

ARE SUBSIDIES REALLY NEEDED? THE CASE OF EU REGIONAL POLICY IN THE CZECH AND SLOVAK REPUBLICS

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Introduction

The idea of public support programmes to strengthen local economic performance is widely recognized and used by many national or local governments. The basic rationale for support programmes could be found in several economic theories. The support arguments for subsidies come from existence of externalities and market failures see for example [31], for regional conditions in the Slovak Republic see for example [24], [25]. The private companies do not want to invest into activities with positive externalities (since they are not able to absorb all the benefits), but these investments are important for society itself, so the governments must subsidy such an investment to be interesting for private enterprises [23]. Another barrier arises due to risk adverse views of financial institutions. Some firms can deny access to credit despite the fact that they have reasonable projects, but without proper financial coverage.

However, subsidies must also fulfil certain criteria to be valuable for economic growth and prosperity. It is very difficult to correctly set up and evaluate public support interventions. The evaluation of public support should identify whether, and to what extent, the state or regional support aid schemes have been able to reduce the targeted market failure. This approach involves quantifying both the market failure and the influence of the public support scheme on the market failure. However, it is quite impossible to quantify market failure, let alone the impact of a policy measure on the extent of that market failure [22]. We could find that many jobs have been created in supported companies or how high growth they achieved

but key questions are different – how many jobs would be created without this support or with other use of this support [20]. This leads us to the question of effectiveness and real need of public support policies.

Support subsidies could have various forms [3], but we will concentrate on public support programmes. These programmes are the main form of regional policy instruments in the recent years. Some main features of these programmes are competitiveness in project selection and evaluation, selection of several different projects and usually longer implementation period with several calls. They are also not negotiated subsidies (e.g. subsidies for foreign investors).

Another important aspect of this kind of support is related especially to regional policy. The main goal of such programmes is to support development of lagging part of the country or group of countries. This is also the case of regional policy of the European Union. This policy should be no longer viewed as redistributive policy, but rather the development policy [9] with ability to define investment priorities, which are important for region, but companies do not want to invest into them alone. Otherwise, the whole regional policy could be only in the form of unconditional cash transfers [4]. As summarized, the redistributive function is not sufficient for achievement of efficiency, effectiveness and social inclusion in the regional policy of the European Union. To achieve effectiveness of subsidies we must reassure that public sources are spent on activities otherwise not realized by private sector. This ineffectiveness is called “deadweight” effect and we will analyze this effect in the case of the Czech and Slovak Republics. In these countries, no detailed

analysis on the deadweight effect of subsidies of private companies has so far been conducted.

The main purpose of this article is to measure the deadweight effect and analyze the internal and external conditions under which subsidised projects would be abandoned without public assistance in case of the Czech and Slovak Republics. The article is organized as follows. In the first part we look more closely at the definition of deadweight effect and previous studies analyzing it. In the methodology part we discuss different approaches how to measure this effect and we introduce methodology for our research. We also discuss potential problems

with interpretation of the results. In the final part we present the results of our research and some policy implications.

1. Deadweight Effect

Deadweight effect is one of the forms of ineffectiveness in additionality principle. The additionality is one of the key principles of regional policy of the European Union. Applying this principle the public support, as market failure correction should be used only if really needed and adds value to regional development in supported region. Tab. 1 summarizes all types of potential ineffectiveness within this principle.

Tab. 1: Type of Ineffectiveness in Applying Additionality Principle

Type of effect	Description
Deadweight	The proportion of total outputs/outcomes that would have been secured anyway without the public support
Displacement	The proportion of outputs/outcomes that are reduced elsewhere in the target area
Substitution	This effect arises from firm substitutes of their own expenses by public support e.g. a firm substitutes a jobless person to replace an existing worker to take advantage of the public sector assistance
Leakage	The proportion of outputs/outcomes that benefits those outside the target area of the intervention

Source: BIS (2009), adjusted by authors

Deadweight could be defined as outcomes of the projects which would have occurred without public intervention. In our research deadweight is understood as proportion of projects planned to be realized also without obtaining support from the EU funds. One of the main goals of intervention should minimize this effect by focusing the finance on projects that would not be implemented without public support. This effect is usually the biggest one from the above mentioned ineffectiveness and support policy designers must pay adequate attention to diminish it.

In reality, it is impossible to fully eliminate deadweight effect. One of main issues here is asymmetry of information [27]. The government or other public agencies providing grants will never have enough information to be sure the project will not be realized without their support. The enterprises will always have a tendency to use public support for their own benefits. They

will try to prepare their projects in the way to persuade evaluators on necessity to support them.

The opposite problem is “good choice paradox” [33]. The government tries to select the best projects for support not the projects that really need a support. There are two basic reasons for this. Firstly, executive agencies try to show the best direct results from their support programmes. The more direct jobs from programmes are created or more exports are achieved, the better for politicians responsible directly for these programmes and for sustainability of responsible agencies. The more detailed consequences of programmes are evaluated very rarely, especially in the Central and Eastern European countries. But it is very probable that these projects are projects with the highest deadweight effect [35]. This should be eliminated by adjusting evaluation criteria to be more sensitive to real needs of the region and it selects to support enterprises to

bring new development into the region. Most of aid schemes really contain only very limited criteria for the access to real need of the support for the region.

Empirical studies monitoring this effect are rather limited. Most of the studies were done in Western European countries; the studies from the rest of the world are very scarce. Most of the recent studies estimate the effect between 30–40 %. The summary of most relevant studies is in the table 2 below. The lowest deadweight effect of 20 % was identified by [41] in Great Britain. On the other hand the effect could be found in the study of [16] with more than 70 % of deadweight. The total level of this effect is very high, indicating more than one third of public resources spent on activities that also happened without this support.

Differences could be found not only in total deadweight estimations in the studies, but also among different kinds of the support of enterprises. BIS [3] identified 45 % deadweight in direct support programmes to enterprises compared to 33.9 % in investment into physical infrastructure. Internatiolization of enterprises was the most effective (only 26% deadweight) among direct support of enterprises programmes. The similar results could be found in study [7]. The deadweight in direct support programmes was 36 %, compared to 15 % in education programmes. Despite the deadweight effect, the type of supported activities could primarily depend on goal of particular regional policy. Some authors [26] showed that the investment subsidies tend to decrease employment. On

the other hand employment subsidies stimulate employment. If the main goal for regional policy is oriented on unemployment, there should be support of the employment grants in the first place.

Studies also try to identify reasons for deadweight. Found deadweight effect to be statistically significantly dependent on region development position and the length of firm existence [35]. The EU evaluation also suggests that the deadweight tends to be higher in richer regions.

Another important variable is the size of enterprises. In Hungary there was 90% deadweight in the group of large enterprises compared to 50 % in SME [11]. Large enterprises usually do not need a public support and this support only represents additional benefits, but it is not decisive for the project [18]. But for SME the support in research activities is very important for their final decision to implement the project. The size of enterprise as well as grant type and number of earlier grants have a significant impact on the likelihood of a firm to report deadweight [17]. This is mainly explained by the fact that firm's access to finance is likely to increase with business size [40].

The authors [16] analyzed the ownership of company on deadweight. They found foreign companies achieved lower level of deadweight (7 % less), but statistically not significant. However, we must mention that studies did not consist of the variables that could cause deadweight effect. Some studies confirm the importance of the age of firm [35] received but some do not [17] and we could find several other examples in the mentioned studies from the Tab. 2.

Tab. 2: Studies Measuring the Deadweight Effect

Study	Country	Deadweight effect
Lenihan and Hart (2006)	Ireland	73.2 %
Sheehan (1993)	Northern Ireland	59 %
De Koning (1993)	The Netherlands	40 %
EC (2010)	Italy	50 %
IEU (1999) Micro Enterprise Supports	Ireland	45 %
Lenihan and Hart (2004)	Ireland	42.6–55.8 %.
Davenport et al. (1998)	New Zealand	37.5 %
Stierwald and Wiemers (in GEFRA 2010)	Germany	28–35 %
Wren (2005)	Great Britain	20 %
BIS (2009)	Great Britain	43 %
Tokila (2010)	Finland	35.9 %

Source: mentioned studies, summarized by authors

As previous studies show the deadweight effect is quite substantial and creates pressure on the public sector to be more effective in the management of their support programmes. Especially this is the case in present economic crisis with strong negative influence on public revenues and the need to cut public debts.

2. Methodology

There are several methods how to measure deadweight effects. The main problem with all of them is counterfactual situation. It means we try to find out what happens in the case of non – intervention and its always hypothetical question [1]. We are not able directly to compare these two situations to analyze “the real difference” of applied public support.

Most of the studies were based on interviews or surveys with enterprises obtaining public support (e.g. [16], [35], [36]). The degree of the deadweight effect of the project is estimated by posing a hypothetical question of what would happen if the project were not subsidised. For example [35] used five answers to this question – the project will be abandoned, the project will be implemented on a reduced scale, the project will be implemented on a reduced qualitative level, the project will be implemented at a later date and the project will be implemented unchanged. Then they add to each question a deadweight from 0 (zero deadweight) to 1 (full deadweight). We changed this methodology and mainly due to time aspect. During preliminary research we found out that there were very long time delays in the evaluation process for subsidies, so most of enterprises reported no time savings, but time delays in the project implementation due to public support. So we asked only the question regarding the financial aspect of the project support: “If you did not get public support, how big part of the project budget do you estimate to spend on planned activities?” We asked this at the end of their approved project implementation process. We complement this survey with several interviews with supported companies to be able to understand better the reasons why they try to use public support programmes. The summary of statistical evaluation of this question is in the table 3, later in the text.

Another possibility how to evaluate deadweight is to ask unsupported projects which fulfil all the criteria how to obtain support, but

there were not enough funds in that particular call to support them. The advantage of this method will be the ability to see the reality not hypothetical question about what they implemented from the project. Unfortunately, information about these projects is no longer available from the government agencies granting the subsidies. One pilot study with these companies shows lower deadweight effect than in the case surveys of approved projects [32]. This could be expected result taking into account the mentioned “good choice” paradox.

In some cases control group of unassisted enterprises is created [37] trying to use difference in different techniques [21] to compare their development before and after support within both groups. It is extremely difficult to properly construct this group, mainly because mutual influence between these groups. For example if you select to support bakery and you choose another bakery to control groups you are not able to answer the question, if the support itself (giving an advantage to one of them) or other external characteristics changed the development path of these two enterprises. Another problem with control groups could be the impossibility to construct it, because support enterprises could have unique structure or be somehow else different from the rest of enterprises (selection bias is in the selection process itself). This is specially the case of innovation and research support schemes, where very often best companies with previous research activities are supported and it is not possible to find adequate control group. The methodology of control groups was used e.g. by [28] or [39].

We conducted our survey on several calls for projects (KaHR-111DM-0901, KaHR-111DM-0801, SIA 2009 121 01, Rozvoj I and EDUCA) from 5 different operational programmes. We made a survey and obtained results from 414 enterprises (291 from the Czech Republic, 123 from the Slovak Republic). This sample was representative from the point of selected programmes and countries. The survey was conducted during the year 2012. Only privately owned companies were included in the survey. The public companies as e.g. hospitals were excluded, because even if there is deadweight in these companies, the outputs will serve the public interests, so we cannot consider this directly as ineffectiveness of

public spending. Answers to the question: "If you did not get public support, how big part of the project budget do you estimate to spend on planned activities?", could be on the scale from 0 % (it means project would not be realized at

all without public support) to 100 % (it means project would be fully realized even without public support). The summary of the answers for research question is in the table 3.

Tab. 3: Statistical Distribution of Answers to the Research Question

Deadweight level	Number of answers (Czech Republic)	Number of answers (Slovakia)
0 %	94	48
1–10 %	18	6
11–20 %	25	5
21–30 %	25	14
31–40 %	4	6
41–50 %	39	18
51–60 %	8	1
61–70 %	13	3
71–80 %	9	1
81–90 %	1	3
91–99 %	0	0
100 %	55	18
Total average deadweight	36.8 %	

Source: own research

We statistically evaluated the surveys and estimated the deadweight effect in different categories. After this, we used logit regression model to identify key characteristics that influence the deadweight effect. Before constructing the model we used stepwise selection to identify only statistically significant characteristics. These methods are appropriate to such evaluation [34], [29] and were used also in several previous studies [16]. Sometimes there were used probit instead of logit models, but these models show very similar results [17].

The selection of factors possibly influencing the deadweight was also inspired by several previous studies. We must leave away two commonly used characteristics – number of employees and turnover of enterprises, because some evaluated programmes were open only for SME and some also for bigger companies, so the results for these two

characteristics could be biased by this. We divided model variables into three main groups, which could influence the deadweight – characteristics of enterprise, project and region (external environment). The Tab. 4 summarizes all used variables in the model. This was the first study conducted in two different countries and tries to identify if this influences the results of a model compared to previous studies.

3. Results

The results of our model could be found in the following tables. The Tab. 5 shows the results of stepwise selection. We found out only two variables that were statistically important – the amount of support granted and type of projects (investments). All other variables were not statistically significant on more than 5% level. Tab. 5 shows results of statistical significance of the constructed model.

Tab. 4: Independent Variables Used in the Logistic Regression Analyses

Characteristics of enterprise	
New firm	1 if company was less than 4 years old, 0 otherwise
Foreign Ownership	1 if owned by a foreign owner, 0 otherwise
Personal Ownership	1 owned by one person, 0 otherwise
Characteristics of project	
Amount granted	Total amount of grants, divided into 5 categories (code – BUDGET_CAT in the following tables of results)
Investment project	1 if investment project (or „hard“ project – project aimed at buying new technology), 0 otherwise (or „soft“ project – aimed at the education of workforce), (code – TYP_INV in following tables of results)
Characteristics of region	
% of unemployed in the district	Level of unemployment in the district of residence of applicants
Region	NUTS III regions according to the residence of applicants
City size	City size of subsidies company headquaters (4 categories)
Country	1 if from the Czech Republic, 0 otherwise (Slovak Republic)

Source: Authors

Tab. 5: Stepwise Selection Results

Summary of Stepwise Selection								
Step	Effect		DF	Number In	Score Chi-Square	Wald Chi-Square	Pr>ChiSq	Variable Level
	Entered	Removed						
1	TYP_INV		1	1	59.6942		<.0001	TYP_INV
2	BUDGET_CAT		3	2	18.8755		0.0003	BUDGET_CAT

Source: output of SAS Enterprise Guide 4, own research

This shows one very interesting fact. The variables related to project itself have much higher influence on deadweight level than other variables related to a region or an enterprise. The type of grant and amount of support received shows as the most important to determine deadweight effects. The amount of support received is not a surprised result. The higher the grant support was, the less likely the enterprise would realize the activities without this support. The following interviews clearly show that there were project proposals of an enterprise behind its present scope of activities. They clearly try to get the support to help them to reach “higher” level of their entrepreneurship, e.g. to buy a new machine equipment,

otherwise too expensive for them, that allows them to enter new market segment.

The type of investment shows different results than in previous studies in the Western European countries. Based on interviews with some applicants we think the reason under-values the investments in educational activities. Basically typical applicants in the investment support schemes are companies which try to replace presently used equipment with new ones, mostly as a part of their “normal” renewal of technological equipment. These companies will usually realize their replacement without public support. On the other hand typical applicants for educational grants are companies that carry out the education of workforce, understand how

it is important, but have limited budget for it. They try to use an opportunity to cover their costs for the kind of education they have never had their own funds for. So without the support they usually dramatically reduce the amount spent on educational activities (or come back to previous level of their expenditures on education

of workforce). Then the amount of funds required for grant by an applicant in investments subsidies is usually not higher than their two or three years annual budget for such activities. Compared to education grants where the amount required is in many cases higher than five years' company budget on this priority.

Tab. 6: Parameters and Statistical Significance of the Model

Analysis of Maximum Likelihood Estimates						
Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr>ChiSq
Intercept		1	-3.0099	0.5940	25.6789	<.0001
TYP_INV	0.0	1	-0.6952	0.1378	25.4417	<.0001
BUDGET_CAT	01:low -116813.2	1	2.1187	0.6395	10.9782	0.0009
BUDGET_CAT	02:116813.2-240230.135	1	2.3658	0.6391	13.7044	0.0002
BUDGET_CAT	03:240230.135-764149.14	1	2.0923	0.6474	10.4456	0.0012
Testing Global Null Hypothesis: BETA=0						
Test	Chi-Square	DF	Pr>ChiSq			
Probable Ratio	83.8691	4	<.0001			
Score	71.4221	4	<.0001			
Wald	49.5945	4	<.0001			

Source: output of SAS Enterprise Guide 4, own research

The Tab. 7 shows the odds ratio estimates for statistically significant variables. As you can see there is more than four times higher probability of deadweight in case of investment type of

grant. The probability of full deadweight in the project with the budget up to EUR 116,000 is eight times lower than the probability of project with the budget higher than EUR 240,000.

Tab. 7: Odds Ratio Estimates

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
TYP_INV 0.0 vs 1.0	0.249	0.145	0.427
BUDGET_CAT 01:low -116813.2 vs 04:764149.14-high	8.321	2.376	29.138
BUDGET_CAT 02:116813.2-240230.135 vs 04:764149.14-high	10.653	3.044	37.279
BUDGET_CAT 03:240230.135-764149.14 vs 04:764149.14-high	8.104	2.278	28.822

Source: output of SAS Enterprise Guide 4, own research

Except the model, we statistically evaluate the achieved level of deadweight in the different categories. Some of the results are summarized in the table 8. The total deadweight effect was 36.8 %, so more than one third of public support was used on projects that were realized also without this support. This is comparable number to other studies from Western Europe and there is no significant difference.

In spite of the characteristics of regions that were not statistically significant, they are related to the type of projects. It shows that more educational projects are from more developed regions and bigger cities. The effect of external environment could also be diminished because two countries with different development conditions were evaluated.

Very interesting was the deadweight effect from newly established enterprises. It was slightly higher than average deadweight. Compared to established enterprises, the levels of deadweight effects were very similar in both investments and educational types of project. It seems these companies need to invest into labour force at the beginning of their existence with or without public support, so the deadweight effect is higher in these projects than in established enterprises. On the other hand, the bigger investments into technology, the less affordable are the established enterprises. Therefore without public support they are less likely to realize the proposed projects. We also found out lower (27.85 %), but statistically not significant deadweight effect in foreign enterprises (see Tab. 8).

Tab. 8: Deadweight Effect for Certain Specific Groups of Enterprises

	Deadweight effect %
All enterprises	36.8%
All enterprises with less than 4 year existence	38.8%
Enterprises with less than 4 year existence (investments projects)	39.6%
Enterprises with less than 4 year existence (education projects)	35.4%
Foreign enterprises	27.85%
Enterprises from the Slovak Republic	33.15%
Enterprises from the Czech Republic	38.46%
Educational projects in the cities with under 5,000 inhabitants	22.05%
Investments projects in the cities with under 5,000 inhabitants	62.19%
Investments projects in the cities with over 50,000 inhabitants	62.17%
Educational projects in the cities with over 50,000 inhabitants	19.27%
In regions with unemployment over 17 %	33%
In regions with unemployment under 7 %	39.78%
Enterprises with investment projects	53.4%
Enterprises with educational projects	22.4%

Source: own research

Conclusion

We found out that more than a third of public support in the EU regional policy programmes was spent on the projects which will be realized even without this support. The main variables influencing the deadweight effect were the amounts of grant received and the type of grant. Investment grants have much higher deadweight than

educational or employment grants. The more financial funds enterprises obtained through the grant, the more deadweight effect occurred. All other variables were not statistically significant in our model. Applying this to regional policy, the higher support for educational projects leads to the lower deadweight effect. The support of technology transfers looks more appropriate for newly established companies.

The deadweight effect could substantially limit the effectiveness and efficiency of programmes. However, the deadweight is only one possible ineffective use of public support. In order to correctly evaluate impact and effectiveness of programmes, we need to make a complex evaluation based on several micro studies of different effects. There also could be other negative effects. Even if there is 'zero deadweight', and all the firms indicate that in the absence of grant assistance they would not have been able to realize projects, there is the threat that the assistance given to one firm could displace jobs elsewhere in the region [17] and thus the whole region effect of support will be negative. On the other hand, even in the existence of deadweight spending, public subsidies may have a variety of other positive impacts on regional development, then also other implications that investment subsidies might have for economic activity, employment, growth, cooperation or networks must be evaluated.

In addition, comparison of ex ante analysis with ex post information could provide valuable information on appraising the deadweight effect of a project [17]. It could help the identification of inefficiencies so that the support scheme could be improved at least in some aspects.

The change of criteria in evaluation process to avoid the deadweight could be recommended for policy actions. The present criteria are much more oriented to select „the best performance“ projects. Such projects usually are the best candidates for the deadweight effect. More relevant indicators and criteria should be applied to analyse the need of the project for enterprise and especially for region where support is provided. Another possible policy implication could be more oriented on newly established enterprises in the transfer technology projects. Stronger orientation also can be recommended on „soft“ educational projects. The total level of deadweight (36.8 %) also raises the question of effectiveness of direct support of a private enterprise as such. One third of the funds is spent ineffectively. If we add problems with possible distortion of the competitive environment in this support, more orientation of public support to more general activities supported business environment could be recommended.

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Abstract

ARE SUBSIDIES REALLY NEEDED? THE CASE OF EU REGIONAL POLICY IN THE CZECH AND SLOVAK REPUBLICS

Miroslav Šipikal, Peter Pisár, Viera Labudová

Regional policy is one of the most important EU policies. Large amounts of resources used for support programmes automatically put forward the question of their effectiveness and efficiency. These aspects can be examined both from macro and micro perspectives. In this article we focus on one aspect of inefficiency – "deadweight". This effect occurs if public subsidy is spent on activities that would have happened even without these resources. We examine the effect on selected projects for small and medium-sized enterprises in the Czech and Slovak Republics. The article consists of four parts. First we discuss theoretical background for using the subsidies as development tool. Then we look more closely on the definition of deadweight effect and previous studies analyzing it. In the methodology part we discuss different approaches how to measure this effect and introduce methodology in our research. We also discuss potential problems with interpretation of the results and in the final part we present the results of our research and some policy implications.

We found out that the deadweight effect is quite substantial and represents more than 35 % of public subsidies. The project characteristics itself (type of project, amount of budget) has the highest significance for the deadweight effect. The deadweight effect is higher for investments projects compared to the support of education or employment. The probability of the deadweight effect is also decreasing with the total amount of subsidies.

Key Words: Deadweight effect, public support programmes, structural funds, regional policy, regional government, regional competitiveness.

JEL Classification: R58.