

**TC Document**  
**Impact Assessment of Programs for the Promotion of Innovation**  
**and Business Development**  
**RG-T2095**

**I. Basic Information for TC**

▪ Country/Region:	Regional: C and D <sup>1</sup> Countries
▪ TC Name:	Impact Assessment of Programs for the Promotion of Innovation and Business Development
▪ TC Number:	RG-T2095
▪ Team Leader/Members:	Ezequiel Tacsir (CTI/CCR), Team Leader; Gustavo Crespi (IFD/CTI), Bernardita Saez (LEG/SGO) and Sandra Ortega (IFD/CTI)
▪ Date of TC Abstract authorization:	04/03/2012
▪ Donors providing funding:	Knowledge Economy Multidonor Fund (KEF)
▪ Beneficiary	Ministries of Science and Technology, Ministries of Economics and Productive Development Agencies throughout the region.
▪ Executing Agency and contact name	IDB (Gustavo Crespi)
▪ IDB Funding Requested:	\$200,000
▪ Local counterpart funding, if any:	N/A
▪ Execution period	20 months
▪ Disbursement period	24 months
▪ Required start date:	07/15/2012
▪ Types of consultants	International Individual Consultants
▪ Prepared by Unit:	Innovation and Competitiveness Division (IFD/CTI)
▪ Unit of Disbursement Responsibility:	IFD
▪ TC Included in Country Strategy; TC included in CPD	Yes: VPS RD Programming Document
▪ GCI-9 Sector Priority:	Development through the Private Sector.

**II. Objectives and Justification of the TC**

On average, Latin American and Caribbean countries underperform compared to other developed and developing countries in terms of productivity growth (Daude and Fernández-Arias, 2010; IDB, 2010a; IDB, 2010b). Innovation, broadly defined as the introduction of new products or processes by firms has been credited as the ultimate engine of productivity growth and competitiveness by a vast amount of economic literature (Hall and Jones, 1999; Rouvinen, 2002)<sup>2</sup>. The fundamental rationale for innovation policy is that government intervention is necessary to surmount private under-investments from a social welfare perspective due to the presence of market failures and information asymmetries with regards to the production and/or

<sup>1</sup> Group C Countries are borrowing member countries with insufficient markets relative to other countries in the region (Bahamas, Barbados, Costa Rica, Jamaica, Panama, Suriname, Trinidad and Tobago and Uruguay). Group D Countries are the least-developed borrowing member countries in the region (Belize, Bolivia, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Nicaragua, and Paraguay).

<sup>2</sup> At the firm level, there is convincing evidence for industrialized countries showing the positive links between R&D, innovation, and productivity (Griffith et al., 2004; Griffith et al., 2006; Mairesse and Monhen, 2010; OECD, 2009). For some evidence in this respect for Latin America and the Caribbean, see Crespi and Zuñiga (2010).

exchange of technological knowledge, being these more acute in the case of small and medium enterprises (SMEs).

Considering that public intervention becomes a basic ingredient in the enhancement of firm productivity, evaluation makes an essential contribution to learning and decision-making. The IDB considers that it is strategically relevant to count on an external evaluation of those policy interventions aimed at supporting innovation and enhancement of competitiveness in firms, in general, and small and medium enterprises (SMEs), in particular. Over the recent years, an important group of C and D countries have established these types of interventions: Propyme and Costa Rica Provee in the case of Costa Rica, FONDEPRO in El Salvador, Impulso Panamá in Panama, FONDEC in Dominican Republic and PDC in Paraguay, to name a few. These programs are designed to operate under the form of direct subsidies to activities such as new product development, process improvements and support for quality certification standards. Although the mentioned programs have been around for a while and taking into account the existence of demand from the business sector to access these services, these programs have not yet been evaluated. Thus today it is impossible to say whether the resources are being well spent and if it is possible that these programs generate a multiplier effect on business investment in innovation. This TC will fill the gap by providing quasi experimental evaluations for four programs aimed at promoting innovation and competitiveness at the firm level in the form of direct subsidies in countries C and D.<sup>3</sup> For this, we will design and put in place a Call for Proposals (CFP) aimed at selecting the programs to be evaluated. The evaluation of the proposals will be based on the technical merit both of the received project and team leader, accessibility of firm-level data. The proposals should describe clearly the characteristics of the program, methodology, research team. Those proposals capable of linking survey data with register data (social security, employment, exports, patents, etc.) will be preferred. A maximum of two evaluations of the same country will be selected.

*General Objective:* The purpose of this TC is to identify the key features of programs aimed at promoting innovation and competitiveness at the firm level in the form of direct subsidies in countries C and D by means of techniques of quasi-experimental evaluation of their impact.

*Specific Objectives:* (i) Assessing the impacts of the programs with respect to firms' behavior, (ii) Provide insights on how specific features of the programs (elegibility of firms, activities supported, size and scope of the matching grants) may have influenced the outcomes assessed, (iii) Assessing the programs with respect to firm's performance, (iv) Offer recommendations about possible reforms and modifications of the programs, (v) Promote the exchange of experiences and lessons learned throughout the region

This TC is aligned with GCI-9 sector priority of development through the private sector.

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<sup>3</sup> For details on concepts and suggested methodologies to how to measure the impact of Science, Technology and Innovation Programs, see Crespi, G., Maffioli, A., Mohnen, P., Vázquez, G. (2011) "Evaluating the Impact of Science, Technology and Innovation Programs: a Methodological Toolkit", Impact Evaluation Guidelines, IDB Technical Notes, IDB-TN-333 available on: <http://www.iadb.org/document.cfm?id=36693990>.

### III. Description of components and budget

**Component I: External evaluation of Firm Support Programs:** The external evaluations will be undertaken by high caliber experts who will ideally implement a common methodology under the supervision of the team of CTI. The selection of the evaluators will require a proposal indicating its accessibility to the program data and other sources required to perform the quasi experimental evaluations. It is expected that the evaluations be based on the guidelines suggested by Crespi, Maffioli, Mohnen and Vasquez (2011). The proposals should be capable of demonstrating the capacity to access and use required data and published the related results by means of a letter of the responsible agency in charge of collecting and diffusing the data and/or by presenting descriptive statistics of the data. Support letters from agencies responsible of the proposed programs and/or inclusion of their personnel in the proposal will be highly appreciated when assessing the proposals. Evaluator(s) will have the primary responsibility of:

- (a) Production and analysis of data and performance indicators for these programs in comparison with international experience from the standpoint of management efficiency.
- (b) Implement methodologies of Double Difference and Matching to assess their impact on the performance of SMEs in each country.
- (c) Provide qualitative evidence in the form of interviews targeted to user firms and managers of the programs. These interviews should provide evidence of bottlenecks and actions required to be improved in other programs in the region.

Additionally, the project will make use of one international expert that will provide comments throughout the project (selection of proposals, drafts and final outputs) and will serve as an external peer review. Each evaluator will be responsible for the submission of the following products:

- (+) One Technical Note per program with the impact evaluations and lessons and policy recommendations.
- (+) Participate and present the results in a regional discussion workshop aimed at discussing and agreeing on methodologies to be used. This workshop will include the participation of the IDB team, the international peer reviewer and the teams conducting the selected evaluations.

**Component II: Validation and Policy Dialogue.** The findings of the evaluators will be discussed during a regional workshop with policy makers and compiled by the IDB team on a Monograph. Specifically, the suggestions and recommendations will be included in the final reports which will be widely disseminated during a Regional Policy Dialogue meeting. In terms of output the project will produce:

- (+) 4 Technical Notes;
- (+) 1 Monograph compiling the results, findings and lessons learned;
- (+) 1 workshop (inception workshop);
- (+) 1 validation and dissemination workshop.

### Indicative Budget

Component	Description	IDB/Fund Funding	Counterpart Funding	Total Funding
Component I	4 Evaluations	\$100,000.00	0.00	\$100,000.00
Component I	1 Discussion Workshop	\$ 15,000.00	0.00	\$ 15,000.00
Component I	International Peer review	\$ 15,000.00	0.00	\$ 15,000.00
Component II	Workshop (Validation and Dissemination)	\$ 25,000.00	0.00	\$ 25,000.00
Component II	Edition and publication (TN and Monograph)	\$ 20,000.00	0.00	\$20,000.00
Components I & II	Research Assistant (supervision and compilation)	\$ 25,000.00	0.00	\$ 25,000.00
<b>TOTAL</b>		<b>\$ 200,000.00</b>		<b>\$200,000.00</b>

### Indicative Results Matrix

	Indicator	Baseline	Target
<b>Component 1:</b> External evaluation of Firm Support Programs			
<b>Outputs:</b>			
Technical Note (with country evaluation)	# of Technical Notes	0	4
Regional Workshop I	Expert Discussion (# of Participants)	0	15
<b>Outcome:</b>			
(Knowledge use of) Technical Note	# of times knowledge produced has been used for operations	0	3
(Knowledge use of) Technical Notes	# of times knowledge produced has been used as input for programming and strategy documents	0	3
(Knowledge use of) Technical Notes	# of citations	0	4
(Knowledge use of) Regional Workshop	% of event participants that report increased knowledge.	0	85

<b>Component 2: Validation and Policy Dialogue</b>			
<b>Outputs:</b> Monograph	# of Monographs	0	1
Validation and Dissemination Workshop	Expert Discussion (# of participants)	0	20
<b>Outcome:</b> (Knowledge use of) Monograph	# of times knowledge produced has been used for operations	0	3
(Knowledge use of) Monograph	# of citations	0	3
(Knowledge use of) Validation and Dissemination Workshop	% of participants to the event satisfied	0	90
(Knowledge use of) Validation and Dissemination Workshop	% of participants that perceive their knowledge has increased	0	90

#### IV. Executing agency and execution structure

The executing agency for this TC will be the IDB. This decision is based on the proved capacity of the IDB to execute TCs actions and, more important, its knowledge to identify highly qualified international experts with access to required information sources. Bank Policy GN-2470 establishes that the Bank may execute TC in areas of its expertise provided that the proposed activities are consistent with the Bank's strategies and programs. The IDB through its IFD/CTI division has a long tradition in the production of impact evaluations of Science, Technology and Innovation (STI) programs.

**Procurement:** The Bank will contract all the consultancies in accordance with the policies and procedures of the Bank. The procurement of goods and works will be in accordance with Bank procedures. The terms of reference for the consultancies and the procurement plan are included as Annexes.

#### V. Project Risks and Issues

The implementation of this TC will require collaboration from the agencies implementing the programs to provide a list of applicants and beneficiaries at the same time that statistical offices should provide and good and timely access to micro-data information sources such as innovation surveys, register data on exports, wages and employments. So the CTI team will engage with all of them very early at the start of TC, securing commitments from the

involved public agencies. It is also expected that the findings of these evaluations will be used as an input to the CTI's work plan for the future. Additionally, this TC will produce suggestions and recommendations in relation to the design and implementation of the programs under evaluation that face the risk of not being implemented by policy makers in the future. The timely validation of methodologies, diffusion and discussion of results will be a fundamental mechanism to mitigate this risk and strengthen the results of this TC.

#### **VI. Exceptions to Bank policy**

There are no exceptions to Bank policy.

#### **VII. Environmental and Social Strategy**

It is not anticipated that the activities financed by this TC will have any environmental or social negative impact. During the process of selection we will consider also environmental issues. In accordance with this and the ESG classification this operation has been classified as "C".

#### **Required Annexes:**

- Terms of Reference for activities/components to be procured
- Procurement Plan

#### **Optional Annex:**

- Joint declaration of SMEs authorities of Mesoamerica gathered in occasion of the "II Foro Mesoamericano de PYMES" held in San Jose, Costa Rica, on April 23th-24<sup>th</sup>, 2012. IDBDOCS # [36998644](#)

## REGIONAL

### RG-T2095: Impact Assessment of Programs for the Promotion of Innovation and Business Development

#### Component I: Technical Note 1: External evaluation of Firm Support Program in (Country to be determined)

## TERMS OF REFERENCE

### I. BACKGROUND

- 1.1 On average, Latin American and Caribbean countries underperform compared to other developed and developing countries in terms of productivity growth (Daude and Fernández-Arias, 2010; IDB, 2010a; IDB, 2010b). Innovation, broadly defined as the introduction of new products or processes by firms has been credited as the ultimate engine of productivity growth and competitiveness by a vast amount of economic literature (Hall and Jones, 1999; Rouvinen, 2002). The fundamental rationale for innovation policy is that government intervention is necessary to surmount private under-investments from a social welfare perspective due to the presence of market failures and information asymmetries with regards to the production and/or exchange of technological knowledge, being these more acute in the case of small and medium enterprises (SMEs).
- 1.2 Considering that public intervention becomes a basic ingredient in the enhancement of firm productivity, evaluation makes an essential contribution to learning and decision-making. The IDB considers that it is strategically relevant to count on an external evaluation of those policy interventions aimed at supporting innovation and enhancement of competitiveness in firms, in general, and small and medium enterprises (SMEs), in particular. Over the recent years, an important group of C and D countries have established these types of interventions: Propyme and Costa Rica Provee in the case of Costa Rica, FONDEPRO in El Salvador, Impulso Panamá in Panama, FONDEC in Dominican Republic and PDC in Paraguay, to name a few. These programs are designed to operate under the form of direct subsidies to activities such as new product development, process improvements and support for quality certification standards.
- 1.3 Although the mentioned programs have been around for a while and taking into account the existence of demand from the business sector to access these services, these programs have not yet been evaluated. Thus today it is impossible to say whether the resources are being well spent and if it is possible that these programs generate a multiplier effect on business investment in innovation.

### II. OBJECTIVES

- 2.1 General Objective: Performing an impact evaluation of public programs aimed at promoting innovation and competitiveness at the firm level in the form of direct subsidies in country XXXX.

### III. CHARACTERISTICS OF THE CONSULTANCY

- 3.1 Type of consultancy: Individual International
- 3.2 Starting Date and Duration: Starting on October 1st, 2012; duration of 12 months.
- 3.3 Place of work: TBD with 2 missions: one to participate in the Inception Workshop and a second to participate in the Validation and Dissemination Workshop (places to be determined).
- 3.4 Qualifications: PhD or Master's Degree in statistics, economics, industrial or innovation economics or social sciences. At least five years of research experience in the field of the economics of innovation and public policy with probed experience in the field of impact evaluation.

### IV. ACTIVITIES

- 4.1 Based on the guidelines suggested by Crespi, Maffioli, Mohnen and Vasquez (2011), the consultant should produce a sounded impact evaluation of a quasi-experimental type. In this setting, this assessment of the program will be taken place after it has been implemented and subjects have already enrolled in it. This will require the construction of a control group that is as similar as possible to the treatment group as a counterfactual for how the treated would respond had it not received the treatment. A variety of econometric methods capable of addressing selection bias issues that may arise with non-experimental designs could be use, depending on program settings and available data : (i)Propensity Score Matching (PSM) Techniques, (ii)Difference in Difference (DID) methods using pre and post-program panel data, (iii)Combined PSM-DID methods, (iv)Regression Discontinuity (RD) or (v) Instrumental Variables (IV).
- 4.2 The impact evaluation should include an assessment of the effect of the program in intermediate outputs such as increased investment in technology upgrading and intangible assets, skills upgrading, adoption of new technology, introduction of quality control practices and entry into export markets. The improvements in these intermediate outputs eventually will lead to final outcomes. Final outcomes common to most programs will include: total employment, average wages, increased sales and productivity growth.
- 4.3 The consultant will participate in two workshops. In the first month of the project, an Inception Workshop will be held in which each team will present their project characteristics and will receive comments from other teams, the IDB team and an external reviewer. Once the evaluation has been finalized, the results will be presented in a Validation and Dissemination workshop that will also include the participation of relevant policy makers.



## V. PRODUCTS

- 5.1 The main deliverable of this consultancy will be a *Technical Note* that should include:
- i. A background section indicating whether and how the program(s) to be evaluated are relevant for each particular country.
  - ii. A detailed description of the rationale for the program(s), the sort of market and/or coordination failure that aims to correct, the institutional setting in which the program is being run, the identification of recent changes in program delivery and sort of mechanisms in place for program delivery and resource allocation,
  - iii. A description of the data to be used in the study.
  - iv. Implement methodologies of Double Difference and Matching to effectively assess the program impact in terms of both intermediate outputs (such as such as increased investment in technology upgrading and intangible assets, skills upgrading, adoption of new technology, introduction of quality control practices and entry into export markets) and final outcomes (i.e, total employment, average wages, increased sales and productivity growth).
  - v. The quantitative evaluation should provide answers to the following dimensions: whether there are crowding out (or in) effects, additionality of the program, preliminary assessment of cost-benefit analysis of the program, identification of potential spillovers effects.
  - vi. Provide qualitative evidence in the form of interviews targeted to user firms and managers of the programs. These interviews should provide evidence of bottlenecks and actions required to be improved in other programs in the region.
- 5.2 Participate and present the evaluation to be performed in the Inception Workshop
- 5.3 Present and discuss the results on a Validation and Dissemination workshop.

## VI. PAYMENTS

- 6.1 Compensation will be paid according to the following schedule: 20% at the signing the contract, 20% after the reviewing of the first draft of the evaluation (month 4), 25% after the reviewing the second draft (month 6), 25% after the final draft (month 9) and 10% at the closure of the project.
- 6.2 The total fee for this consultancy will be XXX. This amount also includes travel and per diem expenses.

## **VII. SUPERVISION**

- 7.1 The supervision will be responsibility of Mr. Ezequiel Tacsir, Science and Technology Specialist (CCR/CTI) [ezequielt@iadb.org](mailto:ezequielt@iadb.org) and Mr. Gustavo Crespi, Lead Science and Technology Specialist (IDF/CTI) [gccrespi@iadb.org](mailto:gccrespi@iadb.org).

## REGIONAL

### RG-T2095: Impact Assessment of Programs for the Promotion of Innovation and Business Development

#### Component I: Technical Note 2: External evaluation of Firm Support Program in (Country to be determined)

## TERMS OF REFERENCE

### I. BACKGROUND

- 1.1 On average, Latin American and Caribbean countries underperform compared to other developed and developing countries in terms of productivity growth (Daude and Fernández-Arias, 2010; IDB, 2010a; IDB, 2010b).. Innovation, broadly defined as the introduction of new products or processes by firms has been credited as the ultimate engine of productivity growth and competitiveness by a vast amount of economic literature (Hall and Jones, 1999; Rouvinen, 2002). The fundamental rationale for innovation policy is that government intervention is necessary to surmount private under-investments from a social welfare perspective due to the presence of market failures and information asymmetries with regards to the production and/or exchange of technological knowledge, being these more acute in the case of small and medium enterprises (SMEs).
- 1.2 Considering that public intervention becomes a basic ingredient in the enhancement of firm productivity, evaluation makes an essential contribution to learning and decision-making. The IDB considers that it is strategically relevant to count on an external evaluation of those policy interventions aimed at supporting innovation and enhancement of competitiveness in firms, in general, and small and medium enterprises (SMEs), in particular. Over the recent years, an important group of C and D countries have established these types of interventions: Propyme and Costa Rica Provee in the case of Costa Rica, FONDEPRO in El Salvador, Impulso Panamá in Panama, FONDEC in Dominican Republic and PDC in Paraguay, to name a few. These programs are designed to operate under the form of direct subsidies to activities such as new product development, process improvements and support for quality certification standards.
- 1.3 Although the mentioned programs have been around for a while and taking into account the existence of demand from the business sector to access these services, these programs have not yet been evaluated. Thus today it is impossible to say whether the resources are being well spent and if it is possible that these programs generate a multiplier effect on business investment in innovation.

### II. OBJECTIVES

- 2.1 General Objective: Performing an impact evaluation of public programs aimed at promoting innovation and competitiveness at the firm level in the form of direct subsidies in country XXXX.

### III. CHARACTERISTICS OF THE CONSULTANCY

- 3.1 Type of consultancy: Individual International
- 3.2 Starting Date and Duration: Starting on October 1st, 2012; duration of 12 months.
- 3.3 Place of work: TBD with 2 missions: one to participate in the Inception Workshop and a second to participate in the Validation and Dissemination Workshop (places to be determined).
- 3.4 Qualifications: PhD or Master's Degree in statistics, economics, industrial or innovation economics or social sciences. At least five years of research experience in the field of the economics of innovation and public policy with probed experience in the field of impact evaluation.

### IV. ACTIVITIES

- 4.1 Based on the guidelines suggested by Crespi, Maffioli, Mohnen and Vasquez (2011), the consultant should produce a sounded impact evaluation of a quasi-experimental type. In this setting, this assessment of the program will be taken place after it has been implemented and subjects have already enrolled in it. This will require the construction of a control group that is as similar as possible to the treatment group as a counterfactual for how the treated would respond had it not received the treatment. A variety of econometric methods capable of addressing selection bias issues that may arise with non-experimental designs could be use, depending on program settings and available data : (i)Propensity Score Matching (PSM) Techniques, (ii)Difference in Difference (DID) methods using pre and post-program panel data, (iii)Combined PSM-DID methods, (iv)Regression Discontinuity (RD) or (v) Instrumental Variables (IV).
- 4.2 The impact evaluation should include an assessment of the effect of the program in intermediate outputs such as increased investment in technology upgrading and intangible assets, skills upgrading, adoption of new technology, introduction of quality control practices and entry into export markets. The improvements in these intermediate outputs eventually will lead to final outcomes. Final outcomes common to most programs will include: total employment, average wages, increased sales and productivity growth.
- 4.3 The consultant will participate in two workshops. In the first month of the project, an Inception Workshop will be held in which each team will present their project characteristics and will receive comments from other teams, the IDB team and an external reviewer. Once the evaluation has been finalized, the results will be presented in a Validation and Dissemination workshop that will also include the participation of relevant policy makers.

## V. PRODUCTS

- 5.1 The main deliverable of this consultancy will be a *Technical Note* that should include:
- i. A background section indicating whether and how the program(s) to be evaluated are relevant for each particular country.
  - ii. A detailed description of the rationale for the program(s), the sort of market and/or coordination failure that aims to correct, the institutional setting in which the program is being run, the identification of recent changes in program delivery and sort of mechanisms in place for program delivery and resource allocation,
  - iii. A description of the data to be used in the study.
  - iv. Implement methodologies of Double Difference and Matching to effectively assess the program impact in terms of both intermediate outputs (such as such as increased investment in technology upgrading and intangible assets, skills upgrading, adoption of new technology, introduction of quality control practices and entry into export markets) and final outcomes (i.e, total employment, average wages, increased sales and productivity growth).
  - v. The quantitative evaluation should provide answers to the following dimensions: whether there are crowding out (or in) effects, additionality of the program, preliminary assessment of cost-benefit analysis of the program, identification of potential spillovers effects.
  - vi. Provide qualitative evidence in the form of interviews targeted to user firms and managers of the programs. These interviews should provide evidence of bottlenecks and actions required to be improved in other programs in the region.
- 5.2 Participate and present the evaluation to be performed in the Inception Workshop
- 5.3 Present and discuss the results on a Validation and Dissemination workshop.

## VI. PAYMENTS

- 6.1 Compensation will be paid according to the following schedule: 20% at the signing the contract, 20% after the reviewing of the first draft of the evaluation (month 4), 25% after the reviewing the second draft (month 6), 25% after the final draft (month 9) and 10% at the closure of the project.
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## **VII. SUPERVISION**

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## REGIONAL

### RG-T2095: Impact Assessment of Programs for the Promotion of Innovation and Business Development

#### Component I: Technical Note 3: External evaluation of Firm Support Program in (Country to be determined)

## TERMS OF REFERENCE

### I. BACKGROUND

- 1.1 On average, Latin American and Caribbean countries underperform compared to other developed and developing countries in terms of productivity growth (Daude and Fernández-Arias, 2010; IDB, 2010a; IDB, 2010b). Innovation, broadly defined as the introduction of new products or processes by firms has been credited as the ultimate engine of productivity growth and competitiveness by a vast amount of economic literature (Hall and Jones, 1999; Rouvinen, 2002). The fundamental rationale for innovation policy is that government intervention is necessary to surmount private under-investments from a social welfare perspective due to the presence of market failures and information asymmetries with regards to the production and/or exchange of technological knowledge, being these more acute in the case of small and medium enterprises (SMEs).
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## **VII. SUPERVISION**

- 7.1 The supervision will be responsibility of Mr. Ezequiel Tacsir, Science and Technology Specialist (CCR/CTI) [ezequielt@iadb.org](mailto:ezequielt@iadb.org) and Mr. Gustavo Crespi, Lead Science and Technology Specialist (IDF/CTI) [gccrespi@iadb.org](mailto:gccrespi@iadb.org).

## REGIONAL

### RG-T2095: Impact Assessment of Programs for the Promotion of Innovation and Business Development

#### Component I: Technical Note 4: External evaluation of Firm Support Program in (Country to be determined)

## TERMS OF REFERENCE

### I. BACKGROUND

- 1.1 On average, Latin American and Caribbean countries underperform compared to other developed and developing countries in terms of productivity growth (Daude and Fernández-Arias, 2010; IDB, 2010a; IDB, 2010b). Innovation, broadly defined as the introduction of new products or processes by firms has been credited as the ultimate engine of productivity growth and competitiveness by a vast amount of economic literature (Hall and Jones, 1999; Rouvinen, 2002). The fundamental rationale for innovation policy is that government intervention is necessary to surmount private under-investments from a social welfare perspective due to the presence of market failures and information asymmetries with regards to the production and/or exchange of technological knowledge, being these more acute in the case of small and medium enterprises (SMEs).
- 1.2 Considering that public intervention becomes a basic ingredient in the enhancement of firm productivity, evaluation makes an essential contribution to learning and decision-making. The IDB considers that it is strategically relevant to count on an external evaluation of those policy interventions aimed at supporting innovation and enhancement of competitiveness in firms, in general, and small and medium enterprises (SMEs), in particular. Over the recent years, an important group of C and D countries have established these types of interventions: Propyme and Costa Rica Provee in the case of Costa Rica, FONDEPRO in El Salvador, Impulso Panamá in Panama, FONDEC in Dominican Republic and PDC in Paraguay, to name a few. These programs are designed to operate under the form of direct subsidies to activities such as new product development, process improvements and support for quality certification standards.
- 1.3 Although the mentioned programs have been around for a while and taking into account the existence of demand from the business sector to access these services, these programs have not yet been evaluated. Thus today it is impossible to say whether the resources are being well spent and if it is possible that these programs generate a multiplier effect on business investment in innovation.

### II. OBJECTIVES

- 2.1 General Objective: Performing an impact evaluation of public programs aimed at promoting innovation and competitiveness at the firm level in the form of direct subsidies in country XXXX.

### III. CHARACTERISTICS OF THE CONSULTANCY

- 3.1 Type of consultancy: Individual International
- 3.2 Starting Date and Duration: Starting on October 1st, 2012; duration of 12 months.
- 3.3 Place of work: TBD with 2 missions: one to participate in the Inception Workshop and a second to participate in the Validation and Dissemination Workshop (places to be determined).
- 3.4 Qualifications: PhD or Master's Degree in statistics, economics, industrial or innovation economics or social sciences. At least five years of research experience in the field of the economics of innovation and public policy with probed experience in the field of impact evaluation.

### IV. ACTIVITIES

- 4.1 Based on the guidelines suggested by Crespi, Maffioli, Mohnen and Vasquez (2011), the consultant should produce a sounded impact evaluation of a quasi-experimental type. In this setting, this assessment of the program will be taken place after it has been implemented and subjects have already enrolled in it. This will require the construction of a control group that is as similar as possible to the treatment group as a counterfactual for how the treated would respond had it not received the treatment. A variety of econometric methods capable of addressing selection bias issues that may arise with non-experimental designs could be use, depending on program settings and available data : (i)Propensity Score Matching (PSM) Techniques, (ii)Difference in Difference (DID) methods using pre and post-program panel data, (iii)Combined PSM-DID methods, (iv)Regression Discontinuity (RD) or (v) Instrumental Variables (IV).
- 4.2 The impact evaluation should include an assessment of the effect of the program in intermediate outputs such as increased investment in technology upgrading and intangible assets, skills upgrading, adoption of new technology, introduction of quality control practices and entry into export markets. The improvements in these intermediate outputs eventually will lead to final outcomes. Final outcomes common to most programs will include: total employment, average wages, increased sales and productivity growth.
- 4.3 The consultant will participate in two workshops. In the first month of the project, an Inception Workshop will be held in which each team will present their project characteristics and will receive comments from other teams, the IDB team and an external reviewer. Once the evaluation has been finalized, the results will be presented in a Validation and Dissemination workshop that will also include the participation of relevant policy makers.

## V. PRODUCTS

- 5.1 The main deliverable of this consultancy will be a *Technical Note* that should include:
- i. A background section indicating whether and how the program(s) to be evaluated are relevant for each particular country.
  - ii. A detailed description of the rationale for the program(s), the sort of market and/or coordination failure that aims to correct, the institutional setting in which the program is being run, the identification of recent changes in program delivery and sort of mechanisms in place for program delivery and resource allocation,
  - iii. A description of the data to be used in the study.
  - iv. Implement methodologies of Double Difference and Matching to effectively assess the program impact in terms of both intermediate outputs (such as such as increased investment in technology upgrading and intangible assets, skills upgrading, adoption of new technology, introduction of quality control practices and entry into export markets) and final outcomes (i.e, total employment, average wages, increased sales and productivity growth).
  - v. The quantitative evaluation should provide answers to the following dimensions: whether there are crowding out (or in) effects, additionality of the program, preliminary assessment of cost-benefit analysis of the program, identification of potential spillovers effects.
  - vi. Provide qualitative evidence in the form of interviews targeted to user firms and managers of the programs. These interviews should provide evidence of bottlenecks and actions required to be improved in other programs in the region.
- 5.2 Participate and present the evaluation to be performed in the Inception Workshop
- 5.3 Present and discuss the results on a Validation and Dissemination workshop.

## VI. PAYMENTS

- 6.1 Compensation will be paid according to the following schedule: 20% at the signing the contract, 20% after the presenting the first draft of the evaluation (month 4), 25% after presenting the second draft (month 6), 25% after submitting the final draft (month 9) and 10% at the closure of the project.
- 6.2 The total fee for this consultancy will be XXX. This amount also includes travel and per diem expenses.

## **VII. SUPERVISION**

- 7.1 The supervision will be responsibility of Mr. Ezequiel Tacsir, Science and Technology Specialist (CCR/CTI) [ezequielt@iadb.org](mailto:ezequielt@iadb.org) and Mr. Gustavo Crespi, Lead Science and Technology Specialist (IDF/CTI) [gccrespi@iadb.org](mailto:gccrespi@iadb.org).

**REGIONAL**  
**RG-T2095: Impact Assessment of Programs for the Promotion of Innovation and Business**  
**Development**  
**Component I: Peer review**

**TERMS OF REFERENCE**

**I. BACKGROUND**

- 1.1 On average, Latin American and Caribbean countries underperform compared to other developed and developing countries in terms of productivity growth (Daude and Fernández-Arias, 2010; IDB, 2010a; IDB, 2010b). Innovation, broadly defined as the introduction of new products or processes by firms has been credited as the ultimate engine of productivity growth and competitiveness by a vast amount of economic literature (Hall and Jones, 1999; Rouvinen, 2002). The fundamental rationale for innovation policy is that government intervention is necessary to surmount private under-investments from a social welfare perspective due to the presence of market failures and information asymmetries with regards to the production and/or exchange of technological knowledge, being these more acute in the case of small and medium enterprises (SMEs).
- 1.2 Considering that public intervention becomes a basic ingredient in the enhancement of firm productivity, evaluation makes an essential contribution to learning and decision-making. The IDB considers that it is strategically relevant to count on an external evaluation of those policy interventions aimed at supporting innovation and enhancement of competitiveness in firms, in general, and small and medium enterprises (SMEs), in particular. Over the recent years, an important group of C and D countries have established these types of interventions: Propyme and Costa Rica Provee in the case of Costa Rica, FONDEPRO in El Salvador, Impulso Panamá in Panama, FONDEC in Dominican Republic and PDC in Paraguay, to name a few. These programs are designed to operate under the form of direct subsidies to activities such as new product development, process improvements and support for quality certification standards.
- 1.3 Although the mentioned programs have been around for a while and taking into account the existence of demand from the business sector to access these services, these programs have not yet been evaluated. Thus today it is impossible to say whether the resources are being well spent and if it is possible that these programs generate a multiplier effect on business investment in innovation.

**II. OBJECTIVES**

- 2.1 General Objective: The consultant will provide scientific and technical guidance to the Team Leader and researchers participating in this network with regards to the generation of new and robust evidence aimed at improving understanding about the impact of public programs aimed at promoting innovation and competitiveness at the firm level in the

form of direct subsidies in the region. Based on his previous empirical experience in the field, the external advisor will make suggestions and provide recommendations regarding the interpretation of the research results and the implementation of advanced analytical techniques.

### **III. CHARACTERISTICS OF THE CONSULTANCY**

- 3.1 Type of consultancy: Individual International
- 3.2 Starting Date and Duration: August 15<sup>th</sup> 2012 with an anticipated duration of 18 months.
- 3.3 Place of work: TBD with 2 missions: one to participate in the Inception Workshop and a second to participate in the Validation and Dissemination Workshop (places to be determined).
- 3.4 Qualifications: PhD or Master's Degree in evaluation, preferably with an expertise in on evaluating the implementation of public industrial or innovation policies. At least ten years of research experience in the field of evaluating the effectiveness of the implementation of methodological guidelines in the context of developing economies.

### **IV. ACTIVITIES**

- 4.1 To provide the team leader with recommendations regarding to the selection of the best country teams participating in the research network (based on the results of the Call for Proposals)
- 4.2 To participate, providing analytical guidance and technical recommendations to the project's inception workshop where report outlines, methodologies, and data will be discussed.
- 4.3 To review country drafts and provide written technical recommendations in order to improve the quality of different national reports and the comparative analysis.
- 4.4 To give advice, based on the research outcomes, to the TL with regards to the best diffusion strategy for the project, assessing the possibilities for publication either in a book or a journal special issue.
- 4.5 To participate to the final workshop presenting the results of the project in coordination with the TL (place to be confirmed).
- 4.6 Generate a short list (2-3) of other qualified expert panelists and invite them to participate in external peer review panel as commentators in the validation workshop.



## **V. PRODUCTS**

- 5.1 Written recommendations and assessments of country reports to be shared with country teams.
- 5.2 All reports must be delivered to the Bank electronically in a single file that includes cover page, main document and annexes (Zip Files will not be accepted as final reports as stated in the file Administration Section).

## **VI. PAYMENTS**

- 6.1 Compensation will be paid according to the following schedule: 20% at the signing the contract, 20% after the reviewing the first draft of the evaluation, 25% after the reviewing the second draft, 25% after reviewing the final draft and 10% at the closure of the project.
- 6.2 The total fee for this consultancy will be XXX. This amount also includes travel and per diem expenses.

## **VII. SUPERVISION**

- 7.1 The external advisor will coordinate his work with Mr. Ezequiel Tacsir, Science and Technology Specialist (CCR/CTI) [ezequielt@iadb.org](mailto:ezequielt@iadb.org) and Mr. Gustavo Crespi, Lead Science and Technology Specialist (IDF/CTI) [gccrespi@iadb.org](mailto:gccrespi@iadb.org).

**REGIONAL**  
**RG-T2095: Impact Assessment of Programs for the Promotion of Innovation and Business**  
**Development**  
**Components I & II: Research Assistant**

**TERMS OF REFERENCE**

**I. BACKGROUND**

- 1.1 On average, Latin American and Caribbean countries underperform compared to other developed and developing countries in terms of productivity growth (Daude and Fernández-Arias, 2010; IDB, 2010a; IDB, 2010b). Innovation, broadly defined as the introduction of new products or processes by firms has been credited as the ultimate engine of productivity growth and competitiveness by a vast amount of economic literature (Hall and Jones, 1999; Rouvinen, 2002). The fundamental rationale for innovation policy is that government intervention is necessary to surmount private under-investments from a social welfare perspective due to the presence of market failures and information asymmetries with regards to the production and/or exchange of technological knowledge, being these more acute in the case of small and medium enterprises (SMEs).
- 1.2 Considering that public intervention becomes a basic ingredient in the enhancement of firm productivity, evaluation makes an essential contribution to learning and decision-making. The IDB considers that it is strategically relevant to count on an external evaluation of those policy interventions aimed at supporting innovation and enhancement of competitiveness in firms, in general, and small and medium enterprises (SMEs), in particular. Over the recent years, an important group of C and D countries have established these types of interventions: Propyme and Costa Rica Provee in the case of Costa Rica, FONDEPRO in El Salvador, Impulso Panamá in Panama, FONDEC in Dominican Republic and PDC in Paraguay, to name a few. These programs are designed to operate under the form of direct subsidies to activities such as new product development, process improvements and support for quality certification standards.
- 1.3 Although the mentioned programs have been around for a while and taking into account the existence of demand from the business sector to access these services, these programs have not yet been evaluated. Thus today it is impossible to say whether the resources are being well spent and if it is possible that these programs generate a multiplier effect on business investment in innovation.

**II. OBJECTIVES**

- 2.1 General Objective: Under the guidance of the Team Leader the research assistant will play a central key role in coordinating the production, validation and diffusion of new, robust and comparable evidence aimed at improving understanding about the impact of

public programs aimed at promoting innovation and competitiveness at the firm level in the form of direct subsidies in the region. In addition, the Research Assistant will support the active work done by IFD/CTI with regards to the impact evaluation of innovation policies on employment generation and productivity.

### **III. CHARACTERISTICS OF THE CONSULTANCY**

- 3.1 Type of consultancy: Research Assistant
- 3.2 Starting Date and Duration: Starting on August 15<sup>th</sup>, 2012; duration of 12 months, but possibilities for extensions for second period.
- 3.3 Place of work: Washington D.C. IDB Headquarters.
- 3.4 Qualifications: PhD or Master's Degree in statistics, economics, industrial or innovation economics or social sciences. At least four years of work experience in data production or research assistance, including work related to data and its analysis. Knowledge of STATA or similar statistical software is desired. Proficiency in English and Spanish.

### **IV. ACTIVITIES**

- 4.1 The research assistant's main responsibilities will be:
  - a. To support the team leader and project advisors with regards to project coordination (contractual dealings, workshops organization, publication editing and compilation).
  - b. To support the TL and research advisors with regards to quality control and monitoring of the research projects and outputs.
  - c. The research fellow will also support the work towards the preparation of the final publication and conference.
- 4.2 In the extent that is possible with the time constraints, the research fellow will also provide auxiliary support regarding the implementation of the overall CTI research agenda. The TL might also request, with the fellow's agreement, research support with regards to particular activities related to other research projects currently in progress.

### **V. PRODUCTS**

- 5.1 Contribute to the preparation of the Call for Proposal and the selection of the projects to be carried out.
- 5.2 Written recommendations and assessments of country reports to be shared with country teams.

- 5.3 Report on the programs under study rationale, implementation and comparative results
- 5.4 Edition and supervision of final publication
- 5.5 Monthly reports on the time allocated to the different activities where he/she has been involved under request from the team leader.

## **VI. PAYMENTS**

- 6.1 Compensation will be paid be paid bimonthly.

## **VII. SUPERVISION**

- 7.1 The research assistant will coordinate his work with Mr. Ezequiel Tacsir, Science and Technology Specialist (CCR/CTI) [ezequielt@iadb.org](mailto:ezequielt@iadb.org) and Mr. Gustavo Crespi, Lead Science and Technology Specialist (IDF/CTI) [gccrespi@iadb.org](mailto:gccrespi@iadb.org).

Ref. No. <sup>1</sup>	Description of main procurement activities during the next 12 months.	Estimated cost in (US\$ thousand)	Procurement method <sup>2</sup>	Source of financing and percentage		Prequalification <sup>3</sup> (Yes / No)	Estimated Dates	Status <sup>4</sup>
				IDB %	Local / Other %		Completion of contract	
<b>1</b>	<b>CONSULTING SERVICES</b>							
	<b>Consulting Services 1: 4 Impact evaluation published as Technical Note</b>	\$100,000	QCII	100	0	No	Q4 2013	Pending
	Description: Each consultancy will consist of performing an impact evaluation of public programs aimed at promoting innovation and competitiveness at the firm level in the form of direct subsidies in countries C/D. These results will be published as Technical Notes with methodologies discussed during an inception workshop and results to be disseminated on a second workshop including those policy makers responsible of running the assessed programs.							
	<b>Consulting Services 2: International Peer Review</b>	\$15,000	QCII	100	0	No	Q2 2014	Pending
	Description: The consultancy will consist of an international expert that will assist the project team in: (a) preparing the Call for Proposals; (b) reviewing the received proposals; (c) reviewing the intermediate and final product of the 4 national studies; (d) contribute to the inception workshop and dissemination workshop							
	<b>Consulting Services 3: Research Assistant</b>	\$25,000	QCII	100	0	No	Q3 2013	Pending
	Description: The consultancy will consist of assisting the Team Leader in: (a) preparing the Call for Proposal; (b) Reviewing the proposals, (c) Reviewing and proposing suggestions to the intermediate and final product of the national studies and (d) produce with the 4 Technical Notes under the supervision of the TL..							

2	NON-CONSULTING SERVICES							
	<b>Inception Workshop</b>	\$15,000	QCII	100	0	No	Q4 2012	Pending
	Description: This workshop will focus on agreeing on methodologies and receiving suggestions to the selected projects. The participants include: selected teams, peer reviewer, research assistant and IDB Team							
	<b>Validation and Dissemination Workshop</b>	\$25,000	QCII	100	0	No	Q1 2014	Pending
	Description: This workshop will focus on presenting the results of the national studies to the policy makers responsible of running the programs under evaluation. The participants include: selected teams, peer reviewer, research assistant, relevant policy makers and IDB Team.							
	<b>Editing Services</b>	\$20,000	QCII	100	0	No	Q1 2014	Pending
	Description: The consultancy will consist of edition services, graphic design and printing of a monograph collecting the 4 Impact Evaluations and their policy recommendations							

<sup>2</sup> **Goods and Works:** **ICB:** International competitive bidding; **LIB:** limited international bidding; **NCB:** national competitive bidding; **PC:** price comparison; **DC:** direct contracting; **FA:** force account; **PSA:** Procurement through specialized agencies; **PAs:** Procurement agents; **IA:** Inspection agents; **PLFI:** Procurement in loans to financial intermediaries; **BOO/BOT/BOOT:** Build, own, operate/build, operate, transfer/build, own, operate, transfer; **PBP:** Performance-based procurement; **PLGB:** Procurement under loans guaranteed by the Bank; **PCP:** Community participation procurement; **Consulting Firms:** **QCBS:** Quality- and cost-based selection; **QBS:** Quality-based selection; **FBS:** Selection under a fixed budget; **LCS:** Least-cost selection; **CQS:** Selection based on the consultants' qualifications; **SSS:** Single-source selection; **Individual Consultants:** **QCNI:** Selection based on comparison of qualifications of national individual consultants; **QCII:** Selection based on comparison of qualifications of international individual consultants.

<sup>3</sup> Applicable only to Goods and Works in case the new Policies apply. In the case of previous Policies, it is applicable to Goods, Works and Consulting Services.

<sup>4</sup>Column "Status" will be used for retroactive procurement and when updating the procurement plan.

**IMPACT ASSESSMENT PROGRAM FOR THE PROMOTION  
OF INNOVATION AND BUSINESS DEVELOPMENT**

**RG-T2095**

**CERTIFICATION**

I hereby certify that this operation was approved for financing under the Knowledge Economy Multidonor Fund (KEF) through a communication dated May 1<sup>st</sup>, 2012 subscribed by Sergio Zwi, ORP/GCM. Also, I certify that resources from the Knowledge Economy Multidonor Fund (KEF) are available for up to US\$200,000 in order to finance the activities described and budgeted in this document. This certification reserves resources for the referenced project for a period of four (4) calendar months counted from the date of eligibility from the funding source. If the project is not approved by the IDB within that period, the reserve of resources will be cancelled, except in the case a new certification is granted. The commitment and disbursement of these resources shall be made only by the Bank in US dollars. The same currency shall be used to stipulate the remuneration and payments to consultants, except in the case of local consultants working in their own borrowing member country who shall have their remuneration defined and paid in the currency of such country. No resources of the Fund shall be made available to cover amounts greater than the amount certified herein above for the implementation of this operation. Amounts greater than the certified amount may arise from commitments on contracts denominated in a currency other than the Fund currency, resulting in currency exchange rate differences, for which the Fund is not at risk.

**ORIGINAL SIGNED on 7/25/2012**

Sonia M. Rivera  
Chief a.i.  
Grants and Co-Financing Management Unit  
ORP/GCM

**ORIGINAL SIGNED on 7/25/2012**

Flora Montealegre Painter  
Chief  
Competitiveness and Innovation Division  
IFD-CTI