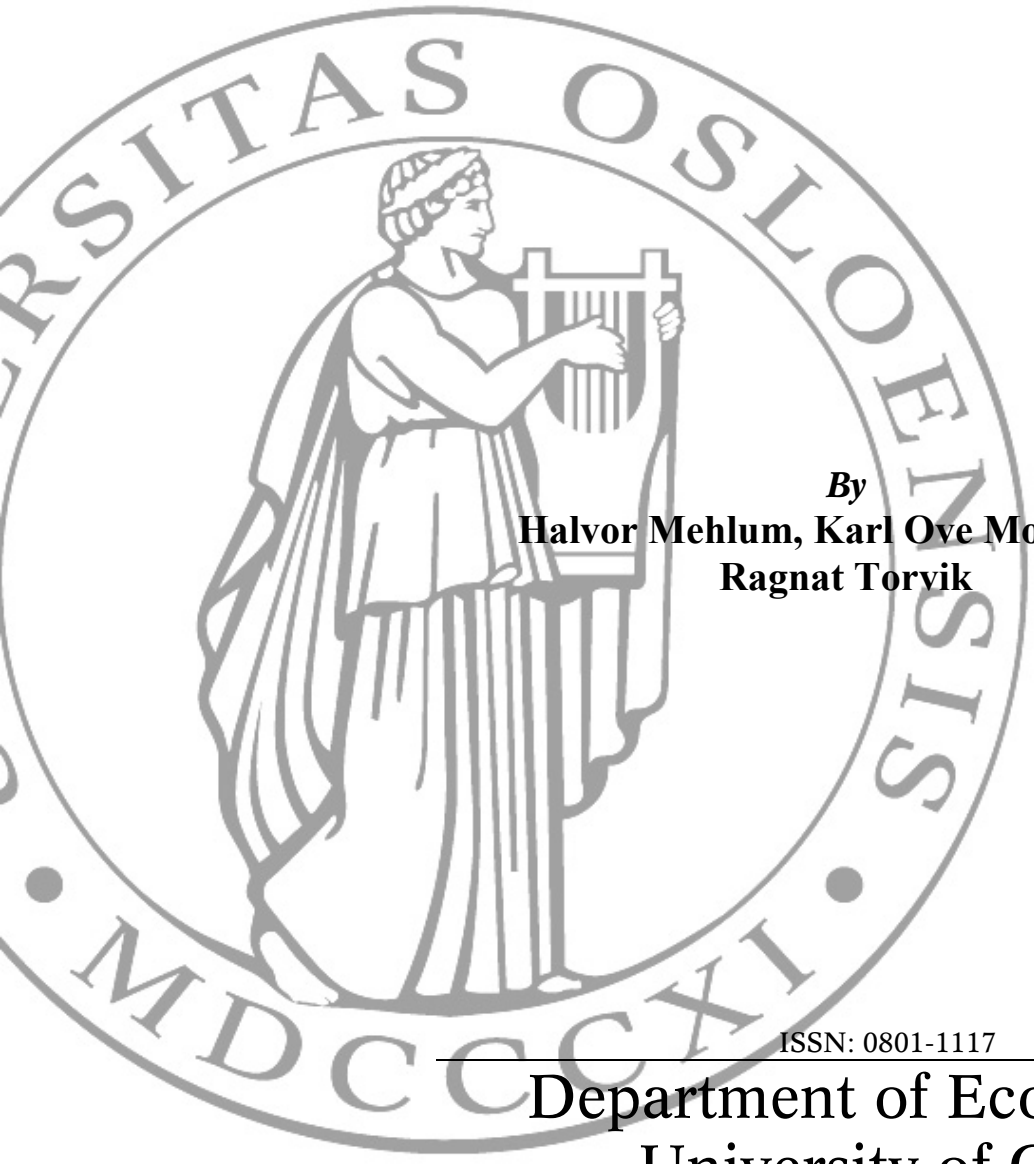
MEMORANDUM

No 16/2003

Parasites



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ISSN: 0801-1117

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This series is published by the
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Parasites*

Halvor Mehlum, Karl Moene and Ragnar Torvik

1 Introduction

Unproductive enterprises that feed on productive businesses, are rampant in developing countries. These parasitic enterprises take divergent forms, some headed by violent bandits and brutal mafia bosses, others by organized middlemen or smart political insiders. All of them seem to have the profit motive in common. A consequence of parasitic enterprises is that societies may be locked into a self enforcing configuration of beliefs and practices that result in persistent poverty.

In some instances the parasites are former youth gangs or rebel groups that are transformed to criminal enterprises feeding on private businesses (Collier 2000). Such bandits not only extort and control small-scale informal enterprises, street sellers and sweat shops, but the most professional among the plunderers prey on large-scale modern firms. One case in point is the lucrative businesses of kidnapping and extortion in Colombia, where guerrillas collect more than hundred million US dollars per year only from the oil industry alone (Hunter, 1996).

Other parasitic enterprises act like a Mafia, providing protection, enforcing contracts, and mediating disputes for money. These enterprises apply force on a commercial basis to collect debt and enforce business contracts. "Problem solving" that normally belongs to the realm of the state is undertaken by violent entrepreneurs and their gangs, where the targets have to pay tributes to avoid damages. Even though these predatory forms of illegal activities can be found in industrialized countries — with the Sicilian and the

*We thank Kaushik Basu for productive discussions. We have also benefitted from useful comments by Sam Bowles and Karla Hoff. We are grateful for support from the Norwegian Research Council.

American Mafia the best-known examples— they are more prevalent and more burdensome in developing countries and in the transition economies of Eastern Europe and the former Soviet Union.

In the transition countries the institutional vacuum created by the collapse of communism has opened the scene for extortion by such mafia-like parasites. Their activities belong to the growing shadow economy (Campos 2000). One example is private enforcement of business contracts, by threat of violence from criminal gangs, that became routine in the Russian business world in the 1990s. As Volkov observed, "[b]efore signing formal business contracts, companies acquire information on each other's enforcement partners (*whom do you work with?*)"(Volkov 1999 p.746). Such criminal gangs can obtain a considerable influence over private businesses. According to the Russian Ministry of Internal Affairs, criminal gangs in 1994 controlled 40,000 Russian businesses (Volkov 1999).

Parasitic enterprises can also be run by middlemen who organize marketing boards with substantial monopsony power, or by wealthy land-owners who provide credit at exploitative interest rates. Political insiders set up their own parasitic enterprises that private sector companies have to consult and remunerate in order to have certain contracts signed. These activities, sometimes called *straddling*, are common in Africa. In Kenya, for example, president Moi allowed extensive straddling among politicians and bureaucrats in exchange for loyalty to the government (Bates 1983, Bigsten and Moene 1996). Finally, parasites are not always private enterprises, but can be found as corrupt politicians and bureaucrats who collect bribes and use their positions for own private benefit.

All these kinds of parasitic rent appropriation activities that are directed towards private businesses flourish in the absence of a state that effectively protects property rights, and enforces contracts. Thus parasitic rent appropriation is different from regular rent-seeking that captures activities directed towards an active state undertaking regulations that private businesses wish to avoid or benefit from. While regular rent seeking distort political decisions via wasteful influence activities, parasitic rent appropriation challenges the state's monopoly of taxation, protection and legitimate violence. In this paper we highlight some of the causes and consequences of these parasitic behaviors.

Our basic claim is based on the premise that entrepreneurs of both productive and parasitic enterprises to some extent are drawn from the same limited pool of entrepreneurs.

When this is the case, the rise of parasitic profit opportunities may cause economic stagnation and underdevelopment that in turn enhance the profitability of parasitic enterprises relative to productive enterprises. Thus parasitic rent appropriation may induce stagnation, while stagnation may induce parasitic activities. Together the two links can lead developing economies into a poverty trap.

In order to study the consequences of parasitic profit opportunities, we embed parasitic activities within a big-push model of industrialization. Parasitic activities compete for scarce entrepreneurial resources, as in the seminal papers on the misallocation of talent to unproductive activities by Usher (1987), Baumol (1990), Murphy, Shleifer, and Vishny (1991 and 1993), and Acemoglu (1995).[1] First, however we clarify what we mean by a poverty trap and how it is related to the concepts of strategic complementarity.

2 Joint economies, strategic complements, and the poverty trap

We define a *poverty trap* as the bad equilibrium outcome in a situation where there also exists a good equilibrium. As with other traps, the poverty trap can be avoided, but once you are in a trap it is difficult to escape. The dynamics that leads to the trap may be described as a vicious circle, while the dynamics that lead to the good equilibrium is a virtuous circle. A poverty-trap model, containing a vicious circle and a trap, also contains a virtuous circle and a good equilibrium.

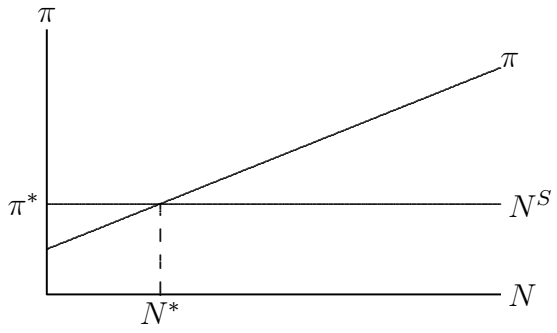
An important class of poverty traps are due to coordination failures. Many such models are discussed in Cooper and John (1988) and Hoff (2001). A necessary condition for multiple equilibria in such models is that the actions of agents are strategic complements. Strategic complementarity implies that an agent's *marginal* return from an action increases with the number of other agents undertaking the same action.[2] Strategic complementarity may give rise to herd behavior that, depending on the initial conditions, can be either virtuous or vicious.

One well-known model of this kind is the classical big-push model of Rosenstein-Rodan (1943), where the profitability of modernization depends on the size of the market, and the size of the market depends on the degree of modernization. This complementarity

[1] See also Eaton and White (1991), Andvig (1997), Grossman (1998), Konrad and Skaperdas (1998), Chand and Moene (1999), Baland and Francois (2000), Bowles and Choi (2002) and Torvik (2002).

[2] The concepts of strategic complements and strategic substitutes are further discussed in Bulow, Geanakoplos and Klemper (1985).

Figure 1: Big-push poverty trap



easily generates a poverty trap, as illustrated by Figure 1. In the figure, N is the number of modern firms while π is the profit for each of them. The horizontal line N^S indicates the supply of entrepreneurship: If π exceeds the threshold π^*, entrepreneurs are willing to set up modern firms. If π is below the threshold, however, entrepreneurs are reluctant to invest and produce instead in a traditional sector. Thus, there are two equilibria: One without modernization, $N = 0$ and one in which all potential entrepreneurs invest in the modern sector. In this case strategic complementarity is the result of a positive externality between firms' profit *levels*. Since opportunity costs are fixed, any increase in the *level* of profit leads to an equal increase in the *marginal* profits. Moreover, by responding to higher marginal profits, each agent obtains a higher profit level. Thus, when opportunity costs are fixed, an entrepreneur regards other entrepreneurs' productive investments as strategic complements to his own, if and only if there are joint economies.

The emergence of parasitic profit opportunities dramatically alters the picture. When entrepreneurs choose between being producers or parasites, the opportunity cost of production is no longer fixed, but determined by the returns to parasites. As the number of producers increases, the return to parasites goes up as well, and the opportunity cost of production therefore increases with the number of producers. In that case the different entrepreneurs' productive investments become strategic substitutes rather than complements. This is the case even in the presence of joint economies in production. Hence, parasitic profit opportunities create an additional barrier to development that may hinder modernization that otherwise would have taken off and benefited all.

One way to further illustrate the consequence of parasitic profit opportunities is to compare the optimizing behavior of a dominant entrepreneur in the two situations. The hypothetical dominant entrepreneur is large enough to internalize the feedback effects of

his own choices and can therefore act as a bandwagon. When there are joint economies in production and productive investments are strategic complements, a dominant entrepreneur becomes more willing to invest. Thus in the situation captured in Figure 1 a dominant entrepreneur could help trigger a sustainable take-off by alone bringing modernization beyond the tipping point N^*. In other words partial coordination is sufficient to get out of the poverty trap.

When productive investments become strategic substitutes, with the rise of parasitic profit opportunities, the dominant entrepreneur becomes less willing to invest. The reason is that more investment by the dominant entrepreneur would induce other producers to switch to parasitic activities implying lower profits from investments. Thus, even though there still are joint economies in production, a dominant producer would be best off by investing less rather than more, which makes the poverty trap more difficult to avoid. In other words partial coordination is no longer sufficient to get out of the poverty trap when parasitic profit opportunities make productive investments strategic substitutes.

In order to be more specific about certain aspects of the conflict between parasites and producers, we now consider a simple model of productive and parasitic entrepreneurship.

3 A simple model of parasites and producers

Entrepreneurs can either run parasitic enterprises (B) or productive firms (A). Those who become parasites extort productive firms and provide protection against extortion by other parasites. Like ordinary business operations, parasitic activities require entrepreneurial effort and organizational skills. Unlike productive business operations, however, predation requires hardly any investment in physical capital. Parasites specialize in protection and may utilize efficient but illegitimate methods. They can therefore produce protection at a lower unit cost compared to the cost of self-defense. These characteristics are captured in the model by setting both fixed and marginal costs of parasitic activities equal to zero.

The total number of entrepreneurs in the economy, N, is distributed with a fraction α being productive firms and a fraction $(1-\alpha)$ being parasites. The probability that a producer is approached by a parasite depends on the number of parasites relative to the number of producers. The probability can be defined as the number of extortion cases divided by the number of productive firms. At each point in time each parasite

approaches only one productive firm.[3] Assuming full information and no friction, the number of extortion cases is then the lowest of αN and $(1-\alpha)N$. If α is above $1/2$ there are more producers than parasites and all parasites will find a target while only a fraction of the producers face extortion. If α is below $1/2$ there are fewer producers than parasites. All producers then face extortion while only a fraction $\alpha/(1-\alpha)$ of the parasites find a target to extort. The probability of being approached by a parasite then simply becomes $(1-\alpha)/\alpha$ when $\alpha \geq 1/2$ and is equal to 1 when $\alpha < 1/2$

Self-defense requires a cost of $\phi \in [0,1]$ per unit of production y, hence parasites preempts by asking for ϕy in protection money. Building on the big push literature we assume that there are joint economies between producers via demand externalities, hence sales $y{=}y(\alpha N)$ is increasing in the number of producers αN. The micro foundations for this formulation in a model with parasitic enterprises can be found in Mehlum, Moene and Torvik (2003a).

The parasite that is first to approach a productive firm is able to collect the protection money. The probability of being the first equals unity when there are more producers than parasites, and equals $\alpha/(1-\alpha)$ when there are fewer parasites than producers. Profits for a parasite are therefore

$$\pi_B = \begin{cases} \phi y(\alpha N) & \text{when } \alpha \geq 1/2 \\ \dfrac{\alpha}{1-\alpha}\phi y(\alpha N) & \text{when } \alpha < 1/2 \end{cases} \tag{1}$$

As the share of producers increases, profits to each parasite are positively affected. First, from $y(\alpha N)$, a higher number of producers imply higher production and more to collect in extortion money. In the region where $\alpha < 1/2$ there is also a second channel; an increase in the number of producers lowers congestion among parasites and the probability of finding a target goes up. As a consequence the π_B curve starts out at zero when $\alpha = 0$ and increases with α. In other words π_B is decreasing in the number of parasites – as there are joint economies in production there must be joint diseconomies in parasitic activities.

One example of the relationship between the share of parasites and the profits to each of them (π_B) is illustrated in Figure 1 where we measure the share of producers from left

[3]The mechanisms are also easily extended to the case where each predator can extort more than one productive firm.

to right and the share of parasites from right to left.

Let us now turn to the producers. All goods are produced within the productive sector of the economy. As already stated, there are joint economies among producers. Sales for each producer are therefore equal to $y = y(\alpha N)$. Due to market power each producer has a fixed profit margin of γ. In addition, setting up modern production facilities entails a fixed cost F. The net expected profits of each producer (π_A) are given by the margin γ net of protection and fixed costs

$$\pi_A = \begin{cases} \left(\gamma - \dfrac{1-\alpha}{\alpha}\phi\right) y(\alpha N) - F \text{ when } \alpha \geq 1/2 \\ (\gamma - \phi)\, y(\alpha N) - F \qquad \text{when } \alpha < 1/2 \end{cases} \tag{2}$$

The profit curve for producers is also drawn in Figure 2. It is increasing in α for two reasons. First, there is the demand externality. Second, when the share of producers exceeds one half, the probability of being extorted falls as the share of producers relative to parasites rises.

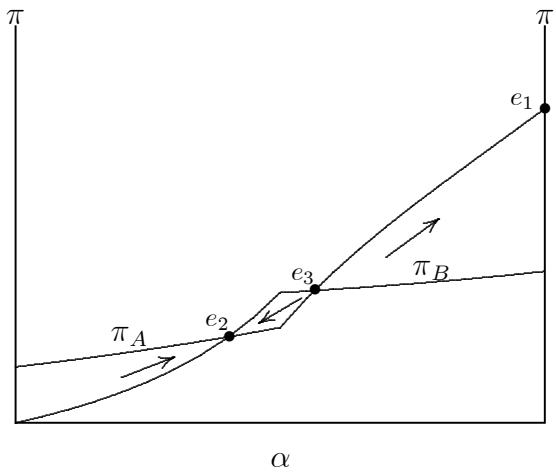
The essential features of the model are firstly joint economies in production and secondly that parasites' profits approach zero as the share of producers α declines. Several alternative specifications would yield this result. If the parasitic enterprises had to fight over ϕy, predators' profits would still go to zero - only faster. For example, if protection of each productive firm where monopolized, new parasitic enterprises would have to fight for a footing or wait for a productive firm without protection to show up. Compared to (1), both these alternatives would lower expected profits to an entering parasitic enterprise without changing the qualitative results. Taking account of the use of labor beyond entrepreneurial skills in the parasitic enterprises would just strengthen the negative effect that these parasites have on production.

3.1 Allocation of entrepreneurs

We assume that all entrepreneurs are profit-seekers. Thus entrepreneurs flow to the most profitable activity:

$$\begin{aligned} \pi_A > \pi_B &\Rightarrow \dot{\alpha} > 0 \\ \pi_A < \pi_B &\Rightarrow \dot{\alpha} < 0, \end{aligned} \tag{3}$$

Figure 2: The parasitic poverty trap



where $\dot{\alpha}$ denotes the change in α over time. Then for the share of producers and parasites to be constant over time it must either be the case that profits are the same in both activities

$$\pi_A = \pi_B \tag{4}$$

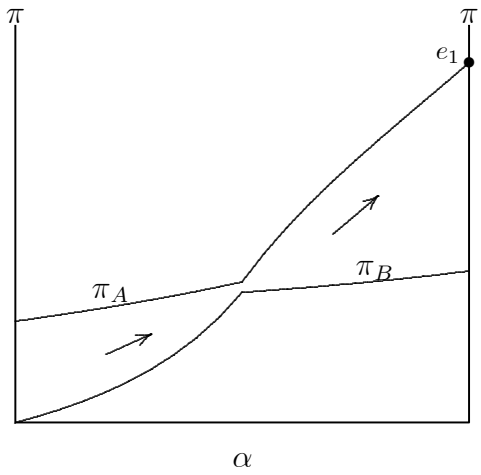
or that production is more profitable than being the only parasite

$$\pi_A > \pi_B \text{ and } \alpha \ = 1 \tag{5}$$

To describe these equilibria we return to Figure 2. Here e_1 and e_2 are stable equilibrium points while e_3 is an unstable tipping point. If the economy starts out to the right of e_3 it ends up in e_1. If the economy starts out to the left of e_3, it ends up in e_2. As profits, and thus total income, are lower in e_2 than in e_1, we label e_2 a development trap. The poverty trap e_2 illustrates starkly the difference between joint economies and strategic complementarity. If an entrepreneur decides to shift from predation to production, all entrepreneurs, including himself would gain. So how can e_2 be stable? The reason is that even though all entrepreneurs gain, the parasites gain more than the producers. There are increasing relative returns to predation. Therefore if one entrepreneur chooses to shift from being a parasite to being a producer, π_B would be larger that π_A and another entrepreneur would fill the gap by moving in the opposite direction.[4] Hence, productive

[4]This description is a little bit simplified. If one were to take account of the fact that the size of the entrepreneur is larger than zero then the equilibrium should be a little bit to the right of e_2.

Figure 3: No trap



investments are strategic substitutes even though there are joint economies.

More generally, from the figure it is clear that there are joint economies in production for all levels of α. Hence; all entrepreneurs would, for all α, benefit from a further increase in α. This is, however, not sufficient for a take-off. The reason is that α only increases as long as $\pi_A > \pi_B$. This is only the case to the right of e_3 and to the left of e_2.

The parasitic poverty trap does not always exist. In the case where the profit curves do not intersect, the point e_1 remains as the only stable equilibrium, as illustrated in Figure 3 . The possibility of removing the trap has important policy implications. The basic question is how the poverty trap depends on institutions and economic policy.

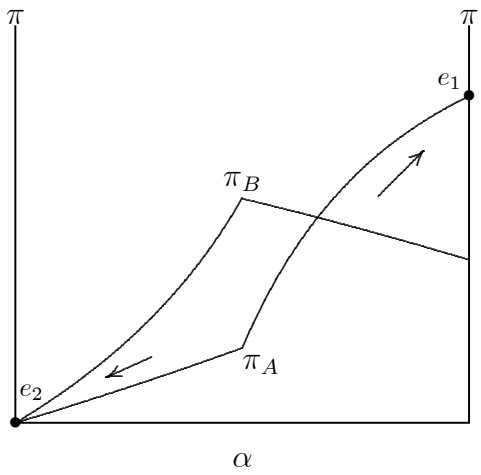
3.2 Policies in the parasitic poverty trap

In the following we focus on the case where the economy is in the poverty trap equilibrium e_2.

3.2.1 Productivity and law enforcement

To see how the poverty trap is affected by the efficiency of parasites, consider a decline in the extortion share ϕ. This may reflect changes in the parasitic technology, but may also capture the effects of better institutions and/or a stronger state where property rights are more secure. As seen from (1) and (2), the profit curve for parasites, π_B, shifts downwards while the profit curve for producers, π_A, shifts upwards. Both the downward shift in the parasitic profit curve and the upward shift in the profit curve of producers contribute to higher income of all entrepreneurs, and therefore to increased income in

Figure 4: Strong parasitic complementarity



the society as a whole. Hence, both producers and parasites are better off if extortion becomes less efficient.

It may be counter-intuitive that a lower extortion share implies higher profits to parasitic enterprises. The reason is that a lower extortion share raises profits from production relative to predation, inducing entrepreneurs to move from predation to production. Hence, production increases and profits to each producer go up. The number of producers grows at the expense of predators until profits from predatory activities become as high as in production. To slightly rephrase Usher (1987 p.241): *Whatever harms the thief is beneficial to both the producer and the thief.*

Another possibility is that the extortion share ϕ increases with the parasitic intensity such that $\phi = h(\alpha)$ where $h' < 0$. This is the case if protection is more valuable in an environment with many parasites. For the good equilibrium e_1 this has the consequence of increasing the gap between π_A and π_B with the implication of a higher robustness to shocks. For the interior equilibrium the consequences are less favorable. When the extortion share ϕ is declining in α the congestion among parasites has less discouraging effect for parasitic entrance. If this effect is strong the poverty trap e_2 moves all the way down to $\alpha = 0$ as illustrated by Figure 4 . The case where the supply of parasites creates its own demand is further explored in Mehlum, Moene, and Torvik (2002) and more generally in Gambetta and Reuter(1995).

In this case parasitic behaviors are strategic complements. The need for protection and contract enforcement, that producers are willing to pay for, is created by other

parasites. Accordingly, the willingness to pay for the parasites' problem solving may increase with the number of parasites. In Figure 4, this is the case for $\alpha > 1/2$. To the left $\alpha = 1/2$, however, congestion among parasites dominates and the return to parasites declines as their number rises.

Next, we consider a rise in the productivity in production. This makes the markup higher, shifting the profit curve for producers up while leaving the profit curve of parasites unaffected. The new equilibrium has a higher share of producers and a lower share of parasites. Profits, and thus income, are not only higher, but have increased more than the shift in productivity. The reason, of course, is that the shift of entrepreneurs out of parasitic activity and into production increases the profitability of all the entrepreneurs. Hence, what is good for producers is also good for parasites.

3.2.2 Resources and rents

Economies caught in the poverty trap may benefit from foreign aid and from any other resource flows, for example, due to natural resources. As we will now show, however, countries can also lose from getting more resources due to parasitic behaviors. Let us consider foreign aid. The decisive point is to whom the aid acquires. This is in turn determined by the quality of domestic institutions and bureaucracies. We distinguish between two extreme situations. With good institutions, the aid is channeled to the productive parts of the economy. With bad institutions, however, the aid falls in the hands of the parasites (We discuss intermediate cases in detail in Mehlum, Moene, Torvik 2003b.)

In the case of good institutions, foreign aid implies an upward shift in π_A. From Figure 2 it is clear that the poverty trap e_2 moves to the right. Entrepreneurs flow into production until the equality between profits in the two activities is reestablished. In the new equilibrium the economy has settled with fewer parasites and more producers. As a result, the increase in income exceeds that of the rent. Thus, as long as the aid is allocated to producers, it has a positive multiplier effect and generates a total return that exceeds the amount of aid.

In the case of bad institutions, all the foreign aid goes to the parasites. In that case π_B shifts up and the equilibrium moves to the left. The aid grabbed by parasites means that profits in parasitic activities increase relative to production, and entrepreneurs close down

productive firms to become parasites instead. As seen, the effect is lower profits and thus lower income for the economy as a whole. Again Usher's paradox is at work, but now in the opposite direction: *Whatever benefits the thief harms both the producer and the thief.* Thus, as long as the aid is allocated to parasites it has a negative multiplier effect leaving the country worse off than without foreign assistance. The multiplier effect is particularly strong when the aid removes the poverty trap all together by shifting the π_A curve above the π_B. In that case foreign aid would trigger a process of modernization that eventually produce higher and sustainable income levels, even after the aid is terminated.

Our model describes both a more optimistic and pessimistic scenario, compared to most assessments of foreign aid. Lucas (1990), for instance, argues that if foreign aid is not used to increase human capital but given to support physical capital formation, the effect will be a perfect crowding out, so that income remains unaffected by foreign aid. However, in our model, the effects of foreign aid may be much better or much worse. Taking into account the allocation between parasitic and productive activities, which is important in many developing and transition economies, aid has a strong income effect when channeled to the productive parts of the economy. With good institutions aid produces positive multiplier effects. But with bad institutions aid induces negative multiplier effects and the prospects are even worse than those outlined in Lucas (1990) - there is crowding out stronger than the amount of aid channeled into the economy.

Empirically the relationship among natural resource availability, institutions, and economic performance are investigated in Mehlum, Moene and Torvik (2003b). The results show that more resources on average *reduce* growth. A more detailed analysis reveals, however, that the negative effect is present only for countries where institutions are bad. If institutions are good, then relative natural resource abundance does not hurt growth. A similar result can be found in the empirical literature on foreign aid. In the report Assessing Aid (World Bank 1998) states that foreign aid works in countries with good governance (see also Burnside and Dollar2000)

3.3 Increasing the number of entrepreneurs

The economy can also grow out of the poverty trap as long as there is a sufficient growth in the number of entrepreneurs. As seen from (1) and (2) more entrepreneurs, a larger N, increases profits both among producers and among parasites and both profit curves shift

upwards. To derive the effect on the share of producers in the economy, α, we must find which of the curves π_A and π_B that shift up more in the neighborhood of the equilibrium e_2.

From (1) and (2) and the equilibrium condition we find that the π_A curve shifts more than the π_B curve. The reason is the fixed cost F in π_A. Hence, from the poverty trap equilibrium the profits in production become higher relative to the profits in parasitic activities when the total number of entrepreneurs is higher. The producers gain more because the fixed costs per unit produced decline.

A higher number of entrepreneurs therefore induce a higher share α of producers in the economy. If the number of entrepreneurs becomes sufficiently high, the poverty trap vanishes and only the good equilibrium remains.

4 Concluding remarks

Joint economies normally reflect circumstances that are good for a developing country. If development takes off - maybe after a coordinating push - it becomes self-sustaining. The entrepreneurship of the few may thus induce the entrepreneurship of the many as increased industrialization raises the profitability of each new investment project.

With the rise of parasitic profit opportunities, however, joint economies no longer guarantee that productive investments are strategic complements. In that case, the costs of productive investments also include the parasitic rents that the entrepreneur has to forego, for example, from a lucrative position as a middleman or a political insider. For the entrepreneurs with no scruples, the parasitic opportunities may also include acting as warlord or a mafia-boss. As a result, modernization may be halted even when it is privately profitable. The problem is that parasitic activities may be even *more* profitable which in turn may lead the economy into a poverty trap. Within the trap, what is good for production is also good for predation, which may explain why it is so difficult to get rid of parasitic enterprises.

Whether an economy ends up in the trap, or not, depends on the fraction of parasites initially. Like other models with multiple equilibria, ours explains how otherwise similar societies may find themselves in quite dissimilar situations due to differences in initial conditions. Unlike most other models, however, ours has the feature that the trap may go away endogenously with a sufficient rise in the number of entrepreneurs.

The model provides a cautionary note about the scope for addressing poverty with increased domestic savings or increased flows of resources from abroad. If institutions are good, then with enough savings or inflows of resources from abroad, an economy would always end up in a good equilibrium path of wealth creation. But our analysis has shown that with bad institutions, resource flows can increase rent-seeking and actually make things worse. Markets need the underpinning of good institutions to deter predation and sustain incentives to invest, produce and exchange. In the absence of such institutions, individuals may not have the means to escape parasites and the poverty they can induce.

References

Acemoglu, D. (1995)"Reward structures and the allocation of talent." *European Economic Review* 39 : 17-33.

Andvig J. C. (1997)"Some international dimensions of economic crime and police activity." *Nordic Journal of Political Economy* 24 : 159–176.

Baland, J.-M. and P. Francois. (2000)"Rent-seeking and resource booms." *Journal of Development Economics* 61: 527-542.

Bates, R.H. (1983)*Essays on the political economy of rural Africa* Cambridge University Press, Cambridge.

Baumol, W.J. (1990)"Entrepreneurship: Productive, unproductive and destructive." *Journal of Political Economy* 98 : 893-921.

Bigsten, A. and K. Moene (1996)"Growth and rent dissipation: The case of Kenya." *Journal of African Economies* 5 : 177-198.

Bowles, Sam and Jung-Kyoo Choi (2002) "The First Property Rights Revolution". Paper presented at the Workshop on the Co-evolution of Behaviors and Institutions, Santa Fe Institute, January 10-12, 2003.

Bulow, Jeremy I, John D. Geanakoplos, and Paul D. Klemperer (1985) "Multimarket Oligopoly: Strategic Substitutes and Complements" *The Journal of Political Economy*, 93/3, pp. 488-511.

Burnside, Craig and David Dollar (2000) "Aid, Policies and Growth," *American Economic Review*, 90:4, pp.847-868.

Campos, N.F. (2000)"Never around noon: On the nature and causes of the transition shadow." Mimeo, CERGE-EI, Prague.

Chand, S. and K. Moene (1999)"Rent grabbing and Russia's economic collapse." Memo No 25/99, Department of Economics, University of Oslo.

Collier, P. (2000)"Implications of ethnic diversity." Paper presented at Economic Policy panel meeting, Lisbon.

Cooper, Russel and Andrew John (1998) "Coordinating Coordination Failures in Keynesian Models" *The Quarterly Journal of Economics*, 103/3, pp. 441-463

Eaton, B. Curtis and William D. White. 1991."The Distribution of Wealth and the Efficiency of Institutions" *Economic Inquiry*, 39:2, pp. 336-50.

Gambetta, Diego and Peter Reuter (1995) "Conspiracy Among the Many: The Mafia in Legitimate Industries" in Gianluca Fiorentini and Sam Peltzman (eds.) The Economics of Organized Crime (Cambridge: Cambridge University Press), pp. 116-139.

Grossman, Herschel I. (1998)"Producers and Predators." *Pacific Economic Review*, 3 : 169-187.

Hoff, Karla (2001) "Beyond Rosenstein-Rodan: The Modern Theory of Coordination Problems in Development". *Annual World Bank Conference on Development.* The World Bank, pp. 145-176.

Hunter, Thomas, (1996) 'Colombia's Kidnapping Incorporated', *Jane's Intelligence Review* 8(12): 565.

Konrad, K.A. and S. Skaperdas (1998) "Extortion." *Economica* 65 : 461-477.

Lucas, R.E. (1990) "Why doesn't capital flow from rich to poor countries?" *American Economic Review* 80/2 : 92-96.

Mehlum, H., K. Moene and R. Torvik (2002)"Plunder & Protection Inc." *Journal of Peace Research* 39 : 447-459.

Mehlum, H., K. Moene and R. Torvik (2003a)"Predator or prey? Parasitic enterprises in economic development" *European Economic Review* 47/2 : 79-98.

Mehlum, H., K. Moene and R. Torvik (2003b)"Institutions and the resource curse", mimeo, Department of Economics, University of Oslo.

Murphy, K., A. Shleifer, and R. Vishny (1991)"The allocation of talent: Implications for growth." *Quarterly Journal of Economics* 106 : 503-530.

Murphy, K., A. Shleifer, and R. Vishny (1993)"Why is rent-seeking so costly for growth?" *American Economic Review, Papers and Proceedings* 83 : 409-414.

Rosenstein-Rodan, Paul (1943) "Problems of Industrialization of Eastern and Southeastern Europe" *The Economic Journal* 53(210-211): 202-211

Torvik, R. (2002) "Natural resources, rent-seeking, and welfare" *Journal of Development Economics* 67 : 455-470.

Usher, D. (1987)"Theft as a paradigm for departure from efficiency." *Oxford Economic Papers* 39: 235-252.

Volkov, V. (1999)"Violent entrepreneurship in post-communist Russia." *Europe-Asia Studies* 51 : 741-754.

World Bank (1998) *Assessing Aid,* Oxford University Press, Oxford.