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ARTÍCULOS DE REVISIÓN

The role of universities and other institutions in successful entrepreneurship: Some insights from a literature review

El rol de las universidades y otras instituciones en el emprendimiento exitoso: visiones de una revisión de la literatura

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Notas

This paper is based on a previous collaborative research project between the State University of New York (SUNY) at Cortland and the Universidad San Ignacio de Loyola (USIL). A previous version of this work was presented at the Costa Rica Global Conference on Business and Finance (GCBF) in San Jose, Costa Rica, May 26-29, 2015. Authors acknowledge the assistance of Thomas Lee, economics student of SUNY-Cortland.

Summary

The purpose of this paper is to analyze the role of universities and other institutions in successful entrepreneurship. Insights are obtained following a literature review approach. Case studies from the United States (New York startup), Spain (Mondragon), and Germany provide strong evidence that universities are very instrumental in the creation, design and implementation of entrepreneurial initiatives by providing new and ongoing entrepreneurs with human capital training, fundamentals, and theoretical and empirical models to contribute to lasting businesses. Results from university research on gender and risk-issues lead to believe that women are more risk averse than men to work and invest in star-up businesses. Other institutions, such as governments, are critical to provide with the necessary incentives to launch start-up businesses, including tax cuts, seed capital funding, investment in human capital, etc. While the evidence supporting the links between education and entrepreneurial outcomes is promising it is not yet definitive. In addition to providing a review of existing research, this paper suggests an integrative framework for future research..

Keywords: Entrepreneurship, startup, risk-averse, correlation.

Resumen

El objetivo de este artículo es analizar el rol de las universidades y otras instituciones en el emprendimiento exitoso. Se obtuvieron las diversas visiones sobre el tema a través de la revisión de la literatura. Estudios de casos de los Estados Unidos (emprendimientos Nueva York), España (Mondragón) y Alemania proveen pruebas claras de que las universidades son muy instrumentales en la creación, diseño e implementación de iniciativas empresariales al dar a los nuevos y actuales empresarios una formación en capital humano, fundamentos y modelos teóricos y empíricos para contribuir a los negocios que perduran en el tiempo. Los resultados de investigaciones sobre asuntos de género y riesgo muestran que las mujeres son menos propensas que los hombres a arriesgarse a trabajar e invertir en empresas nuevas. Otras instituciones, como los gobiernos, son decisivas en la facilitación de los incentivos necesarios para comenzar empresas nuevas, incluyendo recortes de impuestos, financiamiento de capital semilla, inversiones en capital

humano, etc. Mientras la evidencia que apoya la relación entre la educación y los resultados empresariales es prometedora, aún no es definitiva. Además de ofrecer una revisión de investigaciones ya existentes, este artículo sugiere un marco teórico integrativo para investigaciones futuras.

Palabras clave: Emprendimiento, empresas nuevas, aversión al riesgo, correlación.

Introduction

Over the last few years, a great deal of attention has been paid to entrepreneurship issues in the developed and developing business world. Despite the general consensus of how entrepreneurship contributes to the economy through the generation of employment, there is still a lot of discussion and uncertainties about its lasting success. Furthermore, entrepreneurship education ranks high on policy agendas in the United States and Europe, but little research is available to evaluate its effects (Graevenitz, Harthoff & Weber; 2010).

Part of this discussion may center about how entrepreneurship is defined. Another issue may be that entrepreneurship is seen as a type of solution that can rapidly generate employment and income, sometimes at the risk of ignoring the economic fundamentals that rule market principles as well as the efficient allocation of resources to maximize profits in the short, medium, and long term.

There is some evidence that the preference for engagement in new ventures relates to the personal motivations for start-ups, the propensity to take risk and the availability of other income. This evidence also relates productivity of work time to human, financial and social capital endowments and the prevalence of outsourcing activities. Furthermore, the same evidence shows that on average women invest less time in the business world that men which is attributed to both a lower preference to work time and a lower productivity per hour worked (Verheul, Carree & Thurik, 2008).

To that extent, universities can play a key educational role to help facilitate the discussion on how entrepreneurship can be defined and understood as a process, universities can also help new businesses (start-up) to build models, put systems in place, and train human capital to efficiently meet their business needs.

This paper deals with definitions, models, case studies, and lessons learned from some country experiences, and thus contribute to a deeper knowledge of entrepreneurship

Definitions of entrepreneurship and Start-up Initiatives.

A start up business is a Starborn' small business. According to Robehmed (2013), many business founders have a number of different definitions of a start-up. According to Neil Blumenthal, a co-CEO of Warby Parker, a Startup is a company working to solve a problem where the solution is not obvious and success is not guaranteed." The Street Journal has reported that three out of every four start-up businesses fail nationwide which implies a mere 25% success rate. A similar trend is observed from start-ups coming from incubator programs.

According to Liddy (2010) at the Syracuse Tech Garden in Syracuse, NY, the long-term viability rate for the Student Sandbox business incubator is around 39%. But other programs have been more successful. For example, the Techstarg Business Accelerator program has seen a great deal of success nationwide as well, with 75% of their ventures still active.

These business incubators help start-ups come into being and increase the probability of success. They provide support to the businesses in a number of aspects by providing a place to work and guidance from mentors and experts in the field. They also help connect the prospective businesses to financial assistance from financial investors. With regards to the nation, the rate for the Student Sandbox is a much better success rate. The success rate of Techstars is more impressive and far surpasses that of the nation.

The importance of education in entrepreneurship.

A paper prepared by Dickson, Solomon, and Weaver (2008) explored the relationships between general education, specific forms of entrepreneurial education and a range of entrepreneurial activities in the U.S. These relationships were investigated through an analysis of peer-reviewed research published in a wide range of journals and proceedings between 1995 and 2006. Paper's findings suggest strong evidence supporting the relationship between levels of general education and several entrepreneurial success measures. These findings are less conclusive regarding the link between general education and the choice to become an entrepreneur. The findings relating specific programs of entrepreneurship education to entrepreneurship,

although ambiguous, suggest a positive link between such education and both the choice to become an entrepreneur and subsequent entrepreneurial success.

A recent study performed by Arthur, Hisrich, and Cabrera (2012) found that education rated highly among various critical factors surveyed and identified as facilitators and impediments for successfully global and regional entrepreneurship. This finding was the result of conducting an electronic, open-ended survey to 145 industry contacts. Responses were categorized into three groups of factors –i.e. economic, social and personal– and analyzed accordingly by region and job function of respondent.

Case 1: The American Model (The New York Case).

There has also been a markedly increased in the last two decades in entrepreneurship education. Entrepreneurship education and training (ETT) programs were offered by 400 universities in 1995 compared to over 2,000 across the US in 2012. (Tomkins-Bergh & Miller, 2015)

According to the National Science Foundation, industry-university collaboration takes several forms among them: research support, cooperative research, knowledge transfer and technology transfer (Chakrabarti & Rice, 2003). Over the years there has also been effective mechanisms developed for assisting entrepreneurs in business incubators. (Rice, 2002)

Universities are known to be the bastions of learning and knowledge creation and collaborations date from the Second World War when they joint the war effort. But according to Rice (2002) the trend in the US universities has been on theoretical knowledge development and more generic type of research. In particular, author points out that public funds can seldom be used to further the interests of a specific company. Therefore, the alliance of specific companies applying for collaborative partnership with US universities under the StartUp NY initiative lack the structural mechanisms for companies to interact with the academic professionals in universities.

Other initiatives worth noting are the efforts of the Small Business Innovation Research program at the National Science Foundation to help

small companies to further their innovating activities but these programs are few (Rice, 2002).

According to Chakrabarti and Rice (2003), some US regions have attempted to create effective collaborative relationships among universities and corporations but with limited success in sustaining that effort. Thus more initiatives such as StartUp NY are welcome based on the understanding of successful initiatives around the globe and the traditional but evolving roles of universities and companies thus far.

On January 1st, 2014, Governor Cuomo's office unveiled a program named Start Up NY (New York State, 2015). This program creates and utilizes tax free zones surrounding the universities in NY with hopes of bringing in new businesses and fosters a growing economy in New York. The program also contemplated the use of incubators to create start up businesses. The main idea behind this plan is to utilize these tax free zones and tax cuts in order to encourage business to come to New York and boost employment. Bringing businesses in will lead to more investment into the state and hopefully an increase in significant employment. Another part of the plan is to encourage partnerships between private business and universities in order to promote hi-tech businesses and innovation in upstate NY. As of today, around three hundred ninety five jobs have been created with around fifty million dollars being invested into the state.

While Start Up NY includes business incubators, the program also offers a number of other benefits. The new businesses starting in NY gain a number of tax benefits from their creation or relocation. The benefits include the waiving of income, property, and corporate taxes for ten years. Furthermore, their new employees, up to 10,000 new positions per year are expected, will pay no taxes for at least five years. This is extended to 10 years if the workers are making less than $200,000 dollars. The idea is to increase business profitability so they may increase employment. There is also expected to be multiplier effects as new employees have more money in their pocket from lower taxes, which they will spend in the local and regional economy further increasing economic activity and employment. These businesses, however, do face some restrictions before receiving benefits.

The restrictions and requirements for a business in New York to qualify for Start Up NY are relatively simple. First, the business must be a company that creates new jobs in New York. The new business is not allowed to relocate workers from elsewhere. This ensures there is a net increase in new employment in NY. Due to this requirement, pre-existing businesses in NY cannot apply. Furthermore, if the business is in New York City, Long Island, or Westchester County, the business must be a start up in a high technology business. If a business would like to be near the city, manufacturing is not an option. Moreover, many business types are not an option, including retail, food, medical/dental firms, law firms, accounting, energy production, financial, etc. Second, there is a land/zoning requirement. The college must own the land and the business must locate within one mile of the college campus. The colleges choose the businesses, which must be aligned with the mission of the college, and they themselves face a limit. The universities are unable to relocate existing programs, students, faculty, or staff in order to make room for a new business.

Case 2: The European Model (The Mondragon Model).

The educational system at Mondragon is less fragmented from the working world. There is a great deal of interaction between workers, managers and school administrators through the Governing Council, which is integrated by members of each group. This participation goes both ways; that is, members of the university participate in business governing councils and vice versa. These interactions create a much closer and responsive relationship when it comes to internships, placements, funding, curriculum, etc. This is also translated in a few practices observed such as the alternation of work and study for over 3,500 students in the past six years, the end-of-course projects at several companies in the system for approximately 350 students a year, and the traditional work experience and teaching practicum for over 500 students a year.

Mondragon University seems to have merged the values of a liberal arts educational system with the working world by incorporating not only the specific technical knowledge required for the diplomas and degrees, but also aspects related to generic competencies and human values into the whole education model. They also aim to participate in the global economy through

the framework of a multilingual education and the use of information and communication technologies.

From their mission statement found in the Mondragon University website one reads "Our teaching model involves a system of relationships which, with the educational system as the central theme, aims to involve the companies and institutions in the area, in order to guarantee social accessibility, the combination of work and study, the development of research and the provision of Continuing Education". Thus it is not surprising that research development is one of the mainstays of the educational system at Mondragon University. This forms the basis for the creation of a solid network of support institutions such as Ikerlan and IDEKO, which are two internationally renowned Technology Centres and the promotion of Garaia Innovation Pole to encourage the joint development of research. Within this context the development of new enterprises seems like a logical outcome rather than a directive from above. Entrepreneurship values emanate from the constant search for new ideas and new institutional arrangements from different stakeholders to combine work and study and enable students to come into direct contact with the working world right from the start of their studies.

There is another model of fostering startups not in the U.S. but in Spain. The Mondragon Cooperative Corporation (MCC) in the Basque Country of Spain is one of the leading Spanish business groups. The MCC is composed of autonomous and independent cooperatives with 257 production subsidiaries and cooperatives, 74,060 people, 15 technology centers and corporate offices in 41 countries. Five students of a priest named Jose Maria Arizmendiarrieta started this group in the 1950s. He taught a number of students in a polytechnic school who could not break into the only local capitalist business and decided to form their own cooperative. At the time, there was no legal precedent for what they had done and were not eligible for any money from the government for the creation of their new business. The original five members provided the original money and financial resources until 1975, donations they collected along the way, and, later on, contracts with clients. They founded ULGOR, the first cooperative of Mondragon. Since then, Mondragon has been the poster child for cooperatives looking to succeed in a capitalist world. It has been said that Mondragon does not

sacrifice equity for efficiency and it does not sacrifice efficiency for equity either. (Flecha & Santa Cruz, 2011). The Mondragon group has two main institutions that deal with the creation of new business enterprises (Saiolan and Ikerlan) and their experience is informative for Start Up NY.

Saiolan is the business creation oriented portion of the Mondragon Cooperative Corporation created in 1981 as a part of the Polytechnic/ Engineering School. Saiolan acts as the business incubator and provide assistance so new businesses flourish. Saiolan assists in launching new businesses, cooperative or any other business model, and in diversifying already existing business. They also work in regional development, viability studies, as well as patent and technological studies. They train entrepreneurs in five areas: motivation, finding opportunities, defining a suitable project, planning the startup and launching the idea. Saiolan teaches entrepreneurs how to launch their businesses by allowing people to work in teams, work openly and by providing assistance and advise. Interestingly, Saiolan is not a cooperative per se as it would make it unable to receive funding from the Basque government. Instead, it remains a corporation and is able to receive grants and loans from the Basque government for financing new enterprises. In fact, a good deal of money comes from not only the Basque government, but their contributions combined with that of Mondragon as well as the Provincial Council in Gipuzkoa, which altogether is about 30% of Saiolan budget. The other 70% comes from ongoing projects with local/regional businesses as well as the European Union. This informal educational program has no formal exams and its goal is to launch a successful business and the creation of enterprise leaders with entrepreneurial capabilities. Participants can also come with a business idea but not necessarily be a student (Ifateyo, 2011). Saiolan's researchers evaluate the ideas, find them viable or not viable, and then research commences. Entrepreneurs gain a space to work, funding from Saiolan, and a coaching staff.

Ikerlan falls into the research/development of products category. Ikerlan is linked to Mondragon by being a part of the MCC group and was created in 1974 by a group of cooperative enterprises. It is a technological R&D center that prides itself in being at the cutting edge of research in several areas, like energy efficiency, operational efficiency, the development of products and services and it aims to have state of the art technology.

It also offers the furthering/production of a variety of products. They collaborate with customers from a number of different fields and it seems to begin with an, but mas they sort out ideas but then the process moves onto product design and later product development. Professional scientists and technicians carry out the technical operations as well as the pre-design phase rather than students who are oversee by such professionals. The pre-design phase focuses on developing the products right. With these elements as a part of the process, product and technological strategies lead to product and technological development plus what Ikerlan calls OIC (opportunities, ideas, and concepts or *Oh, I see*!), or pre-development activities. More is added to this process by way of knowledge sharing (a popular idea within Mondragon) and strategy sharing, as well as product and technological knowledge, and management concepts on a number of levels. Management control is in place not to over-formalize development activity. The pre-phase been fine- tuned to meet the needs of Ikerlan, its partners, and its clients (MacGregor, Araba, Parra & Lorenzo, 2006). This is now less of an educational program and much more of a development program. Funding comes predominantly by contracts and some from the Basque government, Ministry of Edu/Sci/Tech., municipal governments, and the EU (Shantz & Macdonald, 2013).

Since Ikerlan is a not for profit organization, all the surplus profits are reinvested for in house research/development. This allows them to stay ahead of the competition and invest state of the art technology. While both of these institutions are involved in the development of potential marketable ideas, they take two rather different approaches on these two different processes. Ikerlan focuses more on using their energy to create or further a success. Saiolan is involved with working together to create something new and using a number of minds to do so. Both of these institutions are incredibly successful, with Ikerlan having 500M euros (US$684M) in accumulated value from their ventures. In 2013, Saiolanai budget was 1m Euros. Both organizations work with large corporations and, quite importantly, with the EU on a number of ventures. Saiolan has had their own great deal of success, especially if viewed in terms of successful businesses created and continued after Saiolan finishes their input. Of 103 Saiolan created businesses, 100 had thrived and survived for over 30 years. That alone is an impressive success rate that exceeds 97%. This was even possible during the tumultuous Franco years of oppression of the Basque people. More recently between

1985 and 2013, over 200 businesses and 2500 new jobs have been created thanks to Saiolan. The implication is that businesses starting under these institutional arrangements continually run because people will further spend their money in the local and regional economy and that money will induce further economic activity (even at a small level) under a multiplier effects ripple effect throughout the economy.

Explaining the success of the Mondragon group.

There are a number of reasons as to why Mondragon, Saiolan, and Ikerlan have had the opportunity to succeed. We believe, however, the reasons can be summarized in three main ideas.

Institutional coordination. One reason that Mondragon has done exceedingly well is due to the creation of a network, rather than a partnership, with a number of different sectors such as finances, academic, and, business, and utilizing this network to its fullest potential. Under self-governance, the Mondragon group is very democratic and decisions are made as a team instead of a single person/few people. They have by-laws regarding their business and how it should run. They have been very creative at problem solving even creating their own bank for the sole purpose of helping cooperative enterprises and continue to find other financial arrangements to further help themselves. They work closely with the local government and the rest of the sectors in their network. This results in higher efficiency and productivity. Being so inter-connected also helps those who may lose their jobs in one part of the cooperative by being relocated to another part or, possibly even to an outside part of the network. This keeps employment in the area up as well as streamlining a number of processes and keeping overall costs down.

Funding. As stated by Henderson-Harr (2015), the funding for many of these NY programs in general will go through the universities. A main difference between the SU NY system and the Mondragon (Saiolan and Ikerlan) experience is how the money is allocated. Ikerlan and Saiolan, receive adequate funding as deemed by the participants for their business incubator and the non profit research and development center. [4]The incubators in New York receive funding from the State and have some help from Start

4 Finding some indicators can help us defining adequate funding.

Up NY (according to John from SS) but are severely underfunded compared to Saiolan. These R&D centers should identify key areas and request enough funding to invest in state of the art technology. The incubators should also be equipped with proper funding and space for the start-ups to have a place to do their work. The Basque government, local governments, and even larger bodies like the EU fund Ikerlan. With much higher funding, they continue to have access to cutting edge technology. This technology results in more innovation, higher-quality products and services that allow the group to compete more effectively regionally and worldwide.

Lastly, the success of Mondragon can be largely attributed to the culture of the Basque people. This is for both economic and non-economic reasons. In terms of non-economic reasons, they Basque are a very proud group. They have a lot of ethnic pride. They considered themselves Basque, not Spanish, and have tried more than once to gain their complete autonomy from Spain. According to Making Mondragon by Whyte and Whyte (1991), they have a great amount of dignity in their labor. After more than 60 years in operation their logo still says "Humanity at Work". They put 100% into anything they do, even the most menial of jobs. Furthermore, they combat alienation from work by making every worker an owner and by rotating their workers in and out of menial jobs among other things. This comes from history, however, as they have been involved in the business world for a number of centuries. In the fourteenth century, the Basque were heavily involved in ship building. Four centuries later, they were heavily involved in steel production. Today, they compete worldwide as the Mondragon Cooperative Corporation.

Economically speaking, being important in the business world for centuries builds knowledge about contracts; management of financial flows in and out. Though trust is a non-economic reason, ultimately people put money in the hands of firms they trust. Many can trust Mondragon due to their track record and the Basque heavily involved in steel production. Today, Furthermore, their legislation provides grants and money to Mondragon, so lack of investment does not seem to be a problem. Though the culture as a whole is a complex reason for their overall success, it is also certainly a major factor in the production of business and start-ups. Individualistic views and ideas in places such as America are often credited with the environment

where start-ups can succeed and people can follow the so-called American Dream. People with ideas in places such as America are often credited with something new and take risks and have a high chance of success. In a number of places, like Spain and Canada, cooperatives provide higher long-term viability numbers than individual businesses do. Individualism may be the root cause of the motivation to start a business, but success also seems to come from the selfless values of a cooperative setting, as well as the presence of a strong network. (Co-op law) These values have supported innovative workplace ideas such as the contingency plan for alienation of workers, and have also earned the trust and support from the political sector, which has ensured their success. According to a Democracy NOW (2013) interview with Mikel Lezamiz, Director of Cooperative Dissemination at Mondragon, the culture/values of Mondragon are instilled in the minds of the Basque people from an early age. Though the university may not directly have a class named Cooperative Dissemination Lezamiz says, it would try to teach them and to educate them in cooperative values, cooperative values that are transpersonal values of the Basque people from an early age. Though they are also members of the cooperatives, and therefore the group can have a potential pool of future workers with cooperative values.

Economics of education, gender, and risk issues in entrepreneurship: Two German case studies.

A first German case study written by Verheul, Carree, and Thurik (2008) studied the separate preference and productivity effects on the number of working hours in new ventures of female and male entrepreneurs following a quantitative approach and by using a nonlinear two-equation model.

A first relation of the model had the number of hours invested in the firm in 1994 as the dependent variable. A second relation of the model considered profits as the dependent variable. Model's independent variables were: other income, gender, age, own boss, risk-aversion, education, vocation, experience, job similarity, start-up capital, existence of contacts with other entrepreneurs.

Authors' findings showed that "individuals have a lower preference for work time if they have other income available; and employees, are more

risk-averse; and are not motivated to start a business by being one's own boss. Productivity of time is positively related to financial capital invested; industry and relevant experience; contact with other entrepreneurs; number of employees; running an existing firm; having separate business premises; and the prevalence of outsourcing activities.

Authors found that on average women would invest fewer hours in the firm than men because of a lower average preference for work time and lower productivity per hour worked. They believe that the lower female preference for work time can be explained by the availability of other income and the risk-averse nature of women, while the lower female productivity is associated to lower levels of human, social and financial capital. From their profit analysis, authors found a negative effect of gender on working hours and profit. Furthermore, authors think that expectations of entrepreneurs about the factors that influence their productivity do not completely coincide with their actual effect on profits.

A second German case study written by Caliendo, Fossen, and Kritikos (2010) analyzes how risk attitudes can influence the complete life cycle of entrepreneurs. Authors propose that whereas recent research underpins the theoretical proposition of a positive correlation between risk attitudes and the decision to become self-employed, the effects on survival are not as straightforward. From a psychological perspective, the study posits an inverse U-shaped relationship between risk attitudes and entrepreneurial survival. By making use of experimentally validated data of the German Socio-Economic Panel (SOEP), authors examine the extent to which risk attitudes influence survival rates in self-employment in Germany. Findings confirm that persons whose risk attitudes are in the medium range survive significantly longer as entrepreneurs than do persons with particularly low or high risk attitudes.

Lessons from Mondragon and the German cases for the New York Start-Up initiative.

From observing the success of Mondragon, a number of lessons can be drawn to assist in the success of Start Up NY. For the incubators in NY to increase their rate of success close to Saiolan numbers, a larger investment must be

made. Though the budget for Student Sandbox is not public their program is merely twelve weeks. In Spain, Saiolan's program lasts for an upwards to two years. This time allotted to those involved allow for the creation of the businesses and the time to grow and mature. It allows for time and resources to be put into place to avoid the high rate of failure of new businesses and to increase the probability of long-term success. Saiolan has better funding and therefore can afford to invest into a more prolonged time span to see the business through. Furthermore, they are also able to help pre-existing businesses diversify, whereas most incubators in New York only focus on the creation of start ups. On the website of the Student Sandbox, diversification of the businesses is not part of their objectives. Yet intervention in this area can also lead to a higher success rate as businesses will be built to last.

While there is a need for better funding of business incubators, if New York plans to bring in hi-tech business we also need to increase the funding of our research and development centers. There are four major centers in the SUNY system. These centers exist in Albany, Binghamton, Rochester, and Buffalo. Ikerlan is a state of the art research center, which stands alone and is not for profit. It reinvests all the money it makes into state of the art technology and gains a majority of its earnings from business contracts with the rest coming from the EU and the State plus the Basque and municipal governments. Our research centers in New York are funded solely by the state. Furthermore, according to Fauci (2014) the 900,000 funding in NY is a great degree less than the money that is in Ikerlan budget. Ikerlan's budget is around $22,000,000. (Annual report form Ikerlan) An idea for funding such a center would be to take the money needed for the tax breaks to create more centers that align with the strengths in the region or to decrease some of the massive tax breaks offered and investing into the already existing four major centers to boost innovation. The investment into a project such as this allows for the use of the new technology and innovation for new as well as pre-existing businesses to help them become more competitive. The key point is that government funding is necessary and vital to the success of this program because it will be not be forthcoming from the private sector due to positive externalities. This phenomenon is known in the economic literature as market failure.

A more robust financial arrangement may also be necessary. Mondragon had set up *Caja Laboral* which was a bank used to help fund cooperative ventures. For example, Brazil has a similar program named *Directrizes da Politica* Industrial in which the government provided money and tax breaks to businesses, which aided in the success of the program. The use of tax free zones is just the beginning. A stronger financial arrangement must be created in order to make Start Up NY more useful in the creation of startups.

As a not-for-profit organization, Ikerlan has one goal: remain a state of the art research institution. How is this done? The profits created are reinvested. Money does not leave the company but is instead reinvested into Ikerlan to keep them at the top. Overall, in Mondragon, a lot of the money in kept inside. Funds only seem to leave when a worker retires or passes away. As Flecha and Santa Cruz (2011) wrote, a lot of the money in kept inside. This, as for Ikerlan, allows Mondragon to innovate and create new ideas such as their own bank (Caja Laboral), a science park like the Syracuse Tech Garden, and the Mondragon University.

Outside of the business and university partnerships, creating partnerships with the local business incubators could be beneficial for academic programs. The start-ups could utilize the resources of the school and the school still gains from the income of tuition. Also, when these two sectors work together, the costs of technology are shared as well. Furthermore, Saiolan and Mondragon University work together, with Saiolan'a employees working there 70% of the time while working at Mondragon University 30% of the time. This could be used in a similar fashion here, but perhaps in a reverse order. Allowing some university professors to assist students/potential entrepreneurs in their ventures could be highly beneficial but it requires a flexible structure on both sides. The main idea from both this partnership as well as the expansion of entrepreneurship classes and the use of internships is to create synergies among the participants to create something bigger than what they can do on their own. When a close relationship between the labor market and the universities is established then universities may also receive valuable feedback to upgrade their programs.[5] Allowing for the cooperation between businesses and universities with the selection of a practical/hands-

5 This may constitute a controversial point in a liberal arts education setting.

on track in the curriculum for some majors can enhance the educational value of the degree. The probability of finding suitable employment after school might also increase.

More is needed than just connecting businesses to universities. The Mondragon Group established a network that according to Uribe (2014), a worker at Saiolan, utilizes a network, which covers universities, business, financial institutions, government, and research institutions, among other things. This offers a number of benefits. First, it reduces costs and it increases efficiency. Each one of these linkages offers different benefits to cooperating so closely with each other. Of course not all is a success story as recently shown by the failure of FAGOR, the original cooperative firm, which has gone bankrupt and failed. The loss of any business has social costs but these are dealt with internally through several mechanisms. The internal insurance company for Mondragon, Lagun Aro, allows Mondragon to provide up to 80% salary replacement for unemployment benefits, which is more than the 60% given by the US federal government. Moreover, the cooperative set up allows for more opportunities after a bad experience like this. The workers have more options such as cycled unemployment (where some employees are unemployed for a year instead of permanently), the ability to start a new cooperative, or simply move on to another cooperative or business. Layoffs are unusual thanks to the elaborate network they have created that provides unemployment insurance, cycled unemployment, etc., and an opportunity to find new suitable employment. These minor contingency plans alone lessen the financial and economic effects that come with unemployment. Many people, like Fred Freundlich of Mondragon University, credit the network discussed above with the potential of institutional linkages created by Mondragon. There is no reason the success of Ikerlan cannot be achieved elsewhere.

Outside of the business world is the academic world, which can assist in the success of Start Up NY. First, an expansion of the entrepreneurship classes at the universities of upstate New York would a good starting point. For example, during a recent visit one of the authors observed that Mondragon University has a postgraduate program, which allows students to create a start up with the help/resources of the university with no classes in the curriculum and the only graduating requirement being a certain number

of sales of a new product. This environment allows students to be completely free to be creative, to have tailored-made mentors and to interact with others to exchange and experiment with ideas. Part of the funding from Start Up NY was allocated to create entrepreneurship classes at SUNY Cortland and other higher education institutions in the SUNY system. In Cortland in particular, the classes have been electives rather than requirements but in the future they can become part of a track or minor. These classes are hands-on and allow students to work in groups and develop business plans, similarly to Mondragon University's program. So far, students from the first cohort in downtown Cortland created the Long Island Bagel shop.

Second, increasing the internships offered by local businesses would also be beneficial as well by working in a network. Universities in NY can also make internships a requirement as it is in other states. This will allow businesses to count on a regular supply of interns. This model can include non-business majors too under an elective option. Forbes magazine reports that 37 percent of unpaid internships and 60% of paid interns got a job offer after graduation (Adams, 2012). This is a common occurrence in Mondragon, where professors and managers of cooperatives work together as students on one of their numerous required internships. Students are required to do up to 30% of their classwork at the cooperatives (Freundlich, 2015). While this may seem excessive, it may very well create a fantastic relationship between the business world and academia. We should also add global competence to the training through several modalities of study abroad or international internships. Language students can become globally connected but in general also other majors can have opportunities to engage in global learning such as the SUNY COIL initiative to bring globally networked learning to universities in the U.S.

Third, another lesson learned from Saiolan and Ikerlan is to open up to the general public as well. Saiolan, while it utilizes students, is also open to the general public as well. Some institutions give credits for lifetime experiences. If this is the case, expand that idea and have all of the NY universities accept lifetime experience for credit. If not do it for credit, allow the non-students or non-business majors to develop ideas and potentially start up new, localized businesses. Business students do not have a monopoly on start up ideas. By expanding the network to members of the community,

a much richer reservoir of ideas can be tapped for the development of new businesses.

Mondragon University and Saiolan have one very distinct difference from the initiative in NY: location. The initiative restricts business to land on/within one mile of the college campus, which is owned by the colleges. Instead of imposing a limit, these two opt to provide. The initiative restricts business to land on/within 1 mile of the college campus. Furthermore, the program in Brazil on a national scale has no restrictions on the location of the programs either. It invested into the program and into the partnerships between research and development centers. A similar program was also done in Pennsylvania, which had a wider limit of up to a 4-mile radius (Henderson-Harr, 2015). The location requirement is one of the biggest critiques of the New York program and it is one of the major critiques of the New York program and many, including President Bitterbaum of SUNY Cortland, share it. Another controversial issue is the restrictions imposed by the State on what the type of business can be.

Finally, there is always the ongoing controversy about taxes. Imposing some tax on the new businesses could relieve some pressure on the state. There are a number of states, which have more effective tax codes and tax rates than New York: forty nine of them. According to Tax Foundation (n.d.), New York is the 50th worst taxed state in the nation. This poses quite an issue: what happens to the businesses that are currently operating and don't get the new tax rates: For example, many local businessman in Cortland with years of experience in the field, believe that many businesses may leave the state and head southward offsetting any new business creation through this program. Without that tax revenue and the lost revenue from the tax breaks, the state has the potential to end up worse financially. Creating a friendlier tax environment across the board may be a better plan. In Brazil, the government commonly offers tax breaks although sometimes they eliminate them altogether. Mondragon on the other hand enters a market with high taxes. However, they strive to create a fair playing field instead of offering competitive advantage to a select group of businesses who are lucky enough to be inside the zone.

Saiolan and Mondragon University are also quite different in terms of its expectations from the businesses created as opposed to the New York initiative. Saiolan works with a cooperative group to create businesses. These businesses tend to have no restrictions on what it produces. Those businesses that they help create are allowed to be a for profit, not for profit, a corporation, a cooperative or any other type of organization. Furthermore, according to Uribe (2014) they have assisted in creating businesses that range from access systems to pinchos/tapas (small, mini meals) in the Basque region to be sold in San Sebastian. Also, they have assisted in a number of other businesses, like anti-theft devices for cars, mobile applications, and urban stability. But regulations may restrict the effectiveness of the NY program. According to the Economist (2014), businesses are more willing to pay taxes if it means there isn't over-regulation on these programs. Start Up NY offers tax-free areas to the new business, but imposes a number of restrictions as well that amount to a form of "over-regulation".

There is currently no party to act as a liaison between the universities and the chamber of commerce. However, this need is fulfilled by way of regional meetings in each of the 10 regions of New York State. The purpose of these meetings is to facilitate communications between the institutions and economic development agencies in each region. Also, these meetings allow for some to share ideas and showcase potential deals within the Start Up NY program. Furthermore, a question we looked to answer was if there was cooperation among the universities through the SU-NY program to share assets like technology and programs to help further the program and further the progress. According to the contact, no such program currently exists through the initiative itself, but it does not mean that current external relationships aren't formed for this purpose on a program-to-program basis. Many relationships are formed on ad hoc basis. These two points, I believe, could be hindering the progress of the program. Though the meetings provide pivotal meeting time for institutions and economic development agencies, the utilization of a liaison that works directly between the universities/ businesses and the chamber of commerce could greatly help the program and streamline the financial processes. Also, implementing a mechanism within the initiative to help the sharing of technology and programs could help streamline the process of sharing these technologies and lessen the potential wasting of valuable time and money on the parts of all involved. With a

process in place, agreements could be pre-agreed upon and the process as a whole could be made easier The Mondragon Experience's cooperatives work in a similar fashion and often collaborate on a number of different projects. These projects can be either for Mondragon, the EU, or society in general (Freundlich, 2015).

Saiolan utilizes a number of different metrics in order to measure their success, like number of businesses or jobs created but perhaps the best available metric to use in order to measure success would be the long term viability rate. According to the Department of Labor (2014), in the US, within five years only about 50% of business survives with no assistance whatsoever. With the assistance of the Student Sandbox incubator, the start-ups coming out of that incubator have a long-term viability rate of 39%. This is an improvement, but with further funding and further help from the creation of a network and funding put into research and development, this rate can skyrocket to Mondragon type numbers. Mondragon is an improvement, but with further funding and further help from the creation o has been around 80%. This percentage has been achieved in the middle of an economic recession in Europe. This success is due to the financial arrangement of the companies as well as a number of its policies already described. If New York uses this as a metric, it can see how effective its investment has been in terms of viable businesses created as well as jobs created. More startups will lead to more jobs, and with more jobs comes more economic activity through its multiplier effects. Start Up NY has the potential to be a successful program but it has to address a few issues raised by stakeholders.

Finally, the German cases suggest that entrepreneurship programs need to pay attention to gender issues. The findings indicating that women invest fewer hours in the firm when there is another income present along with the finding that women are found to be more risk-averse indicates that additional incentives must be crafted for women to join the ranks of new entrepreneurs. Yet the results showing that only medium risk attitudes increase significantly the chances of business survival indicate that women may be risk averse but they not need to be completely risk takers to engage in entrepreneurial activities. Nonetheless, different mentoring programs and additional networks may need to be created in order to assure women's success in entrepreneurial activities. These findings should also be taken

into account in entrepreneurship courses since female students sometimes outnumber the number of male students in higher education so it is expected to see larger numbers of females in such courses.

Conclusions and policy suggestions

Conclusions.

Mondragon and their institutions such as Saiolan and Ikerlan, provide a great model as to what are the key ingredients in successful programs to foster business creation/startups. In particular, institutional linkages among different stakeholders are key to the successful creation of new business that last. As outlined before, the two centers of innovation, Saiolan and Ikerlan, provide indispensable support to the successful experience that is Mondragon. They allow the Mondragon group to be competitive in Spain and globally. Mondragon is unique in their creation of their institutional linkages and have benefitted greatly from its existence.

New York has embarked on a grand undertaking with Start Up NY but the program is restrictive to certain businesses and the very stringent geographical location of the business may create a two-tier system between those firms enjoying tax breaks and those that do not. Meager funding for incubators and related supporting activities is also lacking. Finally, the institutional linkages among stakeholders are scant.

The German case suggests that women face different challenges than men in the workplace that determine their engagement in entrepreneurial activities. In particular lower levels of human, social and financial capital may constraint their participation in new enterprises; therefore gender issues must be infused in the curriculum about entrepreurship courses. The same issues need to be addressed in programs, which foster entrepreneurship activities.

Policy suggestions.

Learning from the Mondragon experiment as well as other experiments here and abroad can point out to the key factors in making New York a

better economic and financial place overall. Linking business leaders with university officials on a more regular basis and with solid institutional linkages may contribute to the long-tern success of StartUp New York. The result may extend beyond the creation of new businesses into the design of a strong entrepreneurship education at university centers. An institutional framework for the continuing interaction of business leaders and university officials should be supported.

Further investment into our pre-existing research centers cuts the cost of creating them and allocates money more efficiently, which can be incredibly effective, as was seen in Brazil. Appropriate funding for business incubators, startups competitions and other supportive activities can also contribute to the creation of a culture of entrepreneurship beyond the classroom.

It should also be kept in mind that increasing employment and fostering a better economy is not just as simple as utilizing tax free zones and relying on business relocation close to universities. There must be strong investment by the government (both federal and state) and there must be less but more effective regulation. The unfair playing field created by having some businesses without taxes while already existing businesses still suffer with some of the highest rates in the country must be addressed perhaps by keeping businesses through offering tax cuts (but not the full exemptions) and providing university technical assistance which is mentioned below with more detail.

Since many of these activities link universities with existing or potential businesses, it will suit the mission of universities to create entrepreneurship programs either as a major within a business program or as a possible minor for non-business students. Even starting and managing a practice require basic principles in entrepreneurship from a market survey to key location to financial viability issues need to be considered. Universities can also further research into the factor affecting risk taking or risk aversion among the population since this is a key aspect determining whether one engages in a start-up or not. Funding research that includes gender issues is also sorely needed because the results so far do not seem to be conclusive. Consumption patterns could be identified with the help of psychology areas to address consumer behavior.

Finally, university departments engaged in cutting-edge technology must either directly seek partnerships with private enterprises or they must create the institutional linkages that set up a network similar to Mondragon to foster profitable enterprises whose profits can be further re-investing in similar endeavors.

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