CHARACTERISTICS OF GOVERNMENT SUPPORTED FIRMS

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Abstract. Governments all over the world grant different types of subsidies to firms which are said to have a lack-of-capital problem. However, it is unclear if governments have the information and motivation to target firms which have problems to finance profitable project via the private capital markets. Based on hypotheses derived from interest group theory, this paper compares (econometrically) characteristics of Swedish firms targeted for selective regional policy supports with randomly chosen non-supported firms. The results give some support for an interest group interpretation of the allocation of subsidies.

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1. INTRODUCTION

In Sweden as well as in other countries and in the EU, public subsidies have been granted to firms in order to increase or uphold growth and employment in regions which are lagging behind. To motivate the subsidies in Sweden, basically two arguments have been used. The first one is a social argument which says that the government should help firms with economic problems in order to uphold the level of employment in backward regions. This argument was especially important in Sweden during the economic crisis in the 1970s and early 1980s. The second argument, which is more important nowadays, says that it is the role of the government to reduce different market failures and especially to mitigate lack-of-capital problems that hinder profitable firms from investing in profitable projects (for a further discussion, see e.g. SOU 1996:69 and section 2 below).

Although the lack-of-capital argument might justify government interventions in industry, yet from the point of view of economic efficiency it is not clear, for at least two reasons, whether public resources will in fact be allocated to firms that have problems in raising enough capital via the private capital markets.

If capital markets are functioning imperfectly, above all due to informational asymmetries between lenders and borrowers, then different forms of government intervention might be justified (see Grossman, 1991). However, because it is difficult or even impossible for the governments to know which firms to favour Grossman concludes (p. 115), "… a cautious policy response to alleged capital market imperfections seems advisable". In addition to this, interest group theories assert that, irrespective of the information problems governments have, politicians allocate subsidies (as well as other political favours) optimally from a political point of view, in the sense that they try to maximise votes and at the same time to give interest groups what they want. See e.g. Peltzman (1976), Olson (1982), Mitchell & Munger (1991) and Magee (1997). If the interest group approach to politics correctly describes political decision making, then this implies that subsidies might not be used to correct market failures and might consequently not be allocated optimally from the point of view of economic efficiency. For example, tariffs, regulations and subsidies might to a larger extent favour inefficient firms with economic problems because this type of firm has a stronger incentive to seek some type of public protection/support (see e.g. Hillman, 1982, and Magee, 1997).[1] The possibility of receiving some kind of public protection/support gives industries and other interest groups an incentive to also invest large resources in unproductive rent-seeking activities such as lobbying (see e.g. Tollison, 1997).

An important line of research in the interest group literature has been to empirically test interest group theories in order to assess their relevance.[2] However, relatively few empirical results exist for the influence of interest groups on public policy for countries outside the USA (see Potters & Sloof, 1996). To fill this gap, the purpose here is to look at the politics behind Swedish regional producer subsidies and try to understand why some firms are granted subsidies while others are not. Or more specifically, what characterises firms that apply and are granted supports compared with randomly selected non-supported firms?

We have chosen to look at regional producer subsidies for several reasons. First, regional policy subsidies are relatively important in Sweden as well as in other countries and increasingly important for the EU.[3] Second, there has been very little empirical research on the political determinants of the allocation of regional supports. This is true for Sweden as well as internationally.[4] Third, we have a data set which allows us to examine characteristics of supported and non-supported firms in detail.

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[1] Empirically it has been found that e.g. most industrial policy supports (tariffs, direct grants and loans and tax exemptions) in Korea and in Japan have primarily favoured declining industries (see Lee, 1996, and Beason & Weinstein, 1996).

[2] A number of studies have examined how interest groups act (e.g. via lobbying and political contributions) and what has characterised politically successful interest groups. The results of the studies suggest that interest groups are important in the political decision process and that some groups tend to be more successful than others (see Potters & Sloof, 1996, for a survey and also sections 3 and 4 below).

[3] In 1994 the EU granted 26 Billion ECU via the structural funds (see EU, 1995a, and Jones, 1996). In addition to this, the European Commission reports that in twelve European countries in 1992 about 94 Billion ECU were transferred nationally to industry (see EU, 1995b). These supports can to a large extent be considered as regional policy aid.

[4] For example, Jones (1996, p. 159) discusses the lack of evaluations of the Union's regional policy programs. Except for a non-quantitative study by Henning (1983), which examines/describes the implementation of regional development programs in the early 1980s, no earlier studies of the political determinants of the allocation of regional supports in Sweden have been found.

To study the politics behind the allocation of regional producer subsidies, we test if hypotheses about structural attributes derived from economic models of political behaviour are useful when one tries to predict the allocation of subsidies among firms. The reason why we compare structural attributes of supported and non-supported firms is because no data of interest group activity are available, so that the only route open is to try to relate public policy variables to structural characteristics of the examined firms. One reason why we examine individual firms and not, as in many other studies, characteristics of larger interest groups (such as industries and unions), is because we examine selective regional subsidies that are granted to individual firms. About half of all Swedish regional policy supports are selective. Another reason is that we have created a unique data set which consists of supported firms which have been granted selective regional policy supports and a large number of non-supported firms which have been drawn randomly from the whole population of firms. Finally, the fact that we can identify individual supported and non-supported firms makes it possible to examine differences between supported and non-supported firms in detail.

The paper is structured as follows. Section 2 examines the Swedish regional policy supports in detail. In section 3, the decision process of regional policy is discussed, and in section 4, a number of hypotheses about structural attributes of supported firms are presented and discussed. Section 5 discusses the data and the choice of variables. In section 6, an econometric model and the results of the estimations are presented and discussed. In section 7, a summary and some concluding remarks are offered.

2. REGIONAL POLICY IN SWEDEN

In the 1960s, a period during which the Swedish economy experienced high growth rates, the demand for labour was very high in the south of Sweden, due to the expansion of industry and the public sector.[5] In the northern regions, however, rationalisation in primarily agriculture and in the forestry industry led to a surplus of labour, and as a consequence about 10,000 persons left the northern regions for the southern regions annually. To create a better "regional balance", the Social Democratic government decided to try to make it easier for people to move from the northern regions to the southern ones, but also to create new jobs and to modernise industry in the northern regions. To reach the last two objectives a regional policy program was introduced, which primarily consisted of different financial supports to industry and of investments in the infrastructure.

Since it was introduced, the main objective of Swedish regional policy has been to create a better regional balance. More specifically it has meant that the government has tried in different ways to uphold and increase employment and growth in the northern regions, and especially in the so called support areas.[6] To reach the objectives an important part of regional policy has been the different types of support that have been granted to industry in the support areas. Basically two types of supports are granted: the general ones (e.g. lowered employer fees and employment support) which are granted to all firms that belong to the support areas, and the selective ones (e.g. localisation subsidies and loans, different types of development support, support to sparsely populated areas and loans to investment firms), which the firms must apply for.[7] Totally about 1.7 billion SEK has been granted annually in the 1980s and early 1990s.[8]

In this study, only the selective supports (both subsidies and loans) are examined. The selective subsidies constitute about half of all subsidies and if one includes the loans, the selective part of regional policy is even more important (see NUTEK 1993:43). The selective supports are largely capital supports, in that for some of them the total capital cost for the investment is subsidised by up to 70 %. To be eligible for the support some general requirements are that the supports are to be used primarily for investments in machinery and buildings, that the firms are relatively profitable and that they promise to increase their number of employees. The supports are administrated primarily by local officials. Larger supports are

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[5] This section is based primarily on SOU 1984:74, SOU 1996:69, SFS 1990:642 and NUTEK 1993:43 and 44.
[6] See NUTEK 1993:43 for a description of the support areas.
[7] See SOU 1996:69 and NUTEK 1993:43 for more detailed descriptions of the different types of support that are granted to industry in the support areas.

granted either by NUTEK, which is the support-granting authority that monitors the supports, or the government.

Because the requirements which the firms must fulfil to be eligible for a support are relatively imprecise, it is difficult ex ante to predict the characteristics of subsidised firms. An additional problem is that the objectives of the supports are conflicting. On the one hand the subsidies are supposed to reduce potential unemployment problems by helping firms that have economic problems. On the other hand, the subsidies should be granted to firms, preferably future ”winners”, which might have problems in fully financing investments by themselves or via the private capital markets. In the 1970s and in the early 1980s, during the economic downturn, the first of the two objectives was the more important of the two. However, since the middle of the 1980s regional policy has become much more offensive and it has been emphasised that subsidies to a larger extent should be used to create growth and to increase employment.[9] The requirement that subsidised firms should be relatively profitable does to some extent reflect this change of policy.

Along with these more offensive ambitions it is argued, in the general motivations for why public subsidies should be granted, that some firms may under-invest because the market fails to supply the firms with enough capital (see e.g. SOU 1996:69, NUTEK, 1994, and SFS 1990:642). By granting public subsidies, the firms’ lack-of-capital problem can be reduced. Small firms and new/young firms should be subsidised to a larger extent because these firms may find it more difficult to fully finance investments without subsidies. It is costly for the banks to handle loans to small firms and small firms may have fewer assets to raise loans on. New and young firms may have problems raising external capital because, for example, they may not have been able to establish relations with the banks and other financiers. In the official motivations it is also argued that subsidies should not be granted, irrespective of the size and age of firms, if firms can

[8] Totally the industry was granted about 46 Billion SEK, 1994 prices, in 1989 (see Barkman & Fölster, 1995). Support to agriculture (22 Billion SEK) and subsidised interest rates for the construction sector (14 Billion SEK) were the most important.

[9] In the middle of the 1980s the Social Democratic government put forward the so called ten-point program, prop. 1986/87:74. In the program it is emphasised that industrial policy in general must be much more offensive in the sense that the government should put more effort into trying to create industrial expansion, and a smaller effort into supporting firms and industries with economic problems. The importance of growth and industrial expansion was also emphasised in the 1990s (see e.g. SOU 1996:69, section 3.4).

raise funds by themselves or via the private capital markets. That is to say, the subsidies should supplement, and not replace, private financing. Finally, it is argued that subsidies should not be granted to unprofitable firms for long periods, that is, care should be taken not to let the supported firms become dependent on the supports.

3. THEORETICAL FRAMEWORK

Even though the Swedish government claims that supports should be granted to profitable small and new/young firms which have problems in fully financing profitable investments by themselves or via the private capital markets, it is not clear if supports will be allocated to these firms. One reason, as Grossman (1991) argues, is that the support-granting authorities do not have enough information to know which firms to favour. Another reason is that, as has been emphasised in the interest group literature, the outcome of the political decision making process reflects the influence which firms, unions and other interest groups have on the political decision makers and on the support-granting authorities.[10]

From this perspective the introduction of regional policy support programs and the allocation of selective regional policy supports among Swedish firms can be seen as the result of a three-stage decision process, as shown in Figure 1 below. First, the government must decide to introduce a regional policy support program, I_1, or not to introduce a support program, I_2.[11] Second, given that a support program exists, firms have an incentive to apply for support, A_1, if it is considered to be a better source of financing than other alternatives. However, some firms might, for example, find it too costly to apply for support, they might be unaware of the support, they might not be interested in new investments or they might think that it is unlikely that they will be granted support; for whatever reason, they will decide not to apply, A_2.

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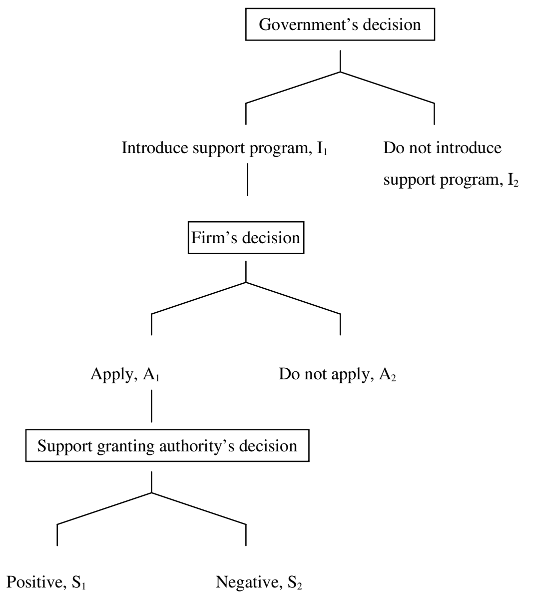
[10] See e.g. Peltzman (1976), Olson (1982), Mitchell & Munger (1991) and Magee (1997) for a general discussion about the role of interest groups in the political decision process.

[11] Because we study the allocation of supports among firms for a given support program we do not explicitly discuss why support programs are introduced. However, the influence that interest groups

Figure 1. Decision-tree



Some firms decide, however, to apply for support, and the support-granting authorities decide whether or not a firm is granted a support, S_1 or S_2,. In order to increase the probability of being granted a support, the support-seeking firms may try to affect the support-granting authorities. By investing in rent-seeking activities (e.g. lobbying) the firm can increase the probability of being granted support (see e.g. Tollison, 1997). That is, the probability of being granted a subsidy or a subsidised loan can be expected to be a positive function of rent-seeking activities. However, other factors might be important as well. The support-granting authorities might have different directives to follow and may e.g. not be allowed to grant supports to some firms (e.g. unprofitable firms), or they are supposed to try to target firms with special characteristics (e.g. small and new firms that have problems with fully financing investments privately).

Thus, whether a firm is granted a subsidy or not is the result of three decisions. First, the government must introduce a support program. Second, the firm must decide to apply and third, the support-granting authority must grant a subsidy. That is, the probability that a firm is granted a support is $\Pr(I_1 \cap A_1 \cap S_1)$. Given that a support program already exists, i.e. $\Pr(I_1) = 1$, then whether or not a firm is granted a support

(especially regional interests such as firms, unions that represent workers in the firms and regional politicians) have had on the decision process has been discussed by Henning (1983).

can be seen as a function of a vector of factors that affect the firm's decision to apply for a subsidy, (a_1, a_2, … a_m), a vector of factors that affect the support-granting authorities' decision to grant a support, (s_1, s_2, …, s_n) and lobbying, L. That is, $Pr(A_1 \cap S_1) = f(a_1, a_2, \ldots a_m, s_1, s_2, \ldots, s_n, L)$.

Unfortunately, detailed information about lobbying and other rent-seeking activities is, typically either difficult to measure or not available, and instead another approach has to be chosen. Several theoretical models and empirical studies of political influence emphasise structural attributes of interest groups (such as size, homogeneity of members in an interest group and degree of concentration in an industry) as the basis for their success (or lack of success) in the political decision process. For example, Olson (1982) argues that it is more difficult for large groups, such as the tax-payers, to control the free-rider problem, and therefore that large groups tend to be less efficient lobbyists and consequently less successful in the political decision process. Empirically, Potters & Sloof (1996), who have summarised the results of several empirical studies that have examined structural attributes of politically successful interest groups, conclude that "… being in need, having a strong bargaining position and being of high social status help to get favourable government intervention" (p. 420). That is, to test whether an unobservable variable such as lobbying is important or not one can instead test the importance of different structural variables, i.e. $L = g(p_1, p_2, \ldots, p_v)$.

Thus, the probability that a firm applies for support and is granted one can be seen as a function of variables which increase the probability that a firm applies for and is granted a support, and structural variables that indirectly measure whether or not lobbying is important in the decision process. That is, $Pr(A_1 \cap S_1) = h(a_1, a_2, \ldots a_m, s_1, s_2, \ldots, s_n, p_1, p_2, \ldots, p_v)$. Note that some of the variables might be the same. For example, a variable such as the size of a firm might be important both when a firm decides to apply, when the support-granting authorities decide to grant a support and in determining whether or not a firm will be able to lobby successfully or not; for a further discussion see the next section.

4. SOME HYPOTHESES ABOUT STRUCTURAL ATTRIBUTES OF SUPPORTED FIRMS

In this section testable hypotheses are derived about how some attributes (size, age, regional importance and economic performance of firms) might affect the probability that a firm applies for and is granted a selective regional policy support. The attributes that are discussed below have been chosen because they have been considered as important by the government, because it is possible to derive testable interest group hypotheses about them and because it is possible to construct reasonable proxies for them. The first attribute is size.

<u>Size:</u> If interest group explanations are important, one would expect larger firms to be more likely to apply for support because the costs, of applying for support are relatively greater for smaller firms than for larger firms. Larger firms should also be more likely to become supported because they have more lobbying resources, i.e. they can lobby more effectively for subsidies. For example, Becker (1983, p. 395) argues that "… small groups may not be able to take advantage of scale economies in the production of pressure", i.e. too small firms might be less likely to become subsidised. If size is important the following hypothesis should not be rejected.

Hypothesis 1. Larger firms should be more likely to be granted supports.

However, if the Swedish government and the support-granting authorities try to a larger extent to support smaller firms, which may have problems with fully financing profitable investments by themselves, then *hypothesis 1* should be rejected.

<u>Age:</u> From an interest-group perspective, one would also expect that supports should be biased towards older firms. Older firms may have had better opportunities new and young firms to establish contacts with and influence the support-granting authorities, contacts which may be advantageous when the support-granting authorities grant supports. If age is important then the following hypothesis should not be rejected.

Hypothesis 2. Older firms should be more likely to become supported.

On the other hand if the support-granting authorities try to a larger extent to favour new and young firms, which may have problems with fully financing investments privately, then younger firms should be more likely to be granted supports and *hypothesis 2* should be rejected.

<u>Vital industries:</u> Several empirical studies have found that interest groups which are politically successful often encounter support from other (influential) groups (see Potters & Sloof, 1996). In Sweden, the allocation of industrial subsidies in general gives some additional support for these results. Historically, most industrial subsidies in Sweden, both regional and other industrial subsidies, have been granted to the basic industries. For example, in the 1970s and early 1980s large subsidies were granted to the shipbuilding, mining, steel, forestry and textileindustries and in the 1980s large subsidies were granted e.g. to the car industry (see Eriksson, 1994). That is to say, subsidies have to a large extent favoured firms and industries which historically have been major employers and which have been important for the development of the Swedish economy. A possible explanation for why the basic industries have been granted most industrial supports might be that these industries have had support from influential and active interest groups, such as the unions that represented the workers in the basic industries and organisations that represented the firms.[12]

One would expect a similar bias when it comes to the selective regional policy support that we are studying, because firms that belong to regionally important industries are to a larger degree backed up by local unions (which tend to represent workers in regionally important industries) and organisations which represent the firms in the regions. If firms which belong to regionally important industries are more likely to get a subsidy then the following hypothesis should not be rejected.

[12]See e.g. Stråth (1987) for a discussion about the interaction between the shipbuildingindustry, the unions and the government during the economic crisis in the 1970s. See also Henning (1983), who has studied the interaction between regions and the government when regional subsidies were allocated in the beginning of the 1980s. He concludes that regions which managed to capture large regional subsidies were represented by coalitions that consisted of local firms, unions and local politicians.

Hypothesis 3. Firms that belong to regionally important industries should be more likely to be granted supports than firms that do not belong to regionally important industries.

Given that the support-granting authorities are primarily interested in supporting relatively profitable, small and new/young firms that have problems with fully financing their investments privately, then the factor of or not a firm belongs to a regionally important industry should probably not affect the decision to grant support. As a consequence one would expect supports to be evenly distributed among industries, and if this is the case then *hypothesis 3* should be rejected.

<u>Performance of firms:</u> Firms and industries with economic problems should be more likely to get different political favours because firms which have economic problems have, together with e.g. the unions and industry organisations, an incentive to apply and lobby for political favours. One reason is because "… the lowered rate of return from economic activity makes political activity a more attractive investment" (Magee, 1997, p. 537). Furthermore, in a political milieu where low unemployment is an important objective, which has been the case in Sweden, political decision makers as well as support-granting authorities have an incentive to grant subsidies to firms with economic problems and to declining industries in order to show that they try to "save jobs" (see Burton, 1983, for a similar discussion and Hillman, 1982, for a formal study that analyses why declining industries tend to be successful in the political decision process).

If firms which belong to declining industries and firms which have economic problems are more likely to be granted supports, then the following hypotheses should not be rejected.

Hypothesis 4. Firms that belong to declining industries should more likely to be granted supports.

Hypothesis 5. Firms with economic problems should be more likely to be granted supports.

However, as was discussed in section 2, the Swedish industrial policy in general, as well as regional policy, became more growth oriented in the middle of the 1980s, and consequently the support-granting authorities might have become less willing to grant regional policy supports to firms that belonged to declining industries or to firms with economic problems. If this is the case then *hypotheses 4* and *5* should be rejected.

5. DATA

In order to examine what characterises firms that apply for support compared with firms that do not apply for a support, and what characterises firms that are granted support compared with firms that that have applied for but have not been granted support, we would have liked to have information about three types of firms: randomly chosen non-supported firms that have not applied for support, non-supported firms that have applied but have not been granted support, and supported firms. However, information about firms that have applied but have not been granted support is not available. Instead a data set is used which consists of information about supported and randomly chosen non-supported firms (which might have applied for support). This means that we only examine differences between supported firms and randomly chosen non-supported firms.

Information from NUTEK has made it possible to identify all firms which received selective regional policy support in 1989 and in 1992.[13] These two years are chosen because we wish to examine the stability of the results and to determine any differences can be found over the business cycle. 1989 was a year with relatively high GDP growth (2.4%), while in 1992 GDP fell with about 1.2%. The supported firms have applied for and have been granted either an investment subsidy, localisation subsidy, localisation loan, a subsidy for “soft investments” or an educational subsidy. For more details about the supports see section 2 above or NUTEK 1993:44. Table 1 reports some characteristics of the data set.

[13] Individuals and public enterprises that have been granted selective regional policy supports are not included in the study because data on exogenous variables were not available. However, most supports are granted to private firms.

Table 1. Size of samples and distribution of support.

	1989-sample		1992-sample	
	Non-supported	*Supported*	*Non-supported*	*Supported*
Total No. of firms	924	454	803	306
Total support, M.SEK, 1994 prices		750		261
Average support per firm, M.SEK, 1994 prices		1.65		0.85

In order to be able to compare the supported firms with non-supported normal firms we obtained a sample of non-supported firms that have been randomly collected from the whole population of firms; this sample was provided by UC AB, a credit report firm that collects annual reports from every Swedish firm.[14] None of the firms in this sample have been granted any selective regional policy supports between 1980 and 1995. UC AB has also provided us with financial and some non-financial information for both the supported and non-supported firms. Table 2 reports the variables that we use to examine the firms.

Table 2. Description of variables

Variables	Description
SIZE	No. of employees per firm.
AGE	Year firm was founded.
IMP_IND	Importance of the industry which a firm belongs to. Importance is measured as each industry's (ISIC 2-digit level) share of total employment in the support areas in 1989. To calculate this measure the distribution of the industries' share of employment for a random sample of 675 firms located in the support area in 1989 is used. The sample has been provided by UC AB.
IND_PERF	Long-run performance of the industry to which a firm belongs. The variable is defined as the percentage change of total value added for each industry between 1970 and 1989. For all industries except the manufacturing industry the ISIC one-digit level has been used. For the manufacturing industry the change of total value added has been measured at the 3-digit level.
PROFIT	(Value added - Total wages)/Total assets.
CASHLIQUID	(Current assets - Inventories)/Current liabilities
LIABILITIES	Long-term liabilities/Turnover
SOLVENCY	Equity/Total assets
AREA	Dummy: 1 if firm belongs to a support area, 0 otherwise.

To test if size is important (*hypothesis 1*) the variable SIZE has been included. It is defined as the number of employees per firm.[15]

[14] The sample we got from UC AB initially consisted of 927 and 808 firms respectively. Three firms in the 1989 sample and one firm in the 1992 sample were observed twice in each sample. For these firms only the first of the two observations has been used.

[15] A critique that can be raised against the number of employees as a proxy for size is that if, say, several of the non-supported firms have a large number of employees who do not work full time, then the choice of the number of employees as a proxy for size incorrectly reflects the size distribution between the supported and non-supported firms. We cannot say whether or not the employees in the supported firms work full

To test if older firms are more likely to be granted subsidies (*hypothesis 2*) and whether firms that belong to regionally important industries are more likely to become subsidised (*hypothesis 3*) the variables AGE and IMP_IND have been included. The variable AGE is measured as the year a firm was founded. The variable IMP_IND is measured as each industry's (ISIC 2-digit level) share of total employment in the support areas. Because we only have about 160 non-supported firms located in the support area and because we want to have a good measure of the distribution of industries in the support areas, we obtained another larger random sample of 675 non-supported firms located in the support areas in 1989 from UC AB. Because the industrial structure changes relatively slowly, the 1989 distribution of industries is used for both the 1989 and 1992 samples.

To test if firms which belong to declining industries are more likely to become supported (*hypothesis 4*), the variable IND_PERF is included to measure whether a firm belongs to an industry which has performed less well in the long run or not. To measure the performance of an industry, an index for change of total value added between 1970 and 1989 has been calculated. For all industries except the manufacturing industry, the ISIC one-digit level has been used. For the manufacturing industry, which has received most of the supports, the change of total value added has been measured at the 3-digit level. Firms that could not be classified were assumed to belong to an industry which has performed like the average industry.

To study if firms with economic problems are more likely to receive subsidies (*hypothesis 5*) several key figures have been included. PROFIT, CASHLIQUID and SOLVENCY measure the profitability, the cash-liquidity and the equities' share of total assets for the firms. The variable LIABILITIES, which is defined as long-term liabilities' share of turnover, measures the degree of indebtedness.

Finally, most of the supports are granted to firms which are located in the support areas, and because the non-supported firms are located outside the support areas to a larger extent, the dummy variable AREA is included to control for differences in location. The dummy takes on the value one for firms that are located in the support areas and zero otherwise.

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time to a larger or lesser extent, because that kind of information is not available. However, it seems

Table 3 reports some descriptive statistics. The tables suggest that for both the 1989 sample and the 1992 sample, the non-supported firms have slightly better cash-liquidity, are less indebted, are more solvent, to a larger extent belong to industries that have performed less well, and to industries which to a larger extent belong to industries which are less important in the support areas. Finally, the non-supported firms are to a larger extent located outside the support areas.

Table 3. Descriptive statistics for the 1989 and 1992 samples.

	Non-supported firms			Supported firms		
	Median	Mean	Std.dev	Median	Mean	Std.dev
1989 sample						
SIZE	3.00	5.28*	99.62	12.00	21.46*	175.11
AGE	82	77	13.41	82	76	14.90
IMP_IND	3.70	5.52	6.05	10.7	10.18	7.91
IND_PERF	174	164.20	40.94	144	153.22	46.16
PROFIT	0.06	0.07*	8.21	0.09	0.09*	0.20
CASHLIQUID	1.00	1.23*	16.31	0.90	0.99*	2.13
LIABILITIES	0.07	0.28*	53.69	0.24	0.51*	12.09
SOLVENCY	0.11	0.16*	20.59	0.07	0.09*	0.11
AREA	0	0.16	0.37	1	0.69	0.46
1992 sample						
SIZE	3.00	5.35*	135.81	7	14.23*	57.74
AGE	82	75	13.99	86	80.20	14.78
IMP_IND	8.10	6.76	5.27	8.40	10.20	7.90
IND_PERF	174	168.00	42.31	144	154.96	42.33
PROFIT	0.04	0.04*	24,246.30	0.04	0.03*	0.19
CASHLIQUID	1.16	1.45*	8.72	0.81	0.82*	3.67
LIABILITIES	0.07	0.25*	55.44	0.26	0.44*	83.62
SOLVENCY	0.14	0.20*	220.21	0.09	0.13*	0.16
AREA	0	0.17	0.38	1	0.71	0.46

* Because some extreme values distort the mean, a 5% trimmed mean is reported.

6. ECONOMETRIC ANALYSIS

To test empirically if the interest group theories are useful, an econometric model is typically set up which has as the dependent variable one which measures whether or not an industry, a firm or some other actor of interest has been politically successful. To test different hypotheses and to explain why some groups are

unlikely that there are systematic differences between the groups with regard to part-time workers.

successful in the political decision process and others are not, different independent variables which describe different attributes of the studied groups are chosen.[16]

In this study a similar approach is used. To test the hypotheses formulated in section 3, the two samples are pooled and a standard logit model is estimated which examines if different firm characteristics can be used to discriminate between supported and non-supported firms. The 1989 sample and the 1992 sample are pooled in order to use all the information in the data set and in order to be able to explicitly test for the stability of the regression coefficients in the two samples. To test for the stability of the regression coefficients, interaction variables are included. The logit model approach is chosen because it is an econometric technique designed to discriminate between binary dependent variables and because it allows one to estimate and test the importance of different explanatory variables (see Maddala, 1989, and Menard, 1995).[17] The dependent variable is the binary variable TYPE, which is defined as.

$$\text{TYPE}_i = \begin{cases} 1 & \text{Supported firm} \\ 0 & \text{Non - supported firm} \end{cases}$$

The probability that a firm i is granted support is estimated as a function of the k variables, $x_{ij,}$ that were presented in the previous section and k interaction variables ($D_i{*}x_{ij}$). D_i is a time-dummy which takes on the value 0 for firms that belong to the 1989 sample and 1 for firms that belong to the 1992 sample.

[16] Examples of some studies are Pincus (1975) who tries to explain size of tariffs, Hunter & Nelson (1989) who try to explain the structure of tax systems and Svensson (1997) who tries to explain the allocation of R&D subsidies. See also Potters & Sloof, 1996, for a discussion about how econometric models have been used to test interest-group theories.

[17] An alternative to the logit model is the probit model (see Maddala, 1989). Probit models have also been estimated in this study. The estimated parameters differed slightly but the qualitative results did not change. Because we have information about how large subsidies and loans the supported firms have been granted, an alternative to the logit and probit models is the Tobit model (see Maddala, 1989). The Tobit model is a better alternative if the dependent variable consists of several observations that take the value zero and several observations that are larger than zero. However, because we do not know if firms that have been granted loans have repaid them, and because it is difficult to assess to what extent the interest on the loans is subsidised or not, we have decided to define the studied firms as non-supported or supported firms and not to estimate Tobit models.

$$\Pr_i = \text{Probability (TYPE}_i = 1) = F(\beta_0 + \sum_{j=1}^{k} \beta_j x_{ij} + \sum_{j=1}^{k} \delta_j (D_i * x_{ij}))$$

where the cumulative distribution F is assumed to be logistic,

$$F(Z_i) = \frac{\exp(Z_i)}{1 + \exp(Z_i)}, \quad \text{where } Z_i = \beta_0 + \sum_{j=1}^{k} \beta_j x_{ij} + \sum_{j=1}^{k} \delta_j (D_i * x_{ij})$$

Table 4 Column 1 reports the result of the estimation of the logit model for the entire sample. 413 observations were excluded because of missing data on various exogenous variables. The likelihood-ratio statistic is significant at the 1% level, which means that the estimated model is better than the naïve model that only has the constant as an explanatory variable.

Because most supported firms are located in the support areas the variable AREA is, as one would expect, positive and significant. The interaction variable D*AREA is insignificant, i.e. the probability of a firm that is located in the support area being granted a support does not change over time.

Table 4. Coefficient estimates for the logit model. Dependent variable: TYPE.

	1.	2.	3.
	All industries (ISIC 1-9)	Manufacturing (ISIC 3)	Service (ISIC 6-9)
SIZE	0.003[a]	0.001	0.011[a]
	(2.735)	(0.877)	(4.287)
AGE	0.021[a]	0.016[b]	0.031[a]
	(4.325)	(2.202)	(3.314)
IMP_IND	0.096[a]	-0.030	0.189[a]
	(9.019)	(-1.519)	(5.881)
IND_PERF	-0.002	0.010[a]	-0.008[a]
	(-0.924)	(2.595)	(-2.600)
PROFIT	0.138	1.467[b]	0.084
	(0.773)	(2.009)	(0.357)
CASHLIQUID	-0.024	-0.307[c]	0.036
	(-0.968)	(-1.906)	(1.271)
LIABILITIES	0.0003	0.183	0.0003
	(0.171)	(1.090)	(0.113)
SOLVENCY	0.060	-2.195[b]	0.040
	(0.816)	(-2.018)	(0.396)
AREA	2.481[a]	2.211[a]	2.843[a]
	(16.135)	(7.906)	(10.878)
D*SIZE	-0.003[c]	-0.001	-0.006
	(-1.937)	(-0.765)	(-1.088)
D*AGE	0.005	-0.006	0.013
	(0.866)	(-0.625)	(1.308)
D*IMP_IND	-0.022	0.023	-0.204[a]
	(-1.377)	(0.761)	(-4.433)
D*IND_PERF	-0.002	-0.003	0.0001
	(-0.916)	(-0.624)	(0.023)
D*PROFIT	-1.139	-1.926[c]	-0.086
	(-0.774)	(-1.760)	(-0.362)
D*CASHLIQUID	0.008	0.131	-0.054[c]
	(0.286)	(0.671)	(-1.673)
D*LIABILITIES	0.002	0.447	0.05[b]
	(0.890)	(0.724)	(2.127)
D*SOLVENCY	-0.024	2.046	0.101
	(-0.169)	(1.353)	(0.495)
D*AREA	-0.133	0.432	-0.71[c]
	(-0.582)	(0.967)	(-1.958)
Constant	-3.740[a]	-2.046[a]	-4.216[a]
	(-8.683)	(-3.302)	(-4.826)
LR statistic (18 df)	759.10	216.76	328.81
Total No. of obs. (No. of supp. firms)	2,487 (716)	624 (428)	1113 (244)
Missing observations	413	43	111

Notes: t-statistics in parentheses. [a] , [b] and [c] indicate significance at 1, 5 and 10 percent respectively, using a two-tailed test.

Hypothesis 1 (larger firms should be more likely to become supported) cannot be rejected for the 1989 sample. The variable SIZE is positive and significant at the 1% level, which means that in 1989 larger firms were more likely to become supported than smaller firms. The result lends some support to the hypothesis that size matters when the support-granting authorities grant supports. Two implications are not only that may small firms have problems with raising funds via e.g. the banks (which is one of the motivations that is used for the support, see section 2), but also it is difficult for small firms to be granted supports.

However, the importance of size should be interpreted carefully because the interaction variable D*SIZE is negative and significant, which means that the size of a firm is less important in 1992. A Wald-test of the hypothesis H_0: $\beta_{SIZE} + \delta_{D*SIZE} = 0$ cannot be rejected (p-value = 0.28), which means that in 1992 the size of supported firms and non-supported firms does not differ significantly.[18] Why the size of firms seems to be less important in 1992 than in 1989 is difficult to say. A possibility is that the importance of small- and medium-sized firms became more stressed in the political debate in the 1990s, and that as a consequence, the support-granting authorities might have tried to target smaller firms to a larger extent.[19]

AGE is positive and significant at the 1% level, the interaction variable D*AGE is insignificant and the hypothesis H_0: $\beta_{AGE} + \delta_{D*AGE} = 0$ is rejected at the 1% level (p-value < 0.01). The results indicate that older firms are less likely to become supported both in 1989 and in 1992 (note that we have defined AGE as the year a firm was founded, which means that a positive sign implies that a younger firm is more likely to become supported). Consequently *hypothesis 2* (older firms should be more likely to become supported) is rejected. The result indicates that the support-granting authorities might try to favour younger firms which might have problems with fully financing investments privately. However, as we discuss below, it is not certain that firms which have been supported, even if they are younger, are the ones that may have problems with fully financing investments privately.

IMP_IND is positive and significant at the 1% level, the interaction variable D*IMP_IND is insignificant and the hypothesis H_0: $\beta_{IMP\_IND} + \delta_{D*IMP\_IND} = 0$ is rejected at the 1% level (p-value < 0.01). The results give support for *hypothesis 3* (firms that belong to regionally important industries are more likely to be granted supports than firms that belong to less important industries). An interpretation of this result is that firms which belong to regionally important industries are more likely to be granted regional policy supports, because they get more support from local unions (which represent workers who belong to locally important industries) and local industry organisations. If this interpretation is correct, the result is in line with the results of other studies that have emphasised the importance in the political decision process of obtaining

[18] For a discussion of tests of joint hypotheses see Maddala, 1989.

support from other (influential) groups and the importance of not encountering opposition (see Potters & Sloof, 1996).

For *hypothesis 4* (firms that belong to a declining industry are more likely to be granted supports) the results are ambiguous. The variables IND_PERF and D*IND_PERF are negative but insignificant. However, the joint hypothesis H_0: $\beta_{IND\_PERF} + \delta_{D*IND\_PERF} = 0$ is rejected at the 10% level (p-value = 0.06). This means that, in 1992, the support-granting authorities targeted firms which belonged to industries that had performed less well since 1970.

The performance of individual firms is more important than whether or not firms belong to declining industries. The insignificance of the financial key figures (PROFIT, CASHLIQUIDITY, LIABILITIES and SOLVENCY) and the insignificance of the interaction variables (D*PROFIT, D*CASHLIQUIDITY, D*LIABILITIES and D*SOLVENCY) indicate that the supported firms and the non-supported firms do not differ from each other for either of the two years. The joint Wald-tests confirm this conclusion for all variables except for liabilities. The hypothesis H_0: $\beta_{LIABILITIES} + \delta_{D*LIABILITIES} = 0$ is rejected at the 5%-level (p-value = 0.03), which means that in 1992 the supported firms were significantly more indebted than the non-supported firms.[20] Thus it seems, although it is not a clear-cut result, as if *hypothesis 5* (firms with economic problems should be more likely to be granted supports) should be rejected and instead it seems as if it is relatively normal firms, from a financial point of view, that are granted supports. This result might reflect the fact that the motivations for regional policy supports in the 1980s became more growth oriented and that subsidisation of firms with economic problems became less important, see section 2 above.

Because there might be differences between industries, Columns 2 and 3 report the estimation results for two subsamples. The first subsample (Col. 2) includes only firms which belong to the manufacturing

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[19] An indication of the importance of small- and medium-sized firms in the 1990s is the introduction of start-up supports and different supports directed to small- and medium-sized firms (see SOU 1996:69).

[20] H_0: $\beta_{PROFIT} + \delta_{D*PROFIT} = 0$, (p-value = 0.78). H_0: $\beta_{CASHLIQUIDITY} + \delta_{D*CASHLIQUIDITY} = 0$, (p-value =0.21). H_0: $\beta_{SOLVENCY} + \delta_{D*SOLVENCY} = 0$, (p-value = 0.77).

industry (i.e. ISIC 3) and the second subsample (Col. 3) includes only firms which belong to the service industries (ISIC 6-9).

The estimations show that there are some differences between how subsidies are allocated between industries. The most important differences are the following: (i) Larger firms in the service industries are more likely to be granted a subsidy in 1989 (however, in the 1992 sample no significant differences can observed). But, in the manufacturing industry, size of firms cannot be used to predict whether or not a firm will be granted a subsidy. (ii) Firms which belong to the manufacturing industry are more likely to be granted a subsidy if they belong to belong to a sub-industry of the manufacturing industry which has performed better than the average manufacturing sub-industry. The opposite is true for firms which belong to the service industries. (iii) Firms in the manufacturing industry are more likely to be granted a subsidy if they are more profitable, if they have a low cash liquidity, and if they are less solvent.

An overall assessment of the results gives a mixed picture. To some extent the interest group hypotheses are accepted. Larger firms which belong to regionally important industries that have performed less well since 1970 are more likely to be granted supports (particularly in the case of firms which belong to the service industry). But the fact that it is more likely that a younger firm will be granted a support indicates that the support-granting authorities try to favour firms which might have a lack-of-capital problem. However, an implication of the fact that the supported and the non-supported firms (especially firms in the service industry) are, from a financial point of view, relatively similar is that one might ask whether or not the supported firms, even if they are younger, would have been able to finance their investments privately. That is, are supports granted to firms which cannot fully finance their investments privately? Historically, it seems as if the supported firms have managed to finance investments by themselves or via the private capital markets because they are equally or even more indebted than the non-supported ones; see LIABILITIES in Table 3. If the firms could have managed to finance their investments privately then the supports can be seen as pure transfers to the supported firms.

But if the firms have not been able to fully finance their investments privately, this might also reflect the fact that e.g. the banks have considered the investments unprofitable. If this is the case, then if the government had not interfered, e.g. by increasing taxes in order to finance the supports, other non-supported firms and individuals would have used the means to invest in profit-promising projects. Such investments may have been cancelled because means have instead been employed to subsidise the supported firms' unprofitable investments.

7. SUMMARY AND CONCLUDING REMARKS

Justifications for the use of subsidies that are offered by economists, e.g. that some firms might have a lack-of-capital problem due to informational asymmetries, are often picked up by politicians and interest groups in order to justify the supply and demand for different types of support. However, as we have argued in this paper, politicians and support-granting authorities might not act as benevolent welfare maximisers because they do not have incentives to allocate supports optimally from an economic point of view. Instead, supports might be transferred to politically influential firms and industries. Furthermore, the political decision makers and the support-granting authorities might not have enough information to allocate the supports optimally. That is to say, even if a lack-of-capital problem exists, the implementation problems mean that it is not certain that subsidies will be allocated to firms which find it difficult to finance profitable investments via the private capital markets.

To examine the types of firm to which supports are allocated, and to test to what extent the allocation of supports reflects political considerations, we have compared different characteristics of Swedish firms that have been granted regional policy supports and non-supported randomly chosen Swedish firms. The results of the study show, although they are not clear cut and therefore should be interpreted with care, that in Sweden in 1989 and in 1992, some firms were more likely to be granted subsidised loans and direct supports than other firms. Larger firms that were located in the support areas and which belonged to regionally important industries were more successful than other firms. The results render some support for the idea that larger firms, which have more lobbying resources and for which the costs of applying for a support are relatively smaller, are more likely to be granted supports. The results also give some support for the idea that firms which belong to regionally important industries, and which therefore might to a larger extent be backed up by local unions (which tend to represent workers in regionally important industries) and organisations which represent the firms in the regions, are more likely to be granted supports. The hypothesis that firms which have economic problems are more likely to be granted supports has to be rejected because the financial key figures do not differ between supported and non-supported firms. Because younger firms are more likely to become supported, the hypothesis that older firms, which might have established better contacts with the support-granting authorities, should be more likely to be granted supports has to be rejected too. However, the fact that the supported firms historically have been able to finance investments via the private capital markets - they are more indebted than the non-supported ones - indicates that it is not certain that the firms which have been granted supports, even if they are younger, are the ones that have problems with financing investments via the private capital markets.

Finally, the supports which we study represent a type of support that has become increasingly important in the EU since the 1970s. And if Poland, Hungary and other former communist countries become new member states of the EU, the demand for more public supports to the industry will probably increase.[21] Given this scenario, some important questions for future research arise.

To know more about the politics behind the allocation of supports we need to know more about what drives firms to apply for supports - do firms that apply for support have a lack-of-capital problem in the sense that they cannot finance profitable investments via the private capital markets? And if a lack-of-capital problem exists, is this a market failure - in the sense that asymmetric information between borrowers and lenders lead to a less than optimal supply of capital? Or is it a government failure, in the sense that firms' lack-of-capital is caused by taxation of firms and individuals and by financial regulations of capital markets? Another question is whether the support areas are motivated or if the definition of support areas rather reflects the political influence that some regions have on the political decision makers in the Parliament.

That is, are the support areas significantly poorer and do they have more economic problems than other regions? Finally, it is important to examine the effects of the supports. Do the supports achieve the two most important objectives of regional policy, namely increased employment and increased growth in the subsidised firms and in the support areas? The answers to these questions can teach us more about how politics work, and whether an important and increasingly important part of the EU's policies is economically efficient or not.

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[21] The structural funds of the EU have increased each time new states have become members (see e.g. George, 1996, Ch. 12)

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