

ECONOMIC AND PRIVATE SECTOR

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HELPDESK REQUEST

What do empirical studies say about economic growth and job creation in developing countries?

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Table of Contents

1. Overview	5
2. A brief note on the methodology	6
3. Summary of key findings.....	8
3.1. Economic sectors, growth and employment	8
3.2 Growth in industries and impact on employment.....	9
3.3 Economic growth by country classification and impact on employment.....	9
3.4 Policies and institutions	10
4. Disaggregating the impact of economic growth on job creation	11
4.1 By economic sectors	12
4.2 By industries.....	17
4.3 At the country level.....	22
5. Impact of institutions and policies on job creation	24
5.1 Trade policy.....	24
5.2 Labour market institutions and policies.....	27
5.3 Fiscal and monetary policy.....	28
5.4 Investment policy.....	29
5.5. Industrial policy.....	30
6. Data and methodological issues in empirical studies	31
7. References	37

Tables:

Table 1: Growth in economic sectors and impact on employment.....	8
Table 2: Growth in industries and impact on employment.....	9
Table 3: Economic growth and impact on employment by country classification.....	10
Table 4: Impact of policies on employment.....	10
Table 5: Global employment elasticities and value-added growth rates by economic sector, 1991-2003	12
Table 7: Relevance of DFI impacts on employment creation by sector	12
Table 6: Interpreting employment elasticities.....	13
Table 8: Growth rate of value added and employment elasticity in the two decades.....	16
Table 9: Multipliers for Jobs Created	18
Table 10: Performance in growth and employment for selected countries.....	22
Table 11: Long term employment elasticities, by region, income level, and economic sector.....	24
Table 12: Recent Literature on Exports and Level of Employment (2010–12).....	25
Table 13: Fiscal policy measures to increase employment.....	28
Table 14: Investment policy instruments and their effects on employment	29
Table 15: Employment in Special Economic Zones.....	31
Table 16: Pros and cons of assessment methods for job creation effects of DFIs	34

Figures:

Figure 1: Share of employment by economic sectors in Asia	17
Figure 2: Agriculture employment shares and GDP per capita in Sub-Saharan Africa, 2009	21

1. Overview

The helpdesk response reviews the empirical literature to present the evidence on the employment impact of economic growth. The helpdesk request included:

Background:

How economies generate productive jobs and how labour is absorbed are important issues for development. This request is to draw out evidence and lessons from the literature on: how growth is associated with employment at a macro, sector and industry level. The main evidence is expected to be work on macro/sector employment elasticities and industry-specific multipliers that link growth and economic activity with employment. Most papers in this literature also report findings on the effect of policy, institutional and technical factors in increasing or decreasing the extent to which growth transmits into job creation.

Query:

What do empirical studies say about economic growth and job creation in developing countries?

- a) *Disaggregate where possible between:

 - i. Sectors i.e. agriculture, services, industry with further disaggregation where available
 - ii. Industries where available e.g. extractives, agro-business, tourism
 - iii. Country groupings (regional, income) and studies on selected or individual countries. Job problems in countries
 - iv. Identify patterns that emerge for other categorisations of countries such as resource-intensive, coastal, land-locked, small etc.*
- b) *In empirical studies, what institutions and policies (macroeconomic, structural etc) are found to be associated with higher or lower labour absorption, elasticities and multipliers?*
- c) *What are data and methodological issues and qualifications identified within the above studies? Comment on more broadly on the limitations and appropriateness of the methods used in these studies, including the limitations on how elasticities and multipliers should be interpreted.*

The review of empirical literature in this paper¹ highlighted that economic growth is positively associated with job creation. The level and quality of impact is determined by country context, factors that transmit the impact of growth, as well as complementary policies. Section 2 briefly discusses the methodology used to review the literature on economic growth and job creation.

Section 3 provides an overview of the findings, and section 4 provides a discussion of disaggregated impact. We find that growth at the sectoral level has a positive impact on jobs overall, and the level of job creation is determined by the employment elasticity. We find that growth in manufacturing and services has a higher impact on employment relative to agriculture. Furthermore, we find that growth in non-manufacturing, such as agri-business and related industries, positively contribute to job creation.

¹ We would like to thank Pedro Martins for the helpful guidance and suggestion on the relevant literature. We are grateful to Dirk Willem te Velde for kindly reviewing and providing helpful comments. Any remaining errors and limitations are those of the authors.

In section 5 we discuss the impact of macroeconomic policies on employment. We find that the impact of macroeconomic policies on employment depends on the context, for example the level of development, and the presence and interactions with complementary policies. We have also discussed existing debates on policy choices – i.e. which sets of policies produce greatest impact on job creation. We find that context, in particular level of development, coupled with appropriate policy choices to be important determinant on how macroeconomic policies impact job creation.

In section 6 we discuss data and methodological limitations in the studies reviewed. The limitations in the empirical studies relate to the data available, the choice of methodology used for estimation, and the interpretation of employment elasticities in developing countries. On the latter, we have highlighted in this report that elasticities and multipliers only reveal the quantity of jobs created, and not necessarily the quality of jobs. This will need to be taken into account in drawing policy conclusions on the findings of empirical studies.

2. A brief note on the methodology

The search and identification of relevant literature included the following:

- 1) The helpdesk request accompanied a set of literature on the topic.
- 2) We identified further literature sources on the topic by consulting experts on the topic at ODI.
- 3) We employed Google scholar search as well as LSE Summon² to search for literature. The following search fields were used in combination with ‘employment’:
 - a. Economic growth (including agriculture, manufacturing and services); investment policy; fiscal and monetary policy; labour market institutions and policy; industrial policy; trade policy.
- 4) We also used references in key studies on the topic (e.g. Kapsos 2005) to identify additional literature.

In section 3, we have tried to provide a bird’s eye view of the literature. Drawing on the literature, we qualify the ‘impact’ and the ‘body of evidence’, as well as list the key sources. Below we have discussed the parameters for making such qualifications.

Body of evidence:

We draw on the broader principles of DFID systematic review to evaluate the body of evidence. The note proposes summarising evidence in terms of four characteristics (DFID ‘how to note’):

² <http://lse.summon.serialssolutions.com/>

- a. *Quality* - level of peer review for rigor, validity and reliability.
- b. *Size* - more than one study available.
- c. *Context* - studies focusing on developing countries.
- d. *Consistency* - studies pointing to similar conclusions.

We provide three scores for the quality of the body of evidence (high, moderate, low).

Term used	Description
High	when all of the above characteristics are met
Moderate	when more than two are met
Low	when less than two are met

Impact on job creation:

Term used	Description
Positive	Evidence that economic growth/policies have had a positive impact on job creation
Negative	Evidence that economic growth/policies have had a negative impact on job creation
Limited	Evidence that economic growth/policies have a limited impact on job creation
Inconclusive	Conflicting or no evidence on the impact on job creation

Limitations of the review: There are a number of limitations, which need to be noted in drawing conclusions from this review.

- Given standard time constraints of EPS-PEAKS helpdesk response coupled with the scope of the helpdesk request, we have only been able to review a limited number of studies on any particular aspect of economic growth's impact on employment. The above inevitably required a balancing of the trade-off (breadth vs. depth in the literature search and review).
- We assume that we have managed to cover all the important studies on any particular topic discussed in this report. We assume that we have successfully discussed the key technical elements of each of the studies.

Explaining elasticity and multiplier:

The ***elasticity of employment*** with respect to output represents the ratio of proportionate change of employment to proportionate change in output. Simply put it shows the percentage increase in employment in response to a per cent increase in GDP, other factors remaining unchanged. This can be computed at different levels of aggregation - at the global level, country level, sector level, etc. For instance, there is evidence to suggest that growth in the services sector is more employment intensive as compared to agriculture. However, normative assessments cannot be based purely on greater employment elasticity, as there can be trade-off between the number of jobs created and the value added per job. The relationship between employment and productivity growth has

important implications for the structural transformation, growth trajectory and development of an economy. Also, employment elasticity can only estimate the quantity of jobs created, not the quality. Therefore, care needs to be taken in drawing correct policy conclusions from employment elasticity studies.

Job creation multipliers typically assess the number of total jobs created per direct job. The IFC Jobs Study (2013) uses two kinds of multipliers. The indirect jobs multiplier assesses the total jobs created in a client's supply and distribution chain per direct job. The indirect jobs effect is measured as the ratio of the sum of direct and indirect jobs created to the number of direct jobs. Induced jobs capture economy wide effects through jobs created due to increased demand (associated with increased wages). The induced employment effect is measured as the sum of direct jobs, indirect jobs and change in induced jobs divided by the number of direct jobs.

3. Summary of key findings

This section provides an overview of the helpdesk response. Drawing on the methodology discussed above (on qualifying 'impact' and 'evidence'), this section summarises the findings of the review of the empirical studies.

Some important caveats in reading this overview include: Qualification provided for 'impact' and 'evidence' is confined to this review exercise, rather than the broader literature on the topic. Given time constraints (discussed in section 2) the scope of review has been limited (it is a rapid review rather than a systematic review), and hence the qualifications cannot be justified for the literature at large.

3.1. Economic sectors, growth and employment

Table 1 below presents the impact on job creation by economic sectors as well as the extent of the body of evidence and the key studies. We found an extensive 'body of evidence', which suggest that growth in manufacturing and services have positive impact on employment. The impact of GDP growth on employment in agriculture is found to be limited, while value-added growth agriculture sector has relatively a larger impact on employment (see discussion on agriculture in section 4.1).

Table 1: Growth in economic sectors and impact on employment

Economic growth	Impact on job creation	Body of evidence	Key source
Agriculture	Limited	High	<ul style="list-style-type: none"> • Crivelli <i>et. al.</i> 2013 • Vasquez <i>et. al.</i> 2013 • ADB 2013 • OECD 2013 • Kapsos 2005

Manufacturing	Positive	High	<ul style="list-style-type: none"> • Crivelli <i>et. al.</i> 2013 • McMillan and Rodrik 2011 • Mazumdar 2003 • Kapsos 2005
Services	Positive	High	<ul style="list-style-type: none"> • Crivelli <i>et. al.</i> 2013 • IFC Jobs Study, 2013 • Melamed <i>et. al.</i> 2011 • Kapsos 2005

3.2 Growth in industries and impact on employment

Table 2 below presents the impact on job creation by industries/economic activities as well as the extent of the body of evidence and the key studies. For extractives, we found an extensive ‘body of evidence’, which suggest that growth in the sector has limited impact on employment. For textiles, the body of evidence was low, but the studies suggest that growth positively contributed to job creation. For agri-business/food processing, we found the impact growth to be positive. The body of evidence was moderate, as the studies found in this review only provide snapshots on the impact.

Table 2: Growth in industries and impact on employment

Economic Growth	Impact on job creation	Body of evidence	Key source
Extractive	Limited	High	<ul style="list-style-type: none"> • McMillan and Rodrik 2011 • Vazques <i>et. al.</i> 2013 • Rodrik 2013 • OECD 2013
Textiles and leather	Positive	Low	<ul style="list-style-type: none"> • Sutton and Kellow 2010
Agri-business/Food processing	Positive	Moderate	<ul style="list-style-type: none"> • Sutton and Kpentey 2012 • Sutton and Olomi 2012 • ADB 2013 • OECD 2013

3.3 Economic growth by country classification and impact on employment

Table 3 below presents the impact on job creation by growth in countries grouped by country classification. The most extensively available literature has tended to focus on OECD countries and to some extent middle-income countries, where the impact of economic growth has been found to be positive on employment (more discussion in Section 6). We did not find sufficient evidence to draw conclusion on the impact of growth on employment in LDCs. While some have pointed to the positive impact, others have pointed to the limitations. What we found unequivocally is that complementary policies are necessary to ensure economic growth has a positive impact on employment in LDCs.

Table 3: Economic growth and impact on employment by country classification

Economic Growth	Impact on job creation	Body of evidence	Key source
LDCs	Inconclusive	Low	<ul style="list-style-type: none"> • IMF 2012a • Khan 2001 • Khan 2007 • Page 2012
MICs	Positive	Low	<ul style="list-style-type: none"> • Vasquez <i>et. al.</i> 2013
OECD	Positive	High	<ul style="list-style-type: none"> • Bassanini and Duval 2009 • Moure 2004 • Dopke, 2001

3.4 Policies and institutions

Table 4 below presents the impact of economic policies on job creation as well as the extent of the body of evidence and the key studies. In some areas, for example trade, industry and investment, we reviewed literature on policies as well as growth in those areas (see section 5). We only found limited evidence of positive impact on employment from industrial and investment policies. For others, while large body of evidence exists, the precise impact remains contested.

Table 4: Impact of policies on employment

Economic policies	Impact on job creation	Body of evidence	Key source
Trade liberalisation	Inconclusive	High	<ul style="list-style-type: none"> • McMillan and Rodrik 2011 • Winters <i>et. al.</i> 2003 • Fu and Balasubramanyam 2005 • Milner and Wright 1998 • Rama 1994
Labour market flexibility	Inconclusive	High	<ul style="list-style-type: none"> • Cazes and Verick 2010 • Bassanini and Duval 2009 • Rodgers 2007 • Freeman 2007 • Moure 2004 • Blanchard and Wolfers, 2000
Industrial policy	Positive	Moderate	<ul style="list-style-type: none"> • ADB 2013 • McMillan and Rodrik 2011 • Mazumdar 2003
Monetary and fiscal policy	Inconclusive	Moderate	<ul style="list-style-type: none"> • IMF 2012b • Rodrik 2008 • Zepeda 2008
Investment policy	Positive	Moderate	<ul style="list-style-type: none"> • Fu and Balasubramanyam 2005 • Lall 1995

4. Disaggregating the impact of economic growth on job creation

Some general points of interest:

- Khan (2007) finds that employment elasticity in developing countries to be 0.7. He posits that “rapid economic growth is necessary for a high rate of expansion of productive and remunerative employment. Growth in productive employment is limited by the rate of growth in output. Employment growth in excess of the growth rate of output is possible only at the cost of a decline in the productivity of employment which has an adverse effect on the welfare of the poor” (2001: 2).
- Economic growth is good for job creation. But equally important (for jobs) is that growth must increase productive capacity of sectors that have the potential to absorb labour at a large scale. In a review of economic growth and employment in Africa, Martins (2013) finds that economic growth was unable to generate sufficient productive-employment (more on this in the section on extractives below).
- Melamed *et. al.* (2011) review the literature on growth and employment, and highlight the following:
 - Low-skill manufactures are losing their place as the drivers of job creation, while services are becoming more important.
 - As the world becomes less secure, the shift from agriculture to manufacturing is no longer a one-way street.
 - The trajectory from growth to employment to poverty reduction is not automatic.
 - Distinctions between formal and informal sector firms are breaking down.
- While this paper discusses the impact of growth on employment, a recent report by ILO examines a slightly reversed relationship – impact of labour productivity on growth. They find (ILO 2013: 100)
 - Increases in labour productivity within economic sectors are found to be the main driver of economic growth. They find that growth in industry and services, in particular, play an important role on aggregate economic growth.
 - Rather than sectoral re-allocation, productivity increases within the sectors has important.

- Labour market and demographic components of value added per capita growth – the employment-to-population rate, the labour force participation rate and the share of working-age to total population – tend to be less important drivers of growth, but can become important at times.
- The fastest growing regions in the world point to the importance of industrialization in the development process.

4.1 By economic sectors

Kapsos (2005) finds³ that for every 1-percentage point of additional GDP growth, total employment has grown between 0.3 and 0.38 percentage points during the three periods between 1991 and 2003. This implies that around two-thirds of the economic growth realized between 1991 and 2003 can be attributed to gains in productivity, while one-third resulted from increased labour supply. Of the three periods, employment growth was strongest in the period from 1995 to 1999, which was also the period with the strongest global economic growth.

Table 5: Global employment elasticities and value-added growth rates by economic sector, 1991-2003

	Agriculture	Industry	Services
Sector GDP elasticity	0.24	0.21	0.61
Sector value added elasticity	0.41	0.28	0.57
Average annual value-added growth rate (%)	2.0	2.1	3.0

Source: Kapsos 2005

Table 5 above provides a picture of historical global employment elasticities and value-added growth by economic sector (also see table 11 below). This is based on country-level results generated using equation 4 as listed in the source. The GDP elasticity shows the percentage point change in sector-specific employment associated with a 1-percentage point change in overall GDP. The value-added elasticity gives the percentage point change in sector employment associated with a 1-percentage point change in output in the corresponding sector.

Table 6: Relevance of DFI impacts on employment creation by sector

Sector of DFI investment	Direct job effects	Indirect job effects (static and dynamic)	Induced and second order growth effects
Manufacturing such as garments	Very important (but depends on type of manufacturing)	Potentially important	Less important
Tourism	Medium important	Very important	Less important

³ Global Estimates are based on developed economies, transition economies, countries from Asia and the Pacific, Latin America and the Caribbean, Africa and the Middle East. For a complete list see Appendix 1 of the paper (Kapsos, 2005: 30).

Infrastructure	Less important	Mostly temporary	Very important
Agriculture	Very important	Less important	Less important

Source: Massa (2013), Jouanjean and te Velde (2013) and Oikawa and Casadevall (2013).

Beginning with the GDP elasticity, it is clear that at the global level, all three sectors have experienced employment growth over the full period (also see table 7), though the elasticity of services employment to GDP was nearly three times as large as the corresponding figure for agriculture and industry. This implies that at the global level there is evidence of structural change, as employment is being generated in the service sector at a considerably faster rate than in the other sectors. However, this structural change has not been associated with a net loss in jobs in manufacturing or agriculture.

In terms of value-added growth and value-added elasticities, the service sector was both the fastest growing sector and the sector with the most job-intensive growth. Indeed, for every 1-percentage point of growth in service sector value added, employment increased by 0.57 percentage points (while the corresponding growth in productivity was 0.43 percentage points). In the agriculture sector and in the industrial sector, value-added growth has been driven more by gains in productivity than by gains in employment.

Table 7: Interpreting employment elasticities

Employment elasticity	GDP growth	
	Positive GDP growth	Negative GDP growth
$\epsilon < 0$	(-) employment growth (+) productivity growth	(+) employment growth (-) productivity growth
$0 \leq \epsilon \leq 1$	(+) employment growth (+) productivity growth	(-) employment growth (-) productivity growth
$\epsilon > 1$	(+) employment growth (-) productivity growth	(-) employment growth (+) productivity growth

Source: Kapsos 2005: 4

Growth in output can be disaggregated as the sum of growth in employment and productivity. However, a more nuanced understanding of this relationship accounts for the bearing that the value of employment elasticity of output has on the respective contributions of employment and productivity in accounting for output growth. Table 6 sourced from Kapsos (2005) lays out a useful framework for interpreting employment elasticities. The upper left box indicates that for a negative elasticity value, positive GDP growth is associated with a negative impact on employment. This must be accompanied by more than off-setting improvements in productivity to account for GDP growth.

Thus a 2% growth in output and 0.6 % contraction in employment would imply that the increase in economy-wide productivity has been 2.6%. This represents a situation of jobless growth.

The middle left box represents the ideal situation wherein a value of elasticity between 0 and 1 (inclusive) is associated with improvements in both employment and production to account for output growth. However, this also implies a trade-off between the two factors, i.e. a 0.7 employment elasticity value would imply 0.3 productivity share in GDP growth and vice versa. The lower left box represents a scenario where growth induces a reduction in productivity and creates employment. The right hand column presents the reverse outcomes for all of the above values of employment elasticity associated with a contraction in GDP.

Vasquez *et. al.* (2013) finds that the rate of employment in middle-income countries responds favourably to growth in labour-intensive industries. For low income countries, growth in more productive sectors is associated with a slightly greater increase in unemployment, but the differences with less productive sectors are relatively minor.

In the long-run and with specific regards to employment, it does not matter where the growth comes from, what matters most is the ability of workers to move between sectors to benefit from the employment growth generates (Vasquez *et. al.* 2013). Institutional as well as skills mismatch can act as barriers to this mobility (more below).

Agriculture:

The agricultural sector still remains the dominant employment sector in developing countries. How the sector performs has important implications on employment.

“Agriculture remains Africa’s main source of employment with around 60% of its labour force employed in the sector. But its share in GDP is much smaller, accounting for an average of 25%, indicating its relatively low level of productivity and earnings. The size of the sector differs across the continent. In Burkina Faso, Burundi, Ethiopia, Guinea, Guinea-Bissau, Malawi, Mali, Mozambique, Niger and Rwanda, between 80% and 90% of the total workforce are engaged in agriculture. In some of these countries (Ethiopia, Guinea-Bissau, Mali and Niger) agriculture contributes 40% or more to GDP. And in a few other countries (Liberia, Central African Republic [CAR] and Sierra Leone) the agricultural sector contributes around 50% and 70% to GDP (with employment shares of around 60% to 70%). However, in South Africa and in Mauritius employment in the agricultural sector is less than 10% of the labour force and the share of the sector in GDP is less than 5%” (OECD 2013: 28).

The impact of growth in agriculture on employment is likely to differ from other sectors (manufacturing and services) in the following important ways:

- Surplus labour (Lewis dual-economy model) exists in the agricultural sector.
- Labour flows from agriculture to other sectors as output, productivity and wages increase in the latter. Reverse flows are likely to occur only when productivity and wages in agriculture outweigh those in manufacturing and services.
- Increase in agricultural output, *ceteris paribus*, is likely to first reduce underemployment (rather than create new jobs).
- Job creation in agriculture is likely to occur through growth in adjacent industries such as agri-business (discussed below).

Both Asian Development Bank (2013) and African Development Bank (2013) discuss the above assumptions. For instance, in Asia, employment shares in agriculture have been reducing slower than output, which is due to agriculture acting as a sink for labour surplus. The flow of labour from agriculture to other sectors as the economy grows and develops is discussed by Asian Development Bank (2013: 13) as follows: “In the beginning phase, the productivity of agricultural labour starts to increase. Eventually, the productivity rises sufficiently to enable a transition to the second phase—agricultural surplus. The surplus allows industry and services to grow by mobilizing labour, savings, and tax revenues from the agriculture sector. In the integration phase, industry and services become increasingly significant—agricultural development depends on its being progressively linked to the rest of the economy through improved infrastructure and the development of markets. When integration is successfully completed, the economy is deemed industrialized. At this phase, the surplus labour in agriculture has been absorbed by the other sectors of the economy and agriculture’s labour productivity is like that of industry and services.”

Manufacturing:

The extent of employment growth in the manufacturing sector is limited by output growth of the sector. The employment elasticity with respect to output growth is found to vary by region and context. Mazumdar (2003) posits that an important determinant of employment elasticity in the manufacturing sector is the way the outcomes of growth are distributed between employment growth and wage growth. He argues that two factors influence the quantitative dimension of this trade-off: (i) the elasticity of the wage bill with respect to output, which determines the trends in the share of labour, and (ii) the price effect, depending partly on the rate of inflation and partly on the movements of producer prices relative to consumer prices.

Using the UNIDO database, Mazumdar groups countries into four regions (East Asia, Sub-Saharan Africa, Latin America and OECD). He finds big variations in employment elasticity for the four regions considered (see: table 7 below). Two regions, OECD and Latin America, had negative employment

elasticity for the periods analysed, revealing that employment reduced even though manufacturing output increased⁴. Sub-Saharan Africa had very high employment elasticity during the 1971-80 periods, suggesting that increases in manufacturing output led to substantial increase in employment. He discusses that the variations observed are the 'revealed preferences' for the trade-off (employment/wage increase). So, while in OECD and Latin America, manufacturing growth led to wage increases, in Sub-Saharan Africa and East Asia it was employment increases. He finds that all regions were negatively affected by the price-effect, which was further magnified by inflation.

Table 8: Growth rate of value added and employment elasticity in the two decades

Region	Rate of growth of value added		Employment elasticity	
	1971-80	1981-92	1971-80	1981-92
East Asia	10.72	11.05	0.54	0.39
OECD	3.30	3.77	-0.07	-0.08
Latin America	1.89	1.83	-0.07	-0.43
Sub-Saharan Africa	0.93	4.73	4.72	0.86

Source: Mazumdar 2003: 572

Padalino and Vivarelli (1997) contrast the employment intensity of overall and manufacturing output in the G7 countries in the Fordist era (1960-1973) with the post-Fordist era (1973-1994). They find divergent trends in the sensitivity of long run output growth and manufacturing to employment in the post-Fordist period, with the latter category exhibiting negative elasticity coefficients for all countries except Japan. There is in fact a tendency for greater intensity of employment with respect to GDP compared with the Fordist era (in spite of slower GDP growth). The authors attribute these developments to a greater contribution of the services sector to output, which is more employment-intensive than industry. A striking inference from this evidence is that targeting growth specifically in the manufacturing sector had limited impact on direct employment generation. On the contrary they find evidence of positive evolution of employment with respect to both GDP and industrial output in the short run for the whole period.

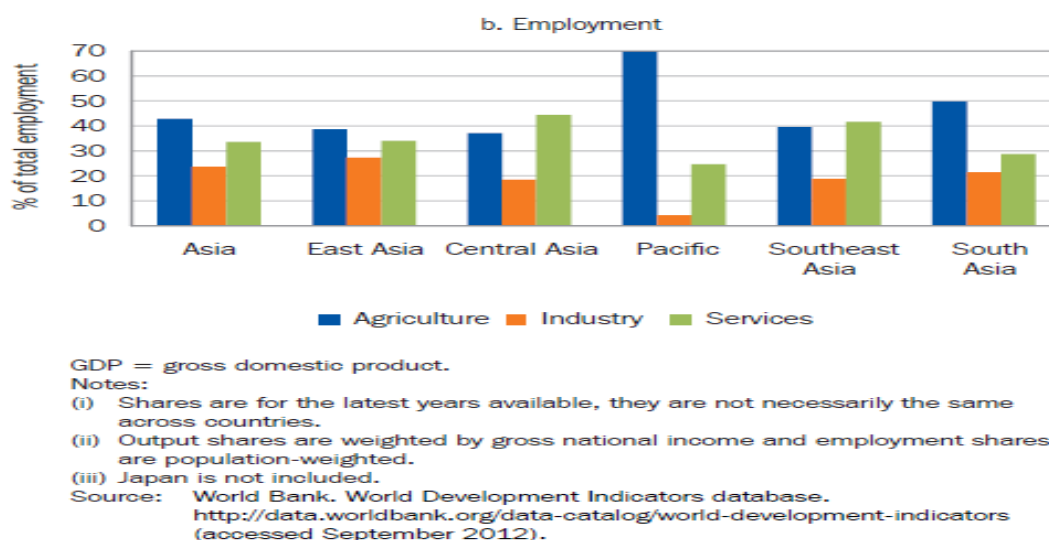
Services:

A number of empirical studies (e.g. Padalino and Vivarelli 1997; Döpke 2001; Mourre 2004) find higher relative employment intensity in the services sector. For instance, examining employment growth in the Euro area, Mourre (2004: 18) states that "the share of sectors with high employment growth (i.e. market-related services, such as trade, repairs and financial and business services) was much higher at the start of the economic expansion of the late 1990s than at the beginning of the boom of the late 1980s. Those sectors are characterised by a strong economic growth, high

⁴ Also see: Bhalotra (1998). Bhalotra has analysed and provided explanation for jobless manufacturing growth in India.

employment intensity or both. The strong employment growth in market-related services is broadly attributable to a very strong value-added growth. Job intensity of growth, measured by the ratio of employment to value-added growth, appears to have been very high (1.4) in financial, real estate renting and business services in 1997-2001.”

Figure 1: Share of employment by economic sectors in Asia



Source: ADB (2013)

The growth in the services sector has positively contributed to employment in developing countries (see: ADB 2013; OECD 2013). The services sector is one of the fastest growing and most dynamic in developing countries, and remains the key driver of job creation. In Asia, services accounts for almost 50% of the gross domestic product. It is also the largest employer, at par or after agriculture, in most of South Asia (see: figure 1). The IFC Jobs Study (2013) finds that the share of employment in services is increasing in all regions. It is estimated that employment in the services sector increased on average by 4 per cent, between 2000 and 2011. The only exception to this observed trend is in North Africa, where growth in the share of employment in services sector has remained stagnant.

4.2 By industries

Below we discuss the employment contribution of industries in developing countries drawing on case studies supporting the IFC Jobs Study (2013), and the publications of the International Growth Centre’s Enterprise Mapping Project. The IFC studies use an input-output tables as well as interviews with key suppliers/distributors to estimate job creation multipliers. However the multipliers used differ from that used in this study, as they assess the number of indirect jobs created per direct job. The delineation between direct, indirect and induced jobs is useful to capture inter and intra sectoral linkages, i.e. jobs generated in the distribution and supply chain of the relevant sector and employment effects on the rest of the economy. This disaggregation could be a useful supplement

to the conventional employment elasticity of output multiplier. The Enterprise Mapping surveys provide invaluable insights into the development of industrial capabilities in select African economies. A pertinent trend emerging from these studies is the growing contribution of agribusiness to formal sector employment in the countries discussed, namely Ethiopia, Ghana, Tanzania and Zambia.

IFC Micro Case Studies

Table 9 below summarizes findings from various micro case studies conducted by the IFC in projects ranging across industries. The multiplier here reports the number of incremental indirect jobs per direct job created⁵. Kumar and Abdo (2012) emphasize that these multipliers reflect regional and sectoral variations, differential labour intensity of operations and labour regulations. They recommend focussing on *total jobs provided* instead, as an indicator of the employment intensity of the respective projects. SAFAL (Steel) owns manufacturing subsidiaries in Kenya, Uganda, Tanzania and South Africa and nine roll-forming centres. The basis for computing incremental job creation in this project was an injection of \$35 million by the IFC in 2007 for the expansion of steel coating capacity. The study reports a multiplier of approximately 6 indirect jobs created per direct job supported by SAFAL.

In 2004 and 2005 the IFC made significant financial contributions to Ecogreen, a chemicals industry in Indonesia to support working capital needs and expansion plans (Batam manufacturing facility). Using this investment as a basis for measuring incremental jobs provided, the study finds that 21 indirect jobs were created for every direct job. Mriya (Ukraine) and Pran (Bangladesh) are both agribusiness industries wherein the former is an agricultural group producing diverse crops such as wheat, corn, rapeseed, buckwheat, potatoes and sugar beets and the latter specializes in dairy products. OCL is a cement firm in Orissa in East India wherein the IFC has financially supported establishment costs and capacity expansion. The study reports a very high multiplier in this case with approximately 24 indirect jobs generated per every direct job.

Table 9: Multipliers for Jobs Created

	Direct Jobs	Indirect Jobs	Multiplier ⁶	Sector, Country
Mriya	2505	7390	3	Agribusiness, Ukraine
PRAN	294	2198	7	Agribusiness, Bangladesh
Ecogreen	177	3646	21	Chemicals, Indonesia
OCL	293	7156	24	Cement, India
SAFAL ⁷	4200	24000	6	Steel, Africa

⁵ For a discussion of the strengths and weaknesses of the Input-Output methodology refer to section 3.2 of Kapstein *et. al.* 2012.

⁶ The multiplier here reports the number of incremental indirect jobs per direct job created, except in the case of SAFAL.

Source: Kumar and Abdo 2012

Macro Perspective of Industrial Production for Select Economies

Agri-business in Ethiopia:

Industry in Ethiopia is led by agribusiness, manufacturing and construction (Sutton and Kellow, 2010). 78% of Ethiopia's exports are dominated by primary sector industries such as coffee, oilseeds, khat (chat), etc. However, three fourths of the remaining (and growing) exports are accounted for by four industries: cut flowers, leather, meat and meat products, and clothing and textiles. Industries for both export and domestic production are dominated by a handful of large and mid-size firms, albeit reliable data on domestic production and sales are difficult to find. Two developments are of considerable import in the composition of exports from 1997-2007- a substantial decline in leather exports and an offsetting growth of the floriculture industry. However coffee remains the country's leading export contributing about 35% of total foreign exchange earnings and 25% of GDP, generating a considerable number of jobs on-farm, in processing plants and in the transport sector. Other important industries include oilseeds and pulses and textiles and garments, where the latter industry is one of the largest employers in Ethiopia, with 35,000 direct employees (and approximately 500,000 workers engaged in the informal hand-loom weaving sector).

Agri-business in Ghana:

Ghana has exhibited accelerated growth in the period 2000-2009 with GDP per capita rising by 63% (Sutton and Kpentey 2012). Recent discoveries of oil will lend further support to Ghana's growth record albeit its sustainability depends on the development of adequate industrial capabilities. Ghana's industrial sector is led by agribusiness, manufacturing and construction. 83% of its exports come from three primary-sector industries: gold, cocoa and bauxite. Of the remaining 17%, over half is accounted for by five industries: metal and metal products, wood and wood products, plastics and rubber, fats and oils, and the pharmaceuticals, cosmetics and related group.

The agricultural sector plays a key role in the economy of Ghana contributing 60% of formal and informal employment and approximately 35% to GDP in the past five years. However, the growth of the agribusiness sector in the country is constrained by the capacity of production in the agricultural sector which currently produces only 30% of the raw materials needed by its agro-based industries. In spite of governmental intervention there are few large-scale processing facilities in this sector apart from those used for processing cocoa. Ghana's cocoa industry is the world's second largest

⁷ For SAFAL, the multiplier was calculated using total jobs provided instead of incremental jobs owing to difficulties with attribution.

producer and accounts for about 3.4% of Ghana's GDP and 28% of exports. It offers direct and indirect employment to over two million people. It is anticipated that the non-alcoholic beverages industry will grow rapidly over the next five years in response to growing demand and entry of new players in the market. Infrastructure projects sponsored by the government dominate the building and construction industry; however there has been some slowdown in recent years. Notably the chemicals industry which produces basic chemicals, petrochemicals, fertilizers, paints, gases, pharmaceuticals and dyes employs over 25% of Ghana's industrial workforce.

Food processing in Tanzania:

Tanzania's sustained positive growth record over the past decade can be attributed to both its agricultural and industrial sectors (Sutton and Olomi 2012). Rising exports can be accounted for by diverse products such as tobacco, processed fish, textiles (curtains), steel, flour and cut flowers (manufacturing exports grew by a factor of 4.0 between 1997 and 2010). Gold, which was a negligible contributor to Tanzania's exports 20 years ago, is now a leading export product. Gold, cashews, and fish processing jointly account for 42% of total export revenues.

The food processing sector accounts for about a quarter of all registered enterprises. It contributes to 56% of total employment in manufacturing. The sector comprises of the following industries- beverages, sugar processing, milk processing, edible oil production, fish processing, grain milling, tea and coffee, and bakeries and confectionery. Coffee is a significant exchange earner, employing an estimated 2 million people either directly or indirectly. The Tanzanian edible oil sector engages over three million rural residents, primarily farmers (inclusive of informal activities). The beverage industry comprising of alcoholic and non-alcoholic drinks employs a total of 12,593 people and exported goods worth US\$2.7 million. It is estimated that Tanzania's tobacco industry provides employment, directly or indirectly, for about 500,000 people.

Manufacturing in Zambia:

Zambia's growth record in the past decade boasts an impressive 50% increase in manufacturing output, an eight fold increase in manufacturing exports and an 80% increase in output per capita (Sutton and Langmead 2013). While copper (Zambia is the Africa's leading producer of copper) played a key role, other major sectors in the economy also contributed towards this increase in output. According to the African Economic Outlook (OECD 2013), growth in Zambia was driven by expansion in agriculture, construction, manufacturing, transport and finance. The construction sector was a key driver recording a four-fold expansion in the past decade.

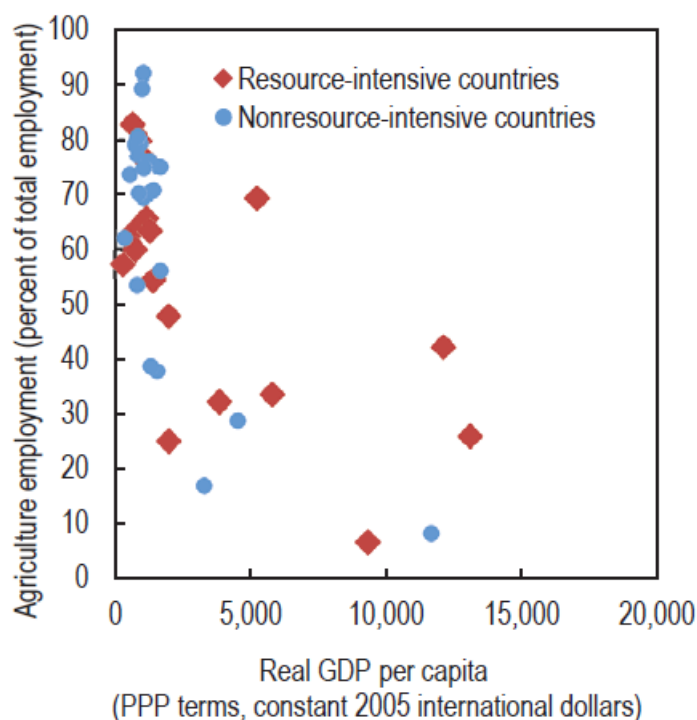
The industry is one of Zambia's largest employers with between 13,000-15,000 workers at present (Sutton and Langmead 2013). Primary contributors to the substantial increase in manufacturing

exports came from metals and related products, chemicals, textile fibres and tobacco. The agricultural sector contributes about 7% to GDP growth and employs 85% of the workforce, primarily in subsistence farming. The sector is characterised by very low productivity, only 5% contribution to merchandise exports and few linkages with manufacturing. The agribusiness sector comprises of horticulture and floriculture, animal feed, coffee, dairy, edible oils, fish, livestock, maize, milling, seed, sugar, tea and tobacco. Sugar is one of Zambia's largest exports and provides employment for about 11,000 workers with the total number of dependents probably exceeding 75,000.

Extractives:

Rodrik (2013: 25) argues that the natural resource sector can be thought of as a special kind of manufacturing: a sector that converges very rapidly to the global frontier as it utilizes off-the-shelf, imported technology but has very little ability to absorb labour because it is highly capital- and skill-intensive. Natural resource industries tend to have minimal upstream and downstream linkages to rest of the economy, and therefore produce few positive economy-wide spill-overs. The income the sector generates comes in the form of rents and accrues to the state, a small group of (often foreign) investors, and a few privileged workers. Mining and other natural resource activities can produce very rapid growth in the boom stage, but at the cost of a highly skewed distribution of income. When the resource boom ends— because of resource depletion or a downturn in the terms of trade—there is often a collapse in economic activity.

Figure 2: Agriculture employment shares and GDP per capita in Sub-Saharan Africa, 2009



Source: IMF 2012a

A recent report by IMF (2012) finds that growth in natural resources sectors have not led to increases in employment. As seen in Figure 2 above, the share of employment in agriculture in natural resource exporting countries are similar to those that are not rich in resources. Natural resource exports have dramatically changed outputs, but they have had little impact on the composition of employment. The report argues that “the discovery of non-renewable resources has catapulted these economies up the per capita ladder without (for the time being) producing the kind of structural transformation typically associated with economic growth” (IMF 2012a: 66).

4.3 At the country level

Literature on economic growth and employment, and in particular estimation of employment elasticity, in least developed countries and Small Island developing states were hard to come by. This may be due to lack of employment data for such countries. Much of the econometric studies on economic growth and employment tend to focus on OECD and middle-income countries. We were able to find limited studies, which have been discussed below.

The most useful study for this review, on that includes both MIC and LDCs, was the one by A. R. Khan. In reviewing the growth and employment performance of a number of developing countries, Khan (2007) finds that growth overall has had a positive impact on employment. Moreover, he finds three distinct patterns employment growth (Khan 2007: 9 – 10):

1. Classical industrialization envisages a rapid increase in employment in industries and other modern activities, leading to a quick fall in agriculture’s share of employment, which soon translates into an *absolute* fall in employment in agriculture.
2. Reduction in agricultural underemployment, not by the classical expansion of industrial employment, but by the rapid expansion of remunerative and productive employment.
3. An increase in agriculture’s share of employment when industries and related modern activities failed to absorb labour, or even reduced the number employed. This is a perverse trend from the standpoint of development theory.

Table 10: Performance in growth and employment for selected countries⁸

Country	Growth	Employment
Bangladesh	Moderate	Fairly rapid growth
India	High	Increased employment. Growth still slow.
Nepal	Slow	Uncertain; probably slowing down of

⁸ The information has been compiled using UNDP country case studies on macroeconomics of poverty reduction and ILO/SIDA cases studies on growth-employment-poverty nexus.

		growth
Cambodia	High but narrow	Rapid growth in narrow sectors; slow overall
China	High	Growing slowly
Indonesia (pre-crisis period)	High	Growing rapidly
Indonesia (post-crisis period)	Slow	Slow growth; fell in formal sector
Mongolia	Slow & partial recovery from deep fall	Fell in industries; labour moved into agriculture
Vietnam	Rapid	Slow growth in industries and modern sector
Ethiopia	Slow	Slow growth in industries, negative in agriculture (data implausible)
Uganda	Moderate until 2000; slow since	Slow growth in industries. Agriculture absorbed a lot of labour with falling productivity per worker
Armenia	Sharp fall till 1993; moderate but incomplete recovery since	Fall in industries & services; rise in agriculture
Kyrgyzstan (recovery period)	Slow	Fell in industries & most services; sharp rise in agriculture
Bolivia	Slow (fall in per capita income since 1999)	Rapid growth till 1997, slow thereafter

Source: Khan 2007: 6

Crivelli *et. al.* (2012) have calculated employment elasticity by region, income levels and economic sectors (see table 11 below). Cross-sectoral comparison suggests that growth in industry and service is more employment-intensive than agriculture in upper-middle-income and high-income-countries (also discussed above). Employment elasticity also increases in all economic sectors as economies become more industrialised. Furthermore, Crivelli *et. al.* (2012: 13) find the following:

1. Point estimates of elasticities typically fall in the 0–1 range, with the majority of them ranging between 0.3 and 0.8;
2. Elasticities vary considerably across regions, income groups, and production sectors, with the highest estimates typically recorded for the most economically developed regions, and in industry and services sectors;
3. Structural policies aimed at increasing labour and product market flexibility and reducing government size have a significant and positive impact on employment elasticities;
4. Macroeconomic policies aimed at reducing macroeconomic volatility have a significant and positive impact on employment elasticities; and

5. In order to maximize the positive impact on the responsiveness of employment to economic activity, structural policies have to be complemented with macroeconomic policies aimed at increasing macroeconomic stability.

Table 11: Long term employment elasticities, by region, income level, and economic sector

	Total 1	Total 2	Agriculture	Industry	Services
by region					
East Asia and Pacific	0.27	0.26	0.35	0.27	0.25
Western Europe	0.64	0.64	0.55	0.62	0.65
Eastern Europe and Central Asia	0.23	0.29	0.29	0.34	0.29
Latin America and the Caribbean	0.16	0.17	0.15	0.19	0.17
Middle East and North America	0.08	0.25	0.36	0.30	0.20
Oil exporters	0.09	0.25	0.34	0.39	0.24
Oil importers	0.09	0.39	0.41	0.32	0.14
South Asia	0.99	0.97	1.01	1.04	0.92
Sub-Saharan Africa	-0.02	0.36	0.47	0.30	0.34
North America	0.81	0.87	1.01	0.85	0.77
Australia and New Zealand	0.80	0.80	0.69	0.74	0.83
by income group					
Low-income economies (\$1005 or less)	0.02	0.19	0.33	0.18	0.23
Lower- middle-income economies (\$1006 to \$3975)	0.10	0.24	0.26	0.25	0.24
Upper-middle-income countries (\$3976-\$12,275)	0.18	0.25	0.24	0.26	0.23
High-income economies (\$12,276 or more)	0.46	0.49	0.48	0.50	0.49

Note: Total 1 estimate based on full sample; Total 2 estimate based on a restricted sample for which observations for employment in each economic sector (agriculture, industry and services) are available.

Source: Crivelli et. al. 2012: 22

5. Impact of institutions and policies on job creation

5.1 Trade policy

There exist a large volume of studies that have examined the impact of trade liberalisation on employment. While some have pointed to the positive impact on employment from trade liberalisation (see: Papageorgiou *et. al.* 1990), others have questioned the employment related benefits from trade liberalisation (McMillan and Rodrik 2011). For instance, a study on the employment impact of Madagascar export growth found: (1) large majority of the poor do not have the necessary skills to benefit from new employment opportunities, and (2) most of the poor reside in the rural areas where the impact is minimal (Nicita 2006).

A recent report by te Velde *et. al.* (2013) on exports and levels of employment⁹ summarise the important literature on the impact of trade and trade policy on employment (see: table 12).

Table 12: Recent Literature on Exports and Level of Employment (2010–12)

Study	Key Questions	Data Sets	Techniques	Results
Chen, Xikang <i>et. al.</i> (2012) “Domestic value added and employment generated by Chinese exports: A quantitative estimation”, <i>China Economic Review</i> , 23(4):850-864.	Estimate how Chinese exports affected the country's total domestic value added (DVA) and employment	China's unpublished government data, 2002 and 2007	Input–output analysis	For every US\$1000 dollar of Chinese exports in 2007 (2002), DVA and employment are estimated to be US\$591 (US\$466) and 0.096 (0.242) person-year, respectively.
Aswicahyono, Haryo <i>et. al.</i> (2011) “Exports and Employment in Indonesia: The Decline in Labour-Intensive Manufacturing and the Rise of Services”, <i>ADB Economics Working Paper Series</i> , No.279.	Study the relationship between exports and employment	Indonesia's input-output tables, 1995-2005	Input–output analysis	Fewer jobs were created through exports in manufacturing industries in 2005 than before the crisis, because of slower growth in manufacturing exports and a shift away from light industry. Main constraints to job creation through exports appear on the supply side, especially those related to poor infrastructure, an uncertain investment climate, and tight labour regulations.
Fukase, Emiko (2013) “Export Liberalization, Job Creation, and the Skill Premium: Evidence from the US–Vietnam Bilateral Trade Agreement (BTA)”, <i>World Development</i> , 41(Jan):317-337.	How the expansion of labour-intensive manufacturing exports resulting from the 2001 US–Vietnam BTA affected changes in wages in Vietnam	Vietnam's data on panel individuals from the Household Living Standards Surveys of 2002 and 2004	Instrumental variables	One unit increase in the change in the Export Index and in the Export US Index is associated with 3.3 percentage point and 4.5 percentage point lower increases in the growth rate of the skilled/unskilled wage ratio, respectively
Kiyota, Kozo (2012) “Exports and Jobs: The Case of Japan, 1975- 2006”, <i>Contemporary Economic Policy</i> , 30(4):566-583.	How much employment is created by increasing goods and services exports	Japan's 108 industries between 1975 and 2006 from Japan Industrial Productivity (JIP) database	Input-output analysis	The contribution of exports to total employment increased rapidly after 1990. The share of implied employment caused by exports increased from 6.4% in 1990 to 9.9% in 2006, 7.5 percentage points of which come from goods exports, the remaining 2.5 percentage points coming from services exports.
Yaprakli, Sevda <i>et al.</i>	Study the	Iran's annual	Regressions	Increasing non-oil exports

⁹ Jansen, M. and Lee, E. (2007) is another source for a summary on the empirical evidence on the impact of trade and trade policy on unemployment in developing countries.

(2012) "Non-oil exports and employment in Iran during 1980 to 2009", <i>African Journal of Business Management</i> , 6(45):11249-11253.	relationship between unemployment and non-oil exports	statistics from the Central Bank, 1980-2009		lead to increase in employment and reduced unemployment during the study period.
Were, Maureen (2011) "Is There a Link Between Casual Employment and Export-Oriented Firms? The Case of Kenya's Manufacturing Sector", <i>The Review of Black Political Economy</i> , 38(3):227-242.	Analyse the rise in casual employment in Kenya's manufacturing sector in relation to firms' export orientation	Kenya's firm-level data from food, textile, wood and metal in 1993-5 and 2003	Regressions	No strong evidence of exporting significantly influencing the proportion of casual workers employed by firms.
Van Huong Vu (2012) "Does export participation affect wages and employment quality? the case of Vietnamese SMEs", <i>University of Munich's Unpublished Paper</i> .	Does export participation affect wages and employment quality?	Vietnam's SMEs' matched firm-worker panel dataset between 2007 and 2009	Regressions	Export participation continues to yield a positive impact on the share of casual worker in low tech sectors. However, a negative effect on employment quality is observed in high tech industries.
Wei, Hao (2011) Empirical Analysis on Relationship between China's Textile Industry's Export and Employment, <i>Journal of International Trade</i> . [published in China]	Relationship between the textile industry's export and its employment	China's textile industry, 1980-2007	n.a.	Employment will increase 0.68% if export increases 1% in the long-term. Employment will increase 0.48% if exports increase 1% in the short-term.
Lu, Wen-cong and Yuan-long Li (2011) "Effects of Chinese Export Growth on Employment: a CGE Model Analysis", <i>Journal of International Trade</i> . [published in China]	Effects of Chinese Export Growth on Employment	n.a.	CGE model	Export increase by 1% leads to non-agricultural employment growth by 0.088%
Feriyanto, Nur (2012) "Employment Effect of Indonesia's Non-oil Export", <i>Economic Journal of Emerging Markets</i> , 2(2):211-221.	Employment Effect of Indonesia's Non-oil Export	Indonesia's time series data, 1990-2009	Path analysis	Non-oil exports have a significant positive impact on labour absorption. The coefficient is 0.203 (Unstandardized) or 0.852 (Standardized)

Source: te Velde et. al. 2013: 9

Cross-border labour mobility¹⁰ has been an important source of employment in developing countries, where few such opportunities exist¹¹. Evidence suggests that temporary, cross-border labour mobility is vital source of employment (Jones and Basnett 2013). This is particularly the case in small island developing states, where enlarging domestic employment sources are limited and constrained (see: Winters *et. al.* 2003; Winters and Martins 2004).

5.2 Labour market institutions and policies

Labour market institutions (by altering incentives, by facilitating efficient bargaining, and by increasing information, communication, and trust) can have important implications on economic outcomes including employment (Freeman 2007). The optimal institutions for job creation, however, remains heavily debated. Two issues, supported by a large body of empirical analysis, define the debate on the impact of labour market policies on job creation.

On the one hand, it is argued that flexibilities in the labour market help facilitate job creation¹² (Blanchard *et. al.* 1999). Layard *et. al.* (1994), discussed in Freeman (2007), posited that market-oriented labour policies that reduce/increase distortions in setting wages and negotiating contracts were favourable/unfavourable for overall jobs creation. Applying legal theory and using quantitative analysis to 85 countries, Botero *et. al.* (2004) argues that stringent labour regulations are associated with higher unemployment. Comparisons between Europe (relatively higher labour market rigidities and unemployment) and North America (relatively lower market rigidities and unemployment) are presented as cases of the implication of labour market rigidities on job creation¹³. The studies that have supported such conclusions have been questioned on methodological grounds, and it has been argued that there is little evidence to support the assertion that policies defined as creating labour market rigidities have a negative impact on employment (see: Freeman 2007).

On the other hand, it has been argued that certain measures of employment protection can safeguard against job destruction in times of crisis (Auer and Cazes 2003; Rodgers 2007). Kapsos (2005) finds that high taxes on labour tend to lower employment intensity, particularly for women, but no evidence was found regarding a link between employment rigidity (employment protection) and the job intensity of growth. While there is an emerging consensus that there needs to be a balance between labour market flexibility and employment security, what is the right balance and

¹⁰ Cross-border labour mobility is part of broader trade policy. It is referred to as Mode IV in the WTO's General Agreement in Trade in Services.

¹¹ Also see: Chapter on labour migration in the 2013 European Report on Development. http://www.erd-report.eu/erd/report_2012/documents/chapters/Chapter9-People_Labourmigration.pdf.

¹² Also see: Layard, R., Nickell, S. and Jackman, R. 1994. *The Unemployment Crisis*. Oxford, UK: Oxford University Press.

¹³ See: OECD. 1994. *OECD Jobs Study, Evidence and Explanations*. Paris: Organisation for Economic Cooperation and Development.

one that is suitable for developing countries, remains inconclusive. Cazes and Verick (2010) argue that Europe's *flexicurity*¹⁴ provides a lighthouse agenda for balancing labour market flexibility and efficiency as well as employment security (also see: De Gobbi 2007). Fox and Oviedo (2008) examine the impact of employment protection legislations (EPL) in Sub-Saharan Africa, and find no conclusive evidence on the impact on job creation. They argue that job creation is associated more strongly with policies that address binding constraints and increases levels of productivity.

5.3 Fiscal and monetary policy

Fiscal and monetary policies¹⁵ can have important impacts on unemployment rates. For instance, counter-cyclical policies can increase aggregate demand, which in turn help increase output and employment. In examining the experience of Mexico, Zepeda (2008: 5) posits slow growth and uncompetitive exchange rates do harm employment creation. The alternative pro-employment policy is to adopt a macro-policy stance conducive to growth, which includes adopting counter-cyclical fiscal policies and sustaining a competitive exchange. Similarly, Rodrik (2008) argues that countries that maintain competitive or undervalued currencies tend to experience more growth-enhancing structural change. This is in line with other work that documents the positive effects of undervaluation on modern, tradable industries. Undervaluation acts as a subsidy on those industries and facilitates their expansion as well as that of employment. An IMF (2012b) paper discusses the fiscal policy measures that can be taken to increase employment (see table 11).

Table 13: Fiscal policy measures to increase employment

Fiscal Policy Measures		
	Expenditure policy	Tax policy
Policies to increase labor demand	<ul style="list-style-type: none"> • Implement hiring and wage subsidies • Introduce employment support schemes • Implement public work programs 	<ul style="list-style-type: none"> • Reduce labor taxes (fiscal devaluation: shifting from labor to consumption taxes) • Lower business taxes
Policies to increase labor supply or facilitate matching	<ul style="list-style-type: none"> • Expand effective ALMPs • Tighten eligibility criteria and job search requirements for social benefits • Reduce the duration and level of social benefits when too high • Increase child-care subsidies • Increase effective retirement age • Strengthen rules for disability pensions 	<ul style="list-style-type: none"> • Reduce labor tax wedge, targeted to: <ul style="list-style-type: none"> • Women/secondary earners (moving from family taxation to individual taxation) • Older workers (earnings tax credits) • Low-skilled workers (tax relief to and in-work tax credits)

Source: IMF 2012b

¹⁴ It seeks to balance flexibility for enterprises with protection (income and social) for workers at the societal level. See Cazes and Verick (2010) for full discussion.

¹⁵ For further discussion on real exchange rate, monetary policy and employment see: http://www.networkideas.org/networkideas/editorfiles/file/Frenkel_Taylor.pdf

5.4 Investment policy

Investment has a positive impact on employment; however, the impact will be transmitted not only by the quality of investment but also the sectors where the investment flows. In other words, the employment impact of investment will be greatest when it can expand output and productivity in sectors/industries that absorb surplus labour. By generating economic activity, it can also contribute to indirect job creation.

In examining the experience of China, Fu and Balasubramanyam (2005), find that foreign direct investment (FDI) in China, geared towards exports, had positive impact on employment. Export-led 'township and village enterprises' (TVE), (which were mainly funded by FDI), were central drivers for large job creation in China. Through econometric analysis they find that "with a total number of employees of 125.4 million for the year 1998 in the township and village enterprises, a one per cent increase in total exports would have created about 213,000 job opportunities in this sector. During the 1998 to 2003 period, TVEs' exports grew at 15.5 per cent per year on average. For a country such as China with a large volume of unemployment, this means about 3 million job opportunities every year in the TVE sector fuelled by its fast export growth" (Fu and Balasubramanyam 2005: 623).

FDI that builds productive capacity is likely to generate large employment opportunities. Such investments arrive via transnational cooperation, and policies governing their investments and activities will influence the effect on employment. Moreover, Sanjay Lall argues that "Though the employment effects of FDI depend very much on policies directly affecting foreign investors [see table 14], it is arguable that they depend even more on economic management, private sector development, trade and industrial policy and supply-side measures" (Lall 1995: 525).

Table 14: Investment policy instruments and their effects on employment

Areas of Policy	Instruments of policy	Employment effects and policy requirements
FDI	Quantity of FDI	Large quantity of FDI will lead to higher employment, unless it crowds out substantial local investment. Essential to have stable, transparent and non-discriminatory FDI regime.
	Sectors/activities open to TNCs	Initially, FDI in labour-intensive operations will create more employment. But over time, TNCs will need to move into more complex technologies to promote higher quality employment. A targeted promotion strategy is called for.
	Mode of entry	Greenfield investments are likely to lead to more employment creation initially, but takeovers may be beneficial if new technologies, skills and export result.
	Tax and other incentives	Tax incentives may increase FDI in the short term although long-term FDI depends more on economic fundamentals. Targeted incentives can be useful in guiding TNCs to particular activities, technologies and skills, and achieving beneficial "deep" integration and alliances
	Performance	TNC performance requirements set by host countries can raise the

	requirements	quantity and quality of local employment, but could deter TNC entry if imposed rigidly; setting them by negotiations is preferable.
	Extent of local participation required.	Insistence on local participation in FDI may increase diffusion of technology and skills, but may deter investment in technology and export-intensive activities. It may be preferable to build up local enterprises' competitive capabilities and to encourage strategic alliances with TNCs.
Trade and Industry	Export incentives	Initially, strong export incentives and facilities offered within export-processing zones can promote FDI in labour-intensive activities. Later they can also be used to encourage upgrading into high-skill activities. Formation of regional trading areas can attract FDI into export activities to serve these markets.
	Local content rules	Local content rules can increase local linkages and indirect employment and skills, but can be counter-productive if forced too far. They need to be carefully managed to promote diffusion of technology and skills by TNCs.
	Protection offered against imports	Selective infant-industry protection is required to foster entry into complex industries. However, excessive protection holds back growth and competitiveness and, in the long run, improvement in the quantity and quality of employment.
	Employment of foreigners permitted	Ease of employment of expatriates may be necessary to attract FDI and support TNC upgrading in the short term, but local employees need to be encouraged in order to promote higher-quality employment.
	Location regulations and incentives	Location incentives can be used to promote employment generation in less congested areas, subject to realizing economies of agglomeration.
Supply side	Physical infrastructure	Investment in infrastructure is needed for direct and indirect employment generation by TNCs and by local competitors and suppliers.
	Human resources	Increased supply of skills may be required to maintain employment growth and FDI as the industrial structure is upgraded. Interaction with education/training institutions and investment in local training need to be encouraged.
	Science and technology system	Technology support systems may need to be improved as the industrial structure is upgraded to support local suppliers, R&D quality and diffusion of technology. Use of the local science and technology system needs to be encouraged.
	Local suppliers/subcontractors	Promotion of local suppliers, especially small and medium-sized firms, by supportive measures and the provision of incentives to increase local purchases by TNCs.

Source: Lall 1995: 526

5.5. Industrial policy

The section 4.1 on manufacturing, section 4.2 on industries and section 5.4 have discussed elements of industrial policy and its impact on employment. In addition to industrial policies discussed above, special economic zones have been an important source of job creation. For instance, SEZ and industrial clusters were critical in China's economic success (Zeng 2011). There are 3,000 SEZs in 135 countries, and account for over 68 million direct jobs and over \$500 billion of direct trade-related value added within zones (FIAS 2008).

While they have played an important role in job creation in Asia, their impact on employment in Africa has been limited. 1 million SEZ jobs were found in 91 SEZs in 20 SSA countries, about 0.2% of national SSA employment (see table 15). One of the reasons for this could be that SEZs in Africa were mostly centred on exploiting trade preferences and built little backward linkages. Notwithstanding, te Velde *et. al.* (2013) point out that there also exist interesting and promising exceptions of SEZs in Africa. "For example, in Ghana, employment in SEZs increased from 4,000 in 1998 to 27,798 in 2010. The share of SEZ employment as a per cent of total formal employment is around 3% in Tanzania and Ghana and around 1.5% in Kenya (where the share of SEZs in manufacturing employment is reportedly 15%)" (te Velde *et. al.* 2013: 9).

Table 15: Employment in Special Economic Zones

	Direct Employment	% of National Employment
Global	68.441	0.21%
Asia and the Pacific	61.089	2.30%
Americas	3.084	1.15%
Central / East Europe and Central Asia	1.59	0.00%
Middle East and North Africa	1.458	1.59%
Sub-Saharan Africa	1.04	0.20%

Source: FIAS (2008)

Kingombe and Te Velde (2012) suggest that local policies and institutions matter and argue that governments wanting to use SEZs as a tool for both employment creation and structural transformation need to (discussed in te Velde *et. al.* 2013: 11):

- 1 Build up the capacity to respond appropriately to the global environment which is changing constantly;
- 2 Consider SEZs only when they fit in a wider development strategy involving a range of complementary policies designed by a range of stakeholders that interact continuously; and
- 3 Implement SEZs with real purpose and consistency.

6. Data and methodological issues in empirical studies

A thorough examination of data and methodological issues with respect to the studies discussed above requires a discussion of the limitations of available data for developing countries, and its implications for the estimation, comparability, consistency and interpretation of results. The

employment elasticity of output is defined as the ratio of proportionate change in employment to proportionate change in GDP. The definition itself raises several points of concern:

Islam (2004) discusses the difficulty of obtaining reliable aggregate employment figures, at a constant intensity of employment, for countries with a large unorganised sector (developing countries). Owing to this constraint of data availability most econometric studies of employment and output pertain to OECD countries, and more recently MICs. As has been mentioned in section 4.3, studies on LDC and SIDS country groupings have been hard to come by. Islam (2004) recommends a practical remedy of focussing on those sectors in developing countries for which more reliable estimates of employment and output are available such as the manufacturing sector.

To better represent the informal sector in aggregate employment trends, Rodrik and McMillan (2011) use household surveys (population census and labour force surveys). This methodology borrowed from Timmer and De Vries (2007) also has a more extensive sectoral distribution defined as per the International Standard Industrial Classification, revision 2. The broad sectoral classification of agriculture, services and manufacturing in Kapsos (2005) for instance, potentially ignores heterogeneity within sectors, and increasing interrelationships and interdependence between sectors with the evolving nature of 'services' and manufacturing (Andersen and Corley 2003).

Data on value added are obtained from national accounts, which vary from country to country and depend on the quality of national sources. Timmer and De Vries (2007) point out that although national accounts are internationally comparable in principle, given that they are all compiled in accordance with UN System of National Accounts; this is not necessarily true in practice. Countries periodically revise GDP series to update coverage of activities, the base year of prices and calculation methodologies.

ILO-KILM (2010) indicates that a crucial impediment to the comparability of elasticity estimates is the variety of definitions adopted for employment estimates across countries. The differences primarily arise in the setting of lower (15 years as per the ILO) and upper age bounds for eligibility. Typically, however, this does not substantially impact the degree of comparability. A further point of concern is the internal and inter-temporal consistency of datasets adopted for analysis. Timmer and De Vries (2007) criticize the widely used World Development Indicators (2006) employment data on these grounds. They trace the WDI's national sources through ILO documentation, and find that breaks in these sources due to changes in coverage or methodology have not been appropriately represented or smoothed in the dataset. Furthermore in regions such as Latin America, sectoral employment data was based only on urban surveys leading to misrepresentation of the employment

structure (e.g. the employment share in agriculture for Bolivia, Columbia, Argentina and Peru in 1990 was less than 2% as per WDI data of 2006).

The choice of methodology for estimation of employment elasticity also warrants discussion. This is inherently restricted by the availability of data. A simple arc elasticity method (using data from two points in time) is rejected by Islam (2004) in favour of econometric estimation techniques to handle time series data on grounds of greater stability and comparability of results. Following from this Kapsos (2005) uses a multivariate log-linear regression model interacting country dummies with log GDP to obtain estimates of point elasticity. However the use of information on only employment and output trends, without controlling for other influencing factors, makes the model susceptible to omitted variable bias. Furthermore no measures have been taken to account for the endogeneity of employment with respect to GDP growth. Crivelli et al. (2012) use instrumental variables to mitigate this, using two lags of real GDP as instruments.

Finally, Kapsos (2005) discusses important caveats for the interpretation of results. Judged in isolation the elasticity of employment with respect to output portrays a deceptively simple picture of the relationship between output and elasticity. Given the multiplicity of related factors it would be erroneous to interpret these estimates of elasticity as evidence of causation, instead of correlation. Furthermore, elasticity estimates are prone to be fairly volatile. This is not worrisome in the event that the volatility results from a change in the nature of relationship between employment and growth (a structural break). Other possible causes include very small changes in employment growth wherein large deviations in employment elasticity result from incremental changes in underlying variables- indicating the need to keep an eye on relative GDP performance; or statistical 'noise' resulting from small sample size issues. Country estimates are therefore susceptible to statistical uncertainty. The author warns against interpreting favourable trends in employment intensity as necessarily indicative of positive macroeconomic performance without consideration of other variables such as output growth, inequality, real wages, and poverty rates among others.

In spite of all of the above discussed shortcomings, the study of the elasticity of employment to output growth provides a useful overview of the relationship between aggregate output, employment and productivity. Due consideration of related variables can help to better comprehend the drivers of this relationship.

The above analysis needs to be complemented by a discussion of impact analysis studies at the cross-country and macroeconomic¹⁶ level for Development Finance institutions (DFIs) to draw

¹⁶ Microeconomic case studies of the employment-creation effects of investment conducted by the IFC have already been discussed in section 4.2.

lessons in practice. Methodologies for the estimation of job-creation effects (direct, indirect and induced) of DFI projects include direct job creation estimates, the production function approach, input-output models, econometric analysis at the macro/firm level, and case studies. Jouanjean and te Velde (2013) comprises a comprehensive review of methods used in the past and the limitations thereof. Table 16 below sourced from the paper provides a summary of the discussion. The paper also carries out a production function based cross-country estimate of job creation for investments by a range of DFIs. It assesses the employment generation effects of incremental DFI investment in developing countries, conditional on a set of assumptions. The results suggest that the selected DFIs created approximately 2.59 million jobs in over 70 developing countries in the year 2007¹⁷.

The production function methodology was also employed by Löwenstein (2011) and Kim et al (2011). Albeit the method is limited by its reliance on the neoclassical assumptions of production technology (constant returns to scale, positive and diminishing returns to factors of production), a homogenous Cobb-Douglas production function that is invariant across heterogeneous countries and sectors, and the inability to account for jobs created due to technical changes or structural transformation. Lowenstein (2013) challenges some of the neoclassical assumptions pertaining to labour markets and builds a production model allowing for segmented labour markets and unemployment in developing countries. Labour demand is modelled as a function of the wage rate and capital stock. An interesting aspect of Jouanjean and te Velde (2013) is its econometric estimation¹⁸ of the impact of DFIs on labour productivity. This exercise is instructive for analysing the role of DFIs in catalysing positive structural transformation in developing countries.

Table 16: Pros and cons of assessment methods for job creation effects of DFIs

Approach	Positive aspects	Negative aspects	Possible data sources
Direct employment in DFI supported projects	Directly measurable	Does not measure displacement effects, indirect, induced or second-order growth effects Might overstate effects directly attributable only to DFIs	Company reports
Macro production function approaches multiplier analysis	Can be used at macro level to see how (DFI) investment leads to output changes (could use ICOR, C-D / CES / Leontief / TFP approaches) which could then lead to employment effects. Useful for quick assessments at aggregated level, for manufacturing, but less useful when the quantity of “output” is not main or only factor of	Involves use of assumptions, estimations of production functions and employment intensities and are based on predicted rather than empirical effects. Does not measure second order growth / productivity effects	Requires (sectoral-level) national accounts

¹⁷ The authors emphasize that this apparently large figure amounts to only 0.5% of the jobs required over the next two decades to provide employment to at least half the billions of people that will be added to the world population by then.

¹⁸ The paper provides panel and OLS estimates, allowing for potential selection and endogeneity biases.

	interest.		
Input-output models	Useful to examine backward linkages across industries in traditional industries and hence indirect employment , could be linked to different types of skills, tax etc. to get a SAM Useful to obtain multipliers by sectors relatively easily.	Not useful in case of transformative changes in production structures (e.g. large scale infrastructure investments) or when inputs are price dependent and substitutable, or when behavioural links change (in which case input-output coefficients would change).	Labour force surveys National accounts
		Measures expected impacts.	
Firm level / national level econometrics	Useful to examine the empirical effects of the level and quality of services supply on firm performance amongst a range of factors (and hence the induced effects, including on employment)	Data intensive (needs panel data), needs good identification strategies.	Existing firm level surveys (e.g. WB enterprise survey) National databases
Household level econometrics	Useful to examine the importance of DFI supported services in the household budget	Data intensive (panel data)	Household level surveys
Case studies	Useful to get detailed impact to verify multiplier effects or aggregated econometric effects.	Data intensive, difficult to obtain macro effect and counterfactual	Field work

Source: Jouanjean and te Velde 2013

The IFC Jobs study (2013) was supported by four background macro case studies conducted by Kapstein *et. al.* (2012) to identify the overall employment creation and value added of past IFC investments in Ghana and Jordan, and future (or hypothetical) investments across sectors in Sri Lanka and Tunisia. The studies are based on the input-output methodology which comprehensively accounts for inter-sectoral linkages and direct, indirect and induced job creation. Albeit the model is limited by its use of a fixed proportions production function, inability to account for structural transformation, and lack of differentiation between types of financing, or the size and/or productivity of beneficiary firms.

A third approach is the use of general equilibrium models. The World Bank uses the Revised Minimum Standard Model Extended¹⁹ (RMSM-X) which combines simple behavioural relationships with a basic accounting framework. The macroeconomic model can be solved recursively to arrive at a consistent set of projections for the endogenous variables. The model has three closures – policy, private and public closures. This determines which set of endogenous variables are to be solved by the model based on budget constraints and market clearing relationships (typically determined by the relevant policy question). However the model in its current form does not account for labour demand. The model can be extended to account for the same. Similarly the Threshold 21(T21)

¹⁹ http://econ.worldbank.org/external/default/main?pagePK=64165259&theSitePK=469372&piPK=64165421&menuPK=64166322&entityID=000009265_3960927223714

simulation tool²⁰ developed by the WB and UN for long term national development could be used for estimating job creation.

²⁰ http://www.millennium-institute.org/integrated_planning/tools/T21/

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