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ESTIMATING THE MONETARY BENEFITS OF SELECTED SPEED- SUPPORTED ACTIVITIES

SPEED PROJECT GUIDELINES [DRAFT]

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OVERVIEW

INTRODUCTION

The Support Program for Economic and Enterprise Development (SPEED) (hereinafter, the “project”), is required to report on impact of project activities to USAID. Under USAID’s results framework, SPEED is required to report on SPEED-support activities that result in: (1) a cost savings to the private sector and (2) jobs created.

This paper sets out four draft frameworks and logic chains for estimating the monetary benefits for the following selected business environment reforms supported by the project:

- (1) Reduced time to pay taxes;
- (2) Reduced fees at the Nacala Dry Port;
- (3) Elimination of illegal payments;
- (4) Issuance of VAT receipts in the agriculture sector.

The draft framework incorporates and builds on previous work done by SPEED (Bolnick and Roberts, 2011; Garcia, 2008) and attempts to set out the frameworks for conducting the analysis. Once a verifiable change has taken place for each of the activities with support from SPEED, data will need to be collected and inserted into the framework so the analysis can be applied. If no verifiable change has taken place, the SPEED team will need to make certain assumptions to show possible economic effects should the change occur. In deciding which analyses to finalize, the SPEED Team take into account the nature of the benefits, the availability of data, and the cost to the project of conducting the analysis in terms of budget and time resources.

SPEED will also need to interact with counterparts such as USAID, the private sector and government, to finalize estimates on how much SPEED was attributable to the reform and finalize other estimates needed for the analysis. The extent to which benefits can be attributed to USAID involvement can be summed and compared to SPEED project costs to provide a lower-bound estimate of the rate of return on USAID’s investment in these reform activities. There are two reason for regarding the results as a lower-bound to the actual benefits of SPEED-supported reforms: first, some benefits will not be quantifiable; and second, the framework calls for applying conservative assumptions to resolve uncertainty about parameter values or benefit estimates, to ensure that the results are credible and defensible.

By demonstrating the tangible effects of market-supporting reforms, the benefit estimates produced under this framework should serve as a valuable instrument for strengthening advocacy and building political support for improvements in the business environment in Mozambique.

The report will address the costs savings to the private sector of the four selected business environment reform. In so doing, it will attempt to outline the nature of the reform, logic chain and data requirements needed for each analysis. At the end of the report, it will address the issue of calculating the effects on employment, which will require a good deal more analysis, assumptions and effort than calculating savings to the private sector.

CROSS-CUTTING ELEMENTS OF THE ANALYSIS¹

Estimating benefits should take into account the following important cross-cutting elements that are fundamental to the analysis.

DEFINING BENEFITS

The basic target for evaluation is (1) the monetary value of benefits, or cost savings, to the private sector in Mozambique and/or (2) job creation resulting from SPEED-supported reforms to the business environment, where the benefit is measured relative to a well defined counterfactual (discussed below). The draft frameworks focus on defining the monetary (and to the extent possible, job creation) benefits of project-supported reforms. This analysis does not require a full *economic* analysis. While this is less than ideal, it is still a major advance over the evaluation methods used in most USAID projects. An economic analysis is more complex and it requires more data and more technical training. Also, ideally, program activities should be implemented before estimates are made. Absent the reform being implemented, estimates would be purely speculative. While there may be benefit in showing the possible impact of the reform, obtaining data and establishing a concrete counterfactual might be too expensive and technically time-consuming to warrant attention. However, these cases, establishment of the logic chain to estimating benefits is important in case it is deemed warranted to pursue analysis.

THE COUNTERFACTUAL

The counterfactual scenario for an impact evaluation is ideally determined using a randomized control trial that yields a rigorous statistical comparison between a “treatment” group of beneficiaries and a control group not covered by the treatment (forming the counterfactual). An alternative approach is a quasi-experimental design that isolates the with-versus-without effect of the intervention through an econometric analysis using a data set that includes beneficiaries and non-beneficiaries. These methods are not widely applicable, though, to business environment reforms because it is often not possible in this context to isolate a control group through the sample design or statistical analysis.

For SPEED analyses, the counterfactual will be easy to determine because the available information will indicate convincingly that the baseline indicators would have remained unchanged without the reform. In this situation, a simple before-and-after calculation can provide a valid measure of the benefit of the reform.

DATA SOURCES

We should only estimate benefits for which pertinent data are available. Many program benefits cannot be quantified because of the absence of data or the inherent difficulty of measuring the effect of efforts of reforms on the business environment. Up-front efforts to collect baseline data and establish procedures for tracking key indicators is important, thus the impetus to develop these draft frameworks for monetizing benefits before the reform has been implemented. Depending on the nature of the reform, and on cost considerations, the benefit evaluation can draw on some combination of the following sources:

¹ From Bolnick and Bryan, “Estimating the Monetary Benefits of Business Environment Reforms,” SPEED August 2011.

- *Primary data reports.* Official statistics provide a great deal of information on economic conditions, ranging from household surveys to sector statistics (for example, on tourism, agriculture, or business registrations), trade and investment flows, financial sector performance, and fiscal indicators, among many other. In some cases, details needed for the benefits analysis will not be found in the published statistics, but can be obtained through direct contact with the responsible agencies.
- *Special purpose surveys.* Where randomized trials can be applied, special surveys are essential to the evaluation process, covering both the beneficiary group and the control group. In other cases, special surveys can produce extremely important and detailed data that would otherwise not be available. These surveys can be expensive, and should be used only if the cost is justified by the value of the information, either for the SPEED evaluation or broader purposes. The cost itself can be reduced by using on-line survey resources, or by making arrangements to add special questions to an existing survey instrument. In addition, for some purposes a small-sample “quick survey” may provide useful information, even if the results fall well short of textbook standards for statistical validity.
- *Secondary sources.* Key indicators can often be obtained from reports and studies produced by the World Bank, the IMF or other organizations; from academic studies; or from a variety of on-line data sets, the best known being the World Bank’s World Development Indicators, and the IMF’s International Financial Statistics. The international data sets draw on primary sources from the national governments, and with a lag. Hence, Mozambique sources will usually be the first recourse. But international data sets are the best source for international benchmarks, and may often be the most convenient source for time series data to establish trends (for defining the counterfactual, as discussed below).
- *Structured interviews.* An excellent way to begin the evaluation process is to conduct interviews with people in the business community, government officials, and other experts, including SPEED project personnel who are working on the issue. These interviews can be an invaluable and highly cost-effective source of information about the reform issues and data for the benefits analysis. The quality of the information will depend on the knowledge of the experts, and on their personal perspectives. It is important, where possible, to validate the information, triangulate the results through multiple interviews, and exclude any dubious data from the benefits analysis.
- *Focus groups.* A focus group brings together a set of experts or stakeholders to discuss a specific set of issues. Focus groups are led by a facilitator, whose preparations and guidance are critically important. An excellent way to organize a focus group is through a relevant business association that is engaged with the SPEED project. A strength of focus groups is that they permit interaction among stakeholders. Often this interaction is helpful in clarifying issues, verifying information, and challenging idiosyncratic views. A weakness of focus groups is that social norms or personality differences may lead to one stakeholder dominating the discussion. An effective facilitator will counteract this to achieve an open discussion and sharing of independent viewpoints.
- *Business associations.* Business associations may be a valuable source for specialized data on the effects of regulations, and access to data from members. Through these associations, it might also be possible for the project to organize a panel of business leaders to meet regularly for discussions about the impact of reforms and associated data issues. The project can also consider outsourcing data collection to associations, to benefit from their relationship networks.

It is essential to document the source for any data used in the benefit evaluation. This information should be recorded in analysis for each reform.

Attribution

Benefits should be largely or partly attributable to SPEED. Attribution estimates can be based on information provided by SPEED's Chief of Party (COP), USAID's Cognizant Officer Representative (COR) and other key representatives from the private sector and/or government. The degree to which a reform can be attributed to the project requires careful discussion with multiple parties who have direct knowledge about the project's contribution, supported by a review of evidence on the role of the project, such as policy studies that influenced the reform decision, inputs to the design of the reforms, drafts of legislation or regulations, or technical assistance in implementing the reforms. The result of the analysis will be an attribution factor with a maximum of 100%. Multiplying this factor by the value of the monetized benefit of the reform gives the value of the benefit attributable to USAID. Thus, with 100% attribution, the monetized benefit and the benefit attributable to USAID will be equal. With a 50% attribution factor, the attributable benefit will be half the monetized benefit. The estimate of benefits attributable to USAID should be included in the Benefits Evaluation Sheet and the Benefits Report for each initiative, with a concise explanation of the reasons for the attribution. In addition, both the overall estimate of monetized benefits and the estimate of benefits attributable to USAID should be recorded in the cumulative Benefits Summary.

DISCOUNT RATE

As noted above, business environment reforms produce benefits that accrue over more than just one year. To measure the overall benefit, year-by-year estimates have to be converted into base-year "present values" using an appropriate discount rate reflecting the rate of return that invested resources could be earning in other uses.

The choice of an appropriate discount rate has been a source of debate for decades within the professional literature. In the United States, OMB guidance for regulatory analysis suggests using a discount rate of 7 percent for measures affecting private investment (rather than consumption).² This is an estimate of the average before-tax real rate of return on private capital, and thus the opportunity cost of capital.

For developing countries, a simple approximation to the opportunity cost of private sector capital: the average real interest rate (RIR) on one-year bank loans for businesses. The RIR can be calculated as the average lending rate minus the average inflation rate for the base year of the investment.³ The investment appraisal method used at the MCC calculates a rate of return on each program component and applies a country-specific "hurdle rate" between 10% and 15% as the cut-off for deciding whether the investment is

² OMB, *op. cit.*, p. 33.

³ A more exact formula is: $RIR = (1+i)/(1+p) - 1$, where i is the nominal interest rate on one-year bank loans to businesses, and p is the average inflation rate for the latest year.

justified.⁴ The decision on the hurdle rate is essentially equivalent to selecting a discount rate. The World Bank conventionally uses a discount rate of 12%, subject to country-level considerations.⁵

For monetizing the benefit of SPEED supported reforms in Mozambique, the recommendation here is to use an estimate of the opportunity cost of capital to determine the discount rate, with a minimum value of 10% (in line with the MCC guideline).

⁴ Franck Wiebe, *Aid Effectiveness: Putting Results at the Forefront*, Millennium Challenge Corporation, October, 2008, p. 7.

⁵ Institute for Transport Studies, *Toolkit for the Economic Evaluation of World Bank Transport Projects*, University of Leeds, 2003, at: <http://www.its.leeds.ac.uk/projects/WBToolkit/>

CALCULATING BENEFITS

This section briefly explains each of the four potential reforms that are to be targeted by the analysis, and provides a short explanation of the assumptions and approximations underlying the computations. The details of how calculations might be made are available in a separate Benefits Evaluation Sheet, which is a Microsoft Excel file.

REDUCED TIME TO PAY TAXES

SPEED works to support the Government of Mozambique's efforts to improve its ranking in Doing Business (DB) report and continued improvement in business environment. Responding to a request from CTA, SPEED conducted a [review](#) on paying taxes, one of DB's indicators, in 2012.⁶ The assessment looked at the tax system in Mozambique with a focus on direct and indirect national taxes and taxes being collected at municipal level. The report gathered evidence that showed that the number of taxes that firms have to pay annually isn't the biggest problem. Rather, the high tax rates, the required cumbersome procedures and the time required to actually pay the tax poses a huge burden to companies. SPEED prepared a Draft Assessment, which included recommendations associated with the need to reduce the costs associated to the process of payment of the taxes, through a) increasing the tax collection points; b) expanding the electronic system to pay taxes, and c) strengthening capacity of Revenue Authority.

CALCULATING BENEFITS

To calculate the benefit, SPEED should (this should be read in conjunction with the Benefits Evaluation Sheet):

- Define the period for which to calculate benefits – perhaps the year SPEED began.
- Establish the counterfactual, which could be achieved by using the Doing Business report figure for days required to pay taxes (past year was 28.75 days), multiplying that by the cost per day of paying the tax (one could use a combination of minimum wages across sectors from agriculture, finance, industry, etc., which might come out to about US \$130/day) and multiplying that by the number of firms paying taxes (which might be obtained from the Tax Authority or INE).
- Establish the factual as a result of SPEED project support, which could be achieved by using the Doing Business report figure for days required to pay taxes after reform was achieved (if figures from Doing Business have not been released, SPEED will need to establish number of days to pay taxes on its own), multiplying that by the cost per day of paying the tax (one could use a combination of minimum wages across sectors from agriculture, finance, industry, etc., which might come out to about US \$130/day) and multiplying that by the number of firms paying taxes (which might be obtained from the Tax Authority or INE).
- Subtracting the counterfactual total cost from the factual total cost will give a gross benefit.

⁶ [SPEED Report 004, Paying Taxes in Mozambique, 2013](#)

- The gross benefit number should then be multiplied by the percent attributable to USAID/SPEED, which will then result in a project gross benefit number.
- The discount rate can then be applied to get a net present value of the reform.

REDUCED FEES AT THE NACALA DRY PORT

The Government of Mozambique approved the creation of a new Port Terminal in Nacala on February 2010. A private company, NCL & Africa Import and Export Ltd., received a concession to operate the dry port, know as the Special Terminal for the Exportation of Products (TEEN). The purpose of the dry port was to offer port clearance services to help reduce some of the congestion at the Nacala Maritime international terminal. The two terminals (TEEN and Maritime Terminals) were operating simultaneously providing the same services to exporters and importers until January 18, 2012, when the customs authority announced a mandatory use of the new terminal by the exporters. TEEN is located 9km from the port, further rising costs for exporters that built warehouses next to the port. Analyses undertaken indicates that the TEEN handling charges are US\$87 and US\$156 higher than Nacala Port’s handling charges for 20’ foot and 40’ foot containers, respectively. There are additional and duplicative logistic movements and handling costs that have also resulted from the requirement to clear export cargo through the terminal. In addition, according to ACIANA, the additional cost to exporters of using TEEN ranges from US\$274 to \$494.⁷

CALCULATING BENEFITS

To calculate the benefit, SPEED should (this should be read in conjunction with the Benefits Evaluation Sheet):

- Define the period for which to calculate benefits – perhaps the year SPEED began.
- Establish the counterfactual, which could be achieved by using information from NCL, contained in the [SPEED Report 011](#), regarding:
 - a) The cost of using the port for 20’ and 40’ containers for specified and non-specified products and multiplying that figure by the number of 20’ and 40’ containers that pass through TEEN (this figure could probably be obtained from TEEN for Nacala Port or Customs Authorities).
 - b) Costs should also be calculated for average storage at the port (this number – 15 days – has been identified by [SPEED Report 011](#) and ACIANA) and multiplying that number by the NCL cost for storage at day 6 (days 1-5 are free) and by the total number of 20’ and 40’ containers for specified and non-specified products.
 - c) Costs should also be calculated for additional movement (loading/unloading) charges at TEEN for 20’ and 40’ containers (information also contained in SPEED note 12) by total number of containers.

⁷ [SPEED Report 011: Terminal Especial de Exportacao de Nacala, 2012](#), and [Logistics Review of Beira and Nacala Coridoors, Agrifuturo 2013](#).

- d) Costs should be calculated for storage usage space per ton ((information also contained in SPEED note 12) by multiplying total tons by cost of storage space.
 - e) These numbers should all be added together to get the final counterfactual total cost for use of the TEEN port.
- Establish the factual, which could be achieved by following the same steps as above, but with the reduced TEEN costs as a result of SPEED project support.
 - Subtracting the counterfactual total cost from the factual total cost will give a gross benefit.
 - The gross benefit number should then be multiplied by the percent attributable to USAID/SPEED, which will then result in a project gross benefit number.
 - The discount rate can then be applied to get a net present value of the reform.

ELIMINATION OF ILLEGAL TAXES⁸

The practice of charging illegal and informal fees along transit checkpoints / corridors is reported to be on the rise throughout Mozambique. Decree 5/2009 has abolished these fees yet the collection of fees continues to take place in the districts for marketing and circulation of agricultural products. Although Provincial Directorates in Zambezia state they have issued two circulars in 2009 to the District Services of Economic Activities (SDAE) and to exporters, traders of agricultural sector insisted that the collection of these fees continues to occur many districts, which require multiple documents and multiple processes of intrusive inspection of goods without presenting legal basis or documenting the fines. For example, in the border post of Nicoadala, Customs officials stop traders to verify the compliance of foreign taxes; the Tax Authority checks compliance of internal taxes; inspectors of the Ministry of Agriculture, verify aspects related to legality of timber, and other aspects related to agriculture trade; and all are reported to elicit some type of payment to let the shipment progress.

Traders in all provinces visited complained about the negative impact of the cost and time spent when they have to circulate goods within the country. It was reported that an operator on the route from Nhamatanda to Maputo was stopped 11 times. In the specific case of Zambezia a study has been commissioned on the impact of the cost and time incurred by entrepreneurs that use that route. The biggest concern for the businesses and the decision-makers is that the checkpoints do not increase the tax base of the national tax system but in contrary they are *disturbance* posts, which are prone to corruption.. The proliferation of checkpoints hinders trade, causes products to be more expensive and encourages illicit charges.

CALCULATING BENEFITS

To calculate the benefit, SPEED should (this should be read in conjunction with the Benefits Evaluation Sheet):

⁸ From the [SPEED Report 022, Non-Tax Barriers to the Development of the Agricultural Sector in Mozambique, 2013](#).

- Define the period for which to calculate benefits – perhaps the year SPEED began.
- Establish the counterfactual, which could be achieved by using information from NCL, contained in the [SPEED Report 022](#), regarding:
 - a) Identify the amount of illegal tax being paid. This could be an average all the different taxes being paid.
 - b) Multiply the amount of average illegal tax being paid by the number of times that tax is being paid. The [SPEED Report 022](#) reports some traders paying 11 times along a particular route. Other verbal reports by SPEED staff mention up to 40 times along a particular route.
 - c) Then multiply that number by the number of total traders that are estimated to be subjected to these illegal taxes.
- Establish the factual, which could be achieved by following the same steps as above, but with the reduced / eliminated illegal tax costs as a result of SPEED project support.

The data for this activity would most likely need to come from structured interviews, special purpose surveys or structured interviews with traders, associations and even government officials. If the data does not already exist, some SPEED resources will need to be mobilized to obtain data.

AGRICULTURE VAT RECEIPTS⁹

The Value Added Tax (VAT) law in Mozambique requires producers or those agents who are involved in buying and selling of goods and services to have one NUIT (Unique Tax Identification Number) and be registered for VAT. Registration allows the Mozambique Tax Administration to identify the different actors that add value to goods and services as well as the amount of tax owed to the Government.

The VAT on Agriculture has some particularities in Mozambique.

- a) The agriculture is exempt from paying or charging VAT, i.e., agriculture should pay a zero VAT. This is a policy tool to encourage and develop the country's agricultural production and also to protect and stimulate several million small farmers Mozambicans - about 75 per cent of the Mozambican population – that depends on agriculture for their primary source of income. By not having to pay VAT on agricultural inputs, farmers should be able to sell more of their product.
- b) However the vast majority of small agricultural producers / farmers have no NUIT are not registered for VAT. Thus, these producers cannot issue receipts as a result of sales of their surplus agricultural sectors of commerce and industry. This causes the buyers of these products to not have evidence of these purchases from small farmers that do not have a NUIT or VAT number or receipts. The absence of that evidence means that that the Tax Authority (AT) cannot recognize these purchases as costs. Thus, any such purchases without proper VAT receipts are taxed at 32 percent via IRPC - Income Tax of Legal Persons. Additionally, and because these adjustments are made retrospectively when inspections and audits are performed at the AT companies and typically after the end of the respective periods of payment of IRPC, companies in these

⁹ From [SPEED Report 008, Taxation in the Agriculture Sector in Mozambique, 2012](#) and [SPEED Report 002, VAT in the Agriculture Sector, 2012](#).

situations are aggravated a late payment penalty tax of 35 per percent, ending up paying in total 67 per cent tax.

One firm SPEED spoke with purchases from 10,000 farmers and without proper receipts, the firm will need to stop purchasing from the small farmers and those farmers will lose the income earned from those sales. A milling firm interviewed used to buy from 60 farmers, with purchases averaging Mt 30,000-60,000. Now it only buys from small traders who are ISPC registered. The company would prefer to buy directly from the farmer and develop a relationship to increase quality, and improve farming practices. By not buying directly from the farmer, the person SPEED spoke with estimates that farmers are losing about \$500,000 (10,000 tons at MT 1500 cost per ton) per year because they must go through a middleman who is ISPC registered. This is a cost to farmers arising from tax authorities not accepting invoices arising from transactions with non-registered taxpayers.

CALCULATING BENEFITS

Some excellent work has been done by SPEED staff to calculate the benefits of farmers being able to issue tax receipts. However, the work and data necessary to arrive to calculations might be overly time-consuming and cumbersome to obtain. Furthermore, work done by SPEED states that “the Ministry of Finance has exempted some transactions and firms from the *“taxa liberatoria”*, including grain buyers, large scale buyers of commodities, and cotton buyers. The tobacco industry is also exempt. In general, large companies get special treatment with respect to the withholding tax.” (Dr. Mertens “Taxation in the Agriculture Sector in Mozambique” SPEED June 2012). In addition, the same author states that a firm she spoke with “only buys from small traders who are ISPC registered.” This suggests that many small farmers are able to sell their products to large firms or to ISPC registered middlemen.

Nevertheless, a survey of some firms might shed some light and numbers on the cost small farmers are not receiving as a result of not issuing invoices (e.g., one firm estimated \$500,000). If deemed important, a few of these stories could be collected and presented to the Tax Authority.

Other than that, SPEED could follow the guidance already prepared for estimating benefits for this activity.

CALCULATING EFFECTS ON EMPLOYMENT

For calculating the effects on employment, once SPEED has obtained the savings to the private sector for a particular reform, one could attempt to arrive to some calculations on the effect of employment. The calculations would be very broad and possibly subject to some criticism about the assumptions used to arrive to the calculations, but in theory, such a calculation is possible. The logic chain is presented below:

- (1) SPEED would need to obtain a value of the increased sales that a firm would benefit from as a result of the SPEED-supported reform/cost savings. The increased sales could be from increased competitiveness and an ability to export more and/or through substituting for imports and increased domestic sales. The increased sales would ideally lead to increased investment by the firm to meet demands for increased production. Part of that investment would likely be in the form of jobs.
- (2) Getting these numbers would be difficult, but one could establish a coefficient between output and employment. One could talk to industry to try to obtain some numbers relating to how cost savings would be channeled into increased production, investment and jobs. This likely would be a time and cost-intensive exercise. One could also speak with the Instituto Nacional da Estatísticas (INE) as

they have probably already produced input-output tables for their national accounts for particular sectors. These sales/output to value added tables, also referred to as supply and use tables, will probably contain some coefficients that could then be used to calculate jobs. For instance, if INE's supply and use table might list the coefficient as 50 jobs per \$100,000 sales for a particular sector, we can then apply that coefficient to the cost savings to the private sector for any particular reform.

- (3) SPEED would also need to define how much SPEED was attributable to the increased employment, which might be difficult to define as SPEED was only partly attributable for a business environment-related reform and not necessarily the increase in jobs. Nevertheless, some assumptions can be drawn.