

Working Paper No 79/05

**Regional policy and rent seeking:
Targeted versus broad based policies**

by
**Kjetil Bjorvatn
Nicola D. Coniglio**

SNF project no 1301
Innovation, Industrial Structure and Economic Development:
Determinants and Policy Design
The project is funded by The Research Council of Norway

SNF project no 1290
“Trade, Industrialisation and Development”

This paper has been supported by funding provided by the European Commission through its Fifth Framework Programme for the “Trade, Industrialisation and Development” Research Network, EC Contract no HPRN-CT-2002-00236. It does not necessarily reflect the Commission’s views and in no way anticipates its future policy in this area.

SIØS - Centre for International Economics and Shipping

INSTITUTE FOR RESEARCH IN ECONOMICS AND BUSINESS ADMINISTRATION
BERGEN, DECEMBER 2005
ISSN 1503-2140

© Dette eksemplar er fremstilt etter avtale med KOPINOR, Stenergate 1, 0050 Oslo. Ytterligere eksemplarfremstilling uten avtale og i strid med åndsverkloven er straffbart og kan medføre erstatningsansvar

SIØS - CENTRE FOR INTERNATIONAL ECONOMICS AND SHIPPING

SIØS – Centre for international economics and shipping – is a joint centre for The Norwegian School of Economics and Business Administration (NHH) and Institute for Research in Economics and Business Administration (SNF). The centre is responsible for research and teaching within the fields of international trade and shipping.

International Trade

The centre works with all types of issues related to international trade and shipping, and has particular expertise in the areas of international real economics (trade, factor mobility, economic integration and industrial policy), international macroeconomics and international tax policy. Research at the centre has in general been dominated by projects aiming to provide increased insight into global, structural issues and the effect of regional economic integration. However, the researchers at the centre also participate actively in projects relating to public economics, industrial policy and competition policy.

International Transport

International transport is another central area of research at the centre. Within this field, studies of the competition between different modes of transport in Europe and the possibilities of increasing sea transport with a view to easing the pressure on the land based transport network on the Continent have been central.

Maritime Research

One of the main tasks of the centre is to act as a link between the maritime industry and the research environment at SNF and NHH. A series of projects that are financed by the Norwegian Shipowners Association and aimed directly at ship owning firms and other maritime companies have been conducted at the centre. These projects include studies of Norwegian Shipowners' multinational activities, shipbuilding in Northern Europe and the competition in the ferry markets.

Human Resources

The centre's human resources include researchers at SNF and affiliated professors at NHH as well as leading international economists who are affiliated to the centre through long-term relations. During the last few years the centre has produced five PhDs within international economics and shipping.

Networks

The centre is involved in several major EU projects and collaborates with central research and educational institutions all over Europe. There is particularly close contact with London School of Economics, The Graduate Institute of International Studies in Geneva, Stockholm School of Economics and University of Strathclyde in Glasgow. The staff members participate in international research networks, including Centre for Economic Policy Research (CEPR), London and International Association of Maritime Economists (IAME).

Regional policy and rent seeking: Targeted versus broad based policies

Kjetil Bjorvatn and Nicola D. Coniglio*
Norwegian School of Economics and Business Administration

April 21, 2005

Abstract

Policies aimed at promoting regional development have often had disappointing results. The present paper offers an explanation for why such policies may fail, and, more importantly, analyses how policies may be designed to create regional growth. Our main argument is that broad based policies should be chosen in regions with weak institutions. In regions with stronger institutions, policies targeted at promoting investment in specific firms or industries may be more efficient. The basis for this policy recommendation is the hypothesis that in countries with weak institutions, targeted policies create rents that attract rent seekers. Broad based policies, on the other hand, create a balanced process of industrialization, which reduces the scope for rent seeking.

1 Introduction

Regional development policy is intended to help the economy overcome structural economic difficulties and thereby promote economic growth. The resource injection is intended to be only temporary since the final goal is a self-sustainable growth process rather than a permanent transfer from rich to poor regions. An efficient policy should therefore be able to push the

*NHH, Department of Economics, Helleveien 30, N-5045 Bergen, Norway, Phone: +47 55 95 95 85, Email: Kjetil.Bjorvatn@nhh.no, Nicola.Coniglio@nhh.no

economy out of a ‘bad’ equilibrium, characterised by an under-utilization of the productive capacity, at the lowest cost.

Empirical evidence shows that policies aimed at promoting economic development in poor regions often have failed to produce the desired results, particularly when the institutional environment in the recipient regions is weak. Burnside and Dollar (2000) show that foreign aid to low income countries has a positive impact only if the recipient country has sound policies, measured by low inflation, low budget deficits, and low barriers to trade. Similarly, Boldrin and Canova (2001) and Midelfart and Overman (2002) argue that regional policy in the European Union has had a very limited effect in fostering economic growth and attracting economic activity and employment. Cappelen et al (2003) and Ederveen et al (2003) demonstrate that regional support in Europe has been more effective in speeding up the process of convergence in countries with more developed economies and institutions.

Our analysis offers an explanation to why development policies in regions with poorly developed institutions may fail. More importantly, we show how regional policies should be designed so as to promote industrialization in different institutional environments. Conceptually, we organize economic policy into two categories, broad based and targeted policies. Broad based policies apply to all, or at least most, relevant sectors of the economy, and promote investment in general. Such policies could include public investments in infrastructure and education. Alternatively, a broad based policy could be in the form of subsidized credit where all investment projects that fulfill some easily observable and verifiable standards qualify for the subsidy.

Targeted policies, on the other hand, involve a greater measure of discretion on the part of policy makers. By offering incentives to specific investors, the aim of targeted policy is to ‘pick winners’. The targeted firms are expected to develop into ‘growth poles’, generating spillovers to the rest of the economy. Over time, aided by these spillovers, the economy will move out of the bad equilibrium. A targeted policy may thus be an efficient way to start a growth process, since such a policy involves only a limited intervention and then relies on spillover effects from this intervention to do the rest of the job.

Our basic argument is that targeted policies in a weaker institutional environment are likely to be associated with clientelism and rent seeking, which reduce the efficiency of these types of policies. Analysing the situation in Russia, Frye (2002) demonstrates that the relationship between firms favored with various types of privileges and policy makers offering these privileges is a fairly balanced one. The support to certain firms is given as a *quid*

pro quo, where the privileged firms have to accept a stronger degree of state intervention in the running of the firm. Robinson and Verdier (2003) show that policy makers often intervene by offering well paid jobs, typically in the public sector, as a way to create political support. The authors argue that this is costly, but credible way to create clientelistic relationships. Alesina, Danninger, and Rostagno (1999) analyse public sector employment as a redistributive device in the case of Italy.

Employment that primarily has a political purpose, can reasonably be expected to be economically low productive. Commenting on formal sector overemployment in less developed countries, Lewis (1954, page 142) notes that: “Most businesses in underdeveloped countries employ a large number of ‘messengers’, whose contribution is almost negligible; you see them sitting outside office doors, or hanging around in the courtyard.”

In regions with weak institutions, targeted policies will be used for political purposes. An external donor, or the autonomous leadership in a country plagued by bureaucratic corruption and regulatory capture, would in such an environment be well advised to choose broad based policies in order to stimulate economic growth. Since such policies do not open up for discrimination between firms, there is no room for *quid pro quo* relationships between firms and policy makers. When policy makers have no special privileges to offer, firms will refrain from offering patronage employment, and employment decisions will be made on a profit maximizing basis. Low-productive patronage employment can in such an environment be expected to be less prevalent.

The analytical framework we use to analyse the efficiency of regional development policies is based on the dual technology, limit pricing model of Murphy, Shleifer and Vishny (1989). This model demonstrates that countries or regions can be caught in a low-equilibrium trap, with only relatively inefficient, constant returns to scale technology in use. The role of development policy is to promote a sufficient amount of investment in modern, increasing returns to scale technology, to push the economy away from the poverty trap, and on the path to the high income, fully industrialized equilibrium, characterized by large scale production in all sectors. Our paper adds to the Murphy, Shleifer and Vishny model of industrialization by introducing rent seeking and by analysing the efficiency of alternative policy measures in lifting the economy out of the poverty trap.

The dual technology, limit pricing model differs from the standard analytical tool used in studying regional economics, namely monopolistic competition. In the dual technology model, the monopoly power of the large

scale firms is limited by the potential entry of small scale producers, capable of producing the same good as the large scale producer. This should be contrasted with the market structure in monopolistic competition, where monopoly power is limited by competition from firms using identical technology to produce differentiated products. While both models share common features, one could argue that the dual technology model is relatively more appealing in a less developed economy context, where small scale production is a relatively more important feature of the economy.

New economic geography models, such as Dupont and Martin (2003), Forslid (2004), Midelfart (2004), analyse the location of activity, i.e., the question of where people and firms are. These models may generate core-periphery outcomes, and the policy issue is how to attract firms to the peripheral region. Since concentration of economic activity is generally the more efficient solution for the economy as a whole, policies that aim at a greater dispersion of industrial production must trade off distributional gains against efficiency losses.

In contrast, we focus on a single region, and analyse not where people are, but what they do. The ambition of economic policy is to mobilize local resources to more productive use, from the traditional sector to the more efficient modern sector. On the road to industrialization, however, there is a danger that resources will be caught up in a completely unproductive activity, namely rent seeking. In this sense, people in our model may be involved in zero productive, low productive, or highly productive activities. Note also that in the present analysis, the regional policy may create efficiency gains.

Our paper is related to Baland and Francois (2000) and Torvik (2002). In both of these contributions a dual technology, limit pricing model is used to analyse the effect of an external resource inflow on a rent seeking economy. Focusing on rents from natural resources, their main observation is that the inflow of resources leads to increased rent seeking, which drains productive entrepreneurship. Due to economies of scale in the productive sector, the external inflow of resources may actually lead to a lower income for the economy as a whole. While the present analysis is based on the same model of imperfect competition, our paper differs from both of these papers by analysing how an inflow of resources, in the form of regional aid, should be designed in order to promote growth in a rent seeking economy.

The paper is organised as follows. We start out by describing the basic model without rent seeking. Section 3 introduces rent seeking. Section 4 analyses the choice between broad based and targeted policy in a rent seeking

economy. Section 5 concludes.

2 Model

Consider an economy consisting of two sectors, each producing a good x_i . The goods can be produced by means of two technologies, traditional and modern, using labor as the only input. Total labor supply L in the region is given, and normalized to unity. The traditional technology is constant returns to scale, with one unit of labour producing $1/\alpha$ units of output. We choose the wage rate in the traditional sector as numeraire, so that the marginal cost of traditional production is α . There is perfect competition between the traditional producers, and hence α is also the supply price.

Modern technology is increasing returns to scale. indicated by superscript irs , and described by the following labor input requirement:

$$l_i^{irs} = f + \alpha\beta x_i^{irs}. \quad (1)$$

Here, f is a fixed cost and $\beta < 1$ is an inverse measure of the productivity markup in modern production relative to traditional production.

Consumption choice is based on a Cobb-Douglas utility function with equal budget shares. When in operation, the profit maximizing strategy of a modern firm is limit pricing, choosing a price (marginally below) traditional producers' supply price α . In this way, a modern firm captures the entire market for its product. Its monopoly power is, however, limited by the potential entry of small scale producers.

The wage rate in modern sector production is fixed, and given by $w > 1$. Using data from Ghana, Teal (1996) finds that the wage gap between formal and informal sector employment is significant, and that trade unions, firm size, foreign and state ownership, and firm level profits positively affect the wage gap. Profits for firm i are given by:

$$\pi_i = \alpha x_i^{irs} - w l_i^{irs}. \quad (2)$$

We can think of the wage markup relative to traditional sector, $w - 1$, as determined by trade unions active in the formal sector, or to a politically determined minimum wage, being effective only in the modern sector.

The role for regional policy in the present analysis is to solve a coordination failure. In a traditional economy, each potential entrepreneur will not

find it profitable to invest in modern technology, but if many (both) sectors industrialized in a coordinated move, each investment would be profitable.

Assume that a potential entrepreneur who considers investing in modern technology takes into account the effect of the investment on income in the economy, which in turn affects the profitability of the investment. However, she takes the status of the remaining sector of the economy as given, and hence does not internalize any response by other firms to her investment decision. If an investment takes place in sector i while sector j is traditional, regional income is given by:

$$Y^{MT} = 1 + (w - 1) l_i^{irs} + \pi_i. \quad (3)$$

Profits, as perceived by the investor in sector i , are therefore given by:

$$\pi_i^{MT} = \frac{Y^{MT}}{2} - w l_i^{irs}. \quad (4)$$

With modern production in sector i and traditional in j , equilibrium in labor and goods markets imply that:

$$x_j^{crs} = x_i^{irs} \Rightarrow \frac{l_j^{crs}}{\alpha} = \frac{l_i^{irs} - f}{\alpha\beta}, \quad \text{for } x_j^{crs} > 0. \quad (5)$$

Using (5) and the fact that $L = 1 = l_j^{crs} + l_i^{irs}$, the optimal number of workers in the modern sector is given by:

$$l_i^{irs} = \frac{\beta + f}{\beta + 1}, \quad \text{for } x_j^{crs} > 0. \quad (6)$$

Using (6) in (1), we can express the output of a modern firm in this partly industrialized economy as:

$$x_i^{irs} = \frac{1 - f}{(\beta + 1)\alpha}, \quad \text{for } x_j^{crs} > 0. \quad (7)$$

Using (6) and (7) in (4), we can express the profits perceived by a potential investor in sector i as:

$$\pi_i^{MT} = \frac{1 - f - w(\beta + f)}{\beta + 1}. \quad (8)$$

From (8) we see that:

$$\pi_i^{MT} < 0 \Rightarrow f > \frac{1 - w\beta}{w + 1}. \quad (9)$$

When the inequality in (9) holds, a potential investor will not find it profitable to adopt a modern technology. Under these circumstances, both sectors will continue to produce by means of traditional technology, and income in the economy, Y^{TT} is equal to one.¹

The non-profitability condition, as expressed by (9), is a necessary but not sufficient condition for the existence of coordination failure. We also need to derive the condition for when a coordinated investment is indeed profitable. When both sectors have modernized, regional income is given by

$$Y^{MM} = w + 2\pi_i. \quad (10)$$

When both sectors have modernized, $l_i^{irs} = l_j^{irs} = 0.5$, and the equilibrium condition in the goods and labor market is given by the following equation:

$$x_i^{irs} = x_j^{irs} = \frac{0.5 - f}{\alpha\beta}. \quad (11)$$

Using (11) and $l_i^{irs} = l_j^{irs} = 0.5$ in (2), profits in a fully industrialized economy can be expressed as:

$$\pi_i^{MM} = \frac{1 - 2f - w\beta}{2\beta}. \quad (12)$$

A coordinated investment is profitable if:

$$\pi_i^{MM} > 0 \Rightarrow f < \frac{1 - w\beta}{2}. \quad (13)$$

The condition for multiple equilibria to exist in the present model is therefore given by:

$$\pi_i^{MT} < 0 < \pi_i^{MM} \Leftrightarrow \frac{1 - w\beta}{w + 1} < f < \frac{1 - w\beta}{2}. \quad (14)$$

Hence, coordination failure applies if the fixed costs take on an intermediate value, such that it is unprofitable for a single firm to invest but profitable

¹Note that a change in α does not affect Y^{TT} . The reason is that the change in quantity is perfectly cancelled out by a change in price in the opposite direction. Hence, while a change in α affects real output, in nominal terms, income stays the same.

for the two firms to invest in tandem. We assume that the inequalities in (14) apply, implying that the regional economy, characterized by traditional production, is caught in a low-income trap. Our aim is to analyse policies that may lead the country out of the traditional technology equilibrium, and to a fully modernized economy. One way to implement the coordinated investment is to offer subsidies such that one firm invests. Given investment by one firm, the condition $\pi_i^{MM} > 0$ implies that the second firm will also find it profitable to invest, even without a subsidy. In what now follows, we analyse the efficiency of different policies in moving the economy the industrialized equilibrium.

We distinguish between broad based policies that offer investment incentives to both firms in a non-discriminatory way, and targeted policies where the policy maker picks a ‘winner’, and relies on the spillover effects from this investment to create an incentive also for the non-favored firm to invest.²

For concreteness, we model economic policy as an investment subsidy, s . The policy could be in the form of subsidized credit, or more indirect measures that increase the profitability of investment, such as investments in education and infrastructure. The targeted policy reduces the fixed investment cost to the selected firm, whereas the broad based policy offers the same incentive to both firms.

Subtracting s from f in (8), the level of s such that a single investor exactly breaks even, i.e., such that $\pi_i^{MT} = 0$, can be found as:

$$s^* = \frac{f + w(\beta + f) - 1}{1 + w}. \quad (15)$$

When $s \geq s^*$ has been offered to one firm, this firm will invest. Once this investment has been successfully carried out, the other firm will also find it profitable to invest (since $\pi_i^{MM} > 0$). By making use of the demand linkages created by the investment, the policy maker only has to offer s^* to a single firm in order to stimulate a move to the industrialized equilibrium. The alternative would be a broad based policy offering s^* to both firms, which clearly involves twice the amount of investment subsidies compared to the targeted policy.

In a weak institutional environment, however, targeted policies open up for rent seeking and patronage employment in a *quid pro quo* exchange be-

²In our model the optimal policy might require asymmetric incentives even if sectors are identical. For an interesting discussion on optimal incentives with identical agents, see Winter (2004).

tween firms and policy makers. Our fundamental assumption is that broad based policies are not exposed to this kind of interaction between firms and policy makers, since broad based policies do not discriminate between firms. We first formalize rent seeking, and then turn to the optimal choice of policy.

3 Rent seeking

Rent seeking may take place at two levels in our model. First, by firms lobbying policy makers for the targeted investment subsidy, and second, by workers lobbying policy makers for well paid, modern sector employment.

3.1 Rent seeking by firms

Firms compete for targeted subsidies by offering to establish patronage positions, i.e., jobs that the policy maker can allocated to people of his own choice. People employed for political reasons can reasonably be expected to be less productive than those employed for their skills. We simplify by assuming that patronage labor is completely unproductive.

Let l_i^g be the number of patronage positions offered by firm i and l_j^g by firm j . The probability of firm i receiving the subsidy is given by:

$$\rho_i = \frac{l_i^g}{l_i^g + l_j^g}. \quad (16)$$

Hence, the more patronage positions that a firm offers relative to its competitor, the larger is the likelihood that this firm will receive the transfer. We assume that the responsiveness of the government to lobbying, in their decision on which firm to favor with the investment subsidy, depends on the institutional quality of the region, given by θ . The higher is θ the lower is the institutional quality.

There are certain transaction costs for firms associated with lobbying. These costs include such factors as time spent formulating an offer of patronage employment, and time spent ‘selling’ this offer to the policy maker. We model these costs simply as a fixed cost g . The expected benefit of a firm i from lobbying for subsidies is therefore given by:

$$v_i = \rho_i \theta s - w l_i^g - g \quad (17)$$

where the first term is expected gain from lobbying, with θs being the size of the rent, the second term is the cost in terms of patronage positions and the last term represents the fixed lobbying costs. Maximizing (17) with respect to l_i^g , we get the first order condition:

$$\frac{\partial v_i}{\partial l_i^g} = \frac{\theta s l_i^g}{(l_i^g + l_j^g)^2} - w = 0 \quad (18)$$

Using (18) in (16), and the fact that in a symmetric equilibrium $l_i^g = l_j^g = l^g$ and therefore $\rho_i = \rho_j = 0.5$, we get:

$$l^g = \frac{\theta s}{4w}. \quad (19)$$

We see from (19) that the number of patronage positions in equilibrium increases in the size of the rent θs and decreases in the modern sector wage.

3.2 Rent seeking by workers

Workers in the traditional sector are aware of the possibility of getting well-paid jobs in the formal sector by offering loyalty, votes or bribes to policy makers, possibly via some pressure groups that act as intermediaries (like the mafia). The workers have to compete for the attention of the policy makers or pressure groups, and this takes time. The resources devoted to lobbying, which we shall also refer to as rent seeking, is given by l^{rs} . In equilibrium, the level of rent seeking can be found from the condition:

$$1 = \frac{w l^g}{l^{rs} + l^g}. \quad (20)$$

The left hand side of (20) is the marginal cost of lobbying, given by the wage in the traditional sector. The right hand side gives the marginal income, in expected terms, from lobbying. Here, the probability of getting a patronage position is given by the number of jobs open to rent seeking, l^g , divided by the number of people looking for these jobs, $l^{rs} + l^g$. Hence, l^{rs} is the number of people that have failed in their attempt to obtain patronage employment. The time spent lobbying yields zero income.³ Rearranging (20), we get:

$$l^{rs} = (w - 1) l^g. \quad (21)$$

³This formulation of rent seeking is similar to that guiding urban migration in the well known Harris-Todaro model.

In a rent seeking economy, labor input in a modern firm as the single investor in the region is given by:

$$\hat{l}_i^{irs} = f + \alpha\beta\hat{x}_i^{irs} + l^g, \quad \text{for } x_j^{crs} > 0, \quad (22)$$

where \hat{x}_i^{irs} is the firm's output, to be derived below. Clearly, for $l^g = 0$, (22) reduces to (1). The product market equilibrium in this case is characterized by:

$$x_j^{crs} = \hat{x}_i^{irs} \Rightarrow \frac{l_j^{crs}}{\alpha} = \frac{\hat{l}_i^{irs} - l^g - f}{\alpha\beta}, \quad \text{for } x_j^{crs} > 0, \quad (23)$$

which reduces to (5) for $l^g = 0$. With rent seeking, the resource constraint in a partially industrialized economy is given by $L = 1 = l_j^{crs} + \hat{l}_i^{irs} + l^{rs} + 2g$. The last term, $2g$, refers to the transaction costs associated with the two entrepreneurs' lobbying for the targeted investment subsidy. Using this information, (22) and (23), we find that:

$$\hat{l}_i^{irs} = \frac{\beta + f}{\beta + 1} + \frac{(1 - w\beta + \beta)\theta s - 8g\beta w}{4w(1 + \beta)}, \quad \text{for } x_j^{crs} > 0. \quad (24)$$

The second term in (24) represents the distortion in formal sector employment due to rent seeking. This can be seen by noting that in a perfect institutional environment, $\theta = 0$ and $g = 0$, so that (24) reduces to (6). Whether rent seeking leads to more or less modern sector employment in a partially industrialized equilibrium, depends on two components. On the one hand, the presence of patronage jobs expands occupation in the modern sector. An increase in the amount of the subsidy (s) and in the likelihood of being able to obtain it, as measured by the institutional quality (θ), increases the expected benefits from lobbying and in turn increases the level of patronage employment. On the other hand, rent seeking ties up real resources, with zero productive workers in patronage positions, unsuccessful rent seekers who are left unemployed, and resources wasted in the fixed transaction costs (g). This resource waste reduces income and therefore demand and supply in the economy. The balance between these two contrasting effects determines the sign of the second term in (24), and therefore whether rent seeking expands or contracts modern sector employment.

Using (22), we can express the equilibrium quantity of goods to be supplied by the modern firm as:

$$\hat{x}_i^{irs} = \frac{1-f}{(\beta+1)\alpha} - \frac{8g+\theta s}{4(\beta+1)\alpha}, \quad \text{for } x_j^{crs} > 0. \quad (25)$$

The second term in (25) captures the distortion in modern firm supply due to rent seeking. Clearly, for $g, \theta, s > 0$ this term is negative. In a perfect institutional environment, $g = \theta = 0$, and (25) reduces to (7). Profits in a rent seeking economy can be expressed as:

$$\hat{\pi}_i^{MT} = \frac{1 - \hat{l}_i^{irs} - 2g - l^{rs} + w\hat{l}_i^{irs} + \hat{\pi}_i^{MT}}{2} - w\hat{l}_i^{irs} - g, \quad (26)$$

where the numerator of the first term on the right hand side is \hat{Y}^{MT} . Subtracting s from the fixed investment cost, and using (21), (24), and (25), we can express profits as a function of (amongst other things) institutional quality θ , the investment subsidy s , and the fixed lobbying cost g , as:

$$\hat{\pi}_i^{MT} = \frac{4 + 8g(w\beta - 2 - \beta) - 4(w+1)(f-s) - 2s\theta - 4w\beta - s\theta\beta(1-w)}{4(1+\beta)} \quad (27)$$

We now turn to the issue of optimal policy choice, in an imperfect institutional environment characterized by rent seeking.

4 Broad based versus targeted policies

The minimum level of a targeted investment subsidy required for the favored firm to break even can be found from the condition $\hat{\pi}_i^{MT} = 0$, resulting in:

$$\hat{s}^* = \frac{4(f + fw + w\beta + 2g(\beta - w\beta + 2) - 1)}{4w - 2\theta - \theta\beta + w\theta\beta + 4}. \quad (28)$$

Figure 1 illustrates the choice between broad based policies, offering s^* to each firm, and the targeted policy \hat{s}^* .⁴

Clearly, for $\theta < \theta^*$, the targeted policy is less costly than the broad based policy. Here, the institutional quality is sufficiently developed to allow targeted polices to be implemented without attracting too much rent seeking. On the other hand, for $\theta > \theta^*$, the institutional quality is relatively poor,

⁴The numerical values upon which the figure is based are: $f = 0.3, \beta = 0.3, w = 1.3, g = 0.0017$.

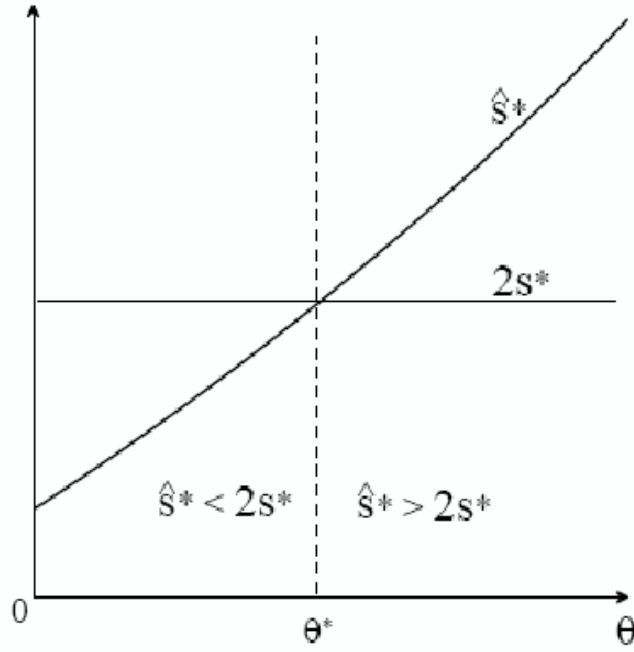


Figure 1: Broad based versus targeted policy

and the rent seeking costs of targeted policies sufficiently important to make broad based policies the less costly choice.

The critical level of institutional quality at which the targeted and broad based policy create investment at equal cost, can be found as:

$$\theta^* = \frac{2(1-f) + 2w(1-\beta + 4g - 2f) + 4g(2+\beta) - w^2(2f + 2\beta + 4g\beta)}{\beta(1-f) - 2f(1+w) - 3w\beta - w\beta^2 + w^2\beta(f+\beta) + 2}. \quad (29)$$

It can be shown that θ^* increases in β , f , and w , and falls in g . Indeed, if β , f , or w are sufficiently small, and/or g is sufficiently large, the broad based policy is preferable for all $\theta \in (0, 1)$. Similarly, if β , f , or w are sufficiently large, and/or g is sufficiently small, the targeted policy is preferable for all $\theta \in (0, 1)$.

Intuitively, the higher are β , f , or w , the more costly it is to establish profitable large-scale production. This is an argument in favor of a targeted policy. A higher level of g increases the cost of the targeted policy, by increasing the transaction costs associated with lobbying for the investment subsidy.

5 Conclusion

Regional policies aimed at creating economic development through industrialization have often failed to meet expectations. In particular in regions with poor political and economic institutions, these policies seem to have had only negligible effects on economic growth. Our analysis has attempted to shed light on this observation, by emphasising the effect of rent seeking on the optimal policy choice.

We demonstrate that in a situation with poor institutions, offering targeted investment incentives may create rent seeking, which crowds out some of the effect of the policy. In this way, creating industrialization by means of targeted policies in regions with less developed institutions may be very costly. Indeed, if the policy maker or donor does not internalize the crowding out effect of rent seeking, the investment incentives are likely to be too small, and therefore fail in moving the economy to a higher income equilibrium.

If the institutional quality is sufficiently poor, broad based policies are likely to be less costly in terms of generating industrialization. Since broad based policies do not involve discrimination between firms, these policies are less likely to be ‘captured’ by special interest groups.

References

- [1] Alesina, A., S. Danninger, and M.V. Rostagno (1999). Redistribution through public employment: The case of Italy, NBER Working Paper 7387.
- [2] Baland, J.-M. and P. Francois (2000). Rent-seeking and resource booms, *Journal of Development Economics* 61: 527-542.
- [3] Boldrin, M. and F. Canova (2001). Inequality and convergence in Europe’s regions: reconsidering European regional policies, *Economic Policy* 16 (32): 205-253.
- [4] Burnside, C. and D. Dollar (2000). Aid, policies, and growth, *American Economic Review* 90: 847-867.

- [5] Cappelen, A., F. Castellacci, J. Fagerberg and B. Verspagen (2003). The impact of EU regional support on growth and convergence in the European Union, *Journal of Common Market Studies* 41: 621-644.
- [6] Dupont, V., and P. Martin (2003). Subsidies to poor regions and inequalities: Some unpleasant arithmetic, CEPR Discussion Paper 4107.
- [7] Ederveen, S., H.L.F de Groot, R. Nahuis (2003). Fertile soil for Structural Funds? A Panel data analysis of the conditional effectiveness of European cohesion policy, Tinbergen Discussion, 02-096/2003.
- [8] European Commission (2001). Unity, solidarity, diversity for Europe, its people and territory, *Second Report on Economic and Social Cohesion*, Luxemburg: Office for official publications of the European Communities.
- [9] Forslid, R. (2004). Regional policy, integration and the location of industry in a multiregional framework, CEPR Discussion Paper 4630.
- [10] Frye, T. (2002). Capture or exchange? Business lobbying in Russia, *Forthcoming in Europe-Asia Studies*.
- [11] Harris, J. and M. Todaro (1970). Migration, Unemployment and Development: A Two Sector Analysis, *American Economic Review* 40: 126-142.
- [12] Lewis, W.A. (1979). The dual economy revisited. *The Manchester School*, vol. 47: 211-229.
- [13] Midelfart K. H. and H. Overman (2002). Delocation and European integration: Is structural spending justified?, *Economic Policy* 17 (35): 323-359.
- [14] Midelfart, K. H. (2004). Regional policy design: An analysis of relocation, efficiency and equity, CEPR Discussion Paper 4321.
- [15] Murphy, K.A., A. Shleifer, and R. Vishny (1989). Industrialization and the big push, *Journal of Political Economy* 97 (October): 1003-1026.
- [16] Robinson, J.A. and T. Verider (2003). The political economy of clientelism, mimeo, Harvard University.

- [17] Rosenzweig, M. (1988). Labor markets in low income countries, in H. Chenery and T.N. Srinivasan, eds., Handbook of Development Economics, vol. 1, Amsterdam, North-Holland.
- [18] Teal, F. (1996). The size and sources of economic rents in a developing country manufacturing labour market, The Economic Journal 106: 963-976.
- [19] Torvik, R. (2002). Natural resources, rent seeking and welfare, Journal of Development Economics 67: 455-470.
- [20] Winter, E. (2004). Incentives and Discrimination, American Economic Review 94 (3): 764-773.