

► Employment impact assessments: How to measure the employment impact of guarantees

STRENGTHEN2: Employment impact
assessment to maximize job creation
in Africa

Author / Guannan Miao





This is an open access work distributed under the Creative Commons Attribution 3.0 IGO License (<http://creativecommons.org/licenses/by/3.0/igo>). Users can reuse, share, adapt and build upon the original work, even for commercial purposes, as detailed in the License. The ILO must be clearly credited as the owner of the original work. The use of the emblem of the ILO is not permitted in connection with users' work.

Translations – In case of a translation of this work, the following disclaimer must be added along with the attribution: *This translation was not created by the International Labour Office (ILO) and should not be considered an official ILO translation. The ILO is not responsible for the content or accuracy of this translation.*

Adaptations – In case of an adaptation of this work, the following disclaimer must be added along with the attribution: *This is an adaptation of an original work by the International Labour Office (ILO). Responsibility for the views and opinions expressed in the adaptation rests solely with the author or authors of the adaptation and are not endorsed by the ILO.*

All queries on rights and licensing should be addressed to ILO Publications (Rights and Licensing), CH-1211 Geneva 22, Switzerland, or by email to rights@ilo.org.

ISBN: 9789220401057 (web PDF)

The designations employed in ILO publications, which are in conformity with United Nations practice, and the presentation of material therein do not imply the expression of any opinion whatsoever on the part of the International Labour Office concerning the legal status of any country, area or territory or of its authorities, or concerning the delimitation of its frontiers.

The responsibility for opinions expressed in signed articles, studies and other contributions rests solely with their authors, and publication does not constitute an endorsement by the International Labour Office of the opinions expressed in them.

Reference to names of firms and commercial products and processes does not imply their endorsement by the International Labour Office, and any failure to mention a particular firm, commercial product or process is not a sign of disapproval.

► Acknowledgement

This report was produced under the overall guidance of Mito Tsukamoto and benefited from the input and guidance of Ralf Krueger (International Labour Organization, ILO). The author would like to thank Fernando Messineo and Tomoka Omoto of the ILO's Social Finance Unit, David Kucera, Luis Villanueva and Pamphile Sossa of the ILO's Employment Policy, Job Creation and Livelihoods Department, Georg Weiers of the European Investment Bank, as well as Paulus Geraedts and Pierre Nadjji of the European Commission's International Partnerships Directorate-General for their feedback, which helped to improve an earlier draft.

► Non-technical summary

Guarantees undoubtedly form an integral part of the European Union's External Investment Plan (EIP) and Global Gateway initiative, and these are arguably a favourable tool for development finance because they can achieve a much larger amount of lending to individuals or enterprises in need through leverage effects (i.e. the ratio total loans issued that are backed by the guarantee to the actual amount of the guarantee portfolio, without taking into account the costs of the guarantee operations). The challenge of evaluating the impact of the credit guarantees, and in particular the impact on employment, is exactly due to these leverage effects.

This paper explains the possible ways of assessing the employment impact of guarantees in the context of sub-Saharan Africa, but the methodologies are not limited to these countries. An initial assessment of the potential employment impact of a guarantee programme is clearly feasible, but it would require certain stylised assumptions, including the countries in which the guarantee operates, the amount of guarantee allocated, and, more importantly, the target leverage ratio. It also emphasises the need to use administrative data (for accounting and financial reporting purposes) as collected by the development banks and national financial institutions to improve the quality of the employment estimates. These assessments should also be supplemented by business surveys to capture how these guarantee-backed loans are being used (or are planned to be used) to support the economic development of communities. The ex-post evaluation of employment impact, which is often conducted at the firm-level, could also benefit from access to such administrative and survey data.

► Contents

Acknowledgement.....	3
Non-technical summary.....	4
Contents.....	5
1. Introduction.....	6
2. Guarantees: Important Instruments for the EU's External Investment Plan and Global Gateway Initiative.....	7
3. Challenges of Evaluating the Impact of Guarantees.....	9
4. Existing Methodologies of Evaluating Impact of Guarantees.....	12
Macro-modelling Approach.....	12
Quasi-experimental Approach.....	13
Surveys and Case Studies.....	14
5. Leveraging Best Practices of Credit Guarantees for Employment Impact Assessment.....	15
Accounting and Financial Reporting.....	15
Socio-economic Performance Monitoring.....	15
6. Conclusion.....	17
References.....	18
Annex 1.....	20

► 1. Introduction

Showcasing a strategic partnership between the European Union (EU) and the International Labour Organization (ILO), the STRENGTHEN2 project was launched in 2020, with the overall goal of leveraging employment impact assessments to promote the creation of more and better jobs in sub-Saharan African countries. One of the major outcomes of the project is to streamline employment impact assessments with particular attention to European Union (EU)-sponsored actions, via the EU's External Investment Plan (EIP) and the Global Gateway initiative, which come in the forms of grants, blending (often mixed loans with grants), guarantees and other financial operations.¹

The main objective of this paper is to study the feasibility of conducting employment impact assessments of guarantees in sub-Saharan African countries. The geographical scope makes the assessments all the more challenging due to data availability issues. This paper explains the need for minimum data requirements for any basic quantitative and evidence-based analyses of employment impact of guarantees (both ex-ante and ex-post), thus contributing to the STRENGTHEN2 employment impact assessment toolkit.

Both macroeconomic and microeconomic approaches are used for employment impact assessment of guarantees. The two distinctive advantages of macro-analysis using the input-output technique (including the use of input-output tables, supply and use tables and social accounting matrices) are: (1) that it is one of the few techniques that can be used for ex-ante studies, and (2) that it captures the indirect and induced effects through an interconnected economy. However, ex-ante studies rely on often unrealistic assumptions about the leverage ratios of the credit guarantees and firms' expenditures. Meanwhile, the micro-approach can pinpoint the employment impact while controlling for external interference such as macroeconomic conditions (i.e. firms in the treatment group and the control group face the same macroeconomic conditions such as inflation, exchange rates and government policy, etc.), but with a significant time lag.

This methodological note is structured as follows. Section 2 explains the purpose of guarantees and the importance of guarantees within the EU's development cooperation activities. Section 3 highlights the challenges of evaluating the impact of guarantees. Leveraging the literature review carried out as part of the STRENGTHEN2 methodology assessment (Soumaré, 2022), Section 4 recapitulates the existing methodologies that are frequently used for impact evaluation of guarantees, not merely focusing on the employment aspect of it. Section 5 emphasises the possibility of using financial institutions' best practices in reporting and monitoring tools to improve the impact assessment of guarantees. Section 6 concludes and offers some recommendations for advancing employment impact assessment of guarantees.

¹ The major implementing tool of the European External Investment Plan (EIP) is called the European Fund for Sustainable Development (EFSD). Under its new strategic framework, the European Commission has launched the Global Gateway Initiative, which is financed by the EU's long-term budget instrument for development cooperation - the NDICI-Global Europe. Global Gateway is a strategic, transformational agenda - to accelerate achievement of the SDGs and the Paris Agenda. Global Gateway aims to mobilise infrastructure development investments of up to 300 billion in the years 2021-2027. The European Fund for Sustainable Development plus (EFSD+), continuing the EFSD, has been established under this budget instrument, and its geographic coverage is now global. The EFSD+ supports investment in partner countries to promote decent job creation, strengthen public and private infrastructure, foster renewable energy and sustainable agriculture, and support the digital economy. The EFSD+ is an innovative instrument that will help generate investments in a variety of Global Gateway sectors through its guarantee capacity and blending grants.

► 2. Guarantees: Important Instruments for the EU's External Investment Plan and Global Gateway Initiative

Credit Guarantee is a frequently used financial instrument that helps those who otherwise would not be able to obtain a loan. All guarantees have a common purpose of creating greater access to formal financing for promising individuals and companies to promote growth of priority sectors, and of avoiding market failure. Credit guarantees reduce the risk of default for lenders by promising to cover the borrower's debt in the event of default, thus making it easier for the borrowers to secure financing.

About one third of the EU's European Fund for Sustainable Development Plus (EFSD+), the continuation of the early EFSD programme, nested under the Global Gateway Initiative, is in the form of guarantees. More recently, EFSD+ set aside €6 billion in financial guarantees in December 2022 to support 40 investment programmes in sub-Saharan Africa, Latin American and Asia Pacific, which are expected to generate more than €50 billion in investments for MSMEs and for identified key sectors, such as renewable energy, digital infrastructure, climate resilience, and health.² Guarantees are often designed to encourage lending to micro-, small- and medium-sized enterprises (MSMEs) and the remainder of this paper is focusing on such MSME credit guarantee schemes.³ By reducing the risk of lending to MSMEs, credit guarantees can help to increase the availability of credit to these businesses, and therefore have a positive impact on job creation by enabling these firms to access the financing they need to expand their operations and hire new employees. However, the exact number of jobs created through credit guarantee schemes can be difficult to estimate, as it depends on a variety of factors, including the sizes and types of the businesses being funded, the amount of lending provided, the sectors concerned, and the local economic conditions.

The guarantees often follow a standard procedure (see Figure 1) before reaching businesses in need:

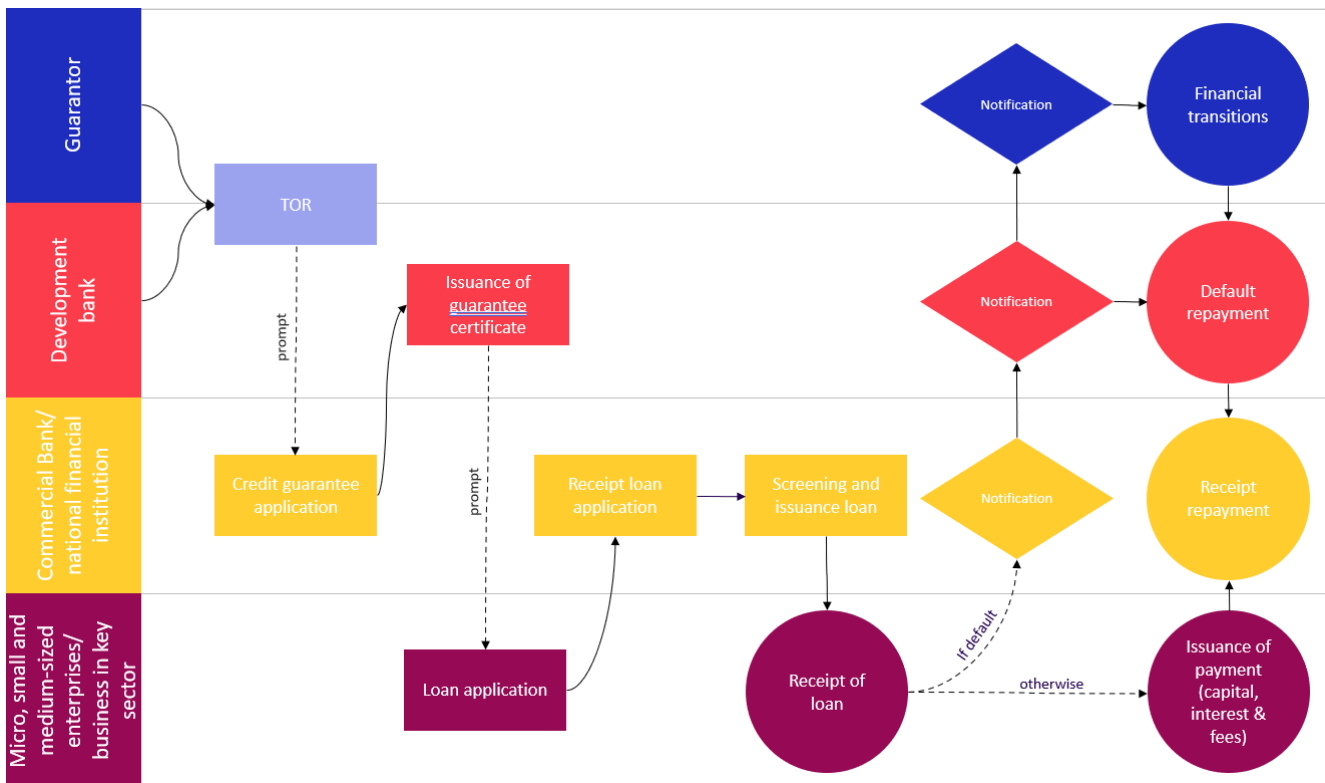
- The guarantor (i.e. the EU) offers a guarantees to a development bank, such as the European Investment Bank (EIB) and other European financial institutions;
- The development bank signs contracts with commercial banks/national financial institutions with mutual agreement on general terms of the guarantee;
- Commercial banks/national financial institutions issue loans to MSMEs or businesses in identified strategic sectors; and
- With improved access to finance, MSMEs and businesses in strategic sectors can invest and pay back their loans in the future if their businesses are successful.

Guarantees as an instrument have become more innovative over the past years too. First, the approval of a credit guarantee can happen at the portfolio level – for example, as long as the new loans issued by the national commercial bank satisfied the pre-agreed criteria, these loans can be added to the portfolio without going through an additional approval process. Second, the default risk of these loans has also shifted from solely taken by the guarantors to shared risks between the guarantors and operational banks (i.e. operational banks cover a certain percentage of the losses). Typical examples of portfolio guarantees that capture these market dynamics are the joint FMO-EU NASIRA Loan Portfolio Guarantee and SIDA-USAID Zimbabwe Loan Portfolio Guarantees.

² https://ec.europa.eu/commission/presscorner/detail/en/ip_22_7799.

³ Guarantees can be also used to reduce the risks of large investments, such as in big infrastructure projects, where there is often a market failure: without the support of guarantee, the investment is unlikely to take place. However, this type of guarantee is outside the scope of this methodology paper.

► Figure 1. The standard operation of a guarantee (simplified)



Source: Author's illustration.

► 3. Challenges of Evaluating the Impact of Guarantees

When it comes to evaluating the impact of guarantees, the first and foremost question being raised is the extent to which guarantees can be effectively translated into greater and more affordable access to credit for MSMEs or for the businesses in identified priority sectors, which in turn generates more investment, decent employment and economic growth. The standard approach to evaluating employment and economic impact, especially in developed countries, is known as the quasi-experimental approach, which can only be done after the project is fully implemented (ex-post). In practice, it pulls together the treatment firms who received guarantee-supported loans and firms of similar characteristics but without guarantee-supported loans as a control group, to compare and gauge the difference that the guarantee-enabled access to credit has made in firms' performance. It is challenging to carry out this analysis in the sub-Saharan African (SSA) context due to low availability of firm-level data.⁴

A less frequent approach to evaluating the impact of guarantees is through macro-modelling using input-output tables or social accounting matrices for example⁵. This methodology has often been opted out of because of the difficulties of making realistic assumptions and of being associated with "losing touch with reality". However, it remains an important tool that allows the estimation of the employment impact of guarantees at the time of signature of a guarantee agreement, at the early stages of project implementation or ex-post.

Indeed, when carrying out an employment impact assessment using the input-output technique, assumptions are adequate for investment projects with large capital expenditures (such as in infrastructure and energy-related investments), because of fixed production coefficients associated with fixed capital expenditure (either through bills of quantities or project documents). However, this estimate hardly holds for guarantees due to their flexibility: even with the same amount of guarantee available, hypothetically speaking 1 million euros, the amount of loans issued can still be vastly different. This variability in loan size is due to the fact that there are country- or programme-specific characteristics that make one guarantee more effective than another, and such differences are further increased by the leverage ratio.

A leverage ratio – defined as the ratio of the value of loans issued that are backed up by the guarantee to the total capital of the guarantee – is a key indicator capturing how well the fund has been capitalized in the financial market. In other words, the leverage ratio is an indicator of usage intensity of a guarantee. As not all borrowers default, and in most cases only part of the credit is guaranteed, the total amount of guaranteed credits is larger than the capitalization of the scheme. For example, if one in ten businesses defaulted, the guarantee fund could actually be promised to ten businesses (the number could be higher if credits are partially guaranteed). Leverage is thus one of the main arguments in favour of guarantee schemes.

Leverage ratio is time-variant during the project implementation too, often calculated at the end of the financial year. Its value depends on the operation on the ground (e.g. the guaranteed loan portfolio as reported by the financial institutions). In most cases, changes in the leverage ratio are due to a varied degree of loan disbursement in the target country, but can also result from changes in the capital endowment of the guarantee. For example, when new capital is injected into the scheme (see Korea Korean Credit Guarantee Fund as in Cusmano's study, 2018), the leverage ratio could temporarily decrease. The total cumulative effect of the leverage ratio can be calculated at the end of the guarantee programme by adding up all the loans issued during the period when the project is active, which provides an overall effectiveness of the guarantee programme.

In practice, the term 'leverage ratio' has been used very loosely. It may also refer to the multiplier effect of a particular guarantor that seek greater market influence by mobilizing additional capital with other co-financing partners. For example, if the EU EFSD+ has financed guarantee operations around the world to the tune of 100 million euros, and FMO and other private investment partners have doubled this amount—this effect may be considered as a leverage, but different from the leverage ratio explained above. Similarly, when a guarantee offers partial coverage, e.g., 20 per cent of the individual loans in case of default, one could simply consider the loan to guarantee ratio to be 5. While relevant, this 'leverage' doesn't provide the usage intensity of the guarantee.

⁴ IFC (2022) conducted an analysis for developing countries leveraging on the World Bank's long-existing enterprise survey and supplemented this with their own surveys. The sample size for the treatment group (about 1700 firms) is much smaller than the similar work carried out by the EIB and European Investment Fund (EIF).

⁵ An input-output model is a quantitative economic model that represents the interdependencies between different sectors of a national economy or different regional economies. A social accounting matrix extends the classical input-output framework, including the complete circular flow of income in the economy.

There are also some misconceptions about the calculation/estimation of the leverage ratio of guarantees. The heart of the debate is on what should be the denominator when calculating the leverage ratio of a guarantee. The promised amount of the guarantee (e.g. a guarantor promises 1 million funding in euros available to support MSMEs) is not the same as the amount of the fund that will be paid out in case of default (e.g. a commercial bank requires 400,000 euros due to the default in loans). Conceptually speaking, the leverage ratio should be calculated as amount of loans issued to the amount of committed guarantee from the guarantor(s); not to the amount of guarantee paid-out, because the latter will only roughly give the default rate of the loans.

There can be wide variation in the leverage ratios achieved. Historical data shows that leverage ratios (as defined in this paper) range from 0.33 in Greece (where loans represent 33 per cent of the guarantee fund) to about 35-fold in France (where loans are 35 times larger than the amount of guarantee available) (see UNIDO, 2003; Cusmano, 2018). The leverage ratio reflects the type and the purpose of guarantees.⁶ The type of guarantees to a great extent determines how the guarantees are set up and operated. For example, guarantee initiatives focusing on fostering start-ups and MSMEs (by supporting the commercial apparatus) could be different from guarantees with an objective of helping businesses to export, as their default rates vary.

There are other operational concerns that could determine the leverage ratio too. The demand for guarantees depends on whether there is a sufficient level of awareness in the intended communities about the availability of the fund. It also depends on how willingly the bank staff promote the fund. Furthermore, it is, at least in part, explained by the way the fund is capitalised, how the guarantees are delivered, when the guarantees are delivered, and whose loans are guaranteed etc.

The guarantee may have different objectives depending on their source of finance, i.e., whether it is backed by government and development financial institutions or by private businesses. For example, those guarantees with economic development as the primary objective (linked to development finance) often provide interest-free loans or loans with lower-than-market interest rates, while guarantees backed by private businesses are more inclined to pursue the objective of self-sustainability⁷. The former type of guarantees is likely to have a lower leverage ratio due to its high operational costs that have not been passed on to borrowers (see Figure 2 for a simplified numerical example for the purpose of illustration). The investment loans with socio-economic goals often have longer maturity periods than other operational loans. Moreover, differences can be explained by their respective operating environments and business climates (i.e. existing financial sector condition, the social and cultural background, the rules and regulations and macroeconomic conditions etc.) in the host economies (see Figure 3).

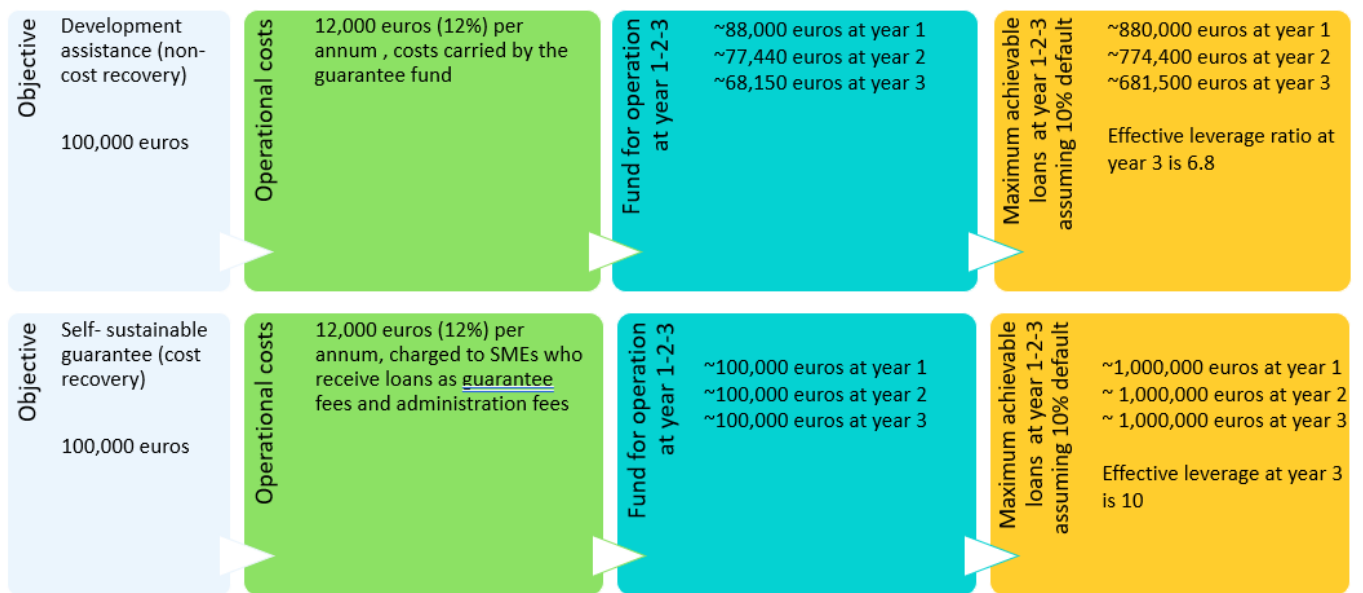
Currently, the most-commonly used benchmarked is 1 to 10 – every one euro committed from the guarantee is expected to generate 10 euros investment overall in the EU neighbourhood and sub-Saharan Africa. Preliminary evidence suggests that many guarantees in developing and emerging countries, and especially SSA countries, are far from achieving the optimal leverage level due to insufficient demand for loans (e.g., partly due to ignorance of the scheme's existence) or the results of excessive caution in extending guarantees (bank staff refuse the loan due to high risks involved). The question boils down to whether this 1:10 ratio can be achieved in SSA countries. Answering this could lead to an understanding of the actual size of additional capital which the guarantee fund can raise, and otherwise would not have been invested (see EIB's Banking in Africa Survey⁸).

⁶ Guarantee products are designed according to their purpose and targeted outcome, for example sectoral guarantees, export credit guarantees, individual loan guarantees, portfolio guarantees, co-guarantees, tender and performance guarantees. The vast majority of these guarantees are short-to medium-term with repayment terms of less than 10 years.

⁷ The costs of a guarantee fund include the cost of money (such as inflation and the interest rates), the defaults on guarantee operations and other operational costs (such as staff time), while the sources of income consist of guarantee fees, administrative fees, and income from investment. However, if a guarantee fund has a development focus and socio-economic objective in mind (e.g. to increase employment and improve employment conditions), donors may consider losses to be justifiable.

⁸ The EIB conducts the Banking in Africa Survey annually to shed light on financial situations of the banks in Africa and how financial instruments help to shape the economic and social development goals; i.e., to steer investments towards priority sectors (e.g. climate change and digital transformation) and businesses in need (e.g. female entrepreneurship and MSMEs). The survey is sent to over 70 banks in Africa, and results can be broken down by the Central, East, Southern and West Africa. A small section of 2023 survey targeted on credit standards and guarantees in hoping to gain some knowledge on the leverage ratios of all guarantee programmes that are operated by these African banks.

► **Figure 2. Optimal leverage ratio can be achieved after deducting operational costs**



Source: Author's illustration.

► **Figure 3. What determines the utilization of a guarantee**



Source: Author's illustration.

► 4. Existing Methodologies of Evaluating Impact of Guarantees

Soumaré (2022) carried out a thorough literature review of impact assessments of credit guarantees and stated the need to “have a better understanding of the theory of change underlying the programme” and to “choose the right impact evaluation approach depending on the programme design and its ecosystem” (both on page 10). The micro-assessment techniques involve experiments or quasi-experiments, Randomized Control Trials (RCT) or Propensity Score Matching (PSM) respectively.⁹ The RCT requires the experiment to be designed before the implementation of the guarantee programmes, while the PSM offers slightly more flexibility, and can be planned after the programmes have started, but requires additional data on firms which do not receive guarantee-backed loans, and often applies in conjunction with an econometric technique called Difference-in-Differences (DID) regression analysis.¹⁰ Meanwhile, the macro-assessment techniques can be used to analyse the direct and indirect effects in the real economy and financial markets ex-ante or during the early stages of implementation. Soumaré (2022) suggests developing a general equilibrium model to assess the impact of the credit guarantee programme.¹¹ The differences between macro- and micro-modelling (more specifically, quasi-experimental) approaches are explained below. It also explains how surveys and case studies have been used as stand-alone employment impact assessments and as supporting tools for both macro and micro analysis.

Macro-modelling Approach

Macro-modelling tools using input-output techniques, including input-output tables and social accounting matrices, can provide an estimate of the direct, indirect, and induced effects on job creation of a given investment project. By extension, these apply to the guarantees too. The **direct effect** refers to the additional number of jobs created directly because of loans made available to businesses, which would not be made without the support of credit guarantees. In other words, it is equal to the additional number of people hired directly by the businesses which benefited from the guarantee-supported loans. The **indirect effect** refers to the number of jobs created through the supply chain due to increased demand (i.e. purchases of intermediate inputs or capital goods/services) from the businesses that received the loans. The **induced effect** refers to the jobs created because of increased income of employees (due to both direct and indirect effects), and therefore additional spending that generates more demand.

The Joint Impact Model (JIM) uses a simple input-output multiplier technique. It treats guarantees as **finance enabled impact**, which combines capital data from clients and the average asset turnover ratio according to social accounting matrices to estimate private sector turnover (additional output), which is then subsequently used to calculate the number of jobs created.¹²

The Asian Development Bank (ADB) (Elhan-Kayalar and Oum, 2022) used both the input-output multiplier sourced from the Multi-regional Input-Output database maintained in-house and the computable general equilibrium (CGE) model based on data from the Global Trade Analysis Program (GTAP) to conduct their portfolio analysis for Thailand, Fiji and Indonesia from 2010 to 2019. Thailand is worth well noting because of its bond guarantee operation for renewable energy and energy storage project in 2017, as well as its regional credit guarantee and investment facility projects (Bangkok's Mass Rapid Transit project in 2018 and an additional project in 2019) among other typical blending operations. These guarantee programmes are likely to be treated like any other blending investment projects. In fact, what are defined as the direct and indirect effects of job creation are different in the JIM methodology and ADB report (Elhan-Kayalar and Oum, 2022) (see Box 1 for an explanation).

⁹ Propensity score matching (PSM) is a quasi-experimental method in which researchers use statistical techniques to construct an artificial control group by matching each treated unit with a non-treated unit of similar characteristics. Using these matches, researchers can estimate the impact of an intervention.

¹⁰ The difference-in-difference (DID) or double difference is an econometric technique often used in impact evaluation. It is defined as the difference in average outcome in the treatment group before and after treatment minus the difference in average outcome in the control group before and after treatment.

¹¹ The following three models by order of preference are suggested by Soumaré (2022): (i) small-scale *Dynamic Stochastic General Equilibrium* (DSGE) model; (ii) *Input-Output* impact analysis model; or (iii) *Computable General Equilibrium* (CGE) model.

¹² The Joint Impact Model is developed by Steward RedQueen and it is maintained and regularly updated by JIM Foundation. It uses social accounting matrices available for 75 individual countries, 17 regions and 65 sectors, which are derived from the Global Trade Analysis Program (GTAP) data.

The ILO proposed a computational model that is referred to as the Structural Model for Sustainable Development (SMSD) (Jiang and La Marca, 2021). In a nutshell, it adopts elements of the input-output modelling framework while incorporating additional features such as price effects and capacity constraints to meet the needs of employment impact assessments, and therefore provides an estimate for the economy-wide response to the additional investment induced by a construction project or guarantee project. The model uses a CGE-type of approach but market clearing conditions are different, for example, in that they incorporate “factual features of low-income developing economies with chronic underemployment and commodity dependence.” An SMSD-based tool has been designed for evaluating investment projects with fixed project expenditures, but it can be extended to evaluate guarantee programmes.¹³

► Box 1. What is Direct Effect in Employment Impact Assessment?

The direct jobs created by an investment project should be the easiest to measure but there are still debates about what should be counted as direct jobs. From an investment project management point of view, the number of direct jobs can be measured on the businesses’ site (e.g., the site of construction), and it should be equal to the number of full-time equivalent employees (as defined in the local labour market) working for the company or project at the end of the reporting period, including individuals directly hired or hired through third-party agencies if these workers provide on-site services related to the operations.

In the absence of the capacity to collect the employment data on the site, the number of direct jobs can be estimated too, but the definitions are different in the Joint Impact Model (JIM) and in input-output tables. The JIM proposed that direct jobs can be estimated by multiplying revenue or project value by employment intensity of the corresponding industries, which is then adjusted to the employment formality (JIM, 2021, p.25).

The input-output methodology as used in the Asian Development Bank (ADB) (Elhan-Kayalar and Oum, 2022), however, defines the direct jobs as the number of jobs created because of additional final demand, which drives output increases not just in the sectors where the investment project is located (in the construction or energy sector for example) but also jobs in the supplier sectors; while the indirect jobs are the so-called first-round, second-round,..., and N-th round effects that are created due to additional demand.

The JIM measures direct, indirect and induced jobs through project expenditure – i.e., the amount of project finance paying for wages or local procurement; while the input-output technique, as documented in the Elhan-Kayalar and Oum (2022) report, calculates direct, indirect and induced effects by focusing on the mechanism of how additional output is created. Therefore, the number of direct jobs calculated using the JIM methodology is not comparable to the number of direct jobs produced by the input-output framework as defined in Elhan-Kayalar and Oum (2022).

However, the nature of guarantees is completely different from that of any other type of investment project. For guarantees, the direct jobs are hard to measure because going to all the businesses to collect employment data from each of the beneficiaries of the guarantee-backed loans is time-consuming and costly. Even after such data has been amassed, the total number of employees in a business cannot simply be correlated with the amount guarantees (i.e. not all employment is created due to the availability of guarantee-backed loans); what matters are the changes in the number of employees hired before and after receiving the guarantee-backed loans. In fact, micro-analysis works best in these circumstances while controlling for other factors that could potentially influence employment. In the absence of microdata, estimating direct jobs in a guarantee operation using the input-output table technique is straight-forward: in this case, it is equal to the number of jobs created due to the initial increase in the final demand.

Quasi-experimental Approach

The econometrics approach of assessing employment impact of the credit guarantees is also referred to as the quasi-experimental approach. In the absence of the pure experimental approach – guarantees are rarely allocated randomly – the quasi-experimental approach is considered the best alternative, and it is well-adopted in economic research (EC and EIF, 2015; Brown and Earle, 2017; OECD, 2017; EIF, 2019a; EIF, 2019b; EIB, 2020; IFC, 2021; Ayyagari et al., 2021). It uses the PSM and DID techniques to demonstrate that guarantee-backed loans have helped targeted businesses to grow in terms of employment, production, productivity, and chance of survival, in contrast to the control group (those businesses without guarantee-backed loans). One of the advantages of the DID technique is that it separates the employment impact

¹³ There is a possibility of incorporating financial accounts into a SAM, and therefore to better reflect the role and financial market in an economy (see Array 2017). Even with this financial sector integrated, the leverage ratio and business expenditure are still essential to evaluate the employment impact of guarantees.

of credit guarantees from the macroeconomic conditions and other factors that potentially affect employment, and points out only the impact of additional finance made available to businesses due to guarantee-backed loans. However, the guarantee programmes can only be evaluated many years after they have been fully executed by the lending agencies. The quasi-experimental approach does not offer an overview at the whole economy level, i.e., no tally of total number of direct jobs created by the support of guarantees, nor the indirect and induced jobs created. It also pays little attention to how the type of guarantees (i.e. whether they are more concessional or not) could impact recipients differently.

Surveys and Case Studies

The employment impact assessments of credit guarantees can also be conducted through surveys and case studies. These can be executed during project implementation or after project completion and are often associated with higher operational costs. Surveys involve collecting data from financial institutions and businesses that have issued/received loans, as well as social-economic characteristics of the businesses that benefit from the guarantees (EIB, 2021¹⁴ and Hennecke, Neuberger and Ulbricht, 2017 for example). The survey data provides valuable insights into the employment and economic impact of credit guarantees.

Case studies involve analysing the experiences of specific businesses that have received guarantee-backed loans in depth, or at times follow the entire credit guarantee programme during implementation. They often focus less on the employment or economic impact of credit guarantees per se, and put more emphasis on the implementation of the credit guarantees through a monitoring framework in order to improve the effectiveness and self-sustainability of a guarantee fund (see GIZ, 2015 and the pilot studies on the SIDA guarantees in Bosnia and in Guatemala conducted by the ILO Social Finance team¹⁵).

Surveys and case studies are not only more flexible alternatives to both micro- and macro-modelling approaches, but they can also constitute valuable support for the analyses based on input-output tables and modelling using firm-level data. An example is the IFC (2022) study that uses the World Bank's long-running Enterprise Survey and a survey specially designed to gather data on firms who have benefited from guarantee-backed loans to construct a counterfactual and factual group respectively before using the econometric technique (DID) to evaluate the impact of credit guarantees in developing countries.¹⁶ Surveys and case studies will also improve employment estimates using input-output tables by backing the assumptions with first-hand data collection.

¹⁴ The EIB and Global Development Network started a programme in applied development finance in 2017 to better understand the results and impact of its financial instruments through Impact Financing Envelope, which targeted the Africa, Caribbean and Pacific (ACP) countries. The research was carried out in three twelve-month cycles (often done by local consultants with the guidance of the advisory committee that was made up of EIB staff, academics, and experts from various international organizations). The three reports published under this initiative include case studies from various countries, among these many on microfinancing (see GDN-EIB, 2021, GDN-EIB, 2020, GDN-EIB 2019). The final publication summarizes lessons learnt and opportunities for future work.

¹⁵ https://www.ilo.org/empent/areas/social-finance/WCMS_835996/lang--en/index.htm

¹⁶ For developed countries, data availability is less of an issue. Development finance institutions and government agencies can leverage the existing administrative data or dataset commercially available (ORBIS for example) to conduct impact assessments of credit guarantees.

► 5. Leveraging Best Practices of Credit Guarantees for Employment Impact Assessment

An initial assessment of the potential employment impact of a guarantee programme is clearly feasible, but it would require certain stylized assumptions, including the countries in which the guarantee operates, the amount of guarantee allocated, and, more importantly, the target leverage ratio. To further refine the initial estimate, this paper argues that the leverage ratio – which is the ratio of the total outstanding loans (time-variant) to the amount of guarantees available (often time-invariant) – is an indicator that can be easily calculated at any point in time if a guarantee fund has a proper accounting system. All of the socioeconomic performance monitoring frameworks put in place in the context of guarantees contribute to the overall impact assessment of a guarantee (see ILO 2004), only a fraction of these measures are specifically designed to assess employment impact. Macro-level employment impact assessment requires additional information on business expenditures (such as the data collected in establishment surveys used in national accounts). Meanwhile, micro-level employment assessment requires measures of business operations, such as turnover/sales, employment, and other performance indicators before and after receiving the loans to benchmark to businesses that did not receive the loans. This section explains the potential of using financial reports (and their underlying data) of the guarantee fund as well as the financial data of the businesses to support Employment Impact Assessments.

Accounting and Financial Reporting

The performance of the guarantee fund, and in particular its financial performance, are often monitored through a proper accounting system, and reported periodically. This should be able to provide the exact leverage ratio highlighted above (as well as its evolution over time if needed), and is thus extremely beneficial for impact evaluations.

ILO (2004) systematically summarized the best practices for guarantee fund managers as regards to recommended reporting on guaranteed loan portfolios from the lenders' perspective (Annex1 Table A1) and on the proceeds after pay-out from the guarantors' perspective (Annex1 Table A2). In a nutshell, a well-monitored fund should have a financial accounting system that provides information on:

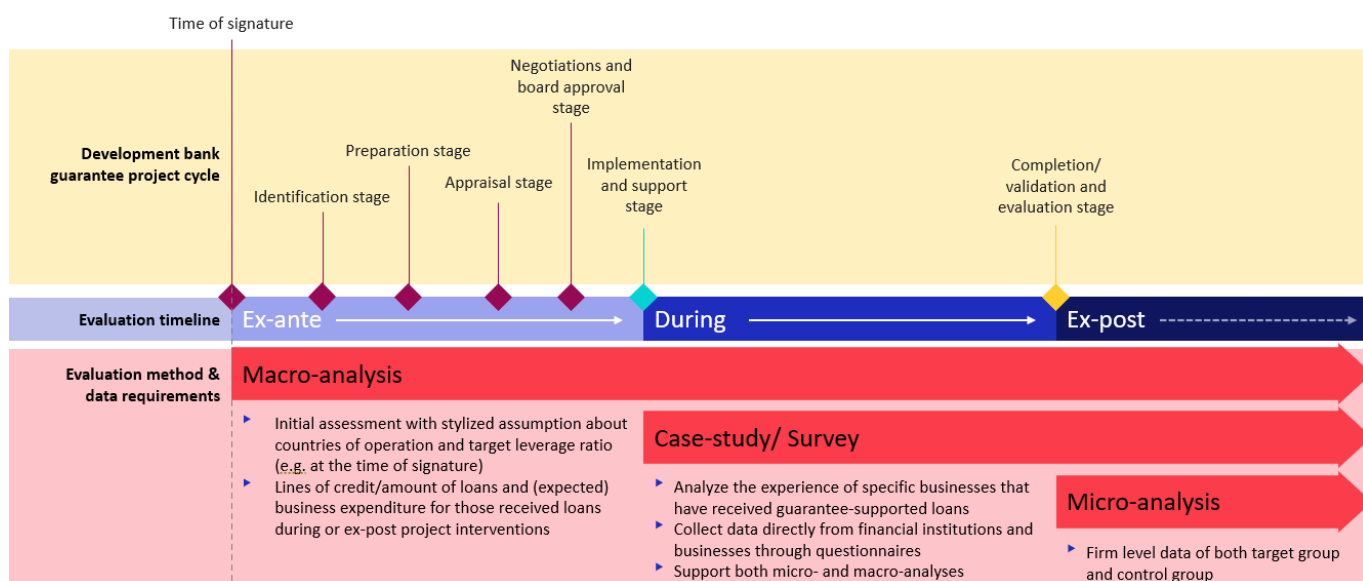
- The size and quality of the guaranteed portfolio;
- The liquidity position of the guarantee fund (i.e. capacity to cover its financial obligations in the short- and medium-term);
- The profitability of the guarantee fund (i.e. capacity to cover costs with its income); and
- The financial structure of the guarantee fund and its capacity for growth.

Socio-economic Performance Monitoring

Apart from the obvious financial indicators, the performances of guarantee funds should also be monitored by socio-economic indicators. Socio-economic indicators describe factors like the number of business clients that have been able to access a loan as a direct consequence of the guarantee scheme, and they could also track the characteristics of these businesses (their operating industries, their size and growth over a period of time for example). These performance indicators generate the data to monitor business developments over time, allowing one to compare actual results with the economic targets which were originally set through impact assessment.

Recording firms' socio-economic characteristics helps impact assessment of credit guarantees regardless of the choice of methodology, but the macro- and micro-approaches emphasize different aspects of the data. A macro-analysis using simple input-output multipliers or a social accounting matrix-based model like the ILO-STRENGTHEN2 estimation tool based on the SMSD (Jiang and La Marca, 2021) would benefit from using data on firms' expenditure. Business expenditure surveys, for example, are widely used to collect information on capital expenditure, including breakdowns such as investment in building, machinery and equipment, and research and development, as well as other business expenses on wages, and intermediate goods and services. This survey data will provide an important indicator of economic activity and growth, and can be used for macroeconomic simulation and forecasting. In contrast, micro-analysis requires data concerning firms' characteristics and finance from both the target group (those who benefited from the guarantees) and the control group (those firms without guarantee-supported loans), such as information about their operating sectors, actual sizes of the firms, turnover and profits (see Figure 4).

► **Figure 4. Project timeline of a guarantee and the choice of evaluation method**



Source: Author's illustration.

Indeed, there are several surveys that focus on MSMEs in Africa and their business characteristics and expenditure, which could potentially be used as a means of collecting additional data for employment impact assessments (such as surveys operated by the African Development Bank and the World Bank). One example of such a survey is the African Development Bank's Enterprise Survey, which collects data on the characteristics, challenges, and performances of MSMEs in various African countries. The survey is conducted in partnership with local statistical agencies and covers a wide range of industries and sectors. Another example is the World Bank's Enterprise Survey, which also collects data on the business expenditures of MSMEs in developing countries (including Africa). The survey is conducted in collaboration with partner organizations in each country and covers topics such as access to finance, corruption, regulations, taxes, and labour market conditions.

► 6. Conclusion

Credit guarantee is a flexible tool of development finance, and it often targets MSMEs and start-ups, with far-reaching socio-economic impact for the businesses in needs. And because of its flexibility, it renders any assessment of its impact much more challenging than is the case for other financial instruments: depending on how the guarantee fund has been operated and on what the objective of the guarantee fund is, the amount of loans it may raise could vary by a hundredfold. Furthermore, the potential economic impact in the short- to medium-term is determined by how the newly available finance is being spent, which is not always clear for the evaluators.

Evaluating the impact of credit guarantees using firm-level data can be carried out by comparing the performances of firms that received loans backed by guarantees with those of firms without the support of guarantees (a carefully selected control group often identified through propensity score matching). This methodology permits an ex-post evaluation of the economic additionality of guarantees by establishing the causality between the amount of loans received and firms' growth in sales, productivity and employment. However, this methodology cares less about the multiplying factor—the leverage ratio—of the credit guarantees or about the terms and conditions of the loans. It also disregards the way that the indirect and induced jobs are created through the multiplier effect in an interconnected economy.

Less frequently used in the literature than the micro-approach is the macro-modelling approach, mainly due to the difficulties of working with assumptions, notably the leverage ratio and expenditure structures of the borrowers. But the advantages of using a macro-modelling tool (i.e. input-output tables or social accounting matrices) are evident: the assessment can already be conducted ex-ante at the time of signature or during implementation, and the estimates can be refined by incorporating the quantity of the loan through the leverage ratio. It may also reflect the quality of the loan because less risky investments can aim for higher leverage. Moreover, it provides an estimate of the number of indirect and induced jobs created through the guarantees, which the micro approaches do not. However, it is important to underline that macro-modelling could benefit from existing financial reporting and performance monitoring data to improve the estimates—the leverage ratio can be derived from the report on the guaranteed loan portfolio, for example. This performance monitoring report should offer an overview of the number of and socio-economic characteristics of businesses that benefited from the guarantees.

Each of these methodologies has its own strengths and weaknesses, and the choice of methodology will depend on the specific contexts and goals of the evaluation projects. These quantitative exercises will not only enable employment impact assessments of guarantees, but they will also help guarantors and financial institutions to improve their operations and to formulate best practices in issuing guarantees to achieve greater economic impact, hence more decent job creation.

The purpose of this paper is to highlight the data gaps that have hampered the conduct of employment impact assessment, particularly in the African context. Hopefully, identifying the data needs for the development of employment impact assessment, as well as mapping the data needs to different methodologies, could lead to more refined empirical studies.

► References

- Aray, H., L. Pedauga, L. and A. Velázquez (2017). Financial Social Accounting Matrix: a useful tool for understanding the macro-financial linkages of an economy, *Economic Systems Research*, 29:4, 486-508, DOI: 10.1080/09535314.2017.1365049
- Ayyagari, M., P. Juarros, M.S. Martinez Peria, and S. Singh (2021). Access to Finance and Job Growth: Firm-Level Evidence across Developing Countries. *Review of Finance*: 1-24.
- Balkenhol, B. and Guézennec, C. (2013). MICROCREDIT IN FRANCE: What impact does it have on employment? Social Finance Working Paper, ILO, in collaboration with Lainé F. and Nouailles-Degorce, L. https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_389175.pdf
- Brown, J. D., and J.S. Earle (2017). Finance and Growth at the Firm Level: Evidence from SBA Loans. *Journal of Finance* 72(3): 1039–1080.
- Cusmano, L. (2018). SME and Entrepreneurship Financing: The Role of Credit Guarantee Schemes and Mutual Guarantee Societies in supporting finance for small and medium-sized enterprises, OECD SME and Entrepreneurship Papers, No. 1, OECD Publishing, Paris, <https://doi.org/10.1787/35b8fece-en>.
- EC and EIF (European Commission and European Investment Fund) (2015) The Economic Impact of EU Guarantees on Credit to SMEs Evidence from CESEE Countries Pierfederico Asdrubali, Simone Signore https://economy-finance.ec.europa.eu/system/files/2018-01/dp002_en.pdf
- EIB (European Investment Bank) (2020). Making a difference: Assessing the impact of the EIB's funding to SMEs, EIB Economics – working papers 2020/04 (by Amamou, R., Gereben, A., and Wolski M.).
- EIB (2021). Measuring impacts — The experience of the EIB-GDN Programme, Available at: <https://www.eib.org/en/publications/measuring-impacts-the-experience-of-the-eib-gdn-programme>.
- EIF (European Investment Fund) (2019a). The European venture capital landscape: an EIF perspective Volume V: The economic impact of VC investments supported by the EIF, EIF research and market analysis working Paper 2019/55 (by Pavlova, E. and Signore, S.)
- EIF (2019b). The real effects of EU loan guarantee schemes for SMEs: A pan-European assessment, EIF research and market analysis working Paper 2019/56 (by Brault, J. and Signore, S.)
- Elhan-Kayalar, Y. and S. Oum (2022). Estimating the Job Creation Impact of Development Assistance. Manila. ADB. <http://dx.doi.org/10.22617/TCS220588-2>
- GDN (Global Development Network)-EIB (2021). The impact of private sector projects in Africa: Studies from the EIB-GDN Programme, Cycle 3
- GDN (Global Development Network)-EIB (2020). The impact of private sector projects in Africa: Studies from the EIB-GDN Programme, Cycle 2.
- GDN (Global Development Network)-EIB (2019). The impact of private sector projects in Africa: Studies from the EIB-GDN Programme, Cycle 1.
- GIZ (Gesellschaft für International Zusammenarbeit) (2015). SMEs' Credit Guarantee Schemes in Developing and Emerging Economies Reflections, Setting-up Principles, Quality Standards <http://aecm.eu/wp-content/uploads/2015/07/giz-study-on-smes-credit-guarantee-schemes.pdf>
- Hennecke, P., Neuberger, D. and Ulbricht, D. (2017). The economic and fiscal value of German guarantee banks, Thünen-Series of Applied Economic Theory - Working Paper, No. 152 <https://www.econstor.eu/bitstream/10419/167605/1/895513269.pdf>
- IFC (International Finance Corporation) (2021). Small Business, Big Growth: How Investing in SMEs Creates Jobs, International Finance Corporation, World Bank Group.

ILO (International Labour Organization) (2004). Making Guarantee Funds Work for Small and Micro Enterprises, ILO, Geneva.

Jiang, X. and M. La Marca (2021). The enhancement of input-output based employment assessment tools for EU operations in sub-Saharan Africa, https://www.ilo.org/wcmstp5/groups/public/---ed_emp/documents/publication/wcms_823261.pdf

JIM (Joint Impact Model) (2021). Joint Impact Model: Methodology paper. https://www.jointimpactmodel.org/files/ugd/7aa894_13651634add6407a93c09a851fb705c1.pdf

OECD (Organisation for Economic Co-operation and Development) (2017). Evaluating Publicly Supported Credit Guarantee Programmes for SMEs, www.oecd.org/finance/Evaluating-Publicly-Supported-Credit-Guarantee-Programmes-for-SMEs.pdf

Soumaré, I. (2022). Credit guarantees: SME access to finance and employment in Africa, ILO https://www.ilo.org/wcmstp5/groups/public/---ed_emp/documents/publication/wcms_844832.pdf

UNIDO (United Nations Industrial Development Organization) (2003). Credit Guarantee Schemes for Small Enterprises: An Effective Instrument to Promote Private Sector-Led Growth? SME technical working paper series, Working Paper No. 10, https://www.unido.org/sites/default/files/2007-11/18223_PSDseries10_0.pdf

► Annex 1

► Table A1. Lenders: Report on the guaranteed loan portfolio

Name	Loan #	Total amount of loan	Balance of loan principal due as of (date)	Effective payments as of (date)	Balance of principal due but not paid	Interest due	Penalty interests due	Legal expenses due	Total amount due	Remaining principal outstanding	Total Amount due and owing (if Principal outstanding called in)	Number of days in arrears for the first missed instalment				Remarks
												1 to 30 days	31 to 60 days	61 to 90 days	91 to 120 days	
(1)			(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(11)	(11)	(11)	(12)

- (1) List of all borrowers to whom the lender has extended a guaranteed loan.
- (2) Balance of the loan principal due for payment as of (date) according to the initial repayment schedule.
- (3) Effective payments of principal made by the borrowers (borrower's account as the source of data).
- (4) Balance of principal due by the borrower and still unpaid (calculated as 2-3).
- (5) Contractual interests due on the unpaid principal (according to the repayment schedule).
- (6) Penalty interests charged by the lender in case of non-payment.
- (7) Legal expenses charged by the bank in order to recover the past amount due by the borrower.
- (8) Total amount due by the borrower (calculated as 4+5+6+7).
- (9) Amount of the remaining outstanding principal (i.e. principal not yet due for payment).
- (10) Total amount due if the remaining principal has been called in by the lender.
- (11) Number of days since the first instalment of the loan has been missed by the borrower (same amount as in column 8 or 10 depending if remaining principal called in or not).
- (12) Explanation on the extrajudicial actions carried out by the lender and explanations on the reasons behind absence of payments. This column should also include the type and the value of the collateral pledged by the borrower in favour of the lender.

Source: ILO, 2004.

► Table A2. Guarantor: report on proceeds after pay-out

Borrowers' name	Lenders' name	Amount paid by guarantee Fund	Net proceeds from recoveries	Renegotiated loan instalments due as of	Instalments paid as of	Balance due of renegotiated loan	Outstanding principal amount not yet due	Number of days since pay-out has been processed by the guarantee fund	Estimation of the value of the collateral	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

- (1) Each individual borrower for whom the guarantee fund has paid out to the lender should be listed.
- (2) Borrowers are listed per lender.
- (3) Amount paid by the guarantee fund to the lender in compliance with the guarantee contract or certificate of guarantee (pay-out).
- (4) Proceeds received by the guarantee fund on recoveries from the borrowers.
- (5) In some cases, the amount of the pay-out from the guarantee fund to the lender may be transformed into a 'loan' to the guaranteed borrower. Under such an agreement, the guarantee fund agrees the reimbursement of the amount due by the borrower under new terms and conditions. Amounts indicated in this column reflect the instalments due according to the repayment schedule.
- (6) Effective payments from borrowers.
- (7) Instalments due and unpaid.
- (8) Outstanding principal amount.
- (9) Number of days since the pay-out has been processed by the guarantee fund (this number of days is required so as to re-evaluate the value of the collateral provided by the borrower).
- (10) Estimation of the value of the collateral pledged by the borrower taking into account the number of days since pay-out has been processed so as to reduce the value of the collateral in the calculation of the potential final loss.
- (11) Remarks consisting mainly of an estimation of the final loss that the guarantee fund may record in its financial statements as well as the status of the legal actions carried out by the lender and by the guarantee fund.

Source: ILO, 2004.

Contact details**International Labour Organization**

Route des Morillons 4
CH-1211 Geneva 22
Switzerland

T: +41227998671

E: miao@ilo.org

E: STRENGTHEN2@ilo.org

© International Labour Organization ~~2024~~2024

This publication was produced with the financial support of the European Union. Its contents are the sole responsibility of the ILO and do not necessarily reflect the views of the European Union.