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ADDITIONALITY AND REGIONAL DEVELOPMENT: ARE EU STRUCTURAL FUNDS COMPLEMENTS OR SUBSTITUTES OF NATIONAL PUBLIC FINANCE?

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Abstract[1]

This paper deals with the effects of the transfer of additional funds on the real economy of recipient countries, in particular the European Member States. The intended and unintended effects of additional funds on national public finances and, ultimately, economic performance are discussed. Understanding the real effects of additional public funds and the possible complementarity or substitutability with national public finance is important for shaping the policies for the allocation of Structural Funds. Verification of additionality plays a role in ensuring that additional funds are used to effectively complement national expenditure programmes. In the case of the European Union, it is widely recognised that the current verification mechanism is affected by weaknesses, that prevent it from providing reliable and useful data to effectively assess additionality. For this reason, the paper suggests the European Commission to move away from the current verification approach and to adopt a new one that could more effectively assess to what extent the Structural Funds complement national investments.

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[1] This paper is drawn by the final report of the project "Impact of Additionality on the Real Economy of the EU Member States" (Call for tender by negotiated procedure N° 2009.CE.16.0.AT.019/2009.CE.16.CAT.015), carried out by CSIL – Centre of Industrial Studies (Milan) on behalf of the European Commission, Directorate General Regional Policy. The views of the authors do not necessarily reflect the position of the European Commission.

1. Introduction

The issue of the net long-run effect of public expenditure is at the core of the current macroeconomic research and debate. The public authorities are interested in knowing whether public expenditure, especially in the form of public investment, has a positive aggregate effect on growth.

In several cases, countries have the possibility to use not only their own resources to boost the national economy, but also external additional funds, which could potentially complement and increase the total amount of investments, thus enlarging the impact of public investments. Injecting funds into economies is potentially a growth-enhancing intervention in the medium-long run. However, additional funds may also distort the public authorities' allocation choices, so that an additional euro may not lead to a corresponding one euro increase in the total public expenditure.

This paper deals with the impact of the transfer of additional funds on the real economy of the recipient countries. The role and effects of additional funds are mainly discussed in the framework of the European Union (EU), where the European Commission allocates the Structural Funds (SF) in the Member States' regions. Yet, the effects of additional funds can be researched also in countries with a federal government, characterised by the existence of a higher governmental level distributing funds at regional and local level, and in the context of foreign aid in the Least Developed Countries, which rely on bilateral and multilateral grants to address their relevant investment needs and to stimulate long-run growth.

The allocation choices of the recipient bodies and hence the final effect of additionality are influenced, directly or indirectly, by a number of factors. They relate to: (i) the institutional quality of the recipient country, i.e. the form of government, the effectiveness of the rule of law and the level of corruption; (ii) the kind of political interests in place and the pressure of interest groups and lobbies; (iii) external or internal budgetary restrictions and financial rules. Depending on these factors, the additional funds may be diverted away from their optimal use, i.e. the most growth-enhancing sectors and areas.

The paper suggests the existence of three broad typologies of effects, which may intervene to distort the national allocation choices of the beneficiaries. The three effects are described and tested through an extensive literature review.

The first effect analysed is the substitution effect: it occurs when the public authorities use the received additional resources to substitute, totally or in part, their own finance to planned investments. Supranational funds intended for growth-enhancing sectors may in fact act as substitutes for national spending that would have been undertaken in any case. The result would therefore be that the freed up funds could be used for other purposes and the total amount of investment does not correspond to the sum of the national planned expenditure and additional external funds.

Another distorting effect caused by additionality is the displacement effect. If a national government receives additional funds, there might be a shift in the sectoral allocation of domestic public funds with respect to the previous period, and the sectoral composition of public spending may vary.

Finally, additional public investment may determine a fiscal effect in the recipient country. This kind of deviation is expected to affect the taxation system, leading either to a decrease of the tax base, if the additional funds are uncommitted, or to an increase of taxation, when co-funding is required and budgetary restrictions are in place. The literature review's objective is to help in understanding the real effects of additional public funds and the possible complementarity, substitutability or displacement with national public expenditures.

A factor that plays a role in ensuring effective implementation of a programme/project financed with additional external funds, i.e. that that additional funds are used where they are allocated and that no distorting effect take place, is verification. Effective and well-designed verification procedures could be a valuable instrument to push the recipient country to use additional funds, in order to properly complement national expenditure.

It is widely recognised that the verification mechanism of additionality in the EU is affected by some problems and difficulties. In particular, the heterogeneity of data provided by the Member States and the methodological differences of data collection make difficult to effectively compare the expenditures across different Member States and programming periods and, as a consequence, to analyse the overall effect of additionality. Given these shortcomings, the authors suggest the European Commission to move away from the current verification approach.

The paper is organised as follows. Section 2 presents the concept of additionality, the areas where this principle is applied and the different factors that may influence the allocation choice and may provoke distorting effects; in Section 3 a literature review on the distorting effects of additionality is carried out, distinguishing among the substitution effects, the displacement effect on the composition of public spending and across different geographical areas, and the effect on taxation; Section 4 describes the spending review approach followed by the World Bank, the International Monetary Fund and the United Kingdom, and the verification procedure currently used within the European Union, its weaknesses and the possible solutions to make the verification system more reliable, transparent and straightforward; finally, Section 5 contains some concluding remarks.

2. The concept of additionality and the main issues at stake

2.1   The effect of public investment and the concept of additionality

The issue of the net long-run effect of public expenditure is at the core of the current macroeconomic research and debate. All the public authorities are interested in knowing whether public expenditure, especially (but not exclusively) in the form of public investment, has an aggregate effect on growth. This issue is deeply studied in the theoretical and empirical literature examining the macroeconomic effects of public capital expenditure and investment on economic performance and growth, and can be tackled by considering the supply or the demand side of the economy.

In the context of neoclassical contributions, the inclusion of public expenditure (in the form of a flow, as in Barro 1990, or stock as in Futagami et al. 1993) in firms' (and consequently, aggregate) production functions increases the rate of return to private capital thus stimulating private investment and, indirectly, economic growth. The seminal contributions in the neoclassic literature (reviewed by Del Bo, 2009) focus on investment in education (Lucas, 1988) and productive public capital (especially public infrastructure, Barro 1990) entering directly as inputs in the output production process.

The role of health public expenditure (Bloom et al. 2003) and R&D investment (Romer 1990), have also been highlighted as possible public capital components that are important driving forces for capital accumulation and, ultimately, long-run growth. In the Lucas (1988) endogenous growth model, investments in human capital generate increasing returns through two mechanisms: on the one hand, they directly contribute to GDP formation; on the other hand, they represent a positive externality which individuals do not fully take into account when deciding how much time to devote to human capital accumulation. Both empirics and theory support the view that education makes individuals more productive, thus further accelerating GDP growth. Moreover, public capital accumulation raises the return of private capital and, consequently, is likely to attract private investments (Aschauer 1989, Munnell 1990, Delorme *et al.* 1999, Cohen and Paul, 2004 and Erden and Holcombe, 2005) and to obtain greater impacts than what would have been gained with only the private component.

Keynesian models provide a different view on the role of public investment and consumption, analyzing the direct effect on growth by focusing on the demand side and stressing the role of fiscal policies as stabilizers and as a stimulus to economic activity. Blinder and Solow (1973), by recognizing that nominal wages are fixed, stress the importance of fiscal policy for economic activity through multiplier effects that "crowd in" private investment. More recently, Post-Keynesian economists[2] have proposed a reappraisal of the role of discretionary fiscal policy as a mean of stabilizing the economy. Fomi et al. (2009) estimate a model with sticky prices and wages and distortive taxation on labour and income and obtain results pointing in the direction of Keynesian effects of fiscal policy: positive shocks to government expenditures increase employment, private consumption and ultimately output.

However, from different perspectives and theoretical underpinnings, both the Keynesian-inspired macroeconomics and endogenous growth models and applications, tend to support the view that public spending, particularly investments, may have a positive net aggregate effect on long-run growth[3] and an important role in a country's growth path and economic development.

The positive relationship between public investments and growth appears to be supported also by the empirical evidence, as shown in Figure 1, where the share of public investments[4] over GDP is compared to GDP per capita growth in EU Member States. This figure allows to corroborate the literature's findings, by visualising the existing relation between investment and growth in the EU, without however attributing it any causality meaning. The highest level of investments and growth correspond to many Cohesion countries (2000-06), while many countries, non eligible for Cohesion Fund, have both public investments and GDP per capita growth placed below the EU average. Latvia and Slovakia are among the fastest growing countries of EU, even if their share of investments is below the average.

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[2] For a recent review, see the Special issue of the Journal of Post-Keynesian economics, 2009, vol.31, n° 4

[3] Albeit with some qualifications and conditionalities, most notably the role of institutional quality (see section 2.3).

[4] Public investment is measured by the EUROSTAT indicator of Total General Government Gross Capital Formation, which includes the Gross Fixed Capital Formation, changes in inventories and acquisition less disposals of valuables.

Figure 1: Public Investments/GDP (%) vs. GDP per capita growth (%), 1995-2008

$$y = 2.4824e^{0.2381x}$$
$$R^2 = 0.3348$$
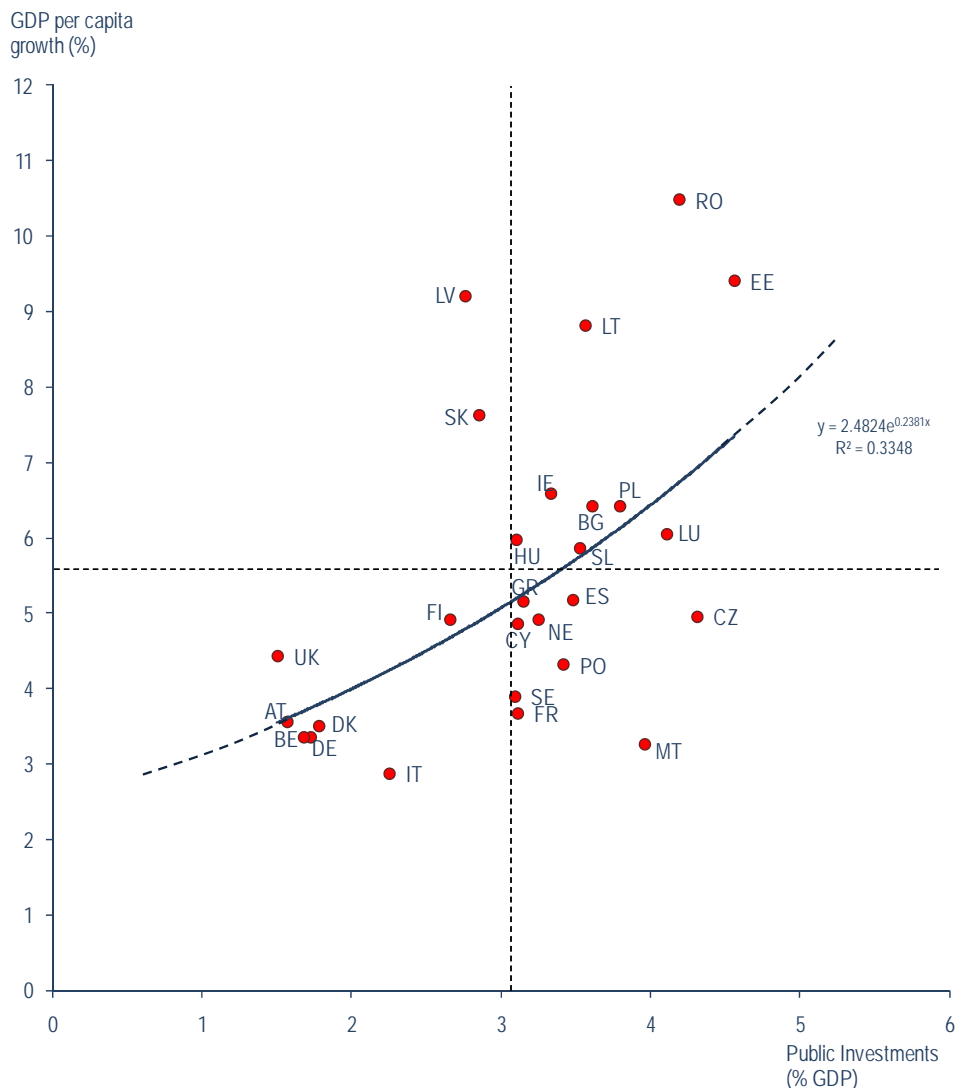
Legend: AT Austria, BE Belgium, BG Bulgaria, CY Cyprus, CZ Czech Republic, DE German, DK Denmark, EE Estonia, ES Spain, FI Finland, FR France, GR Greece, HU Hungary, IE Ireland, IT Italy, LT Lithuania, LU Luxembourg, LV Latvia, MT Malta, NL Netherlands, PL Poland, PT Portugal, RO Romania, SE Sweden, SK Slovakia, SL Slovenia, UK United Kingdom.

Note: Dashed lines indicate the average values. Data are missing for the following years and countries: 1995 for Belgium, Czech Republic, Ireland, Greece, Cyprus, Malta, Portugal and Latvia; 1995-98 for Romania; 1995-99 for Bulgaria, Lithuania and Slovenia; 1995-2001 for Poland.

In addition to their own resources, many countries have the possibility to use also external additional funds to stimulate the national economy. The mechanism behind the effect of increasing the total amount of investments on economic growth is not straightforward. From one side, additional funds could potentially complement the total amount of investments; from the other side, they may also have distorting effects on the national public finance, so that one additional euro does not correspondingly increase the total public investments.

Three broad typologies of effects intervene to distort the national allocation choices of the beneficiaries. They are the substitution effect, the displacement effect and the effect on taxation.

2.2 Areas of applicability of additionality

The role and effects of additional funds can be researched in three frameworks: the European Union, the federal government typology and the foreign aid. The effect of public investment is briefly presented for each of them.

European Union

Within the European Union (EU) framework, additionality is one of the key principles of the Cohesion Policy[5], stating that, in order to achieve a genuine economic impact, the appropriations of the SF in the regions targeted shall not replace public or equivalent expenditure by the Member States, but complement them; put in other words, EU funds are only granted to a Member State if the latter also contributes. Table 1 shows the total amount of allocated SF in the period 2000-2006. The average share of funds over GDP was about 0.3%, but for Portugal and Greece this share was much higher (approximately 2%).

The principle of additionality has been constantly pursued by the Commission since the creation of the European Regional Development Fund (ERDF) in 1975. The EU regional policy was supposed to be implemented by funding additional resources to the national ones, without substituting them. At the beginning, the ERDF was managed by the sole Member States that autonomously set the criteria for the eligible areas and the amount of investments, with the Commission having no influence power. As a consequence, the EU funds were mostly used by the Member State to substitute their public finance.

In order to make the financing mechanism more effective, in 1979 the Regulation 214/1979 gave the Commission the primary responsibility of EU funds management, with the aim of promoting an effective regional and cohesion policy. In 1988, the principle of additionality was institutionalized and clarified, underlining that the Structural Funds shall not substitute the national public resource addressed to the same objectives. The general rule, demanding that the level of expenditure is at least equal to the amount of average annual expenditure in real terms attained during the previous programming period, aims at avoiding the possibility of substitution effect and at contributing at the creation of greater benefits in terms of growth in the Member States.

Types of expenditures considered eligible to receive EU funds in addition to the national public appropriations are basic infrastructure (transport, telecommunications, energy, water supply, environmental protection and health), human resources (education, training, research and development), productive environment (expenditures to promote activities in the productive sectors, including local economic infrastructures and aid to firms) and other (such as the technical assistance). The largest amount of EU additional investments is directed towards the first two categories.

Many contributions have tried to assess the growth potential of SF at the national level, and have reached mixed results. Boldrin and Canova (2001), for example, fail to detect a positive growth effect of SF, while they find a positive redistributive role. However, when considering disaggregated investment categories, productive SF investments, such as investment in education (De la Fuente and Vives 1995, Rodriguez-Pose and Fratesi 2004) and in infrastructure (Bouvet 2007), are shown to have a positive effect on regional economic performance. Another important issue, which has been raised by several authors, is that SF seem to be more effective in lagging behind regions (Beugelsdijk and Eijffinger 2005, Becker et al. 2008) and in those areas characterized by good institutional quality (Ederveen et al. 2006). A recent contribution by Florio and Moretti (2009) examines the impact of regional SF on industry performance, concluding that the European Cohesion Policy's direct support to businesses might contribute to the process of reallocation of persons employed across industries. Moreover, Hsu et al. (2009) and Luukkonen (2000) highlight the potential for positive effects of EU funds at the firm and national level, with a specific focus on R&D investments, stressing however the importance of evaluation criteria and assessment of results.

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[5] Its formal definition is given in Art. 15 of Chapter IV of the Regulation (EC) 1083/2006, which refers to the principles guiding EU assistance through the European Regional Development Fund, the European Social Fund and the Cohesion Fund.

Table 1. Structural Funds allocated in the period 2000-2006 (million euro and % GDP)

	Cumulative Structural Funds (EUR million)	Average share of Structural Funds over GDP (%)
Austria	1,782.06	0.1121
Belgium	2,064.99	0.1061
Cyprus	55.20	0.0649
Czech Republic	1,616.46	0.2727
Denmark	833.93	0.0626
Estonia	375.43	0.5874
Finland	2,124.40	0.2048
France	16,460.92	0.1462
Germany	31,235.90	0.2061
Greece	23,015.70	1.9188
Hungary	2,026.01	0.3903
Ireland	3,272.86	0.3329
Italy	31,604.13	0.3370
Latvia	633.59	0.8159
Lithuania	907.04	0.7548
Luxembourg	89.56	0.0482
Malta	64.43	0.2025
Netherlands	2,865.52	0.0854
Poland	8,409.75	0.7461
Portugal	20,839.54	2.0526
Slovakia	1,145.42	0.5252
Slovenia	243.95	0.1344
Spain	47,787.76	0.8616
Sweden	2,186.58	0.1108
United Kingdom	17,069.85	0.1416
Total	**225,016.17**	**0.3168**

Source: Eurostat and DG REGIO

Note: Data for Structural Funds refer to the cumulative amount of the European Regional Development Fund, European Social Funds and the Cohesion Fund programmed in the period.

Federal and multi-level government

The concept of additionality applies to all the federal states characterised by the existence of a higher governmental level distributing funds at regional and local level[6]. In such a framework, the additional resources potentially play a role in the provision of public goods, but several political variables (see section 2.3) may affect their allocation and actual impact. Moreover, with the presence of different levels of government and spatial disaggregation, potential spillovers of public spending from one region, or jurisdiction, to another may affect the allocation between different sub-national units. The areas that can reap the benefits of local public goods may well be outside the boundaries of the local government having official jurisdiction on the investment and spending decisions for that good, leading to the possibility of free riding behaviours.

Several contributions have focused explicitly on regional spillovers of investments in transport and communication. A large number of papers provide grounding to the existence of spatial spillovers of public investment at the regional level, although the exact quantification of the magnitude of these effects is still debated among the academic community (see for example Sloboda and Yao 2008 and Jiwattanakulpaisarn et al. 2008). Bronzini and Piselli (2009) provide evidence, from Italian regional data, of the positive spillover effect on regional productivity of neighbours' investment in public infrastructure while Ezcurra et al. (2005) obtain similar

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[6] In fact, the European Union could be considered as a peculiar case of quasi-federal government.

results for regions in Spain. Moreno and Lopez-Bazo (2007) consider the possibility that transport and communication infrastructure may have positive effects in the region where they are located and produce positive or negative spillovers to other neighbouring regions. The analysis is conducted for public infrastructure in Spanish regions, and the results show that negative spillovers across regions in transport capital investments are statistically significant. Cohen and Monaco (2009) find that the impact of port infrastructures on neighbouring counties in the US is positive and highly significant.

Positive spatial spillovers of investment in transport and telecommunication infrastructure may lead to over (or under) estimation of the real impact of public funds and additionality due to the network characteristics of these sectors. Appropriate accounting of this aspect is extremely difficult and it represents a limit to the possibility to assess the real impact of additional public funds.

Foreign aid

Another field where the impact of additionality has been deeply studied is represented by foreign aid and intergovernmental transfers in the Least Developed Countries (LDCs). The LDCs, which are generally characterized by low international reserves and private investment, rely on bilateral and multilateral aid to address their relevant investment needs and to stimulate long-run growth.

In 2008, the total net Official Development Aid transferred by the donor countries, included the European Commission, to the developing countries amounted at around 140,000 million US dollar (in current prices)[7]; 3,000 million were transferred as Other Official Flows, with a minor grant quota[8].

The growth-enhancing potential of international aid has been a widely debated topic, leading to complex conclusions. Aid may increase both public and private investment (Feyzioglu et al. 1996, Agenor 2004), thus improving the receiving country's economic performance; yet, in a recent review, Ducouliagos and Paldam (2009) conclude that development aid has not been effective in stimulating growth, as also Rajan and Subramanian (2008) pointed out. In fact, in the attempt to explain the effects of foreign aid on the beneficiary's economy, significant and reliable results can be obtained only if other context factors (institutional, political, economical...) are taken into account (see the following section).

2.3 Factors influencing the allocation choice

A number of factors characterizing the beneficiaries of funds affects, directly or indirectly, their allocation choices, i.e. the occurrence of the three mentioned distorting effects, and the impact of additionality. They relate to the institutional quality, the kind of political interests in place and the existence of budgetary and financial constraints. All these factors are considered throughout the literature review presented in the following sections and are recalled here below to stress their role in the evaluation of the real impact of additionality.

Institutional quality

The literature highlights the importance of the institutional context in guaranteeing that additional funds are directed towards growth-enhancing uses. In the neoclassical literature on the effect of public expenditure, the institutional setting of the recipient country is crucial to shape its development path, as stressed by Acemoglu et. al (2004) and Helpman (2008).

In the foreign aid framework, good institutional quality, meaning democracy, effective rule of law, governments with long-term vision and low corruption, allow aid to be more effective (Bräutigam 2000, Burnside and Dollar 2000); on the contrary, where public institutions are weak and corrupted, the beneficiary is likely to distort money away from the development objectives and towards short-run and recurrent (operating) expenditures (Njeru 2003).

The International Development Association (IDA) within the World Bank has developed over the past years a rigorous and structured system to allocate aid to the least developed countries in the world, by keeping into account the national institutional quality: the IDA Performance-Based Allocation system. A Country Policy and Institutional Assessment index is computed for each country to guide IDA in allocating its resources, beyond Gross National Income per capita, population and an indicator of past performance (World Bank, 2010).

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[7] Source: OECD-DAC website.

[8] In 2009 these amounts significantly dropped to 26,000 and 699 million US dollar respectively (preliminary data), because of the world financial crisis.

Political interests

The allocation of additional public funds across sectors and areas may be driven by political factors, such as party composition, interest groups and lobbies, which could direct funds away from their optimal use, because of the existence of powerful private actors influencing the political agenda of public managers.

Singhal (2008) studies the effect of interest groups on the allocation of public funds in a federal context with a model of government contracting between politicians and special interest groups that have the ability to raise funds for the production of a lobby good. The theoretical setting is a stylized dynamic reputation model where, in each period, the government has to decide the amount of spending on the lobby good. Simultaneously, the interest groups have to decide whether to raise funds, knowing that the government can provide payback on the good. The solution to the game implies a positive probability of the government spending more on the lobby good when it receives a grant than if it were to maximize its objective function.

In the multi-level government context, Kemmerling and Stephan (2002) built a political economy model for the allocation of public investment grant on German municipality level data, serving as a framework for comparing the influence of lobbies and interest groups versus the presence of similar political parties at the different levels of government. By modelling the cities' level of additional public investment (in the form of grants from a higher level) as a function of economic conditions, local investment decisions, lobbying variable and political variables, the authors have a testable equation in a simultaneous equation approach. The main result is that the political aspect dominates the presence of interest groups in the allocation of additional public funds, since municipalities ruled by the same party that is in charge of the higher level of government are more successful in attracting grants and funds.

Budgetary constraints

The existence of budgetary restrictions and rules increase the possibility that distorting effects occur when additional funds are allocated. Additional funds for a new investment might entail future current costs that the receiver may or may not be able to commit to, due to budgetary restrictions.

National governments may have internal constraints for public finances that must be met. Ayuso-i-Casalas et al. (2009) distinguish between *procedural rules*, which govern the national annual budget law, *numerical fiscal rules*, which imply targets and ceilings for fiscal aggregates and policies, and *independent fiscal institutions* (other than the Parliament or the government), which provide recommendations on fiscal policy.

Arpaia and Turrini (2008) examine fiscal reaction functions and test the assumption that governments decrease public investment in order to consolidate and ameliorate public debt. In the empirical analysis, the authors consider the general aggregate measure of government expenditure, which includes public investment. Results in fact show that the share on GDP of government spending decrease as the ratio debt to GDP falls, corroborating the view that expenditure curbing is used as a measure of fiscal consolidation.

The 27 European Union Member States have also to comply with fiscal restrictions imposed by the Stability and Growth Pact (SGP) which limit *de facto* their possibilities of spending. Budget constraints revealed to be binding for some EU countries in the early 2000s and even more in these years, due to the effects of the current financial crisis. In these circumstances Member States could use EU funds to substitute their own expenditure, thus reducing the total amount of investments (Bacchiocchi et al. 2009). Apart from under-investment, budget constraints can cause other effects, such as privatisation and decrease of public asset accumulation (Easterly 1999, Florio 2007) and changes in the composition of domestic demand, by favouring investments in sectors and projects with higher and/or short-term returns (Easterly et al. 2008).

Like the EU Member States, the LDC may also have financial constraints imposed by the donor. Particular conditions are attached to the International Monetary Fund (IMF)'s loans and programmes, requiring that the beneficiary country keeps its budget deficit under a certain limit and increases its internal reserves. The fiscal austerity in Latin America during the Eighties and the Nineties determined public investment and infrastructure compression, which led to a decline in infrastructure stock accumulation and output growth (Calderon et al. 2002). On the other side, Dreher (2006), moving from Barro and Lee (2005) results, confirms that IMF programmes are likely to reduce growth, at least in the short/medium term, but also finds that compliance with conditionality mitigates such negative effect.

3. Literature review on the distorting effects of additionality

After having presented the concept of additionality and its possible implications on the economy of the beneficiary, an extensive literature review is provided, to highlight the main theoretical and empirical contributions on additionality and on the possible role of public expenditure. The analysis will be particularly focused on the Cohesion Policy framework and on Structural Funds, but some reference will be made also to the other contexts where additionality may apply (i.e. multi-level governments and developing countries receiving aid).

3.1   The substitution effect

Supranational funds intended for growth-enhancing sectors may act as substitutes for national spending that would have been undertaken in any case. The result would therefore be that the freed up public funds could be used for other purposes. Cohesion support may crowd out also private investment if it is allocated on projects that are close substitutes for private capital (Ederveen et al. 2003). The literature on aid fungibility suggests that investments to certain sectors are more likely to be substituted if external funds are injected. Several authors highlight that transport and communication are sectors generally not fungible (see Devarajan et al. 2008 and Feyzioglu et al. 2011), whilst investment in the education sector has very little effect on education spending, meaning that this kind of investment is more probably used for other scopes. Another sector which is highly fungible is the health sector (Lu et al. 2010).

The substitution effect in the developing and highly indebted countries was investigated by Powell and Bird (2010). They examined the relationship between aid and debt relief, to understand whether debt relief initiatives complement or substitute aid flows. Both Ordinary Least Squared (OLS) and General Method of Moments (GMM) models have been estimated on a dataset of 42 African countries for the period 1988-2006; the authors confirmed that debt relief schemes had a significant positive effect on net transfer to beneficiary countries. Therefore, donor countries seem to have used debt relief and aid as complementary ways of providing additional resources to the beneficiaries.

Budgetary restrictions and financial difficulties, such as those caused by the recent economic crisis, may have strong influence on the degree to which additional funds are used to substitute, rather than complementing, the national planned investments. Bacchiocchi et al. (2009) estimate the effects of debts sustainability and fiscal constraints deriving from the Stability and Growth Pact on government expenditure in fixed capital, education and health in OECD countries. The authors show that, when debt is high, government capital expenditure and education expenditure are significantly reduced in the whole sample, independently of EU membership. Hence, it appears that EU countries have been constrained in their investment decisions more by the need to ensure debt sustainability than by the rules of the Stability Growth Pact. In low debt New Member States (NMS) public investments even increase with the debt ratio, a finding that is reassuring for their growth prospects. However, a less optimistic picture emerges when expenditures in public health and education are considered, as it appears that NMS governments cut such expenditures as the deficit increases, even at low levels of debt. Problems in controlling total expenditure together with the preventive arm of the SGP may have penalized investment in human capital in NMSs while leaving fixed capital investment unaffected.

Pereira and Pinho (2006) test in the Euro zone that government expenditure, while causing short run budget deficits, may have a long-run positive effect on growth if the resulting increase in the tax base and revenue is strong enough; they find that public sector investment has indeed a positive effect on long-run growth and thus public-investment spending cuts to comply with current budgetary restrictions and consolidation efforts are at the expenses of long-term economic performance.

In the context of tight fiscal rules and concerns about the capability of governments to pay back their outstanding loans, both at a national and supra-national level, appropriate fiscal targets that go beyond the simple cash deficit criterion may be designed. A recent and critical review of the literature is contained in Serven (2007). In this contribution, the author argues that different fiscal rules, which take into account the intertemporal dimension of public sector solvency and acknowledge the positive role of productive public investment on growth, may have differential impacts on long-run performance.

Mintz and Smart (2006) distinguish between investments that will over time generate revenues for the government (with the underlying assumption that in the long they will run be self-sustainable), from those that finance services that will be offered at no charge. This modified rule takes explicitly into account the possibility that only part of the flow of public expenditure is in the long-run productive, thus representing a possible source of revenue; a logical implication of this view is that in times of tighter budget

constraints, productive public expenditure should not be cut as severely as the non productive one. This rule however limits the amount to be borrowed to a fraction of revenue-generating assets.

So far, the only empirical study which analyses the relation between public spending in Member States and the respective amounts of Cohesion funds they received, outside of the official negotiating and verification framework with the European Commission, is provided by Wostner and Šlander (2009). The share of national structural expenditures[9] over GDP is regressed over the share of actual inflows received from the Cohesion policy and the results clearly indicate that the effect of the EU funds on public investments is positive and statistically significant. According to the authors, this suggests that Cohesion funds actually result in additional public expenditure. Such relation is not linear: the leverage effect of Cohesion funds decreases with larger inflows and when the share of EU funds is higher than 2.33% of GDP per year, a more considerable rate of substitution and crowding out of domestic public structural expenditure can be observed. However, since Cohesion funds seldom exceed 2.33%, the authors conclude that the Structural Funds had an additional and not substitution effect on public expenditure for the majority of years and countries considered (EU 15 between 1999 to 2006).

3.2   The displacement effect on the composition of public spending

In this section, the allocative effect of additional (supra-national) funds on national public spending composition is considered. If a national government receives additional funds, there might be a shift in the allocation of domestic public funds with respect to the previous period, and the sectoral composition of public spending may vary.

In a Keynesian framework, additional public funds will have an impact on the multiplier effects of public spending. Censolo and Colombo (2008) consider heterogeneous firms in the imperfect competition model proposed by Chen et al. (2005) and introduce a variety of markets characterized by different degrees of monopoly power. In this setting, the effect of fiscal shocks and the sign and size of the Keynesian multiplier crucially depend on the composition of public expenditure. This is due to the fact that the public sector can modify aggregate demand through the composition of public spending. The analysis is mainly focused on the short run, and the important result is that "a fiscal expansion that reallocates resources towards the monopolistic sector can exert a positive effect on output reducing the misallocation of labour generated by the monopolistic pricing" (Censolo and Colombo 2008, p. 164). The authors stress the important role played by government consumption in modifying the economy's composition of aggregate demand.

In a growth framework, public spending enters directly the aggregate production function, and a reallocation of funds will be reflected in different coefficients in the aggregate production function attached to disaggregated public expenditure (Del Bo (2009). Devarajan et al. (1996) consider the share of different components in total government on growth and account for a level effect by controlling for the size of total expenditure on aggregate GDP. With data from 1970 to 1990 for a sample of 43 developing countries[10], it is shown that current expenditure has positive and significant growth effects while the capital component seems to exert a negative effect. However, when looking at the sub-sample of developed countries, the results are reversed, and the standard finding of a growth enhancing effect of capital public expenditure is retained. This result might rest on the fact that developing countries present several distortions, with high levels of corruption and black market issues, which could make additional expenditure on public capital unproductive. Overall, they conclude that public expenditures labelled as "productive" may become unproductive due to general institutional and economic conditions and in the case of excessive amounts.

Bose et al. (2007) consider the role of the government budget constraint in shaping the effects of disaggregated public spending in 30 developing countries between 1970 and 1990. They indeed provide evidence of a growth enhancing effect of capital expenditure on growth and show that public investment and expenditure in education exert the strongest effect on growth once the budget constraint and omitted variables are accounted for. Del Bo and Florio (2009) instead indicate improvements in the telecommunication and transport infrastructure endowment as the forces having the largest positive and significant influence on growth.

The positive externalities associated with public infrastructure have been modelled by introducing public capital in the production function of final output as a complement to private capital (Arrow and Kurz 1970). Some of the channels through which the positive effect of a well developed infrastructure capital stock influence economic activity and growth are the reduction in transportation and transaction costs, the increased accessibility and attractiveness of regions, allowing a better distribution across space of production activities. Better telecommunication infrastructure facilitates business transactions, lowering production costs and fostering new links

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[9] Structural expenditures are defined as the sum of all public spending for economic purposes (including infrastructures), education and environmental protection, consistently with the COFOG classification (Wostner and Šlander, 2009).

[10] 19 Low income, 22 middle income (lower level) and 2 middle income (upper level) countries.

and synergies among economic actors. Quality of a country's infrastructure stock is also important in an international context, with positive effects of a country's or region's attractiveness for FDI and openness to trade, through better accessibility to home and foreign markets. Investment in infrastructure may also have positive spillover effects on neighbouring areas and positively affect foreign producers and consumers (Bougheas et al. 2000), given the public good nature of this form of capital stock.

In a recent World Bank paper (Estache et al. 2007) the authors conclude that it is difficult to compare across countries the contribution of different components of productive public capital. Comparing expenditure on health, education and transport, they show that low-income countries generally lag significantly behind higher-income countries, but also show that efficiency has improved during the 1990s in energy and education but not as much in transport. These results confirm the idea that the effect of reallocating public spending rely heavily on the initial macroeconomic conditions of the country under examination.

Finally, the literature on public choice considers that the allocation of additional public funds across sectors may be driven by the government's optimizing behaviour or can be influenced by political factors.

Bradford and Oates (1971) set forth the idea that increases in lump sum intergovernmental transfers initiate a local expenditure response equivalent to an increase in the region's income of the median voter: this is the so-called "fly-paper effect", since the money appear to "sticks where it hits" (Nestbit and Kreft 2009, p. 96). The underlying idea of Bradford and Oates' model is that the median voter should perceive grants and income as fungible and, as long as the government's decisions reflect the preference of the median voter, additional funds should be spent for public goods in proportion to voters' marginal propensity to spend out of private income. More recently, Knight (2002) develops a model allowing for the endogenous determination of grants and government spending through a legislative bargaining process. The author documents a positive correlation between grant receipts and the preference for public goods. Thus, when the role of interest groups is correctly taken into account, the net effect of grants is to crowd out public spending

By focusing on the interaction between special interest groups and the government, Singhal (2008) studies their effect on the allocation of public funds in a federalist context. With a model of government contracting between politicians and special interest groups that have the ability to raise funds for production of a lobby good. The theoretical setting is a stylized dynamic reputation model where, in each period, the government has to decide the amount of spending on the lobby good. Simultaneously, the interest groups have to decide whether to raise funds, knowing that the government can provide payback on the good. The solution to the game implies a positive probability of the government spending more on the lobby good when it receives a grant than if it were to maximize its objective function. Therefore, the presence of special interest groups provides an explanation of the "flypaper effect".

To conclude, this section has shown how the effect of additional public funds on the composition of public spending may be complicated by political factors, including the presence of lobbies in the receiving jurisdiction or area. Assuming the government is welfare-maximising and benevolent, the additional public funds will be directed towards the most growth-enhancing sectors, which are generally identified with productive public expenditure in health, infrastructure, telecommunication, education and R&D. Yet, if the government is not completely benevolent and welfare-maximising, but is instead influenced by special interest groups or other political factors, the additional public funds may be diverted, irrespective of their growth potential. In this setting, the role of institutional quality and the set of limits and controls on the use of additional public funds gains relevance and importance.

3.3 The geographical displacement effect

Beside the displacement effect occurring at the composition of investment demand, multi-level government pose also the issue of fund displacement across different geographical areas. The spatial allocation of additional investment may be optimal (in the case of a welfare maximising benevolent planner) or sub-optimal (due to the presence of exogenous constraints or pressure groups), much in the spirit of the issues analyzed in the previous section.

An influential contribution on the effects of public funds (in this case related to infrastructure projects) in a federalist perspective is the paper by Hulten and Schwab (1997). In their treatment of the provision and financing of public infrastructure in a federalist state, the authors raise an important issue. Since public goods may exert their inter-jurisdictional (or inter-regional) effects, and decision makers will at best be concerned with the welfare of their voters/constituencies, these goods may end up being underprovided. A natural solution to this problem comes in the form of intergovernmental transfers from higher to lower levels of government or in the form of bargaining among the affected jurisdictions. Kemmerling and Stephan (2002) elaborate a political economy model for the allocation of public investment, that incorporate the definition of the appropriate government objective function. This model is the basis for the empirical estimation on German municipality level data and serves as a framework for comparing the influence of lobbies and interest groups versus the presence of similar political parties at the different levels of government. By modelling the cities' level of additional public investment (in the form of grants from a higher level) as a function of economic conditions, local

investment decisions, lobbying variable and political variables, the authors have a testable equation in a simultaneous equation approach. The main result is that the political aspect dominates the presence of interest groups in the allocation of additional public funds, since municipalities ruled by the same party that is in charge of the higher level of government are more successful in attracting grants and funds.

Moving on to a more general level, the role of political factors in the allocation of EU Structural Funds has been analyzed by Kemmerling and Bodenstein (2006) who consider the role of intergovernmental bargaining or multi-level governance in the distribution of supra-national additional public funds. The two views that are brought together and tested in their paper are the intergovernmental perspective, which stresses the bargaining between national governments, and the multi-level government approach, which considers the role of regional players as well. With a newly constructed dataset on the regional distribution of votes to the European Parliament's parties along with data on the allocation of Structural Funds for the programming period 2000-2006, the role of regional votes is examined. It is shown that regions dominated by parties that are traditionally favourable to regional policies receive relatively more EU funds, due to their lobbying with the national government and directly at the EU level. The main result is related to the finding of a statistically significant link between the regional strength of left-wing parties and the magnitude of incoming additional EU funds.

The role of expenditure spillovers and externalities and the possibility of a "flypaper effect" of additional public funds at the regional level may also affect the allocation between different sub-national units. The areas that can reap the benefits of local public goods may well be outside the boundaries of the local government having official jurisdiction on the investment and spending decisions for that good, leading to the possibility of free riding behaviours.

Several contributions have focused explicitly on regional spillovers of investments in transport and communication. A large number of papers provide grounding to the existence of spatial spillovers of public investment at the regional level, although the exact quantification of the magnitude of these effects is still debated among the academic community (see for example Sloboda and Yao 2008 and Jiwattanakulpaisarn et al. 2008). Bronzini and Piselli (2009) provide evidence, from Italian regional data, of the positive spillover effect on regional productivity of neighbours' investment in public infrastructure while Ezcurra et al. (2005) obtain similar results for regions in Spain. Moreno and Lopez-Bazo (2007) consider the possibility that transport and communication infrastructure may have positive effects in the region where they are located and produce positive or negative spillovers to other neighbouring regions. The analysis is conducted for public infrastructure in Spanish regions, and the results show that negative spillovers across regions in transport capital investments are statistically significant. Cohen and Monaco (2009) find that the impact of port infrastructures on neighbouring counties in the US is positive and highly significant.

In the presence of budgetary constraints for the local, regional governments may alter the response of local expenditure to intergovernmental transfers and grants, as documented by Levaggi and Zanola (2003) for regional health care expenditure in Italy. The introduction of a soft form of budgetary restrictions (where regions are allowed to incur in some deficit) implies a stronger effect of additional public funds and a slower reaction in terms of local expenditure, providing evidence in favour of a stronger "flypaper effect".

In conclusion, both spatial interactions and spillovers and the presence of budgetary constraints are crucial to estimate the real impact of additionality, since they might affect significantly the response of local public expenditure to the inflow of grants and intergovernmental transfers.

3.4   The effect on taxation

Apart from the substitution and displacement effects, additional public investment may determine a fiscal effect in the recipient country. Actually, if the additional funds are uncommitted, taxation could be expected to decrease to a certain extent; on contrary, if the additional euro has to be co-financed, this might lead to an increase in taxation, depending on the co-financing and national accounting rules.

The redistributive implications of EU funds are studied by Doménech et al. (2000) by means of an exogenous growth model with the inclusion of a federal budget and public capital stock in the aggregate production function, estimated with EU budget data. The main result is that, in contrast to other federalist unions (such as the United States or, to a certain extent, Canada), Member States' contributions are directly proportional to national per capita GDP and that the redistributive effect is achieved mainly through the expenditure side (i.e. through EU Structural Funds). By considering the aggregate additional funds received by each Member State, the estimates show that "on average a 1 percent increase in a country's per capita income decreases the per capita funds it receives from the EU budget by 0.43 percent" (Doménech et al. 2000, p. 646), and that this redistributive effect has increased over time.

Therefore, following these pieces of evidence, SF are likely to imply no increase in national taxation, since national tax revenues will increase thanks to the improved GDP level.

A further qualification of this statement is related to national fiscal autonomy. Bahr (2008) shows that increasing sub-national (i.e. regional) fiscal autonomy (proxied in the empirical analysis by the share of regional tax revenue over the national aggregate) has a positive effect on the growth-enhancing properties of SF. By taking into account decentralization in terms of regional authorities' control over the tax base or tax rate, the author concludes that the effect of EU funds on economic growth is positively related to a decentralized structure. If regions and nations are allowed more fiscal autonomy, their decisions on tax composition and allocation may then be determined optimally. In this sense, if EU funds help in increasing the tax base, and this effect is accentuated in the presence of fiscal decentralization, they indirectly contribute to an optimal tax allocation. In this context, an interesting contribution for the US (Bania and Stone 2008) shows the effect of federal transfers on local tax structures. The main result is that transfers dilute the growth effects of different states' tax structures, a result related to the very nature of federal transfers that are designed to mitigate "the vicious circle of high poverty and welfare needs, low investments in productive services and infrastructure, and low growth" (Bahr 2008, p. 764).

In a political economy context, transfers and grants from higher levels of government should be allocated according to the income elasticities of the median voter, therefore resulting in lower local taxes (Dahlberg et al. 2008). This theoretical prediction has however not been supported by clear and conclusive empirical evidence. Using municipality data for Sweden and examining the effects of grants on local tax decisions and spending, the authors show that grants increase local spending while fail to find a statistically significant effect on the tax rates.

Potential increases in taxation could arise if co-funding rules are in place. In a multi-level government context, Hulten and Schwab (1997) stress the role of tax competition among areas: if national (or higher level government) funding must be co-financed at the local level, a tax increase might become necessary to finance the investment, and this could depress the area's relative competitive edge. This might ultimately lead to a suboptimal level of investment at the local level, reflecting their market and political characteristics.

Lutz (2010) explores the relationship between voters and the local government and finds that additional public funds (in that case, New Hampshire's school grants) have a crowding out effect, since governments spend between 0 and 25 cents per each dollar received in form of a grant on the targeted area. The rest of the grant is instead directed towards tax reductions. The author concludes by stating that the interplay of political factors such as voters' misperception or bureaucratic capture may alter results in other situations.

Nam and Wamser (2010) remark that EU transfers should not weaken tax collection efforts, even in the presence of additionality degrees. On the other side, a recent EU-wide econometric analysis (Hagen and Mohl 2009) provides evidence in favour of the hypothesis that additional EU funds are used by recipient Member States to consolidate national public budgets. If additional funds are co-financed, one possible outcome would be a negative impact on the nation's primary surplus if public investments do not change. The authors first show how, on average, additional public funds do not increase national public spending, implying a crowding out effect on national spending, then conclude that grants may be used indirectly to reduce national deficits.

To sum, even if in principle the flow of additional public funds to national governments can affect both the level and the sectoral composition of taxation, this seems to be an underexplored area in the literature. The main conclusion is that additionality apparently does not affect local taxation directly, but there could be a positive indirect effect on the level of taxation through the redistributive properties of additional public funds. More research is needed to ascertain the compositional effect on national tax structures of additional public funds.

4. Verification of additionality

As shown, many factors can distort additional public funds and reduce their full potential effect on economic growth. Verification of additionality plays a role in ensuring that additional funds are used to effectively complement national expenditure programmes, without being distorted from the use to which they were originally addressed. This Section presents the possible typologies of verification: from one side, the spending review approach, enforced for example by the World Bank, the International Monetary Fund and the United Kingdom, from the one other the EU standard verification system. The weaknesses of the latter are presented and pragmatic changes for improvement are proposed.

4.1 The spending review approach

The verification of additionality is aimed to ensure that the additionality principle is correctly enforced and that the beneficiary countries really use the external funds as additional to their national investments. The final objective is to ensure effective implementation of a programme/project financed with additional external funds and a larger impact on economic growth. Institutions and agencies, where the principle of additionality is enforced, generally carry out the verification through two different methodological approaches: a country-by-country verification or a standardised verification.

The World Bank, uses the first method, by carrying out studies, called Public Expenditure Reviews (PERs), to favour an effective and transparent allocation and use of public resources. The Bank needs good quality comprehensive PERs to design and implement its country assistance strategies, in order to effectively promote economic growth and poverty reduction; additionally, the PER is considered a useful document also for the beneficiary government, as it may be the only mechanism for a systematic analysis of public sector issues and for building country evaluation capacity.

Normally the PER analyses of the country context, recent economic developments and challenges, government's fiscal strategy and developments, fiscal trends and sustainability, the structure and composition of public expenditure and public revenues, key fiscal policy challenges. On the basis of such analysis, fiscal targets, budget ceilings, investment priorities, policy reforms or other measures may be recommended.

The number of country reviews significantly grew over the years, passing from three reviews prior to 1979 to 39 in the financial year 1998 (World Bank, 1998). Consequently, also the costs of this exercise increased. Traditionally, PERs are drafted by the Bank staff and consultants and results are discussed with the client government; then the Bank management and the government jointly determine the final disposition of the report. Between 1994 and 1998, a formal PER cost on average USD 272,000 and consumed 103 staff weeks to complete. In some cases an alternative approach is used. "Informal" PERs have been occasionally prepared by the Bank field missions in partnership with the client government as inputs in the preparation of governmental budgets and plans. This typology is less expensive and requires fewer resources: on average USD 76,000 and 30 staff weeks.

The IMF also adopts a country-by-country review of national public spending. The Fiscal Affairs Department (FAD) team monitors and analyses global fiscal trend, advises IMF member countries on fiscal issues and contributes to the design and implementation of IMF-supported programs. About 50 IMF fiscal economists are in charge of IMF surveillance activities, including analysis of broad fiscal development and of national macro and structural fiscal issues.

Like the World Bank, before starting any financial assistance programme the IMF conducts a detailed national expenditure review. The FAD usually completes its analysis of expenditure policy issues in a single mission and shares its preliminary findings and recommendations with the client government at the end of the mission. Once the IMF inspectors have deeply analysed the national finances, they elaborate a Memorandum of Economic and Financial Policies outlying the required policies and reforms that the government and the banks are recommended to implement in the following years. Even during the implementation of the financial assistance programme, the IMF periodically monitors the national balance sheets and the macroeconomic context to assess the programme performance.

The spending review approach is used also by some countries; in the United Kingdom (UK), as instance, the spending review has been part of governmental planning since the late 1990s. The reviews set the spending budgets for all areas of governmental

activity, including public services, social security and administration costs[11]. The purpose of this process is to allocate resources across all departments, according to government's priorities, on a multiannual basis[12], to define key improvements that the public can expect from these resources and to assess whether expenditure programmes comply with their original objectives.

Given the scale of UK's deficit, in occasion of the Spending Review 2010 an Independent Challenge Group of civil service leaders[13], accompanied by a number or external experts, has been appointed. Its objective is to provide independent inputs to the review process and to the possible options for deciding public expenditure and balancing priorities.

The following table illustrates the UK budgetary resources to each department planned for the forthcoming years. A relevant expenditure reduction for most of the departments can be observed, as a consequence of the priority of reducing deficit, in order to secure economic stability.

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[11] Source: http://www.hm-treasury.gov.uk/spend_spendingreview_introduction.htm

[12] The Spending Review 2010 covers four years, form 2011-2012 to 2014-15.

[13] Including, high level representatives of different departments, such as the Department of Transport, the Department of Energy and Climate Change, the Department for Business, Innovation and Skills and the General Finance, Foreign and Commonwealth Office.

Table 2: UK Spending Review 2010, Departmental Programme and Administration Budgets

	£ billion					Per cent
	Baseline	Plans				
Deapartmental Programme and Administration Budgets	2010-11	2011-12	2012-13	2013-14	2014-15	Cumulative real growth
Education	50.8	51.2	52.1	52.9	53.9	-3.4
NHS (Health)	98.7	101.5	104	106.9	109.8	1.3
Transport	5.1	5.3	5	5	4.4	-21
CLG Communities	2.2	2	1.7	1.6	1.2	-51
CLG Local Government	28.5	26.1	24.4	24.2	22.9	-27
Business, Innovation and Skills	16.7	16.5	15.6	14.7	13.7	-25
Home Office	9.3	8.9	8.5	8.1	7.8	-23
Justice	8.3	8.1	7.7	7.4	7	-23
Law Officers' Departments	0.7	0.6	0.6	0.6	0.6	-24
Defence	24.3	24.9	25.2	24.9	24.7	-7.5
Foreign and Commonwealth Office	1.4	1.5	1.5	1.4	1.2	-24
International Development	6.3	6.7	7.2	9.4	9.4	37
Energy and Climate Change	1.2	1.5	1.4	1.3	1	-18
Environment, Food and Rural Affairs	2.3	2.2	2.1	2	1.8	-29
Culture, Media and Sport	1.4	1.4	1.3	1.2	1.1	-24
Olympics	-	0.1	0.6	0	-	-
Work and Pensions	6.8	7.6	7.4	7.4	7.6	2.3
Scotland	24.8	24.8	25.1	25.3	25.4	-6.8
Wales	13.3	13.3	13.3	13.2	13.5	-7.5
Northern Ireland	9.3	9.4	9.4	9.5	9.4	-6.9
HM Revenue and Customs	3.5	3.5	3.4	3.4	3.2	-15
HM Treasury	0.2	0.2	0.2	0.2	0.1	-33
Cabinet Office	0.3	0.4	0.3	0.2	0.4	28
Single Intelligence Account	1.7	1.7	1.7	1.7	1.8	-7.3
Small and Independent Bodies	1.8	1.8	1.6	1.5	1.4	-27
Reserve	2	2.3	2.4	2.5	2.5	-
Special Reserve	3.4	3.2	3.1	3	2.8	-
Green Investment Bank	-	-	-	1	-	-
Total	326.6	326.7	326.9	330.9	328.9	-8.3

Source: UK Spending Review 2010

4.2 Verification procedure in the EU

No proper spending review exercise is implemented by the European Commission; on contrary, the Commission enforces a standard verification procedure for all the Member States which benefit from the Structural Funds. Verification is carried out only in the Convergence Objective regions[14], those which require more growth enhancement efforts, at three times: ex-ante, mid-term and ex-

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[14] In EU-27, the Convergence Objective regions include 84 regions within 18 Member States, characterised by per capita GDP at less than 75% of the Community average, and – on a "phasing-out" basis – another 16 regions with a GDP only slightly above the threshold, due to the statistical effect of the larger EU.

post. Regular verifications in different stages of the programming are deemed necessary to allow a certain degree of flexibility and adjustments that may be necessary for occurred changes in the economic environment.

The ex-ante verification, at the start of the new programming period, sets realistic and sufficiently ambitious targets for public structural expenditure in order to ensure the additionality of Structural Funds. At this stage, the country specifies the targets and the assumptions made about the macroeconomic situation, that have also to be consistent with those included in the stability or convergence programme. As a general rule, the level of expenditure to be maintained should be at least equal to the level of average annual expenditure in real terms in the previous programming period. As stated by the European Commission (2006a), "the objective is to set realistic but sufficiently ambitious targets for structural public expenditure in order to ensure the additional trait of the Structural Funds intervention".

The mid-term verification is performed three years after the approval of the programming document[15]. The Commission makes an assessment of compliance with additionality requirements and verifies that the level of expenditure agreed ex-ante is at least reached. In consultation with the Member State, the Commission may decide to modify the required level of structural expenditure, if the economic situation significantly changed from the one existing at the moment of the ex-ante verification.

Finally, the ex-post verification, at the end of the programming period[16], consists of the comparison of the ex-post actual level with the additionality target set ex-ante or revised at the mid-term verification. Reg. 1083/2006 foresees that, if a Member State fails to prove that it has respected the principle of additionality, the Commission may proceed to a financial correction in accordance with procedure laid down in art. 99 of the same regulation. In relation to the degree of non-compliance with these obligations, the Commission makes a financial correction by cancelling all or part of the Structural Funds contribution to the Member State concerned. By means of this new possibility (introduced for the first time in the period 2007-2013) the Commission may exercise some pressure on the Member States on an effective use of Structural Funds.

Member States are required to fill in standard tables, where the annual average spending is indicated for each category of eligible structural expenditure. Despite the fact that additionality is verified at the national level, spending originating not only from the budget of the State, but also of regions and municipalities, as well as public enterprises and public bodies, should be considered. The additionality principle is considered to be respected ex-ante if the annual average expenditure in the period 2007-13 is equal or higher than the annual average expenditure in the previous period. See for example the results of ex-ante verification carried out by Greece (Table 3)[17]. In case of the mid-term or ex-post verification, additionality is respected if the annual average of public eligible expenditure occurred since the start of the programming period has reached the level of expenditure agreed ex-ante, considering both the expenditure forecasted in the National Strategic Reference Framework (NSRF) and not. Hence, for the principle to be respected, the total of column 13 should be equal or higher than the total of column 7.

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[15] For the period 2007-13 it will be carried out in 2011.

[16] For the period 2007-13 it will be carried out in 2016.

[17] The results show that additionality in Greece was respected at the ex-ante stage.

Table 3: Table for the ex-ante verification of the additionality principle – summary financial table of Greece (in million EUR at 2006 prices18)

	Annual average 2000-2005 (actual)						Annual average in 2007-2013 NSRF (ex-ante)					
	Total	Of which public companies	Community Support Framework (CSF)/Single Programming Document (SPD)		Outside CFS/SPD	Total	Total	Of which public companies	NSRF		Outside NSRF	Total
	Nat. + EU	Nat. + EU	EU	Nat.	Nat.	Nat.	Nat. + EU	Nat. + EU	EU	Nat.	Nat.	Nat.
1	2= 4+5+6	3	4	5	6	7=5+6+2-4	8=10+11+12	9	10	11	12	13=11+12=8-10
Basic infrastructure	5.171,77	1.380,11	730,83	524,64	3.916,30	4.440,94	5.648,95	1.521,88	1.146,18	579,31	3.923,46	4.502,77
Transport	3.696,74	721,60	557,66	440,38	2.698,70	3.139,08	3.764,05	795,72	623,43	315,09	2.825,52	3.140,62
Telecommunications & information society	73,31	63,71	18,70	6,82	47,80	54,62	345,08	70,25	154,40	78,04	112,65	190,69
Energy	552,21	466,91	56,42	36,13	459,67	495,80	608,32	514,88	58,54	29,59	520,19	549,78
Environment & water	526,18	48,84	41,28	18,42	466,49	484,90	576,76	53,86	255,89	129,33	191,53	320,87
Health	323,31	79,05	56,77	22,90	243,64	266,54	354,75	87,17	53,93	27,26	273,57	300,82
Human resources	2.425,27	143,92	402,51	147,14	1.875,62	2.022,76	2.696,06	158,70	551,25	278,62	1.866,19	2.144,80
Education	1.837,08	0	239,28	86,50	1.511,30	1.597,80	1.923,30	0	241,64	122,13	1.559,53	1.681,66
Training	347,39	143,92	141,45	47,56	158,38	205,94	508,97	158,70	237,95	120,27	150,76	271,02
RTD	240,80	0	21,80	13,08	205,94	219028	263,79	0	71,66	36,22	155,91	192,12
Productive environment	683,10	19,29	194,43	96,34	392,33	488,67	720,92	21,27	171,62	86,74	462,56	549,30
Industry	384,42	16,40	75,16	39,90	269,36	309,26	353,20	18,08	91,67	46,33	215,21	261,54
Services	67,84	2,89	13,26	7,04	47,54	54,58	62,33	3,19	16,18	8,18	37,98	46,16
Tourism	230,84	0	106,01	49,40	75,43	124,83	305,37	0	63,77	32,23	209,37	241,60
Others	1.461,99	0	75,47	31,37	1.355,15	1.386,52	1.601,53	0	137,79	69,64	1.394,10	1.463,74
Total	9.742,13	1.543,32	1.403,24	799,49	7.539,40	8.338,90	10.667,46	1.701,85	2.006,85	1.014,30	7.646,31	8.660,61

Source: Hellenic Republic, 2007

Note: For the mid-term and ex-post verification, the Member States should enter in columns 2-7 the annual average expenditure set ex-ante, and in column 8-13 the actual average expenditure occurred in the current period.

4.3　　Current debate within the EC

From the reports assessing the verification of additionality in the past period (European Commission 2006b, 2007, 2009a), it emerges that in general Member States comply with the Additionality principles of maintaining the level of expenditure of the previous period and of fulfilling the target levels determined ex-ante. However, some exceptional cases have been allowed. For example, German Objective 1 regions have significantly reduced their structural expenditure since 1989: in the programming period 2000-2006 they allocated only 85% of the target level of expenditure and for the 2007-2013 period the average annual structural expenditure in real terms decreases by 27% as respect to the previous period. The Commission agreed at decreasing the level of structural expenditure since its exceptional past spending on the reunification of the country. Other items of expenditures that have been considered extraordinary and which have not been taken into account in settling the level of expenditure across the period 2007-2013 are for example the 2004 Olympic Games in Greece, the construction of a major hospital in Malta and some transport spending in Hungary funded with revenues from the privatisation of public enterprises.

This kind of exceptions represents at the same time one of the main strength and shortcoming of the current system of verification of additionality. From one side, the exceptions allow the system to be flexible and to take the specific characteristics of each country into account in the enforcement of additionality. Also the possibility of the mid-term modification of the level of structural expenditure is aimed at guaranteeing flexibility, and hence the reliability of the expenditure targets, by having in regard the economic cycle and the national peculiarities and needs. From the other side, exceptions prevent the comparability of results, both across Member States, when exceptions regard single areas, and across programming periods, when changes in the whole methodology occur, such as the decision to make compulsory the inclusion of expenditure by state-owned companies since 2007.

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[18] For Member States whose currency is not the euro, the annual average exchange rate of 2005 is to be used.

Apart from the comparability issue, the European Commission[19] identified other problems which prevent from effectively verifying the enforcement of the principle of additionality. These problems are the great heterogeneity of the information provided (for example different reference years for the deflators), difficulties in the verification of the data reliability and to capture all the relevant eligible expenditure in Member States, especially at regional and local level.

Making the verification procedures of additionality transparent, reliable and comparable across EU Member States and different programming periods is a challenge that pertains the debate on whether and in which way it is possible to measure and evaluate the effects of Structural Funds. Actually, better verification of the enforcement of the additionality principle would provide a more robust basis for discussions on the real effect of EU additional funding on the recipient countries and regions. Recently the Commission has stressed its intention of engaging "in a more in-depth and permanent dialogue with Member States on how to overcome the shortcomings and improve the application of the principle" (European Commission, 2009).

In an internal note of the European Commission circulated at the end of 2009, as the result of a discussion between different units within the General Directorate of Regional Policies[20], it is recognized that the current system of verifying additionality should be fundamentally reviewed. Theoretically, one simple solution to the shortcomings affecting verification could be to reduce the need of monitoring the EU funds allocation, by increasing the co-financing rates, in order to give more responsibility to the Member States. However, the Commission recognised that such an option would be particularly difficult to be pursued from a political point of view and, in the end, it is unfeasible.

On a more realistic ground, the Commission proposed two different policy options for improving the method of verification in future. Both of them would require to combine the verification of the principle with the provision of regular mandatory information submitted by Member States. In the first case, the information to be used for the verification would be linked to the indicator of Gross Fixed Capital Formation (GFCF) monitored within the context of the Stability Growth Pact (as suggested by Barca, 2009). This system would allow to directly link the enforcement of additionality to the macroeconomic cycle; conversely, it is acknowledged that the GFCF does not completely reflect the equivalent structural expenditure eligible to the Structural Funds[21]. In the second case, additionality would be verified by using the information provided under the current Transmission Programme of the European System of Accounts (ESA-95), according to which Member States provide data of public expenditure classified under the COFOG (Classification of the Functions of Government) system. From one side this method would allow to consider a larger number of expenditure categories, to proxy the equivalent structural expenditure, from another one it presents a weakness, i.e. the lack of the direct link with the macroeconomic context.

In addition to the policy option selection, another key issue under discussion is how to set the baseline, options being the historical "equivalent structural expenditure" or a percentage of national GDP. In the latter case no mid-term review would be needed since the baseline would automatically adjust to cyclic fluctuations. Moreover, the 27% decrease of the German level of average annual structural expenditure in 2007, justified by its exceptional spending in the period 2000-06, raises the question of whether the Commission should also consider the absolute figures of public investment, rather than just comparing the actual and past level.

4.4   Proposals for a change

We agree with the European Commission that the existing shortcomings in the current verification procedures could be overcome only with a change in the approach. In proposing possible solutions, the results of the literature review of the effects of additionality on the economy of the beneficiaries are taken into account. Actually, to be an effective tool in assessing the enforcement of additionality, verification should not disregard the existence of the distortive effects of additionality. The current verification mechanism, that looks backwards to general past public expenditure trends in order to set a verification benchmark, does not make any real attempt to look more deeply in those expenditures, in order to distinguish among direct and indirect effects of additionality. Hence, such mechanism is unable to deal with the complexity and multidimensionality of the forces at play when additional funds are injected in an economy.

In order to capitalize on the findings of the literature review and on the experience of other institutions, the main avenue would be to make the standardised verification procedure currently adopted by the European Commission more similar to a country-by-country

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[19] The problems in verifying additionality were presented for the first time in European Commission (2009).

[20] In particular the discussion involved representatives of the "Economic and quantitative analysis, additionality unit", of the "Evaluation unit" and of different Member States.

[21] As instance, the GRCF indicator does not include transfers to firms.

survey. This approach could be implemented in two ways. A first method, similar to the one adopted by other international organizations and already existing in some Member States, would be to establish a formal spending review exercise.

A spending review process at EU level would imply a negotiation country-by-country of the targets on Member States' expenditures and of the most suitable monitoring indicators. The main advantage of this approach would be attained in terms of flexibility, as the country specific economic, fiscal, political and institutional characteristics could be better considered. Yet a spending review is a highly technical task and in the current political and economic circumstance it is not clear whether the European Commission could be empowered with the necessary resources and skills to perform this activity across all the Member States. Additionally, the spending review process would make comparability of results across countries even more difficult.

A second method, that would be midway between the current one and a spending review exercise, could be to set additionality targets based no more an aggregate spending levels, but on aggregate and disaggregate targets as ratios of expenditures to GDP as well. Under this method each Member State should ensure to state: (1) a target of overall public spending on a suitable harmonized definition of expenditure; (2) a breakdown of the target by a core set of sectors, such as transport or environment. In this way, while the overall target as percent of the GDP (in PPS Euro) can be considered as an ex-ante promise to sustain public investment (with built-in flexibility for the business cycle), the disaggregated sectoral and possibly regional targets would limit the scope for opportunistic substitution effects.

A default clause for renegotiation under specific circumstances could also be foreseen. Thus, each Member State should ensure the European Commission that, while receiving EU support, public investment (or a wider suitable aggregate of productive government spending) should be not less than a certain percentage of GDP and that public investment in a specific identified sector should be not less than a given percentage of total expenditure. In principle, a regional pattern of expenditure should also be the negotiated target for additionality verification purposes, in order to reduce geographical substitution effects. One possible objection against this second method is that, despite its simplicity, it requires disaggregated data (possibly under the COFOG classification of public expenditure plus regionalized accounts) that currently may be unavailable in most Member States.

Thus, a trade-off exists. A country-by-country spending review approach is flexible and can be based on national accounts that, even if not necessarily standardized and comparable across the EU Member States, can be improved and provided in the more suitable form for the specific purpose of setting additionality targets. The possible lack of coherence across countries of public finance accounts is not per se an impediment of a thorough assessment of the specific conditions of a given country. As said above, this approach requires however that the European Commission is provided with the necessary skills, e.g. a team of professionals with the ability to collect, interpret and discuss the existing government statistics in order to lead the preparation of an Additionality Benchmark to be negotiated between the Commission and the Member States. If the Commission is unable or unwilling to go in that direction, it should be prepared to ask the Member States to provide to Eurostat a standardized set of accounts in order to implement simple accounting rules, which would however be more helpful than the current ones.

Whatever the final decision will be, the risks related to having an inadequate monitoring of public expenditures in the Member States have been sufficiently prominent in the recent financial turmoil in the Euro-zone to suggest that a reconsideration of the evidence available to the European Commission is necessary. In addition, it has to be considered that the verification linked to official statistics could potentially enable the assessment of the leverage effect of cohesion policy funds on national public expenditures on the whole EU territory, in case a political decision is taken for a verification covering all the EU regions.

5. Conclusions

Though vastly debated, from different perspectives and theoretical underpinnings there seems to be a broad consensus about the potential positive impact of public spending and additional public funds (either national or supranational, such as the EU funds) on long-run economic growth. However, the actual "net" effect of additional funds on national public spending and ultimately on growth is varied, in consideration that public spending decisions are influenced by a broad range of endogenous and exogenous factors of different nature (namely economic, institutional, political, fiscal): such factors influence the recipient's reaction to additional funds and so the direction and magnitude of their ultimate effect.

In fact, the literature on the substitution effects of additional funds confirms that the freed up funds could be used for other purposes and the total amount of investment does not correspond to the sum of the national planned expenditure and additional external funds. The degree of substitution increases in case of weak institutions and in presence of budgetary restrictions and financial difficulties. The literature review reveals also that worldwide some sectors can be more fungible than others, meaning that investments in certain sectors are likely to be used for other scopes.

The quality of institutions influences also the possibility of fund displacement. Assuming the government is welfare-maximising and benevolent, the additional public funds will be directed towards the most growth-enhancing sectors. Yet, if the government is not completely benevolent, but it is instead influenced by special interest groups or other political factors, the additional public funds may be distorted, irrespective of their growth potential. Besides the displacement effect occurring at the composition of investment demand, multi-level governments pose also the issue of fund displacement across geographical areas, in case that the recipient areas differ from those originally identified as target of the investment.

The theoretical literature suggests also that, even if additionality does not affect local taxation in a direct way, there could be a positive indirect effect on the level of taxation though the redistributive properties of additional public funds.

To sum up, although with some qualifications, the principle of additionality is important in ensuring an impact of the EU Cohesion Policy funds. Injecting EU funds into regional and country economies, in the form of grants, possibly with a leverage effect on other grants and on loan (including private) finance, is potentially a growth-enhancing intervention in the medium-long run. Thus, there is still a clear scope for having a framework of intervention that offers EU funds as additional finance for growth.

However, the current definition of what should be considered "additional" and how to verify the requirement falls short of ensuring confidence that the growth impact of the funds is maximized. In the operations of verification there is not standard methodology and the information provided are very heterogeneous in terms of quality and usefulness. Moreover, the methodology differs over programming periods and comparability among Member States and planning periods is hampered. Again there are technical difficulties in capturing relevant eligible expenditure, because expenditure are at regional level while verification is at national level. As a consequence, the overall verification of additionality remains an ad hoc exercise which is not part of a regular monitoring system of government accounts and is unable to properly verify where additional funds are allocated.

Given these shortcomings, the authors suggest that the European Commission should move away from the current verification approach, in order to make verification a tool that could contribute to evaluate the overall effects of Structural Funds.

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