The Challenge of Jobless Growth in Developing Countries: An Analysis with Cross-country Data

Rizwanul Islam

Bangladesh Institute of Development Studies

Price:
Tk.150
US$ 10

Cover design
Hiranmoy Chanda

Typesetting and page layout
Ibrahim Khan

Printed at
Dot Printing & Packaging
11 Naya Paltan, Dhaka 1000
Phone: 88 02 9348450
E-mail: dot_printing@yahoo.com

CONTENTS

LIST OF TABLES AND FIGURES

Tables

Figures

List of Abbreviations

ASI	Annual Survey of Industries
BIDS	Bangladesh Institute of Development Studies
EIA	Employment Impact Analysis
ESEA	East and South East Asia
GDP	Gross Domestic Product
ILO	International Labour Office
MENA	Middle East and North Africa
OECD	Organisation for Economic Cooperation and Development
OEE	Output Elasticity of Employment
SAM	Social Accounting Matrice
TFP	Total Factor Productivity
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organisation
USA	United States of America
WDI	World Development Indicators
WDR	World Development Report

Foreword

The Bangladesh Institute of Development Studies (BIDS), an autonomous public multidisciplinary organisation, conducts policy oriented research on development issues facing Bangladesh and other developing countries. Its mission is to generate and promote dissemination of research findings and knowledge and information on developmental concerns to serve the needs of the researchers, policymakers, and private sector audiences. To this end, it undertakes a number of publication initiatives to facilitate the timely dissemination of research outputs and information. The introduction of BIDS Occasional Paper Series is such an initiative.

The papers under this Series will be based on work carried out by the researchers of BIDS as well as who work in BIDS under various programmes like Visiting Scholar and other programmes of the Institute. We believe this will contribute to encourage exchange of ideas and stimulate debate on specific issues relevant to Bangladesh and other developing countries, as well as shaping up research and new ideas in the service of better development policies and practices.

In this respect, it is our privilege to publish Dr Rizwanul Islam's paper titled "The Challenge of Jobless Growth in Developing Countries: An Analysis with Cross-country Data" as the first issue under the new Occasional Paper Series. This paper observes that although high rate of economic growth is a necessary condition for rapid poverty reduction on a sustained basis, this is not a sufficient condition, and that the relationship between economic growth and poverty reduction is not invariant. Similar rates of economic growth are found to be associated with different rates of poverty reduction. One of the variables that have been found to be significant in explaining the variation in the rate of poverty reduction is the employment intensity of economic growth. The paper addresses the following questions: First, can there be growth of output without the growth of employment? Second, would the pursuit of employment intensive growth result in a compromise with productivity and efficiency? Third, how does one explain the phenomenon of low and declining employment intensity of growth and what are the real constraints on employment growth? The paper also identifies a number of gaps in the literature relating to the sectoral composition of output and points to what needs to be done if an employment diagnostic exercise were to be carried out in a particular country.

We express our deep gratitude to Dr Islam for contributing to the BIDS Occasional Paper Series.

Mustafa K. Mujeri
Director General
BIDS, Dhaka

Author's Preface

The present paper has been written against the backdrop of high (or at least healthy) rates of economic growth achieved by many developing countries before the global economic crisis of 2008-09. But the rate of employment growth in many instances has not been as impressive. Disappointing employment growth during periods of high economic growth gave rise to a concern that many countries were experiencing "jobless growth." While that experience drew the attention of researchers and policy makers to the issue of the employment outcome of economic growth, a number of questions remained to be answered. First, the term jobless growth itself lacked clarity and needed some elaboration. The second question was whether the pursuit of employment intensive growth would imply a compromise with productivity and efficiency. Third, how does one explain the phenomenon of low and declining employment intensity of growth and what are the real constraints on employment growth. The basic purpose of the present paper is to address these questions.

While elaborating on the term jobless growth, the present paper takes the view that it does not necessarily imply the lack of any employment growth, although there may be situations in which output growth is not associated with any employment growth at all. The term jobless growth is used to describe situations where high rate of output growth is associated with low employment growth. The paper uses cross-country data on output and employment growth in developing countries in order to examine whether growth was indeed jobless. Comparing and contrasting the experiences of countries of East and South East Asia on the one hand and those of South Asia on the other, the paper points out that high rate of employment growth can be achieved without compromising on productivity and efficiency. The paper argues that the pattern of economic growth in terms of the sector and sub-sector composition of output is important from the point of view of the employment outcome of growth. At the initial stages of development, high rate of growth of manufacturing and the more labour-intensive sub-sectors of manufacturing is important from the point of view of achieving structural transformation of an economy from labour surplus to the full employment stage. The paper concludes by bringing out the aspects of policy environment that are important from the point of view of promoting and supporting such a pattern of growth.

Work on several aspects of the present paper was started when I was working for the International Labour Organisation. Indeed, the paper reflects several years of my work in this field. However, the paper, in its present shape, was prepared during November 2009 to February 2010 when I was Visiting Research Scholar at the Bangladesh Institute of Development Studies, Dhaka. In that context, I would like to thank the Institute and its Director General Dr. M. K. Mujeri for having invited me to spend time there and to prepare this paper. The research facilities and the environment at the Institute were very helpful in undertaking the work. While preparing the paper for publication in its present form, Mr. Mohammad Meftaur Rahman, Chief Publication Officer of the Institute did a very good job copy editing.

Rizwanul Islam

About the Author

Rizwanul Islam is Former Special Adviser on Growth, Employment and Poverty Reduction; Employment Sector, International Labour Office (ILO), Geneva. His previous positions include Director, Economic and Labour Market Analysis, and other directorial positions at the ILO.

Dr. Islam did his PhD in Economics at the London School of Economics and Political Science.

Dr. Islam specialises in development economics with a particular focus on employment, poverty and income distribution, and has published a number of journal articles and books in this field. His recent publications include (i) an edited volume (edited jointly with Lopamudra Banerjee and Anirban Dasgupta) titled *Development, Equity and Poverty: Essays in Honour of Azizur Rahman Khan*, Macmillan Publishers India Ltd. and UNDP, (ii) an article titled "Has development and employment through labour-intensive industrialisation become history?" in Kaushik Basu and Ravi Kanbur (eds.): *Arguments for a Better World, Essays in Honour of Amartya Sen Volume II, Society, Institutions and Development*, Oxford University Press, Oxford, 2009, (iii) an edited book titled *Fighting Poverty: The Development-Employment Link*, published by Lynn Rienner, and (iv) an edited volume (edited jointly with Gordon Betcherman of the World Bank) titled *East Asian Labour Markets and the Economic Crisis: Impacts, Responses and Lessons*.

1   Introduction

The conventional view about poverty reduction is that if a country attains a sufficiently high rate of growth, it will take care of poverty automatically. High rate of economic growth is, of course, a necessary condition for rapid poverty reduction on a sustained basis. However, recent research has demonstrated that this is not a sufficient condition, and that the relationship between economic growth and poverty reduction is not invariant. Similar rates of economic growth have been found to be associated with different rates of poverty reduction. And one of the variables that have been found to be significant in explaining the variation in the rate of poverty reduction is the employment intensity of economic growth (Islam 2006a).

Recent research[1] has also shown that the employment intensity of economic growth in many developing countries has been rather low and declining despite the existence of surplus labour. That has given rise to the concern that many countries are experiencing "jobless growth." While the work mentioned above has drawn the attention of the research community to the issue of employment intensity of economic growth, a number of related questions are also arising. The first relates to the term jobless growth itself. Can there be growth of output without the growth of employment? Second, would not the pursuit of employment intensive growth result in a compromise with productivity and efficiency? Third, how does one explain the phenomenon of low and declining employment intensity of growth and what are the real constraints on employment growth? The basic purpose of the present study is to address these questions.

The study is organised as follows. Some analytical and conceptual issues relating to jobless growth and the possibility of trade-off between employment and productivity are discussed in Section 2. In Section 3, cross-country data on economic growth and employment growth are examined in order to examine whether growth was indeed jobless. The issue of possible trade-off between productivity and employment growth is taken up in Section 4. Constraints on the growth of employment are examined in Section 5, and concluding observations are made in Section 6.

[1]See, for example, Khan (2007) and the country studies referred to in that report as well as ADB (2005).

2   Conceptual and Analytical Issues

2.1 Interpreting the Notion of Jobless Growth

Before the global economy went into recession in 2008, healthy growth was achieved for quite some years. And yet, the employment situation did not improve in many countries, especially in the developing ones.[2] Indeed, in some of them, employment growth lagged far behind overall economic growth rates.[3] The phenomenon was particularly noticeable in the formal sectors of the economies. The term "jobless growth" came back into currency in that context.[4] But several questions arise in that context. First, what is meant by the term jobless growth? In other words, can there at all be output growth without any growth of jobs? Or, for that matter, does jobless growth imply, in a literal sense, output growth without any employment growth? Second, from the point of view of moving towards the goal of full employment, is employment growth irrespective of output growth a desirable outcome? In other words, when one talks about the desirability of job-rich (or employment-intensive) growth what is really meant? Some clarifications on these questions may be useful before embarking on a discussion in this important field.

While looking for a definition of the term jobless growth, it is found that although the term has been widely used, especially at the level of international agencies, there is not much by way of a carefully articulated definition. One of the early uses of the term and some indication of a definition is found in UNDP's *Human Development Report of 1993* (UNDP 1993) which says: "Many parts of the world are witnessing a new phenomenon—*jobless growth*. Even when output increases, increase in employment lags way behind" (p.36). From this description, it appears that to the UNDP, jobless growth means employment growth lagging substantially behind output growth. Another UNDP report (UNDP 1996) uses low employment growth relative to output growth as an illustration of jobless growth. This kind of definition has the problem that it does not specify any quantitative indicator of how far employment has to lag behind output growth in order for growth to be called jobless.

---

[2]ILO's Global Employment Trends Brief 2006 noted that there was an increase in unemployment in 2005 compared to 2001 although the global economy achieved a growth of 4.3 per cent. Likewise, in 2006 also, robust economic growth failed to translate into significant reductions in unemployment, and global unemployment in 2006 was higher than in 2005. See ILO (2006, 2007).

[3]Data in this regard will be presented in Section 3.

[4]It is difficult to say how and when this term came into use in the literature on growth and development. However, it seems that the term "jobless recovery" was being used in USA in the early 1990s to describe the situation where the economy was emerging from recovery and yet the labour market was not responding by creating sufficient number of new jobs. Rifkin (1996) pointed to the situation where human labour is being systematically eliminated from the economic process.

ILO's *World Employment Report 2004-05* (ILO, 2005) talks about jobless growth specifically in the context of economic recovery in the USA from the recession in 2001, and points out not only the lag with which employment growth followed economic growth but also the sluggishness of employment growth till 2004. This seems to imply that the term jobless growth was used in the same sense as the UNDP—to imply a situation where employment growth was much lower than output growth.

Of course, the term jobless growth can be interpreted in other ways as well, for example, by comparing employment growth with that of labour force growth, and by looking at the overall employment/ unemployment situation of a country in relation to its economic growth rate. Using this approach, Bhorat and Oosthuizen (2006) suggested three different "tests" of jobless growth: (i) positive economic growth associated with zero or negative employment growth; (ii) positive economic growth associated with employment growth lagging behind labour force growth and hence rising unemployment; and (iii) positive output growth associated with employment growth below a "satisfactory level." A comparison of employment growth with that of labour force is extremely important from the point of view of policies and measures for moving towards full employment; but it may be easy to pass the test of non-zero and non-negative employment growth, and yet employment growth may be very slow compared to economic growth. As for the second test, employment growth could be less than the growth of labour force even with positive economic growth if growth is very low; and in that kind of a situation, it is not simply low

employment growth but also low economic growth itself that is the main problem. The same observation would apply about the third test if economic growth is low; even with a "satisfactory" level of employment growth, the overall rate of employment may be insufficient to achieve a significant improvement in the employment situation or prevent its deterioration. The upshot of this discussion is that from the point of achieving full employment, it would be important to simultaneously achieve high rates of economic as well as employment growth. The point may be clarified by using a simple diagram as in Figure 1 where a stylised picture of various possible combinations of output and employment growth is presented.

Figure 1: Combination of Output and Employment Growth
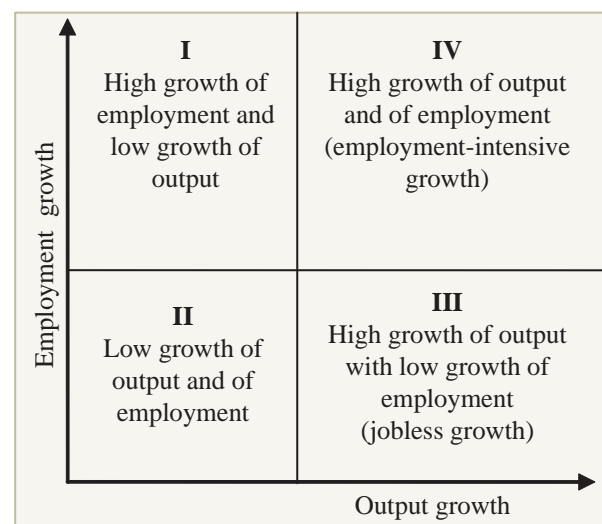
The four quadrants of Figure 1 show different combinations of output and employment growth in a typical developing economy. While quadrants III and IV represent high rates of output growth, I and II represent low levels of output growth. The growth experience that has been referred to

above, viz., one of high output growth accompanied by low growth of employment growth, is represented by quadrant III. It may be noted that observations in this quadrant need not be literally on the x-axis denoting zero employment growth with positive and high output growth. Observations inside the quadrant also represent situations that are not helpful from the point of view of achieving full employment, and are perhaps being referred to as indicating "jobless growth."

On the other hand, it is conceivable to find countries where despite low output growth, employment growth may be high if employment is driven by a supply push and people find jobs in low productivity activities of a residual nature. Such a situation would reflect distress and employment of last resort where the alternative is unemployment and starvation (in the absence of any social protection measures). Quadrant I of Figure 1 could depict other types of situations, e.g., public sector enterprises creating jobs without regard to output growth or even private enterprises "hoarding labour" during a period of economic downturn in the hope of a quick recovery. In an empirical exercise involving estimation of the elasticity of employment growth with respect to output growth, observations in quadrant I will demonstrate high values. In such a situation, if employment elasticity alone is used as an indicator of whether growth in an economy has been employment-intensive and hence good from the point of view of achieving full employment and accelerating poverty reduction, it will provide misleading signals.

Quadrant IV represents situations where high growth of employment goes together with high growth of output. This naturally would be the desirable outcome of economic growth in situations where growth is expected to be the means for achieving the goals of full employment and rapid rate of poverty reduction using the employment route. Hence, from a policy point of view, the goal would have to be to move a country towards quadrant IV, wherever it is currently placed. And when one talks about employment-intensive (or job-rich) growth, it should be interpreted as referring to a growth scenario depicted in quadrant IV (*not* in quadrant I).

2.2 Employment-intensive Growth and Labour Productivity[5]

Mention has already been made above of the inverse relationship between employment elasticity and labour productivity which implies the possibility of a trade-off between employment growth and labour productivity. In reality, however, this trade-off does not have to be very serious. One can see this easily if one remembers that in an accounting framework, both the quantity of labour input and labour productivity contribute to output growth. Depending on the policies pursued, a country may be able to achieve a balanced contribution of both these elements towards output growth. This proposition is explained further below.

For an economy as a whole, output is equal to the product of the labour force employed and labour productivity. This can be expressed through the following identity:

$$Y = L \times Y/L, \qquad (1)$$

where Y and L stand respectively for output and employment.

---

[5]The term labour productivity has been distinguished by Khan (2002) from output per worker. In the present paper, the term is used in the sense of output per worker.

For small changes, one can write the above as

$$\Delta Y = \Delta L + \Delta(Y/L), \qquad (2)$$

where Δ indicates growth rate.

Expression (2) implies that growth in output is the sum of the growth of employed labour force and growth of labour productivity. Thus, both employment in quantitative terms and labour productivity can potentially contribute to output growth. Indeed, if output growth is sufficiently high, there could be scope for substantial increases in both employment and productivity growth.[6] And that has been the experience of East and South East Asian economies like those of Rep of Korea, Taiwan, China, Malaysia, and to a lesser extent in Indonesia and Thailand (especially before they were hit by the East Asian economic crisis in 1997-98).

---

[6]Equation (2) above which can be used for a decomposition exercise basically provides an accounting framework, and does not imply anything about the existence or absence of an inter-linkage between the two terms on the right hand side, viz., employment and labour productivity. These two are obviously related; growth in labour productivity may have an employment displacing as well as an employment creating effect, and the net effect will depend on the relative magnitudes of the two effects.

3 Jobless Growth in the Developing World: Some Empirical Evidence

3.1. Employment and Output Growth in Manufacturing Industries in Developing Countries

It needs to be noted that employment growth in developing countries cannot often be taken as a reflection of labour demand because for a variety of reasons employment growth may reflect both demand and supply of labour force. However, for the organised sectors, e.g., manufacturing, employment would perhaps reflect the demand side more closely than overall employment, and hence it may be more meaningful to look at the relationship between employment and output growth for such sectors. Figures 2a and 2b present such data for selected developing countries for two periods—1980s and 1990s. The countries and the periods covered by these figures are dictated by the availability of data. However, these two figures bring out interesting points concerning the relationship between employment and output growth.

First, in terms of the conceptualisation of the terms jobless growth and employment intensive growth, it appears from the figures that not many can be said to belong to the category of employment-intensive growth. It may be noted here that the dotted lines in the figures have been drawn in such a way as to identify combinations of 10 per cent or more output and five per cent or more employment growth as situations of employment-intensive growth. While this is admittedly arbitrary, experience of countries that have succeeded

in achieving high growth of both output and employment in manufacturing in the past (e.g., those in some countries of East and South East Asia) indicates that such growth is quite possible. More disconcerting from the point of view of achieving high growth of productive employment is that the number of countries achieving employment-intensive growth is lower in the second period.

Figure 2a: Annual Growth of Employment and Value Added in Manufacturing: 1980-1989
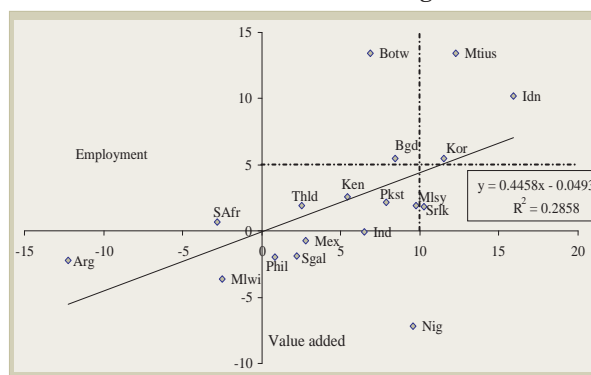
Source: Author's calculations based on Unido, Indstat 3, 2005.

Notes: Arg: Argentina: Begd: Bangladesh; Botw: Bostswana: Ind: India: Idn: Indonesia; Ken: Kenya; Kor: Korea; Mlwi: Malawi; Mlsy: Malaysia: Mtius: Mauritius; Mex: Mexico; Nig: Nigeria; Pkst: Pakistan; Phil: Philippines; Sgal: Senegal; Safr: South Africa; Srlk: Sri Lanka; Thld: Thailand.

Second, a comparison of the slopes of the two lines showing the employment output relationship indicates clearly that the strength of the relationship between the two variables has weakened in the second period. This is confirmed statistically as well by the lower

value of the regression coefficient of value added for the second period. This simply implies that output growth in the second period has been less employment intensive as a whole for the sample countries.

Figure 2b: Annual Growth of Employment and Value Added in Manufacturing: 1990-2002

Source: Author's calculations based on Unido, Indstat 3, 2005.

Notes: Arg: Argentina: Begd: Bangladesh; Botw: Bostswana: Ind: India: Idn: Indonesia; Ken: Kenya; Kor: Korea; Mlwi: Malawi; Mlsy: Malaysia: Mtius: Mauritius; Mex: Mexico; Nig: Nigeria; Pkst: Pakistan; Phil: Philippines; Sgal: Senegal; Safr: South Africa; Srlk: Sri Lanka; Thld: Thailand.

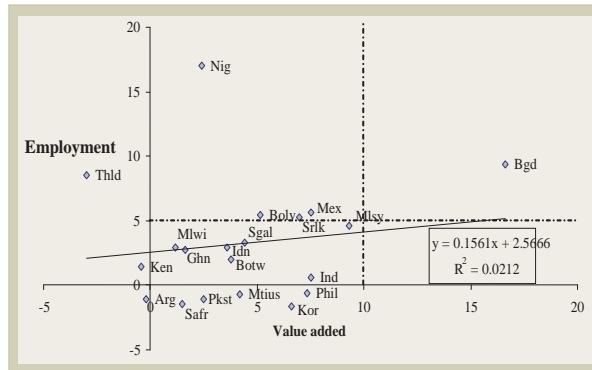Third, there are quite a few cases of negative employment growth when output growth was positive. In fact, the number of such cases is larger during the second period. This provides further support to the conclusion that output growth in the second period has been less employment intensive than in the first period. It is also clear that positive output growth is not necessarily associated with positive employment growth. Output growth in several cases has not only been "jobless" in a literal sense, there has been a decline in employment when output has grown.

3.2 Elasticity of Employment with respect to Output

Asia

Table 1 presents some estimates of the elasticity of employment with respect to output—for manufacturing as well as for the economy as a whole—for selected countries of Asia.

Table 1: Output Elasticity of Employment (OEE) in Selected Asian Countries

Country	OEE (economy-wide)		OEE (manufacturing)	
	1980s	1990s	1980s	1990s
Bangladesh[a]	0.55[b]	0.50[b]	0.76[c]	0.72[c]
Cambodia	n.a.	0.48	n.a.	0.56
China	0.33[b]	0.13[b]	0.50	0.25[d]
India	0.40	0.15	0.37	0.29
Indonesia	0.44[b]	0.38[b]	0.79[e]	0.61[f]
Malaysia	0.55	0.48	0.67[g]	0.71[g]
			0.55[h]	0.45[h]
Sri Lanka	0.51	0.46	0.64	0.47
Thailand	0.56	0.10	0.55	0.53

Notes and Sources:

i) Unless specified otherwise, the figures have been taken from recent ILO-UNDP country case studies, a synthesis of which can be found in Khan (2007).

ii) [a]Islam (2006a).
[b]Asian Development Bank (2005).
[c]These figures are based on data at three-digit level. Figures based on four-digit level data show a sharper decline – from 0.74 to 0.60. See Chapter 5 in Islam (2006a).
[d]Figure for 2002.
[e]Figure for 1980-84.
[f]Figure for 1990-94.
[g]Khan (2007).
[h]Elasticity with respect to value added.

A few important conclusions emerge from the data presented in this table. First, there appears to have been a general decline in the employment intensity of growth in the manufacturing sector of the developing countries of Asia during the 1990s compared to the 1980s. While the declines in countries like Malaysia and Thailand could be taken as

reflecting the tightening of their labour markets, the same cannot be said about other countries which are still characterised by surplus labour. Second, during the 1980s, the level of employment intensity in manufacturing in some countries (e.g., Cambodia, China, and India) was rather low in relation to their factor endowment. Indeed, those levels appear quite conspicuous if compared with the levels in Korea and Malaysia during their early stages of industrialisation when their economies still had surplus labour. Third, the degree of employment intensity seems to have declined further from such low levels. Fourth, although for reasons mentioned earlier, we prefer to look at employment elasticity figures for the economy as a whole with more caution, the figures presented in Table 1 tend to go along the same line as those on manufacturing. They generally point to a trend towards falling employment intensity of economic growth as a whole.

A look at country level data on growth of output and employment for different sub-periods brings out further interesting aspects of the phenomena of jobless and employment intensive growth. Such data for selected countries of Asia are presented in Figure 3. An example of how the situation can change within the same country is provided by the experience of Indonesia during 1975-96 and 2000-03. During the earlier period, manufacturing-industries in that country attained high growth of both output and employment. Indeed, that provides a good example of employment intensive growth that is close to the stylized version of quadrant IV of Figure 1. The situation changed completely after the economic crisis of 1997-98. It not only took several years for

the country to return to a path of sustained growth, the labour market responded with an even longer lag (Islam 2003, 2010). During 2000-03, employment growth in the manufacturing sector was negative although output growth was positive. Thus, from a case of employment-intensive growth, Indonesia turned into a case of jobless growth.

Figure 3: Growth of Manufacturing Output and Employment in Selected Countries of Asia
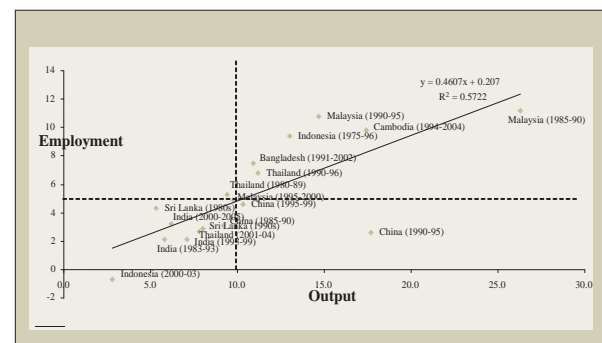
Source: Except Bangladesh, the figures from other countries have been obtained from in-depth country level studies that are referred to in Khan (2007). The figures for Bangladesh are from Ahmed, Yunus and Bhuyan (2009).

In fact, employment elasticity in Indonesia's manufacturing had already started to decline since the mid 1980s (0.66 during 1986-92 compared to 0.76 during 1981-85). For some industries like textiles, garments, furniture, and food manufacturing, employment elasticity during 1993-97 was lower compared to 1985-88 (Islam 2002). It appears that the trend not only continued during the post-crisis period, but may have accelerated. From a policy point of view, it would be important to understand the factors behind such a phenomenon—an issue to which we shall return in the subsequent sections.

A change similar to that of Indonesia (although not so sharp) is noticeable in the case of Thailand where both output and employment growth in manufacturing were higher during 1990-96 compared to 1980-89. However, both output and employment growth declined sharply during 2001-04. If only the elasticity of employment declined, it could probably have been ascribed to a change in the labour market situation. But the simultaneous decline of output and employment growth and a sharper decline in the latter point to possibilities that are deeper than simple changes in the labour supply situation.

Table 2: Growth of Manufacturing Employment and Output in Selected Countries of Asia

Country (period)	Annual Growth of Employment (%)	Annual Growth of Output (%)
Bangladesh (1991-2002)	7.5	10.9
Cambodia (1994-2004)	9.8	17.4
China (1985-90)	3.1	9.2
China (1990-95)	2.6	17.7
China (1995-99)	4.6	10.3
India (1983 -93)	2.1	5.8
India (1993-99)	2.1	7.1
India (2000-2005)	3.2	6.2
Indonesia (1975-96)	9.4	13.0
Indonesia (2000-03)	-0.7	2.8
Malaysia (1985-90)	11.2	26.3
Malaysia (1990-95)	10.8	14.7
Malaysia (1995-2000)	4.9	9.8
Sri Lanka (1980s)	4.3	5.3
Sri Lanka (1990s)	2.9	8.0
Thailand (1980-89)	5.3	9.4
Thailand (1990-96)	6.8	11.2
Thailand (2001-04)	2.7	7.8

Source: Except Bangladesh, the figures from other countries have been obtained from in-depth country level studies that are referred to in Khan (2007). The figures for Bangladesh are from Ahmed, Yunus and Bhuyan (2009).

The change in China presents a contrast to the changes observed in Indonesia and Thailand. Elasticity of employment in manufacturing declined in China during 1990-95 (when output growth increased sharply) compared to 1985-90, but increased during 1995-99. Again, it would be useful to find out if any policy changes contributed to the above mentioned improvement.

Sub-Saharan Africa

Detailed country level studies of the kind from which data on the Asian countries presented in Table 1 have been obtained are not available for sub-Saharan Africa (or for that matter for countries in other developing regions). However, an attempt has been made to estimate elasticity of employment with respect to value added in the manufacturing sector for selected countries (for which necessary data are available from the UNIDO source mentioned in the annex to this chapter). The results are presented in Table 3. But the figures presented in Table 3 would have to be interpreted with caution because of a variety of reasons. First, in some cases, the sign of the coefficient is negative because of negative growth rate in either value added or employment. Second, in some cases, the regression equation did not provide statistically significant coefficient or a good fit in terms of R-squared. The results may be looked at with these caveats.

Table 3: Elasticity of Employment with respect to Output for Selected Developing Countries, 1980-2002

Countries	Employment and Output			Employment and Value Added		
	1980 - 1990	1990 - 2002	1980 - 2002*	1980 - 1990	1990 - 2002	1980 - 2002*
Argentina	0.03	0.02	-0.38	0.19	0.18	0.49
Bangladesh	0.70	0.71	0.86	0.62	0.64	0.86
Bolivia	0.18	0.20	0.15	0.15	0.16	0.10
Botswana	-0.08	-0.04	0.40	0.85	0.86	0.92
Brazil	n.a.	n.a.	n.a.	n.a.	n.a.	n.a
Ghana	0.08	0.09	0.01	0.07	0.08	-0.004
India	0.08	0.08	0.16	0.08	0.08	0.15
Indonesia	0.62	0.63	0.71	0.64	0.64	0.66
Kenya	0.13	0.14	0.25	0.09	0.10	0.38
Korea, Republic of	0.22	0.21	0.13	0.24	0.24	0.12
Malawi	-0.35	-0.34	-0.25	0.01	0.01	0.04
Malaysia	0.41	0.42	0.58	0.40	0.41	0.58
Mauritius	1.52	1.51	1.17	1.01	1.00	0.77
Mexico	0.67	0.66	0.54	0.79	0.78	0.62
Nigeria	0.49	0.47	0.13	0.15	0.14	-0.02
Pakistan	0.22	0.23	0.29	0.24	0.24	0.32
Philippines	0.81	0.80	0.68	0.39	0.38	0.36
Senegal	0.34	0.34	0.35	-0.09	-0.09	-0.08
South Africa	-0.02	-0.01	-0.01	-0.13	-0.13	-0.15
Sri Lanka	0.88	0.87	0.81	0.59	0.59	0.61
Thailand	0.39	0.40	0.58	0.16	0.18	0.46

Source: Unido, Indstat 3, 2005.

*Through a simple regression: $lnE=a+lnVAt$, t=1980,…., 2002.

In several cases, there has been a decline in employment elasticity during the 1990-2002 period compared to 1980-89; they include Botswana, Malawi, and Mauritius. Indeed, in Mauritius, employment growth during the second period was negative. In Kenya, the problem appears to be a decline in value added rather than a decline in employment intensity of growth. The countries which demonstrate improvement in terms of employment intensity of growth are Nigeria and Senegal. The former moved from a situation of negative growth of employment during the 1980s to one with positive and reasonable employment elasticity. Senegal also moved in the same direction and the employment elasticity registered for the 1990s is very high (in fact, higher than one— implying a decline in labour productivity). In the case of South Africa, a comparison becomes difficult because in the 1980s, the country's manufacturing sector registered negative value added growth while during 1990-2002, employment growth was negative despite positive value added growth.

Figures presented in an earlier study (Khan 2006) on some countries of sub-Saharan Africa also showed mixed results. Ethiopia and Uganda showed rather low employment intensity of growth in manufacturing, although both demonstrated a slight increase during the 1990s compared to the earlier decade. Increases were also seen in the cases of Ghana, Cote d'Ivoire, Kenya, and Nigeria. But there were declines in Burkina Faso, South Africa, Zambia and Zimbabwe. On the whole, the conclusion was that most countries of sub-Saharan Africa were not able to get on to a path of industrialisation that would enable them to move labour away from low productivity sectors and raise their incomes on a sustained basis.

Middle East and North Africa

Data on countries in the Middle East and North Africa (MENA) region are limited and do not permit inter-temporal comparison. However, data available for nine countries of the region for the period 1991-2003 are presented in Table 4. Several points emerge

from this table. First, the degree of employment intensity of growth in the industrial sector of these countries varies considerably—from a low of 0.14 in Egypt to 1.27 in Jordan. A few countries, viz., Morocco, Tunisia, Syria and Yemen, demonstrated healthy employment elasticity of between 0.5 and 0.8.

Second, in some cases, low growth of output is a more fundamental problem. In five of the nine countries (viz. Algeria, Egypt, Iran, Morocco, and Tunisia), growth of value added in industry was less than 5 per cent per year during the period mentioned above. Annual GDP growth was over five per cent in only three of the countries, viz., Jordan, Sudan and Yemen. Thus the challenge before the countries of the region is to simultaneously achieve higher growth of output and of employment. In terms of Figure 1, most countries of the region are in either quadrant II or I; from the point of view of healthy employment intensive growth, they will need to move to a growth regime that characterises quadrant IV.

The issue of growth and its stability comes out more sharply when one goes beyond annual averages to the actual trends. For example, the economy of Syria suffered from a recession in 1999 and GDP growth remained rather low for several years after that (Islam 2005). In Egypt, after growth rates of five to six per cent per year during the second half of the 1990s, the economy went into recession during 2000-03. After 2003-04, growth resumed to five per cent per year (El Laithy and El Ehwany 2006). Thus, it is not only low growth but also its stability appears to be a major problem in the countries of the region.

Table 4: Real GDP Growth, Sectoral Output Growth and Employment Elasticity in Selected Countries of Middle East and North Africa, 1991-2003

| Country | Sectoral Value Added Growth and Employment Elasticity (1991-2003) | | | | | | Total GDP Growth |
| | Agriculture | | Industry | | Services | | |
	Growth	Elasticity	Growth	Elasticity	Growth	Elasticity	
Algeria	3.70	1.22	2.30	0.75	3.20	0.51	2.60
Egypt	3.10	0.27	3.80	0.14	4.60	0.81	4.40
Iran	4.70	1.50	0.30	0.30	7.30	0.20	4.10
Morocco	0.30	0.63	3.20	0.52	2.90	1.06	2.50
Sudan	9.30	0.53	5.70	0.37	3.30	0.10	5.60
Tunisia	2.20	2.05	4.60	0.77	5.30	0.57	4.60
Jordan	0.60	1.61	6.00	1.27	4.60	1.28	5.10
Syria	4.20	1.89	7.30	0.63	3.40	1.50	4.40
Yemen	6.30	1.14	5.30	0.72	5.60	0.77	5.60

Source: Messkoub (2009).

The elasticity of employment with respect to overall GDP for the countries of MENA region was 1.0 during 2000-05 (Radwan 2006). This high overall employment elasticity is, however, misleading because both output and employment growth appear to have been higher for the informal segments of the economies compared to the formal sectors. Such growth, either in output or in employment, cannot be very helpful from the point of view of raising incomes of the poor and reducing poverty.

Latin America

For Latin America, the availability of data limits us to estimate employment elasticity for manufacturing only for Argentina and Mexico. For both countries, the estimates indicate very little change in the employment intensity of growth. It may be mentioned here that an earlier study (Khan 2006) using data up to 1998 found that the elasticity of employment in manufacturing in both Brazil and Mexico during 1991-98 was

lower than during 1981-90. It thus appears that there has been a reversal from the trend observed earlier.

Summing up

A few observations may be made by way of summing up the findings and discussions of the present section. First, there is a clear trend towards declining employment outcome of output growth, although there are exceptions (in terms of countries as well as periods within countries). Second, there are countries whose growth experience changed from employment intensive to jobless type.

Third, there is at least one case (viz., China) of a change in the opposite direction. Fourth, there are countries that are characterised by high elasticity of employment with respect to output, but growth is dominated by the informal sector. So, mere high elasticity of employment should not be the goal of policies for achieving full employment; the type and quality of employment are important considerations. High elasticity of employment can be achieved with a regime of low and unstable output growth. In such cases, the goal should be to move towards a regime of high growth of output associated with high employment growth.

4 Contribution of Labour Productivity and Employment to Output Growth

From the point of view of the impact of the pattern of growth on employment and the possibility of a trade-off between productivity and employment, it is important to identify the relative contribution of labour productivity and the quantity of labour input to output growth. Here, we shall do that for selected countries of Asia, with a particular focus on possible difference between East and South East Asian (ESEA) countries on the one hand and the countries of South Asia on the other. The reason for taking this comparative perspective is that the former group of countries is by now regarded as having been more successful in achieving more employment-intensive growth compared to the countries of South Asia.

The pattern of economic growth that unfolded in the countries of ESEA has been widely debated. But that debate focused mainly on the relative contribution of capital accumulation and total factor productivity (the latter being used as an indicator disembodied technological progress) in explaining the impressive growth performance of those countries. While the well-known World Bank study of 1993 (World Bank 1993) argued that East Asia's superior economic performance was mainly caused by rapid technological progress, there are many (especially, Kim and Lau 1994, Krugman 1994, and Young 1995) who challenged this view and argued (on the basis of alternative empirical analysis) that the contribution of total factor productivity (TFP)

growth to East Asia's labour productivity growth has been relatively small.[7]

Storm and Naastepad (2005) undertook a decomposition exercise of output growth into productivity and employment growth for some countries of the ESEA region and came to the conclusion that "labour productivity growth has been the major source of East Asian per capita income growth" (p.1062). However, in an empirical analysis (using cross-country data on 24 developing countries) of the relationship between labour productivity growth and employment growth, they find East Asian countries to be "outliers." And on the basis of that, they conclude that "East Asia managed to escape the trade-off between labour productivity growth and employment growth." The apparent contradiction between these two sets of findings could probably be explained by the employment creating effect of labour productivity growth exceeding the employment displacing effect. Be that as it may, it appears from Storm and Naastepad (2005) that the pattern of growth in East Asia enabled them to combine high growth of employment and productivity. How do the countries of South Asia compare with those of ESEA in this respect?

---

[7]Khan (2002) appears to take the view that TFP was an important source of growth for the countries of East Asia. Helpman (2004) makes the point that there is a problem of interpreting causality in the TFP estimates because high investment rates are at least partly in response to high productivity growth. And that would further weaken the position taken by Krugman and others.

In order to address the above question, decomposition of output growth (both total GDP and manufacturing output) into contributions by employment and productivity growth has been carried out by using the methodology outlined in section 2, and the results are presented in Tables 5a, 5b, and 6. A number of interesting conclusions can be drawn, at least tentatively, from these results. The first observation (and an important one from the point of view of trade-off between employment and labour productivity growth) that can be made on the basis of Tables 5a and 5b is that during the 1980s and 1990s, the contribution of labour productivity growth to GDP growth in Korea, Malaysia, Taiwan, and Thailand left sufficient scope for employment to increase. That, combined with the high rates of GDP growth achieved by them, meant that they were able to combine fairly high rates of employment growth with substantial growth in labour productivity. In other words, it was not only employment growth but growth of productive employment that was achieved by those countries.

Second, when one compares the countries of South and South East Asia, one does not find a systematic difference (although one would expect the contribution of labour productivity growth to be lower in the former). The figures for India, for example, especially for 1990-96 and 2000-06, are not much different from those of Korea—although given the levels of development and the labour market situation in the two countries, one would expect the figures for Korea to be substantially higher. Likewise, during the 1980s, the contribution of productivity growth in Pakistan and Sri Lanka was higher than in countries like Malaysia and Thailand. Quite naturally, growth in the latter countries was more employment-intensive than in the former.

Third, when one looks at the trend over time, some figures do not appear to be consistent with what one would expect. For example, the contribution of labour productivity growth to GDP growth increased over time in Bangladesh, China, India, Indonesia and Malaysia but not in Korea. The increase in the contribution of labour productivity growth in Bangladesh, China and India is rather unexpected, given that those countries are still far away from experiencing a tight labour market. That, in turn, indicates that the pattern of industrial growth in these countries has not been conducive to generation of productive employment for the large amount of surplus labour that is available in those countries.

Table 5a: Decomposition of GDP Growth into Productivity and Employment Growth (South Asia)

Countries	Growth Rate of GDP			GDP Growth due to Employment Growth			GDP Growth due to Productivity Growth			Contribution of Productivity Growth to GDP Growth (%)		
	1980 - 1990	1990 - 2000	2000 - 2006	1980 - 1990	1990 - 2000	2000 - 2006	1980 - 1990	1990 - 2000	2000 - 2006	1980 - 1990	1990 - 2000	2000 - 2006
Bangladesh	*3.84*	*4.80*	*5.65*	*2.69*	*2.09*	*2.27*	*1.15*	*2.71*	*3.37*	*29.97*	*56.40*	*59.77*
India	5.59	5.46	7.35	2.60	1.87	2.52	3.00	3.59	4.83	53.60	65.82	65.75
Pakistan	6.29	4.43	5.45	2.25	2.01	4.10	4.04	2.42	1.35	64.19	54.64	24.82
Sri Lanka	4.33	5.24	4.50	1.53	2.29	2.02	2.80	2.96	2.48	64.60	56.39	55.15

Source: Author's calculations by using data available from http://www.conferenceboard.org/economics/downloads/flat_file_08l.xls.

Table 5b: Decomposition of GDP Growth into Productivity and Employment Growth (East and South East Asia)

Countries	Growth Rate of GDP			GDP Growth due to Employment Growth			GDP Growth due to Productivity Growth			Contribution of Productivity Growth to GDP Growth		
	1980-90	1990-96	2000-06	1980-90	1990-96	2000-06	1980-90	1990-96	2000-06	1980-90	1990-96	2000-06
China	7.39	8.79	11.56	2.85	1.11	1.00	4.54	7.68	10.56	61.48	87.37	91.35
Indonesia	5.04	7.83	4.86	3.97	2.09	0.97	1.07	5.74	3.88	21.20	73.34	79.94
Malaysia	5.96	9.56	4.91	3.34	3.96	1.75	2.62	5.60	3.16	43.95	58.55	64.34
Philippines	1.69	2.77	4.63	2.99	3.40	3.13	-1.30	-0.63	1.51	-77.19	-22.67	32.53
South Korea	9.05	7.68	4.63	2.88	2.44	1.53	6.17	5.23	3.10	68.16	68.19	66.99
Taiwan	6.71	7.08	3.49	2.42	1.54	1.07	4.29	5.54	2.42	63.97	78.27	69.42
Thailand	7.85	8.16	5.09	2.94	0.56	2.24	4.90	7.60	2.85	62.48	93.11	55.96

Source: Author's calculations by using data available from http://www.conferenceboard.org/economics/downloads/flat_file_08l.xls. Access to that website is through http://www.ggdc.net.

Table 6: Decomposition of Manufacturing Value Added Growth into Productivity and Employment Growth

Countries	Value Added Growth		Value Added Growth due to Employment Growth		Value Added Growth due to Productivity Growth		Contribution of Productivity Growth to Value Added Growth (%)	
	1980-1989	1990-2002	1980-1989	1980-1989	1990-2002	1990-2002	1980-1989	1990-2002
Bangladesh	8.21	14.57	5.51	9.38	2.70	5.19	32.88	35.59
India	7.10	6.36	-0.09	0.57	7.19	5.79	101.32	91.00
Indonesia	16.57	4.17	10.18	2.95	6.39	1.21	38.55	29.13
Korea, Republic of	10.20	7.12	5.52	-1.62	4.68	8.74	45.91	122.81
Malaysia	9.23	10.00	1.96	4.58	7.27	5.43	78.79	54.24
Pakistan	8.54	2.20	2.14	-1.10	6.41	3.30	74.99	149.81
Philippines	-1.20	4.64	-1.95	-0.61	0.74	5.26	-61.90	113.23
Sri Lanka	5.45	6.05	1.80	5.27	3.65	0.78	67.01	12.95
Thailand	5.30	-0.13	1.92	8.54	3.38	-8.67	63.72	64.95

Source: Calculated from UNIDO, Indstat 3, 2005.

5 Constraints on Employment Growth and the Pattern of Growth

5.1 The Basic Premise and the Framework

The notion of employment growth is often treated as synonymous with employment creation, especially by the government, through special programmes. As a result, it gets associated with the perception of welfare. It needs to be recognised, however, that employment growth can play an important role in shaping up the pattern of income distribution and effective demand, which, in turn, can be important from the point of view of sustaining economic growth.[8] Hence, the present study does not regard employment growth simply as a welfare proposition, and as synonymous with employment creation, although employment programmes by governments should not be ruled out as a means of enhancing employment growth.[9] It is concerned with growth of employment that is associated with that of output.

From the point of view of using employment as a route to poverty reduction and a mechanism for improving (or at least, preventing a worsening of) the distribution of income, the goal would be to achieve high rates of both output and employment growth.

However, the recent experience with economic growth in many developing countries shows (ref Section 3 of the present paper) that high rate of output growth may be associated with different rates of employment growth. From the point of view of employment policy, it would, therefore, be important to identify the factors that constrain employment growth when output is growing at high (or reasonably high) rate.

The framework of employment growth that is linked to output growth would involve recognising the key elements that determine/influence the employment outcome associated with output growth. The broad elements are: (i) growth of output, (ii) labour market policies and institutions, (iii) the sector and sub-sector composition of output, and (iv) technology used. In any particular situation, there could be a variety of factors hindering employment growth; and policy interventions may not be able to focus simultaneously on all of them. From that point of view, it may be useful to narrow them down to a small number (say, two or three) that may be the "binding constraints,"[10] and gear policies towards addressing them effectively rather than diluting efforts in various directions.

[8]Indeed, employment itself is an important macroeconomic variable, especially in the Keynesian framework.

[9]Such programmes can play an important role in sustaining effective demand in low-income economies.

[10]The term "binding constraints" has been used by Hausman, Rodrik and Velasco (2005) in the context of identifying constraints on output growth. More on this will be said shortly.

Growth of output

That employment growth would be influenced by the growth of output is to say the obvious. A good deal of work has been undertaken to identify the constraints on output growth. One line of work—referred to as the "growth diagnostics" analysis, à la Hausmann, Rodrik and Velasco, 2005—tries to identify what are called "binding constraints" on growth. The other line which tries to link employment to output (e.g., Heintz 2006) categorises the constraints broadly as "demand constraint" and "capital constraint." The basic idea behind the diagnostic approach outlined by Hausmann, Rodrik and Velasco (viz. Identifying the distortion whose removal would give the highest marginal welfare benefit) may be useful in the context of identifying constraints on employment growth. But in examining the role of the growth factor in employment growth, it would be important to relax the assumption of constant labour productivity. Output growth is the sum of the growth of labour productivity and of employment. Hence, from the point of view of raising employment growth, the division of output growth between productivity and employment growth would be critical (ref. Section 2 above). And it would be necessary to understand the factors that can help achieve an optimum combination of productivity and employment growth. It may be noted here that the assumption of constant labour productivity is not realistic for economies with unemployment and underemployment. The experience of the East and South East Asian countries demonstrates that high rates of economic growth may be associated with a

good mix of labour productivity and employment growth[11] (although there is controversy as to how much of the growth can be ascribed to total factor productivity and how much to mere increases in inputs).

Labour market policies and institutions

According to the standard neoclassical theory, output growth is supposed to lead to employment growth, and interventions in the labour market, e.g., through labour laws, trade unions, or minimum wages, distort the labour market and prevent it from producing the optimal outcome in terms of employment. It is argued on the basis of that theory that employment growth, especially in developing countries, is constrained by restrictive labour laws and trade union interventions that create rigidities in the labour market. However, the debate on this issue is far from settled; and available evidence does not lend support to this hypothesis. For example, it remains to be established whether greater flexibility in the labour markets does indeed result in higher employment growth.

There are studies pointing out that labour market institutions do not necessarily hinder the growth of employment (Auer and Islam 2006, Kapsos 2005, Bean 1994, Forteza and Rama 2002, Nickel 1997, for example). On Europe, a widely cited article by Bean (1994) argues that the available evidence do not show that the existence of generous unemployment benefits was the cause of persistent unemployment. Nickel (1997:72) also shows

[11]Section 4 above presented a comparative decomposition exercise showing the contribution of productivity and employment growth in overall and manufacturing output growth for selected countries of East and South East Asia on the one hand and South Asia on the other.

that all types of labour market rigidities do not have an adverse effect on unemployment rates. He concludes:

Labour market rigidities that do not appear to have serious implications for average levels of unemployment include the following: 1) strict employment protection legislation and general legislation on labour market standards; 2) generous levels of unemployment benefits, so long as these are accompanied by pressures on the unemployed to take jobs by, for example, fixing the duration of benefit and providing resources to raise the ability/willingness of the unemployed to take jobs; and 3) high levels of unionisation and union coverage, so long as they are offset by high levels of coordination in wage bargaining, particularly among employers.

A study by Forteza and Rama (2002) covering 119 countries (i.e. both developed and developing) shows that minimum wages and mandated benefits do not hinder economic growth. They argue that curtailing social security benefits might not contribute much to economic performance. An econometric exercise undertaken by Kapsos (2005) demonstrates that rigidities in the labour market do not have a negative effect on employment elasticity. In his cross- section analysis with data from 100 countries, he uses the World Bank's "employment rigidity index" (which is the average of three indices, viz., difficulty of hiring, difficulty of firing, and rigidity of hours) and finds that there is no statistically significant relation between employment elasticity and employment rigidity index. Moreover, the sign of the coefficient is not in the expected direction.

What, then, constrains employment growth?

Technology

In response to the above question, one may be tempted to cite the choice of technology to be the major factor. Indeed, once the product composition of a country is determined, the employment outcome would depend, to a large extent, on the technology that is used in producing the given products. Premature capital deepening and the adoption of technology that is not in line with the factor endowment of a particular country could be a cause of slow employment growth. But the choice of technology may be limited due to a variety of reasons. First, the shelf of available technologies may indeed be limited. Second, even when there is a choice, there may be a tendency towards the use of the most modern (which often is the most capital-intensive) technology. This may, of course, be justified from the point of competitiveness and efficiency which are important considerations in the current environment of growing globalisation and liberalisation. In such an environment, producers may try to use the best available technology, irrespective of whether the product is intended for the domestic or the external market. However, even within such an environment, some choice of alternatives may be available. And whether the choice would be exercised would depend on a variety of factors, e.g., relative factor prices, access to the entire shelf of available technologies, level of skills, management, etc. It would, therefore, be important to examine the availability of alternative technologies as well as factors that influence decisions concerning the type of technology that is used.

The pattern of growth

In the circumstances mentioned above, the search for factors responsible for slow

employment growth may lead one back to output growth. It has been demonstrated earlier that similar output growth can be obtained through different combinations of employment and labour productivity growth. The particular combination that would prevail in a particular country would depend on a variety of factors which in turn are influenced by the overall development strategy pursued by the country. If a country with surplus labour consciously pursues a development strategy that focuses on optimal utilisation of its abundant factor (viz., labour), that may be reflected in the relative contribution of employment and labour productivity growth to overall growth of output. This was already examined in section 4 of the present paper, and it was found that the pattern of growth is indeed important from the point of view of the employment outcome of growth. One particular element in the pattern of growth is the sector and sub-sector composition of output.

Sector and sub-sector composition of output

Studies that have attempted to identify the binding constraints on employment growth (e.g., Heintz 2006) remain limited to linking aggregate employment to total output, and do not take into account the possibility of a variation in the employment outcome that may result from a variation in product-mix. Total demand may be an important constraint on the growth of output. But the pattern of demand is important in shaping up the pattern of growth, which, in turn, can influence the employment outcome of growth. In fact, the product-mix (or sector-composition) of an economy is also linked to demand, but the pattern of demand and income elasticity of demand for various products are important here. And that brings one to the consideration of the composition of output.

As indicated above, the amount of employment associated with a given amount of output would be influenced by what is being produced. Recent research (e.g., Islam 2006a, Auer and Islam 2006, Islam 2010) argues that the overall employment intensity of output growth would depend on the sector composition of output. At the level of broad sectors of an economy, manufacturing, construction and services usually demonstrate higher employment elasticity compared to sectors like agriculture, mining, utilities, etc. In the Kaldorian framework, manufacturing should serve as the engine of growth, and it is high growth in that sector (in relation to sectors like agriculture) that helps an economy move on to increasingly higher growth path and creates conditions for a gradual transfer of labour away from low productivity activities. It needs to be noted, however, that growth of manufacturing would not automatically enable an economy to absorb surplus labour from the traditional sectors; the sub-sector composition of manufacturing would also be important in that regard. At the initial stages of development, higher growth of labour-intensive industries is essential from the point of view of transferring labour to higher productivity activities. In that context, it may be useful to look at the experience of Asian developing countries. Data presented in Tables 7 and 8 are intended to throw some light on the issue of sector and sub-sector composition of growth. In order to examine the Kaldorian issue of the role of the manufacturing sector in overall economic growth, data on growth of GDP and of manufacturing output for selected countries of Asia are presented in Table 7.

Table 7: Growth Rate of Overall GDP and Manufacturing Output (annual compound rate of growth in percentage)

Country	1960-70			1970-80			1980-1990			1990-1996			2000-2005		
	GDP	Man	Em	GDP	Man	Em	GDP	Man	Em	GDP	Man	Em	GDP	Man	Em
Bangladesh	n.a.	n.a.	n.a.	2.3	5.1	2.2	4.3	3.0	0.7	4.3	7.3	1.7	5.4	6.7	1.2
Cambodia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	6.5	7.8	1.2	8.9	14.1	1.6
China	n.a.	n.a.	n.a.	5.5	10.8	1.96	10.2	11.1	1.1	12.3	17.2	1.4	9.6	11.1	1.2
India	3.6	4.8	1.3	3.4	4.6	1.4	5.8	7.4	1.3	5.8	7.5	1.3	7.0	6.9	0.99
Indonesia	3.5	3.3	0.9	7.2	14.0	1.9	6.1	12.8	2.1	7.7	11.1	1.4	4.7	5.2	1.1
Republic of Korea	8.5	17.2	2.02	10.1	17.7	1.8	8.9	12.1	1.4	7.3	7.9	1.1	4.6	7.0	1.5
Malaysia	6.9	n.a.	n.a.	7.9	11.7	1.5	5.3	9.3	1.8	8.7	13.2	1.5	4.8	5.2	1.1
Nepal	n.a.	n.a.	n.a.	2.0	n.a.	n.a.	4.6	9.3	2.0	5.1	12.0	2.4	2.8	-0.6	n.a.
Pakistan	6.7	9.4	1.4	4.9	5.4	1.1	6.3	7.7	1.2	4.6	5.5	1.2	4.8	9.1	1.9
Philippines	5.1	6.7	1.3	6.0	6.1	1.0	1.0	0.2	0.2	2.9	2.6	0.9	4.7	4.3	0.9
Srilanka	4.6	6.3	1.4	4.1	1.9	0.5	4.0	6.3	1.6	4.8	8.8	1.8	4.2	2.9	0.7
Thailan	8.2	11.0	1.3	7.1	10.5	1.5	7.6	9.5	1.3	8.3	10.7	1.3	5.4	7.2	1.3
Vietnam	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	4.6	n.a.	n.a.	8.5	n.a.	n.a.	7.5	11.5	1.5

Sources: World Bank (WDI 1998, 2004, 2007; WDR 1978, 1999).

Notes: Man: Manufacturing output; Em: Elasticity of manufacturing growth with respect to GDP growth.

What comes out clearly from Table 7 is the higher growth of manufacturing output in relation to GDP growth achieved by the countries of ESEA compared to those of South Asia. In the Rep of Korea, for example, the elasticity of growth of manufacturing output with respect to GDP growth was over 2 in the 1960s and dropped to just below 2 in the 1970s. The figure dropped below 1.5 only during the 1980s. In Malaysia, the figure was between 1.5 and 2 for almost three decades (1970-96). Indonesia and Thailand also had a similar experience. In contrast, this figure has been in the range of 1.3 to 1.4 in India, and lower in Pakistan. In Bangladesh and Sri Lanka, there has been a considerable degree of fluctuation in the elasticity of manufacturing growth with respect to GDP growth. On the whole, not only has overall economic growth been higher in the countries of ESEA (except Philippines) than in South Asia, the manufacturing sector has been the major driver of growth in the former. It thus appears that only those countries were able to achieve a sectoral pattern of growth outlined by Kaldor and others like Clark (1951), Fisher (1939) and Kuznets (1996).[12] Not surprisingly, there are also the countries that were able to achieve more employment-intensive growth and Lewis type transformation of their labour markets— albeit at varying speed.

As mentioned earlier, growth in countries of ESEA was more employment-intensive compared to those of South Asia. As a result of high rates of growth of manufacturing industries and labour-intensive nature of such industries in the former group of countries, surplus labour from agriculture was quickly

---

[12]For a discussion on this, see Islam (2010).

transferred to the modern manufacturing sector. Republic of Korea was able to achieve the so-called Lewis turning point by the mid-1970s, and Malaysia followed during the 1980s. Indeed, apart from Korea and Taiwan, Malaysia and Thailand are the only other countries of developing Asia that appear to have used up their surplus labour in agriculture. Indonesia was on its way towards that stage, but her journey was disrupted by the Asian economic crisis of 1997-98. The countries of South Asia (e.g., Bangladesh, India, Nepal, Pakistan and Sri Lanka) are still quite distant from that point.[13]

In order to get further insight into the sectoral pattern of economic growth, it would be useful to look at the composition of the manufacturing sector. Using UNIDO data (Indstat 3, 2005),[14] an attempt has been made to rank sub-sectors of manufacturing industries (at the three-digit level) of various countries according to their capital-labour ratios. Based on such rankings, five most labour-intensive and five most capital-intensive industries for each country were identified for 1980, 1990 and 2002. The shares of the five most labour-intensive and five most capital-intensive industries in total manufacturing value added were then calculated. These shares are presented in Table 8.[15] The idea behind this exercise is to see whether there has been a systematic change in the sector composition of the manufacturing sector in either direction.

Data presented in Table 8 point out a few interesting aspects of the sectoral pattern of industrialisation in the selected countries of Asia. First, both Rep of Korea and Malaysia show an increase in the share of labour-intensive industries up to 1990 and a decline thereafter. Korea also experienced a fall in the share of capital-intensive industries till 1990 and a rise thereafter. In Malaysia, on the other hand, the share of such industries in 1990 was already higher than in 1980, although there was a slight decline after that. The above figures indicate that while Korea provides a classic example of labour-intensive industrialisation in its early phase of development, Malaysia comes close to that. Thailand also witnessed a rise in the share of labour-intensive industries between 1990 and 2002. In contrast, India witnessed a gradual decline in the share of labour-intensive industries and a rise in the share of capital-intensive industries. Pakistan and Sri Lanka also show similar trends, although not so clearly.

The figures for Bangladesh presented in Table 8 need to be interpreted with caution. They indicate a substantial rise in the shares of both top five labour-intensive and top five capital-intensive industries. These figures themselves are not implausible, and might indicate growth taking place at two ends of the spectrum. Indeed, there has been very rapid growth of one labour-intensive industry, viz., readymade garments, which may be

---

[13]See Islam (2009a) for an analysis of that aspect.

[14]A brief description of this data has been put in the appendix to this paper.

[15]The names of the industries are not mentioned in Table 8 in order to keep it simple. However, the names have been examined carefully to see if there are cases of factor intensity reversal (i.e. the same industry appearing as labour intensive in one country and as capital-intensive in another or changing factor intensity over time in the same country). The only such

case that could be noted is tobacco which appeared amongst the top five capital-intensive industries in Korea in 1980 but changed to become the 3rd most labour-intensive industry in 1990, only to change position again in 2001. Apart from this case, industries like wearing apparel, footwear, leather products, wood products, and furniture rank as labour-intensive in all the selected countries. On the other hand, petroleum products, chemicals, iron and steel, metal products, and paper and paper products generally appear as capital-intensive.

reflected in the sharp increase in the share of the top five labour-intensive industries. It should, however, be noted that apart from this single industry, there has not been a similar growth in any other labour-intensive industry. In fact, the performance of another major labour-intensive industry of the country, viz., leather and leather products, has been rather disappointing, resulting in a decline in its share in total manufacturing value added (Ahmed, Yunus and Bhuyan 2009).

Table 8: Share of the Five Most Labour-intensive and Five Most Capital-intensive Industries in Total Manufacturing Value Added in Asia

Countries	Share of the Labour-intensive			Share of the Capital-intensive		
	1980	1990	2002	1980	1990	2002
Bangladesh	1.78	12.36	22.54 [2]	3.09	8.74	32.35 [2]
India	9.47	4.01	5.21 [4]	21.76	25.01	26.48 [4]
Indonesia	30.90	18.34	3.91	14.61	18.02	17.21
Korea, Republic of	8.26	9.53	4.21 [4]	22.64	10.10	28.18 [4]
Malaysia	4.09	12.21	5.27 [4]	9.37	18.25	20.93 [4]
Pakistan	15.79	4.14 [1]	3.62 [5]	21.69	11.61 [1]	24.51 [5]
Philippines	7.20	8.80	7.89 [2]	23.58	21.50	23.01 [2]
Sri Lanka	22.99	4.42	23.25 [3]	5.28	10.96	12.57 [3]
Thailand	n.a.	4.77	14.34 [6]	n.a.	17.06	20.07 [6]

Source: Calculated from UNIDO, Indstat3, 2005.

Notes: (1) 1991, (2) 1997, (3) 2000, (4) 200, (5) 1996, (6) 1994.

In the case of India, data from national sources (viz., the Annual Survey of Industries) corroborate the findings based on UNIDO data. One recent study (Palit 2008) based on the Annual Survey of Industries (ASI) data shows that the overall share of the labour-intensive industries in total manufacturing output declined significantly between 1990-91 and 2003-04. In 1990-91, the top five labour-intensive industries (viz., food and other food products, beverages and tobacco, wood products and furniture, other textiles, leather and fur products) accounted for nearly 41 per cent of manufacturing output. In 2003-04, the share of the top five (which in that year were other textiles, leather and fur, beverages and tobacco, food products, and other manufacturing) dropped to 28.32 per cent (Palit 2008).

The figures for Sri Lanka in Table 8 raise a couple of questions. First, the share of the top five labour-intensive industries declined sharply during the 1980s and then increased to the level of 1980 by 2002. Secondly, the share of capital-intensive industries increased gradually over the two decades. While a full explanation of the observed phenomenon is not possible without going into a detailed analysis of the situation and policies pursued at the country level, some tentative remarks may be made. As for the growth of manufacturing as a whole, there was a major acceleration during the 1990s (compared to the 1980s); and there were specific initiatives by the government to promote the growth of labour-intensive industries like the garment manufacturing.[16] As a result, such industries achieved higher growth. For example, the annual growth rates achieved by textiles, and leather and footwear during 1993-2001 were 9.8 per cent and 5.9 per cent respectively. At the other end of the spectrum, capital-intensive industries like chemicals, petroleum, rubber and plastic (together as a group) and metal products also achieved moderate growth of 4.1 per cent and 4.3 per

---

[16]One example is the so-called "200 Garment Factory Programme" initiated by the Government in the early 1990s which led to an increase in the export of non-quota garments and the capacity of garment industry.

cent per year during the same period.[17] That may explain the steady rise in the share of capital-intensive industries.

5.2 Employment Implications of Alternative Sector Composition of Output: Methodologies and Illustrations

Once the relevance of the pattern of economic growth is recognised, it would be necessary to monitor the sector and sub-sector composition on a periodic basis at the country level. At the broad sector level, it would be useful to first examine which sectors are characterised by higher employment intensity of growth. In a developing economy, manufacturing, trade, transport and construction and some service sectors are expected to be more employment intensive than agriculture, mining, utilities, etc. If that is found to be the case, an employment focused strategy would involve strategies to achieve higher growth in such sectors and a transfer of labour from traditional sectors like agriculture to these sectors.

Within the manufacturing sector, an attempt should be made to identify sub-sectors that are more employment intensive. In order for such an exercise to be useful from an operational point of view, it should be done at a disaggregated level (at least at three-digit level). Once employment-intensive sub-sectors are identified, their growth performance should be monitored on a regular basis. In addition, the policy environment having a bearing on their growth should be analysed and strategies and policies should be based on

[17]Data and information presented in this paragraph are from Tilakaratna, Jayawardena and Kumara (2006).

such analysis. The analysis of the policy environment faced by the employment intensive sub-sectors should be carried out from the point of view of identifying factors that may be constraining their growth.

An example of the kind of exercise mentioned above is provided by a recent study on Bangladesh (Ahmed, Yunus and Bhuyan 2009) which starts from empirically examining the growth performance of employment intensive manufacturing industries and goes on to analyse the policy environment faced by selected industries of growth), but also attempts to identify constraints that the selected sub-sectors face. Based on the analysis, the study provides useful policy guidelines for promoting higher growth of those sub-sectors.

In India, a study on manufacturing industries (Palit 2008) shows that during 1990-91 to 2003-04, the structure of manufacturing industries has not shown any change towards labour-intensive industries although economic and trade liberalisation undertaken in the country since 1991 was expected to engender a process of labour-intensive industrialisation. In fact, that study shows that the overall share of the labour-intensive industries in total manufacturing output declined significantly between 1990-91 and 2003-04. In 1990-91, the top five labour-intensive industries (viz., food and other food products, beverages and tobacco, wood products and furniture, other textiles, leather and fur products) accounted for nearly 41 per cent of manufacturing output. In 2003-04, the share of the top five (which in that year were other textiles, leather and fur, beverages and tobacco, food products, and other manufacturing) dropped to 28.32 per cent (Palit 2008).

As mentioned earlier, Islam (2010) shows that the composition of growth in terms of contribution of various sectors plays a key role in rendering growth more or less employment-intensive. However, for drawing operational implications of this proposition, it is necessary to assess the relative employment content of sectors and sub-sectors of economic activity at such a disaggregated level that is relevant for policy and programme application. In other words, it is necessary to broadly quantify the amount of employment that would be generated in producing a given quantum of output in different lines of activities so as to identify sectors whose fast growth would make a good contribution to employment. However, such quantification at broad aggregated level may not be adequate because the policy actions that may be utilised to facilitate higher growth of some lines of production than others could only be applied at the level of sub-sectors and individual commodities. Thus, prioritising agriculture for employment generation may, in fact, imply emphasising sub-sectors like horticulture, animal husbandry and fisheries. In the case of industry, it may imply specially promoting growth of labour-intensive industries generally, and textiles, light engineering, agro-based product, etc. specifically. Assessment of the employment impact at the appropriate level of disaggregation of economic sectors is, therefore, required for determining the output structure of growth and evolving suitable policy intervention to ensure its realisation, in order to bring employment into focus in growth strategy.

Employment impact analysis (EIA)[18] involves not only an assessment of changes in the employment numbers resulting from a given expansion of output in a particular sector/industry, but also the indirect and induced employment effects[19] such expansion produces in each of the other sectors and industries through backward and forward linkages. It involves an analytical framework to assess the direction and magnitude of impact on employment and also identify the transmission channels due to a change in policy at macro and/or sectoral level. To undertake EIA, various tools are used such as Time Series and Cross-Sectional Analysis, Location Quotient, Shift-Share Analysis, and Economic Modelling. Economic Modelling encompasses a variety of analytic approaches, such as input-output analysis and economic simulation. Input-output analysis is among the most direct and relatively simple tool to undertake EIA. Besides the direct effects, it enables measurement of the effects from suppliers of inputs (raw materials, etc.) and thus gives a measure of the total effect of the activity in question. For example, direct employment in manufacturing activities of X product is seen as the first link in a chain of employment effects. Secondary links are employment associated with the production of components and raw materials used in the production of X. The ratio of the total employment generated in all linked sectors together as a result of a unit of investment/increase in output in the reference sector is also referred to as its employment multiplier. What one actually requires to

---

[18]The methodology and the illustration described here are based on Papola (2008) and ILO ((2009b).

[19]*Direct effect* represents the first round changes in output, employment and value added (e.g. change in output which directly affects employment and value added) for a given industry as a consequence in change in final demand. *Indirect effects* are the output, employment and value-added changes in inter-industry purchases as they respond to the new demands of the directly affected industries. *Induced effects* represent the response by all local industries caused by the expenditures of new household income generated by direct and indirect effects due to the changes in final demand for a given industry.

estimate the total employment impact (or employment multiplier) of a sector is: (i) the amount of output of each of the other sectors required as input for a unit of output in this sector; and (b) the employment coefficient of each sector defined as the number of persons employed in that sector for a unit of value added/output. Aggregate employment coefficient of a sector is derived as the ratio of employment generated directly in it and in other linked sectors as a result of a unit expansion of output in the reference sector and the amount of output in other sectors required as input in the reference sector. It may be noted that employment coefficients or employment multipliers estimated using input-output analysis account for direct and indirect employment effects and not the "induced" effects. Also for a sector, these estimates include employment effects of output and its backward linkages only (output of other sectors used as input), and not the forward linkages (output of the other sectors resulting from use of this sector's output as input).

The application of the methodology described above can be illustrated by an exercise undertaken for India which is based on the input-output table for 2003-04 providing data for 130 sectors. To estimate the employment coefficient, the employment data have been taken from the 61st NSS round (2004-05) on employment and unemployment. Since the input-output table and the employment data are based on different industrial classification, adjustments have been made to have one-to-one correspondence at two digit level of classification, and 130 sectors have been aggregated into 19 broad sectors.[20]

_____

[20]For further details, see ILO (2009b) and Papola (2008).

Table 9 presents the results of the exercise mentioned above which includes direct employment coefficient (number of persons per million rupee of gross value added in the sector) and indirect employment coefficient which is the sum of employment coefficient in all other sectors. For instance, one million rupees of gross value added in manufacturing sector directly creates around 15 employment opportunities and another 8 employment opportunities due to changes in the production/demand of other sectors linked to manufacturing. Thus one million rupees of gross value added in manufacturing will create a total of 23 employment opportunities in the economy. Within manufacturing, the agro-based industries such as food and food processing and textiles have both higher direct and indirect employment impact as compared to the non-agro based industries.

Table 9: India: Direct and Indirect Employment Coefficient (Employment per million rupees of Gross Value Added)

Sl. No.	Sector Description	Direct	Indirect	Total
1	2	3	4	5
1	Agriculture, livestock & others	50.15	0.96	51.10
2	Forestry & logging	6.27	0.49	6.76
3	Fishing	5.58	0.70	6.27
	Agriculture & allied (1 to 3)	46.25	5.18	51.43
4	Mining & Quarrying	4.13	0.91	5.04
5	Food, food processing, beverages & others	24.71	95.84	120.55
6	Textiles (cotton, wool, Jute. etc.) & products	39.51	20.93	60.44
7	Wood, furniture, paper & leather and their products	50.36	10.05	60.41
8	Rubber, plastic & their products	8.50	17.94	26.43
9	Chemical, petroleum & non-metallic mineral products	5.87	8.27	14.14
10	Basic metal	6.62	6.62	13.24
11	Machine tools and non-electrical machinery	6.47	7.03	13.51
12	Electrical machinery & other transport equipments	2.73	6.80	9.54
	Manufacturing (5 to 12)	14.75	7.77	22.52
13	Construction	16.59	6.00	22.59
14	Utilities	2.49	4.87	7.36
15	Transport, storage and communications	8.85	4.22	13.07
16	Trade, hotels, and restaurants	12.40	3.34	15.74
17	Banking and insurance	1.91	0.89	2.80
18	Real estate etc.	0.79	0.30	1.09
19	Education, health & other services	9.75	0.67	10.43
	Services (15 to 19)	8.55	5.11	13.66

Source: Papola (2008) using Input-output table, 2003-04 and data on employment and unemployment, 2004-05.

Unlike many sub-sectors of manufacturing, the indirect employment effects in service sector are very low. Among the 19 sectors, food products, textiles, and wood and paper products top the list with over 60 jobs created directly and indirectly for each million of rupee of value added, while real estate, banking and insurance, mining and quarrying figure at the bottom with only five or less jobs for similar value added. Based on future growth scenarios, these employment coefficients can be used to forecast corresponding employment growth for the whole economy as well as for various sectors.

Social Accounting Matrices (SAMs) may also be used to analyse the total impact on employment (i.e. taking into account both direct and indirect effects) of a particular measure, and thus could be applied to identify sectors or sub-sectors that could yield the maximum impact on employment. Indeed, a SAM is a powerful tool to investigate the distributional and employment implications of given structures of production in an economy and the way they are affected by policy interventions.[21] An illustration of how SAMs can be applied to work out the employment implications of the growth of various sector of an economy (taking into account the direct employment in a sector as well as employment created through linkage effects on other sectors of the economy) is provided by a recent exercise on South Africa by Capaldo (2007). That exercise divides the economy into 26 sectors that include agriculture, mining, sub-sectors within manufacturing and a number of service

sectors. The results obtained from the exercise indicate that within the manufacturing sector, food, textiles, and paper have the highest impact on employment, while commercial equipment, transport equipment and machinery have low employment impact. Among the other sectors, agriculture, construction, and most of the services are found to be highly employment intensive.

5.3 Identifying Constraints on the Growth of Employment-intensive Sectors/sub-sectors

Constraints on the growth of labour-intensive sectors/sub-sectors may arise from both demand and supply sides. On the demand side, both domestic and external demand will have to be considered, while on the supply side, a range of issues starting from the policy environment to factors operating at the sector and enterprise level would be important.

Domestic demand

Domestic demand depends on the level as well as the distribution of income. With an unequal distribution of income and rising inequality, the pattern of demand may shift towards more capital intensive and imported goods, which, in turn, may have an adverse employment implication. An analysis of the income elasticity of demand for various products would, therefore, be an important element in the identification of constraints on employment growth. However, a literature search indicates that such studies on an up to date basis are not readily available. But early studies on the topic (e.g., ILO (1970) on Colombia, Sinha, Pearson, Kadekodi and Gregory (1979) on India and Islam (1976) on

---

[21]SAM models were first introduced more than three decades ago by Stone (1978), and Pyatt and Round (1979).

Bangladesh) do provide some useful insight.[22] The study on India, for example, shows that expenditure elasticity of demand for products of labour intensive sectors like cotton textiles and footwear are much higher for lower and middle income groups than for higher income groups.

More recent studies on India indicate significant changes in the consumption pattern that have taken place in country. However, the differences in the pattern of consumption between the rich and the poor continue to remain. For example, the difference in average expenditure on consumer durables is much more marked than that in the case of food and other basic items (Shukla and Kakar 2007). And as income inequality widens, the consumption pattern (and hence the pattern of domestic demand) is getting tilted more towards consumer durables which are more capital-intensive by nature.[23]

Some illustrative estimates (presented in Table 10) of income elasticity of demand for selected consumer goods in Bangladesh indicate a pattern similar to that observed in India. For example, some items like Gur and firewood clearly emerge as inferior goods at high levels of income (top 10% of households), implying that an increase in income at that level leads to a decline in the amount spent on these items. And it is quite well known that these items are more labour-intensive compared to similar products (for example, gur compared to sugar, firewood compared to gas and

electricity). Second, for some items which use labour-intensive techniques in their production (e.g., lungi, furniture, shirt and pant, leather shoes, etc.), the income elasticity of demand at high income level (viz., the top 10% of households) is lower than for households as a whole. This implies that an increase in income at the topmost level would increase the demand for such items by smaller amounts than if income increases at lower income levels. Third, for items like refrigerators, pressure cookers, etc. (which not only involve the use of capital-intensive technology in their production but are mostly imported in Bangladesh), the income elasticity of demand is much higher for the top 10% of the households comared to the overall sample. So, an increase in the demand for such products is unlikely to create much employment within the country (except perhaps in the sales of such items).

The pattern of consumer demand (which in turn has its roots in the pattern of income distribution) mentioned above has implications for the growth of sectors that are more employment intensive. An early study on India (Gupta 1977), for example demonstrates that a redistribution of private consumption expenditure in favour of the poorer classes of population would change the output-mix in India in such a way that the average annual growth rate of employment would register an increase of eleven per cent (year of reference was early 1970s). A study on Bangladesh (Islam 1976) also found positive employment impact of a redistribution of income from upper to lower income groups, although the magnitude was much less notable. One could thus conclude, at least tentatively, that an unequal income distribution and increase in inequality poses a constraint on the growth of sectors that are employment intensive in nature.

---

[22]In fact, studies carried out during the 1970s under the auspices of the ILO pointed out the importance of income distribution in influencing the mix of products that is produced in a country as the income elasticity of demand for various consumer goods varies between income/ expenditure classes.

[23]Chandrasekhar and Ghosh (2008) note such a shift in the pattern of consumer demand.

Table 10: Income Elasticity of Demand for Selected Consumer Goods in Bangladesh (2005-06)

Items of expenditure	Income Elasticity of Demand	
	Top 10% of the households	All households
Milk	0.327	0.498
Milk powder	0.300	0.363
Tea	0.316	0.456
Bottled drinks	0.191	0.325
Sugar	0.171	0.408
Gur	-0.001	0.164
Firewood	-0.031	0.179
Electricity	0.313	0.398
Lungi	0.100	0.231
Shirt and pant	0.353	0.616
Mill made cloth	0.149	0.306
Handloom cloth	1.453	0.338
Leather shoes	0.328	0.516
Plastic shoes	0.216	0.184
Kitchen items	0.502	0.438
Refrigerator, pressure cooker, and cutlery	1.169	0.566
Furniture	0.623	0.743
Consumer durables	-1.180	1.080

Source: Estimated from primary data of the *Household Income and Expenditure Survey 2005* conducted by the Bangladesh Bureau of Statistics.

Notes: (i) Coefficients estimated by running double logarithmic regressions; (ii) Except for gur, firewood, and mill made cloth for top 10% of the households, all coefficients are statistically significant either at 1% or 5% level.

The impact of income distribution on the pattern of consumer demand gets exacerbated when demand gets boosted through credit and subsidy. Indeed, when developing countries move to higher levels of development, it is not uncommon to find consumer demand boosted through such incentives. But it is usually the demand for consumer durables that is supported by such measures; and the employment outcome of the growth of such demand is not necessarily very positive. Credit-driven growth of domestic demand in China and India provides examples of such pattern of growth. In China, the Government's stimulus programme adopted in response to the economic crisis includes 13 per cent subsidy in rural areas on the purchase of appliances like televisions, refrigerators,

washing machines, air conditioners, and computers ("Market Watch" in Beijing Review, June 25, 2009). Likewise, in India, credit for the purchase of such items has boosted their demand during the period of high growth (Chandrasekhar and Ghosh 2008).

External demand

External demand plays a major role, especially in open economies. Conventional trade theory suggests that labour-abundant countries have a comparative advantage in the production and export of labour-intensive goods. Hence, an outward looking and export oriented development strategy should result in a high growth of such sectors and a high growth of employment. The critical question here is whether such a growth strategy automatically results in a change in the structure of production towards more labour intensive sectors and in high employment growth.

In order to understand whether exports can help developing countries in promoting the growth of their more labour-intensive lines of production, it would be necessary to have estimates of the elasticity of export demand for various categories of products. Unfortunately, a search for such studies did not yield much. Hence, it was necessary to look for alternative (and somewhat indirect) evidence concerning the type of external demand.

According to the standard theory of comparative advantage, developing countries endowed with an abundance of labour are expected to specialise in and export goods that require more of labour compared to other scare factors of production. But data presented above (Table 8) has already pointed to exceptions to this standard prediction. While trade openness has been associated with

specialisation in and export of labour intensive manufactures in some countries, there are exceptions, e.g., India. In the latter case, exports are found at both the labour-intensive and the capital-intensive ends of the spectrum of manufacturing industries. How does one explain this?

It needs to be noted in the context of the question raised above that developing countries may export goods to both developed and developing countries. While the standard prediction based on the theory of comparative advantage may apply to the former, it does not necessarily apply to the latter. Indeed, there is evidence to show that the latter category of exports may include goods, e.g., metal products, machinery, chemicals, transport equipments, etc. (Murakami 1968)—which may not fit into the conventional description of labour-intensive items. The importance of such goods in total exports may, of course, vary depending on the level of development achieved and the strategy of industrialisation pursued by a developing country. But in reality, it is possible that the weight of such goods in total exports and production may be quite substantial, and their share may not change much (or may increase) even when an open trade regime is introduced. And as a result, the emerging pattern of industrialisation may not be very employment-intensive. While the case of India has already been mentioned above, a look at Pakistan's export structure also indicates a similar pattern.

In India, the shares of labour-intensive manufactures like garments and leather in total exports have not registered a significant increase after the economic reforms and liberalisation were introduced in 1991. For example, the share of readymade garments

was 12.3 per cent in 1990-91 and actually declined to 11.1 per cent in 1997-98, and thereafter increased to 12.5 per cent in 2000-01, which implies a return to the level of 1990-91 (Reserve Bank of India 2008). The share of leather and leather products declined substantially from 7.9 per cent to 4.7 per cent during the same period. On the other hand, the shares of chemical and allied products and engineering products increased respectively from 7.2 per cent to 9 per cent and from 12.4 per cent to 15.2 per cent (Sharma 2000). A more recent study (Burange and Chaddha 2008) found that India enjoys comparative advantage in the exports of labour-intensive items like textiles as well as in scale-intensive items such as chemicals, and iron and steel (the latter belonging to the capital-intensive category).

In Pakistan, a study (Ansari 2007) undertaken for the Export Promotion Bureau shows that the growth rates of exports of labour-intensive items like garments and leather witnessed notable escalation during 1999-2005 compared to 1993-98 (from 2.66 and -1.74 per cent respectively during 1993-98 to 11.19 and 10.45 per cent during 1999-2005). But in terms of the structure of exports, the shares of chemicals and pharmaceuticals, petroleum products and engineering goods registered significant increases (from 0.56, 0.82, and 0.41 per cent respectively to 1.33, 1.83, and 1.65 per cent respectively between the two periods mentioned above), thus demonstrating the growth in the exports of both labour-intensive and capital-intensive goods. In fact, average growth rates registered by the latter mentioned industries were several times higher than those of the labour-intensive goods mentioned above.

The upshot of the findings reported above may be summarised as follows. Greater trade openness may help labour-abundant countries to achieve accelerated growth of labour-intensive industries. But a divergence from this standard prediction may occur, and countries may indeed export goods that are at the capital-intensive end of the production spectrum. Such a divergence can act as a constraint on employment growth.

Supply side constraints

Supply side constraints can arise from a variety of sources, e.g., the supply of needed raw materials, and the availability of specific skills that may be required. The price structure of inputs in relation to that of outputs may affect the profitability of industries, and thus, act as a constraint on its growth. A study on Bangladesh (Ahmed, Yunus and Bhuyan 2009) brings out these constraints in the context of specific labour-intensive industries like food products, furniture, and leather products. For example, in the case of food manufacturing, weak technological base resulting in an inability of enterprises to meet the health and sanitary conditions of export markets is found to be an important constraint. For leather and leather products, low level of technology, lack of appropriate skills, shortage of raw materials, low level of entrepreneurial skill, etc. are found to be important constraints on the growth of the sector. Likewise, in the case of furniture, scarcity of raw material, high customs duty on imported inputs, and shortage of skills are found to be the major constraints. Frequent changes in policy that result in an uncertain business environment are also regarded as a problem. This kind of sector focused study that revealed the constraints mentioned above is important in identifying the constraints that specific industries face.

The policy environment

The policy environment prevailing in an economy may affect the growth of a sector from both the demand and supply sides. For example, the pattern of domestic demand may be the outcome of the way in which income is distributed which in turn may be due to the overall development strategy and policies pursued. Likewise, macroeconomic and sector level policies are critical in determining the relative prices of factors and other inputs that are important in the production of various goods and services in an economy. An important question to address in this context is whether relative factor prices of the key factors of production (viz., capital and labour) reflect their true scarcities. Another key question is whether there is anything in the policy environment (e.g., those relating to taxes and tariffs on inputs and competing imports) that go against the profitability and competitiveness of the employment-intensive sectors/sub-sectors.

For example, there are studies on India (e.g., Palit 2008, and Chandrasekhar 2008) demonstrating the existence of a number of elements in the country's policy framework that have led to a cheapening of capital which is the relatively scarce factor of production. On the other hand, there is nothing in the policy environment to encourage the use of labour. As a result, the relative factor prices do not reflect their true scarcities, and the growth of employment has been lower than what it should have been in a country with surplus labour. This appears to be consistent with the findings mentioned earlier (viz., Palit 2008) of a sectoral pattern of growth characterised by an increase in the share of capital-intensive sectors and a decline in the share of labour-intensive ones. This, clearly, is an area for further investigation and possible policy intervention.

6   Concluding Observations

The present paper starts by providing clarifications regarding the concept and terminology of jobless growth, and points out that the term need not be interpreted in a literal sense. The term is used to capture situations of low growth of employment in relation to output growth in countries that are still characterised by surplus labour. It is pointed out that the term employment intensive growth does not imply employment creation without output growth. Indeed, this term is used to describe a situation where high output growth is associated with high employment growth. The conceptual part of the paper also points out that in a growing economy, there should be room for growth of both employment and labour productivity, and that it should be possible to avoid a trade off between the two.

By using cross-country data on manufacturing industries in developing countries, the paper shows that the relationship between employment and output growth has weakened during the 1990s compared to the 1980s. In addition, there are countries where positive output growth has been found to be associated with zero or negative employment growth, thus pointing to situations of jobless growth in a literal sense. For a number of Asian countries for which estimates of elasticity of employment with respect to output growth in manufacturing could be found for the 1990s and the 1980s, the figures for the 1990s were found to be lower, thus indicating a decline in

the employment intensity of growth in the sector. Interestingly, those are the countries where surplus labour continues to exist, so that a decline in the employment intensity of growth cannot be explained by the labour market situation.

The present paper points out that it is important to go beyond estimates of employment elasticity and look at actual figures on output and employment growth. By doing so, it is found that there are countries (in the Middle East and north Africa region, for example) where the problem is not only one of low employment growth but also one of low growth of output. In such situations, the policy concern would be how to raise both output and employment growth. But there are countries (e.g., China, India and other South Asian countries) where employment growth has been low despite high or moderate output growth. The policy concern in such situations would be to raise employment growth.

A decomposition of output growth into employment and productivity growth (see section 4 of the present paper) shows that the trade-off between the two is not inevitable. There are countries (e.g., Republic of Korea, Malaysia, Indonesia and Thailand) which have been able to combine employment growth with productivity growth. On the other hand, there are countries (e.g., Bangladesh, China and India) where the contribution of labour productivity to total

output growth has not only been high (especially considering the fact these economies are still characterised by the existence of surplus labour), but has also been increasing. These findings point towards a pattern of growth in those countries that has not been conducive to the growth of employment.

The present paper argues that the pattern of economic growth in terms of the sector and sub-sector composition of output is important in determining the employment outcome of growth. In that context, a high rate of growth of manufacturing in relation to overall GDP growth would be important because such a pattern of growth is potentially conducive to a high rate of employment growth. High rate of growth of manufacturing at the initial stage of development is necessary for creating conditions for transfer of surplus labour from sectors characterised by low labour productivity to those with higher productivity. However, for that process to succeed, it is also important for more labour-intensive sub-sectors of manufacturing to grow at high rates—at least at the initial stages of development.

It is by now well known that a few countries of East and South East Asia (ESEA, especially, Rep of Korea and Malaysia, and Indonesia and Thailand, to some extent) were able to achieve the kind of growth pattern mentioned above. In general, the countries of ESEA not only had higher growth manufacturing in relation to overall GDP growth, the sector composition of the manufacturing sector was also more labour-intensive (at least during the initial stages of their growth) than in countries of South Asia. As a result, the employment intensity of growth during the initial stages of

their development was also higher than in the latter.

The present paper outlines alternative methodologies (e.g., those based on input-output analysis and SAMs) for assessing the direct as well as the total impact on employment of alternative sectoral patterns of growth. The application of such methodologies is illustrated with examples from India and South Africa.

The paper demonstrates how constraints on the growth of employment-intensive sectors can arise from demand and supply sides. In the course of that analysis, it is pointed out that the pattern of income distribution can have significant influence on domestic demand for various products, and hence, on the sectoral pattern of output growth. An important point that has come out is that greater trade openness does not necessarily lead labour-abundant countries to specialise and export only labour-intensive goods. Depending on the level of development and the strategy of industrialisation pursued, a developing country may have in its export basket both labour-intensive and capital-intensive goods. The pattern of external demand thus could be an important factor in explaining the low employment intensity of output growth.

The findings and analysis of the present study have important implications for countries that need to make economic growth more employment-intensive. If it is found that the sectoral pattern of growth is such that there is room for higher growth of labour-intensive industries and growth of additional labour-intensive lines of production than at present, the next step from a policy point of view would be to examine

the factors responsible for the observed pattern. In fact, one study mentioned above (Palit 2008) already points out that the sector composition of India's manufacturing sector has changed towards more capital-intensive industries rather than labour-intensive ones. As mentioned above, the sector composition could be a reflection of the pattern of demand in an economy which in turn is influenced by the level and distribution of income. On the other hand, it could also be due to distortions in the incentive structure created by the policy environment prevailing in the economy. In the latter case, it should be possible to identify appropriate reforms in policies that would modify the policy environment and make it more conducive for higher growth of labour-intensive sectors.

Distortions in the incentive structure could also be created in the process of implementing the so-called stimulus programmes that are being implemented by various countries in response to the economic crisis. In Indonesia, for example, the stimulus package includes subsidies for the purchase of machinery under the Machinery Revitalisation Programme (Hailu 2009). In China, the industries that are benefiting from government support include steel, automobiles, machinery, shipbuilding, textiles, electronics, and petrochemicals (Riskin 2010). It is quite clear that apart from textiles and electronics, the others in this list are at the capital-intensive end of the spectrum.

While capital is being made cheaper than it would otherwise have been, in none of the countries whose examples are cited above (viz., China, India, and Indonesia) there is any measure to encourage the use of labour in

industries. Thus, relative factor prices may not often reflect the true scarcities of the factors of production and may not be conducive to employment-intensive growth.

The analysis and overview of the present paper also bring out a number of gaps in the literature relating to the sector composition of output and point to what needs to be done if an employment diagnostic exercise were to be carried out in a particular country. The starting point of such an exercise has to be an assessment of the direct as well as the total employment impact of alternative sectoral growth scenarios. That kind of exercise would require input-output table or SAM on an up to date basis at a disaggregated level. While there has been a good deal of improvement in this respect in many developing countries, the availability of up to date data at an appropriate level of disaggregation is often a problem. Once the employment impact has been assessed, the next step would be an analysis of the pattern of demand—both domestic and external—for the products of various sectors. This is where the real data gap lies. And this also is an important issue because demand is one of the major factors that influences the sectoral pattern of output growth. Once the demand pattern is known, the next step would be to examine the policy environment that prevails in the country at the macro, sector as well as sub-sector level and identify reforms that are needed in that sphere from the point of view of promoting the growth of sectors/sub-sectors, the products of which are characterised by high income/price elasticity of demand, and growth is constrained more by factors in the policy environment than by demand.

REFERENCES

Ahmed, Nazneen, Mohammad Yunus and Harunur Rashid Bhuyan. 2009. "Promoting Employment-Intensive Growth in Bangladesh: Policy Analysis of the Manufacturing and Service Sectors," Employment Sector Working Paper. ILO, Geneva.

Ansari, Javed. 2007. "Structural Change in Pakistani Exports 1992-2005," *Market Forces*, 3(2), July.

Asian Development Bank (ADB). 2005. *Labour Markets in Asia: Promoting Full, Productive and Decent Employment.* Manila: Asian Development Bank.

_____.2007. *Key Indicators of Developing Asian and Pacific Countries*. http://www.adb.org/Documents/Books/Key_Indiactors/2008

Auer, Peter and Rizwanul Islam. 2006. "Economic Growth, Employment, Competitiveness and Labour Market Institutions." In World Economic Forum: *The Global Competitiveness Report 2006-07*. Geneva: WEF.

Banerjee, Lopamudra, Anirban Dasgupta, and Rizwanul Islam (eds.). 2010. *Development, Equity and Poverty: Essays in Honour of Azizur Rahman Khan*. New Delhi: Macmillan India.

Bean, Charles.1994. "European Unemployment: A Survey." *Journal of Economic Literature*, 32.

Bhorat, Haroon and Oosthuizen. 2006. "Evolution of the Labour Market 1995-2002." In Haroon Bhorat and Ravi Kanboor, eds., *Poverty and Policy in Post-Apartheid South Africa*. Cape Town: Human Science Research Council.

Burange, L.G. and Sheetal J. Chaddha. 2008. "India's Revealed Comparative Advantage in Merchandise Trade." *Artha Vijnana*, L (4): 332-63.

Capaldo, Jeronim. 2007. "Employment Impact Assessment with Social Accounting Matrices." Levy Economics Institute.

Clark, C. 1951. *The Conditions of Economic Progress*. London: Macmillan.

Chandrasekhar, C.P. 2008. "Re-visiting the Policy Environment for Engendering Employment Intensive Economic Growth." Draft paper, International Labour Office, Geneva.

Chandrasekhar, C.P. and Jayati Ghosh. 2008. "Employment and the Pattern of Growth." In Raj Kapila and Uma Kapila, eds., *Economic Developments in India*. Delhi: Academic Foundation.

Economist Intelligence Unit.2009. *World Data online*.

El Laithy, Heba and Naglaa El Ehwany. 2006. "Employment-Poverty Linkages towards a Pro-poor Employment Policy Framework in Egypt." Geneva: ILO. Unpublished paper.

Fisher, A.G.B. 1939. "Production, Primary, Secondary and Tertiary." *The Economic Journal,* Vol. XV, 1939.

Forteza, Alvaro and Martin Rama.2002. "Labour Market 'Rigidity' and the Success of Economic Reforms Across More than One Hundred Countries." Reported in ADB (2005).

Groningen database on: www.ggdc.net.

Gupta, Anand P. 1977. *Fiscal Policy for Employment Generation in India*. New Delhi: Tata-McGraw Hill Publishing Company Limited.

Hailu, Degol. 2009. "The Indonesian Response to the Financial and Economic Crisis: Is the Developmental State Back?" *One Pager*, 86l.

Hausmann, R., D. Rodrik, and A. Velasco. 2005. "Growth Diagnostics." John F. Kennedy School of Government, Harvard University, Cambridge.

Heintz, James. 2006. "Growth, Employment and Poverty Reduction." Paper presented at a workshop on Growth, Employment and Poverty Reduction Organised by the Department for International Development, U.K.

Helpman, Elhanan. 2004. *The Mystery of Economic Growth*. Belknap/Harvard.

International Labour Office (ILO). 1970. *Towards Full Employment: A Programme for Colombia*. Geneva: ILO.

_____.2005. *World Employment Report*. Geneva: ILO.

_____.2006. *Key Indicators of Labour Markets (KILM)*. 4th edition, Geneva: ILO.

_____.2007. KILM, 5th edition. Geneva: ILO.

_____.2009a. *Global Employment Trends-Update*. Geneva: ILO.

_____.2009b. *Towards an Employment Strategy for India*. (Forthcoming), Delhi and Geneva: ILO.

International Monetary Fund (IMF).2009a. *World Economic Outlook Database* (April 2009). Washington, D.C.: IMF.

_____.2009b. *World Economic Outlook: Crisis and Recovery*. Washington, D.C.: IMF.

Islam, Iyanatul. 2002. "Poverty, Employment and Wages: An Indonesian Perspective" in ILO (2002).

_____.2005. "Managing without Growth: Challenges Confronting the Syria Labour Market." Unpublished paper for UNDP, Beirut.

Islam, Rizwanul. 1976. *Factor Intensity and Labour Absorption in Manufacturing Industries: The Case of Bangladesh.* Unpublished Ph.D. dissertation, London School of Economics and Political Science, London.

_____.2003. "Labour Market Policies, Economic Growth and Poverty Reduction: Lessons and Non-lessons from the Comparative Experience of East, South-East and South Asia." Issues in Employment and Poverty Discussion Paper 8. Recovery and Reconstruction Department, ILO, Geneva.

_____. 2006a. "The Nexus of Economic Growth, Employment and Poverty Reduction: An Empirical Analysis." In Rizwanul Islam.

_____ ed. 2006b. *Fighting Poverty: The Development-employment Link*. Boulder and London: Lynn Rienner.

_____.2009a. "Has Development and Employment through Labour-intensive Induistrialization Become History?" In Basu, Kaushik and Ravi Kanbur (eds): *Arguments for a Better World: Essays in Honour of Amartya Sen* (Vol.II, Society, Institutions, and Development). Oxford University Press.

_____.2009b. "What Kind of Economic Growth is Bangladesh Attaining?" In Quazi Shahabuddin and Rushidan Islam Rahman (eds.) (2009): *Development Experience and Emerging Challenges: Bangladesh*. Dhaka: Bangladesh Institute of Development Studies and the University Press Limited.

_____ .2009c. "Addressing the Challenge of Jobless Growth in Developing Countries," Unpublished draft, ILO, Geneva.

_____ .2010. "Pattern of Economic Growth and its Implication for Employment." In Lopamudra Banerjee, Anirban Dasgupta and Rizwanul Islam (eds.) (2010), *Development, Equity and Poverty: Essays in Honour of Azizur Rahman Khan*. Delhi and New York: Macmillan India and UNDP.

Kapsos, Steve. 2005. "The Employment Intensity of Growth: Trends and Macroeconomic Determinants." Employment Strategy Papers, 2005/12. International Labour Office, Geneva.

Khan, A.R. 2002. "Employment, Productivity and Poverty Reduction in Developing Countries: A background document for

the World Employment Report 2003."
Draft paper. Geneva: ILO.

_____.2006. "*Employment Policies for Poverty Reduction.*" In Islam (2006b).

_____.2007. "Asian Experience on Growth, Employment and Poverty: An Overview with Special Reference to the Findings of Some Recent Case Studies." Geneva and Colombo: ILO and UNDP.

Kim. Jong-Il and Lawrence J. Lau. 1994. "The Sources of Economic Growth in the East Asian Newly Industrializing Countries." *Journal of the Japanese and International Economic Economics,* 8(3): 235-71.

Krugman, Paul. 1994. "The Myth of Asia's Miracle." *Foreign Affairs*, November/December: 62-78.

Kuznets, S. 1996. *Modern Economic Growth: Rate, Structure and Speed.* Oxford University Press, Delhi.

Malaysia Department of Statistics .2009. http://www.bnm.gov.my/files/publicatins/msb/2009/2/xls/7.6.xls

Messkoub, Mahmood. 2009. "Economic Growth, Employment and Poverty in the Middle East and North Africa." Employment Sector Working Paper No.19. ILO, Geneva.

Murakami, Atsushi. 1968. "Two Aspects of the Export of Manufacturing Goods from Developing Countries." *The Developing Economies*, 6(3): 261-83.

Nickel, Stephen.1997. "Unemployment and Labour Market Rigidities: Europe versus North America." *Journal of Economic Perspectives*, XI.

Palit, A. 2008. "Policies Responsible for Excessive Use of Capital Relative to Labour in India's Manufacturing Industries." Draft paper, International Labour Office, Geneva.

Papola, T.S. 2008. "Mainstreaming Employment in Economic Policy Making." Unpublished draft, ILO, Geneva.

Pyatt, G. and J.I. Round. 1979. "Accounting and Fixed Price Multipliers in a Social Accounting Matrix Framework." *Economic Journal*, 89 (December): 850-73.

Radwan, S. 2006. "Economic Growth, Employment and Poverty Reduction: Linkages, Challenges and Policies in the MENA Region." Presentation at the ILO-UNDP seminar on "Economic Growth, Employment and Poverty in Middle East and North Africa," Cairo, 20-21 November.

Reserve Bank of India. 2008. *Handbook of Statistics on Indian Economy, 2008.* http://rbidocs.rbi.org.in/rdocs/Publications/Docs/87513.xls

Rifkin, J. 1996. *The End of Work: The Decline of the Global Labour Force and the Dawn of the Post-Market Era*. New York: Penguin.

Riskin, Carl.2010. "Inequality and Economic Crisis in China." In Lopamudra Banerjee, Anirban Dasgupta and Rizwanul Islam (eds.) (2010): *Development, Equity and Poverty: Essays in Honour of Azizur Rahman Khan*. New Delhi and New York: Macmillan Publishers India Ltd and UNDP.

Sharma, Kishor. 2000. "Export Growth in India: Has FDI Played a Role?" Economic Growth Center Yale University Discussion Paper No. 816. Connecticut.

Shukla, Rajesh and Preeti Kakar. 2007. "Consumption Level Up as India Shines." *The Economic Times*, 9 February.

Sinha, R., Peter Pearson, Gopal Kadekodi and Mary Gregory. 1979. *Income Distribution, Growth and Basic Needs in India*. London: Croom Helm.

Stone, J.R. N. 1978. "The Disaggregation of the Household Sector in the National Accounts." Paper presented at the World Bank Conference on Social Accounting Methods in Development Planning. Cambridge, U.K., 16-21 April.

Storm, S. & C.W.M. Naastepad. 2005. "Strategic Factors in Economic Development: East Asian Industrialization 1950-2003."

Development and Change, 36(6): 1059-94.

The Economist, 31 January- 6 February 2009.

Tilakaratna, Ganga, Priyanka Jayawardena and Tushitha Kumara.2006. "Economic Growth, Employment and Poverty Reduction in Sri Lanka." Unpublished study, ILO, Geneva.

United Nations Development Programme. 1993. *Human Development Report 1993*. New York: UNDP.

_____.1996. *Human Development Report 1996: Economic Growth and Human Development*. New York: UNDP.

United Nations Industrial Development Organization.2005. Industrial Statistics Data (Indstat 3), electronic version. UNIDO, Vienna.

World Bank. 1978. *World Development Report 1978*. World Bank, Washington, D.C.

_____.1993. *The East Asian Miracle: Economic Growth and Public Policy*. New York: Oxford University Press.

_____.1998. *World Development Indicators 1998*. Washington D.C: World Bank.

_____.1999. *World Development Report 1999*. Washington D.C: World Bank.

_____.2004. *World Development Indicators 2004*. Online

_____.2007. *World Development Indicators 2007*. Online

Young, Alwyn. 1995. "The Tyranny of Numbers: Confronting the Statistical Realities of the East Asian Growth Experience." *Quarterly Journal of Economics,* 110(3): 641-80.

www.bps.go.id.

www.global.factiva.com/aa/default.aspx?pp=Print&hc=Publication

Appendix: A Brief Description of the Data Used

1. UNIDO data

UNIDO brings out industrial statistics on a periodic basis; "Indstat 3 rev 2" brought out in 2005 is the latest available in that series. Data pertaining to manufacturing industries classified at the three-digit level of ISIC are presented by country, industry and year. Following items are covered by this data set: number of establishments, employment, wages and salaries, output, value added, gross fixed capital formation, number of female employees, and index number of industrial production.

The data cover 28 industries. The period covered ends in 2003, but the latest year for most of the data is 2002. Moreover, the coverage differs across countries and variables; and there are important gaps for a number of countries.

While data from the OECD member countries are first collected by OECD and then provided to the UNIDO, data for non-OECD countries are collected by the UNIDO directly from the national statistical offices of the respective countries.

The data are originally stored national currency values at current prices. The system allows conversion of values from national currency into US Dollars using the average period exchange rates as given in the International Financial Statistics. For purposes of the present paper, all values (both value added and values of fixed assets have been converted into constant prices by using a deflator for the manufacturing sector calculated from data available in World Development Indicators (online).

2. Data used for decomposition of GDP

Data used in Tables 3a and 3b for decomposing GDP growth into productivity and employment growth has been obtained from the database provided by the Groningen Growth and Development Centre and the Conference Board. That database which covers 125 countries of the world is available online at http://www.ggdc.net. The data included in that database are compiled from a variety of well-known international sources, e.g., the World Bank, the regional development banks (like the Asian Development Bank), and the International Labour Organisation.