



TOGETHER
for a sustainable future

OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.



TOGETHER
for a sustainable future

DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

22176

*Measures For Enhancing
Domestic Capacity
Building
In Africa*

Contents

(1) Summary

- (I) Productive and competitiveness
- (II) Productive and competitiveness *in Africa*
 - (II.1) Total factor productivity growth trends
 - (II.2) Revealed comparative advantages of industrial branches in Africa
 - (II.3) Competitiveness
 - (II.4) Factors inhibiting productivity growth and competitiveness enhancement in Africa
- (III) Capacity building measure
 - (III.A) Industrial Strategies
 - (III.B) Technological and organisational policies
 - (III.C) Human Skills
 - (III.D) Fostering entrepreneurship and small and medium enterprise development
 - (III.E) Financial restructuring and privatisation
- (IV) A role for UNIDO
 - (IV.A) Policies and strategies
 - (IV.B) Institutional development
 - (IV.C) Facilitating Investment

Summary

This paper is concerned to identify policies and strategies which can enhance industrial sector productivity and competitiveness in African countries.

A. Productivity and competitiveness

Section one considers some conceptual issues and discusses theoretical ambiguities and problems in the measurement of productivity change. It evaluates the evidence on the determinants of productivity growth and competitive change. Productivity growth is not likely to be an 'unintended', automatic consequence of the liberalization of policy and the deregulation of markets. It requires the development of policies at the micro, meso and macro level which induce the firm to institutionalize organizational changes which facilitate technological upgrading and the capacity of absorbing knowledge at all levels within the organization. The section also differentiates between productivity and competitiveness growth. It argues that policy must be concerned with the enhancement of factor productivity growth - the pursuit of international competitiveness for its own sake is in the words of Paul Kranigman (1995) 'a dangerous illusion' because it narrows the policy options available to governments specially in world economy characterized by falling output and export growth.

B. Productivity growth and change in competitiveness in Africa 1950-1996

Section two summarizes evidence on the growth of factor productivity in a sample of 40 African countries during 1950-1996. It also presents evidence on the changing pattern of international comparative advantage and competitiveness. It is shown that during 1950-1990 total factor productivity growth was positive but very low. In most African countries, output growth during 1950-1990 has been extensive not intensive in nature. In other words, it has been accounted primarily by an increase in the growth of the labor force and less significantly by an accumulation of capital stock, improvements in the quality of laborer and capital employed has been of relatively little importance. In the sub-Saharan countries productivity (not output) growth has mainly been a consequence of improvements in labor efficiency.

The evidence from East Asia shows that this type of growth is not self-sustaining. It turns out as growth in the labor force and financing of increased accumulation becomes difficult. Improvements in the organization of providing and technological 'deepening' are thus crucially important for the achievement of a self sustainable growth pattern; there is evidence that factor productivity growth has turned negative in Africa during 1990-1996. (The era of accelerated policy liberalization) and much of the gains of the past four decades have been eroded.

production

The section also presents evidence on comparative advantage ratios and on competitiveness. Comparative advantage ratios have risen during 1990-1995 in a relatively small number of African countries in a few labor-intensive manufactures - furniture, leather products, wearing apparel and food manufacturing. These manufacturing branches have however not typically experienced a growth in labor productivity during this period - association between; productivity growth and improvement in comparative advantage is low.

Changes in international competitiveness can not be measured since the World Economic Forums Africa Competitiveness Report 1998 is the first to be ~~used~~ ^{issued}. The competitiveness index presented by the Report measures the attractiveness of an economy to foreign capital. It does not measure the economic ~~preference~~ ^{performance} or potential of a country. Nor does it provide any evidence about the appropriations of policies in terms of their impact on growth and the enhancement of factor productivity. Thus the Africa competitiveness Report 1998 lists (a) tax regulation (b) difficulties in obtaining domestic financing (c) infrastructural inadequacies and (d) corruption as the four most important constraints on competitiveness growth. Inadequate educational levels and labor market conditions are not ranked as important competitiveness constraints and capital stock obsolescence and technological and organisational stasis at the level of the firm are not even mentioned. It is clear that policies which enhance competitiveness will not necessarily have a direct impact on factor productivity growth in Africa.

C Policies for capacity building

1. Industrial strategy ~~need to~~ ^{should} be selective and flexible. Its central concern should be strengthening of organisational and technological capacities of a small number of potentially dynamic firms. An incentive system could be evolved to monitor the performance of these firms and to link support to performance, especially exports.
2. The move from mass production to mass customisation and flexible specialisation could be encouraged in selected sectors. Such organisation transition at firm level is not capital - or foreign exchange-intensive and can be an important means for upgrading product quality and improving worker efficiency.
3. Import substitution and export orientation could be seen as complementary policies. Export success needs to be based on a strong domestic market. Agro-industries constitute a primary target for policy support, but technology upgrading and skill formation both within these industries and in general must not be overlooked, as often happens based on the assumption that these are labour-intensive branches. Rapid technological progress is taking place in food manufacturing, textiles and clothing branches.

4. Technological innovation is at the core of the competitive capabilities of African firms. They face the challenge of achieving an effective mix of the use of semi-skilled labour with computerised design using new technologies ~~leading to standard production methods~~. Strategic firms alliances leading to a transfer of R&D capacities to African countries should be encouraged.

5. Identification of the technological capabilities of firms and provision of incentives for technological upgrading is an essential element of industrial policy. The technique of performance bench marking - involving continuous interaction between firms and public support agencies to enhance firm competitiveness - can prove very useful in this respect, as the example of OECD countries has shown.

6. Industrial development requires continuous^u improvement in the whole range of human skills from those needed on the shop floor to supervision, financial~~l~~ engineering, procurement, marketing and general management. Skill formation is a consequence of industrial education and training acquired at educational institutions and within firms. Different types of skills are required at different levels of industrial development. Moving from one level or pattern of industrial development to another requires ~~changing~~^{changing} the skill-creation system and its utilisation by industry. Assuming that most African countries have an industrial structure characterised by simple assembling and processing activities, the first question is to what extent are its skill requirements met. Measures are required to raise literacy, increase coverage and depth of technical and managerial training for a sizeable proportion of the work-force formalise on-the-job-training procedures, make secondary and technical training widespread create a wide range of financial and engineering expertise, organise formal in-house training programmes, especially by export-oriented firms and improve small-scale and micro enterprise sector skills.

7. As far as small and micro firms are concerned, policies could aim to promote their entry into the formal sector. small-scale and micro firms clustering and formation~~s~~ of links with large-scale enterprises need to be encouraged. Micro-finance programmes should be commercially sound and not NGO-centric, since this creates the problem of multiplicity of objectives. The focus should be on enterprise upgrading, rather than direct ~~the~~ employment creation, as indirect employment effects are substantial.

8. The creation of financial capabilities requires (a) re-capitalisation of major financial institutions through mergers and ^(b) acquisitions, linking privatisation project rehabilitation and financial sector re-capitalisation programmes. ODA funds and technical assistance support could be ~~used~~ for this purpose.

used

UNIDO could aim to provide support for:

- elaboration of industrial strategies and policies in light of business practices and preferences of potential investors and competitors and help African countries to develop criteria for selection and development of priority subsectors and cluster of enterprises and appropriate support and incentive systems.
- development of a policy framework and system of bench-marking for the removal of policy constraints on the growth of enterprises competitiveness
- provision of knowledge of best organisational and technological practices in developing countries and industrialised countries as well as development of a framework for its transfer to Africa
- facilitating institutionalized co-operation between public authorities and private firms on the one hand, and large and small-scale firms, on the other
- participation in development of on-the-job-training ^{systems linking} ~~stems linking~~ firms, governments, universities and donor agencies
- promoting financial sector restructuring to create a viable industrial financing system to meet the long-term financing needs of industry
- providing technical support for linking financial restructuring, project rehabilitation and privatisation programmes in Africa countries
- development of commercially viable credit schemes for micro enterprise that could lead upgrading them to small and medium-sized enterprises and entry into the formal sector.

Measures
for
enhancing Domestic Capacity
Building in Africa

The world economy is in the grip of its 'most serious recessionary crises since the second world war' according to President Clinton. The latest IMF forecasts predict that world output growth will slow to less than 2 percent during 1998- this means that per capita incomes will remain stagnant. Financial markets are in turmoil. Trade growth is expected to dwindle to less than four percent. The indications that these ominous signs are the harbingers of a prolonged downturn which will continue will into the next century.

Since the early 1980s a new development orthodoxy had emerged. This wided developing countries to rely on international trade and international capital flows as the main 'engine' of development. Structural adjustment programmes were designed and implemented to integrate the developing economies into world markets. But at least for Africa globalisation did not work; growth rates fell; the 1980s were widely recognised as lost decade and the brief recovery of the mid 1990s is proving unsustainable - average GDP growth fell from 4.6 percent in 1996 to 3.3 percent in 1997 and is not expected to increase significantly during 1998 and 1999 (IMF 1998).

Reliance on world markets makes no economic sense when commodity prices are falling, financial markets are in turmoil and governance structures for international economic management are in a state of disarray. If Africa is to avoid the negative impact of the present crises, its growth must be domestically sourced. This is the message from the recent economic robustness of countries such as India and China which have relatively low ratios of trade and external financial inflows in comparisons to GDP.

But growth can be domestically sourced only if factor productivity rises. This makes possible both an acceleration of resource mobilisation and an enhancement of technical and allocative efficiency of investment. The present paper is focused on the issue of raising factor productivity in Africa. It assesses the growth of productivity and competitiveness in Africa over the last four decades (sect two) and identifies prices which should be adopted to enhance productive and competitiveness (sec three) it beings however with a brief look at some of the conceptual issues underling productivity analysis (sec one).

I. Productive and competitiveness

Nelson opens his seminal ^{Survey} ~~survey~~ of the theory of productivity growth with the remark: "The theoretical model underlying most research on productivity growth, over time and across countries is superficial and to some degree even misleading with regard to the following matters: the determination of productivity at the level of the firm and of inter-firm differences: the processes that generate ~~screen~~ and spread new technology and the influence of macroeconomics conditions and economic institutions on economic growth" (1996 p. 9). The theory assumes away the problems which arise from the capitalist organisation of production - the increasingly private ownership of technology, oligopolistic rivalry, labour management conflict, organisational rigidity. More fundamental problems arise due to conceptual contradictions - such as the impossibility of the coexistence of technological change, and competitive equilibrium. The achievement of full employment is regarded as unproblematic and despite the intense and often bitter post Sraffa "Capital controversy" of the 1960s, the "sources" of growth (labour, "capital" and the residual) are assumed to operate independently and additively. There is no room in the formal models for accommodating the behaviour of typical capitalist institutions: trade unions, banks, regulatory authorities etc. While some authors have sought to incorporate "non neo-classical" variables - such as an extent of regulation, cost of crime etc. - in productivity growth models. these are simply added on in an ad hoc way and the formal theoretical arguments are always drawn from the original neo-classical model. *frame work.*

There is considerable evidence (summarised in Nelson 1996) to show that the traditional neo-classical variables (labour, "capital") do not account for most of the inter firm productivity differentials and variables such as style of management, pattern of collective bargaining and organisational structures are significant. The microeconomics of technological advance remains underdeveloped. We simply do not know with any degree of certainty, the causes of the considerable variations among firms in their technology creation and adoption capabilities nor do we know much about the consequences of the growing privatisation of technologies - the formal model invariably regard technology to be a public good. The impact of policy intervention is also ambiguous. The neo-classical theory is fundamentally committed to continuing equilibrium, resource allocation driven by prevailing systemic disequilibrium is not its primary concern. It is therefore not surprising that it can not account for the growth of productivity differentials among countries and among firms.

Much of the inter country and inter firm productivity differential is attributed to the residual in the production function. But there is no reason to identify this with technological advance - if technological advance is seen as accumulation and dispersion of technological knowledge. "Everybody knows that the residual accounts for a hodgepodge of factors. This measure of our ignorance is not well understood" (Nelson 1996 p.16)

Despite these ambiguities the weight of the evidence suggests a positive association between the following variables and the accumulation of technological knowledge (a) R and D expenditure (b) level of market uncertainty (c) proprietorship rights (this cuts both ways stimulating

technologized accumulation at the level of the firm but slowing its systemic diffusion) (d) integrated human and physical capital formation (e) "appropriate" organisational work related norms at the level of the firm (f) work lay out at the ^{level} ~~lead~~ of the firm (g) scale effects (h) plant based collective bargaining systems (i) capital vintage (j) technological lead of the innovative firm measured in years (k) demand for innovative products, services and systems (l) possibilities for learning by doing ("on the job") (m) technological "jumps" and associated "follow through" changes in work and organisational processes. State policies which can enhance the provision of any of these factors. ~~These factor~~ can in principle be expected to enhance productivity growth. Recent work tries to relate productivity growth to macroeconomic policies. But nothing in neo-classical stabilisation theory guarantees that prevailing factor prices in (national or international market) will be optimal in the sense that they will ensure technological progress. There are no theoretical or empirical grounds for expecting steady state growth leading to the realisation of an economy's full potential as an automatic (unintended) consequence of stabilisation. In particular there are no a priori reasons to expect stabilisation to lead to an improvement in the quality of factor inputs (and the "quality" of the ubiquitous residual within the production function): grafting a macroeconomic strategy which stimulates growth in factor productivity is a challenging task. It must involve a reversal in the decline of public investment - specially in the commodity producing sectors. Public investment should be more effectively targeted to activities that have a direct impact on the enhancement of factor productivity specially at the level of the firm.

1. *there is no consensus as to what these appropriate norms are. Productivity at firm level has grown in systems characterised by permanent employment contracts (Japan) and high employee turnover (USA).*

Stabilisation policies are expected to have a greater impact on competitiveness than on the growth of factor productivity. It is important not to confuse these concepts as the relation between competitiveness and productivity is a complex one. Competition is about firm performance in markets - specially international markets. As Krugman notes "the idea that a country's economic fortunes are largely determined by its success on world markets is a hypothesis - and as a practical empirical matter that hypothesis is flatly wrong" (1995 p. 30). Competitiveness growth in world markets may lead to the emergence of large trade surpluses - but if as was the case in Mexico during the 1980s this is used mainly to service external debt domestic productivity growth would not be enhanced. Domestic productivity growth is a cause of the enhanced competitiveness of firms and not its effect. Even in the economies of Europe and Japan - which are highly dependent on international trade growth ~~is~~ per capita income is explained by the growth rate of domestic productivity not by indices measuring changes in international competitiveness (Krugman p. 34).

Concern with competitiveness per se has important costs. Krugman points out three. First, it creates a policy penchant for blaming trading partners - they are blamed for pursuing "unfair" competition (the "bash Japan" stance in America of the 1980s), second it leads to a deterioration in the quality of economic policy, for the concern with competitiveness ties policy making to a doctrine that "is flatly, completely and demonstrably wrong" (Krugman 1998 p. 42). Third regimes focusing on competitiveness are passive policy "takers"

not proactive policy "makers" They seek to adjust national economic activities and practices to existing international structures and norms, no matter how monopolistic, inequitable and fragile the latter may be. Every change in these international structures and norms send the policy makers of the peripheral economies scrambling for cover.

World output and export growth has been slowing down since the mid 1990s and medium term prospects are bleak. It is important that African policy makers do not pin their hopes on world capital or export markets but focus attention on the task of raising domestic factor productivity. Factor productivity growth can not be the automatic, unintended consequence of stabilisation and adjustment to world market norms and practices, it must be fostered by the adoption and implementations of effective government policies specially at the micro and meso levels. After documenting the evidence on factor productivity growth and competitiveness change in Africa (Sec 2) we discuss these policies in sec. 3.

II. Productivity growth and changing international competitiveness in ~~sub-~~ Saharan, Africa.

II.1 Total factor productivity growth trends have been notoriously low. In 1993, the IMF estimated that total factor productivity, had grown at the annual rate of only 0.2 percent in Africa during 1971-1993 - as against an annual average TPF growth rate of 1.4 percent for all the developing countries (IMF 1993). The IMF underlined the relative inefficacy of investment in Africa by pointing out that the large TPF growth differential existed despite: a virtually equality of investment rates - Africa's investment to GDP share was equal to the average investment GDP ratio for developing world and reasonably high at 25 percent. The decline in the share of industry and manufacturing in African GDP which occurred during 1980-96 (UNIDO 1998) is likely to have further depressed TPF growth.

The deceleration of TPF growth during the 1980s and 1990s has at least partly been due to organisational changes within the manufacturing sector. In Africa this has often involved outsourcing and subcontracting to foreign partners - this reduces internal learning by doing and increases dependence on foreign suppliers. Productivity growth has also been hindered by a scarcity of skills, a weak, physical and institutional infrastructure and the existence of a small market which makes it impossible to exploit scale and scope economies. As has been recognised by several authors. Africa has been experiencing de-industrialisation since the early 1980s (Pack 1994, UNIDO 1997) and de-industrialisation is almost synonymous with productivity growth deceleration (Lall 1990). The technologically progressive role of manufacturing underscores the need for the rapid re-industrialisation of Africa.

Sub-Saharan Africa now accounts for only 0.2 percent of world MVA (down from 0.3 percent in 1980) and according to UNIDO estimates MVA in Sub-Saharan Africa has actually been contracting at an annual average rate of 1.0 percent during 1990-1997 (UNIDO 1998 b). Moreover capital goods industries account for only about 6 percent of Sub-Saharan African MVA (UNIDO 1998 b). It is particularly pertinent to note that MVA in non electrical machinery

production contracted at the rate of 0.4 percent per annum in sub-Saharan Africa during 1970-96.

Output per head in Sub-Saharan manufacturing rose from \$7819 (in contrast 1990 US \$) to \$7924 in 1990 but fell to \$6762 in 1996. It is then clear that TPF decline has accelerated during 1990-96 a period in which recovery was widely heralded to "have begun" (World Bank 1993). It is not surprising that output per head in sub-Saharan African manufacturing as a proportion of world output per head has fallen from 30.8 percent in 1990 to 25.6 percent in 1996. In 1970 labour productivity in Sub-Saharan Africa was 36.5 percent of the world output per head. During 1990-96 employment growth averaged 1.6 percent in Sub-Saharan manufacturing while output contracted by average of one percent per annum. This was in short contrast to the 1980s when average annual output growth had been both positive and (statistically) significantly higher, than the average growth of manufacturing employment in sub-Saharan Africa. Employment growth remains concentrated in the traditionally low technology branches and the share of the capital goods industries (ISI-38) in Sub-Saharan manufacturing employment was only 4.9 percent in 1996 (UNIDO 1998 b). MVA has contracted at the rate of 1.1 percent per annum in Sub-Saharan Africa during 1990-96.

^{etc} This is a clear difference between the performance of what Gapanski (1996) calls group A and group B countries in terms of productivity growth in Africa. Using data from the invaluable 1993 revision of the *Penn World Tables*, he shows that the average labour productivity in group A (Algeria, Egypt, Morocco, South Africa and Tunisia) exceeds group B's (43 other African countries) average labour productivity by a multiple of 2.8 for the period 1950-90-but for 1980-1990 the excess of labour productivity of group A to Group B source to a multiple of 3.3. Gapanski's data set shows that over the 1950-1990 period, productivity grew at an average rate of 2.4 percent in the group A countries but by only 1.4 percent per annum within group B. Savings - and hence the potential for capital accumulation - are also shown to be twice as high for group A countries. The Gapanski data shows that investment growth varies widely over 1950-1990 even within the group B countries. There is however no evidence to show that there is a statistically, significantly difference between ^{among the two} either graph the ratios of capital accumulation between large and small firms. ^{groups}

Gapanski's analysis shows that both labour and capital productivity growth during the 1950-1990 period have been significantly higher for the group A African countries. For the group B countries the major cause of output growth has been shown to be increase in the quantity of labour-for group B African countries this accounts for roughly two-fifths of output growth. The output growth share of improvements in labour quality is significantly higher than that of growth of capital in the group B countries. It has been shown that over three fourths of the growth attributed to capital is due to growth in its stock for the entire sample-and one fourth can be attributed to improvements in its quality. Capital quality improvements add only a quarter of what labour quality improvements contribute to output growth during 1950-1990. As table 1 shows growth is:

5

Table 1
Sources of Output and Productivity growth Selected Africa Countries 1950-1990

Country	OUTPUT SHARE DUE TO					PRODUCTIVITY SHARE DUE TO	
	Labour		Capital	Capital Components		Labour	Capital
	Quantity	Quality		Quantity	Quality	Quality	Deepening
Algeria	42.7	29.2	28.1	20.3	7.8	58.2	41.8
Angola	58.1	31.6	10.3	3.4	6.9	ne	ne
Benin	42.3	32.1	25.6	20.0	5.6	63.2	36.8
Botswana	32.9	25.1	41.9	37.6	4.4	40.7	59.3
Burkina Faso	39.1	26.8	34.1	27.6	6.5	49.2	50.8
Burundi	33.9	27.9	38.2	31.6	6.6	46.1	53.9
Cameroon	34.2	42.4	23.4	19.7	3.7	70.3	29.7
Cape Verde	48.3	24.7	27.0	21.1	5.9	56.3	43.7
Central African Republic	ne	ne	ne	ne	ne	ne	ne
Chad	ne	ne	ne	ne	ne	ne	ne
Comoros	50.5	25.6	23.8	17.8	6.0	62.2	37.8
Congo	38.9	49.2	11.9	8.4	3.5	89.7	10.3
Egypt	46.8	15.9	37.3	27.0	10.3	35.2	64.8
Ethiopia	41.4	20.0	38.6	34.3	4.3	38.5	61.5
Gabon	49.5	21.5	29.0	24.2	4.8	50.6	49.4
Gambia	36.2	31.5	32.3	27.7	4.7	54.3	45.7
Ghana	ne	ne	ne	ne	ne	ne	ne
Guinea	44.2	40.4	15.4	6.3	9.1	ne	ne
Guinea-Bissau	34.8	53.9	11.4	4.6	6.8	ne	ne
Ivory Coast	48.4	23.0	28.5	23.8	4.7	52.7	47.3
Kenya	66.2	20.8	13.0	7.3	5.6	ne	ne
Lesotho	30.9	8.5	60.6	55.1	5.5	13.3	86.7
Liberia	ne	ne	ne	ne	ne	ne	ne
Madagascar	54.7	33.8	11.6	3.8	7.8	ne	ne
Malawi	53.2	13.8	33.0	27.1	6.5	36.2	63.8
Mali	49.8	34.4	15.8	11.3	4.5	81.6	18.4
Mauritania	53.2	20.4	26.4	21.6	4.8	53.4	46.6
Mauritius	58.6	19.5	21.9	14.1	7.8	62.0	38.0
Morocco	57.5	14.8	27.6	18.2	9.4	45.7	54.3
Mozambique	ne	ne	ne	ne	ne	ne	ne
Namibia	46.8	28.4	24.8	19.2	5.6	62.3	37.7
Niger	ne	ne	ne	ne	ne	ne	ne
Nigeria	54.4	18.2	27.4	22.9	4.5	49.5	50.5
Reunion	53.7	17.1	29.2	25.2	4.0	45.6	54.4
Rwanda	43.2	25.6	31.1	26.3	4.9	51.5	48.5
Senegal	69.1	20.7	10.2	2.2	8.0	ne	ne
Seychelles	27.2	19.5	53.3	46.4	6.9	28.5	71.5
Sierra Leone	40.6	46.8	12.6	3.9	8.7	ne	ne
Somalia	49.2	27.2	23.7	17.3	6.3	63.5	36.5
South Africa	60.5	7.2	32.3	20.9	11.4	25.5	74.
Swaziland	48.5	25.1	26.4	20.6	5.7	57.7	42.4
Tanzania	50.6	14.1	35.3	29.9	5.4	34.3	65.7
Togo	34.2	45.1	20.7	16.7	4.0	74.8	25.2
Tunisia	38.7	34.8	26.4	20.4	6.0	63.3	36.7
Uganda	69.6	15.1	15.3	8.1	7.2	ne	ne
Zaire	35.5	45.2	19.3	14.0	5.3	76.9	23.1
Zambia	ne	ne	ne	ne	ne	ne	ne
Zimbabwe	77.8	14.0	8.3	2.1	6.2	ne	ne

	Means Across Countries						
	47.5	26.6	25.9	19.8	6.2	52.9	47.1

Source : Gapinsky J. (1996 p. 538-539)

the contribution of capital quality improvements to output growth is only about 6 percent on average. Even for group A, the contribution of capital quality improvement is only 9 percent. It is interesting to note that growth in labour quantity contributes almost 50 percent to total output growth. The contribution of growth of physical capital contributed about 21 percent to output growth in group A and 18 percent of output growth in group B countries. This depicts the fact that relatively ^{even} level of more industrialisation countries such as Algeria, Egypt, Morocco, South Africa and Tunisia, the growth process like that of the other African countries was extensive in nature. It was driven by an accumulation of labour and capital and not by ^{a rise in} ~~a rare~~ factor efficiency. As Krugman in his famous essay (1994) points out such growth also occurred in East Europe and East Asia in the second half of the twentieth century Krugman shows why such growth can not be self sustaining in the long run.

The last column of table 1 desegregate factor productivity growth in Gapinsky's estimation. Both labour and capital are roughly equally important but the pattern of productivity growth in advanced and other African countries is not similar. Capital productivity growth explains 55 percent of factor productivity growth in group A countries but only about 46 percent of productivity growth in the other African countries. However the data also shows that while there is a close association between the marginal productivity of variables measuring the quality of labour and capital such an association does not exist between the marginal productivity of the quantities of labour and capital - thus ⁱⁿ Gapinsky's Table 4 (1996 p. 540-541) which shows that Algeria which ranks first in terms of the variable measuring the marginal productivity of the quantity of labour ranks 48th in terms of the variable measuring the marginal productivity of the quantity of capital - as against this Algeria ranks second and fourth in terms of the estimates of the marginal product of the variables measuring the quality of labour and capital respectively. Thus while quality of labour and capital complement each other physical quantities of labour and capital are often substitutes in African economies- a high marginal labour (quantity) product compensating for a low marginal product of capital quantity. Improving the quality of factor inputs is thus key to increasing productivity in Africa.

Table 2 ranks 48 African countries in terms of the marginal products of variables measuring the quantity and quality of labour and capital input for the period 1950-1990. In principle assistance in relation to human capital formation should be concentrated towards countries with high marginal product to labour quality inputs. Transfer of physical technology should be facilitated towards countries with high marginal productivity of capital.

Gapinsky's estimates of capital quality and quantity in particular are built on several unverifiable assumption and results presented in Tables 1 and 2 are subject to very wide error margins. Nevertheless, the underlying assumption are reasonable and broad trends in the productivity growth process have been identified. On the whole it seems reasonable to conclude that (a) from a long run (forty year) perspective productivity growth has taken place - but at a

very slow pace. The danger is that productivity growth momentum seems to have been lost in the ~~1980s~~ and 1990s. (b) productivity growth has mainly been driven by an extension in the use of labour and not by an improvement in its quality or in the quality of capital. This is true of both advanced (group A) and other African countries (c) nevertheless, there are significant variations in the marginal productivity of labour and capital and industrial strategy - particularly the provision of technical assistance should take this into account.

Table 2
Countries Ranked by Marginal Products of Factor Inputs 1950-1990

	<u>MARGINAL PRODUCT OF LABOUR</u>		<u>MARGINAL PRODUCT OF EFFICIENT CAPITAL</u>	<u>MARGINAL PRODUCT OF CAPITAL</u>	
	<u>QUANTITY</u>	<u>QUALITY</u>		<u>QUANTITY</u>	<u>QUALITY</u>
Country	Rank	Rank	Rank	Rank	Rank
Algeria	H01	H02	L43	L48	H04
Angola	M28	M20	H13	H06	M18
Benin	M24	H07	H07	H08	M24
Botswana	H13	L42	M24	L40	L42
Burkina Faso	L45	M30	H15	M24	M27
Burundi	L46	L38	H06	H09	L35
Cameroon	M18	H08	H12	M19	H12
Cape Verde	M22	L46	L40	L47	L46
Central African Republic	L39	M23	L33	H16	L39
Chad	L36	L35	H14	H05	L33
Comoros	L37	L47	M31	L35	L47
Congo	H12	M26	M29	M27	M28
Egypt	H11	H05	H10	H11	H03
Ethiopia	L48	H13	H03	H04	H11
Gabon	H02	M32	L37	L46	M25
Gambia	L33	L40	H04	H12	L45
Ghana	M23	H16	M32	M18	H14
Guinea	L47	L36	L38	L33	L34
Guinea-Bissau	L38	M28	L45	L44	L44
Ivory Coast	H14	H12	M21	M22	H07
Kenya	M30	H15	L44	L42	H10
Lesotho	M32	L45	H08	H14	L43
Liberia	M21	L34	L41	M21	L36
Madagascar	M25	M19	H01	H01	H16
Malawi	L43	L37	M17	M23	M32
Mali	L35	H09	H16	M17	M30
Mauritania	H16	L41	M18	M25	L41
Mauritius	H05	L39	M30	M30	M31
Morocco	H09	H11	M27	M31	H05
Mozambique	M26	H03	H09	H03	H08
Namibia	H04	M29	L46	L36	M20
Niger	L41	H14	M25	H15	M23
Nigeria	M27	H01	M20	M28	H02
Reunion	H07	L44	L39	L38	L40
Rwanda	L40	M18	H02	H07	M26
Senegal	M20	M24	M22	H13	M19
Seychelles	H10	L48	M19	M32	L48
Sierra Leone	M19	M25	H05	H02	M29
Somalia	M29	M27	M27	M26	M22
South Africa	H03	H04	L42	L45	H01
Swaziland	H08	L43	L36	L37	L38
Tanzania	L44	M21	M26	M29	H13
Togo	L34	L33	L35	L39	L37
Tunisia	H06	H10	L34	H34	H06
Uganda	M31	M17	M28	M20	H15
Zaire	L42	H06	H11	H10	H09

Zambia	H15	M31	L48	L43	M21
Zimbabwe	M17	M22	L47	L41	M17

Notes: H = high, m = middle, L= Low

Source: J. Gapinsky (1996) (p. 540-541)

Consistent time series data on output per employee ^{in manufacturing branches} is not readily available. Nevertheless, Table III presents estimates of labour productivity growth in ten major industrial branches in 38 African countries over the period 1990-95- these branches accounted for about 63 percent of MVA in 1995 and their share in African MVA had been rising during the past decade (UNIDO 1997 p. 35-36). For the manufacturing sector as a whole labour productivity is seen to have declined to an index value of 93 in 1995 (1990=100). The only region recording positive productivity growth was the North and the most pronounced productivity declines were experienced in the South (excluding South Africa for which time series data is not available) and East Africa. For Africa as a whole labour productivity growth has been positive for tobacco, beverages and structural clay products. The UNIDO study also shows that in many cases- most notably that of the tobacco industry- an increase in productivity has been due to a fall in employment growth. Productivity growth has generally remained concentrated in a small number of countries. Analysis of data for 38 African countries over the 1990-95 period shows significant labour productivity growth in the branches and countries listed below:

Table 3

Labour productivity indices a/ of agro-related Industries In Africa, by sub-regions, 1995 (1990 =100)

ISIC		Africa a	North h	West	Central al	East	South
300	Manufacturing	93.4	101.0	92.1	93.7	87.3	80.6
311-12	Food	96.0	110.8	79.8	86.2	80.9	112.0
313	Beverages	101.3	166.5	75.5	103.4	86.8	84.9
314	Tobacco	142.8	130.4	109.6	89.7	?	100.4 ?
321	Textiles	98.1	153.2	73.6	79.5	84.2	77.2
322	Wearing apparel except footwear	80.2	76.8	129.2	99.1	128.5	37.1
323	Tanneries and leather finishing	87.5	79.1	94.1	64.7	68.3	112.9
324	Footwear except vulcanised or moulded rubber or plastic footwear	84.5	72.5	97.0	60.3	64.3	81.7
331	Sawmills, planing and other wood mills	94.3	92.1	117.3	49.0	67.6	84.6
332	Furniture and fixtures, except primarily of metal	87.9	75.5	130.2	79.0	77.8	81.1
332	Structural clay products	107.2	93.1	88.4	153.7	81.9	87.6

a/ Measured as change in value added over labour employed during 1990-1995 in constant 1990 US\$.

Source: UNIDIO

1. Food manufacturing	Algeria, Botswana, Senegal, Togo, and Zimbabwe.
2. Beverages	Algeria, Benin, Egypt, Ghana, Lesotho, Senegal, Tongo, Seychelles, Tunisia, Uganda and Swaziland.
3. Tobacco	Algeria, Cape Verde, Egypt, Ghana, Mauritius, Sudan, Seychelles and Tunisia.
4. Textiles	Benin, Botswana, Egypt, Lesotho, Tunisia, Uganda
5. Clothing	Benin, Botswana, Lesotho, Ghana, Mauritius, Senegal, Seychelles.
6. Leather	Botswana, Burkina Faso, Cote d'Ivoire, Egypt Lesotho, Uganda.
7. Footwear	Cameroon, Central African Republic, Egypt, Congo, Ghana, Lesotho, Seychelles.
8. Wood product	Botswana, Cameroon, Ghana, Tunisia.
9. Furniture	Benin, Cote d'Ivoire, Gambia, Ghana, Lesotho, Rwanda, Senegal, Tanzania.
10. Building Material	Benin, Ghana, Lesotho, Morocco, Tunisia.
11. Industrial Chemicals	Egypt, Ghana, Morocco, South Africa, Tunisia.
12. Machinery	Egypt, Morocco, Nigeria, South Africa, Tunisia.

II.2 Revealed comparative advantages of industrial branches in Africa

This section seeks to estimate Africa's comparative advantage in major industrial branches. The approach followed in estimating revealed comparative advantages (RCA) indices ~~and~~ that ~~is~~ developed by Forstner and Ballance (1990) and first presented by UNIDO (1986) The limitations of the approach as adopted in this paper are:

- (a) RCA should ideally be calculated for products (ISIC six digit level). Data availability made this impossible and estimates presented are at three digit level only.
- (b) Estimates presented relate to inter industry trade only. Intra-industry trade flows are ^{not} accounted for.
- (c) Since the RCA concept ^{is} reflects the conceptual framework of the Hecksher-Ohlin model, trade patterns so identified fail to take account of factors such as scale economies, product differentiation and market concentration. The so called new theory of international trade stresses the importance of these factors in determining trade pattern (Kingman 1983, Lerner 1984).

~~Table 4~~

IV Results are presented in Table IV
 Table IV RCA indices, Africa except South Africa-, 1976-1995 (per cent).

		1976	1986	1995
311-12	Food manufacturing	37.1	13.7	-0.9
313	Beverages	-22.7	-33.4	-50.1
314	Tobacco	-61.8	-64.9	-72.7
321	Textiles	-59.5	-55.3	-67.1
322	Wearing Apparel	-20.6	25.0	81.0
323	Leather products	-8.4	6.1	23.1
334	Footwear	-26.4	-11.2	6.2
331	Wood products	-26.8	-32.8	-24.1
332	Furniture	-36.7	-32.9	-12.2
352	Other Chemicals (Fertiliser Proxy)	-81.5	-100.9	-91.1
369	Other non metallic minerals	-167.5	-199.9	-99.0
	Total manufacturing	-57.7	45.1	-41.1

Source UNIDO

In 1976 the only branch with positive value of the revealed comparative advantage index was food manufacturing. Leather products and wearing apparel were marginal cases. By 1986 both leather products and wearing apparel had improved their RCA indices considerably but food manufacturing had declined - its RCA value falling from 37 percent to 13.7 percent. By 1995 the food manufacturing RCA value had turned negative. The international competitiveness of wearing apparel and leather products both improved significantly - RCA values tripling in each case. A small positive value for the footwear sector RCA value was also apparent in 1995. The position of textiles and beverages continued to deteriorate but some encouragement can be taken from the fact that the RCA index for the entire manufacturing sector rose from -57.7 percent in 1976 to 41.1 percent (i.e. improved by about a third).

Moreover the aggregate picture as depicted in Tables ~~4~~ and ~~5~~ ^{IV} [✓] conceals many variations. It is evident that :

- (a) The branches in which most African countries have positive , comparative cost advantages are food manufacturing (more than half the contraries for which data was available had positive RCA values in this branch), leather products and footwear, wood products and furniture. By 1995 almost half the countries in the sample had positive RCA values for either the leather and footwear or the wood and furniture branch.
- (b) International competitiveness in leather, wood and furniture industries had increased during 19976-1995; maximum

RCA had risen for several countries and the number of countries with positive RCA's had risen significantly in leather footwear and wood product branches. Maximum RCA values had increased moderately for the food manufacturing branch but the number of countries with positive RCA values had fallen.

- (c) The declining branches in term of international competitiveness are beverages and tobacco. RCA values have fallen drastically in beverages and tobacco where ^{there} had been a significant fall in the number of countries with positive values. By 1995 only ^{in beverages} Algeria, Namibia, and Zambia had positive RCA values and the typical value of RCA was less than ten percent. The decline in tobacco was ^{also sharper} even sharper. In textiles the number of countries with positive RCA values had increased consistently throughout the period but there were in 1995 still only six African countries with positive RCA values in this branch - Cote d'Ivoire, Egypt, Madagascar, South Africa, Tanzania and Uganda - and except for Egypt, the RCA value is less than 15 percent for every country in the group. The maximum RCA value had ^{increased} declined sharply in textiles for 1976-1995.
- (d) Maximum RCA values had ^{risen} risen sharply for wearing apparel specially during ~~1986-1995~~ ¹⁹⁸⁶⁻¹⁹⁹⁵ but only seven countries - Egypt, Madagascar, Mauritius, Morocco, Namibia, Tanzania and Zambia had positive RCA values in this branch. The performance of the African countries in both clothing and footwear is on the whole disappointing. Very few countries have developed competitiveness and in the case of footwear maximum RCA values have actually fallen showing a decline in competitiveness during both 1976-1980 and 1980-1995.

Table 5

Range of positive revealed comparative advantage (RCA) in Africa, 1976-1995

	Range of Positive RCA (percent)			No. of countries with positive RCA		
	1976	1980 ⁶	1994	1976	1980 ⁶	1994
Food manufacturing	625.1 - 14.7	693.7 - 38.8	820.2 - 7.6	27	24	24
Beverages	302.0 - 5.0	22.3 - 3.2	60.13 - 2.0	7	4	3
Tobacco	78.3 - 3.9	223.1 - 9.8	112.7 - 4.6	9	6	6
Textile	53.4 - 5.0	56.7 - 2.2	91.12 - 8.1	2	3	6
Wearing Apparel	205.7 - 34.7	719.9 - 1.7	594.1 - 24.7	5	7	7
Leather	337.9 - 5.1	490.1 - 1.5	604.5 - 3.4	10	14	16
Footwear	334.3 - 42.9	106.2 - 1.1	100.1 - 17.1	3	4	8
Wood Products	481.4 - 10.7	569.2 - 8.7	90.1 - 0.7	11	12	18
Furniture	29.1 - 1.1	18.5 - 3.5	109.8 - 6.6	5	3	6
Non-metallic minerals	82.5 - 29.1	82.4 - 47.2	105.6 - 5.0	4	2	2
Total				83	79	96

Note: Total number of countries for which data available are 47. Data for Namibia is available only for 1991- this is included in the 1999 estimation.

Source: UNIDO

UNIDO (1997 b) has produced evidence to show that African countries are increasingly gaining comparative advantage in labour intensive branches. Maximum RCA values have increased significantly in furniture and leather products - the most labour intensive branches according to UNIDO estimates. RCA's have however, declined in clothing which ranks high in terms of labour intensity.

during 1986-1995

Moreover the number of countries with positive RCA values in 1995 were only ~~five~~ ^{Six} in the case of textiles and seven in the case of clothing. Clearly factor intensities are not the only determinants of RCA's ability to export, also depend on the market structural and demand characteristics identified by the new trade theory. ^{The}

It is particularly alarming to note that the rank co-relation of industrial branches ranked by productivity growth over 1980-1995 and RCA value in 1995 is very low. Productivity has fallen in furniture, leather, footwear, clothing, textiles and food manufacturing (Table 3). An export oriented development strategy can not directly stimulate TPF growth. Policy must focus on increasing technological progress within the export oriented industries - many of which have seen very rapid progress in the application of the most modern technologies (informatics, biotechnological) to their production and distribution system. ^{etc}

II.3. Competitiveness

In 1998 the first African competitiveness report was published by the World Economic Forum and South Africa and Zimbabwe were ranked in its global competitiveness report. The "competitiveness index" on the basis of which countries are ranked is calculated using a weighted average of the results of a survey of the opinion of businessmen, bankers, civil servant and multilateral agency officials. It is necessarily, highly subjective and open to serious theoretical errors. Thus the assumption that open ^{ness} reduced government spending, reduction in financial repression, management's market orientation, wage and union repression and the legalisation of capitalist property rights are always associated with high growth of real per capita income can not be substantiated with reference to theoretical or empirical evidence. The "competitiveness index" measures not the economic potential of a country but its attractiveness to public and private foreign capital.

(c) weak infrastructure

According to the African competitiveness report (1998) the most important "problematic factors for doing business" in sub-Saharan Africa were (a) Tax regulation regimes (b) Difficulties in raising local financing (c) corruption, skill shortages and labour-management friction were not seen as important constraints. There is however, considerable variation at the national level.

Major competitiveness constraints are summarised below:

Table VI: Factors Constraining Competitiveness in Africa 1998

Botswana	Labour, inflation, financing, infrastructure
Burkina Faso	Financing, infrastructure, tax, regulations, coups
Cameroon	Corruption, financing, tax infrastructure
Cote d'Ivoire	Tax, policy, finance, education, infrastructure
Ethiopia	Infrastructure, Tax, finance corruption
Ghana	Inflation, finance, tax, infrastructure, corruption
Kenya	Corruption, infrastructure, crime, finance, policy, instability

Malawi	Infrastructure, finance, crime, corruption, education
Mauritius	labour, education, policy instability, inflation
Mozambique	Infrastructure, tax, crime education, corruption
Namibia	Education, work ethic, labour crime
Nigeria	Infrastructure, corruption, political and policy instability, inflation and crime
South Africa	Crime, Tax, labour, work ethic, education
Tanzania	Tax, finance, infrastructure inflation, regulation
Uganda	Finance, infrastructure, tax, corruption, political instability
Zambia	Finance, tax, inflation crime, education and infrastructure
Zimbabwe	Tax, inflation, infrastructure corruption, policy instability

Source: African Competitiveness Report, 1998.

Once again the insignificance of labour related issues is evident. This is apparent from the fact that according to the African competitiveness Report - 1998 average wages measured in dollar terms have declined by almost 20 percent during 1985-1994 (p.17). This reflects above all the sustained devaluation these countries have experienced reflected in a 30 percent reduction of the real effective exchange rate for African economies over 1985-1995 (World Bank 1997). Significantly this has not been accompanied by a growth in African's share of world export markets. Nor has there been a significant increase in the flow of foreign direct investment as a consequence of the fall in real wages. The message is clear; cheap labour and cheap raw materials ^{can} not be regarded as key factors by policy makers, seeking to enhance productivity growth in Africa and improve Africa's share in world markets.

II.4 Factors inhibiting productivity growth and competitiveness enhancement in Africa.

A major cause of low productivity and competitiveness growth is supply side rigidities. Much of the literature assumes that underlying supply rigidities are not a problem. There is no evidence that policies aimed at price rationalisation lead to growth in factor productivity or in desired changes in the pattern of comparative advantage (Pack 1994 p. 1). Hence programmes of structural adjustment have had little impact on productivity growth - specially within the manufacturing sector.

As noted in section 1 the key to productivity growth is raising the quality of employed labour and capital: but in Africa quantity is of ten a more serious constraint. The east Asian economies began their rapid growth phase with a considerably greater stock of human capital than is currently available in Africa: Africa suffers from the existence of a high level of technical inefficiency - capital and labour inputs employed per unit of output are very high. This results in very high domestic resource cost ratios for most economic activities: technological progress reduces input use by increasing input (factor) productivity, thus decreasing the DRC. Technical inefficiency may thus be interpreted as the inability of ^{firms} ~~forums~~ to achieve the same level of factor productivity as do firms employing identical technologies in other markets. ~~Alternative~~ inefficiency implies that firms are employing the wrong input composition given existing factor prices. Altering factor prices has a direct impact on allocative efficiency but it is usually not the case that technical inefficiency at the firm level can be reduced by factor price restructuring at the national level.

^{Allocative}
Improving technical efficiency requires the protection of local firms with a view to enhancing their capacity to learn. TPF growth usually stems from learning

about important aspects of production engineering. Technical efficiency will almost never be ~~not~~ raised by ~~more~~ increased competitive pressure.

While industrial productivity in Africa might be improved by the typical macroeconomic restructuring *cum* liberalisation policy package, the magnitude of the gain is not likely to be particularly large given the scarcity of experienced industrial managers and the paucity of general industrial experience. These factors suggest that African industry may require more than efficient pricing policies if productivity growth is to occur. Even in the case of the erstwhile "tigers" particularly in South Korea and Taiwan, price policies were not neutral and were designed to galvanise technological efforts, particularly to improve the prospects of new industries (Pack and Westphal, 1986).

Raising TPF requires that attention be focused on improvement at the level of the firms. An important objective must be to bring most firms in a branch up to the level of the TPF of the most efficient domestic firm. This is particularly important because inter firm variation in levels of ~~the~~ TPF are often wide in African countries.

More, even the best local firms may fall far short of internationally realised productivity levels. And a further filip to domestic output can be obtained if all firms, both those locally efficient and those falling short of this standard, move toward international best practice.

This requires the development of meso policies - i.e. policies ^{aimed} ~~and~~ at strengthening institutional and normative structures which are industry specific - such as provision for training, development of incentive systems, mechanisms for fostering efficient specialisation by firms etc. Many of these measures will influence firm behaviour, whether such intervention is effective can be gauged by a continuous monitoring of changes in the level of TPF and DRC_s at the branch level.

The rest of this paper discusses ^smeasures that governments can adopt to raise factor productivity and competitiveness. It draws heavily upon the "capabilities" literature (for an authoritative review see North 1996). ^{And} discusses a wide range of policies that impact upon firm behaviour at the micro and meso level. Such "capabilities building", it must be stressed is not compatible with continued emphases on macro policy liberalisation. Capabilities building thorough state intervention at the meso and firm level requires the articulation of Keynesian macro policies which ^{discriminate} ~~discriminate~~ between type of capital inflow and are based on the premises that stabilisation ^{should} ~~should~~ be regarded as a means to growth, not as an end in itself. It also rejects the proposition that self sustaining growth is an inevitable, unintended consequence of macro stabilisation. Measures for capacity building which are not based on such a policy perspective are not likely to succeed in enhancing total factor productivity growth at the branch and firm level.

III. Capacity Building Measures

III.A. Industrial Strategy^{es}

Industrial strategy must focus on the creation of new skills and on the development of an incentive system to induce public and private, domestic and foreign firms to institute required forms of internal reorganisation of production and management systems. An incentive system must be put in place to ensure the emergence and consolidation of strategic alliances among firms necessary for the enhancement of productivity and competitiveness.

Policy co-ordination of different actors has now become more important as the design of industrial policy must take account of commitments to newly established international norms. This requires a stronger government capacity for norm setting, ensuring compliance and sponsoring internationally competitive firms by providing a functional informational and regulatory framework. Policy should target a wide diffusion of technological learning and strengthening of technological capabilities at the firm level. Ideally policy provides an organising principle which brings cohesion to different perspectives and initiatives. It should emanate from a shared industrial vision of the future (say a five year period) which provides a focal point for continuous interaction between the government and the private sector. Such interaction should be built upon existing structures and strategically limit (but not eliminate) entirely new departures. Equally important, dialogue and intervention is most effective when it is local, since the policy maker is typically closest to the producer and capable of adapting the policy initiative to the market environment.

If industrial strategy is to be focused on these tasks it must necessarily be selective and not merely confined to initiatives for correcting generic market failures. It is widely recognised that in developing countries, firms under-invest in technologies that are perceived to have long, costly and risky learning periods; when exposed to full international competition they are reluctant to undertake the 'learning to learn' process (Stiglitz 1987). The process of learning is distorted because firms typically do not know how long it will take, what it will cost and where to look for technology and skills. In the absence of supportive mechanisms to overcome learning costs technological upgrading is unlikely. An efficient means for inducing firms to upgrade technology was adapted by East Asian economies such as Taiwan Province of China. They subsidised technological upgrading by linking it to export performance and exposed the subsidised firms to international competition at a relatively early stage.

Protection alone can of course never be sufficient for technological upgrading. Industrial strategy must address the task of improving the performance of factor markets (capital, technology, labour, etc.) and offsetting failures to learn within firms. The relation between 'internal' (i.e. within the firm) and 'external' market failures is a complex one. Certain industries' clusters generate strong benefits for the economy in terms of technological learning and spillovers; others have more limited or static effects. African countries must select strategic industrial

specialisation that contribute to technological dynamism. This is an important step in industrial capacity building.

The crafting of industrial strategy involves:

- Identifying existing or potential industries and firm clusters that can be promoted with the limited resources available.
- Identify measures which can be taken to increase the technological and human skill capacities of these firms and industrial clusters. This will usually involve a restructuring of the internal organisation of these firms as well as a restructuring of the relations with suppliers and customers.
- Developing a financial strategy for funding the capability strengthening measures at the level of the firm and of the market. Self-financing by the firms could be encouraged.
- Devising an institutional mechanism for delivering of support inputs to the firms as well as for monitoring firm performance.

In the African countries a critical problem is the limited capability of the government to articulate an industrial strategy focused on increasing the technological, organisational and financial capacities of enterprises. Hence a primary concern must be to improve government capability itself, for example through the provision to government agencies of financial resources, better training facilities, development of superior administrative and monitoring systems and the insulation of economic policy from the political process. International financial and technical assistance can play a crucial role in strengthening African countries state policy conception and policy implementation capabilities.

It is to be stressed that the need for an industrial strategy is not dependent on the choice of industrial specialisation. It is true that for the vast majority of African countries the abundance of unskilled labour means that specialisation will be in relatively low technology industries- grain processing, standardised clothing, leather products-but this does not mean that the technical and organisational development of firms in these industries can be left to the market. Thus though sub-Saharan Africa is increasingly dependent on imported wheat, coarse grain processing is not a flourishing activity despite the important "maize revolution" in Eastern and Southern Africa (UNIDO 1997 b). The lesson is that even for the development of suitable natural resource and labour-intensive industries governments must develop an industrial strategy which provides resources for skills and technology acquisition and create incentives for the type of inter and intra firm organisational restructuring which enhances factor productivity and product quality. This is even more essential if the concern is to enhance international competitiveness (meet ISO 9000 standards for example) specially because technological change is taking place at a rapid pace in even traditionally labour-intensive industries such as textiles, clothing and food manufacturing.

The central point that this section has stressed is that an industrial strategy deliberately chosen by the government to enhance productivity and competitiveness is essential to success. Such a strategy must be selective. Government would need to target clusters of firms with greatest competitiveness and productivity potential. It must provide a package of skill, information, equipment, training and finance to these firms, link the provision of these inputs to performance and implement effective incentive systems incorporating both rewards and punishments.

III.B. Technological and organisational policies

The previous section has argued that selective industrial policies targeting the most potentially productive and competitive branches and firms is necessary. The focus of industrial strategy should clearly be on a specific type of firm: the one which is willing and able to 'learn to learn' and to create new forms of industrial organisation at the level of the plant and the firm and also in its relations with other firms. Successful firms in the new 'post -Fordist' industrial era (roughly 1970 onwards) are those capable both of providing large-scale production and meeting the growing consumer demand for improved quality and increased diversity; firms that have passed from mass production to mass customisation.

Such firms are capable of great production flexibility. They are demand driven and quality supervision is integrated into the production process. The organisational structure of such firms are characterised by:

- A factory layout in which individual groups cater to individual market segments ("cellular production");
- Multi-task and multi-skilling work processes;
- Implementation of quality at source procedures;
- Worker involvement in product and procedure conception through consensus building and deliberation.

Clearly the continuous upgrading of human resource is vitally important in this type of firm. Here workers are deliberately given responsibility and the role of middle management is reduced. It is the continuous improvement in human skills and flexibility across range of related firms which make possible concentration on core competence and the introduction of just-in-time (JIT) and total quality management (TQM) methods. In this situation - involving the delivery of frequent 'zero defect' small quantity batches - arms length relationships with suppliers and customers are no longer feasible. This implies close production integration and frequent (often continuous) technology transfers between large firms and their small scale suppliers.

Mass customisation techniques are essentially easy to understand with low scientific intensity. The resource costs of this type of innovation by a firm are not high. Such innovations do however require fundamental attitudinal changes in relation to work and the division of labour. It is therefore to be expected that, left to the market, the growth of mass customisation will be

sub-optimal, the government could both stimulate demand for mass customisation and provide inputs to augment organisational capabilities for responding to this demand. A crucial concern could be the promotion of knowledge about mass customisation techniques within the local business community. Financial support may be made available for model firms on condition ~~that~~ they will allow other firms access to their sites and operational procedures.

The pace of technological change has accelerated over the past twenty years- especially with the development of the so called generic technologies in information⁵³, biotechnology and new materials. Obtaining access to such technologies is expensive. The new technologies have had an impact on traditionally labour-intensive industrial branches such as textiles, wearing apparel and food manufacturing. A major challenge facing African countries is to achieve an effective mix of usage of semiskilled labour with computerised design leading to standard production methods. Technological innovation is thus at the core of the competitive capabilities of industrial firms in African countries.

The new rapidly evolving generic technologies, such as biotechnology, new materials and information technologies offer many opportunities and challenges for broad competitive strategies.

They engender entirely new products, services, markets and businesses. Their impact is transectoral, drastically improving competitiveness of products, processes and services of firms in a large number of traditional industrial sub-sectors. New materials improve product specifications and lower production costs in engineering and chemical industries; biotechnology saves energy and raw materials in chemicals, pharmaceutical and food processing. The pervasive application of information technologies allow companies in all industrial sectors to re-engineer critical processes, improve overall efficiency and re-architecture their businesses with participation of client, suppliers and all internal functions, made possible through electronic networks, Information access. Connectivity and portability are now the key to sustainable competitiveness.

Creating an indigenous technological capacity is clearly essential. Some African countries such as Ethiopia, Sudan and Zambia may gain from TNC redeployment of research activity to lower cost sites. But such gains are likely to be marginal. A much more productive policy initiative is the creation of an institutional framework for the sustenance of strategic alliances between local and foreign firms - especially firms from Brazil, China, India, Taiwan, Turkey and other advanced developing countries. These developing countries are capable of providing almost the entire range of technological products and services that Africa needs. The establishment of regional institutions for R&D and technological adaptation can be mutually beneficial.

Industrialised countries provide a wide range of fiscal incentives for innovation and technological diffusion. Scope for this is limited given the fiscal constraints faced by African countries but innovative firms could be given privileged access to scarce resources. Moreover public institutions could develop the capacity to manage technology and to co-ordinate industrial innovative activities throughout the industrial system. Policy could aim at the

clustering of large, medium and small firms around joint projects. The public authorities could develop a capacity to diagnose the technological competitive capabilities of firms and provide guidance for technological acquisition and adoption. The policy makers could also develop a capacity for performance bench-marking of leading industrial firms. Experience in OECD countries has shown that performance bench marking based on comparison with similar firms in neighbouring countries can focus attention on crucial components. Bench marking involves much more than the provision of subsidies and the monitoring of performance of selected firms. Public authorities must work side by side with firms in identifying strengths and weaknesses devising a sensitive incentive system and playing an effective role as inducer, match maker, catalyser and sponsor. These roles have to be customised to suit the needs of specific firms. e.g. regional specialised clusters (UNIDO 1997 a).

Technological upgrading today is needed by the fast growth of technological diffusion within the traditionally labour and natural resource intensive industries. African countries thus have to build technology absorption capabilities even while specialising in relatively labour and natural resource intensive branches. They need to build up technological capabilities well before they contemplate a transition from labour intensive to more advanced industries. Technological capacities have to be built both within the firm and at the national and sectoral level, which provides quasi public goods such as standard setting procedures, technology transfer regulations and industrial information systems ('infostructure') which all firms can access.

Technology policy should take account of local conditions and levels of development. Sources of competitiveness vary according to socio economic conditions prevailing in the country. At early stages of assembly operations, standard technologies and engineering skills are of primary importance. Foreign direct investment and licensing are not important at this stage. Technology is typically obtained by improving capital equipment. Taiwan deliberately limited FDI to foster technological independence of domestic firms.

Technology prices should aim at stimulating market demand for innovation and establish a domestic capacity for the management of R&D systems. International competitiveness growth requires that several firms grow rapidly through technological learning. Buyers -anxious to ensure product quality - can be of invaluable help in technology sourcing. Governments can also play a catalytic role by setting ambitious targets - thus creating a systemic crisis - and linking the provision of support to the achievement of these targets. Similar pressures can also be put on public and private research institutes by forcing them to be self sustaining through linkage with firms. Finally, governments can also stimulate technological upgrading by encouraging the growth of venture capital initiatives in the country.

III.C. Human Skills

Industrial development requires continuous improvement in the whole range of human skills from shop floor via supervision, financial, engineering, procurement, marketing and general management. Skill formation is a consequence of industrial education and training acquired within educational institutions and within firms. Different types of skills are required at different levels of industrial development.

It is clear that moving from one level or pattern of industrial development to another requires changing the skill creation system and its utilisation by industry. Assuming that most African countries already have an industrial structure characterised by simple assembling and processing activities, the first question is; to what extent is its skill requirements met, Measures are required (a) to raise literacy and (b) increase the coverage and depth of technical and managerial training to cover a sizeable proportion of the workforce and a formalization of on-the-job-training procedures.

If transition to a higher, industrial development stage is attempted (a realistic target for many if not most African countries) skill requirements increase. Secondary and technical training has to be widespread. A broad range of financial and engineering expertise is to be created. Formal in-house training programmes have to be organised especially by export-oriented firms. Some attempt at improving small and micro enterprise sector skills has also to be made.

As industrial development takes place firms themselves become conscious of the need for more and better human skills. They therefore individually and collectively create a private financed institutional structure for the expanded provision of industrial training. But training programmes are typically under-financed by the private sector and firms usually fail to keep up with the growing demand of international competitiveness. Governments therefore have to step in to improve the quantity and quality of schooling and basic technical education. Less frequently they intervene effectively to promote in house/on the job training. This is particularly unfortunate, since analysts frequently claim that in house training is a critical source of productivity growth in developing countries (Tan and Batra 1995).

Skill requirements of African countries are massive, especially in some of the larger ones. Given the paucity of resources it makes sense to target very carefully the expansion of in-firm training of the existing industrial labour force. An incentive system must be developed to induce major firms to invest in training. This should involve the institution of training levies on payroll and the operation of skill development funds. Some attempt may also be made to induce major TNCs already in the country to transfer some R&D activity and to participate in the development of a national training infrastructure. Most importantly, small firms must be induced to take training seriously. This is a difficult task given the minimal impact of government policies on small and micro enterprise behaviour. Nevertheless it must be attempted through greater integration between large and small firms and using the former as a conduit for the transmission of training and embodied technology to the later.

III.D. Fostering entrepreneurship and small and medium enterprise development

An overwhelmingly large proportion of industrial enterprises in Africa can be characterised as small or (more frequently) micro. These small and micro enterprises are usually survival mechanisms-exploiting diseconomies of scale, thriving on informal contacts (especially for information and credit) and absorbing displaced labour from agriculture, large-

scale manufacturing and the service sector. They proliferate at a rapid rate, but survival rates are low. What is even more significant is these small and micro enterprises hardly ever graduate into the formal sector.

This is ^{an} sharp contrast ^{to} the experience of small firms in many developed countries. Italian and Spanish small firms in particular have achieved high level of what is described as "collective efficiency" by horizontal integration and by developing organisational and technological links with large firms. Such small and micro enterprises have carved out a viable market niche for themselves. They are of considerable importance in economies such as Japan where mass customisation and concentration on core competencies by the major firms is widespread. The institutionalisation of flexible specialisation and mass customisation in an industrial system requires the presence of dynamic small firms. (Andersen 1996).

It is to be stressed that improving industrial efficiency must involve the growth of collective efficiency within the small sector. Without this, the move to mass customisation techniques (such as JIT and TQM) is inconceivable. Weaknesses in the industrial supply chain is one of the most important factors constraining new organisational technologies in developing countries.

There are two reasons for this weakness. Firstly, many African countries are characterised by the fragility of small enterprises, particularly in the modern-small scale sector and the relative absence of middle size enterprises. But secondly, the application of these new organisational techniques is, relatively speaking still in its infancy in most developing countries and thus, not many large firms have yet got to the stage in which they are constrained by their domestic suppliers.

Appropriate policies should be adopted to encourage industrial clustering among small and micro enterprises and to foster closer links between major producers and their suppliers. While research shows that governments can do little to *create* industrial clusters, they can do a great deal to foster them once they have emerged. (Schmidt 1995). Moreover, as far as small and micro enterprises clustering is concerned it is local/municipal government (and not a federal or provincial authority) that has a key role to play. Government support to industrial associations is crucial. The private sector industrial associations should be made the main conduits for the transfer of information technologies, marketing and training support to the individual entrepreneur. It is important to use these associations as nodal points for delivery of services and support to large groups of small and micro enterprises. Large commercial users and distributors of small and micro enterprise products can also play this role. Using such commercial channels ensures that support provided is specific to the needs of the targeted sectors and immediately useful in eliminating supply constraints and enhancing collective efficiency. A move from generalised sector support to ^{support} targeted to the achievement of specific output and organisational efficiency benchmarks can be most productive.

Policy support for small and micro enterprises should encourage the type of clusters in which a core company responsible for logistic functions of financing, innovation and ~~marketing~~ emerges and

marketing

consolidates the cluster. This is essential to prevent free riding within the cluster. The overall policy framework must take account of the existing national/local tradition and structure the provision of inputs (education, training, research, marketing) within this context. Policy should concentrate on upgrading (technologically and financially) a group of dynamic small and micro enterprises and establishing conditions of regrouping among them. It is particularly important to link export oriented to domestic demand-oriented small and micro enterprises to avoid the emergence of enclaves within the industrial sector.

A major constraint on small and micro enterprises development is the scarcity of institutionalised credit. Many innovative schemes have been adapted, such schemes have suffered from two structural weaknesses. Firstly, they have usually been initiated and operated by NGOs with mainly social, rather than commercial, orientation. Hence the problem of multiplicity of objectives (reminiscent of criticisms of the public sector enterprise) has obstructed the growth of efficient resource allocation. Secondly, even highly publicised schemes such as Grameen Bank are subsidised by external sources and are concerned primarily with employment growth of specific segments of society, not with enterprise upgrading *per se*. Loans extended by such institutions are very small, quite insufficient to meet capital or technology upgrading needs required for enterprise transition to formal, medium level status. It is clear that such NGO run schemes can not make a major contribution to addressing the problem of the "missing middle" in the industrial enterprise structure of the African countries.

For a micro credit scheme to be a successful means for increasing enterprise efficiency and achieving technological upgrading it should have the following characteristics:

- It should be sponsored by a major domestic commercial bank (the business orientation of foreign banks make them unsuitable sponsors).
- It must provide supervised credit in appropriate financial packages; leasing of machinery and technology could be major financial channels.
- Credit should not be subsidised; the scheme should aim to become fully self-sustaining and market competitive within an 18 month period.
- The scheme should be administered by micro-credit officers based in localities where credit is extended. The micro-credit officers should be responsible for project assessment, credit disbursement, monitoring and recovering of loans. A credit officer should handle a maximum of 200 cases. A 95 to 98 percent recovery rate should be normally achieved.
- Incentives should be provided for enterprise clustering both among small and micro enterprises and between small and micro enterprise and medium-large-scale firms.

III.E. Financial restructuring and privatisation

The development of commercially viable micro-enterprise credit schemes can also prove useful in the mobilisation of informal and household sector savings. While the gross domestic saving to GDP ratio is low in many African countries there is evidence of substantial informal sector saving (UNIDO 1997b). Increasing

financing capacities must involve the mobilisation of domestic savings. This requires the deepening of the financial intermediation system and the development of new links between formal and informal financial markets.

Formal financial institutions are in a state of crisis in many African countries. Uncollectible debts have mounted, credit lines have dried up and profits have been further squeezed due to the virtual disappearance of credit worthy clients. A major restructuring of the financial sector is thus a pre-requisite for the restoration of investor confidence. This restructuring will not be 'called into existence' by financial liberalisation and the imposition of prudential regulations by the central bank. Financial liberalisation has not lead to an improvement in savings performance in most African countries nor to an enhancement of investment efficiency. It has contributed to an escalation of the public debt burden, a jacking up of the interest rates structure and drastic reduction of funds at the long end of the market. The restoration of financial capability must involve major institutional restructuring. It must involve the construction of new financial institutions out of the debris of the old, the putting together of viable business segments of existing institutions through mergers and acquisitions, the re-capitalisation of these new viable institutions and the establishment of a closer link between financiers and enterprises that are financed.

Financial viability can not be reassured to an economy in which ^{manufacturing} enterprises are not thriving. This is the case in many African countries where most major industrial and infra-structural projects are in need of rehabilitation. It is the weak performance of these projects which has burdened African with foreign debt and infected the portfolio of the leading domestic financing institutions. Viewed in this light, project rehabilitation in the industrial sector and financial sector restructuring are two sides of the same coin.

It is obvious that problem ridden manufacturing and financial institutions can not be sold at realistic prices " off the shelf". It is no wonder therefore that the privatisation programme of many African countries have stalled.

While some mainly consumer goods oriented industrial units have been sold there are problem in the disposal of the major projects in the infra-structural, energy and fertilisers sectors. If the privatisation programme is to be revitalised an attempt must be made to restore viability to major projects before or, what is more realistic, in the process of privatisation. The effort to attract foreign investment to the projects should focus on both DFI and non-speculative portfolio investment.

The African countries can not conceivably undertake the onerous task of project rehabilitation and financial sector restructuring without significant levels of ^{external} ~~external~~ help. ODA flows to African countries have been declining in dollar terms since 1985. In real terms net ODA flows to all African countries fell from \$18 billion in 1985 to \$ 16.8 billion in 1995. A large and increasing proportion of the aid is in support of macroeconomic adjustment programmes. Aid dedicated to enterprise restructuring, project rehabilitation and promotion of privatisation initiatives is very small.

There is a case for using ODA funds to revitalise the privatisation and project rehabilitation programme. ODA funds can be dedicated to the revitalisation of industrial projects which can contribute to the meeting of food security objectives (fertilisers and agricultural machinery plants for example). It could be used for part-financing industrial sector projects which can earn or save foreign exchange. It could be seen as a mechanism for creating conditions and providing a bridge head for the inflow of private sector capital. Participation by official agencies in project rehabilitation and privatisation programmes can enhance credit worthiness, reduce risks and induce international private investors to participate.

Another important contribution ODA can make to industrial development is the development and organisation of capital markets. So far SAF/ESAF and ^{sectoral} structural adjustment programmes sponsored by the IMF have mainly been concerned with the redesigning of regulatory procedures. The injection of new funds has not been a major concern. During the 1990s several African countries have established stock and bond markets and there is some evidence of broad investors interest. ODA support for country and regional funds for the promotion of venture capital can play a useful role in this respect. Of greater importance is co-operation between more advanced developing countries and African countries in this regard. A recent UNIDO study found that listing by African countries based agro-industrial companies on the stock exchanges of neighbouring countries was a fruitful way of attracting portfolio capital (UNIDO 1997). Harmonisation of capital market related policies is required for enhancing co-operation in this regard.

UNIDO is well placed to provide support for industrial capacity building in African countries. The last section of this paper discusses the contribution UNIDO can make in this respect.

IV. A role for UNIDO

This paper has stressed that the key to improving productivity and competitiveness lies in organisational restructuring of managerial and production systems. This requires the development of industrial strategies and policies that focus on this issue.

IV.A. Policies and strategies

UNIDO is ideally placed to offer a range of services for the development of appropriate industrial strategies and policies. It could be the natural place for the development of a system of enterprise benchmarking: the evaluation of performance of enterprises engaged in manufacturing exports for example, and the development of a policy framework for the removal of constraints on firm competitiveness. This function is already performed for developed country firms by the European Union.

Industrial strategies must be based upon a knowledge of best organisational and technological practices. UNIDO has put together a package of technical support services, especially in the new technologies. These services focus on designing and implementing integrated strategies that (a) make demands for technology more specific, (b) strengthen integrate and promote innovation system agents and technology flows, and (c) support the processes that create and develop new technology-based enterprises.

UNIDO has substantive capacity to evaluate industrial strategies and policies of African countries in the light of business practices and preferences of potential investors and competitors to help African countries develop criteria for selection of 'national champion' firms entrusted with that task of achieving industrial output, export and investment targets. UNIDO provides technical support for the development of incentive systems for ensuring firm compliance with national policy directives.

Strategies must be under constant scrutiny and UNIDO is appropriately placed to bring together the knowledge and experience from successful developing countries to the service of African countries. UNIDO undertakes in-depth subsectoral surveys to analyse potential sources of growth, determinants of competitiveness and to unveil investment opportunities across promising product areas. UNIDO acts as the focal point of international industrial co-operation, especially among African countries and developing countries and for a transmission of organisational and technological best practices from the latter to the former.

IV.B. Institutional Development

Two initiatives are of particular importance. The development of close liaison between the public and private sector in the conception, articulation and implementation of industrial policy on the one hand and the upgrading of small informal sector enterprises on the other. In both cases industrial associations of firms have a key role to play.

The provision of technical support services and of human resource development often tends to be divorced from the policy conception and implementation process. UNIDO's policy approach provides a basis for creating an institutional design centred on the industrial associations capable of relating human resource and technological upgrading programmes to improvement in productivity and competitiveness on a project by project basis. Once again transfer of the knowledge and experience from countries such as Brazil, China, India, Taiwan and Singapore can be very useful and UNIDO is well placed for supporting institutional restructuring efforts. In connection with the *Alliance for Africa's Industrialisation* programme UNIDO endeavours to create national business councils to facilitate project conception and implementation.

As far as small and micro enterprises are concerned, UNIDO again has a comprehensive programme. There are two crucial concerns in this respect: (a) to facilitate clustering whenever possible for increasing collective efficiency, and (b) to create a system for the diffusion of training and technology from major industrial enterprises to their small scale suppliers. Once again the move to mass customisation can facilitate this type of "supply chain". UNIDO's small and medium industry development programmes aim at facilitating increased integration of small and micro enterprises with the major programmes of industrial capacity building, aiming at the technological upgrading of existing viable enterprises so that they can be effectively integrated into the national industrial system, thus solving the problem of the "missing middle". Here UNIDO endeavours to act as a conduit for the transfer of experience not only from developing countries but also from Italy, Spain and Japan where technological upgrading of such enterprises have been most effectively achieved and they have become a thriving and efficient part of the national industrial structure.

IV.C. Facilitating Investment

UNIDO has expanded its programme for investment ^{facilitation} ~~promotion~~ in recent years but more could be done to focus on the key issues of financial sector restructuring, project rehabilitation and privatisation and small sector financing.

(1) Financial Sector Restructuring

Financial liberalisation has led to a growth of commercial banks competing for deposits and for profitable investments. These investments are of a short term nature and there has been a growing scarcity of loanable funds at the long end of the market. There is a need for restructuring of the industrial financial system. Industrial financing plans could be prepared identifying the mergers that have become necessary within the financial sector to create at least a few major institutions that can profitably lend to the industrial sector (both corporate and small scale) on a long term basis. They may or may not be specialised units; However the new long term investment institutions (forged out of a restructuring and merger of existing banks) should not be dependent on concessional credit lines. They should bring together domestic private, public and international finance and combine loan, equity and quasi equity

transactions. The preparation of schemes for the creation of such viable industrial financing institutions should be a priority area.

(2) Rehabilitation and Privatisation

As noted above project rehabilitation and financial sector restructuring (at least at the long end of the market) are two sides of the same coin. Project rehabilitation is a pre-requisite of the success of the privatisation programme in many African countries. UNIDO could provide technical assistance for relating project rehabilitation and privatisation initiatives.

(3) Financing of small and micro enterprises

UNIDO's small sector support service is extensive. Technical support for capacity building in the small sector could be related to their financing. This objective can best be achieved by developing micro credit schemes at a major national bank using financial instruments that relate payments on borrowed funds to the profits earned by the financed enterprises. Quasi-equity financial techniques (specially leasing and asset financing) have also been experimented with. UNIDO could explore the possibilities of conceptualising small sector financing patterns which are capable of mobilising savings from within the sector and ploughing them back into small sector investment. The financing programme for the small sector must be self-sustaining and commercially viable. This means that it must be divorced from social and welfare programmes organised by foreign financed NGOs. This creates the "multiplicity of objectives" problem and obscures the fact that the essential purpose of the small sector industrial financing programme is the achievement of organisational and technological upgrading.

REFERENCE

- IMF World Economic Outlook 1993 Washington 1993.
- UNIDO African Industry 1998 Vienna 1998a.
- UNIDO Agro Related Industrial Development in Africa Vienna 1997^a
- Gapinsky J. "Economic Growth and its ^{Components, in} Competitiveness African Nations ^{5¹}" Journal of Developing Area Vol. 43 (1996) p. 325-347.
- Pack H. "Productivity and Industrial Development in Sub Saharan Africa" World Development vol. 23 (1994) ~~224-240~~ p 1-10
- Lall S. Building Industrial Competitiveness in Developing Countries OECD Paris 1990.
- Sacks J. & Warner A.M. "Sources of Slow Growth in African Economies" Journal of Africa Economis (1997) p. 341-390.
- UNIDO International year book of industrial Statistics 1998 Vienna 1998 ^{CA. (b)}
- World Bank Receiving Has Begun Washington 1993.
Reconstruction

Krugman P. ~~"The East Asian"~~

World Bank African Economic Indicators 1997 Washington 1997.

Pack H. Westphal L. "Industrial Strategy and Technological change theory Vs reality" Journal of Development Economics vol. 22 no. 01 (1986) p. 87-129

North D. ~~Institution~~ Institutional Change and Economic Performance Cambridge University Press Cambridge 1996.

Stiglitz J. "Learning to Learn" Localised Learning and Technological Progress in P. Dasgupta and P. Stoneson (ed.) Economic Policy And Technological Development Cambridge UP 1987 p. 183-219

Tan H. and G. Batra Enterprise Training In Developing Countries World Bank Washington 1995.

Andersen L. Europe's Next Step: Organisational innovation, Competition and Employment: London Frank Ca 1996.

Schumpeter H. "Small Share Maker and Fordist Giants" World Development no. 23- (1995) p. 9-28.

UNIDO Avenues of Portfolio Investment Opportunities in Agri Related Industries Of LDCs: Vienna 1997 c.

Eggertseen T. "The Old Theory of Economic Policy the New Institutionalism" World Development (199) p. 1187-1203.

Nelson R. The Sources of Economic Growth Harvard University Press Cambridge Mass 1996.

Schumpeter J. Capitalism, Socialism and Democracy Allen and Unwrsi Zondon 1950.

Krugman P. "Competitiveness A Dangerous Illusion" Foreign Affairs vol. 73 (1995) p. 28-44.

Krugman P. "The Myth of East Asian miracle" Foreign Affairs vol. 72 (1994) p. 62-78