Capacity Utilization of Enterprises in Tanzania

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Abstract

Structural reforms and market liberalization have led to a transformation of the Tanzanian economy since the mid-1980s. Studies on enterprises in the manufacturing sector seem to indicate that entrepreneurs persistently operated with low capacity utilization in the 1990s. In a liberalized market this appears irrational because, as a consequence, profits are not maximised. The paper discusses how far theoretical approaches in economics can be applied to explain low capacity utilization in the Tanzanian context in the 1990s. It is stated that the absence of markets and low wages can best describe the empirical findings.

1. Introduction

In the mid-1980s Tanzania embarked on development programmes under the surveillance of the World Bank and the International Monetary Fund. The country left the socialist development path that had been favoured by its government since 1967. As a result, most foreign politicians and researchers alike focused their attention on private sector development. Since the liberalization, a significant number of small private enterprises have been set up, and previously state-owned large enterprises have been privatized (Bagachwa & Naho 1995; Maliyamkono & Bagachwa, 1990; Mbove, 1993; Augustin 1998). Entrepreneurs who set up private companies in non-agricultural businesses (mainly in manufacturing and in the service sector) are generally viewed as the engines for economic growth, development, and social change (Schumpeter, 1942; Leibenstein, 1968; for Africa see Kilby, 1971). Several research projects have considered entrepreneurship and the increasing competition since liberalization. A rather extensive body of research on manufacturing enterprises in Tanzania has by now accumulated. Some of the resulting studies show that entrepreneurs in Tanzania—regardless of company size, rural or urban location, ownership, or industry—could produce a larger output with installed capacities. Typically, this indicates a low efficiency of the invested capital, and can be understood as low capacity utilization. Consequently, the costs of production are comparatively high for these enterprises. A recently published report argues that the reduction of domestic production costs and transaction costs will be the key to the future success of the Tanzanian manufacturers (Harding et al., 2002).

* I am grateful to Max Albert, Gundula Fischer and the participants in a seminar at Saarland University in January 2006 for comments on earlier versions of this paper. All mistakes and omissions remain my sole responsibility.

† See also Admassie and Matambalya (2002), for the technical inefficiency of Tanzanian enterprises.
What seems to be a persistently low capacity utilization of companies in Tanzania is probably the key to understanding the sluggish economic development in the 1990s despite the macroeconomic reforms. Yet, this fact has not so far been sufficiently explained in the literature. The aim of this paper is to explain empirical observations. Therefore, I refer to theoretical approaches from the economic literature which are typically used to explain low capacity utilization. After that I examine whether the theoretical approaches can be used for explaining the Tanzanian context. The result shows that textbook explanations are not blueprints for empirical observations on all type of companies, sectors or regions. However, the standard explanations in economics can be used for the largest part of the existing observations. Seemingly, the absence of markets and the efficiency wage theory deserve attention in further research on entrepreneurship in Tanzania.

The paper is structured as follows. First, it provides a brief review of the empirical literature showing that, surprisingly, low capacity utilization appears to be an intrinsic feature of entrepreneurship in Tanzania. Second, it refers to the macroeconomic reforms of the economy which were meant to provide incentives for implementing cost reduction strategies. Third, theoretical approaches which may explain low capacity utilization are discussed and applied to Tanzania. The conclusion provides suggestions for further research.

2. Review of the Literature

Several studies on entrepreneurship conducted in the 1990s lead to similar conclusions about how entrepreneurs perceive competition, and which strategies they favour in a competitive business environment. By and large, entrepreneurs in Tanzania complain about increasing competition. When asked about their response, they state improvement of product quality, while reduction of production costs is rarely mentioned. However, the low capacity utilization, or more exactly, a permanent excess-capacity of Tanzanian companies apparently offers an obvious opportunity to reduce production costs and to be more competitive.

In an early study on the effects of the structural adjustment programmes on Tanzanian entrepreneurs, Willer and Roesch (1993) argue that nearly all entrepreneurs perceive an increase in competition, and are concerned about its negative effects on their companies. The most common response (as indicated by the entrepreneurs) are improvement of product quality and, in consequence, the increase of sales. Only 17% of the entrepreneurs in the sample (n=168) reduced costs.

The Regional Program on Enterprise Development (RPED) initiated by the World Bank Africa Technical Department in 1991 covers data on 244 enterprises collected in

2 In most of the quoted studies, entrepreneurs were asked to indicate ‘perceived competition’ on a scale between low and high. In some other studies entrepreneurs were asked whether the number of competitors increased in the last years.

3 Several empirical studies are doctoral theses written at the University Bayreuth, Germany, in the 1990s. Most of the results, so far, are only available in German. Cf. Willer and Roesch (1993), Augustin (1998), Overberg(1999), Angermann (2001), Egbert (2001), and Orlik (2002).
three waves (Centre for International Business Research 1994; 1997). Increasing
competition is identified as a problem, especially for small and medium companies
(Centre for International Business Research, 1997). The most important response is
product quality improvement. The lowering of production costs as a means of price
reduction is not even considered by most entrepreneurs. A follow-up study of the Centre
for the Study of African Economies (University of Oxford), the Economic and Social
Research Foundation (Dar es Salaam), and the Tanzania Manufacturing Enterprise
Surveys (TMES), confirmed that Tanzanian companies primarily concentrate on the
domestic market; and that small firms have a considerable number of competitors
(Harding et al., 2002, 20).

Overberg (1999) interviewed the owners of micro and small enterprises (n=127).
Nearly all entrepreneurs in Overberg’s urban sample state that competition went up in
the last years. In contrast to rural areas, one-third of his interviewees apply price
reduction as a strategy in competition. But when asked about the most important
strategies applied to handle competition, two-thirds mention the improvement of
product quality; and one-third say that choosing a new product or even a new
industry is the best strategy. None mentions cost reduction as the best feasible
strategy. Overberg (1999) identifies the still regulated market as an argument for these
answers. However, he also points out that entrepreneurs in urban settings often work
without realising any profits.

In a complementary study, Angermann (2001) interviewed owners of formal and
informal businesses in rural areas (n=137). The pressure caused by competition seems
to be lower for businesses in the informal sector than for small businesses in the
formal sector because the informal companies operate in niches and avoid paying
taxes. Angermann argues that, so far, only entrepreneurs of the formal sector perceive
the increased international competition. Entrepreneurs of the informal sector, in
contrast, sell on local markets which are not tied to international markets, but are
embedded in local communities and personal relations. Due to this social
embeddedness entrepreneurs show a low interest in competition (Angermann, 2001).

Grenier et al. (1998) show that 80% of the interviewed entrepreneurs (n=83) share the
opinion that competition increased. Small size companies compete mainly with
domestic companies, but larger firms compete with imports. The authors show that
perceived competition influences price adjustment.

To sum up the results, Tanzanian entrepreneurs in the 1990s were aware of growing
competition. Yet, they rarely pursued any strategy to handle competition, or, if they did
so, they rather choose quality improvement and hardly ever reduction of production costs.

3. Market Liberalization and Privatization
The main objective of the structural adjustment programmes, initiated by the World
Bank and the IMF in the mid-1980s, was to set the country on an economic growth

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4 Van Biesebroeck (2005) points out that exporting companies show a higher productivity than non-
exporting companies.
Capacity Utilization of Enterprises in Tanzania

path, and to speed up the sluggish development of the late 1970s and early 1980s. An important aspect of the reforms was to liberalize the Tanzanian market by deregulation and privatization. There is little doubt that macroeconomic reform had positive effects on economic development. Indeed, in many industries the liberalization of the Tanzanian market led towards an increased competition with foreign companies. These foreign companies nowadays either produce in Tanzania or import products. The privatization programme of parastatal companies since 1992 paved the road towards a stronger private sector (cf. Mbowe, 1993; Augustin, 1998.). But while competition in several industries has definitely increased (e.g., in mining, food and beverage production, banking, insurances), empirical observations indicate that manufacturing companies in general still allow themselves a very low capacity utilization.

The positive effects of the structural adjustment programmes on growth and development remained below expectations. What we were able to observe in the 1990s was a mismatch between the expectations about the reforms and the development process, on the one side, and reality, on the other. As for the Tanzanian development process Danielson (2000, 313) states that “… the viable private sector, capable of leading rapid growth, has not yet emerged.” Harding et al. (2002) state in their survey about the reform process that Tanzania is a late and incomplete reformer, and that reforms have not yet been fully implemented. Also, the World Bank (2001a) showed disappointment about goal achievements of the structural adjustment programmes in Tanzania in 2001.

Institutional change, as induced by the structural adjustment programmes, had an impact on behaviour but not necessarily as predicted. In order to understand the way the Tanzanian economy developed in the 1990s, one needs to look at the micro level. The question is why people did not behave as expected by those who implemented the reforms? Or— referring to the context of the paper— why did entrepreneurs not react to the increasing competition by reducing production costs, e.g., by avoiding constantly low capacity utilization?

4. Explaining Low Capacity Utilization

When competition increases, a strategy by manufacturing enterprises is, generally speaking, to try to reduce production costs. In this context the reduction of excess capacity is a reasonable solution. Interestingly, studies demonstrate that capacity utilization in manufacturing companies remained on a comparatively low level during the 1990s. A number of studies between 1990 and 1999 showed that it was on

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5 The purchase of cheaper inputs is another strategy, cf. Willer and Roesch (1993).
6 Here, capacity utilization is understood as the ratio of actual output to possible output as to installed machinery. However, in order to measure it I follow a method suggested by Wangwe (1979), which is also used in most of the quoted studies. The method is to ask managers or owners directly because they know their data best. This method implies that depending on the interviewees’ perception, capacity utilization can either refer to utilization of machinery or of labour. Research proved that this method is applicable as well as reliable. A more precise distinction between labour utilization and machinery/technology utilization is indeed desirable. However, most studies subsume both under the same term. The research quoted in this paper investigates manufacturing enterprises and thus capacity utilization mainly refers to machinery/technology.
average between 33% and 55%. For example, Harding et al. (2002) note that companies operated with an average of around 50% capacity utilization in the 1990s. The results indicate that low capacity utilization does not seem to be a short-term problem. It remained for more than a decade at about that level; and in the 1980s it was even lower. Privatized companies showed slightly better results, but there are no considerable differences between small, middle, and large companies; between ethnicity of owners or between industries. The World Bank (2001a) states that the effect of low capacity utilization in Tanzania is fatal because the returns on investment remain comparatively low in the country. In what follows, I outline several possible explanations that are discussed in the economic literature, and apply them to the Tanzanian context.

4.1 Industrial capacity in a socialist-oriented economy

The list of possible explanations starts with a sluggish adjustment from a socialist to a market economy. A gradual liberalization of markets and a slow privatization of state-run enterprises causes inefficient structures to persist. In a socialist-oriented economy, the founding of large manufacturing enterprises is based on political decisions. Ndulu (1986) notes that in the period of state-planning since 1967, the capacity in companies in Tanzania expanded rapidly due to political decisions (cf. Wangwe, 1979). Building industrial capacity was part of the development strategy favoured by the party (Darkoh, 1994). Since *parastatal* companies were founded not only for the purpose of producing supply (while neglecting demand), but also for the purpose of increasing domestic (formal) employment and income opportunities, the building of excess capacity was a logical consequence. Capacity utilization in state-run enterprises in a socialist-oriented economy can be expected to be rather low for further reasons. Failures in planning processes (e.g. inputs from other domestic state-run enterprises), and dependency on imported inputs are severe problems for companies (for instance, there was a limited access to foreign exchange in Tanzania). Moreover, companies are run by managers who are appointed out of political interests and who pursue selfish interests. The control exercised on managers by their fellow party members is limited. Since for state-owned companies the danger of bankruptcy does not exist, managers accumulate stocks of machinery and personnel. They maximise these resources rather than the profit of the company. This is a rational decision because machinery and personnel can be helpful resources

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8 One can ask whether the data collected on enterprise performance is correct. In other words, did entrepreneurs report precise figures to researchers? Since enterprises sell part of their production on black markets and profits gained on these markets remain untaxed, entrepreneurs may tend to report low capacity utilization, i.e. only that part which covers the official production. Despite this, two arguments support the reliability of the data. First, a number of researchers who independently investigated rather different samples came up with similar results. It is unlikely that the general picture given by the different researchers is wrong. Second, entrepreneurs tend to report correct figures in interviews with researchers from abroad – when they know that the researchers are not related to local authorities. This data may indeed differ from figures given to local authorities and thus in official statistics.

when managers have to fulfill politically-determined output quotas. Private entrepreneurs in a socialist-oriented economy face similar problems concerning domestic and imported inputs.

One could expect that a switch towards a more market-oriented economy, as induced in Tanzania in the mid-1980s, would improve capacity utilization in privately-run enterprises; but also in state-run ones after several years at least. Willer and Roesch (1993) note that a positive effect could be observed after 1985, yet it was a small one. Why are the effects limited? Slow privatization (or liquidation) together with missing competitiveness is a possible reason. Privatization has been postponed for many industries until the end of the 1990s so that a considerable number of parastatal companies were not liquidated but continued to operate (Augustin, 1998). These large enterprises which were neither privatized nor liquidated had to suffer from the lack of competitiveness. These companies were set up in order to produce for Tanzanian customers who had limited access to goods produced abroad. They were never meant to operate in liberalized markets with fierce foreign competition on national and international markets. The shrinking demand for products after the liberalization and also political reasons not to liquidate these companies can explain the persistently low capacity utilization during the 1990s. Nevertheless, this explanation—as well as the next one provided—mainly applies to large companies.

4.2 Recessions

Recessions on world markets can severely influence capacity utilization. One possible reason for low capacity utilization is a shrinking demand on export markets. Generally, the Tanzanian economy is not well integrated in the international division of labour. Only a few industries, mainly the large producers of agricultural produce and the mining industry, depend on international sales, and thus on international business cycles. Since most of the mentioned studies cover small and medium enterprises which serve local or regional markets, external demand shocks cannot explain low capacity utilization. On the other hand, the country’s economy is highly dependent on imported inputs, especially on oil. An increasing oil price may thus be a reason for a recession, and consequently for low capacity utilization. However, in the first half of the 1990s the crude oil prices on world markets fell. It was only at the end of the decade that the oil price started to rise sharply. In consequence, a growing oil price may explain low capacity utilization for some manufacturing enterprises since the end of the 1990s. All in all, recessions on world markets do not seem to be a convincing explanation for small and medium companies in the Tanzanian case.

4.3 Bottlenecks in energy input

Shortcomings in the infrastructure of a country are a further possible explanation. Entrepreneurs in Tanzania had severe problems with energy supply (electricity and water) during the 1990s. Especially the regular rationing of electricity caused difficulties in the production processes. In a situation of uncertain electricity supply

10 Note that exporting companies differ substantially from non-exporting companies, cf. Van Biesbroeck (2005).
entrepreneurs may decide to invest more in machinery and personnel. Both resources are kept in stock so that more output can be produced in a shorter period of time, i.e., during the time when electricity is available. In consequence, investment rises and capacity utilization peaks in short periods, but is low on average. In other words, the shortage of electricity and its irregular supply lead to a higher investment. For larger enterprises a solution is to set up generators in order to substitute or complement insufficient electricity. This solution is however only reasonable if the energy costs remain sufficiently low. Taking these input shortages into consideration, it can also be argued that for some companies capacity utilization is in fact higher than the general picture suggests. Nonetheless, due to irregular supplies, capital is bound to machinery which can be used only irregularly.

4.4 Strategic entry deterrence
A further possible explanation for low capacity utilization offers the theory of strategic deterrence. A monopolist in a specific market or a segment of the market may decide to build up excess capacity as a strategic decision. The monopolist is able to increase the output once a competitor intends to enter the market. In consequence, the monopolist deters a potential entrant from entering. Thus, while the monopolist avoids short time profit maximization by persistently keeping excess capacity, he is able to realize profits from his monopoly for a longer period of time. It is difficult to estimate to what extend this theoretical explanation is applicable to companies in Tanzania. However, the market structure in which medium companies operate (for instance in food and beverage production, chemistry, transport) is often an oligopoly on the national level, and medium companies are rarely a monopolist on a regional level. That is why this theoretical explanation could probably be applied to specific industries, but further empirical observations are needed in this direction.

4.5 Lack of markets for secondary capital goods
Another possible reason for low capacity utilization is the absence of markets for secondary capital goods. In case such markets do not exist, it becomes difficult—if not impossible—for entrepreneurs to reduce excess capacities. Bigsten et al. (2005) argue for some African countries (Tanzania is not included in their survey) that markets for secondary capital goods are absent. As a result, entrepreneurs face difficulties in enhancing capacity utilization by disinvestment, i.e., excess capacity prevails because unused production equipment remains in the companies. The consequence is that the capital is bound to (often outdated), capital goods and thus capital for investment in new technologies (by selling old machinery) is lacking. As Bigsten et al. (2005) demonstrate, the investment decision of entrepreneurs in Africa is often irreversible, and after investment it is often impossible to adjust the capital stock. This argument also seems applicable for entrepreneurs in Tanzania who keep on working with old machinery. If capital goods cannot be sold, this means that

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11 The inadequate supply and rationing of water was another enduring obstacle for the manufacturing sector.
12 In some medium size enterprises the author saw machines built in the 1950s and in one case in the 1910s. The entrepreneurs still kept these machines working (personal field notes from research in Tanga 1997).
investment in capital goods can be considered as sunk costs. This begs the question why markets for secondary capital goods do not establish? One possible answer is that transaction costs on such markets are too high so that people avoid using these institutions.

4.6 Absenteeism

Another explanation for low capacity utilization can be the lack of personnel. The lack of personnel can be caused by absenteeism. Low wages could explain absenteeism. If low wages are paid, then employees may decide to shirk, i.e., not to work properly or to be absent from their workplace. The efficiency wage theory offers a solution to avoid shirking. According to the theory, employers offer their employees a wage above the market clearing wage. Then, for the employee the costs of losing the job increases and he decides not to shirk or to be absent from his workplace. In consequence, productivity increases; and that is why it may be a rational decision for the employer to pay wages above the market price.

Absenteeism is high in Tanzanian companies. On the one hand, employees are engaged in private business activities (beside their regular jobs) during working time. On the other hand, employees often take unpaid leaves because of family obligations. A detailed study on social relations within a large enterprise in Tanzania is provided by Fischer (1999). She demonstrates that employees in a state-owned company were absent from their workplace for many occasions, and social obligations are a major reason. Fischer also explains how things changed after the ownership structure of companies changed. The absenteeism of employees seemingly explains low capacity utilization in companies of all sizes. However, then the question remains why entrepreneurs do not pay efficiency wages but ones which are rather at the subsistence level? Social obligations can be a reason as outlined in the next paragraph.

4.7 Social obligations

The last point put forward refers to the personnel—i.e., the low utilization of labour. Research on small and medium scale African entrepreneurship repeatedly shows that financial resources of companies flow towards the entrepreneur’s family. On the one hand, this loss of working capital of the company leads to a slow or zero development of the business. Many entrepreneurs are not able or willing to stop the draining of

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13 The impact of rising HIV infection rates is a further reason for absenteeism. In 1997 several entrepreneurs in the city of Tanga complained about the unpredictable leaves of their employees because they had to look after their sick relatives or children. The entrepreneurs claimed that due to HIV infection the rate of absenteeism of their employees increased.

14 This argument can even be further expanded upon considering the reaction of entrepreneurs to high HIV infection rates of employees. Due to the high costs for training employees (e.g. on the job, apprenticeships) and the low returns for the enterprise in the case that the trained employee drops out or is absent because of HIV infection, entrepreneurs do stop spending on staff qualification (field notes from research in Tanga, 1997). The human capital in the country in general and in particular regions decreases and, hence, the number of skilled workers who are able to operate modern technology falls continually.

company resources. On the other hand, family members often have little to offer to the entrepreneurs in times of company crisis when support is needed. As a result, owners of micro and small enterprises who are not able or willing to reject claims behave rationally if they employ family members. Then, at least, the entrepreneur has the right to ask for labour input. Employing those who will ask for money anyway may account for the great number of (rather unproductive) personnel in a number of companies. Since labour contracts in these cases have a strong social context, the entrepreneurs cannot easily replace or fire employees but keep them even if they are unproductive most of the time. For the entrepreneurs, however, it may then be rational to pay wages at the subsistence level; and efficiency wages may not work to reduce absenteeism because dismissing employees (family members) is not an option. This can explain why entrepreneurs do not pay efficiency wages.

5. Conclusion
Studies prove that entrepreneurs perceived an increase in competition in the 1990s in Tanzania. This perception did not, in general, lead towards a strategy of cost reduction by reducing excess capacity. The analysis shows that there exist a number of possible explanations for low capacity utilization within economics. However, not every possible theoretical explanation can be applied to the specific observations on enterprises in Tanzania. Several of the textbook explanations (recessions, strategic entry deterrence) rather refer to large companies or specific market structures, and their application to small and medium size companies in Tanzania remains limited (but can certainly explain specific cases). Some other theories (efficiency wage theory, the absence of markets) seem to provide rather good explanations. The absence of markets (and not only of those for secondary capital goods) is certainly a major problem. Transaction costs (like monitoring, information) may be too high so that markets do not evolve or do not work properly. The application of efficiency wage theory to absenteeism may offer another explanation for low capacity utilization of some companies.

However, it has become apparent that in order to avoid some of the generalizations made in this paper more detailed studies on small, medium and large companies are needed. Existing studies on manufacturing enterprises in Tanzania rather use 'mixed samples'—i.e., companies different in size, in line of production, ownership or place of location—and do not focus explicitly on questions of capacity utilization. Detailed answers on why capacity utilization is comparatively low may then help to develop specific programmes in order to enhance competitiveness.

16 Compare Akerlof (1970). This is a common topic for studies on African economies. See e.g. the contribution of Fafchamps (2004). The World Bank (2001b) also addressed the problem of institution building.
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