7		-3,5		-11,6		-1,9

Source: Cherubini, Ghezzi, Panicià and Rosignoli IRPET

As far as the Net Income Flows are concerned, we do not have statistics but some considerations can be made as well. The Net Capital Income Flows of the Center-Northern regions are likely to be positive for the large part of past investments have been done by Center-Northern firms, either private or public. The Net Labor Income flows are less clear-cut in sign. We expect it to be positive for the Southern regions during and immediately following the internal migration period. However, since the middle of the Seventies, when migrations formally ceased, these flows are expected to lower sensibly. All in all, the Net Interregional Income flows are expected not to reverse the Net Interregional Trade effect on Interregional Current account. In a nutshell, the “true” time series of our regionalized government savings would present even larger differences between the component of public deficit from the South and the one from the rest of the country, reinforcing our findings.

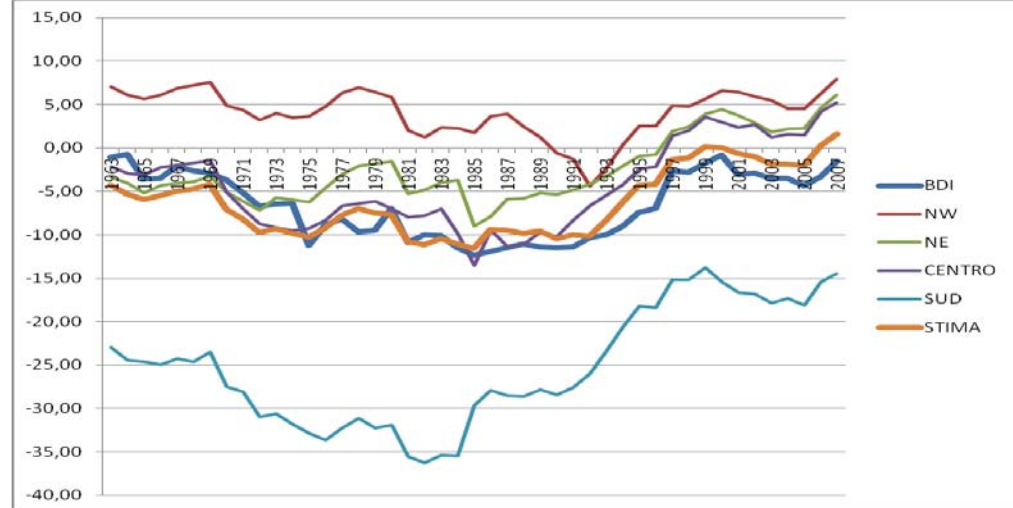
¹⁵ Reading the table by column , for example in 2006 the Northwestern displays net Export to Northeastern equal to 2.6% of its GDP which consists of 3.6 of Northeastern GDP in the successive column with opposite sign.

Finally, two more issues need to be taken into account when considering regionalization: Net Capital Taxes (Capital Taxes – Capital transfers) and Net Income from the rest of the world. We prefer not to “regionalize” these balance items for they are very negligible, weighting around 0.01 of GDP each. Nevertheless, some prior about the geographical bias of these items could be assessed. Capital Taxes are expected to be biased with a larger share in the Northern regions, on the contrary the Capital Transfers and grants typically favored the less developed regions of the South. Since the net figures for Italy are always negative (Capital Transfers are by far larger than Capital Tax according to Istat Conti Economici Consolidati Amm. Pub.), the omission would bias the deficit calculation but again in the direction of underestimating the Southern regions deficits. The case of the Net Income from abroad is more complex and it must be analyzed by decomposing Capital Income and Labor Income flows. Two opposite considerations could be made. National Net Capital Income figures are always negative from 1970 onwards. Since Foreign Direct Investment are basically directed only to the more developed North, we expect Net capital Income to be assigned mostly to the North because of the implicit profit flows deriving from those investment. Therefore, omitting this item means underestimating the Northern Deficits or the other way around, overestimating Northern Surpluses. National Labor Net Income flows are instead positive but decreasing from 1970 up to 1992 as the effect of the former large migration typically from the Southern regions. In this case, the omission biases the Southern deficit downward. The change in sign in 1992 is the signal that Net Migration Flows switched and the large immigration of foreign workers started. Since most of these foreign workers migrated to the richer NE- NW regions, we expect these negative figures to be imputed mostly to them. Therefore, omitting this balance item is conducive again of an underestimation of the Northern regions’ deficit. Lastly, two more caveats: the estimation of regional depreciation and the issue of Corporate Savings, which instead are quite large figures, at 8-10% and 7-8% of National GDP, respectively. Depreciation had to be subtracted because Wolleb and Wolleb (1995) data source contains the Net Disposable Income whereas this procedure was not necessary when ISTAT figures were used, since they are gross. However, this item was not available for the whole time span. Therefore, we proxy each macro regions depreciation assuming a linear function with respect to Capital Stock from CRENoS data set. Assuming regional depreciation to be proportional to regional capital is believed not to

introduce any major distortion in our time series reconstruction. Finally, the Corporate savings had to be “regionalized” as well. This item weights 7-8% of National GDP, therefore, it could not be neglected. To our knowledge this aggregate is not available at the regional level for the period 1963-1983. It is well known that the majority of small and medium enterprises are located in the Center Northern part of the country, as it is the majority of medium enterprises value added. Therefore, a larger share of National aggregate Corporate Savings is expected to be assigned to Northern regions, but how? A first attempt looked at the profit share to have a clue about this issue. The idea was that the larger the profit shares the larger the savings of corporations, but no information for functional income distribution was available at regional level for that time period. We thus assumed profit shares to be linearly linked with private value added shares, which seemed to be a reasonable assumption (see Appendix). In summary, the corporate savings share for the i -th region is proxied by the product of National Corporate Savings over National Private Value Added times the i -th region Private Value Added share. At last, we obtain the Macro Regional Deficit shares over GDP that are reported in the Data Appendix.

Figure 6 depicts our findings in terms of Government Savings over GDP. We also depict the official Bank of Italy (BDI) series, as well as, the aggregate series (STIMA) obtained as the weighted average of regional deficits where the weights are the shares of regional over national GDP.

Figure 6. The Macro Regions' Government Surpluses/GDP Ratio



From Figure 6, the astonishing impact of Southern regions deficits appears evident. The national deficit started increasing in the 1970s, mainly driven by the Southern and (partially) Center deficits. From the seventies onward the growth of all regions lowered and the Northwestern surpluses were no longer sufficient to compensate the deficits of the other regional economies. Central and Northeastern regional economies also present increasing deficits up to 1985, after which time deficits started to decrease but turned into surpluses only after 1992. The large Southern deficits kept worsening up to 1982 when they reached a trough.¹⁶ Afterward, this trend reversed somehow, even if there is a long period of pause in the financial imbalance in the second part of the Eighties. The data show a decisive decrease of the Southern deficits in the Nineties, a trend that reversed in year 2001. The figures we present are quite in line with the results of Staderini and Vadalà

¹⁶ The pronounced downturn in the Southern series could well be imputed at least partially to the 1980 earthquake that struck southern Italy, not only for the inevitable trough of GDP but also for the suspension of many tributes and taxes to alleviate the population. It has been estimated that the Direct Intervention of the Government accounted for 30 trillion euros not considering the tax exemptions.

(2009) from the Bank of Italy. In fact, they found average Fiscal residuals for the South of 16.4%, -8.6% for the North and -5.3% for the Center during the 2004-06 period.

All in all, the finance problems of Italy are clearly triggered by the huge fiscal imbalance of Southern regions; even more so, as we recall that Southern figures are underestimated because of the missing interregional net exports. These extraordinary large deficits have started well before the Seventies but increased during that decade from 24% in 1970 to 33% in 1980 and only in the Nineties they show a remarkable decrease. Without doubt, these large and persistent Southern deficits are what caused the accumulation of the enormous Italian Sovereign debt. This evidence has remarkable empirical and theoretical consequences since it questions the relevance of many of the determinants suggested in the literature and calls for a re-examination of the driving forces behind recent Italian Public Finance history.

4. Which theory better explains the Italian Deficit dynamics ?

If the former evidence indicates the Southern regions deficit as the main cause of the Italian finance problem, the persistence of these large imbalances remains to be explained. The new data availability allows a robustness analysis of the deficit and debt theories proposed in the literature. In trying to find which theory or theories fit the Italian case better, we build on Galli and Padovano (2005) who utilized some of the proxies most extensively employed in the cross country literature to test the main theories: the Keynesian, the neoclassical optimal taxation, the pressure group of the elderly, the political fragmentation-war of attrition, the fiscal illusion generating political business cycle, the budgetary procedures, the ideology of governments and the strategic debt approach. We also explore whether these approaches hold in a disaggregated context.

In addition, we are going to test the geographically dispersed interest hypothesis.

We assembled a data set including disaggregated figures of the Italian macro areas of North-west, North-east, Center, South, as well as National level figures of the standard variables suggested in the literature. As far as the Keynesian approach is concerned, we consider the regional unemployment rate and the growth rate of regional real output. The neoclassical optimal taxation theory is assessed by the variable defined as out-of-long-run (national) trend Government Expenditure share of

GDP¹⁷. The War of attrition or fragmentation approach is captured by the standard Rae's and Herfindhal's political fragmentation indexes. The Ideology motive is assessed by the variable weight of left party seats in the cabinet. Following Galli and Padovano (2005) we also build two qualitative variables: BUDRULE and EXTCONSTR, the first is a variable built to track the changes in the budgetary rules, the second picks up the external constraint context in which policy makers operated.¹⁸ The strategic debt approach leading to electoral cycle is captured by the election dates. We use two dummy variables, ELECTION_YEAR and PRE_ELE, where the latter is equal to one in the year preceding the election year.

Finally, we considered the geographically dispersed interest approach. Truthfully, the deficit figures we presented above already provide evidence in favor of the common pool approach. In fact, when decentralized governments are in charge of the decision about the amount of public goods but the budget is centrally financed, Pearson and Tabellini (2000) show that expenditure tends to be larger and negatively linked to the size of the region¹⁹. The authors conveniently assume lump sum taxation and equal per capita income across regions, however we showed that Italian regions largely differ by income levels and that the taxation is progressive. Therefore a more realistic hypothesis would be

¹⁷ To estimate the trend we applied the Hodrick-Prescott filter with lambda equal to seven as suggested when dealing with annual data.

¹⁸ In particular, *EXTCONSTR* takes the value of 0 from 1972-73 to capture flexible exchange regime, 1 in the case of loose exchange rate regime from 1973 to 1979, 2 to capture a well developed set of rules (Bretton Woods 1950-1971 and the EMS from 1980 to 1991) and 3 in the Maastricht Treaty (from 1992 on).

¹⁹ Pearson and Tabellini (2000) show this result considering a quasi linear utility function for consumption and public good ($u^j = c^j + H(g^j)$) in order to capture the preferences of an individual resident in region J (1,2, ...,I) of population N^J within an economy of N individuals with identical per capita income (y) and a lump sum national taxation (t). In the centralized case the Central government is assumed to maximize a Benthamite aggregate utility ($\sum_J (N^J / N) u^j$) subject to an aggregate resources constraint $\sum_J N^J (g^j + c^j) = N y$. The first order condition in this case is: $H_g(g^j) = 1$ for $\forall J$ and $t = g^j \forall j$. When expenditure decision are decentralized the first order condition becomes: $H_g(g_D^j) = N^j / N$ implying a larger g given the concavity of H(g).

to assume different levels of per capita income in each regions and proportional taxation. In this case it is trivial to obtain the same first order condition for the centralized case and a first order condition for the decentralized, which implies a negative relationship between the per capita income of the region relative to the national one²⁰. Thus, with different per capita income and proportional taxation the former result holds but in addition we get that the poorer the region the higher the expenditure level on public goods. In conclusion, even the basic common pool model implies larger expenditure for poorer regions exactly in line with our evidence.²¹

Naturally, one cannot dismiss the redistribution theme as well but that would imply even larger fiscal imbalances for the poorer Southern regions, again in line with our figures, although some of this effect should be captured by the ideology approach as well. Nevertheless, in our opinion, the extremely large amounts of grants and the very long run period of fiscal imbalance calls for some additional explanations.

We believe that a complex geo-political mechanism has been in place for a long period of time that exacerbated in some way the common pool mechanism. From a geo-political point of view, Italy is and has been a strategically important country, especially during the Cold War because of the peculiar role of its Communist party as the main opposition party.²² The expansion of the Italian Communist Party

²⁰ In the decentralized case when the tax is proportional the local government maximizes the following capita utility: $u^j = c^j + H(g^j) = y^j - ty^j + H(g^j)$. If the budget is centralized financed: $Nt\bar{y} = \sum_j N^j g^j$ the local government maximize:

$$u^j = y^j - \frac{y^j}{\bar{y}} \sum_j \frac{N_j}{N} g^j + H(g^j)$$

yielding the condition: $H_g(g^j) = \frac{N^j}{N} \frac{y^j}{\bar{y}}$ where \bar{y} stands for average

national income, implying the larger g the poorer is the region.

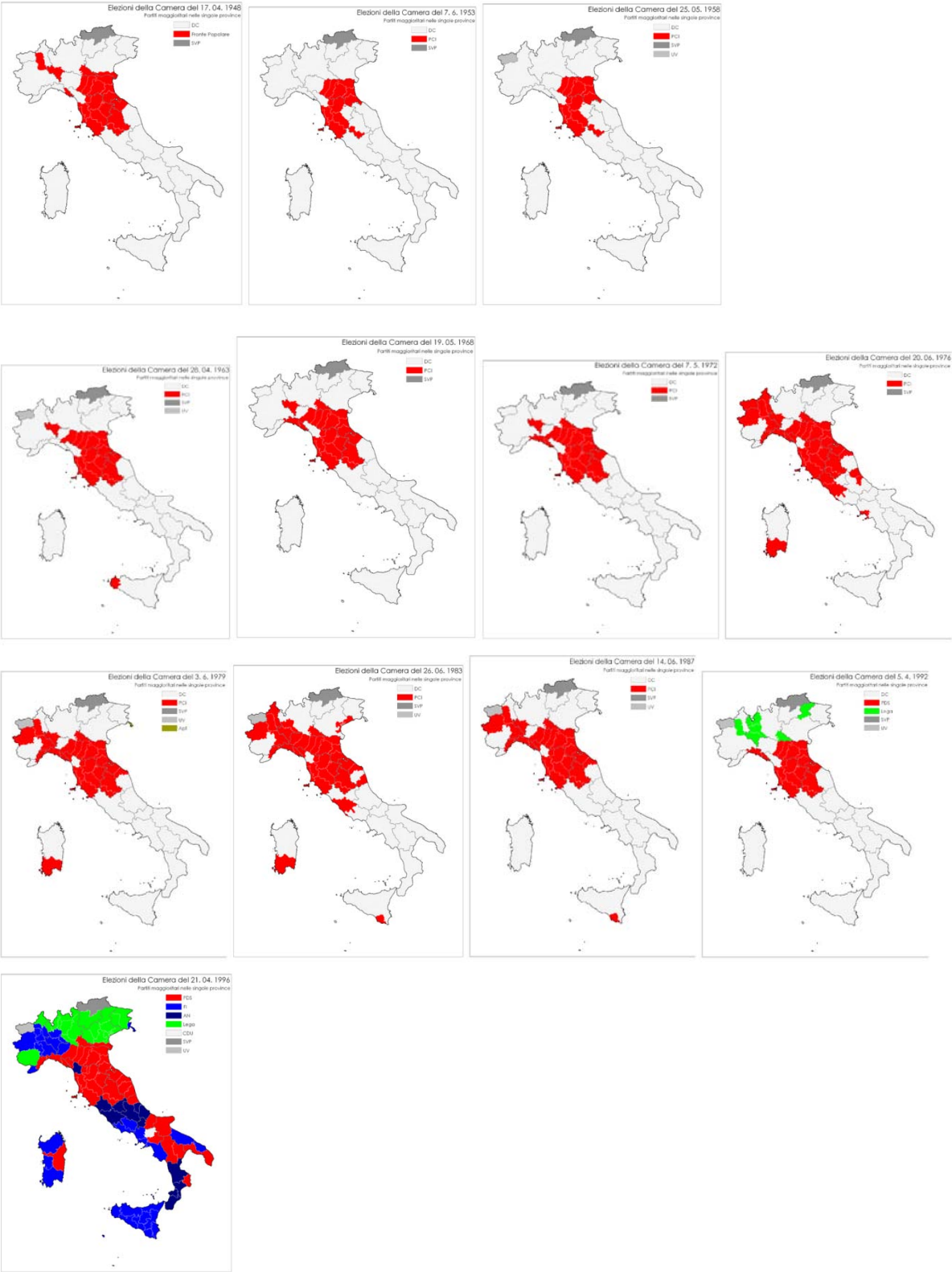
²¹ Pearson and Tabellini (2000) show also over borrowing in a simple dynamic common pool model with debt.

²² Italy hosted many NATO Bases - and still does - but its collocation in the “western” political sphere had been hovering for a long time. Therefore it comes as no surprise that Italian elections were “carefully” watched from outside and inside: critical geo-strategic considerations were at stake particularly

(PCI) in the 60's and 70's, did not happen in a geographically neutral way. The PCI was very well rooted in the Center regions but its advance took place in the Northern areas, typically conquering the high industrialized blue collar cities.

in the Seventies when the Italian Communist Party, PCI, commanded close to a majority of votes.

Figure 7 . The Geographical Evolution of Lower Chamber Electoral Districts



First party in the district: Christian Democrats (white), Communists Party (red), Northern League (green), Forza Italia (Blue)
(source Wikipedia)

This is pictorially documented in Figure 7. Specularly, the political relevance of the Southern Regions increased in the same period. The greater the weight of the PCI, the more the regions represented a solid counter-weight anchor for the incumbent coalition led by Christian Democrats and this translated into more political power. In order to measure the political power dynamics of each macro region, we build a variable (POWER_1) that is supposed to measure the political influence of the area in the national government. This variable is built as the share of Ministers, vice ministers and governments secretariats that are elected in the respective districts belonging to the macro region. We refer to the political data set by Merlo, Landi and Mattozzi (2008). Naturally, we are aware that the political influence varies according to the type of seats in the Government. Therefore, in a somehow arbitrary way we build a second variable (POWER_2) and we attach declining weights to the seats in the Government: 1 for Prime Minister, $\frac{1}{2}$ for deputy Prime Minister, $\frac{1}{3}$ Minister, $\frac{1}{4}$ Minister without budget, $\frac{1}{5}$ Vice Minister, $\frac{1}{6}$ Secretariat. We expect a negative relationship between these two variables and the macro regional government savings.

In the following we perform a univariate econometric analysis on the dynamics and determinants of the Government Savings to output ratio for Italy's macro-regions. We first carry out a preliminary unit root analysis on this ratio, on the unemployment rate and the share of older people (above 65 years) over the total population in order to ascertain their nonstationarity. In this respect, it is crucial to take into account possible breaks in the series. We utilize the endogenous two-break minimum LM unit root test derived in Lee and Strazicich (2003). This test allows for two changes in level and trend (Model C) both under the null and alternative hypothesis and endogenously determines the break points from the data. As emphasized by Lee and Strazicich (2003) this test overcomes the problem of spurious rejections of the null hypothesis in the presence of a unit root with breaks. In other words, if the test has no break(s) under the null of a unit root, researchers might conclude that a time series is trend stationary, when in fact the series is nonstationary with break(s)²³. Critical values for Model C depend (somewhat) on the

²³ Lee and Strazicich (2003) show that, when the alternative hypothesis is true and spurious rejections are absent, their test has greater or comparable power to the Lumsdaine and Papell (1997) test.

location of the breaks, $\lambda_j = T_{Bj} / T$, $j=1,2$, where T is the sample size and T_{Bj} represents the time period of the break, which are endogenously determined using a grid search over the time interval $[0.1T, 0.9T]$ in order to eliminate end points. The number of augmentation terms in the regression used to compute the LM statistic is determined at each combination of break points by following a “general to specific” procedure (starting from a maximum of eight lags) that is described in Strazicich, Lee and Day (2004, p. 135). This data-dependent procedure has been shown to perform well in practice. Moreover, if one of the breaks turns out to be insignificant at the 10% level (using 1.645 as normal asymptotic critical value) both in the level and trend, we repeat the analysis using the one-break minimum LM unit root test developed by Lee and Strazicich (1999).

The results of the endogenous two-break and one-break minimum LM unit root tests are shown in Table 1 and Table 2 respectively. Looking at the values of the test statistic reported in Table 1, we are able to reject the null hypothesis of a unit root for all the macro-regional variables, mostly at the 1% or 5% significance level. As we can see from Table 1, only for two macro-regional variables one of the breaks results to be not significant: the South-Italy’s Government Surplus and the Center-Italy’s unemployment rate. Nevertheless, looking at Table 2 we note that the results of the two-break minimum LM unit root test are confirmed or even reinforced. Having found that all the scrutinized variables appear to be trend-stationary (with breaks in level and/or trend), we now return to the main empirical object of the paper, i.e. to analyze for each Italian macro region the dynamics and the determinants of the Government Surplus, as a percentage of GDP. To this end, we specify a univariate auto-regressive distributed lag (ARDL) model with a maximum of two lags of the variables. This model can be thought of as the first equation of an $I(0)$ Vector Auto-Regressive (VAR) model involving the Government Surplus to GDP ratio (GS), the macro-regional unemployment (U) and real GDP growth (GY) rates, and the deviation from long run trend of the national Government Expenditure share of GDP (DEXP) as endogenous variables. Moreover, we add a set of exogenous variables to the model, which the literature recommends as promising candidates to assess the above theoretical approaches. The variables POWER_1, POWER_2 and the percentage of older people over the total population (POP65) are measured at the macro-regional level. Furthermore, given the inertia of Government Budget procedures,

the effect of the variables POWER_1 and POWER_2²⁴ on Government Surplus should not be simultaneous, so we include them into the model lagged by one period. Due to the presence of a missing value in the year 1963 for the variable GY, all the models with two lags of the variables are estimated (by OLS) over the sample 1966-2007. We adopt a “general to specific” approach and present the estimation results for the two versions of POWER separately.

The ARDL regression results for the North-west, the North-east, the Center and the South of Italy are reported in Table 3 and Table 3.1, general models, and Table 4, Table 4.1, final models respectively²⁵. Comparing the results presented in Table 3 (Table 4) with those in Table 3.1 (Table 4.1), we notice that the values of the estimated coefficients are very similar. This comes as no surprise given the high correlation between the POWER_1 and POWER_2 variables. Bearing in mind the dependent variable is Government Savings over GDP we can summarize the major findings. According to Keynesian theory, a negative coefficient is expected for unemployment and a positive one for growth. The evidence from Table 4 and Table 4.1 is mixed at best. Only unemployment lagged by two periods presents the negative sign and only for North-west and Center, whereas unemployment lagged by one period has a positive sign for South and North-west²⁶. Finally, unemployment, as well as output growth, are never significant for North-east. Instead, the sign of the lagged growth coefficient is in line with the theory for North-west and Center, as well as South. The variable national expenditure deviation from trend, DEXP, is expected to present a negative sign according to the Neoclassical tax smoothing assumption, whereas the opposite is true for all macro regions with the exception of North-east, where the first lag of the variable is positive but the second one is negative. Nevertheless, the hypothesis that the sum of the two coefficients is null is not rejected (F-stat=0.09, p-value=0.77 and F-stat=0.168, p-value=0.68 for the final model in Table 4 and 4.1,

²⁴ Note that in the estimated ARDL models they will be denoted as PW1 and PW2, respectively.

²⁵ To save space we show only the final results of the reduction process, but intermediate results are available from the authors upon request.

²⁶ Notice that for North-west the hypothesis that the sum of the two coefficients on unemployment is null is rejected at 5% (F-stat=5.53, p-value=0.025 and F-stat=6.48, p-value=0.016 for the final model with PW1 and PW2, respectively). So, looking at the magnitude of the estimates, the overall effect seems to be positive.

respectively). As far as the positive theories are concerned the results are mixed. The fragmentation measured by RAE_ELE, i.e. vote fragmentation, appears to lower Government savings for the macro regions, but parliamentary fragmentation measured by RAE_LEG does not, so it is not a clear cut evidence in favor. The more so considering the other measure of fragmentation in the Government seats, HERFINDAL_GOV, which appears always not significant or with the wrong sign. Also, the Instability measured by Government change does not appear to have explanatory power, whereas the Ideology approach measured by GOV_TYPE or GOV_LEFT appears to be insignificant or with the wrong sign. On the contrary the External Constraint seems to be significant and with the expected sign for all macro regional deficit but for North-west, where instead the Budget rule variable is significant. Totally dismissed is also the influence of the elderly POP65 as a driving force of the deficit, since it appears with the wrong sign or insignificant. The political cycle seems to play a role only as far as the North-west is considered, being insignificant elsewhere.

Lastly, the test of the hypothesis of common pool-geographically dispersed interests presents some mixed results. The first proxy, POWER_1, appears to be significant only for NW and the Center but with the wrong sign (in the case of South the sign is right but it must be rejected at 13%). POWER_2 turns out to perform much better with North-East being the exception. The signs of the coefficients are as expected for both North-west and South but not for the Centre, where it is positive and always highly significant, and for the North-East. Nevertheless, we consider these results encouraging, for the variable POWER_2 is among the few determinants with the expected sign to explain the largest regional deficit, i.e. the Southern one. This evidence supports those theories which emphasize the role of common pool mechanisms. In this respect we believe our findings to be quite meaningful.

5. Conclusions

Fifty years or so of resilient fiscal imbalance have built the very large Italian debt over time, not some sudden financial crisis calling for the Government's rescue. The magnitude and persistence of these deficits are somehow hard to rationalize with either normative or positive theories of public debt. Although Italy has been researched in both cross-country studies and as a single case, not all of the several approaches proposed and tested in the literature have been taken into

consideration. In particular, the geographically dispersed interests approach listed by Alesina and Perotti (1994) had not been contemplated. This theory postulates that public debt arises from a common pool problem where not all costs are internalized by the public expenditure beneficiaries, thus creating fiscal residuals so large that they pile up the national debt. In this paper, we present strong evidence in favor of the relevance of this approach in explaining the Italian Public debt dynamics.

The first clue is the lack of convergence within regional Italian economies, possibly one of the preconditions for the existence of large fiscal residuals. The Italian economy presents the largest and most persistent development differential between its regions among OECD countries. Timing is the second indication. The Italian North-South gap narrowed in the Fifties and Sixties and started increasing from the Seventies onwards, almost in line with the path of the Italian public debt.

We, therefore, tried to reconstruct the time series of regional deficits over GDP, using the available published information from several sources, and disaggregating the National values into four macro regions. The process of calculation is not without caveats and simplifications due to limited data availability. Nevertheless, we believe that all criticizable assumptions we had to make do not call into question the main results and they constitute minor sacrifices compared to the wealth of information they bring about. We find that the incredibly large and persistent fiscal imbalances of Southern regions are the ultimate cause of the National Public debt of Italy. Over more than two decades, the deficit of the South of Italy stayed well above 25% of its GDP, with a peak of 35%, and only recently it has reached a “more reasonable” value of 15% .

The second point we wanted to analyze was how well the theories of public debt fit this evidence and, above all, if the geographically dispersed interest approach which, to our knowledge, has been so far ignored, has some explanatory power. The results are quite disappointing as far as the several theoretical approaches suggested in the literature of public debt. All in all, neither the Keynesian nor the Neoclassical theory of Tax smoothing seem capable to account for the Italian empirical evidence when analyzed at the macro regional level. The positive theories do not seem to perform any better, since they either appear to have little explanatory power or are found with the wrong signs: wars of attrition, political fragmentation, ideology, strategic debt

accumulation, pressure groups are all questioned by our empirical analysis. A notable exception is the External Constraint explanation. In fact, the normative voluntary path toward the Maastricht pact appears to have deeply conditioned the Macro regions finance and therefore the whole Italian deficit (and debt) dynamics.

Finally, the new data set permits us to investigate the geographically dispersed interest- common pool hypothesis in greater detail. The common pool approach could account for the large accumulation of debt, because each regional government overspends as it does not fully internalize the cost of public projects. It easy to show that expenditure will be larger the poorer the region. Of course there are sound equity reasons in the background that explain the larger deficits of the Southern regions, but sixty years of very large fiscal residuals call for some additional explanation. However we believe that in addition to equity motives, a complex geopolitical equilibrium played a role that aggravated the common pool distortions. As the incumbent political party, the Christian Democrats, began to fear losing ground to the opposition, the Italian Communist Party, in the early Seventies the Southern regions, which were securely retained by the incumbent majority, acquired greater political power and succeeded in diverting more and more resources from the rest of the country. It is likely that the large grants were also justified because of complex international geopolitical reasons. In fact, Italy's very allegiance to the western block was at stake and the Southern regions were considered the last anchor to keep the country within the Atlantic alliance. To empirically explore this intuition we built two variables, Power_1 and Power_2, constructed to capture the influence of the macro regions in the government. Power_2, which attaches varying weights to the different types of seats in the government, turns out to be a good explanation of the Southern regional deficit which, in turn, drives the national deficit.

We believe that the new disaggregated deficit data and the econometric analysis we presented bring about some relevant empirical facts about the origin of the Italian public debt. Although there is clearly scope for further research, we believe the above evidence suggests that the common pool approach cannot be easily dismissed when trying to explain the dynamics of the Italian public debt. On the contrary, this is likely to be the foremost approach to be used.

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Appendix

Econometric Analysis

Table 1. Two-break minimum LM unit root test results for Model C, 1963-2007.

Macro-regional variables	Test statistic	T_{B1}	T_{B2}	Optimal lag	λ_1	λ_2
<i>Government Surplus/GDP (%)</i>						
-Northwest	-6.67***	1988	1997	4	0.58	0.78
-Northeast	-6.08**	1980	1985	7	0.40	0.51
-Center	-5.92**	1986	1995	6	0.53	0.73
-South	-5.71*	1979 (n)	1995	2	0.38	0.73
Unemployment rate (%)						
-Northwest	-5.44*	1980	1999	2	0.40	0.82
-Northeast	-6.17**	1979	1992	3	0.38	0.67
-Center	-5.80**	1991	1995 (n)	1	0.64	0.73
-South	-6.25**	1985	1992	6	0.51	0.67
Population over 65 (%)						
-Northwest	-5.41*	1980	1991	4	0.40	0.64
-Northeast	-6.94***	1980	1993	6	0.40	0.69
-Center	-5.62*	1987	2001	1	0.56	0.87
-South	-6.79***	1981	1996	7	0.42	0.76

Notes: *, **, *** denote significant at the 10%, 5% and 1% levels, respectively. Critical values used are reported in Strazicich, Lee and Day (2004), Table 1, pg. 136. Critical values at additional break points have been interpolated. (n) denotes that the identified break point is not significant at the 10% level.

Table 2. One-break minimum LM unit root test results for Model C, 1963-2007.

Macro-regional Variables	Test statistic	Optimal lag	T_{B1}	(1) λ_1
<i>Government Surplus/GDP (%)</i>				
-South	-4.40*	6	1991	0.64
Unemployment rate (%)				
-Center	-5.29***	7	1992	0.67

Notes: *, **, *** denote significant at the 10%, 5% and 1% levels, respectively. Critical values used are reported in Strazicich, Lee and Day (2004), Table 2, pg. 137. Critical values at additional break points have been interpolated.

Table 3. Power1

ARDL regression results for the Italian macro-regions; sample period 1966-2007.

Dependent variable: Government Surplus as percentage of GDP (GS)

Regressors	North-west	North- east	Center	South
CONST.	1.598 (4.761)	-7.483 (5.447)	-15.71** (6.234)	-8.635 (9.656)
GS(-1)	0.840*** (0.127)	0.6328*** (0.1228)	0.3566** (0.1469)	0.5807*** (0.1282)
GS(-2)	0.190 (0.146)	-0.08557 (0.1326)	0.03909 (0.1744)	0.1156 (0.1017)
U(-1)	1.252*** (0.320)	-0.5644 (0.8646)	-0.03809 (0.2596)	0.2491* (0.1442)
U(-2)	-0.771** (0.3145)	0.3356 (0.5917)	-0.7213* (0.3582)	0.1192 (0.1855)
GY(-1)	0.1721* (0.09652)	0.004939 (0.1072)	0.5480*** (0.1729)	0.3502** (0.1612)
GY(-2)	0.1698** (0.07252)	0.06222 (0.1164)	0.07355 (0.1248)	0.5623*** (0.1955)
DEXP(-1)	0.8062*** (0.2109)	0.7526*** (0.2203)	0.4599*** (0.1573)	1.173*** (0.3063)
DEXP(-2)	0.3664** (0.1746)	0.2704 (0.2970)	-0.3797 (0.3021)	0.9321*** (0.2689)
RAE_ELE	-0.6308* (0.3552)	0.07593 (0.2760)	-0.5550** (0.2370)	-1.170*** (0.3602)
RAE_LEG	0.4998 (0.3133)	-0.1021 (0.2853)	0.5788** (0.2321)	1.086*** (0.3040)
HERFINDAL_GOV	0.9171 (1.277)	4.694* (2.617)	1.839 (2.136)	2.486 (1.544)

GOV_CHAN	-0.2178 (0.2818)	0.08824 (0.2981)	0.1428 (0.2259)	-0.09897 (0.3288)
GOV_TYPE	0.1067 (0.2055)	-0.004447 (0.2622)	-0.07765 (0.1526)	-0.2595 (0.1729)
GOV_LEFT	0.007712 (0.006315)	0.02221*** (0.006702)	0.01582* (0.008952)	0.008714 (0.009358)
EXTCONSTR	-0.3261 (0.3785)	1.045* (0.5226)	1.019** (0.3980)	0.8075*** (0.2766)
BUDRULE	0.8034** (0.3340)	0.005637 (0.4283)	0.1312 (0.3584)	0.8491* (0.4122)
POP65	0.3626** (0.1635)	0.1068 (0.2784)	0.5658** (0.2438)	0.3121 (0.3177)
PW1(-1)	-3.869* (2.153)	5.559 (8.553)	21.05*** (4.172)	-13.79** (5.213)
PRE_ELE	1.130*** (0.3110)	0.3652 (0.3403)	0.4876 (0.3376)	1.145* (0.5999)
ELECTION_YEAR	0.9123* (0.4575)	0.3169 (0.5297)	0.5117 (0.4433)	0.6687 (0.4447)
Adj. R-squared	0.863	0.895	0.936	0.956
S.E. of Regression	1.022	1.262	1.297	1.473
N. obs.	42	42	42	42

Notes: *, **, *** denote significant at the 10%, 5% and 1% levels, respectively.
White's s.e. are reported in parentheses.

Table 3.1 Power2

ARDL regression results for the Italian macro-regions; sample period 1966-2007.

Dependent variable: Government Surplus as percentage of GDP (GS)

Regressors	North-west	North-east	Center	South
CONST.	2.065 (4.946)	-7.132 (4.927)	-14.31** (6.407)	-8.423 (9.793)
GS(-1)	0.8334*** (0.1281)	0.6493*** (0.1210)	0.3386** (0.1586)	0.5338*** (0.1281)
GS(-2)	0.2021 (0.1473)	-0.1078 (0.1312)	0.09367 (0.1776)	0.1778* (0.1022)
U(-1)	1.259*** (0.3237)	-0.6747 (0.9154)	-0.05937 (0.2734)	0.2339 (0.1468)
U(-2)	-0.7468** (0.3181)	0.4643 (0.6533)	-0.7221** (0.3437)	0.1295 (0.1834)
GY(-1)	0.1737* (0.09848)	-0.02306 (0.1141)	0.5578** (0.1787)	0.3720** (0.1561)
GY(-2)	0.1655** (0.07138)	0.005201 (0.005201)	0.08011 (0.1405)	0.5521*** (0.1901)
DEXP(-1)	0.8025*** (0.2151)	0.7237*** (0.2110)	0.4871** (0.1410)	1.239*** (0.2855)
DEXP(-2)	0.3624* (0.1769)	0.1707 (0.3448)	-0.3494 (0.3278)	0.9236*** (0.2660)
RAE_ELE	-0.6672* (0.3565)	0.03709 (0.2644)	-0.4490** (0.2489)	-1.074*** (0.3513)
RAE_LEG	0.5241 (0.3140)	-0.05410 (0.2853)	0.4443* (0.2435)	0.9919*** (0.2981)
HERFINDAL_GOV	0.7372 (1.315)	5.099* (2.732)	0.8595 (2.468)	2.432 (1.517)
GOV_CHAN	-0.2098 (0.2557)	0.1462 (0.2928)	0.03860 (0.2444)	-0.07914 (0.3187)

GOV_TYPE	0.1102 (0.2111)	-0.1251 (0.3096)	0.1161 (0.1986)	-0.2551 (0.1631)
GOV_LEFT	0.006721 (0.006803)	0.01830** (0.007791)	0.01972** (0.009142)	0.009237 (0.008948)
EXTCONSTR	-0.3336 (0.3831)	1.128* (0.5533)	1.045** (0.3898)	0.8391*** (0.2684)
BUDRULE	0.8449** (0.3249)	-0.06405 (0.4526)	0.2445 (0.3365)	0.8245** (0.3811)
POP65	0.3842** (0.1744)	0.03913 (0.3142)	0.6278** (0.2818)	0.2797 (0.3040)
PW2(-1)	-3.180 (2.139)	7.519 (7.035)	18.16** (4.912)	-13.83*** (3.941)
PRE_ELE	1.113*** (0.3133)	0.4342 (0.3424)	0.3220 (0.3394)	1.270** (0.5670)
ELECTION_YEAR	0.9098* (0.4469)	0.2904 (0.4914)	0.6586 (0.6586)	0.8491* (0.4564)
Adj. R-squared	0.862	0.897	0.933	0.959
S.E. of Regression	1.026	1.250	1.327	1.420
N. obs.	42	42	42	42

Notes: *, **, *** denote significant at the 10%, 5% and 1% levels, respectively. White's s.e. are reported in parentheses.

Table 4. Power1, Final models

ARDL regression results for the Italian macro-regions; sample period 1966-2007.

Dependent variable: Government Surplus as percentage of GDP (GS)

Regressors	North-west	North-east	Center	South
CONST.	4.137 (3.980)	-7.533*** (1.958)	-10.25* (5.566)	7.446 (10.70)
GS(-1)	1.077*** (0.07285)	0.5778*** (0.1052)	0.4632*** (0.07189)	0.7219*** (0.1219)
GS(-2)				0.2030* (0.1105)
U(-1)	1.176*** (0.2649)			0.2358*** (0.07312)
U(-2)	-0.7461*** (0.2147)		-0.7269*** (0.1682)	
GY(-1)	0.1245** (0.05889)		0.5582*** (0.1694)	
GY(-2)				0.2511* (0.1448)
DEXP(-1)	0.6723*** (0.1811)	0.4797** (0.1862)	0.4227*** (0.1375)	0.8204*** (0.2681)
DEXP(-2)			-0.5131* (0.2756)	0.8898*** (0.2392)
RAE_ELE	-0.5405** (0.2364)		-0.7101*** (0.2348)	-0.9898** (0.3626)
RAE_LEG	0.4016** (0.1929)		0.6853*** (0.2162)	0.8681*** (0.2826)
HERFINDAL_GOV		5.718*** (1.573)		
GOV_CHAN				

GOV_TYPE				
GOV_LEFT		0.02249*** (0.006001)		
EXTCONSTR		0.8775*** (0.2283)	0.7225** (0.2900)	0.6193* (0.3200)
BUDRULE	0.8394** (0.3113)			
POP65	0.2933*** (0.08231)		0.6536*** (0.1217)	
PW1(-1)	-4.046** (1.908)		22.08*** (2.651)	-6.682 (4.332)
PRE_ELE	1.184*** (0.2832)			
ELECTION_YEAR	0.6005** (0.2919)			
Adj. R-squared	0.881	0.924	0.948	0.962
S.E. of Regression	0.946	1.056	1.148	1.372
N. obs.	43	44	43	42
AR(1)	0.103 (0.75)	0.083 (0.77)	0.127 (0.72)	2.393 (0.12)
AR(3)	2.078 (0.56)	3.383 (0.34)	0.367 (0.95)	2.867 (0.41)

Notes: *, **, *** denote significant at the 10%, 5% and 1% levels, respectively. White's s.e. are reported in parentheses. AR(1) and AR(3) are the LM autocorrelation tests of order one and three of residuals; p-values are reported in parentheses.

Table 4.1 Power2, Final models

ARDL regression results for the Italian macro-regions; sample period 1966-2007.

Dependent variable: Government Surplus as percentage of GDP (GS)

Regressors	North-west	North-east	Center	South
CONST.	4.599 (3.928)	-7.533*** (1.958)	-9.581 (5.888)	7.602 (10.67)
GS(-1)	1.069*** (0.07398)	0.5778*** (0.1052)	0.4837*** (0.08203)	0.7024*** (0.1217)
GS(-2)				0.2232* (0.1112)
U(-1)	1.162*** (0.2625)			0.2286*** (0.06559)
U(-2)	-0.7155*** (0.2118)		-0.7307*** (0.1807)	
GY(-1)	0.1260** (0.05996)		0.5713*** (0.1746)	
GY(-2)				0.2546* (0.1342)
DEXP(-1)	0.6676*** (0.1846)	0.4797** (0.1862)	0.4433*** (0.1245)	0.8442*** (0.2526)
DEXP(-2)			-0.5615** (0.2708)	0.8701*** (0.2268)
RAE_ELE	-0.5706** (0.2338)		-0.6147** (0.2317)	-0.9589** (0.3711)
RAE_LEG	0.4230** (0.1929)		0.5813*** (0.2089)	0.8373*** (0.2892)
HERFINDAL_GOV		5.718*** (1.573)		

GOV_CHAN				
GOV_TYPE				
GOV_LEFT		0.02249*** (0.006001)		
EXTCONSTR		0.8775*** (0.2283)	0.8244*** (0.2711)	0.6277* (0.3143)
BUDRULE	0.8449*** (0.3249)			
POP65	0.2993*** (0.08434)		0.6388*** (0.1353)	
PW2(-1)	-3.424* (1.760)		19.73*** (3.313)	-7.389* (3.674)
PRE_ELE	1.154*** (0.2921)			
ELECTION_YEAR	0.5801* (0.2959)			
Adj. R-squared	0.882	0.924	0.946	0.963
S.E. of Regression	0.944	1.056	1.117	1.345
N. obs.	43	44	43	42
AR(1)	0.406 (0.52)	0.083(0.77)	1.437 (0.23)	1.780 (0.18)
AR(3)	2.793 (0.42)	3.383(0.34)	3.055 (0.38)	2.344 (0.50)

Notes: *, **, *** denote significant at the 10%, 5% and 1% levels, respectively.

White's s.e. are reported in parentheses. AR(1) and AR(3) are the LM autocorrelation tests of order one and three of residuals; p-values are reported in parentheses.

Data Reconstruction

In order to compute our reconstruction, we employed the time series of the following items:

variable	Definition	Definizione
RIDNh	Net internal disposable income of the households (= RDNh - RNRM)	<i>Reddito interno disponibile netto delle famiglie</i>
RDNh	Net disposable income of the households	<i>Reddito disponibile netto delle famiglie</i>
RDLh	Gross disposable income of the households	<i>Reddito disponibile lordo delle famiglie</i>
RDNf	Net disposable income of the firms/Corporate savings (net)	<i>Reddito disponibile netto delle imprese</i>
RDLf	Gross disposable income of the firms/ Corporate savings (gross)	<i>Reddito disponibile lordo delle imprese</i>
Ch	Consumption of the households	<i>Consumi delle famiglie</i>
IL	Gross investments (= IFL + DS)	<i>Investimenti lordi</i>
IFL	Gross fixed investments	<i>Investimenti fissi lordi</i>
DS	Change in inventories	<i>Variazione delle scorte</i>
AMMp	Private depreciation	<i>Ammortamenti privati</i>
NX	Net exports/Trade balance	<i>Esportazioni nette</i>
RNRM	Net foreign income	<i>Redditi netti dal resto del mondo</i>
ICAPN	Net capital taxes	<i>Imposte nette in conto capitale</i>
DEF	Deficit/Surplus	<i>Fabbisogno/Avanzo</i>
GDP	Gross domestic product	<i>Prodotto interno lordo</i>

The exact formula for the reconstruction has been specified in three different ways, due to the constraint imposed by the availability of data. By an algebraic point of view these specifications are equivalent.

1963-1969

$$\frac{DEF}{GDP} = -\frac{RIDNh}{GDP} - \frac{RDNf}{GDP} + \frac{Ch}{GDP} + \frac{IL}{GDP} - \frac{Ig}{GDP} - \frac{AMMp}{GDP} + \frac{NX}{GDP} + \frac{ICAPN}{GDP}$$

1970-1983

$$\frac{DEF}{GDP} = -\frac{RDNh}{GDP} - \frac{RDNf}{GDP} + \frac{Ch}{GDP} + \frac{ILF}{GDP} + \frac{DS}{GDP} - \frac{Ig}{GDP} - \frac{AMMp}{GDP} + \frac{NX}{GDP} + \frac{RNRM}{GDP} + \frac{ICAPN}{GDP}$$

1984-2007

$$\frac{DEF}{GDP} = -\frac{RDLh}{GDP} - \frac{RDLf}{GDP} + \frac{Ch}{GDP} + \frac{ILF}{GDP} + \frac{DS}{GDP} - \frac{Ig}{GDP} + \frac{NX}{GDP} + \frac{RNRM}{GDP} + \frac{ICAPN}{GDP}$$

In the reconstruction of the macro areas deficits, the items ICAPN and RNRM since 1970 are disregarded in the formula because their regional time series are not yet available.

The corporate savings regionalization is obtained assuming it to be proportional to profits and profits to be proportional to private value added of each regions:

$$\frac{S_{it}^c}{GDP_{it}} = \frac{\alpha_{it} * \Pi_{it}}{GDP_{it}} = \frac{\alpha_{it} * \beta_{it} V.A.Priv_{it}}{GDP_{it}}$$

Since no date regional data is available at regional level we were force to proxy $\alpha_{it} \beta_{it}$ with the Italian aggregate figures. After some trivial algebra we get:

$$\frac{S_{it}^c}{GDP_{it}} = \frac{\alpha_{it} * \beta_{it} V.A.Priv_{it}}{GDP_{it}} = \frac{V.A.Priv_{it}}{GDP_{it}} \frac{S^c}{GDP_{it}}$$

	BDI	ITALIA	NW	NE	CENTRO	SUD
1963	-1.11	-4.87	7.05	-3.37	-2.16	-23.00
1964	-0.77	-4.73	6.07	-4.04	-2.95	-24.48
1965	-3.59	-8.05	5.63	-5.19	-3.12	-24.59
1966	-3.53	-8.22	6.07	-4.37	-2.24	-24.94
1967	-2.09	-6.33	6.82	-4.05	-1.97	-24.31
1968	-2.60	-7.09	7.19	-3.86	-1.76	-24.62
1969	-2.92	-7.43	7.59	-3.26	-1.48	-23.53
1970	-3.66	-6.59	4.85	-5.07	-5.14	-27.50
1971	-5.11	-7.63	4.37	-6.16	-7.05	-28.09
1972	-6.76	-9.74	3.19	-7.17	-8.74	-30.93
1973	-6.43	-8.58	4.01	-5.75	-9.20	-30.60
1974	-6.36	-9.95	3.49	-5.98	-9.56	-31.81
1975	-11.27	-11.38	3.67	-6.20	-9.24	-32.88
1976	-8.92	-10.05	4.78	-4.58	-8.35	-33.64
1977	-8.15	-8.52	6.37	-3.03	-6.63	-32.25
1978	-9.68	-8.71	6.95	-2.11	-6.45	-31.15
1979	-9.50	-9.73	6.43	-1.82	-6.13	-32.28
1980	-6.97	-9.32	5.83	-1.54	-7.03	-31.87
1981	-10.87	-10.94	2.01	-5.31	-7.94	-35.55
1982	-10.01	-11.22	1.23	-4.86	-7.77	-36.26
1983	-10.11	-11.07	2.32	-4.00	-6.99	-35.37
1984	-11.48	-12.47	2.25	-3.74	-9.88	-35.51
1985	-12.38	-13.41	1.77	-9.00	-13.50	-29.62
1986	-11.96	-11.51	3.66	-7.92	-9.47	-27.94
1987	-11.51	-11.57	3.95	-5.92	-11.37	-28.55
1988	-11.05	-10.78	2.46	-5.80	-11.06	-28.58
1989	-11.43	-10.89	1.23	-5.23	-9.72	-27.85
1990	-11.44	-11.43	-0.61	-5.36	-10.23	-28.44
1991	-11.38	-11.40	-1.30	-4.83	-8.31	-27.61
1992	-10.38	-11.17	-4.38	-4.19	-6.68	-26.04
1993	-10.04	-10.56	-2.29	-3.30	-5.47	-23.38
1994	-9.09	-8.77	0.35	-2.03	-4.27	-20.67
1995	-7.41	-7.03	2.50	-0.93	-2.40	-18.21
1996	-6.96	-6.43	2.54	-0.76	-2.17	-18.36
1997	-2.67	-2.31	4.85	1.89	1.42	-15.20
1998	-2.79	-2.48	4.82	2.45	1.99	-15.18
1999	-1.73	-1.33	5.67	3.89	3.58	-13.76
2000	-0.78	-0.47	6.61	4.47	2.96	-15.46
2001	-3.05	-2.55	6.45	3.74	2.38	-16.61
2002	-2.94	-2.54	5.88	2.89	2.69	-16.84
2003	-3.51	-2.99	5.44	1.86	1.21	-17.86
2004	-3.52	-2.95	4.48	2.20	1.60	-17.33
2005	-4.33	-3.65	4.52	2.30	1.49	-18.10
2006	-3.36	-2.42	6.24	4.59	4.17	-15.45
2007	-1.52	-0.47	7.94	6.08	5.25	-14.47

(The whole data set including all variables in the formula are available upon request)

Data Sources

ITALY

RIDNh/GDP	1963-1969	ISTAT, Annuario di contabilità nazionale, Vol.1 1971
RDNh/GDP	1970-1983	Wolleb and Wolleb (1990) ²⁷ [RDNh 1970,1975,1980-1983]; ISTAT, Annuario di contabilità nazionale, Vol.14-2 1986 [GDP 1970,1975,1980-1983]; interpolations [1971-1974,1976-1979]
RDLh/GDP	1984-1989	Dipartimento del Tesoro, Quaderno strutturale dell'economia italiana, 2002 [RDLh]; ISTAT, Conti economici nazionali, istat.it [GDP]
	1990-1992	ISTAT, Conti economici regionali delle Amministrazioni pubbliche e delle famiglie: anni 1983-1992, 1996 [RDLh]; Prometeia [GDP]
	1993-1994	Interpolations
	1995-2007	ISTAT, Formazione del reddito disponibile delle famiglie negli anni 1995-2007, istat.it [RDLh]; ISTAT, Conti economici nazionali, istat.it [GDP]
RDNf/GDP	1963-1969	ISTAT, Annuario di contabilità nazionale, Vol.1 1971
	1970-1983	ISTAT, Annuario di contabilità nazionale, Vol.14-2 1986
RDLf/GDP	1984	ISTAT, Annuario di contabilità nazionale, Vol.14-2 1986
	1985-1989	Interpolations
	1990-2007	ISTAT, Conti economici per settori istituzionali, istat.it
Ch/GDP	1963-1969	ISTAT, Annuario di contabilità nazionale, Vol.1 1971
	1970-1983	ISTAT, Annuario di contabilità nazionale, Vol.14-2 1986
	1984-2007	ISTAT, Conti economici regionali, istat.it
IL/GDP	1963-1969	ISTAT, Annuario di contabilità nazionale, Vol.1 1971
IFL/GDP	1970-1983	ISTAT, Annuario di contabilità nazionale, Vol.14-2 1986
	1984-2007	ISTAT, Conti economici regionali, istat.it
DS/GDP	1970-1983	ISTAT, Annuario di contabilità nazionale, Vol.14-2 1986
	1984-2007	ISTAT, Conti economici regionali, istat.it
Ig/GDP	1963-1969	ISTAT, Annuario di contabilità nazionale, Vol.1 1971
	1970-1983	ISTAT, Annuario di contabilità nazionale, Vol.14-2 1986
	1984-2007	ISTAT, Conti economici consolidati delle Amministrazioni pubbliche, istat.it
AMMp/GDP	1963-1969	ISTAT, Annuario di contabilità nazionale, Vol.1 1971
	1970-1983	ISTAT, Annuario di contabilità nazionale, Vol.14-2 1986

²⁷ Wolleb and Wolleb (1990) provide for per capita data. We transformed the time series in absolute terms employing data on population from Prometeia.

ICAPN/GDP	1963-1969	ISTAT, Annuario di contabilità nazionale, Vol.1 1971
	1970-1983	ISTAT, Annuario di contabilità nazionale, Vol.14-2 1986
	1984-2007	ISTAT, Conti economici consolidati delle Amministrazioni pubbliche, istat.it
NX/GDP	1963-1969	ISTAT, Annuario di contabilità nazionale, Vol.1 1971
	1970-1983	ISTAT, Annuario di contabilità nazionale, Vol.14-2 1986
	1984-2007	ISTAT, Conti economici regionali, istat.it
RNRN/GDP	1970-1983	ISTAT, Annuario di contabilità nazionale, Vol.14-2 1986
	1984-2007	ISTAT, Conti economici nazionali, istat.it

MACRO AREAS

RDNh/GDP	1963-1969	1970 data
	1970-1983	Wolleb and Wolleb (1990) ²⁸ [RDNh 1970,1975,1980-1983]; ISTAT, Annuario di contabilità nazionale, Vol.14-2 1986 [GDP 1970,1975,1980-1983]; interpolations [1971-1974,1976-1979]
RDLh/GDP	1984-1992	ISTAT, Conti economici regionali delle Amministrazioni pubbliche e delle famiglie: anni 1983-1992, 1996 [RDLh]; Prometeia [GDP]
	1993-1994	Interpolations
	1995-2007	ISTAT, Formazione del reddito disponibile delle famiglie negli anni 1995-2007, istat.it [RDLh]; ISTAT, Conti economici regionali, istat.it [GDP]
RDNf/GDP	1963-1969	1970 data
	1970-1983	Regionalization: employing ratio of private value added to GDP for each macro area to spread the aggregate corporate savings
RDLf/GDP	1984-2007	Regionalization: employing ratio of private value added to GDP for each macro area to spread the aggregate corporate savings
Ch/GDP	1963-1969	ISTAT, Annuario di contabilità nazionale, Vol.1 1971
	1970-1983	ISTAT, Annuario di contabilità nazionale, Vol.14-2 1986
	1984-2007	ISTAT, Conti economici regionali, istat.it
IL/GDP	1963-1969	ISTAT, Annuario di contabilità nazionale, Vol.1 1971
IFL/GDP	1970-1983	ISTAT, Annuario di contabilità nazionale, Vol.14-2 1986
	1984-2007	ISTAT, Conti economici regionali, istat.it
DS/GDP	1970-1983	ISTAT, Annuario di contabilità nazionale, Vol.14-2 1986

²⁸ See previous note.

Ig/GDP	1984-2007	ISTAT, Conti economici regionali, istat.it
	1963-1969	ISTAT, Annuario di contabilità nazionale, Vol.1 1971
	1970-1995	Regionalization: share of public investments in the i-th macro area over the total public investments from data set Bonaglia and Picci (???) used to spread our time series of aggregate public investments
AMMp/GDP	1996-2007	DPS-Ministero Sviluppo Economico, Conti pubblici territoriali
	1963-1969	ISTAT, Annuario di contabilità nazionale, Vol.1 1971
	1970-1983	Regionalization: Italian ratio of depreciation to capital stock multiplied to the ratio of capital stock to GDP for each macro area
NX/GDP	1963-1969	ISTAT, Annuario di contabilità nazionale, Vol.1 1971
	1970-1983	ISTAT, Annuario di contabilità nazionale, Vol.14-2 1986
	1984-2007	ISTAT, Conti economici regionali, istat.it
RNRM	1963-1969	ISTAT, Annuario di contabilità nazionale, Vol.1 1971
gov_type	Type of Government. Classification: (1) single party majority government (2) minimal winning coalition (3) surplus coalition (4) single party minority government (5) multi party minority government (6) caretaker government (temporarily). Period covered: 1960-2008.	
gov_chan	Number of changes in government per year [termination of government due to (a) elections, (b) resignation of the Prime Minister, (c) dissension within government, (d) lack of parliamentary support, or (e) intervention by the head of state]	
elect	Date of election of national parliament (lower house). (If there were two elections in a year, the date of the second is given).	
rae_ele	Index of <i>electoral</i> fractionalization of the party-system according to the formula [F] proposed by Rae (1968).	
rae_leg	Index of <i>legislative</i> fractionalization of the party-system according to the formula [F] proposed by Rae (1968)	
gov_left	Cabinet composition: social-democratic and other left parties in percentage of total cabinet posts, weighted by days..	

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