

# Regional policy and rent seeking

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## Abstract

The most important policy instrument to promote regional development in the European Union is Structural Funds, covering approximately a third of the EU budget. An empirical analysis demonstrates that these funds have on average been ineffective in speeding up the process of convergence within the European Union. Only in countries with sufficiently good institutions have these funds contributed positively to regional development. Our analysis attempts to shed light on how investment subsidies may create industrialization, and more importantly, how poor quality institutions may prevent this strategy from succeeding.

JEL codes:

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## 1 Introduction

The attraction into lagging-behind economy of public and/or private firms is high on the political agenda in both developed and developing country. The consensus around these policies reached a peak in the sixties and seventies when “growth poles”, “big push” and similar expressions were considered magic words. The poor success of many (if not most) of the policy experiences inspired by this philosophy has cooled off the enthusiasm and optimism of those years. In the European Union, the most important policy instrument to promote regional development is Structural Funds, covering approximately a third of the EU budget. In an empirical analysis of the European Structural Funds, Ederveen et al (2004) demonstrate that these funds have on average

been ineffective in speeding up the process of convergence within the European Union. Their study shows that these funds have been effective only in countries with sufficiently good institutions.

Our analysis attempts to shed light on how investment subsidies may create industrialization, and more importantly, how poor quality institutions may prevent this strategy from succeeding. We focus on the response by local entrepreneurs to regional development policies. These policies may take different forms, but essentially involve an inflow of funds (aid) to a region. In our model entrepreneurs may respond to the aid either by investing and innovating or by rent-seeking. If a sufficiently large number of entrepreneurs choose rent-seeking, the policy is likely to be a failure. If, on the other hand, the local entrepreneurs take advantage of the capital subsidy, the result may be a move to a higher income equilibrium. The model analyses the conditions under which rent-seeking is the more likely response to regional aid, and when this aid is likely to trigger innovation and investment. We draw policy implications with respect to the optimal policy design of regional aid.

Our model is based on the dual technology, limit pricing model of Murphy, Shleifer and Vishny (1989), and in particular on a simplified version of this model presented in Krugman (1992).

## 2 Model

Consider an economy consisting of  $L$  workers producing  $N$  goods. Each of these goods can be produced by means of two technologies, traditional and modern. The traditional technology is constant returns to scale, one unit of labor producing one unit of output. We will sometimes refer to this as the informal sector. The modern technology is increasing returns to scale, described by the following labor input requirement:

$$L_i = F + \alpha Q_i, \tag{1}$$

where  $L_i$  is the labor input in the production of good  $Q_i$ ,  $F$  is a fixed startup cost (which can be interpreted as a capital investment), and  $\alpha < 1$  is the marginal labor input requirement. Demand for the  $N$  goods is Cobb Douglas and symmetric. This means that a share  $1/N$  of income is spent on each good.

The supply price in the traditional sector is unity. This is a perfectly competitive sector. Modern technology, if it is introduced, is controlled by

a single entrepreneur for each good. The monopoly power of this firm is, however, constrained by the potential entry of small-scale producers in the informal sector. With Cobb Douglas preferences, demand is unit elastic. Hence, the optimal pricing decision without competition would be to set the price infinitely high. Given potential entry by small scale producers, the optimal pricing decision is one of limit pricing. The modern sector producer will charge a price marginally below unity, and thereby capture the entire market for its product.

Modern sector producers must pay a wage premium relative to what a worker makes in the informal sector. This wage premium may reflect a legally defined minimum wage, and/or perhaps compensation for workers' everyday travel to and from work. Let the formal sector wage be given by  $w > 1$ .

With only traditional production, total income is given by only labor income. Demand for each good is therefore given by:

$$Q_T = \frac{L}{N}. \quad (2)$$

With only modern sector production,

$$Q_M = \frac{\left(\frac{L}{N} - F\right)}{\alpha}. \quad (3)$$

Figure 1 describes production costs and revenues of a representative producer. The production functions, which also represent revenue functions (since prices are unity), are given by  $T$  for traditional technology and  $M$  for modern technology. Production costs in the modern sector are given by  $W = wL_i$ . The traditional equilibrium is given by point  $a$  and the modern equilibrium by point  $c$ . Due to the symmetry of the problem, labor input is  $L/N$  in both equilibria.

Take the traditional equilibrium,  $a$ , as point of departure. This is a stable equilibrium since any single entrepreneur will not find it profitable to undertake the investment necessary to introduce modern technology. Disregarding income effects, the demand facing this producer is  $Q_T$ . Implementing modern technology reduces labor input, and leads to income given by point  $b$ . Clearly, given the modern sector wage premium, this is not a profitable investment.

On the other hand, if the entrepreneurs in a coordinated move managed to implement modern technology, then the economy would move to point

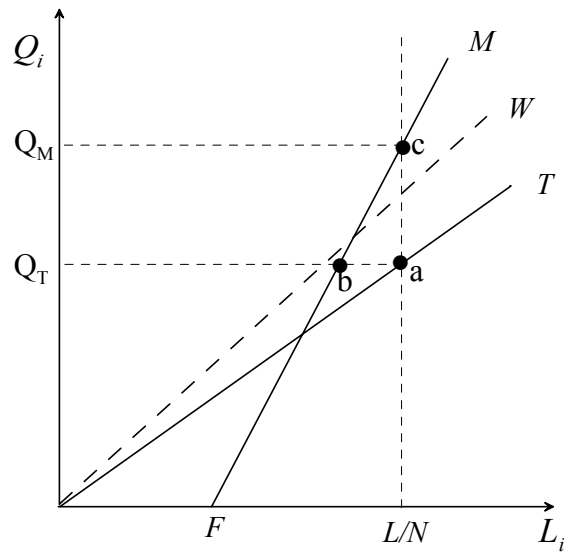


Figure 1: Traditional and modern equilibrium

*c.* Clearly, income for each formal sector producer here exceeds costs. Intuitively, by investing together, profits are created that give rise to income that is spent on all goods. The fundamental problem with industrialization in this model is therefore one of externalities. Each producer does not take into account the added demand that his or her investment generates for all other producers in the economy. There is therefore room for government intervention in order to stimulate a coordinated investment effort. In less developed economies, the investment stimulus sometimes comes in the form of an investment subsidy from abroad, one example being EUs Structural Funds.

## 2.1 Regional policy

The investment subsidy is captured by our model by a reduction in the fixed investment cost  $F$ . Each firm receives a subsidy  $R$ . Figure 2 demonstrates how such a subsidy may lead to modernization by making it profitable for a single entrepreneur to implement modern technology in an otherwise entirely traditional economy. The subsidy leads to a shift in the  $M$ -line to  $M'$ . Once this investment has been made, this strengthens the profitability of invest-

ment for the other entrepreneurs, the result being a move from point  $a$ , via  $d$ , to point  $e$ .

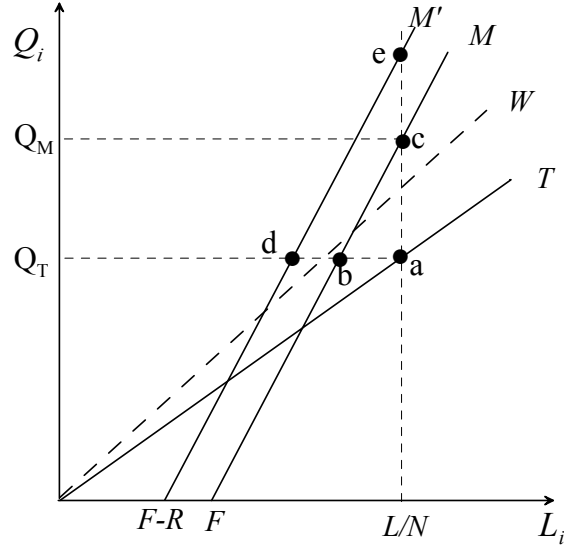


Figure 2: Regional policy

## 2.2 Rent seeking

The investment aid is assumed to be administered by the local government. The quality of this government determines the degree to which the investment funds actually end up where they are supposed to. Each firm may have an incentive to offer bribes or lobby the local government for special treatment. Or perhaps corrupt local bureaucrats demand bribes in order to pay out the investment subsidy that the firms were supposed to get for free. The degree to which a given bribe actually reduces firms' startup costs is given by  $(1 - \lambda)$ , where  $\lambda$  is an inverse measure of institutional quality, such as a corruption index. If  $\lambda = 0$ , the entire investment subsidy reaches the firms, and the analysis is as described in Figure 2. If, on the other hand,  $\lambda = 1$ , there is complete rent dissipation, and the investment aid does not affect firms' startup costs at all. The analysis is then as described by Figure 1.

Hence, for a given  $R$ , there exists a critical level of corruption,  $\lambda^*$ , above which structural funds have no effect on the economy at all. For levels of

corruption below  $\lambda^*$ , structural funds may move the economy from a low income equilibrium to a higher income equilibrium.

Thus, our model provides a formalization of the empirical finding in Ederveen et al (2004) that structural funds are effective only if the institutional quality of the recipient government is sufficiently good.

### 3 Conclusion

The present model demonstrates how institutional quality may affect the impact of investment subsidies. In a situation with a weak institutional environment, investment aid will trigger lobbying and rent seeking, thus reducing the net effect of the policy on firms' start up costs. In a situation with a higher quality institutional environment, however, such funds may reduce the costs of investing in modern technology, and may thus cause the economy to move from a low income, traditional technology equilibrium, to a higher income, modern technology equilibrium.

### References

- [1] Ederveen, S., H.L.F. de Groot, R. Nahuys (2004). "Fertile soil for structural funds? A panel data analysis of the conditional effectiveness of European cohesion policy," mimeo
- [2] Krugman, P. (1992). "Toward a counter-counter revolution in development theory," World Bank Conference on Development Economics 1992: 15-32.
- [3] Murphy, K. A. Shleifer, R. Vishny (1989). "Industrialization and the Big Push," Journal of Political Economy 97 (October): 1003-1026.