Chapter 17
Federalism, Party Competition and Public Expenditure: Empirical Findings on Regional Health Expenditure in Italy

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Abstract Since the '90s, Italy has experienced a considerable decentralization of functions to the regions. This transformation has been especially relevant for the National Health System that has de facto assumed a federal system design. The federal reform aimed to discipline public health expenditure that drains a substantial share of the budget of Italian regions and is among the main causes of the regional deficits. Political economic analysis, however, suggests that the impact of federalism on public expenditure depends on central and local government strategies to win the electoral competition. Results derived in this chapter indicate that political competition actually works as a tool of fiscal discipline, as it shows a restraining effect on public health expenditure.

Keywords Fiscal federalism · Local budget · Multi-level policy-making · Public expenditure · Political competition · Health economics

17.1 Introduction

It is well known that public expenditure can be strongly influenced by political economic matters. The strategic utilization of public resources to support the re-election of political representatives has been extensively explored, among others, by the literature on political business cycles and on interest groups' lobbying (see Mueller 2003; Wittman and Weingast 2008). Moreover, the theoretical analysis has highlighted how the pursue of political goals may not only induce excessive spending but also the adoption of inefficient forms of transfers, even in presence of efficient (or less inefficient) ones (Acemoglu and Robinson 2001; Alesina et al. 2001; Coate and Morris 1995; Drazen and Limão 2008; Magee et al. 1989).

The scenario is further complicated by the existence of multiple layers of policy-making, as in the case of fiscal federalism. In fact, on the one hand centralization may

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trigger free-riding and local over-expenditure while, on the other hand, decentralization generates externalities related to horizontal and vertical competition (Persson and Tabellini 2000; Devereux et al. 2007).[1] Theoretical and empirical analyses suggest that the impact of decentralization on expenditure is likely to be ambiguous because of several counteracting effects. For example, while fiscal as well as political competition may constrain expenditure growth (see Mueller 2003), political decentralization may have a positive impact on public expenditure for several reasons. For example, local communities may decide to expand public services when they (and not the national government) control provision. Moreover, the multiplication of centers of policymaking is likely to determine additional costs. From a political economic perspective, a larger number of legislative districts may imply more redistribution and pork-barrel, causing public overspending (as shown by Weingast et al. 1981). Regarding this issue, some studies have pointed out that the impact of decentralization on the size of government depends on the specific institutional framework. In this respect, separation of powers and open rules of decision-making seem to limit over-expenditure under centralization.[2]

In a decentralized framework, the ways in which local expenditure is financed does have an impact on the magnitude of the public sector. A stream of literature has focused on the political determinants of intergovernmental grants. They represent a cost for the financing government, whereas the political benefits of their utilization often accrue to the spending (local) agents. This simple observation suggests that the political motivations of grants can be at least as fundamental as the efficiency and equity justifications. A growing number of studies indicate that intergovernmental grants are often assigned to maximize the political return for the donor.[3] Moreover grants are occasionally instrumental to bail-out local governments under financial troubles (Rodden et al. 2003).

Potential over-expenditure is clearly linked to an inadequate control of the electorate that allows a government to increase the size of the public sector in order to pursue its own goals. Public choice literature indicates that the design of a specific institutional framework, characterized by check and balances and adequate electoral competition, may help the community to tame the Leviathan and/or to hinder particularistic policies favouring interest groups (Wittman 1995). In this chapter, we concentrate on the latter aspect, namely a competitive political market.

In principle, the impact of political competition on the size of the public sector is ambiguous. On the one hand, we can presume that stronger competition will induce the government to behave more efficiently, even in case of particularistic policies

[1] Besley and Coate (2003) compare the costs of common pool effect with the benefits of internalization of spillovers deriving from centralization, showing that centralization leads a cooperative legislature to over-provide public goods. The reason is that local voters will strategically appoint representatives with high demand for spending. In Dur and Roelfsema (2005), that result is reverted when costs cannot be shared among districts (as in the case of environmental regulation or shelter provision to asylum seekers).

[2] See, for example, Migué (1997), Mazza and van Winden (2002), Dur and Roelfsema (2005).

[3] Guccio and Mazza (2005) provides a small survey of the empirical studies verifying the impact of political economic variables on the allocation and/or size of intergovernmental grants.

(Becker 1983, 1985). On the other hand, more competition could induce expansionary policies by the incumbent to reinforce his or her political position. However, such policies can be undertaken also through tax reduction, and not necessarily through an increase in expenditure. Furthermore, political consensus can be acquired also by improving the quality of the services, with a potentially positive impact on expenditure.

A highly cited study by Solé-Ollé (2006) investigates the impact of political competition on the local expenditure of 500 Spanish municipalities in the period between 1992 and 1999. He finds evidence that the size of the electoral margin of the incumbent has a positive influence on expenditure.

Building on that study, we attempt to verify the impact of political competition on health expenditure in Italy, which accounts for the largest share of regional budget and represents the main example of decentralization in the country. Specifically, regional health expenditures from 1990 to 2003 are taken as a case study, as the choice of this time span allows evaluating the effect of two important policy changes (see, Porcelli 2014, for a quite similar choice). First, in 1995 regional elections were held with a new electoral law that replaced the previous system of proportional representation with one based on a majoritarian rule, with the direct election of the president of the region. Secondly, in the period selected by the study, the most important decentralization reforms in the health sector occurred. Specifically, we refer to the 1998 reform, when new regional taxes replaced the previous intergovernmental grants earmarked for the health care sector, and the 2001 Constitutional reform that devolved to regions responsibilities for both the provision and financing of health care. In this respect, our dataset covers a reasonable period of time before and after all these events.

The chapter is organized as follows. Section 17.2 presents a synthetic but comprehensive description of the evolution of decentralization in Italy. This analysis is helpful to put in the right perspective the links between the growth of public sector and decentralization in the specific case of Italy. An analysis of potential tools to impose fiscal discipline is also provided. After a brief description of the Italian health care system, the decentralization of health responsibilities at a regional level and the relevant literature on the determinants of regional health expenditure, Sect. 17.3 illustrates the empirical framework for the investigation of the impact of political competition on health expenditure and describes the dataset. Section 17.4 discusses the estimation results. Finally, Sect. 17.5 concludes.

17.2 The Fiscal Discipline of the Intergovernmental Relations in Italy

17.2.1 The Italian State as a Unitary State

The Italian state was born in the second half of the XIX century through the unification of several existing states, under the monarchs of Piedmont. The founding fathers did

not accept the scholars' proposal to adopt the model of a federation. Because of too many differences among institutions, laws, economies, customs and languages,[4] they believed that the model of a unitary state was necessary for nation building.

The organization of the State replicated the model of Piedmont, which, on turn, followed that of Napoleon's France. It included three levels of government: central, provincial, and municipal. This structure stayed in place until the endorsement of the Constitution of the Republic in 1948. The Constitution introduced a fourth level of government—the regional one—immediately subordinate to the central level. Five regions (Valle d'Aosta, Trentino Alto Adige, Friuli Venezia Giulia, Sardinia, and Sicily) obtained a special autonomy.

Functions related to the administration of local public services were assigned to provinces and municipalities, which had little power to actually rule the matter. The State retained most of the power: it decided which services local authorities had to provide, and which services they could discretionally decide to provide. At the end of the XIX century ruling classes shared the worry that socialist run municipalities would pursue redistribution policies. However, in the XX century many services provided by private companies through concessions passed to municipalities.

Consumption taxes on a great variety of goods were the main feature of municipal finance. They survived for more than a century, though they were modified several times.[5] In accordance with the *zeitgeist* of the time, the State did not have redistribution functions, for a long time; hence, there were not redistribution transfers in favour of the areas with a lower per capita tax contribution capacity. However, an implicit redistribution policy did take place as local authorities of poorer areas were allowed to run deficits and to accumulate debt.

Italian municipalities always complained about the scarcity of resources available as opposed to their tasks. They also complained about the fact that the State transferred them national tasks, especially at times of financial crises. Sometimes, their pressure led to the transfer back to the centre of some of these tasks.

Financial discipline was achieved through traditional instruments such as declaration of difficulties, national control, and the electoral mechanism. The electoral mechanism, however, was distorted for a long time as there were limits (linked to sex, social status and education) to the right to vote; thus, the institutions redistributing the fiscal burden did not represent lower classes.[6]

[4] At that time, lower classes of some areas did not know Italian and spoke only dialects.

[5] Revenue also derived from a tax on family income and the possibility to add, next to the national tax, a tax on income from land and buildings. This rule applied also to provinces and it represented the main source of tax return.

[6] In the South the percentage of people entitled to vote was half compared to Northeast. Only in 1912 universal suffrage was extended to the male population, and in 1946 also to the female population.

17.2.2 Intergovernmental Relations in the First and Second Post-war Periods

The upheaval in intergovernmental financial relations that followed WW1 led to their radical reform. The State centralized various tasks previously delegated to local authorities—especially concerning education—and normalized the tax system leading to the reduction of income. Local per capita expenditure, which in 1912 amounted to 1/3 of the national one, declined to less than 16%. The central commission for local finance (*CCFL—Commissione Centrale per la Finanza Locale*), which used to have only an advisory role, played an important part by intervening on the budget of each institution, reducing their expenditures and/or increasing their fiscal income.

During the WW2 and the post-war period, local expenditure further decreased.[7] Successively, it started to increase under the nation-wide expectation of good quality local services, supported by the pro-South policies of the national government, and the relaxation of the control system. The CCFL stopped being the guardian of fiscal discipline and became the executive board responsible for the result of the bargaining process between national and local politicians seeking electoral consensus.[8]

Deficit of local budgets were continuously approved and covered with mortgages from the loan institution *Cassa Depositi e Prestiti—CDP*. Debt was financed with further debts as the deficit included interests on previous debts. This strategy caused a long crisis of local finances worsened by the fact that the system of higher municipal tax was expensive[9] and surtaxes on buildings and land had limited contingence sensitivity.[10]

17.2.3 The Reform of 1971: The Introduction of a Derivate Local Finance

The above features explain the reason why, the reform of the Italian fiscal system that took place in the 1960s, focused on the need to regulate intergovernmental financial relations. The idea that expenditure autonomy instead of fiscal autonomy was sufficient to guarantee local autonomy prevailed. However, the Parliament neither approved the bill to reform local finance defined by the commission in charge, nor it accepted the government's proposals. Therefore, within the general reform of the fiscal system of 1971, only a partial reform of local finance took place. The reason was

[7] In 1949 it represented less than 13% of national expenditure.

[8] The right to vote had been extended to the whole population.

[9] In the 1960s the cost of collecting taxes on consumption, as a percentage of the total tax income, corresponded to more than 18%, six times more expensive than the cost to collect the homologous national tax on business.

[10] Tax bases on land and buildings were checked by the land register and were updated with delay and without connection to inflation, also because of the electoral pressure of interested taxpayers.

that the Parliament was still defining the powers of the Regions[11] and their financial relations with local authorities.

An income tax (excluding subordinate work earned income) was introduced to finance sub-national governments.[12] However, the State still collected that income waiting for the reform to be completed. The financing of the regions took place through quotas of national taxes corresponding to the cost of the national functions devolved to them, without introducing tax autonomy. The main local taxes and quotas of national taxes were abolished, ad hoc transfers (to be periodically adjusted) were introduced and Municipalities were given a tax on the increase of the value of buildings. Local authorities running deficits were given further resources as long as they would start programs of budgetary reclaim.

However, the objective to restore local authorities finance through taxes did not succeed: local authorities running deficits did not respect the over mentioned programs and increased in number. The inflation of the 1970's worsened the financial crisis. Thus, in 1977 the State intervened again with a new fiscal reform, which aimed to consider in advance the total needs of local finance. Limits to the increase of local current expenses, smaller than the rate of inflation, were introduced with consequent reduction of expenditure in real terms. Stricter rules about investment expenditures and the related loans came into force. Local authorities (with the exception of smaller municipalities) were not allowed to hire new personnel, and wages had to be approved by the Central Commission. Local taxes and tariffs increased and local authorities, which were legally bound to a balanced budget, could not get recur to debt financing current expenses. The State covered with ad hoc transfers the deficit of those local authorities that did not respect these measures.

These measures had two main pitfalls. The reorganization of local finance was based on the evaluation of financial needs that resulted insufficient when compared to reality. This did not stop negotiations for a favourable treatment; on the contrary, it perpetuated the same problem that it intended to solve. The local authorities that had mismanaged and those that had increased their expenditures beyond the need of their population were rewarded, whereas efficient local authorities were penalized. Local expenditure consolidated through time, with periodical increases to account for inflation.

At the same time, Regions became responsible for the administration of the national health system, though the central level of government fixed the needs according to the amount of services provided within the whole nation also to citizens who did not pay taxes. The taxes collected from companies and workers covered the cost.

[11] It took more than 20 years after their creation to have them implemented.

[12] Successively, the Constitutional Court extended the exclusion to self-employment earned income.

17.2.4 The Strengthening of Tax Autonomy in the 1990s

In the 1990s, the limits connected to the system of controls necessary for effective financial intergovernmental relations lead to the need to give tax authority to sub-national governments. The idea being that voters control on expenditure increase was more efficient than any other instrument. Furthermore, the constraints in the use of transfers prevented sub-national governments from having real expenditure autonomy.

In 1992, a municipal tax on buildings (*Imposta Comunale sugli Immobili—ICI*) was established.[13] Provinces became responsible for some national taxes. Also regions were allowed to raise a tax on productive activities (*Imposta Regionale sulle Attività Produttive—IRAP*) that substituted social contributions and other national taxes charged to companies. They were also entitled to add a surtax on personal income tax (*Imposta sul Reddito delle Persone Fisiche—Irpef*), with a minimum and maximum tax rate allowed.

As a consequence of these reforms, local tax revenue increased from less than 7% of total income in 1978 to 45% in 2002. Over the years the role of this revenue diminished because of the increase of transfers connected to the devolution of new functions on one side, and of the limits to the increase of tax rates on the other side. In 2008, in contrast with the previous measures favouring fiscal federalism, the municipal tax on buildings was abolished to reduce fiscal pressure.

At the beginning of 2000, a wider attempt to reform the regional finance, aiming at introducing fiscal federalism principles, did not succeed in spite of the Parliament's approval. The program planned to transfer to the regions 40% of the financing of the health system (instead of the amount corresponding to their needs). Poorest regions would obtain transfers to partially supplement their per capita tax income compared to the national average.

17.2.5 The Interior Stability Pact

Following the accession to the European Monetary Union and the Stability and Growth Pact, Italy could not overcome the annual limit of 3% of budget deficit for the whole public administration. The objective was that of reaching break even in the long term and of reducing the public debt to 80% of GDP.[14] These obligations required consistent behaviour from sub-national governments.

In 1999, the financial law introduced the Interior Stability Pact (*Patto di Stabilità Interno—PSI*) with the objective of controlling the public financial balances at sub-national level. The inclusion in the pact of ceilings or reductions of public expenditure seems in conflict with the principles of autonomy that the Italian Constitution

[13] There was a common tax rate of 4%, but in 1996 municipalities got the power to increase it (within the ceiling of 7%) and to allow for tax exemptions and tax breaks.

[14] In 1994, public debt reached 121.5% compared to 41% of 1970.

set.[15] Although the structure of the pact was revised many times, its success was limited because of the delay (two years) in the application of the penalties for those governments which did not comply.[16]

17.2.6 The 2001 Constitutional Reform

In 2001, a long political debate on the reform of the constitutional organization of financial intergovernmental relations, aiming at attributing wider administrative and legislative functions to sub-national governments, came to an end. The Constitution set the legislative functions of the State and the competing functions of the state and the regions, leaving to the latter all the matters not explicitly considered. The principle of subsidiarity become active for administrative functions.

As for the means of finance, sub-national governments can rely on their own taxes, as well as on shares of national taxes related to the area under their authority. Governments with lower per capita fiscal capacity become entitled to obtain equalisation transfers without destination constraint to finance all their functions. The reform also introduced extraordinary tools to finance single governments in need but running a deficit is allowed only to finance investment expenditures.

However, this reform has not been completed yet.

The main issues in the implementation of the constitutional reform relate to: the level of equalization the governments entitled to equalization, the relation between the regions and local authorities.[17] To evaluate the adequacy of the resources available to sub-national governments, it is necessary to consider the standard costs related to their functions. The most recent bill proposes to distinguish these functions in two categories: (a) those referring to services related to political and civil rights of citizens (health, education, and assistance); (b) all the others. As for the former category, governments with smaller per capita contributing power must receive redistributing transfers to cover the lack of resources deriving from taxes and other shares. For the other functions, there is a non-complete redistribution of funds.

The distinction of these two categories of functions has been criticized, as it is not based on the constitutional norms regulating redistribution. Other criticisms related to the determination of the regional expenses concerning the second category of functions. The calculation refers to the total amount of the current national transfers for those expenses. These transfers have to be abolished and substituted with new taxes, the average tax rate of which has to be calculated referring to this total amount (neglecting the amount of transfers received by each government/body). As a consequence, for poorer regions, i.e. the southern ones, which at present receive the highest

[15] The Constitutional Court admitted them only as an extraordinary measure.

[16] Although, there are not official data about the respect of the rules set, in 2006 18% of municipalities, among those that provided information, were not complying with the rules of the Pact.

[17] This part does not take into account the law n. 42 of 2009, which is however not relevant for the empirical analysis in this chapter.

per-capita grants, the reference for redistribution will decrease. Moreover, for these regions per capita fiscal capacity is calculated referring to the national average and not to that of the richest region.

The limits of the planned redistribution system involve also the new national functions that in line with the constitutional reform will be devolved to the sub-national levels of government. These functions will be financed according to the rules mentioned above. As a result, the poorer regions, where now public services are financed by the state, will have to increase fiscal pressure to maintain the current level of services, or will have to accept a lower level of services. Local authorities criticise the present bill because of their subordination to regions and the reduction of their autonomy.

To ensure the respect of the EU regulation, a special technical body, composed by members of the various levels of government, will control the fiscal discipline of intergovernmental relations. The system envisages rewards for the efficient governments and penalties for those who do not respect the rules.[18]

17.2.7 The Tools to Impose Fiscal Discipline: Electoral Mechanism, Control and Bail-Out

Two objectives are behind the reforms of intergovernmental relations that have been taking place in Italy since the 90s. First, to increase collective welfare by expanding the autonomy of sub-national governments; in this way, the supply of public services can better respond to citizens' demand, taking into account local peculiarities. Second, to limit the continuous increase of public expenditure and debt burden by increasing administrators' responsibilities through the attribution to the local governments of taxing powers (in place of national transfers), in order to foster electoral control of the taxpayers.

The second objective has been widely debated. It has been argued that, to make sub-national governments fully responsible, taxes have to finance expenditure. In fact national transfers may induce the receivers to reduce taxes and to an inefficient management of transferred resources. Actually, this may be true for those subordinate governments that finance their activities first through taxes and, successively, using national transfers. However, if the framework is characterized by a derivate finance, as it is the case in Italy, the attribution of a higher degree of tax autonomy can stimulate administrators' efficiency. In fact, taxes (introduced because of the higher degree of autonomy), instead of national transfers, influence administrators' choices. Administrators have to choose whether to maintain the same degree of expenditure and services offered asking for new taxes, or to curtail the level of expenditure through better administration, which reduces pressure on taxpayers. Transfers, though reduced, are fix assets in their budgets; decisions relates only to taxes.

[18]Penalties include the automatic increase of tax rates, the impossibility to enrol personnel or to make discretionary expenses, as well as penalties for governmental or administrative bodies.

The Italian experience, as in other countries, has led to doubt the efficacy of the electoral mechanism as a tool to control fiscal discipline of intergovernmental relations. The literature has highlighted some aspects of the problem. Sub-national governments violating the discipline can get support from the central government, especially when on both levels the same parties or coalition are in charge. Bail-out reduces, if not eliminates, the negative effects of bad administration on taxpayers and then on political consensus.

In Italy, the electoral mechanism showed a further limit. In the poorer regions with slower development public expenditure represents a tool to get consensus; it allows the creation of assisted electoral clienteles to realize electoral exchange: public favours for political support. Electors consider these favours within a framework where there are few chances of earning through the market, and political support is useful to enter the public administration and have a career there (and sometimes also within private companies benefiting from public financing), and they do not consider the negative effect on the quality of public administration. In several cases of regional or municipal elections, administrations running deficits or providing poor-quality services, were re-elected from voters thanks to the nepotistic policies.

For electoral mechanism to function properly taxpayers-voters must have information about the relation between services quality and the responsibility of those providing them on the one side. On the other side, they must have information about the connection between tax load and the body imposing taxes. Apart from the cases of fiscal illusion that hide the real tax burden, it is worth highlighting that some forms of local tax collection may induce the taxpayers to interpret them as state taxes. However, when more governments of different levels are responsible for the provision of a public service, e.g. health, it is difficult for taxpayers to understand who is responsible in case of bad administration of the service.

17.2.8 The Role of the Market

The market is an additional instrument to promote fiscal discipline. First, in the capital market, sub-national governments can get funds to finance investments.[19] Local authorities can use derivatives to substitute existing debts, with initial gains

[19]It is still unclear how to define investment expenditures: wide definitions allow for inefficient behaviour, but strict definitions risk limiting investments in human resources. In the past, sub-national governments used to finance also current expenditure through debts, but now the Constitution forbids it. This prohibition, however, can be eluded, though temporarily, delaying the payment to firms providing goods and services to public administrations. Thus, governments with financial problems have highly increased their debt load for current expenditures especially in the health sector. Their difficulties have worsened and they have exerted strong pressure to get help from higher levels of government, worried about the spread of financial problems among firms for which public administrations are the main, if not unique, client. Another form of elusion of this prohibition results from the negative impact of disputes with creditor firms or employees about wage increases, which generate further costs.

from interests to be used for current expenditures. However, the state has disciplined this issue also because of the crisis that has characterized the market of these products.

Second, the market can also play an important role in imposing fiscal discipline to the provision of local public services whose costs are covered through tariffs paid by users. These services are often supplied within a natural monopoly and local authorities tend to neglect an efficient management, increasing the amount of employees for nepotistic reasons without introducing technological innovations. When private companies provide these services through concessions, the possibility to use tariffs to cover administrative inefficiencies does not stimulate public expenditure control. In this framework competition *in* the market cannot exist, but it is possible to have competition *for* the market, by imposing limits to the direct administration (in house) of services and introducing calls for tenders to assign the concessions.

In Italy, a reform following this line has been introduced, but it is not being implemented because of the resistance of local authorities and some political parties (belonging also to the majority). Local authorities want to keep control over public bodies, as this is a tool to obtain electoral consensus. Parties believe that in some cases, like water management, provision from a private firm, although regulated and under public control, does not respond to public interest.

17.3 Empirical Findings

17.3.1 The Decentralization of the Italian NHS

Italy has a National Health Service (NHS)—*Servizio Sanitario Nazionale, SSN*—which was established in 1978 to replace the previous system of health insurance funds. It provides all citizens and legal residents with comprehensive care throughout the country.[20] For a long time, the system has been characterized by inappropriate incentives to foster expenditure control given that spending responsibilities were allocated to regional governments while the financing was to be guaranteed by the State through centrally assigned budgets. This situation caused systematic expenditure overruns, resulting in frequent deficits that were covered *ex-post* by the national government, without imposing any credible sanction to the overspending regions.

In the 1990s, the need to curb spending so as to meet the Maastricht criteria has led to undertake a set of reforms with the threefold aim of introducing managerialism within the health system, creating an internal market for health services and increas-

[20]The SSN was originally organized on the basis of a strictly vertical three tier structure of government: central (Ministry of Health), regional (20 Regional Health Authorities, RHAs) and local (local health agencies, *Unità Sanitarie Locali*, USL). A National Health Fund (*Fondo Sanitario Nazionale*, FSN) was created and financed mainly from general taxation, employer and employee payroll contributions, and a health tax levied on self-employed. The latter was determined annually by the central government and allocated up to down.

ing the autonomy of regions in both the financing and delivery of health care. The devolution of political powers to regional governments was further strengthen with the 2001 Constitutional reform. The new article 117 reserves the State the exclusive right to determine "the essential levels of services concerning civil and social rights that must be guaranteed on the whole national territory" and introduces safeguard of health amongst the subjects concerning concurrent legislation between State and regions. As a result, health care responsibilities are shared between the State, which set the general objectives of health policies through the National Plan and defines the basic health benefit package (*Livelli Essenziali di Assistenza*, LEA)[21] to be provided uniformly across the country, and regions, which are in charge of guaranteeing the provision of LEAs but are also free to administer and organize the supply in accordance with their population needs.[22]

Parallel to the devolution process, the introduction of fiscal federalism resulted in an alignment between funding and spending powers, making regions financially accountable for any health deficit they incur by allowing them to raise local taxes (to a limited extent) and to introduce cost-sharing on drugs and services.[23] Starting from 2001, the National Health Fund is formally abolished and regional funds come from a regionally collected tax on productive activities (*Imposta Regionale sulle Attività Produttive*, IRAP), a regional share and surcharge of the centrally administered personal income tax (*Imposta Personale sul Reddito*, IRPEF), and a set amount of the per litre petrol excise. To pursue equity principles, an inter-regional equalisation mechanism (*Fondo di Perequazione Nazionale*, FPN), financed by a fixed proportion of the national VAT revenue, had to be developed to transfer funds to those regions unable to raise sufficient resources to meet population health care needs.[24]

As a consequence of all these reforms, regions have used their autonomy to introduce different organizational models of health care. Moreover, the increased decentralization and reliance on regional sources of finance has even exacerbated the interregional divergences in both funding and spending on health care.

[21] LEA covers all medical care considered to be necessary, appropriate, and cost-effective.

[22] An overview of the Italian health care system, which includes the debate on the regional responsibilities is provided by France et al. (2005) and Ferrè et al. (2014).

[23] For further details on the Italian health care financing system, see Bordignon et al. (2002).

[24] The amount of funds transferred to or received from the FPN had to be determined according to a complex formula, allowing for the fiscal capacity of a region, its population size and age composition, its historic expenditure on health care, the size and the specific characteristics of its territory.

17.3.2 The Determinants of Regional Health Expenditure: A Survey of Previous Empirical Literature

A large literature has investigated the determinants of health expenditure in single countries with either a federal system (e.g. USA, Canada and Switzerland) or multiple autonomous jurisdictions (e.g. Spain and Italy).

Compared to the vast array of cross-country studies, within-country analyses allow reducing part of the existing heterogeneity across countries attributable to differences in the extent of health converge and internal design.

Following the ongoing international debate, most papers have focused on estimating the relationship between income and within-country public per capita health expenditure. As far as developed countries are concerned, empirical evidence supports the conclusion that health care is a necessary good in the short run[25] though it cannot be completely rejected the hypothesis of being a luxury good in the long run (Blazquez-Fernandez et al. 2014). Furthermore, it has been shown that dynamic adjustments in the models substantially lower income elasticities (Bilgel and Tran 2013) and that international income elasticities are generally larger than national or regional ones (Di Matteo 2003).

Apart from income, ageing population and structural characteristics of health care supply relating to economies of scale (number of beds per hospital) and productivity (the number of personnel per hospital) have also proved to be relevant drivers of regional per capita health expenditure both in Italy (Giannoni and Hitiris 2002) and in Spain (Cantarero 2005). Along with these determinants, health care technology significantly drives expenditures, especially in the USA (Murthy and Okunade 2016).

However, the role played by income and demographic variables in explaining health care expenditure of sub-levels of government has been questioned. Using US state-level and Canadian province-level data, Di Matteo (2005) shows that ageing population distributions and income explain a relatively small portion of health expenditures when a time trend variable, as a proxy for technological change, is added to the model. Crivelli et al. (2005) find that cantonal per capita socialized health expenditure in Switzerland seems to be income independent, because of the fixed package of health care benefits offered to all residents.

The decentralization framework does seem to be important in estimating health expenditure. Costa-Font and Rico (2006) conclude that devolution in Spain has not widen interregional inequalities in health expenditure but fiscally accountable Autonomous Communities exhibit a higher per capita health expenditure, once controlling for other determinants. By applying a multilevel hierarchical model to a unique sample of 110 regions in eight OECD countries in 1997, Lopez-Casasnovas and Saez (2007) find that, when there is decentralization, policies aimed at emulating diversity tend to increase national health care expenditure. Moreover, without fiscal decentralization, central monitoring of finance tends to reduce regional diver-

[25] For Italy: Fedeli (2015); for Canada: Di Matteo and Di Matteo (1998) and Ariste and Carr (2001); for USA: Freeman (2003), Moscone and Tosetti (2010) and Wang (2009); for Spain: Costa-Font and Pons-Novell (2007),

sity and therefore decreases national health expenditure. Similarly, Cantarero Prieto and Lago-Peñas (2012) assume that whenever the central government commitment toward fiscal equalization is strong and/or public health expenditure is financed by specific grants, the regional income elasticity of public health expenditure is lower. Consistently, they find that regional GDP growth is translated into more health care expenditure only in those Spanish regions enjoying higher tax autonomy. More recently, attention has been devoted to examine the impact of decentralization on the composition of public expenditures within a single country, finding that decentralization lower the share of investments in human capital, among which is health (for Italy: Grisorio and Prota 2015a, b).

Continuous developments in spatial econometric modelling have allowed to test the relationship between spatial effects and sub-national health expenditures. Evidence of spatial interactions between neighbouring Spanish regions in spending decisions is found by Costa-Font and Moscone (2008) as well as by Costa-Font et al. (2009). In Italy, Atella et al. (2014) find that the nature of the institutional connections between jurisdictions may significantly affect spatial spillovers, which, on their turn, affect health expenditures of Italian local health units.

Few papers have specifically taken into account the public budget mechanisms used to finance regional health care. For the Italian case, Levaggi and Zanola (2003) empirically demonstrate an asymmetry in the response to intergovernmental grants: local expenditure is highly responsive to increases in grants-in-aid from central government, but it is relatively insensitive to grants reduction (a "flypaper effect"). Furthermore, the introduction of a soft-budget constraint hypothesis results in a stronger effect of grants and a lower response of own resources which indicates that, before reducing expenditure, regional governments prefer to incur in some deficit. Bordignon and Turati (2009) contribute to the literature on soft budget constraints, by showing that the link between ex-ante funding and expenditure is stronger when regional expectations of future bailing out are lower. Moreover, they show that during the 1990s more autonomous Italian regions had lower expectations for future bailing out and that a political "alignment effect" existed, with regions ruled by politically "friendly" governments reducing health expenditure more than those run by "unfriendly" ones.[26]

Political factors (i.e. partisan ideology and electoral cycles) have proved to exert an influence on public health care decision-making at a sub-national level. As for Spain, Costa-Font and Pons-Novell (2007) find evidence suggesting that decentralization and the political ideology of the incumbent parties running the health system of the Autonomous Communities—in a context characterized by some inter-jurisdictional competition—may foster mechanisms leading towards the expansion of health care expenditure. On the same line, Costa-Font and Moscone (2008) stresses the need to consider the interaction between ideology and income. Indeed, regional left-wing incumbents raise public health expenditure in relatively richer regions, which is in part due to the increasing competition with the private sector in such areas. On the

[26] Solé-Ollé and Sorribas-Navarro (2008) provide empirical support for the impact of partisan alignment in the allocation of intergovernmental transfers in Spain in the decade 1993–2003.

opposite, a recent work by Stolfi and Hallerberg (2016) finds that political budget cycles are a particularly relevant issue in less developed Italian regions, leading to excessive health personnel spending. Finally, examining the determinants of the public-private balance of health care expenditures in Canada, Di Matteo (2009) finds that provinces governed by centre-left parties are associated with lower public shares in the physician and other health professional categories.

17.3.3 Empirical Strategy

In this Section we illustrate the proposed models and our empirical strategy.

(a) *Median voter health expenditure*

The starting point of our model is the level of per capita public health expenditure desired by the median voter. Following the previously described literature, this is assumed to be a linear function of real per capita income, the proportion of population aged 65 and over, supply variables and real per capita national transfer revenue to regions.[27] Therefore, the estimated model can be written as:

$$EXP_{it}^{V} = \beta_1 + \beta_2 P_{GDP_{it}} + \beta_3 OLD_{it} + \beta_4 F\_TRA_{it-1} + \beta_5 HB_{it} + \beta_6 PH_{it} + u_{it} \tag{17.1}$$

where the subscript *it* refers to region *i* in year *t*, *EXP* measures per capita public health expenditure at a regional level, *P_GDP* is per capita gross domestic product as a proxy of the median voter income; *F_TRA* indicates per capita intergovernmental grants; *OLD* is the percentage of population aged 65 and over; *HB* designates the number of hospital beds per 1000 inhabitants; *PH* is the number of physicians per 1000 inhabitants and u_{it} is the disturbance term.

(b) *Quality of public health services*

The above model assumes that the median voter is only interested in the level of public health expenditure and not also in the quality of the health services provided. If this is not the case, it might be that the median voter is willing to pay a higher price for better quality services. Therefore, Eq. (17.1) would become:

$$EXP_{it}^{*V} = EXP_{it}^{V} + \tau QUAL_{it-1} + \varphi PRIV\_EXP_{it} \tag{17.2}$$

This expression states that if the previous year quality of regional health services ($QUAL_{it-1}$) was high, the median voter is expected to pay for a fraction τ of it during the following year. It is also assumed that the quality of health services affects the level of private expenditure (*PRIV_EXP*).

[27] Levaggi and Zanola (2003) take into account also private health expenditure as an independent variable to investigate the relationship between it and public spending.

(c) *Regional government target level of health expenditure*

We assume that each regional government pursues a target level of health expenditure, measured in per capita terms, which is generally higher than the one preferred by the median voter. The difference between the two levels depends on a portion λ (positive) of the regional per capita imbalance between target and actual per capita health expenditure in the previous year:

$$EXP_{it}^{T} = EXP_{it}^{V} + \lambda\, IMB_{it-1} \tag{17.3}$$

The regional per capita imbalance in year $t-1$ is given by the difference between health expenditure, grants from the central government (*F_TRA*) and locally raised revenue (*L_REV* = taxes and co-payments) in that year, all expressed in per capita terms:

$$IMB_{it-1} = EXP_{it-1} - F\_TRA_{it-1} - L\_REV_{it-1} \tag{17.4}$$

Rules of financing regional health expenditure in Italy have changed repeatedly during over time. In general terms, the share of regional financing through local taxes and co-payments has grown considerably. Therefore, considering the lagged level of regional deficit allows avoiding a potential overestimate of the marginal effect of this variable in the first period when regions received funds for health care only through grants-in-aid. Furthermore, this partial adjustment model accounts for the dynamic behaviour of budgetary decisions.

(d) *Effect of party competition*

Following Solé-Ollé (2006), we make two different hypotheses about the behaviour of politicians/parties: namely the *Leviathan* and the *Partisan* ones. Under the former hypothesis, it is assumed that the regional government, which acts as a power-maximizing agent, selects a target level of public health expenditure that is always higher than the one desired by the median voter. Under the *Partisan* hypothesis, the target level of public health expenditure depends on the party ideology about the public sector size. Therefore, it is predicted that a left-wing regional government will select a target level that is higher than the one preferred by the median voter. The opposite will happen in the case of a right-wing regional government. Under both hypotheses, however, the target level of public health expenditure is influenced by political competition.

In the literature, different ways of measuring the degree of party competition have been provided. One of the most used is the electoral margin obtained by the incumbent in the last round of voting (Tucker 1982; Boyne 1994). Following this approach, we measure the degree of political competition as the percentage of votes won by the actual party with the (relative) majority in the last election held (*P_COMP*): the higher (lower) this percentage, the lower (higher) the degree of political competition. In the Leviathan model (5), P_COMP is supposed to have a negative effect on expenditure growth, since a smaller electoral support for the majority party in power (suggesting

more fragmentation and competition in the political arena) induces it to fulfil the level of expenditure wanted by the median voter. On the opposite, the *Partisan* model (6) predicts that increased competition reduces the level of public health expenditure for left-wing governments and increases it for right-wing ones.

Leviathan model

$$EXP_{it}^{T} = EXP_{it}^{V} + \lambda\, IMB_{it-1} + \partial P\_COMP_{it} \tag{17.5}$$

Partisan model

$$EXP_{it}^{T} = EXP_{it}^{V} + \lambda\, IMB_{it-1} + \partial P\_COMP_{it} + \xi LEFT_{it} + \rho P\_COMP_{it} * LEFT_{it} \tag{17.6}$$

An interesting aspect is given by the ability of voters to clearly identify the political responsibilities. In a proportional electoral system, with coalition governments, it might be difficult for the voter to assign political responsibilities for expenditure levels different from the desired ones (Powell and Whitten 1993; Anderson 1995). In such a case, political competition becomes less effective in restraining expenditure since coalition governments are less prompted to pursue the interests of voters (Solé-Ollé 2006).

In the 1990s, Italian regions have undertaken electoral and government system reforms, which have led to the direct election of the president.[28] In this context, it is easier for the voter to identify the political responsibility of each government choice. To account for this institutional change, the previous Leviathan and Partisan models are amended as follows:

Leviathan model

$$EXP_{it}^{T} = EXP_{it}^{V} + \mu MAJ_{it} + \lambda\, IMB_{it-1} + \partial P\_COMP_{it} \tag{17.7}$$

Partisan model

$$EXP_{it}^{T} = EXP_{it}^{V} + \mu MAJ_{it} + \lambda\, IMB_{it-1} + \partial P\_COMP_{it} + \xi LEFT_{it} + \rho P\_COMP_{it} * LEFT_{it} \tag{17.8}$$

where MAJ is a dummy variable which assumes value equal to 1 in the years in which the majority rule applies and 0 otherwise.

[28]This reform has not been implemented simultaneously in each region but in different years, according to regional constitutions.

(e) *Special interest politics*

If the government is interested not only in the target level of expenditure but also in the spending composition so as to favour lobbies, Eq. (17.2) can be transformed into:

$$EXP_{it}^{T} = EXP_{it}^{V} + \eta LOB + \lambda IMB_{it-1} \tag{17.9}$$

where η is expected to be positive and LOB is the ratio between public expenditure for private specialist and pharmaceutical care and total public health care expenditure.

17.3.4 Data

The data set employed in this study consists of a sample of cross-sectional and time series observations for the 19 Italian administrative regions.[29] Available information comes from several sources and covers the period 1989–2003. However, in the estimation process, only data for the period 1990–2003 are used as one year is needed to create the lagged variables. Therefore, the final simple results in 266 observations for 14 years. A detailed description of the variables used in the analysis, together with their summary statistics, is reported in Table 17.1.

Many of them do not require further explanations since their inclusion is standard in the literature on the determinants of regional health expenditure. Monetary variables are all expressed in real per capita terms, at 1995 constant prices. As a proxy of the average quality of public health services (*QUAL*) we use the interregional patient mobility. We assume that whenever a region has a positive financial balance from patient mobility, the quality of its public health care services is higher than the national average.[30]

The variable *P_COMP* measures the political competition, which results from the fragmentation of the government coalition. It has been already mentioned that this variable is computed as the electoral percentage support obtained in the last election by the incumbent party having the majority of votes. As this percentage decreases, the leading party reduces its political influence and the political scenario becomes more fragmented; thus, competition between parties increases. The opposite has also been assumed to be true.

As a proxy for special interest expenditure, we assume the ratio between public expenditure for private specialist and pharmaceutical care and total public health care expenditure (*LOB*). To account for the effect of rounds of voting on public health expenditure, the variable *E_YEAR* is added which assumes value 1 in the years of regional elections and 0 otherwise. Finally, a standard linear time trend

[29] We exclude Trentino Alto Adige, an autonomous region where the responsibility of public health care is devolved at a provincial level.

[30] In Italy, citizens have free choice of the region in which to obtain health care. Regions of residence financially cover their patients' mobility.

Table 17.1 Definition and summary statistics of the variables employed in the analysis

Variable	Meaning	Data source(s)	Mean	Standard deviation	Minimum	Maximum
EXP	Real per capita regional public health expenditure	Ministry of Health	995.04	135.22	708.20	1342.18
P_GDP	Real per capita GDP	ISTAT, Regional Accounts	16,232.54	4194.35	8901.36	24,145.34
OLD	Percentage of population aged 65 and over	ISTAT, Regional Accounts	17.94	3.19	10.82	26.18
F_TRA	Real per capita national transfers to regions	SANITEIA and ISTAT (Regional Accounts)	930.11	147.41	623.64	1358.29
HB	Regional number of hospital beds per 1000 inhab.	ISTAT, Italian Statistical Yearbook	5.70	1.32	3.03	9.04
PH	Regional number of physicians per 1000 inhab.	ISTAT, Italian Statistical Yearbook	6.67	1.29	3.30	14.44
QUAL	Dummy variable for regions with a strictly positive financial patient mobility balance	Ministry of Health	0.40	0.49	0.00	1.00
PRIV_EXP	Real per capita private (household) health expenditure	ISTAT (Regional Accounts)	283.80	74.56	136.15	443.75
IMB	Real per capita regional deficit	Ministry of Health	161.29	222.72	−396.43	1379.98
P_COMP	Electoral percentage obtained by the incumbent at the last election held	Istituto Cattaneo	34.65	8.81	17.00	47.20
LEFT	Dummy variable for regions with a left party in power	Istituto Cattaneo	0.40	0.49	0.00	1.00
MAJ	Dummy variable equal to 1 when regional elections are based on the majority rule	Istituto Cattaneo	0.58	0.49	0.00	1.00
LOB	Ratio of regional private expenditure for specialist and pharmaceutical care on total regional public expenditure	Ministry of Health	0.15	0.04	0.08	0.31
E_YEAR	Dummy variable for electoral years (regional elections)	Istituto Cattaneo	0.21	0.41	0.00	1.00

Note all monetary values are expressed in Euros, at 1995 prices

variable is included in the model to capture health sector price growth. As for the estimation methodology, we follow the previous literature that assumes poolability of the data and linearity of the functional form. There are mainly two econometric approaches for analyzing the proposed models: the panel data approach (including pooled OLS, GLS random effects and panel fixed effects), and the cross-sectionally heteroskedastic and timewise autoregressive model, also known as the Parks-Kmenta approach.[31] Given the short time period considered in this analysis, previous literature suggests to employ GLS random effects (Bordignon et al. 2002).

17.4 Empirical Estimates and Discussion

In this Section we report the results of the models illustrated previously. Table 17.2 shows the estimation results of models (1) and (2). These are generally in line with previous expectations. According to the existing literature, a positive sign should be expected for the variable measuring the effect of per capita income in model (1). With regard to the aged population variable, a positive effect is expected in both models: all other things being equal, an increase in the regional proportion of population aged 65 and over is likely to determine an increase in regional per capita public health expenditure. The variable for the quality of services (column 2) has a rather strong and significant impact on health expenditure and indicates the existence of a substitution effect between public and private health care.

Table 17.3 illustrates the estimation results for the effect of party competition in both the Leviathan and Partisan models. We adopt the prudential approach of testing the model by introducing one political variable at a time. Therefore, the comparison between columns one and two indicates the impact of political competition. In column three, the dummy variable for the effect of the institutional transition to a majority system for regional election is inserted. The purpose is that of verifying whether this variable has an influence on the containment of public health expenditure due to a more visible responsibility of the winning party (or coalition). Column four shows the impact of the regional electoral year on public health expenditure, testing the possibility of a strategic use of deficit by the incumbent government. Column five reports the estimation results for the Partisan model.

As expected, results from column two show a negative impact of political competition/fragmentation on the health expenditure variable in the Leviathan model. That is, when political competition increases, the regional government target level approaches the level desired by the median voter. On the contrary, for lower levels of political competition, the government target level is higher than the median voter spending level.

Interestingly, the introduction of the majority system variable has a negative but not significant impact on regional public health expenditure. Similarly, the variable related to the election year is not statistically significant. Finally, in the Partisan

[31] See Greene (2003).

Table 17.2 Baseline median voter expenditure

Independent variable: EXP, in Euros at 1995 prices Functional form: linear Estimation period: 1990–2003 Estimator: GLS random effects			
Variable		(1)	(1.1)
		EXP	EXP*
Constant		234.345***	291.897***
		(45.483)	(45.031)
P_GDP		0.007***	0.009***
		(0.002)	(0.002)
OLD		3.072	4.245**
		(1.906)	(2.000)
$F\_TRA_{(t-1)}$		0.451***	0.469***
		(0.034)	(0.032)
HB		15.907***	6.314
		(3.668)	(3.963)
PH		−0.808	−0.648
		(2.486)	(2.347)
QUAL			26.658***
			(7.047)
PRIV_EXP			−0.283***
			(0.079)
TREND		127.945***	113.397***
		(8.415)	(9.327)
R^2	*Within*	0.9047	0.9152
	Between	0.8422	0.8304
	Overall	0.8836	0.8892
Breusch-Pagan $LM^{(1)}$		225.52***	247.76***
Observations		266	266
Number of regions		19	19

(1) Breusch-Pagan = Breusch-Pagan test OLS versus random effects

Notes White heteroskedasticity-consistent standard errors are reported in parentheses

***, ** and * denote significance at 1, 5 and 10% levels, respectively

Table 17.3 Government target expenditure and political competition

Independent variable: EXP, in Euros at 1995 prices Functional form: linear Estimation period: 1990–2003 Estimator: GLS random effects					
	(1)	(2)	(3)	(4)	(5)
	EXP	EXP	EXP	EXP	EXP
Constant	205.072***	235.399***	243.452***	204.220***	208.637***
	(44.946)	(46.510)	(47.418)	(45.017)	(43.187)
Median voter expenditure					
P_GDP	0.006***	0.006***	0.006***	0.006***	0.006***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
OLD	4.922***	4.756***	5.548***	4.979***	4.813**
	(1.778)	(1.777)	(1.880)	(1.823)	(1.828)
$F\_TRA_{(t-1)}$	0.459***	0.460***	0.454***	0.460***	0.460***
	(0.034)	(0.034)	(0.034)	(0.034)	(0.034)
HB	16.057***	18.834***	16.901***	16.157***	16.188***
	(3.575)	(3.576)	(3.916)	(3.583)	(3.404)
PH	−2.632	−3.655	−3.406	−2.802	−2.417
	(2.421)	(2.454)	(2.437)	(2.461)	(2.323)
TREND	125.124***	121.566***	122.077***	125.094***	124.187***
	(8.308)	(8.268)	(8.249)	(8.322)	(8.311)
Political variables					
$IMB_{(t-1)}$	0.051***	0.052***	0.052***	0.051***	0.051***
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
P_COMP		−1.068***	−1.169***		1.031
		(0.341)	(0.353)		(0.917)
MAJ			−9.059		
			(6.703)		
E_YEAR				1.798	
				(6.643)	
LEFT					0.190
					(0.124)

(continued)

Table 17.3 (continued)

Independent variable: EXP, in Euros at 1995 prices Functional form: linear Estimation period: 1990–2003 Estimator: GLS random effects						
		(1)	(2)	(3)	(4)	(5)
		EXP	EXP	EXP	EXP	EXP
P_COMP*LEFT						−1.171
						(0.727)
R^2	*Within*	0.9099	0.9117	0.9163	0.9117	0.9207
	Between	0.8534	0.8551	0.8412	0.8505	0.8591
	Overall	0.8912	0.8930	0.8919	0.8909	0.8903
Observations		266	266	266	266	266
Number of regions		19	19	19	19	19

Notes White heteroskedasticity-consistent standard errors are reported in parentheses
***, ** and * denote significance at 1, 5 and 10% levels, respectively

model, where different ideological positions exist, political competition does not show a significant effect, although the sign of the variable is positive. Also the variables LEFT and the interaction term seem do not extend a significant role on budget outcome.

Concerning the impact of quality (Table 17.4), results remain basically unchanged. Looking at the marginal effects of political competition and financial imbalance, these variables appear to have a more modest effect on regional public health expenditure than in previous estimates. This suggests that quality may be used by the electorate as an indirect (low-power) tool to control public expenditure.

In Table 17.5, column three confirms that interest groups exert a significantly positive influence on public health expenditure at a regional level. The variable for political competition (computed as the percentage of votes over the total) continues to show a negative sign. An interesting result is that of quality. By comparing columns one and two, it appears that whenever quality is evaluated by the voters, the influence of interest groups on public health expenditure is lower.

17.5 Concluding Remarks

This chapter offers some intriguing insights on the effects of political economic aspects on public health expenditure, regarding the Italian fiscal federalism context. Following the work by Solé-Ollé (2006), we make different hypotheses concerning the behaviour of politicians/parties as well as the role of party ideology and political competition in the size of regional public health expenditure. By testing empirically our theoretical models, we provide evidence that political competition—or fragmen-

Table 17.4 Government target expenditure and political competition when quality matters

Independent variable: EXP, in Euros at 1995 prices Functional form: linear Estimation period: 1990–2003 Estimator: GLS random effects					
	(1)	(2)	(3)	(4)	(5)
	EXP*	EXP*	EXP*	EXP*	EXP*
Constant	259.152***	286.699***	284.142***	259.230***	257.271***
	(42.489)	(43.026)	(43.994)	(42.590)	(41.371)
Median voter expenditure					
P_GDP	0.009***	0.009***	0.010***	0.009***	0.009***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
OLD	5.492***	5.593***	5.243***	5.625***	5.513***
	(1.645)	(1.575)	(1.665)	(1.700)	(1.591)
$F\_TRA_{(t-1)}$	0.480***	0.484***	0.492***	0.480***	0.497***
	(0.033)	(0.034)	(0.035)	(0.034)	(0.035)
HB	7.204*	9.561***	10.516***	7.194*	8.003**
	(3.791)	(3.615)	(3.753)	(3.817)	(3.718)
PH	−1.840	−2.584	−2.629	−2.080	−2.218
	(2.242)	(2.219)	(2.199)	(2.283)	(2.549)
TREND	111.135***	105.220***	102.622***	111.179***	109.728***
	(9.237)	(9.374)	(9.879)	(9.297)	(9.257)
Quality of public expenditure					
QUAL	23.217***	20.815***	21.095***	23.733***	21.575***
	(6.809)	(6.380)	(6.369)	(6.788)	(6.848)
PRIV_EXP	−0.267***	−0.300***	−0.346***	−0.268***	−0.261***
	(0.075)	(0.076)	(0.092)	(0.076)	(0.074)
Political variables					
$IMB_{(t-1)}$	0.047***	0.049***	0.049***	0.047***	0.048***
	(0.018)	(0.018)	(0.019)	(0.018)	(0.019)
P_COMP		−1.100***	−1.068***		0.973
		(0.333)	(0.336)		(0.820)
MAJ			7.958		
			(7.936)		
E_YEAR				1.213	

(continued)

Table 17.4 (continued)

Independent variable: EXP, in Euros at 1995 prices Functional form: linear Estimation period: 1990–2003 Estimator: GLS random effects						
		(1)	(2)	(3)	(4)	(5)
		EXP*	EXP*	EXP*	EXP*	EXP*
					(6.277)	
LEFT						0.076
						(0.041)
P_COMP*LEFT						−1.273
						(0.706)
R^2	*Within*	0.9123	0.9169	0.9123	0.9123	0.9121
	Between	0.8560	0.8420	0.8513	0.8514	0.8595
	Overall	0.8930	0.8919	0.8909	0.8910	0.8937
Observations		266	266	266	266	266
Number of regions		19	19	19	19	19

Notes White heteroskedasticity-consistent standard errors are reported in parentheses
***, ** and * denote significance at 1, 5 and 10% levels, respectively

Table 17.5 Government target expenditure and special interests

Independent variable: EXP, in Euros at 1995 prices Functional form: linear Estimation period: 1990–2003 Estimator: GLS random effects			
	(1)	(2)	(3)
	EXP	EXP*	EXP*
Constant	177.043***	230.527***	252.417***
	(42.870)	(44.018)	(44.409)
Median voter expenditure			
P_GDP	0.008***	0.010***	0.010***
	(0.002)	(0.002)	(0.002)
OLD	6.211***	6.352***	6.308***
	(1.703)	(1.733)	(1.680)
$F\_TRA_{(t-1)}$	0.395***	0.427***	0.431***
	(0.037)	(0.035)	(0.038)

(continued)

Table 17.5 (continued)

Independent variable: EXP, in Euros at 1995 prices Functional form: linear Estimation period: 1990–2003 Estimator: GLS random effects					
		(1)	(2)	(3)	
		EXP	EXP*	EXP*	
HB		12.208***	5.507	8.091***	
		(3.541)	(3.718)	(3.087)	
PH		−2.507	−2.409	−3.407	
		(2.427)	(2.284)	(2.301)	
TREND		92.408***	88.540***	81.117***	
		(12.054)	(11.803)	(11.079)	
Quality of public expenditure					
QUAL			24.832***	21.507***	
			(6.827)	(6.721)	
PRIV_EXP			−0.211***	−0.235***	
			(0.077)	(0.080)	
Political variables					
$IMB_{(t-1)}$		0.040**	0.038**	0.039**	
		(0.016)	(0.017)	(0.018)	
LOB		0.903***	0.611***	0.602***	
		(0.137)	(0.149)	(0.151)	
P_COMP				−1.043***	
				(0.329)	
R^2	*Between*	0.9105	0.9207	0.9170	
	Overall	0.8405	0.8406	0.8507	
	Within	0.8887	0.8901	0.8750	
Observations		266	266	266	266
Number of regions		19	19	19	19

Notes White heteroskedasticity-consistent standard errors are reported in parentheses
***, ** and * denote significance at 1, 5 and 10% levels, respectively

tation—may be effective in curbing particularistic policies and, hence, in disciplining health expenditure.

More precisely, as the electoral support for the main incumbent party decreases (thus implying a more fragmented political scenario), regional government's target expenditure tends to approach that of the median voter (especially under the Leviathan hypothesis). Concerning the importance of the voting system, we find that the introduction of the majority system for the election of the regional government has a negative but not significant impact on public health expenditure. Therefore,

we are not able to conclude that the majoritarian electoral system, which favours the citizen control over policymakers (i.e. accountability), is likely to restrain the regional level of public health expenditure. Similarly, the variable related to the election year—as a proxy for political budget cycle in fiscal policy instruments, is not significant. Consistently with previous theoretical and empirical works on lobbies, interest groups have a significantly positive influence on public health expenditure at a regional level. Other insightful results of the chapter have been derived relatively to the impact of quality of public (regional) health services as perceived by the voters. Particularly, the introduction of the quality variable (measured in terms of interregional patient mobility) in the estimation models makes the impact of the political variables (e.g. the influence of interest groups) marginally lower.

From a public policies perspective, the chapter has highlighted the importance of political competition, policies' transparency and voters' information (especially on quality of public services provided) as effective tools to counter political expenditure goals and particularistic policies favouring interest groups.

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