
Joint Impact Model: FAQ JIM 1.3

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Contents

Introduction	1
1 Inputs	2
1.1 General	2
1.2 Inputs for financial enabling	2
1.3 Inputs for projects	3
1.3.1 General	3
1.3.2 Power enabling projects	4
1.4 Inputs for other clients types	5
1.5 Inputs for attribution	6
1.6 Other	6
2 Scope	7
2.1 General	7
2.2 GHG emissions	7
3 Methodology	9
3.1 General	9
3.2 GHG emissions	9
3.3 Finance enabling effects	10
4 Results	11
5 Interface	13

INTRODUCTION

Throughout 2019, partner development finance institutions (AfDB, BIO, CDC Group, FinDev Canada, FMO and Proparco) and Steward Redqueen have been collaborating to develop a model to measure and report on indirect impacts. This harmonisation effort resulted in the Joint Impact Model (JIM). The JIM can be used to estimate the gross direct and indirect economic and environmental impact of a portfolio of investments in developing markets.

In this document we describe all frequently asked questions. The Q&A's are summarised in the following order:

1. Inputs
2. Scope
3. Methodology
4. Results
5. Interface

The document will be updated on an on-going basis. The latest update is *16 November 2020*.

1 INPUTS

1.1 General

Is 'sales' required for all client types?

'Sales' or 'project value' (depending on the client type) is an essential input of the JIM. If this data is not provided, the model will not be able to generate any insights into *direct, supply chain or induced impacts*.

Can the same client name be used more than once in the input template?

A client's name can be used several times in the input template, as long as the fiscal year, reporting year, country and economic activity are not the same. If it is not the case, the model will not run and return an error.

Which sectors can be inserted as inputs in the model?

Depending on the level of detail you have available on a client's economic activity, you can use NACE sectors level 1, 2, 3 or 4 (level 4 being the most detailed). ISIC and GTAP sectors can also be used.

Please keep in mind that the more detailed the sector inserted, the more accurate the results will be. Lists of all sector inputs (among other inputs) is available in the 'List' sheet of the Input Template file.

If the exact NACE sector is not available, is it recommended using 'Miscellaneous' or matching the sectors as closely as possible?

If the exact sector is not available, but you do have insights into the activity of the client, you could map the activity of the client to the NACE sector that is closest, or to GTAP sectors directly. Miscellaneous, on the other hand, engulfs all sectors and should be used if you have no information on the client or investee's activity or if it is a truly sector-generalist entity.

Why is 'direct employment' part of the required inputs? Is it necessary to estimate the supply chain effects?

No, it is not used to calculate the supply chain impacts. However, the model does not quantify the direct employment itself. Therefore, if it is not provided by the user, it will not be displayed in the results.

For some clients I have optional data and required data available, while for other clients I only have required data. Is this an issue?

This is not a problem. The required data are chosen specifically because they are the most likely to be available and are the bare minimum that the model can use to calculate results. Optional data in comparison are not necessary to calculate results but should always be included when available since they improve the confidence of the results.

Am I right that I enter missing data as 'n/a', and zeros as zero (0)?

Yes.

1.2 Inputs for financial enabling

For some financial intermediary clients, I have detailed portfolio data (i.e. sales, wages, etc.) and for other financial intermediary clients I only have limited data (i.e. capital committed, etc.). Can I enter both?

This is not a problem. You can enter detailed portfolio data for some clients (in Example_1 sheet), and high-level portfolio data for others (in Example_2 sheet).

I do not have info on the sector breakdown of the portfolio of a bank/fund I invest in. Can I still measure include the bank/fund?

When you do not know the sectors in which an FI/fund in your organisation's portfolio invests in, you can insert 'miscellaneous'. However, this will reduce the confidence level of results.

What is the logic behind using 'capital outstanding'?

The JIM is set-up as a portfolio monitoring tool, with the objective to enable organizations to track impacts related to their outstanding portfolio over time. This is why 'capital outstanding' is used to quantify the enabling impacts of financial intermediaries, and for attribution of impacts to the JIM user.

Note that capital outstanding in Year 1 and Year 2 can be (partly) the same. Hence, yearly results should not be aggregated as it would lead to a double count.

A bank in my organisation's portfolio serves both SMEs and corporates. Can I include this information?

If you have information on the size of clients an FI invests in, then this should be included by using separate lines for the different sized clients, splitting the investments accordingly.

For instance, if you know that Bank A invests its loan portfolio 70% in SMEs and 30% in corporates, you should include Bank A twice: once with the 70% of loans provided and "SMEs" noted in the 'size of enterprise' column, and once with the 30% of loans provided and "Corporate" noted in the 'size of enterprise' column instead.

An investment fund in my organisation's portfolio has not made any investments yet. Can I include them in the results?

Results can be calculated ex-ante based on the anticipated amount of financing that will be provided to beneficiaries. Use the expected 'capital committed' amount, per sector, in the input file instead of the actual 'capital outstanding'.

In the finance enabling module, is it possible to use 'capital disbursed' instead of 'capital outstanding'? Would that make it possible to aggregate yearly results?

Currently the JIM does not allow users to insert 'capital disbursed'. This can be discussed as an additional JIM-option in the future.

However, year-on-year change in capital outstanding can be used to generate annual growth and can be aggregated over time.

1.3 Inputs for projects

1.3.1 General

What does 'sales' correspond to for projects in operations phase?

The 'sales' in the operating phase of projects refers to the project revenues. If sales or revenue data is not available for the operating phase, the model cannot quantify the operating impacts.

Which economic activity would you choose for temporary (construction) projects benefitting different sectors?

For temporary projects users should always select client type 'project finance construction phase'. Subsequently they have two options:

- If the project is only benefitting the construction sector, they can choose 'construction' in the 'economic activity' column;

- If the project is benefitting multiple sectors, they can choose ‘Various – customised breakdown’ in the ‘economic activity’ column, and insert the breakdown of the project value for maximum 6 economic activities in the dedicated columns of the input template (see sheet Example_1).

Please note that the customised breakdown feature is not implemented yet.

How should a project with both operations (either actual or estimated) and construction-related data available be inserted?

The JIM can be used to quantify a portfolio’s current impact (ex-post), as well as to quantify the potential impact of investments ex-ante. However, these insights should never be mixed, and the data for the construction phase and operations phase should be included in separate lines.

For instance, ‘sales’ should be filled for operations phase and ‘project value’ for construction phase, if you are interested in the supply chain effects. If you are looking for the power enabling effect, ‘power production’ is for operations phase while ‘installed capacity’ for construction phase.

For the ex-ante estimations of operations, users can use expected jobs and expected sales, to quantify the expected operational impact.

To help you understand which data is required depending on the project phase, you can refer to the upper section of the Input Template Excel.

How should projects that are partly in construction phase and partly already operational be entered?

Projects can be entered in two separate lines, one line for ‘project finance construction phase’ with the corresponding data, and one line for ‘project finance operations phase’ with the corresponding data.

For power production assets, the anticipated impact from power production will also be estimated from the installed capacity data as part of the construction phase estimates. For ex-post reporting exclude these results or enter zero (0) for installed capacity. For ex-ante reporting, to avoid double counting, the share of the capacity that is in use (and for which power production data is available), should be deducted from installed capacity.

Can the JIM quantify the impact of education projects?

The JIM can quantify the impacts related to the spending of education projects, but not the enabling impacts related to improved access to education. To quantify the impact of the project’s spending, the education project should be entered as ‘project finance construction phase’. Just like construction projects, the spending of these projects is likely to be one-off. Subsequently, for economic activity, you should use the ‘various - customised breakdown’. You can insert several economic activities that are likely benefitting from the education project’s spending: e.g. ‘construction’ (money spent on building a school), ‘manufacturing of textiles’ (money spent on uniforms), etc.

1.3.2 Power enabling projects

For power projects, sales data is often not available. Can I leave the cell blank or put zero (0), and still run the model?

‘Sales’ or ‘project value’ (depending on the client type) is an essential input of the JIM.

If this data is not provided, the model will not be able to generate any insights into *direct, supply chain or induced impacts*.

However, it is possible to generate enabling impacts without ‘sales’ or ‘project value’ data:

- If you are interested in the *finance enabling impacts* of a financial intermediary’s lending only, it is sufficient to insert the “capital outstanding” of the financial intermediary (sheet Example_2).

- If you are only interested in the *power enabling impacts* of a project, it is sufficient to insert ‘power production’ or the ‘installed capacity’ + ‘technology type’. You can then insert ‘n/a’ for ‘sales’ and ‘project value’.

How can power projects that were under construction for the first part of the reporting year and started operations in the second part be classified?

The projects can be split over two separate lines, one line for ‘project finance construction phase’ with the corresponding data, and one line for ‘project finance operations phase’ with the corresponding data.

For power production assets, the anticipated impact from power production will also be estimated from the installed capacity data as part of the construction phase estimates. For ex-post reporting exclude these results or enter zero (0) for installed capacity. For ex-ante reporting, to avoid double counting, the share of the capacity that is in use (and for which power production data is available), should be deducted from installed capacity.

Is it possible to run the power enabled results without having financials or direct information for the power project? What should be put in the other fields (jobs and sales) to ensure it runs?

Yes, you can run power investments with information on power production or capacity (and technology type) only. In the other fields, you must enter ‘n/a’.

Can the JIM quantify the impact of energy efficiency projects? How should I enter these in the input template?

The JIM could quantify the impacts related to the spending of energy efficiency projects, but not related to the energy savings of these projects. To quantify the impact of the project’s spending, the energy efficiency project should be entered as ‘project finance construction phase’. Just like construction projects, the spending of these projects is likely to be one-off. Subsequently, for economic activity, you should use the ‘various - customised breakdown’. You can insert several economic activities that are likely benefitting from the energy efficiency project’s spending: e.g. ‘manufacture of electrical equipment and repair’ and ‘installation of machinery and equipment’.

1.4 Inputs for other clients types

What does ‘sales’ corresponds to for financial institutions?

For financial institutions, ‘sales’ data is rarely available. Instead, ‘net interest income’ can be used as a proxy as it is usually widely available, allowing JIM users to standardize their approach. ‘Total operating income’ can also be as a substitution option.

Furthermore, it is recommended to collect ‘optional inputs’ for financial institutions, such as ‘payments to supplier organizations and individuals’ or ‘permanent employee wages’. This will minimize the model estimations relying on the substitute to ‘sales’.

Keep in mind that the financial institution’s own impact is often minimal compared to the loan portfolio impact of financial institution. One might therefore decide to only investigate the finance enabling effect of a portfolio by using the Example_2 sheet.

For investments into financial institutions, is the ‘capital outstanding’ needed to estimate the job effects in the institution itself or for the finance enabling effects?

The ‘capital outstanding’ is needed to quantify the finance enabling impacts, meaning the impacts on the companies benefiting from the financing of a given institution. The jobs at the financial institutions themselves must be provided directly by the users as they are not estimated by the JIM.

How should ‘project development’ activities be classified in the input file?

As the JIM model’s use is primarily aimed at ex-post analysis it is not optimal to investigate ‘project development’ effects. However, running the data with the project’s intended characteristics, such as its

energy capacity, and its expected sales can provide insight in what the project's impact will be once its operational. Please note that this does not address the attribution question: to what extent can the impacts quantified be attributed to the 'project development' activities.

How should we insert temporary projects that are implemented at a corporate?

These can be included as construction projects. For client type, select 'project finance construction phase', and for economic activity, select the sector on which the project value is likely to be spend.

1.5 Inputs for attribution

Does the 'Attribution effect' sheet ('Example_3') need to be used if, in 'Example_2' sheet, the amount an institution provides to a bank is inserted in the 'capital outstanding' column?

No, the Example_3 sheet does not need to be used in this case. Considering that the value inputted already represents the amount you provided to the bank, the results quantified will correspond to this specific amount's effects. In this case, the results are inherently attributed.

What is the difference between 'capital committed' and 'capital mobilized'?

'Capital mobilized' refers to amounts committed by third parties whereas 'capital committed' refers to your own capital only.

What does 'facility number' correspond to?

The facility number is a unique number that an organization may use internally to designate each investment. It is an optional input, which you can use if it is relevant, otherwise you can ignore it.

1.6 Other

Kosovo is not included in the input country list. How should it be classified?

The JIM uses the United Nations country list (<https://unstats.un.org/unsd/methodology/m49/>), however, Kosovo is not on this list. It is a partially recognized state, subject to a territorial dispute with the Republic of Serbia. To capture the impacts of investments in Kosovo, users can select 'Serbia' as a country.

How to account for a company that operates in two countries/sectors?

To capture the impact of a client in multiple countries or sectors, you must create separate lines for the same company, splitting the information accordingly.

For instance, if Company A operates in the utilities sector in Kenya and Uganda, with 60% of turnover from Kenya and 40% from Uganda, you should include Company A twice: once for the operations in Kenya with 60% of turnover and once for Uganda with the remaining 40% of turnover. The same is true if a company operates in one country but multiple sectors.

When the inputs cannot be split between countries/sectors you can use a regional input or miscellaneous sector. However, using miscellaneous will reduce the confidence level of the results.

2 SCOPE

2.1 General

What is the scope of the supply chain impacts?

The entire local upstream supply chain impact of a client is taken into account. This includes the client's direct and indirect suppliers.

The JIM relies on IO modelling, which traces company revenues through an economy revealing linkages between the company and other sectors in the economy. This can be done using a statistical representation of an economy, referred to as a Social Accounting Matrix (SAM). A SAM describes the financial flows of all economic transactions that take place within an economy.

For each company, the JIM traces how much of its revenues are likely to be spend on local suppliers (per economic sector), on imports, and on salaries, taxes and profits. Subsequently, it traces how these local suppliers again spend their revenues on their suppliers. This process is reiterated until the model runs out of local revenue generated.

By linking these money flows to data on labour productivity, value added and GHG emissions, the model can quantify the total local supply chain and induced value added, employment and GHG emissions related to a client.

Note that the JIM only quantifies the *local* supply chain impact, except for GHG emissions for which imports-related impacts are considered as well.

Is it possible to use the model to estimate indirect and induced effect of fund investees in addition to direct clients?

Yes, for fund investees, you can either provide:

- Detailed data on the investees themselves, e.g. sales, direct employment at the investee;
- Information on capital outstanding of funds to investees. The model then applies a capital-to-output ratio to estimate the sales supported with the fund investment. This will in turn be used as an input to the model.

2.2 GHG emissions

Does the GHG estimation cover only the energy sector?

The GHG methodology is fully aligned with the methodology for employment and value added. This means that estimations are made for all sectors and countries.

Does the model include GHG emissions during construction and decommission of a project, or only during operational phase?

For projects, users have two options:

- Select client type 'project finance operational phase' and include 'sales' as input data. The model will then quantify the impacts of the project's operational phase, including the GHG emissions during operations;
- Select client type 'project finance construction phase' and include 'project value' as input data. The model will then quantify the impacts of the project's construction phase, including the GHG emissions during construction.

Project decommission is currently not enabled by the JIM.

‘Scope 3’ seems to include downstream emissions related to activities and enabled by additional power (or capital supply). What is included here?

For power projects, the JIM quantifies the ‘power enabling impact’, i.e. the impact related to the use of additional power. The additional electricity provided to the network by a project will enable companies to produce more and run their machines (among other things) for a long period of time. However, electricity is often not the only energy source used by companies. If companies increase their production due to improved access to electricity, they are likely to increase the use of these other energy sources as well. The JIM assumes no supply and capacity constraints of these resources. The power enabling GHG emissions quantified by the JIM are the emissions related to the use of these additional energy sources (e.g. fuel for cars and generators).

For investments into financial intermediaries, the JIM quantifies the ‘finance enabling impact’, i.e. the impact related to the use of capital provided by these financial intermediaries. The JIM assumes capital provided by financial intermediaries is used by companies to increase their sales (among other things). If companies increase their sales, the JIM assumes they proportionally increase the use of energy sources as well. Furthermore, an increase in sales is assumed to lead to an increase of procurement from suppliers, which will also proportionally increase their use of energy sources. The finance enabling GHG emissions quantified by the JIM are the direct, supply chain and induced emissions related to the additional sales of companies benefitting from the capital provided by financial intermediaries.

3 METHODOLOGY

3.1 General

How much more reliable do the results become when additional (optional) data is specified as an input?

The JIM uses macro-economic statistics reflecting country and sector averages to quantify results. The more representative a client is of a given sector in a country, the more accurate the JIM estimates for this client will be.

However, it is likely that DFI clients deviate from the sector average. It is therefore recommended to try to collect 'optional data' to reduce the level of modelling and improve the confidence level of results. Typically, the confidence level generated by the JIM increases by 1 when 'optional inputs' are provided.

How does the gender employment breakdown work?

Employment impacts are quantified using statistics from among others the ILO. The ILO has data available on the estimated total number of workers in a certain sector and country, as well as on their gender. The percentage of women out of the total workers in a certain sector and country is applied to the JIM's employment results.

How can we quantify the impact of wages specifically?

By inserting the optional input 'permanent employee wages' in the input sheet, the model will use this value instead of estimating it and will in turn trace the re-spending (induced) effects of these wages.

To allow the model to run properly, you still need to insert a 'sales' or 'project value' input.

Are there known limitations of IO modelling regarding projects in construction phase?

When running construction phase projects in the JIM, it is important to keep in mind that impacts quantified for these projects are temporary effects. They only last for a limited number of years due to the intrinsic short-term nature of these projects. Employment impacts therefore represent man-years, not jobs.

3.2 GHG emissions

Is the methodology developed aligned with PCAF?

The JIM is compatible with PCAF, but it depends on how you report the results.

Similar to the PCAF data hierarchy, the JIM always prefers direct data over modelling. Only if direct data is not available, economic modelling is used.

The JIM breaks down the GHG emissions into categories recognized by PCAF. It reports direct emissions (Scope 1), emissions related to direct electricity suppliers (Scope 2) and emissions related to other suppliers (part of Scope 3). In addition, the JIM also reports induced GHG emissions. It is up to users to select the scopes of impact they would like to report on.

Is the attribution aligned with PCAF?

Yes, both PCAF and the JIM use prorating for attribution. Note however that PCAF does not apply a single methodology as it tries to fit most organisations.

Therefore, we will continue to explore how to best align with PCAF through future model developments.

How is the carbon sequestered being calculated? On which methodology is it based?

Carbon sequestered is not quantified by the JIM. It can be included in the input template, after being quantified by the user's own methodology. It is then printed by the model in the results file.

3.3 Finance enabling effects

For finance enabling effects, why did you decide to use a constant capital-to-output ratio (0.35) for all sectors, countries and financial instruments?

There is little information available on how additional capital provided to companies is used by these companies to create additional output.

Together with CDC we conducted research on this, using data from the WB ES. The sample we were able to derive from the WB ES after data cleaning included about 4,500 firms from 15 countries. For most sector and country combinations the marginal capital intensity that we derived from this data, together with GTAP data, was somewhere between 0 and 1.

We discussed this ratio with IFC who is also trying to obtain better insights into how additional capital is translated into additional output. They are working with a ratio of 1:0.35, based on a bigger sample from the Orbis database (30 000 firms). IFC's ratio is similar to the one from our research, but for some country-sector combinations the ratios from our research were somewhat higher.

Until more data is available, and to be on the conservative side, we decided to work with this simple ratio of 1:0.35.

For finance enabling effects, where does country-specific data enter the calculation?

The constant capital-to-output ratio is used to convert capital to output. Subsequently the model uses country- and sector-specific statistics to estimate how outputs are spent throughout the economy. Finally, country- and sector-specific employment, value added and GHG data is used to convert output into jobs, value added and GHG emissions.

Why did you decide not to differentiate by financial products in the calculation?

The model was designed to quantify the impact of projects or investees, not based on the type of funding they were provided with.

Furthermore, we decided not to differentiate by financial products yet, as data on how different financial products are used by companies to create additional output is still limited.

We however understand that equity investments differ from loans or guarantees in the way impact could be attributed. This would be something to explore further in the future.

4 RESULTS

What is used to calculate the induced effects if the permanent employee wage is not available?

If you do not have 'Permanent employee wages' available, the model will estimate it from revenue using country and sector-specific statistics, and in turn use this estimate to calculate the induced effects. As the estimate might differ from the actual value, impacting the induced results, we recommend collecting this input.

Can the ex-ante GHG footprint be calculated?

Even though the model is primarily made for ex-post analysis, an ex-ante study of GHG emissions can be performed using projected input data.

However, it does have limitations. The model is using historical data and does not reflect how productivity or GHG efficiency will have changed over time. The more you look into the future, the less reliable the results based on the current version of the JIM will be.

What do negative taxes in the results file mean?

Negative taxes typically mean that a sector receives a net subsidy. You see this for example in agricultural sectors in some countries.

Can the model be used to estimate jobs or value added per MW or per USD 1m?

It is possible to make the impact relative to inputs such as MW or \$1M invested. This will facilitate comparisons of results, e.g. between regions and sectors, but also between institutions. To obtain relevant insights however, users should only divide the impact results by the inputs that are driving them.

Indeed, the impact per \$1M sales is not the same as the impact per \$1M invested due to the attribution effect. Therefore, if you are interested in the impact per \$1M invested, make sure to only use the attributed impact.

Some examples for corporates:

- [supply chain impacts] / [sales]
- [attributed supply chain impacts] / [capital outstanding]

Some examples for projects:

- [power enabling impacts] / [MW]
- [supply chain impacts] / [project value]

Do you have practical examples of using such multipliers based on the JIM?

Here are details on FMO's approach:

FMO has used the impact per million USD invested to analyse the impacts per country. The multipliers show for instance that developing countries have a higher impact per million invested than more developed countries.

Here are details on CDC's approach:

To obtain regional, national or sectorial insights into the potential impact of a client or project ex-ante, CDC run "dummy companies" through the model.

For example, by setting those companies' energy production to 1MW and running the model multiple times with different countries one can compare the impact of 1 MW capacity in one country versus the other. These insights can be used ex-ante to assess the potential impact of a project.

CDC also looked into the jobs and value added per USD1m. Here, they focused on impacts per USD1m of COGS (Payments to supplier organizations and individuals) or sales. CDC does not use the attribution module (yet), so the results per USD1m invested were not investigated.

It is recommended to use as much client-specific (optional) data as possible, to improve the confidence level of these insights.

5 INTERFACE

Why do my direct employment results have a 4 star confidence level, while I provided observed input data?

For direct employment, the highest confidence level can be achieved when also the optional data is provided: 'direct employment – operations & maintenance – third party hires'. Third party hires need to be deducted by the JIM from 'direct employment – operations & maintenance' to avoid a possible double count. The third-party hires are also part of the supply chain jobs in the model.

For a bank I see that in the 2019 results we are getting fewer induced jobs than in the 2018 results despite the higher wage bill. In 2019 the bank paid US\$ 10 million more in wages, while procurement dropped by US\$ 15 million. I have a 5,000 less jobs supported despite the increase in wages.

Induced jobs are driven by both direct and indirect wages. The lower induced jobs (despite higher direct wages) can be explained by the drop in procurement, which in turn affected the supply chain jobs used to calculate induced impact.