

Industry – Public Education Sector (PES) linkages in Costa Rica: knowledge transfer for human resources development

Candidate Number: 33069

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Abstract

Technological change is a common denominator included in the explanation of theories of economic growth. Economic globalization is increasingly putting pressure on firms and territories to find new ways to keep growing and avoid contestability. A territory's quality of human resources is one of the key elements for promoting technological change (TC) and innovation. Knowledge is the fuel of TC and one way of obtaining it is by borrowing it from others. In particular, from the Industry to public sector, a direct transfer to the largest knowledge system for human capital formation: the Public Education Sector (PES). The study will focus on the case of Costa Rica. All the literature available for this country and with relation to these kinds of linkages has been on particular cases of firms or the ICT industry. The aim of this study is to deliver a Bird's view on the Industry-PES linkages in Costa Rica. By analyzing information gathered from interviews with the Ministry of Education and other key actors involved in the Industry-PES linkages; and a survey conducted to large firms in Costa Rica three main conclusions are reached: i. There are two main types of linkages, Human Resources Linkages and Corporate Social Responsibility Linkages; ii. There is unexploited potential by the PES increase its knowledge absorption and iii. Industry-PES linkages should be further studied.

Acronyms

AED	Entrepreneurs Association for Development (AED)
CINDE	Costa Rican Investment Promotion Agency
DETCE	Education Department of the Ministry of Education
HR	Human Resources
ISIC	International Standard Industrial Classification of All Economic Activities
MEP	Ministry of Public Education
PES	Public Education Sector

Introduction

Development, understood as a continuous increase in quality of life, is the ultimate goal sought by policy makers¹. More often than not, countries with a high income per capita and sustained economic growth are also accompanied by elevated indicators of social welfare [Jones 2002: p4]². Technological change is a common denominator included in the explanation of theories of economic growth (Fagerberg, 1994). Understood as the improvement or invention of processes, products and services, technological change falls within a spectrum ranging from incremental changes (small scale progressive modifications) or radical innovations, to shifts in technological paradigms (e.g. computers) (Dicken 2007).

There is a widespread agreement in the literature that underpinning such processes of technological change are the creation and adoption of new knowledge (Döring and Schnellenbach 2006). The fore cited authors, define knowledge as “all cognitions and abilities that individuals use to solve problems, to make decisions and to understand incoming information” (Döring and Schnellenbach 2006: 3). One could add an additional explanation to this definition: knowledge is defined as a tool where information plays a role by giving shape to these cognitions and abilities. More specifically, in the knowledge based theory of the firm, Machlup (1980 in Grant (1996)) identified five classes of knowledge, of which two are applicable to this study for its potential use by public organizations: practical knowledge and intellectual knowledge (embracing scientific, humanistic, and cultural knowledge). Further, the author also identified 13 different depths of knowledge ranging from being acquainted with, being able to explain, to being able to perform. The second to last one is the is by which this study understands as the least kind of depth to still be able to say that the knowledge has been transferred; mostly because the organization or person receiving it must at least be able to explain it and in best of conditions, actively use it for the organization’s benefit. New knowledge may be acquired by producing it or absorbing it from others. In fact studies show that most innovations result from having borrowed rather than invented (Cohen and Levinthal 1990)).

¹ The ‘sustainable’ crucial aspect of it is slowly entering some policy makers’ agendas, however yet is not theoretically considered.

² An exception to this are some environmental indicators such as CO₂ emissions per capita, where some developed countries record the worse data (World Bank, 2011).

Economic globalization is increasingly putting pressure on firms and territories to find new ways to keep growing and avoid contestability. Different kinds of economic activities are ever easier to be outsourced or relocated to other regions, no matter how far (Fifarek and Veloso 2010; Craig and Gunn 2010). However, even with the facilities that information and communication technologies have brought run businesses and the decrease of some transport costs (Leamer 2007) the geographic distribution of production has stayed more or less the same for high value added activities or activities with higher risks of moral hazard (Storper 2007; Leamer 2007). In this sense, the challenge to offer unique qualities that distinguish the firm or the region from the rest and avoid losing business to a cheaper and better competitor from the other side of the world, represents an antagonistic force for the standardization that globalization is thought to bring upon economic activities. As mentioned earlier, learning, continuous technological change and in particular, innovation are key determinants for the ability of firms or territories to grow (Crafts 1996).

A territory's quality of human resources is one of the key elements (combined with other factors mentioned above) for promoting technological change [Aghion and Howitt 2005; Rodriguez-Pose and Vilalta-Bufi 2005, Florida et al 2002]. In particular, the knowledge absorbed by the public education sector (PES)³, translates into education and skills that may increase the capabilities of its human capital⁴ to interact with, adopt new technologies, and to innovate (Pike et al 2006). Firms know this and even more so, if they belong to a higher value added economic sector (Miyamoto 2008).

The study will focus on knowledge transmissions from the Industry to the Public Education System⁵ (University-PES Linkages) as a means for firms to actively collaborate with the public sector to improve the country's human resources development. The objective is to give a bird's eye view to a phenomenon that has been occurring since the late 90s and that has only been recorded through specific 'Best Practices Cases' of mostly one firm. This includes evaluating common critiques and identifying areas of future research.

³ Represented in this study by the Ministry of Education of Costa Rica.

⁴ The OECD defines human capital as "the knowledge, skills, competences and other attributes embodied in individuals that are relevant to economic activity"

⁵ The Public Education System will be represented by the Ministry of Education, the entity that reaches most number of students nation wide.

The method consisted of interviews to key public and private actors in Costa Rica who are immersed in these particular knowledge transmission processes; secondary sources from firm's websites, consulting reports, academic and industry studies; and a survey sent to a sample of large firms in the country. The study illustrates how these forms of collaboration are pushing the country upwards in its human resources competences.

Linkages between these actors are an effective means of creating a virtuous cycle of human resource demand and offer aligned with an identified and clear view of the kind of industries the country wishes to promote. The framework surrounding this view aims towards escalating the global value chain to a more knowledge intensive development of economic activities.

In this study, collaboration will be used to describe a situation where the public sector works in conjunction with the private sector. However, for a more formal definition that agrees with the study, the reader may also refer to that of Donahue and Zeckhauser's (2006) definition of collaborative governance: 'The pursuit of authoritatively chosen public goals by means that include engaging the efforts of, and sharing discretion with, producers outside of government' (Donahue and Zeckhauser 2006). Nonetheless, the focus here is not just any 'producer outside of government' but in particular large for profit firms.

The dissertation is structured as follows: chapter 1 is about linkages between public and private sectors where a general overview and for human resources development in particular. Chapter 2 presents an overview of Costa Rica, emphasizing the characteristics that may make it more prone to the positive development of these kinds of linkages. Chapter 3 explains the methodology and is followed by Chapter 4 which discusses the country's reality using different conceptual frameworks to back up the logic behind public-private collaborations in human resources, its potential importance and evaluates common criticisms. Finally, Chapter 5 closes with conclusions and recommendations for further research. An annex with the semi structured interviews and the survey is included.

I. Literature Review

Literature has focused predominantly on how knowledge is transferred from the public sector to private firms, for example, knowledge derived from public science (Arundel and Geuna 2004); or from universities to firms (D'Este and Iammarino 2010; Giuliani & Arza 2009; Fritsch and Slavtchev 2007). There is still a need to explore the non-market mechanisms through which knowledge may be transferred between public actors and firms (Doring and Schnellenbach, 2004; following Breschi and Lissoni 2001)

1. Collaborations between public and private sectors

Voluntary⁶ collaborations between public and private sectors in society date as far back as five centuries ago in Europe (Savitch, 1998). Moving closer in time, Rodrik (2011) illustrates how chartered companies in the 19th century, such as the East India Company, directly performed a vast range of public functions by collecting taxes, setting up schools, transportation, and taking security measures, among others; combining public and private interests for economic growth and expansion of the United Kingdom. For at least the past thirty years, collaboration between these sectors have been set in motion, and have been studied and promoted among social scientists from all areas such as sociology, political science (social capital), economics (game theory and transaction costs based theories of economic structure), administrative law (collaborative governance) and public management ('new public management') (Donahue and Zeckhauser, 2006).

Moreover, Schaeffer and Loveridge (2002) identify that these partnerships are an important part of local economic development policy by reviewing Brooks, Liebman, & Schelling, 1984; Committee for Economic Development, 1982; Fosler & Berger, 1982; Walzer & Jacobs, 1998;

⁶ Its voluntary aspect is stressed because there are cases such as the European Union's Commission where it has established guidelines of imposed partnerships within the EU Cohesion Policy and its Structural Funds (See Dabrowski 2011)

Weaver & Dennert, 1987; Westernen, 2000. Similarly, the OECD identified a trend that emerged in OECD countries during the 90s towards the application of these kinds of partnership approaches for the design and implementation of local development strategies after studying (Chanan, 1997; Geddes, 1997; LEDA-Partenariat, 1997; OECD, 1990, 1993b, 1996a, 1998a; Walsh, Craig and McCafferty, 1998) (Narula and Guimon 1999). In Latin America, the Inter-American Development Bank alone has approved over 100 public-private related projects since 1995 (IADB 2011 accessed 21/08 - <http://www.iadb.org/es/proyectos/>).

However, within this over enthusiasm for partnerships, there have also been some critiques. These critiques are varied and respond to different kinds of collaborations. As described below, partnerships, collaborations or alliances are configured accordingly to the wishes of their members and their legal flexibilities. This study uses the case of Costa Rica, and finds that beyond these critiques there is space for a recognition in terms of collaborations for public human resources development.

Taking into account knowledge transmission, this section discusses in general different kinds of collaborations between public and private sectors and pays particular attention to their cooperation⁷ in public education and training programs. The objective is to put into perspective what is meant by public-private collaborations and why it is important to go into detail about this. The section is divided in three: i. General overview, ii. Collaborations for Knowledge Transmission: Public Education and Training and iii. Criticisms.

2. General overview

Public-private linkages have received many different names, such as 'public-private alliances', 'public-private cooperation schemes', 'partnerships for development' (Casado 2008), 'public-private partnerships' and so on. By far the most popular is the latter, not only

⁷ This study will use the words collaboration, relations and cooperation to mean the same thing interchangeably.

by showing up to fifteen times as many Google Scholar⁸ entries as the other two⁹, but also because it is the fashionable term in the word of mouth¹⁰. As appreciated, the literature on these kinds of partnerships is too much for any one person to cover. However, there are large identified pathways of the literature that are worth mentioning in order to distinguish the kind of collaborations that the study emphasizes from the rest. In particular, important distinctions are to be made with regards to what is meant by ‘public-private partnerships’, ‘collaborations’, and ‘corporate social responsibility’.

In this study, public sector will be understood as comprising all organizations that are held accountable by the Auditor General Office acting on behalf of the electorate, including both autonomous and semi autonomous organizations. With regards to the private sector, there are three distinctive kinds of organizations: the firms for profit, the non-profit, and the non-profit declared of public interest (which is a different kind of public-private relation).

Authors such as Casado (2007) and [cite] recognize that there is no consensus on a definition of these collaborations. In this sense, the only characteristic that is certain for any degree of cooperation is the mutuality of benefits and the common goals (even though the reasons behind them may differ). The World Economic Forum (2003) does categorize these collaborations in three useful ways: operational (training programs for youths); policy and strategy; and advocacy.

In the most traditional sense, the typical definition of public-private partnerships is almost a natural transition from that of the privatization in the 80s and 90s (Wettenhall 2003). In this sense, the literature and public policy has focused in identifying different legal and practical schemes by which the public sector may sign contracts with firms to supply public goods and services¹¹. The benefits are capital money in exchange for goods or services. Knowledge

⁸ By no means should this be considered as a substitute of a bibliographical study; however it serves the purpose of illustrating the paramount quantity of literature on the topic. Moreover, a simple Google search throws over seven million entries.

⁹ 60,000 entries vs 4,000 and only 570 for the term ‘public-private alliances’.

¹⁰ “Partnership is the new fashionable concept: it is difficult today to open a public sector management journal, look at a prospectus for a public sector management conference or a publisher’s list of new books on public sector management, or even scan a policy statement about public sector management from a politician, without seeing a reference to it.” (Wettenhall 2003, 77)

¹¹ This is the definition used by the (European Comission, 2004)

transfer is not the main purpose of these kinds of partnerships so whatever is learned by the public or private sector is a spillover of the partnership.

From this definition, which lies in one extreme of the spectrum, others follow towards a more flexible (although not less complex in practical terms) range of *collaborations* where objectives, responsibilities, risks and decisions may be shared or not, modified or not, and where cooperation agreements may be signed or not; to reach the other end of the spectrum, where lies a kind of relation that is almost collaboration-less, such as donations.

Collaborations in the middle ranges of this spectrum are also able to benefit from knowledge transfer, since it implies that both sectors have to sit and plan their actions together. However, still, unless the objective of the collaboration is not about knowledge transfer, there would have to be an explicit intent on either sector to make sure knowledge is purposefully absorbed and made available for the use of the organization in question.

Corporate Social Responsibility (CSR) tends to be promoted by firms as an effective means of 'giving back to society' and taking into consideration all stakeholders and the environment within their production process; making sure to address their 'triple bottom line' (social, economic and environmental issues related to them). Within these programs, there are initiatives that address education. These are distinguished from other actions a firm may take to ensure short and medium term quality human resource availability (Lara, 2011). Primordially the work is with children and teenagers, and for example, it may range from low knowledge transfer activities such as scholarly materials and infrastructure donations, workshops on dental hygiene; reading volunteer time from the firms workers for the children; to solid and sustained formation programs in math, science, and technology for teachers (this issue will be further discussed in the results chapter). For these programs, collaborations with the public sector are also in order.

"The role of business in society is on the Boardroom agenda. Either the CEO or the Board manage the role their business plays, or others will manage it for them. At stake are corporate reputation, innovation, competitiveness and growth" (Fitzgerald and Cormack, 2010)

“As communities benefit over the mid- to long-term, so too does the company in terms of a trained labor pool, healthier workers and consumers, and a local license to operate.” (WEF 2003: 3)

3. Collaborations for knowledge transmission: public education and training

In the struggle of becoming less contestable, firms need highly prepared human resources not just with the correspondent specific competences for an occupation (which per se already allow the person to increase its absorptive capacity, making it easier to learn something related afterwards); but also with generic competences (Nowalski et al 2007), or meta-cognitive competencies that would allow future employee adapt to different situations, learn how to develop new abilities, solve problems and negotiate for example; in order to be a ‘player’ in the labor market change jobs with not too many hardships for adaptation.

The foresaid also implies having good teachers with updated contents and adequate equipment to deliver prepared students for the labor market. In Latin America, public resources for quality and coverage of technical and basic education are usually limited (it is in the nature of their developing condition). Over the years, the focus has been on a static supply side, in general disconnected from the needs of industries (Velasco 2007). However, even when there is mutual interest of graduating prepared students, there is often a divorce between the hiring private sector and the supply side, the public sector (Idem). Public schools do not have the rigor and requirements present in the a job site, nor the latest technology that may be found in a competing firm (idem). If employment is sought after graduation, it is imperative that education also responds to needs of firms. However, it is important to consider that the offer should not sacrifice an integral education, including generic competences, for a training that might give a short term immediate job (Fretwell, 2004 in Velasco 2007). There different kinds of schemes that include incentives for firms

(Nowalski 2011), however, this study will focus on those collaborations where there are no regulated incentives.

Different typologies of public-private collaborations in human resources development have been identified. Their categorization may depend on whether it is primary, secondary, technical secondary, vocational education and training public entities, or tertiary education; and on the objective of the collaboration.

In tertiary education there are partnerships that take advantage of the research capability of the universities¹². For instance, in university-industry (U-I) linkages, among the typologies identified by Brodsky et al (1980) (cited in Iammarino 2010) 'collaborative research' and 'knowledge transfer mechanisms via bridging organizations' are collaborations where knowledge transfer is the main goal. Also the OECD (1998) has identified different categories, but only one has an explicit knowledge transfer goal, including advisory exchange programs and student training placements in industry.

Similar to the latter type of U-I linkages, technical high schools have also been forming collaborations with firms. Schemes may vary, however, in general, high school students learn theory in class and practice in a firm or a number of firms in the sector help design and keep updated the curriculum; and if necessary, complement with the donation of software or equipment.

The latter type of collaboration also has applied for primary and regular secondary schools where firms have identified an area that is of interest to their business and to the general public, and after discussing and adapting it with the Ministry of Education, it may be transferred to the rest of the educational sector. The training of the teachers would also be provided by the firm and any updates to the contents and to future generations of teachers.

Finally, there are elementary and high school – industry collaborations happening through bridge organizations who are expert in research and teaching specific skills of interest to the

¹² For other types in university-industry, see (OECD 1998).

firms such as, robotics, or meta-cognitive competences such as team work, problem solving, critical thinking; or how to use technology to teach math and sciences. In this kind of scheme, firms' interest is to train teachers.

II. About Costa Rica

Central American republic. Since 1949, has implemented a model of peace, democracy and social justice that included the nationalization of the banks and the abolition of the army. Development oriented towards education, social security, communications, agricultural production, mainly coffee and bananas for export, health, energy, and tourism.

It has 51,100 km² of land and 4.52 million of which 43% are between 15 and 40 years of age. There are 2.05 million workforce. In 2010 the unemployment rate reached 7.5% and its income per capita is U.S. \$ 7.468 (INEC 2010).

Its Human Development Index (UNDP) is 62 in the world and is third in Latin America according to the Global Competitiveness Index. For political stability, the World Bank survey for Global Governance Indicators (2008), placed it number 1 in Latin America. The Corruption Perceptions Index, ranked it 41 in the world and 3 in Latin America (the closer to 1 less corrupt - Transparency International).

One of the pillars of the current economic dynamics of Costa Rica, is the liberation of trade, which has allowed its exports go from provide 30% of the GDP in 1980 to a current rate of over 50% (including export of goods and services).

A program of Free Trade Zones has influenced this trend together with the image of a country that provides confidence, stability and opportunity, by which in the past 20 years has attracted more than 200 multinational companies that create direct employment to some 55,000 people and contribute significantly to the transfer of technology (González, 2011).

According to the WEF (2008-2009) the educational system is located at number 32 in the world, being the best in Latin America. Public education is free and compulsory. The entity in charge of the largest portion of students is the Ministry of Education¹³ (MEP), which has a plant of 70 000 employees, if compared to a firm, it would be the largest in Central America.

In spite the above, the quality of its education is in discussion, particularly for English and mathematics, a weakness attributed to the relative inability of teachers. In addition, drop-out levels reached 10% at the secondary level (MEP, 2010).

National education policies have helped produce a minority of workers in technical and scientific quality, while almost half of the workforce lacks basic skills to access high-productivity jobs (INCAE 2011).

Moreover, CINDE estimates that in the next 3 years 24,000 new technicians will be needed with abilities for a second language, logic and mathematics, communication and leadership (...). However, as Rojas points out, there has to be a coordinated effort between government, academy and firms to achieve this goal (vocational orientation, scholarships, revising curricular programs, strengthening postgraduate formation; supporting the conversion of teachers; and so on) (Rojas 2011).

III. Method

Three methods were used to gather information: semi structured interviews to key public and private actors immersed in the Industry-PES linkages in Costa Rica; a survey sent to a simple random sample of large firms in the country; and secondary sources such as the National Development Plan 2010-2014, reports by the organizations interviewed, their websites, newspaper articles and other supporting academic and consultancy reports.

¹³ State Universities are autonomous, and so is the National Learning Institute (training and professional formation for those over 15 years old).

Eight telephonic semi structured interviews (Annex 1) were executed to strategic actors in Costa Rica's public and private sectors. The interviewees included representatives from Ministry of Education (MEP), the Costa Rican Technological Institute (ITCR), the University of Costa Rica (UCR), the Foundation for Public-private Partnerships for Development (ALIARSE), the Entrepreneurs for Development Association (AED), and the Costa Rica Investment Promotion Agency (CINDE).

The objectives for the interviews were threefold, to learn about:

- i. The overall national reality of public-industry linkages, the types and their evolution;
- ii. The role of Bridging organizations; and
- iii. Their relative importance to the country.

All interviews were recorded with the verbal permission from the interviewee. An e-mail was also sent to have a written expression of their conformity; however some have not replied with the authorization yet. The interviews were carried out through July and August, depending on the interviewees' availability.

In addition, a survey (Annex 2) to be responded anonymously was designed with the objectives of:

- i. Comparing if there were differences among industrial branches when it came to collaborating;
- ii. Comparing local and foreign firm behaviors towards collaborations;
- iii. Having an estimate on how many firms were involved in collaborating in education with the public sector, or interested in doing so; and
- iv. The reasons why they were or were not collaborating with the public education sector.

Recommendations from the World Bank's (2011) latest publication "The power of Survey Design" were taken into account to ensure objectivity, simplicity and specificity in writing the questions. Two external examiners revised the survey and gave their approval before it was sent.

The National Institute of Statistics and Census (INEC) provided a sample from the largest directory¹⁴ available of existing firms to the year 2010. It consisted of 30 random large firms (in terms of # of employees – Annex 3) per class of the United Nation’s International Standard Industrial Classification of All Economic Activities (ISIC, Rev. 4 – Annex 4) for a total of 1954 firms.

Only 900 effectively received a letter and a link to fill in a 10 minute survey (after removing those without emails and those whose email bounced back).

From the 900 emails sent, only 40 firms completed the survey. This means the results are representative and that the objective to contrast collaborating behaviors among industries was not attained. There were not enough firms per branch to make up a valid sample. In addition, there is the risk that the firm did not classify itself as it was recorded in the Directory.

In addition, since this is a survey mostly based on perception, limitations in the wording of the questions, the knowledge of the respondent and even the mood the person was in, may hamper its reliability. This is why the results are to be taken as exploratory or of an illustrative manner to identify further areas of research.

¹⁴ Directorio de Unidades Institucionales y Establecimientos

IV. Results and analysis

The following section includes: i. a brief conceptual framework to contribute to illustrate the theoretical logic behind these linkages; ii. An overview of Costa Rica's Industry-Public Education Sector (PES) linkages; and iii. Common critiques from the partnerships literature.

1. Conceptual framework - reasons for Industry-PES linkages

Several conceptual approaches recognize the importance of collaborations among different sectors of society to (among other reasons such as resource pooling, economies of scale, etc.) maximize knowledge transfers and spillovers. Some of the different approaches and concepts are presented to illustrate the theoretical background that supports the logic of public and private collaborations.

Local Economic Development (LED)

LED consists of a bottom-up strategy whose policies should stem from the underlying theories from where the national governments stem theirs, in order that the steering wheels are aligned and hence, advance towards the same direction (Crescenzi and Rodriguez-Pose 2011). In so far this is done, initiatives of collaboration between firms and individual public schools or local public school boards, should contribute to the national training goals.

In the case of Costa Rica, the Ministry of Education does encourage firms to collaborate with schools that may be in far rural areas and delegates the responsibility to the school boards (Sanchez 2011). However, to make the most of these knowledge transmissions, a small country with centralized public education may benefit more from receiving it centrally and redistributing it.

Regional systems of innovation

This flexible, interactive approach to understanding the geographical unevenness of innovation and its development implications identifies the importance of a cooperative culture, associative learning and public-private consensus as among the institutional

characteristics of a strong regional system of innovation (Cooke 1998). It treats innovation as a social process; hence, a closer interaction (through physical proximity or information and communication technologies between knowledge producers and users is stressed (Howells and Wood 1993, cited by Pike et al 2006).

Knowledge economy

Economic development is considered as a process of going from an economy based in primary resources, low skilled labor to one where the assets are knowledge based and skilled labor exploits them. Information is regarded as crucial and knowledge scarce. Economic agents (public organizations, firms, etc.) are recognized as critical actors to promote knowledge-rich territories (Pike et al 2006).

Proximity

If the knowledge transfer is to the students...

In general when it comes to human capital formation, physical proximity is a necessary condition for the suspected reasons. It will allow not only the transfer of codified knowledge but also that which is implicit in the act of performing the skill. Most importantly, physical proximity is necessary because if the firm was not in the country, the probability that it would be interested in collaborating for human resources development is close to null.

Boschma (2005), discusses other sets of proximities that are also worth considering. In Costa Rica, Institutional proximity in macro levels is present because the entities would function under the framework of a constitutional democracy; however, firms and the public sector do have differences in regulation, in particular the public sector might be slowed down by its bureaucracy. Cognitive and organisational proximities are also necessary to ensure an effective knowledge transfer.

Networks and Social Capital

However fuzzy this concept may be, for this study's purpose, social capital may be considered as a system of interpersonal networks to which the economic agent belongs

(Dasgupta 2001). The kinds of Industry-PES Linkages explored here are of an inclusive social capacity and allow its actors to resolve collective problems (such as having higher amounts and better quality of human resources) more easily (Putnam 2000). It is recognized that these are cooperative and potentially mutually beneficial forms of social organisations (Cooke and Morgan 1998), and may be considered an asset to those who are interconnected.

Governance

The challenges for growth that globalization has brought upon have promoted a shift to a relatively diminished central role of the State in securing state-sponsored economic and social projects (Jessop 1997). "Governance can refer to any mode of coordination of interdependent activities" (Jessop 1998: 1). This does not necessarily have to mean that the boundaries between public, private and voluntary sectors should become shifting or opaque as Pike et al (2006: 126-127) discuss. A coordinated approach towards education, where the public sector ensures the integral vision of education as humanist, rationalist and constructivist (MEP, 2011) but makes an effort to engage the private sector and use their feedback and their knowledge to not only design together goals that are in common interest to achieve, but also to implement in conjunction, and according to the capabilities, financial possibilities, flexibilities and interest of each, the general guidelines defined for the upcoming years. The four year plan (PND 2010-2014) that the executive government designs with the assistance of representatives of all sector of society, including firms, does not include any mention of the private sector's potential role in education and formation. Only within the reach of the Ministry of Social Security and Labor, one reference is made to promote alliances with eight (in four years) firms for the adoption of actions in labor social responsibility.

2. Overview of Costa Rica's Industry-Public Education Sector (PES) linkages¹⁵

Costa Rica's Industry-PES relations have substantially evolved into the 21st century (Bogantes 2011; Jiménez 2011; Lara 2011; Llobet 2011). During the 90s, Industry-PES relations were limited almost entirely to:

"(...) painting school or donations. There has been a shift of 180° in the relation. Technical formation without taking into consideration the demands of the employers is like shooting at an unknown target." (author's translation, Bogantes 2011).

"Early on, the first things the MEP used to ask for were resources to paint a school or build a classroom. A clarification of roles was called for. It is not about substituting responsibilities, it would actually be irresponsible to that because it creates dependency and weakens the public organization. Same with firms, they were used to being asked for donations. The role of the firm is to transmit top of the line knowledge, share best practices and contribute to catalyze processes of innovation. Who distributes this knowledge to the schools is the central authority, the MEP" (author's translation, Lara 2011)

"In 1995 the office for University-Industry connections opened and in the year 2004 it evolved into a formalized Centre for U-I linkages. All potential FDI investors for the country, pass through our office and meet with professors and directors from the different careers". (author's translation, Hidalgo 2011)

Some cite that in 1997, the arrival of Intel (a large multinational corporation), along with a well articulated proposal for human resources upgrade in Costa Rica, was needed to set the example (Llobet 2011; Nowalski 2011) and together with the new challenges of globalization facilitating competition (Carranza 2011), the wheels for change were set in motion. This is because the largest struggle was to convince the officials in the Ministry of Education that it

¹⁵ This section is by no means a detailed and all inclusive overview of the status quo of industry-public education sector linkages in Costa Rica. The purpose instead is of an exploratory nature to orient future research.

made sense that firms had a say on what the Ministry was teaching and that the firm was not going to dictate what was taught:

“We do not design ‘tailored suits’, we form for sector under certain conditions that the Law establishes, we know the student has to be formed integrally”. “(...) The firm has a lot to say, but it does not get to have the last word.” (Author’s translation, Bogantes 2011)

The interviewees agree that since then, there has been a considerable increase in the collaboration of firms from all economic activities. The increase has been in part, as a result of a new strategy implemented by the Ministry of Education’s Cooperation Office (the Relations with the Private Sector Office) of reaching out to firms. It consists of a second struggle: ‘conquering or re-enchanting’ (Sánchez 2011) firms who have shown interest at some point and had lost it as a result of the bureaucracy of the Ministry or those who were active in the micro level (with one or a few schools) and to get them involved in a larger scale.

Nowadays, approximately 38% of large firms in the country are collaborating or have collaborated with the PES. Of those, more than half are local firms (60% according to the survey and in line with Jimenez’s 2011; and Sanchez’s 2011 perceptions). However, this does not mean anything in terms of impact, which would be a next step in future research. In another note, it could turn into a problem of lock in where the knowledge offered would be no different from that of the PES, however these local firms could be exporters or linked to foreign firms in the country, another step for future research.

According to the survey, most of the firms create links with the PES to offer internships for students, student formation, and developing programs, campaigns or educational policies.

These linkages have brought other kinds of benefits as Jiménez (2011) and Sánchez (2011) point out:

“There has been more flexibility to implement initiatives that too restrictive norms would not allow, the public sector has learned to be more creative and innovate in terms of processes (...).”

However, there have also been experiences that may question the seriousness behind the firms approach; their willingness to step out of their zone of influence; or the willingness of the PES to learn from firms:

– *“There have been firms that start to collaborate for a couple of years and then leave for financial reasons, dropping everything in what they were involved”*

– *“Some executive units or technical dependencies do not like when a private firms comes and tells them how to things under the framework of an educational project. The educational public policies are executed by the Ministry”*

(Jiménez 2011)

– *“It has been very hard to get firms to understand that they have to think beyond their circle of influence. There are opportunities that are not seized because they only want to help those around them”*

(Sánchez 2011)

– *“There are over 950,000 students, 60,000 teachers in Costa Rica and 5,000 education centers. A firm collaborating with only three schools around its location does not have an impact”*

(Lara 2011)

Usually the kinds of collaborations where firms drop out are not related to knowledge transfer, but to monetary or capital transfers and that is why they are unsustainable. These are different kinds of support that are also welcome by the Ministry but are out of the scope of this study. Sixty percent of the large firms of the country are not collaborating at the moment. However, 30 percent of them were at some point in the past. This is an opportunity to find out why and take advantage that there was a predisposition to help to begin with. The most common reason was financial reasons.

As appreciated by the second quotation, there are still trust issues to solve between offices from the Ministry and the private sector.

The last two quotes touch a sensitive topic, with regards to the reach of the knowledge transfer. From a bottom up perspective, a focus around the firm's location would be what is expected. However, in such a small country, where education is centralized, both mechanisms should be actively utilized.

Categorizing industry-public education sector

The Entrepreneurs Association for Development (AED) has identified two different ways for categorizing industry-PES linkages (Lara 2011). The categories are divided according to the firms' timeframe of expected returns and the nature of those returns. One is related to the necessity of human resources (HR) with particular skills as soon as possible; let us name it HR-Linkages. However, as explained below, one of the members of the PES currently plans ahead in order to match the supply of human capital with the demand on time. The second category has a medium to long term return and the goal is -in addition to possibly reaping benefits in the future- to fulfill their corporate social responsibility programs' missions, let us name it CSR-Linkages.

This categorization will define the kind of knowledge to be transferred. The former, HR-Linkages, will be shaped as close as possible to the HR needs of the firm. If these needs are not met as a result of the lack of knowledge of the graduates or the lack of graduates in the area at all, an opportunity to create a linkage and learn from the firm arises. The linkages may arise under the understanding that the training will be imparted in the largest number of technical-professional schools or reach the most students possible in the case of universities. The firm contributes with knowledge,

"(...) but the idea is to create capabilities so that the [PES] may multiply and replicate them"
(Lara 2011)

The study focuses this section in the Technical Education Department of the Ministry of Education (DETCE) of Costa Rica as an example. In the DETCE, teachers, students and the officials in the department are the direct receptors of knowledge.

The DETCE is involved in at least two modes of knowledge absorption: i. It operates regular 'corporate tables'; and ii. It co-elaborates particular projects that chambers or individual firms are interested in pursuing and that are of collective interest, and firms teach students or students do internships at the firms.

Corporate Tables are a space where firms from a particular industry are convened for two purposes. One is to have continuous open discussions about the contents of a particular curriculum, either for modifications or to evaluate a new one that might have been proposed and that DETCE had been working on. Creating an environment of trust is crucial for firms to feel welcome and unafraid of criticism.

A HR diagnosis of a region takes about two years to complete. Moreover, if the result is that there is a call for a new specialization, in total it would take four to five years to have the first generation of graduates (Bogantes 2011; Llobet 2011). Consequently, the HR demands are fulfilled too late, when new ones are required. After a process of consultation with the different economic sectors, the second purpose of the 'Mesas' came about: to receive insights on whether particular industries might be headed 'feeling the pulse of the demand' (Bogantes 2011) or what new activities they are pretending to develop in the different regions of the country: a prospective study of the demand (Annex 5 for examples).

The foresaid may have three different effects. One, it allows for an expansion of nontraditional businesses in the peripheral regions of the country. Two, it might serve as a migration inhibitor because it allows people to choose from more economic options. Three, in contrast, it may allow a qualified HR migration to the core cities of the country.

However this kind of approach could be risky (more research is needed) since the results from the survey indicate that there was no association between how far ahead firms planned for human resources and their involvement in Industry-PES Linkages. In fact, out of all firms who collaborate or not, 80% of them only planned 1-2 years ahead for the number of HR they would need and their competences and skills.

The second mode for DETCE's knowledge absorption is through specific projects it collaborates with particular firms' chambers or individual firms. The firms' interest is to work with particular schools nearby to their location. This physical proximity is required in order to allow students to practice in the firms and to allow employees of the firm to teach at the schools. This set up is promoted when the knowledge gained by the students may be used to work in any other firm that belongs to the industry.

The second way of categorizing industry-PES linkages (Lara 2011) are CSR-Linkages. As mentioned earlier, these linkages have different characteristics and motivations than those from HR-Linkages. Usually the goals are multiple, from promoting an image, a brand and making the users more prone to certain kinds of products, to training teachers on effective ways to teach math and science, using technology; or educating teenagers on home finances (Box 7). These projects have to align with the core business of the firm, as Lara (2011) describes it:

"Firms don't ever invest just to see what happens. All investments are made taking into consideration a goal and ways to measure its achievement. A social investment should respond to the same criteria!" (Lara 2011)

According to the results of the surveys, of those firms that collaborate with the PES, the increase and improvement of future human resources is the top reason for cooperation between firms and the PES in Costa Rica.

Bridging firms with the PES

According to the interviews, a crucial role is played by bridging organizations (BOs). However, in the survey, only 10% claimed to establish contact as a result of a bridging organization. This would require further enquiry, since the firm's knowledge of whether the organization was public or not, might have affected the results. Even so, 40% reported that they contacted the PES directly.

BOs promote the encounter between the industry and the PES (Bogantes 2011; Jimenez 2011; Llobet 2011), and in some cases, they act as the firm's knowledge transmission facilitator. The three most mentioned bridging organizations differ entirely in their nature.

The first type of organization is portrayed by one that is in charge of attracting foreign direct investment into Costa Rica (a private organization of formally established public interest). The organization knows how the PES works and has insider knowledge of value to the FDI firms (Llobet 2011). Their role as a connecting organization consists mainly in facilitating encounters and promoting a substantial knowledge transfer.

“To promote proper competitive as a destination for FDI, it is certainly essential to ensure that one of the main competitive advantages of the comparative advantages of the country: its human resources, are strengthened continuously, ensuring their availability and continuous improvement in terms of skills, knowledge, technology management and languages. For this reason CINDE has been directly involved in the issue” – (Author's translation, Llobet 2011)

The second type is one that specializes in knowledge creation and transmission for education in math, sciences, robotics, meta-cognitive capabilities among others (Llobet 2011; Nowalksi 2011). This BO (a non-profit of formally established public interest) is used by some private firms to transmit their knowledge for them. This implies working together to develop the contents, and the BO delivers them keeping constant interaction with the firm.

The third type is an association of entrepreneurs interested in collaborating for the welfare of the country. This organization acts as a bridge between central and local authorities and the firms.

See Diagram 1 to appreciate knowledge flows and linkages between organizations reviewed above.

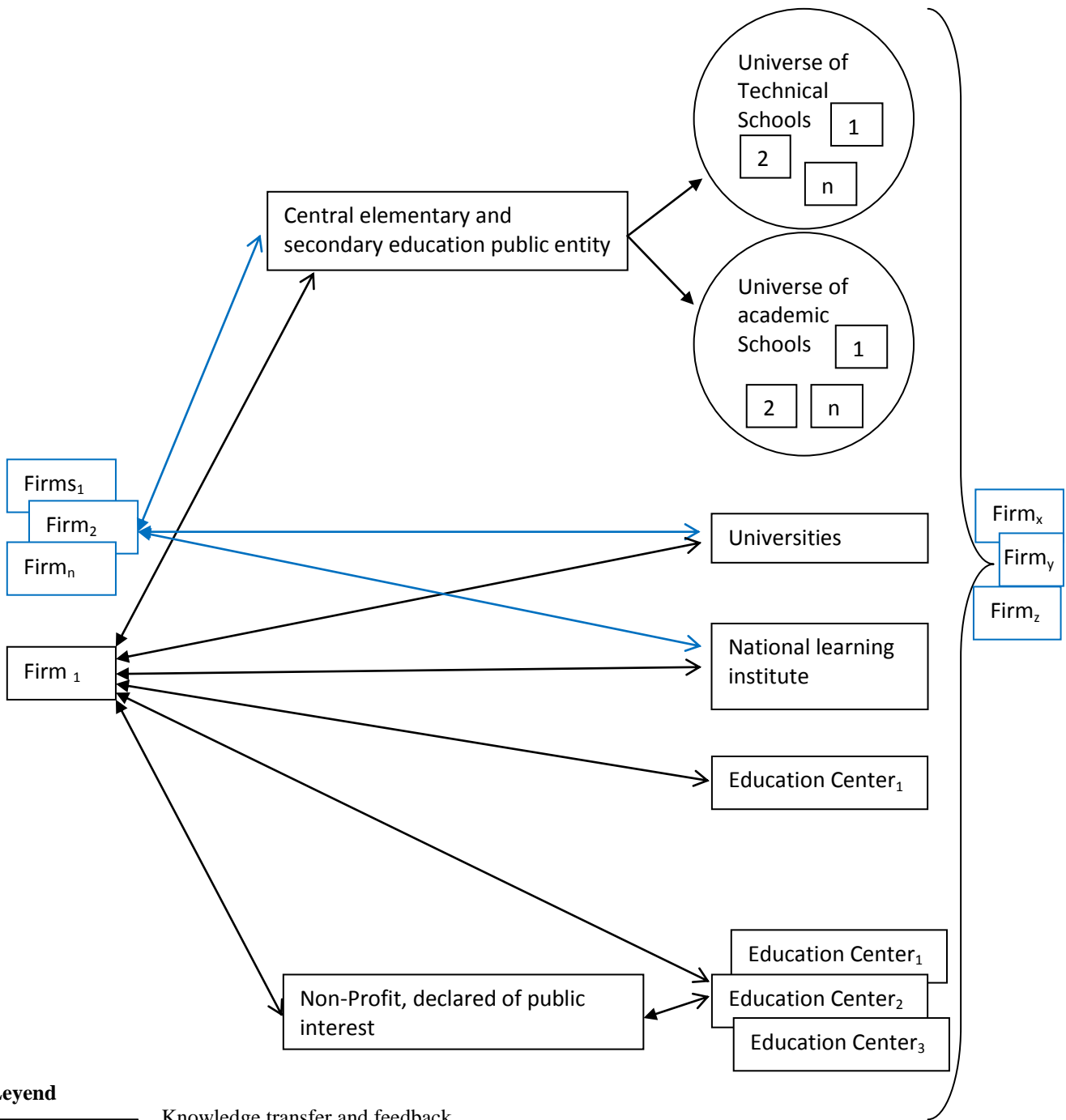
Perceptions on the importance of Industry-PES Linkages

These linkages are still not as strong or vital as they could be. There are still barriers from individuals in organizations of the PES to work with private firms (Carranza 2011).

In addition, the shortage of skilled labor mentioned in the section about Costa Rica is alarming according to Lara (2011). The Chamber for Information and Communication Technologies lost business opportunities that amounted to US\$170 million in the year 2008 because firms could not find the necessary human resources. In addition, there are over 60,000 teachers that have to be trained to improve the poor teaching quality. It is fundamental that the PES takes advantage of the knowledge that may be transferred from firms (Nowalski 2011). For example, programs between the National Training Institute and firms are crucial to ensure a quality supply of human resources.

According to Nowalski (2001), the most dynamic industries are the ones showing more interest in creating Industry-PES Linkages. A reason for this could be what was mentioned earlier, that the pressure to stay competitive is felt stronger by dynamic sectors of the economy. Llobet (2011) additions that the more specialized and particular a firm is, the higher human capital it will require.

Diagram 1 - Costa Rica: Industry knowledge flows to the public education sector



Legend

———— Knowledge transfer and feedback
Education center: includes elementary, high school and technical schools

Source: Author

3. Critiques

In this section, some common critiques will be discussed and evaluated in light of the evidence found in Costa Rica. A Public-Private Partnership:

a) is a way for firms to “govern” with illegitimacy + practical difficulties

Including the private sector in the design and decision making processes does not mean that there has to be a partnership where the actors share equally the risks, responsibilities and decision making. As Bogantes (2011) puts it:

“the firm is an actor that has a lot to say, but does not have the last word. (...) [Firms] are not doing us a favor and we are not doing [them] a favor. This is a matter of strategic linkage, [firms] are interested in better trained human resources and we are interested in training people well, that simple. So [we should] agree on it, and if there are things we cannot agree on, well there are issues that are not-negotiable, such as giving integral formation to the student (luckily no one is asking for that).”

b) The public sector’s mission of delivering suitable public goods may be hampered + Risk of losing academic freedom

Bearing in mind Streeck’s (1991) call for a functional requirement vital for an ideal mode of production in industries, ‘broad and high skills’ (even though it was meant for firms to take into account, regions may do so as well); too much private intervention to satisfy short and medium term human resources demands in education may hamper a society’s capacity to respond to future technological changes and unpredictable trends of markets. However, under the framework of clear policy guidelines where both kinds of skills, specific and broad are pursued by the PES; and collaborations should be implemented under the understanding that the benefits should be for a productive sector and not individual firms.

c) There is no free lunch + Children are being brainwashed + Collective action issue + Mistrust and reluctance to cooperate with potential competitors + Presuming that interests of some firms will represent interest of the industry

Post neoclassical theories of the firms suggest that stakeholders' surplus profits (earnings above the opportunity cost of their capital) may be destined to pursue other objectives if desired to; rather than trying to maximize the rate of their return on their capital (Dunning and Lundan 2008). Among these other uses may be: running competitors out of business, undertaking risky investments, avoiding attracting new competitors (if the business looks too good) (Simon 1959 cited in Dunning and Lundan 2008); distributing them among other stakeholders such as employees; or due to the emergence of ethical movements: investments may be on environment in addition to other CSR programs related to communities, employees, or suppliers; or even running a parallel foundation for social causes¹⁶. Firms may invest in these programs, including education, as marketing strategy (to make their products or related technologies more familiar to users, to familiarize future customers with the brand); to save on the time invested training people; or to have a labor pool where to choose future human resources. The public education organization must have regulations to follow when collaborating in order to prevent situations where youths are exposed to unnecessary branding and careful when it comes to the CSR workshop programs. Jimenez (2011) recognizes that many firms approach with the intention of having a larger market access or to gain access to the public purchases.

If other firms are collaborating with the government and precisely because their collaborations are under a framework of serving for a collective good, a third firm may benefit from the trained human resource without doing anything. Why should they feel motivated to participate instead of free ride? All firms are different, like individuals, firms who may be in the same business may need the same kind of human capital but there may be specificities that could be improved. By collaborating, the firm makes sure their needs are heard and may contribute to improve the general quality for all.

d) Firm participation is interest-driven

Dabrowski (2011) analysed the case of the Social Cohesion policy in the EU and its structural funds and found that participation was interest-driven. Apparently some of the actors were

¹⁶ This is the case of the Hospital Clínica Bíblica in Costa Rica, one of the best private hospitals in the country, whose profits are divided in three: 1/3 for social causes; 1/3 for reinvesting in physical capital; and 1/3 for the hospital's media exposure (Dierckxsens 2007 - ALIARSE).

motivated mainly by “the prospects of potentially influencing decision-making, lobbying in favour of their own projects or obtaining valuable *“first-hand information”* on how the projects were selected, which could be helpful in obtaining grants” (Dabrowski 2011: 8). Although partnerships were between representatives of local authorities, it is a risk that all partnerships may incur. However, in particular these partnerships were forced by the EU to promote social cohesion. The difference with voluntary collaborations is that there has to be trust and in a trusting relationship these kinds of behaviours are sanctioned.

e) Lack of tradition for collective policy making + incompetence + lack of trust + corruption

From the four critiques above, the first three are related and are not static deterministic factors, but if they exist, may change with the course of time. When voluntarily two actors gather to try and achieve a common goal, trust is slowly built through discussions, commitments, follow throughs and respect for the other members. With regards to corruption, as seen earlier, the country is one of the lowest in Latin America.

V. Conclusions

The study gave a perspective from above and painted a scenario of how knowledge transmissions from the Industry to the Public Education Sector (PES) in Costa Rica. The Industry-PES Linkages have been evolving for the past 15 years into two major different kinds of collaborations; yet it is recognized by those immersed in the processes that there is still much more to gain from the firms. About 40% of the large firms of the country are presently transferring knowledge to an entity of the PES. In addition, out of the other 60% that are not transferring, 30% were did do this at some point. Both of these facts might lead to the conclusion that there is an opportunity for engaging more private firms in better knowledge transmissions to the PES.

However, there are no Nation-State policies to seize these opportunities. The national view is ‘how should the country serve the firm’ instead of ‘how can we both benefit from its

presence and how can the PES take advantage of the knowledge it brings with it. There is little or no coordination between the different public education bodies

The conceptual framework analyzed contributed to illustrate the theoretical logic behind these linkages, for example, physical proximity is crucial for these knowledge transfers. In addition, the criticisms made by the literature are usually focused on other kinds of linkages (for purposes other than education such as infrastructure) in different institutional contexts. From the bird's eye view, few applied to the case of Costa Rica. For example an exception, was the issue of trust is universal. However, in a micro context others such as corruption or lack of skills from the officials might emerge.

Further research suggestions

1. Knowing that, approximately 38% of large firms in the country are collaborating with the PES; measuring their impact would be next logical step for research; as well as including all actors in the public educational system; and identifying which sectors are more active with the PES and why.
2. This study only took a look at large firms; medium sized firms could also be contributing knowledge to the PES.
3. More than half are local large firms which could turn into a problem of lock-in, however these local firms could be exporters or linked to foreign firms in the country, which would avoid this problem.
4. A prospective análisis of dynamic sectors of the economy is crucial for orienting the supply. As reviewed, most firms do not plan ahead of 2 years. However, the the Technical Education Department of the Ministry of Education (DETCE) has a scheme called 'Corporate Tables' where it receives insights on where particular industries might be headed 'feeling the pulse of the demand'. How this works and the results it has had in the past, might shed light on a useful tool for the rest of the PES.

5. And finally, do Industry – PES Linkages help embed economic activity? The success of a local economic development strategy will depend on its capacity to embed economic activity within a certain territory (Pike et al 2006). The public sector's capability of engaging private firms in actions within the system of social relations may reduce uncertainty and risk as well as promote trust in economic relations and differentiate a region to being able to absorb or create technological progress (Martin 1999 cited in Pike et al 2006). Glaeacer and Redlick (2008) point out how if people have expectations to leave eventually, they do not build social capital and end up leaving anyway. However, what if they had this expectation of leaving but built social capital? If people build social capital, they have stronger reasons to stay, because it is what is done when those are the expectations. This could be applied to firms, and by engaging them in voluntary knowledge transfer collaborations, their social capital in the country will be stronger, helping embed the activity in the territory.

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Annex 1

Example of semi structured interviews (in Spanish)

1. Qué

1.1 El poder contar con la posibilidad **de participar en la mejora del capital humano del país**, ¿ha sido de **interés particular** para las empresas cuando han venido a negociar su instalación en el país?

1.1.1 ¿Cómo llega a esa conclusión?

1.1.2 ¿Cómo se ha reflejado ese interés? ¿En qué tipo de iniciativas?

1.2 ¿Más o menos **qué porcentaje** de las empresas que se han instalado en el país han mostrado interés en involucrarse en el tema de la educación costarricense?

1.2.1 ¿Usted podría mencionarme ahora las 5 primeras que se le vienen a la cabeza?

1.2.2 Y Ud. me podría **facilitar una lista de las empresas** que han mostrado este interés y aquellas que no (*en orden de mayor a menor interés en colaboración de ser posible*)

1.3 ¿**Qué tipos** de involucramiento con el gobierno en temas de educación han expresado y llevado a cabo las empresas? por ejemplo, involucramiento de tipo filantrópico, vía donaciones para un fondo de becas, o de tipo de colaboración directa tratando involucrándose en la mejora de planes de estudio, o introduciendo nuevas estrategias de enseñanza por ejemplo.

1.3.1 ¿Cuáles tipos son los más comunes?

2. Diferencias entre empresas

2.1 ¿Por qué, según su experiencia, algunas empresas sí están interesadas en acercarse a colaborar y otras no? ¿tiene que ver con la industria a la que pertenecen? ¿con su forma de hacer negocios? **(Minuto 14)**

2.2 ¿Y entre las que colaboran, ¿cuáles son las diferencias?

2.3 ¿Qué empresas no han mostrado interés en involucrarse en el tema de la educación de manera tal que a Ud. le haya parecido extraño?

3. Rol de CINDE

3.1 ¿Cuál ha sido el / los **roles de CINDE** con relación al tema de la educación y las empresas extranjeras que se han instalado en el país?

(Intermediario?) Por lo menos 2, vincular gob con empresa y ayudar con el tema de la educación.

3.2 Sin Cinde, ¿Cuál hubiese sido la alternativa?

4. Evolución

4.1 ¿Cómo inició y cómo ha evolucionado este rol? **(Minuto 22)**

4.2 ¿Ha habido alguna tendencia en el transcurso de los años con relación al número y tipo de empresas que muestran interés en involucrarse en el tema de la educación costarricense? (industria, el grado de valor agregado de las actividades a realizar en el país)

4.3 ¿y con relación al tipo de interés en sí? (ej. involucrarse asignando recurso humano vs. donaciones de equipo)

5. Contribuciones/Resultados

5.1 ¿Cuál es la **importancia** de poder poner en contacto a las empresas con actores representantes de la educación pública en Costa Rica?

6. Proceso

6.1 ¿Cómo se podría mejorar el proceso de construcción de relaciones entre el gobierno y las empresas? (por ejemplo, mayor voluntad política, o mayor interés / involucramiento de las empresas, capacitación a los representantes del sector público, mayor/mejor comunicación,)

6.2 ¿Quiénes son sus contrapartes dentro de las empresas cuando se trata el tema de educación? **(Minuto 33)**

6.3 ¿Cuáles han sido los principales obstáculos/objeciones que CINDE ha encontrado como intermediarios?

7. Objeciones / Criticas

7.1 ¿Cómo se podrían mejorar las actuaciones de las empresas hasta ahora?

7.2 ¿Cómo se podrían mejorar las actuaciones del gobierno?

8. Cierre

8.1 ¿Qué tipo de estudio relacionado con estos temas podría beneficiar a CINDE y al país?

8.2 ¿Qué preguntas le puedo hacer que no le he hecho?

8.3 ¿A quiénes me recomendaría entrevistar? **(Minuto 45)**

Annex 2 – Survey

(it was implemented in Spanish using SurveyGizmo.com)

- ▶ **Who:** London School of Economics and Political Science, Laura Sariego-Kluge, (Candidate) M.Sc. Local Economic Development program
- ▶ **What:** 10 minutes academic research survey
- ▶ **Objective:** analyze the role of private firms for human capital development in Costa Rica: collaborations with the public education sector.

The purpose of this survey is to better understand the role of private firms for human capital development in Costa Rica. In particular, with regards to the collaborations with the public education sector and how these may affect the future productivity and growth of your establishment. Your responses, and those of other business leaders, might help design new policies and programs to improve your establishment's productivity and allow it to grow.

All information you provide will be strictly confidential and no individual establishment-level data will be disclosed. Neither your name nor the name of your establishment will be used in any document based on this survey.

However, if you wish to do so, at the end of the survey there will be a possibility for you to enter your contact information.

1. Is the firm you work in

Foreign or mostly foreign? Costa Rican or mostly Costa Rica? Don't know

2. Industry to which the firm belongs

- A - Agriculture, forestry and fishing
- C - Manufacturing
 - 10 - Manufacture of food products
 - 11 - Manufacture of beverages
 - 12 - Manufacture of tobacco products
 - 13 - Manufacture of textiles
 - 14 - Manufacture of wearing apparel
 - 15 - Manufacture of leather and related products
 - 16 - Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
 - 17 - Manufacture of paper and paper products
 - 18 - Printing and reproduction of recorded media
 - 19 - Manufacture of coke and refined petroleum products
 - 20 - Manufacture of chemicals and chemical products
 - 21 - Manufacture of basic pharmaceutical products and pharmaceutical preparations
 - 22 - Manufacture of rubber and plastics products
 - 23 - Manufacture of other non-metallic mineral products
 - 24 - Manufacture of basic metals
 - 25 - Manufacture of fabricated metal products, except machinery and equipment
 - 26 - Manufacture of computer, electronic and optical products
 - 27 - Manufacture of electrical equipment
 - 28 - Manufacture of machinery and equipment n.e.c.
 - 29 - Manufacture of motor vehicles, trailers and semi-trailers

- 30 - Manufacture of other transport equipment
- 31 - Manufacture of furniture
- 32 - Other manufacturing
- 33 - Repair and installation of machinery and equipment
- D - Electricity, gas, steam and air conditioning supply
 - 35 - Electricity, gas, steam and air conditioning supply
- E - Water supply; sewerage, waste management and remediation activities
 - 36 - Water collection, treatment and supply
 - 37 - Sewerage
 - 38 - Waste collection, treatment and disposal activities; materials recovery
 - 39 - Remediation activities and other waste management services
- F - Construction
 - 41 - Construction of buildings
 - 42 - Civil engineering
 - 43 - Specialized construction activities
- G - Wholesale and retail trade; repair of motor vehicles and motorcycles
 - 45 - Wholesale and retail trade and repair of motor vehicles and motorcycles
 - 46 - Wholesale trade, except of motor vehicles and motorcycles
 - 47 - Retail trade, except of motor vehicles and motorcycles
- H - Transportation and storage
 - 49 - Land transport and transport via pipelines
 - 50 - Water transport
 - 51 - Air transport
 - 52 - Warehousing and support activities for transportation
 - 53 - Postal and courier activities
- I - Accommodation and food service activities
 - 55 - Accommodation
 - 56 - Food and beverage service activities
- J - Information and communication
 - 58 - Publishing activities
 - 59 - Motion picture, video and television programme production, sound recording and music publishing activities
 - 60 - Programming and broadcasting activities
 - 61 - Telecommunications
 - 62 - Computer programming, consultancy and related activities
 - 63 - Information service activities
- K - Financial and insurance activities
 - 64 - Financial service activities, except insurance and pension funding
 - 65 - Insurance, reinsurance and pension funding, except compulsory social security
 - 66 - Activities auxiliary to financial service and insurance activities
- L - Real estate activities
 - 68 - Real estate activities
- M - Professional, scientific and technical activities
 - 69 - Legal and accounting activities
 - 70 - Activities of head offices; management consultancy activities
 - 71 - Architectural and engineering activities; technical testing and analysis
 - 72 - Scientific research and development
 - 73 - Advertising and market research
 - 74 - Other professional, scientific and technical activities
 - 75 - Veterinary activities
- N - Administrative and support service activities

- 77 - Rental and leasing activities
- 78 - Employment activities
- 79 - Travel agency, tour operator, reservation service and related activities
- 80 - Security and investigation activities
- 81 - Services to buildings and landscape activities
- 82 - Office administrative, office support and other business support activities
- P - Education
 - 85 - Education
- Q - Human health and social work activities
 - 86 - Human health activities
 - 87 - Residential care activities
 - 88 - Social work activities without accommodation
- R - Arts, entertainment and recreation
 - 90 - Creative, arts and entertainment activities
 - 91 - Libraries, archives, museums and other cultural activities
 - 92 - Gambling and betting activities
 - 93 - Sports activities and amusement and recreation activities
- S - Other service activities
 - 94 - Activities of membership organizations
 - 95 - Repair of computers and personal and household goods
 - 96 - Other personal service activities
- T - Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
 - 97 - Activities of households as employers of domestic personnel
 - 98 - Undifferentiated goods- and services-producing activities of private households for own use
- U - Activities of extraterritorial organizations and bodies
 - 99 - Activities of extraterritorial organizations and bodies

3. What is your general title in the firm (eg. Human resources director, general manager, etc.)?

4. Is your firm collaborating with public education sector organizations? (check all that apply)

- Yes, with
 - MEP - Ministerio de Educación Pública
 - MiCYT - Ministerio de Ciencia y Tecnología
 - INA - Instituto Nacional de Aprendizaje
 - UCR - Universidad de Costa Rica
 - ITCR - Instituto Tecnológico de Costa Rica
 - UNA – Universidad Nacional de Costa Rica
 - Direct contact with Elementary School(s)
 - Direct contact with Highschool(s)
 - Other _____
- No (go to question X)

5. How did the collaboration begin between the firm and the organization from the public sector? (select one)

- The firm reached out to the public sector organization.
- The public sector organization reached out to the firm.

- Another organization put you in contact:
 - CINDE – Costa Rican Investment Promotion Agency
 - AED – Asociación Empresarial para el Desarrollo
 - FOD - Fundación Omar Dengo
 - MICyT – Ministerio de Ciencia y Tecnología
 - Other Firm _____
 - Other public organization _____
 - Other private organization _____
- Networking
 - in a public activity
 - in a private activity
 - in a private personal activity (friends gathering, in a bar, practicing a hobby, etc.)
 - Other way: _____

6. How would you describe this/these collaboration(s)? Tick all that apply

- Training teachers / professors
 - On contents for their courses
 - Teaching strategies
 - Use of technology in class
 - incorporating the development of meta-cognitive capabilities (eg. Team work, leadership, critical thinking, learning how to learn, etc.)
 - Other _____

For these educational levels

- Elementary
- High school
- Technical high school
- Para university
- University undergraduate
- University graduate

- Training students on topics related to
 - Mathematics
 - Science
 - Meta-cognitive capabilities (eg. team work, leadership, critical thinking, learning how to learn, etc.)
 - Business entrepreneurship
 - Other

From this/these educational levels

- Elementary
- High school
- Technical high school
- Para university
- University undergraduate
- University graduate

- Active internships opportunities for professors
- Active internships opportunities for students

- Actively participating in School Boards
- Actively participating in the development of
 - educational programs
 - educational campaigns
 - educational policies such as _____
- In other way _____

7. What is the rationale behind investing in these collaborations? (check all that apply)

- Thinking ahead
- Making this territory more competitive
- Ethical investment
- Getting more acceptance from local communities
- Increase future labor pool
- Avoid attracting new competitors
- Prevent unwelcome kind of government attention
- Stay ahead in the competitive race
- Increase market share
- Marketing
- Maximize sales
- Welfare of other stakeholders
- Other _____

8. Order in terms of preference for the firm the collaboration on initiatives with national reach vs. local reach.

- National reach
- Areas of influence close to the firm

9. Have other firms' experience contributed to this firm's interest in collaborating with the public education sector in Costa Rica?

Yes No [go to question x 'has your firm benefited from others investing]

10. Has your firm benefited from the investments other firms have put in Costa Rica's public education?

Yes No

a. How? [optional]

11. How would you describe the collaboration with organizations from the public sector with regards to learning from each other?

- Both the firm and the public organization learned equally during the process
- The firm has learned more from the public sector organization
- The public organization has learned more from the firm
- I don't know

Examples (optional):

12. What does the firm expect to obtain from these collaborations?

- Future consumers
- Future employees
- Better relations with stakeholders
- More influence on public education decision making and public policy
- Better perception of the firm's brand
- Other _____

13. About what percentage of last year's Costa Rica's surplus profits were invested on activities related to public education in Costa Rica?

- 0% - 1%
- 1% - 2%
- 2%- 3%
- 4% - 5%
- 5% - 10%
- 10%-15%
- 15%-20%
- 20%-25%
- Other amount _____

14. How many people in the firm work on the collaborations with the public sector in Costa Rica?

- 1
part time full time
- 2
part time full time
- 3
part time full time
- 4+
part time full time

15. What unexpected side effects has the firm experienced as a result from these collaborations with the public education sector? (please check those that apply) [Random order of answers]

- Stronger and expanded networks
- Increased trust in public sector capabilities
- Have led to new collaborative projects with other public sector organizations
- Motivational for employees
- Higher recognition by firm's head quarters
- Greater transparency and accountability with external stakeholders
- Interest groups have are trying to impose own agenda
- Have led to new collaborative projects with other firms
- Access to more information
- Competitors are benefiting from the firm's efforts
- Information or knowledge leakage
- Higher than expected organisational and time efforts
- In general, the public education sector is more responsive to the firm needs
- Other _____

16. How far is the most ahead in time that the firm plans for its future human resources requirements?

- 1-2 year ahead
- 3-5 years ahead
- 6-10 year ahead

- 11-15 year ahead
- 16-30 year ahead or more

17. I will treat the answers in this survey anonymously, unless you authorize otherwise.

- I authorize the citation of the name of the firm, which is: _____
- I do not authorize the citation of the name of the firm

18. May I contact you or someone else in your office for further information / details?

- Yes

You

Name:

Firm:

Email:

Phone:

Someone else

Name:

Position:

Email:

Firm:

Phone:

- No

19. Observations/Comments , if you wish to attach any documents, please do so here:

Thank you!

Comes from collaborated after saying no to collaborating now.

**20. Has this firm collaborated in the past with any organization of the public education sector?
(check all that apply) [go on with different set of questions]**

- Yes, with
 - MEP - Ministerio de Educación Pública
 - MiCYT - Ministerio de Ciencia y Tecnología
 - INA - Instituto Nacional de Aprendizaje
 - UCR - Universidad de Costa Rica
 - ITCR - Instituto Tecnológico de Costa Rica
 - UNA – Universidad Nacional de Costa Rica
 - Direct contact with Elementary School(s)
 - Direct contact with Highschool(s)
 - Other _____

- No [go on to why not]

21. Why has the collaboration ceased? (please sort in order of importance the ones that apply) [random order of answers]

- Firm's financial issues
- No Board support
- There is no gain for the firm
- The public counterpart did not respond
- The public counterpart was too slow
- Could not reach an understanding with the public counterpart
- There was no trust of the public counterpart's ability to deliver
- Corruption
- Other _____

22. How did the collaboration begin between the firm and the organization from the public sector? (select one)

- The firm reached out to the public sector organization.
- The public sector organization reached out to the firm.
- Another organization put you in contact:
 - CINDE – Costa Rican Investment Promotion Agency
 - AED – Asociación Empresarial para el Desarrollo
 - FOD - Fundación Omar Dengo
 - MiCyT – Ministerio de Ciencia y Tecnología
 - Other Firm _____
 - Other public organization _____
 - Other private organization _____
- Networking
 - in a public activity
 - in a private activity
 - in a private personal activity (friends gathering, in a bar, practicing a hobby, etc.)
 - Other way: _____

23. How would you describe this/these collaboration(s)? Tick all that apply.

- Training teachers / professors
 - On contents for their courses
 - Teaching strategies
 - Use of technology in class
 - incorporating the development of meta-cognitive capabilities (eg. Team work, leadership, critical thinking, learning how to learn, etc.)

Other _____

For these educational levels

- Elementary
- High school
- Technical high school
- Para university
- University undergraduate
- University graduate

Training students on topics related to

- Mathematics
- Science
- Meta-cognitive capabilities (eg. team work, leadership, critical thinking, learning how to learn, etc.)
- Business entrepreneurship
- Other

From this/these educational levels

- Elementary
- High school
- Technical high school
- Para university
- University undergraduate
- University graduate

Active internships opportunities for professors

Active internships opportunities for students

Actively participating in School Boards

Actively participating in the development of

- educational programs
- educational campaigns
- educational policies such as _____

In other way _____

24. What is the rationale behind having invested in these collaborations? (check all that apply)

[Random order of answers]

- Thinking ahead
- Making this territory more competitive
- Ethical investment
- Getting local communities on the good side of the firm
- Increase future labor pool
- Avoid attracting new competitors
- Prevent unwelcome kind of government attention
- Stay ahead in the competitive race
- Increase market share
- Marketing

- Maximize sales
- Welfare of other stakeholders
- Other _____

25. How far is the most ahead in time that the firm plans for its future human resources needs?

- 1-2 year ahead
- 3-5 years ahead
- 6-10 year ahead
- 11-15 year ahead
- 16-30 year ahead or more

26. How many years ahead does the firm consider when planning its future consumer's strategy?

- 1 year ahead
- 2 years ahead
- 5 year ahead
- 10 year ahead
- 15 year ahead
- 20 year ahead
- 30 years ahead or more

27. I will treat the answers in this survey anonymously, unless you authorize otherwise.

- I authorize the citation of the name of the firm, which is: _____
- I do not authorize the citation of the name of the firm

28. May I contact you or someone else in your office for further information / details?

- Yes

You

Name:

Firm:

Email:

Phone:

Someone else

Name:

Position:

Email:

Firm:

Phone:

- No

29. Observations/Comments , if you wish to attach any documents, please do so here:

Thank you!

Comes from not collaborated in past

30. Why hasn't the firm collaborated in the past with the public education sector? (check all that apply)

- Education does not concern the firm
- Other competitors are already doing what the firm wanted to collaborate
- The government is the one in charge of education
- The firm is gaining already from what other firms are investing in public education
- There is no trust that the government will actually come through.
- The Government does not trust firms' intentions
- It would involve too much time and resources that the firm does not have right now
- There is no use for the firm
- Other _____

31. Is the firm

- in discussions with Costa Rica's public education sector to start collaborating?
- discussing within the firm the possibility of exploring the possibility of collaborating in the short term?
- not discussing anything related with collaborating with Costa Rica's public education sector?
[go to..]

32. How far is the most ahead in time that the firm plans for its future human resources needs?

- 1-2 year ahead
- 3-5 years ahead
- 6-10 year ahead
- 11-15 year ahead
- 16-30 year ahead or more

33. How many years ahead does the firm consider when planning its future consumer's strategy?

- 1 year ahead
- 2 years ahead
- 5 year ahead
- 10 year ahead
- 15 year ahead
- 20 year ahead
- 30 years ahead or more

34. I will treat the answers in this survey anonymously, unless you authorize otherwise.

- I authorize the citation of the name of the firm, which is: _____
- I do not authorize the citation of the name of the firm

35. May I contact you or someone else in your office for further information / details?

- Yes
You
Name:
Firm:
Email:
Phone:

Someone else
Name:
Position:
Email:
Firm:
Phone:

- No

36. Observations/Comments , if you wish to attach any documents, please do so here:

Comes from not in present discussions to start collaborations

37. Is it in the firm's short term plan to try and collaborate with the public education sector?

- Yes no

38. How far is the most ahead in time that the firm plans for its future human resources needs?

- 1-2 year ahead
 3-5 years ahead
 6-10 year ahead
 11-15 year ahead
 16-30 year ahead or more

39. How many years ahead does the firm consider when planning its future consumer's strategy?

- 1 year ahead
 2 years ahead
 5 year ahead
 10 year ahead
 15 year ahead
 20 year ahead
 30 years ahead or more

40. I will treat the answers in this survey anonymously, unless you authorize otherwise.

- I authorize the citation of the name of the firm, which is: _____
 I do not authorize the citation of the name of the firm

41. May I contact you or someone else in your office for further information / details?

- Yes
You
Name:

Firm:
Email:
Phone:

Someone else

Name:
Position:
Email:
Firm:
Phone:

No

42. Observations/Comments , if you wish to attach any documents, please do so here:

Annex 3

Criterios Gran Empresa (Según CIIU Rev. 4)			
Rama de Actividad	Desde	Hasta	Rango Trabajadores
· Agricultura, Ganadería, Silvicultura y Pesca.	0111.01	0322.99	Mayores o iguales que 100.
· Explotación de minas y canteras.	0510.00	0990.00	Mayores o iguales que 100.
· Industrias Manufactureras.	1010.01	3320.00	Mayores o iguales que 100.
· Suministro de electricidad, gas, vapor, y aire acondicionado.	3510.01	3530.00	Mayores o iguales que 100.
· Suministro de agua, evacuación de aguas residuales, gestión de desechos y descontaminación.	3600.01	3900.00	Mayores o iguales que 100.
· Construcción.	4100.00	4390.00	Mayores o iguales que 50.
· Comercio al por mayor y al por menor, reparación de vehículos de motor y motocicletas.	4510.00	4799.00	Mayores o iguales que 50.
· Transporte y almacenamiento.	4911.00	5320.00	Mayores o iguales que 50.
· Alojamiento y servicios de comida.	5510.01	5630.00	Mayores o iguales que 30.
· Información y comunicación	5811.00	6399.00	Mayores o iguales que 50.
· Servicios financieros y de seguros.	6411.00	6630.00	Mayores o iguales que 100.
· Actividades inmobiliarias.	6810.00	6820.00	Mayores o iguales que 100.
· Actividades profesionales, científicas y técnicas.	6910.00	7500.00	Mayores o iguales que 50.
· Actividades administrativas y servicios de apoyo	7710.01	8299.00	Mayores o iguales que 100.
· Enseñanza.	8510.01	8550.00	Mayores o iguales que 100.
· Servicios sociales y de salud.	8610.01	8890.00	Mayores o iguales que 100.
· Artes, entretenimiento y recreación.	9000.00	9329.00	Mayores o iguales que 100.
· Otras actividades de servicios comunitarios.	9411.00	9609.00	Mayores o iguales que 100.

Annex 4

United Nation's International Standard Industrial Classification of All Economic Activities

- A - Agriculture, forestry and fishing
 - Q1 - Crop and animal production, hunting and related service activities
 - Q2 - Forestry and logging
 - Q3 - Fishing and aquaculture
- B - Mining and quarrying
 - Q5 - Mining of coal and lignite
 - Q6 - Extraction of crude petroleum and natural gas

- 07 - Mining of metal ores
- 08 - Other mining and quarrying
- 09 - Mining support service activities
- C - Manufacturing
 - 10 - Manufacture of food products
 - 11 - Manufacture of beverages
 - 12 - Manufacture of tobacco products
 - 13 - Manufacture of textiles
 - 14 - Manufacture of wearing apparel
 - 15 - Manufacture of leather and related products
 - 16 - Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
 - 17 - Manufacture of paper and paper products
 - 18 - Printing and reproduction of recorded media
 - 19 - Manufacture of coke and refined petroleum products
 - 20 - Manufacture of chemicals and chemical products
 - 21 - Manufacture of basic pharmaceutical products and pharmaceutical preparations
 - 22 - Manufacture of rubber and plastics products
 - 23 - Manufacture of other non-metallic mineral products
 - 24 - Manufacture of basic metals
 - 25 - Manufacture of fabricated metal products, except machinery and equipment
 - 26 - Manufacture of computer, electronic and optical products
 - 27 - Manufacture of electrical equipment
 - 28 - Manufacture of machinery and equipment n.e.c.
 - 29 - Manufacture of motor vehicles, trailers and semi-trailers
 - 30 - Manufacture of other transport equipment
 - 31 - Manufacture of furniture
 - 32 - Other manufacturing
 - 33 - Repair and installation of machinery and equipment
- D - Electricity, gas, steam and air conditioning supply
 - 35 - Electricity, gas, steam and air conditioning supply
- E - Water supply; sewerage, waste management and remediation activities
 - 36 - Water collection, treatment and supply
 - 37 - Sewerage
 - 38 - Waste collection, treatment and disposal activities; materials recovery
 - 39 - Remediation activities and other waste management services
- F - Construction
 - 41 - Construction of buildings
 - 42 - Civil engineering
 - 43 - Specialized construction activities
- G - Wholesale and retail trade; repair of motor vehicles and motorcycles
 - 45 - Wholesale and retail trade and repair of motor vehicles and motorcycles
 - 46 - Wholesale trade, except of motor vehicles and motorcycles
 - 47 - Retail trade, except of motor vehicles and motorcycles
- H - Transportation and storage
 - 49 - Land transport and transport via pipelines
 - 50 - Water transport
 - 51 - Air transport
 - 52 - Warehousing and support activities for transportation
 - 53 - Postal and courier activities
- I - Accommodation and food service activities
 - 55 - Accommodation
 - 56 - Food and beverage service activities
- J - Information and communication

- 58 - Publishing activities
- 59 - Motion picture, video and television programme production, sound recording and music publishing activities
- 60 - Programming and broadcasting activities
- 61 - Telecommunications
- 62 - Computer programming, consultancy and related activities
- 63 - Information service activities
- K - Financial and insurance activities
 - 64 - Financial service activities, except insurance and pension funding
 - 65 - Insurance, reinsurance and pension funding, except compulsory social security
 - 66 - Activities auxiliary to financial service and insurance activities
- L - Real estate activities
 - 68 - Real estate activities
- M - Professional, scientific and technical activities
 - 69 - Legal and accounting activities
 - 70 - Activities of head offices; management consultancy activities
 - 71 - Architectural and engineering activities; technical testing and analysis
 - 72 - Scientific research and development
 - 73 - Advertising and market research
 - 74 - Other professional, scientific and technical activities
 - 75 - Veterinary activities
- N - Administrative and support service activities
 - 77 - Rental and leasing activities
 - 78 - Employment activities
 - 79 - Travel agency, tour operator, reservation service and related activities
 - 80 - Security and investigation activities
 - 81 - Services to buildings and landscape activities
 - 82 - Office administrative, office support and other business support activities
- Q - Public administration and defence; compulsory social security
 - 84 - Public administration and defence; compulsory social security
- P - Education
 - 85 - Education
- Q - Human health and social work activities
 - 86 - Human health activities
 - 87 - Residential care activities
 - 88 - Social work activities without accommodation
- R - Arts, entertainment and recreation
 - 90 - Creative, arts and entertainment activities
 - 91 - Libraries, archives, museums and other cultural activities
 - 92 - Gambling and betting activities
 - 93 - Sports activities and amusement and recreation activities
- S - Other service activities
 - 94 - Activities of membership organizations
 - 95 - Repair of computers and personal and household goods
 - 96 - Other personal service activities
- I - Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
 - 97 - Activities of households as employers of domestic personnel
 - 98 - Undifferentiated goods- and services-producing activities of private households for own use
- U - Activities of extraterritorial organizations and bodies
 - 99 - Activities of extraterritorial organizations and bodies

Annex 5:

Costa Rica: Examples of Industry-PES Linkages

HR-Linkages	CSR-Linkages
<p>In Guanacaste technical careers in the areas of electricity and electromechanics are starting as result of 'Corporate Tables' discussions and knowledge transfer for the possibility of medical devices and electromechanical companies to move in soon. However, the type of existing firms in the area would allow graduates to be employed in the mean time.</p>	<p>Toyota understands that part of their core businesses is to contribute to improve road safety. It liked with MEP and MOPT to develop a module of teaching and learning to be introduced in the curriculum subject of the schools.</p>

Annex 6

Methodology Extended

Survey

Trying to obtain the population of large firms in the country from which to draw a sample was a challenge. It required enquiries in seven different offices, twenty phone calls, ten e-mails, a filled form, one official letter from the University of Costa Rica and finally, only a sample was obtained because they were not allowed to deliver the entire database. I asked for 30 random large firms (in terms of # of employees) per class of the United Nation's International Standard Industrial Classification of All Economic Activities (ISIC, Rev. 4 – Annex 3). The sample came from the largest directory¹⁷ available in the country of existing firms to the year 2010 and it is administered by the National Institute of Statistics and Census (INEC). The directory is updated every year, cross checked with the national registry, the Costa Rican Social Security Institution and the Ministry of Revenues in addition to other sources. It does not cover the entire population of firms; in particular, the entire informal sector is out of scope. However, all large¹⁸ firms are included for sure. The sample included 1954 firms, from which only 900 effectively received a letter and a link to fill in a 10 minute survey (those without emails and those whose email was wrong were returned). Precaution was taken so that at least 5% of the firms of each of the 18¹⁹ different ISIC sections were contacted in the sections where there were only few firms.

About 25% of the large firms who were sent the survey belong to the section of wholesale and retail trade, including motorcycle and vehicles repairs; 15% to the manufacturing sector; 12% to the accommodation and food services; 8% to agriculture, forestry and fishing; 8% to transportation and storage; 6% construction; 7% Professional, scientific and technical activities; 7% Administrative and support service activities; 18% various others. These percentages represent the distribution of large firms in the country.

¹⁷ Directorio de Unidades Institucionales y Establecimientos

¹⁸ The definition of large, varies according to economic activity, for example, a large manufacturing firm is considered to have over 100 employees, in contrast a large firm in accommodation and food service activities only has to employ over 30 people.

¹⁹ The sections of Public administration and defence; Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use; and Activities of extraterritorial organizations and bodies were not included in the Directory.

Interviews

Provided here is a template in English from which most questions were used on the interviewees. However, since they were from three different sectors (Public, private with public ends, and autonomous) and their role was different (political or executive), the questions varied and new ones were designed to their differences.