



The role of development finance institutions in promoting jobs and structural transformation

Project Summary

Marie-Agnes Jouanjean, Isabella Massa and Dirk Willem te Velde

March 2013

1. **Job creation, productivity and structural change** are the main development challenges for low-income countries at present (UNECA, 2011; Macmillan and Rodrik, 2011). **Development Finance Institutions (DFIs)** help the process of job creation and structural change by **addressing market failures through the provision of loans, grants, equity and guarantees** which can lead to better and higher quality investment in poor countries. This note summarises two UK DFID funded studies in Massa (2013) and Jouanjean and te Velde (2013).
2. The effects of DFIs on development cannot be taken for granted. There is **increased research on the effects of Development Finance Institutions (DFIs)** generally (Massa, 2011; te Velde, 2011) and **on job creation** more specifically (IFC, 2013), **but less on the impact on structural transformation**. There is a **debate on appropriate methods** to use in such studies.
3. **DFIs affect job creation and structural transformation through a number of** static and dynamic effects.
 - a. **Static and direct effects.** DFIs affect job creation directly by being *additional to domestic investment* and they can have a direct effect on productivity through changing the *composition*, and hence the economic structure of an economy.
 - b. **Dynamic and indirect effects.** In a dynamic sense, DFIs also create jobs through *forward and backward linkages* (and the induced effects these generate) and can foster *technical change* in companies, with possible spillover effects for the sector and the whole economy. DFIs set economic, social and environmental performance standards, have representatives on company boards, direct fund managers, provide technical assistance and act as a port of knowledge through which investee companies can adopt new product and process innovation, which can provide spillover effects to other firms in the sector or economy as a whole.
4. There are a number of methods that try to measure the impact of DFIs on job-creation effects and structural transformation. We discuss these approaches and examine the advantages and disadvantages of each. IFC (2013) distinguishes between direct jobs (jobs in entities directly supported), indirect jobs (jobs supported through suppliers), induced effects (jobs supported through increased spending power from increased jobs), second-order growth effects (jobs created through productivity effects) and displaced jobs (jobs displaced by DFI-supported jobs). Whilst there is some harmonisation in examining the direct jobs, there is not one acceptable way of examining the indirect job effects.

5. Generally, there are many **different estimation methods** of the job-creation effects, each associated with positive and negative aspects (Table 1)
- Direct jobs in DFI-supported companies;
 - Production-function-based estimates;
 - Input-output and multiplier-model-based estimates;
 - Econometric estimates based on empirical findings; and
 - Detailed case-study estimates.

Table 1: 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 the main or only factor of interest.	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
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). Measures expected impacts..	Labour-force surveys National accounts
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)

6. DFIs report the number of **direct jobs** in companies supported by DFIs (Table 2). **Direct job estimates both underestimate and overestimate the true effect.** They overestimate because these jobs may also be due to investors other than DFIs (we do not have information on the counterfactual). They underestimate because they do not take into account other indirect and induced jobs.

Table 2: Direct jobs supported by DFIs (portfolio / created in 2011), examples

DFIs	Direct jobs supported (by portfolio in 2011)	Direct jobs created in 2011
IFC	2,500,000	200,000
CDC	976,000	
DEG	800,000	110,000
Proparco		89,000
IFU	4,500	

Source: Massa (2013), DEG, IFC, Proparco Data refer to jobs supported by portfolio or data on new jobs created in 2011. Note that these include only direct jobs and do not take into account indirect jobs.

7. A number of studies have examined the indirect job impacts and confirm that the **indirect effects differ markedly by sector** (see Table 3).

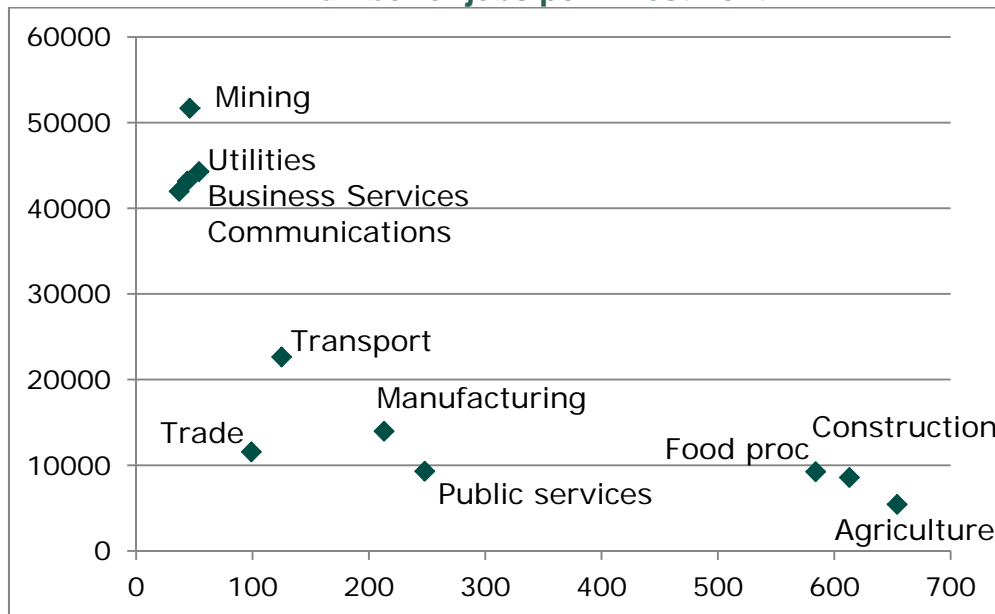
Table 3: Relevance of DFI impacts on employment creation by sector

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
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).

8. One study for Tunisia conducted for the IFC (2013) shows **the trade-off between jobs created and value added of those jobs** (Figure 1). If such data are representative for all developing countries it would suggest that DFIs such as DEG, EIB, Swedfund and Finfund that are relatively more exposed to industry and agribusiness have the largest employment generation effects, whilst other DFIs (e.g. CDC, EBRD, IFC, Proparco) might have a larger potential for increasing value-addition or growth.

Figure 1: Trade-off between value addition per job and number of jobs per investment



Source: data from Kapstein et al. (2012) for Tunisia. Jobs include direct and indirect effects based on input-output models. Value addition (US\$) per job (vertical axis) and number of jobs per US\$ mn investment (horizontal axis)

9. **Jouanjean and te Velde (2013) provide new production-based estimates of the direct and indirect employment effects of DFIs at national level.** Following a production-function approach (see, for e.g., Löwenstein, 2011, and Kim et al., 2011), and assuming that DFIs increase gross fixed-capital formation, investment increases GDP which increases employment. Taking the investments of a selected set of DFIs for 2007 (EIB, CDC, IFC, PROPARCO, DEG and EBRD) we find that they created 2.6 million jobs in over 70 developing countries. The numbers of jobs created varied amongst DFIs from 1.3 million by EIB, to 1.2 million by IFC, and 0.1 million by CDC, reflecting the amounts invested in each country in 2007. If DFIs ceased to invest, there would be 2.6 million fewer jobs. The costs of creating a job varies: e.g. in Malawi it takes 6,500 US\$ per job created; 1,667 US\$ per job in Viet Nam, and 550 US\$ per job. We need to bear in mind that these estimates are expected impacts based on model simulations, not actual impacts.
10. **There have not been any studies examining the macro effects of DFI on structural change and labour productivity in depth.** Jouanjean and te Velde (2013) provide new empirical research for the effects of DFIs on labour productivity using a panel of 62 developing countries over time (using between 6 and 11 years of observations per country). They estimate a panel of labour-demand equations (derived from a CES production function) where the effects of DFIs are incorporated through the impact on labour-augmenting technical progress. The regressions initially include panel and OLS estimations. However they also provide a set of estimations that allow for potential selection and endogeneity biases. In particular, they estimate the treatment effects of support by a DFI, accounting for the likelihood of it investing in a country with certain characteristics. This controls for situations in which DFIs invest in countries with lower levels or growth potentials in labour productivity – if we did not account for such effects we would estimate a lower impact of DFIs on productivity than would otherwise be the case.
11. The study finds a **significant effect of DFIs on labour productivity** in several regressions using various measures of DFI activity. Using the OLS equation (on a panel of countries), for each percentage point shift in the ratio of DFIs over GDP, the effect of DFIs on labour productivity is 3.4% and statistically significant. Using the equation that controls for selection bias, the effect is significant at 7.5%. Using the lower estimate, we find that DFIs have increased labour productivity by at least 3% in 21 low- and middle-income countries. In Ghana, Kenya and Zambia the effects are of the order of 2.3%. The treatment effect (for e.g., when a country receives support from a DFI) on labour productivity ranges between 0 – 15% and the average treatment effect is around 6%.
12. The econometric study on the productivity effects of DFIs provides only **initial results which need to be extended in a number of ways** in the future. Future studies could do estimations (i) on the productivity

and employment effects at sector level; (ii) using a variety of measures of DFI exposure, and the variety of financial instruments they employ; (iii) using other estimations procedures and instruments; (iv) using methods that can help to understand which factors are conducive to greater effects; and (v) using different measures and data on employment.

13. There are two issues for discussion. The first is on how DFIs and their shareholders should report on employment impacts and whether and how they should also report impacts on (labour) productivity and structural transformation. The second is on how DFIs can improve their impact on jobs and labour productivity. The latter issue is very important, but we do not elaborate on it further in this study. Here we argue that adequate reporting is required to fully understand the role of support by DFIs (and similar organisations). This could then lead to a discussion on what is required to improve this impact.
14. There are **various options for DFIs and shareholders to (continue to) report on employment and productivity impacts:**
 - a. DFIs can report their direct employment 'impacts': for e.g. the number of employees in DFI-supported companies. DFIs are harmonising the variables; however, we argue this is insufficient for designing appropriate policy.
 - b. DFIs can (continue to) extend reporting on employment impact by including direct employment impacts through:
 - i. Systematic monitoring of each DFI investment and their suppliers;
 - ii. Selected in-depth case studies of linkages; and/or
 - iii. Ex-ante assessments using rules of thumb (e.g. sector X in country Y is associated with jobs multiplier Z).
 - c. DFIs can (continue to) extend reporting on induced employment and labour productivity through:
 - i. Selected in-depth case studies
 - ii. Detailed econometric modelling
15. There are varying capacities and incentives in DFIs to report on employment and productivity impacts. DFIs can continue to monitor the direct employment impacts, but further discussion and coordination of capacities (e.g. via a knowledge platform as started by the IFC) would be required on reporting on indirect impacts to avoid duplication and benefit from the public goods aspects of knowledge generation. Whilst it would be valuable to collect a set of ex-ante multiplier effects based e.g. on input-output models, and to which DFIs can contribute peer-reviewed studies on a continuing basis, studies on the expected effects of job creation will need to be augmented by studies (e.g. case studies, econometric studies) on the *actual* impact; such studies also need to include the impact on productivity.

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