Relationship between Cash Flow, Bank Credit, Taxes, and Innovation

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Abstract: Specialized literature has centered on analyzing the relationship between the entrepreneur and innovation, since the former is considered to be a driver for innovation. However, there are other factors that can influence innovation that should be considered: business cash flow, because it uses its own resources to innovate; bank credit, the possibility of accessing external financing; and taxes, which account for a reduction in businesses' cash flow when they increase. The objective of this article is to analyze the existing relationship between these factors and innovation and the latter with growth. To achieve this, an empirical study has been carried out using a Partial Least Square (PLS) estimation with eleven European countries.

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1. Introduction

There is an extensive literature on the relationship between the entrepreneur and innovation since the former is usually considered as a driver for innovation. If the Schumpeterian approach is accepted, in that the capitalist system is characterized as unstable, the entrepreneur has to confront a changing system which forces him to look for all those elements and actions that allow him to survive (Schumpeter, 1942). One of the ways to achieve said goal is through innovation.

Thus, it is interesting to know the factors that may influence and motivate the entrepreneur to innovate, because innovation has a positive effect on economic growth, which in turn asserts an indirect effect on a country's welfare.

In analyzing the factors that influence innovation, not enough attention has been given to those related to the monetary policy that is being used at any given moment, nor to businesses' cash flow. Both variables play a vital role in the process since the former assumes whether there is an ease in finding credit funding from businesses, while the latter implies that they use their own resources to undertake this task. In this sense, tax measures would also play a relevant role in this process, assuming, among other issues, changes in the equity of the business, consequently affecting decisions regarding innovation.

Due to this relevance, it is important, when analyzing the factors that can favor innovation, to take into account not only those that affect the entrepreneur, who is considered as a driver for innovation, but also those that are related to cash flow and monetary and fiscal policies that are being practiced at any given time.

Therefore, this article's objective is to consider the relationship between the aforementioned factors and innovation. Thus, the next section highlights the essential elements of the variables to consider. In the third section, we will demonstrate the relationships between different variables. In the fourth section, the estimation of the model will be carried out. In the final section, we will present the main conclusions.

2. Entrepreneurs, Innovation, Cash Flow, Credit, and Taxes

Literature dedicated to analyzing the factors that influence innovation has focused mainly on the role the entrepreneur plays within the process. One of the traditional models in this field is developed by Schumpeter (1942), in which capitalism is considered as a historical process characterized by being in a state of change instead of being in equilibrium as the Neoclassical authors claim. In this environment of change, businesses have to look for the means to stay afloat and survive and thus are forced to invest and accumulate (Schumpeter, 1942, chp. 3).

To survive, businesses find themselves constantly innovating, applying novel ideas, methods, or combining resources in diverse ways to take advantage of the opportunities the markets offer. The person responsible for accomplishing this task will be an entrepreneur who, thanks to his knowledge and other factors that influence him, adopts the innovation decisions that he considers more appropriate to meet his objectives.

Furthermore, Schumpeter (1947) points out that technology, along with other factors, is one of the elements that favor economic growth, along with the beneficial effects that arise for the welfare of a country. This author also indicates that within this process we must consider the role the entrepreneur plays in the realization of the necessary combinations to reach that goal.

Thus, from this perspective, there is an extensive literature about the factors that influence the entrepreneur and innovation. We find ourselves with a leader (the entrepreneur) that "leads the means of production into new channels that set profit forecasts as a precondition for innovation decisions" (Schumpeter, 1911, p. 89). However, we must also consider from Drucker's (1998) perspective that innovation is at the heart of entrepreneurial activity and it is due to innovation that many entrepreneurs carry out their activities. From this perspective, then, innovation would promote their activity, creating a feedback effect. That is, entrepreneurs innovate and the innovations stimulate other entrepreneurs to carry out their activity (Cáceres et al., 2011; De Cleyn and Braet, 2012; Zortea-Johnston et al., 2012).

Consequently, from this perspective, that of the entrepreneur being a driver for innovation, we have to consider within the analysis one of the aspects inherent to him, his training, because it facilitates the adoption of relevant actions to facilitate the introduction of innovations. Thus, it has been pointed out, in this sense, that human capital and knowledge are essential for innovation (Lawson and Samson, 2001). For innovation to take place in companies, it is necessary for them to have a highly qualified staff that proactively cooperates and innovates. These authors confirm that, along with human capital, adequate technology must exist (modern manufacturing facilities, updated technologies, internally developed process technologies, proprietary product technologies) (Zahra and Nielsen, 2002, Rothaermel and Hess, 2006). Therefore, human capital allows for the

introduction of new technologies (Del Giudice et al., 2013; Pentland and Feldman, 2008), which can aid in the development of product innovation, in the processes, or facilitate changes in the business model. In addition, a higher level of education in entrepreneurs provides the knowledge and skills necessary to start a business and helps in identifying market opportunities (Barreneche, 2014) and risk taking.

However, to complete this type of analysis, it is important to consider other factors that may have an impact at the moment of innovating, which have to do with both the perspective of the business's own evolution and with the perspective of the policies implemented by the policymakers. Thus, they are intended to achieve certain economic policy objectives, such as employment, inflation, and economic growth, and will facilitate or complicate the process of innovation that the entrepreneurs consider adequate to maintain their business in the competitive and changing environment in which they carry out their activity.

So, in the first place, we have cash flow which is the resources generated internally by businesses. These resources, when innovating, require funding, which can be obtained externally or internally. Thus, on many occasions, entrepreneurs find themselves forced to resort to cash flow because the innovative processes pose risks that limit access to external financing (Opler et al., 1999; Bates et al., 2009; Brown and Petersen, 2011; Podolski, 2016). The main source of the resources generated internally by businesses comes from their turnover. Hence, turnover allows businesses to cover their costs and generate the profits that constitute the main internal resources that allow them to finance their innovation.

Likewise, a feedback effect is also produced, because, as previously mentioned, innovations improve the products or processes of the business, increasing their turnover, or decreasing their costs. This, in turn, affects a greater output of cash flow that would then be able to finance more innovative processes.

Secondly, there is the possibility of accessing bank credit. If one's own resources are not available to finance the innovation, a credit policy that favors this possibility is necessary. It is not enough that the interest rate is low, but lenders must also have sufficient resources and be interested in lending. A restrictive monetary policy that halts this opportunity would be detrimental to the process.

Thirdly, taxes affect a business in two ways. On the one hand, there is a direct effect, since tax increases that concern the business can precipitate a decrease in its cash flow, and, consequently, a reduction in innovations. On the other hand, tax increases on individuals' income cause a decrease in disposable income, for which businesses would have less of a turnover, hence having the same result as previously stated.

Finally, in addition to allowing the entrepreneur to stay in a changing environment, innovation's significance is partly due to the generation of economic growth along with the inherent positive effects on the welfare of a country.

3. The Relationship between the Different Variables

The objective of this section is to study empirically some of innovation's determinants, such as the costs of R&D, the qualified personnel employed in R&D activities (Cohen and Levin, 1989; Silva, 2007, Raymond and St-Pierre, 2005), a business's cash flow, the taxes paid by the business, and the credit from the banking sector. This section also covers the analysis of the relationship between innovation and economic growth.

Because the phenomenon of innovation is complex, it may be measured through several indicators. Thus, it was best to make an estimate by means of partial least squares (PLS). The PLS regression uses several proxy variables or indicators of an economic fact that is not directly observable and synthesizes and substitutes them for latent variables (Tenenhaus, 1998).

PLS combines the characteristics of an analysis of the main components and multiple regressions in such a way that its advantage is to deal with multicollinearity problems (multivariate normality is not required). This is particularly important when working with a large number of predictors, in comparison with the number of observations as it is more appropriate when the sample size is small (Gefen et al., 2000; Barclay et al., 1995; Fornell, 1982; Tenenhaus, 1998).

Table 1 displays the definition of each of the indicators that form the different latent variables of the model proposed below. The indicators used have been taken from the World Development Indicators (World Bank, 2017). The indicators that define the Economic Growth latent variable have been chosen from the Eurostat Database (2017) and the cash flow from the BACH Database (2017).

Constructs	Indicators
Taxes	• Labor taxes and contributions (% of commercial profits) (T1) • Other taxes paid by the businesses (% the commercial profits) (T2)
Credit	• Domestic credit to the private sector by banks (% of GDP) (CB1)
Cashflow	• Turnover of the businesses (TURN)
HC	• Educational attainment, at least completed short-cycle tertiary (HC1) • Educational attainment, at least completed post-secondary (HC2)
Researchers	• Researchers in R&D (per million people) (R1) • Research and development technicians (per million people) (R2)
RDEXP	• R&D expenditure by the business enterprise sector (RDE) • R&D expenditure by the government sector (RDSP) • R&D expenditure by the higher education sector (RDU)
Innovation	• Industrial design applications by resident (INN1) • Patent applications, residents (INN2) • Trademark appliations (INN3)
Economic Growth	• Gross domestic product at market prices, per capita (EG1) • Labor productivity - Compensation per employee (EG2)

Table 1   Constructs and indicators.

With the information available, the different relationships we estimate are as follows.

Q1: Human capital together with R&D expenditures have positive effects on innovation.

As indicated, it is important that the entrepreneur is adequately knowledgeable, to be able to develop his activity more efficiently. This is one of the traditional approaches within these studies, given that it is considered that said formation is necessary to better understand the environment in which he will compete and the signals derived from economic activity since more growth can offer more business opportunities. However, it is important to keep in mind that said knowledge is relevant to favor the introduction and generation of innovations.

In this way, human capital and knowledge play a key role in innovation (Jiménez and Sanz, 2004; Lawson and Samson, 2001). Lawson and Samson (2001) argue that the effects of human capital and technological knowledge that have been accumulated as resources of the business are decisive in innovation. These authors state that without highly qualified people, with an attitude towards cooperation and innovative capacity, innovation in a business is impossible, and without technology (modern manufacturing facilities, updated technologies, internally developed process technologies, own product technologies) and adequate technological knowledge, innovation is, yet again, not possible (Zahra and Nielsen, 2002; Rothaermel and Hess, 2006).

Q2: A greater cash flow supposes more innovation.

If the business has internally generated resources to finance innovation, it will allow them to remain competitive in the field in which it develops its activity. If turnover increases, it is expected that businesses try to introduce innovations that will allow them to maintain this situation and their position.

Q3: A greater credit favors innovation.

Irrespective of whether, as previously mentioned, businesses have internally generated resources to carry out the innovations they deem appropriate, it is also important for there to be the possibility of resorting to external financing, in other words, credit, to achieve this end. Monetary policies designed to encourage the granting and transfer of credit would have a beneficial effect, because companies could, if needed, have easy and affordable financing that would compensate the situation in case they had problems financing with their own resources.

Q4: A tax increase means less innovation.

We have already indicated that taxes affect the business in two ways. On the one hand, directly, because an increase in taxes that falls on the business means a reduction of their cash flow and, consequently, a potential decrease in innovations. On the other hand, an increase in taxes on a person's income makes disposable income decrease and, therefore, businesses would have a lower turnover, thus, having the same result as the one just mentioned.

Q5: Innovation generates economic growth.

As indicated in the beginning, literature often points to innovation as one of the factors that favor economic growth. Due to innovation, firms obtain higher profits that can stimulate entrepreneurs to introduce new innovations and to increase their activity, which has positive effects on economic growth and employment, as seen in extensive literature (see Acs et al., 2004, 2005; Acs and Szerb, 2007; Audretsch et al., 2008; Audretsch and Keilbach, 2004a, 2004b, 2008; Audretsch et al., 2006; Hamilton, 2007; Martínez, 2005; Mueller, 2007; Roper, 2007; Spencer et al., 2008; West et al., 2008; Nissan et al., 2012; Galindo and Méndez, 2013, 2014; Noseleit, 2013; Castaño et al., 2015; Méndez-Picazo et al., 2015, among others). Thus, according to the results of this analysis, all activities that encourage the innovation process also encourage economic growth.

4. Analysis of the Results

Figure 1 shows the results of the previously analyzed economic relationships for the case of eleven European countries[1] in 2015. The estimation was completed using a SmartPLS 3 (Ringle et al., 2015).

An item's individual liability values the measurement model; internal consistency; and discriminant validity. The simple relationship between each item and its respective construct is measured by Cronbach's alpha value (Nunnally and Bernstein, 1994; Barclay et al., 1995).

The average variance extracted (AVE) reflects the variance extracted from the indicators, which states the common variability absorbed by the latent variable so that it is accepted as a good measure of AVE goodness of fit if it is greater than 0.5 (Fornell and Larcker, 1981; Fornell, 1982).

Cronbach's Alpha indicates the internal consistency of the indicators that are formed. Starting from 0.7 indicates that this internal consistency exists. Composite reliability is the reliability of the construct; starting from 0.7 the construct is trustworthy (Nunnally and Bernstein, 1994; Barclay et al., 1995).

Regarding the structural sub-model, it is possible to measure the R2 coefficients associated with latent variable regressions only in the endogenous constructs. R2 indicates the construct variance explained by the model. All the endogenous latent variables are significant, with values greater than 0.1 (Falk and Miller, 1992). Obviously, R2 coefficients are not high as we attempt to check some relationships and their value, but we have not considered the total social and economic variables influencing each latent variable measured.

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[1]Austria, Belgium, Czech Republic, Denmark, France, Italy, Netherlands, Poland, Portugal, Slovakia, and Spain.
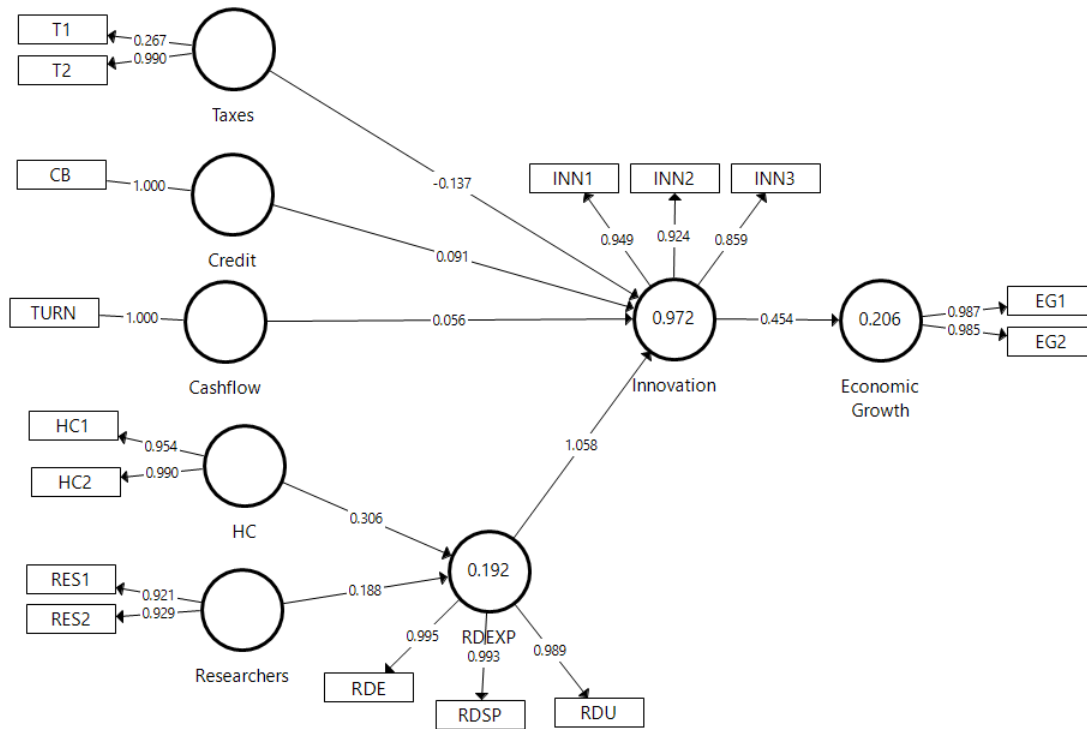
Figure 1   Estimated Model. Source: Own elaboration.

Table 2 shows the measures of reliability and goodness of estimation. As can be seen, they all meet the previously mentioned criteria. The Table 3 below shows the correlation existing between latent variables.

	Alfa de Cronbach	Composite Reliability	AVE
Cashflow	1.000	1.000	1.000
Economic Growth	0.972	0.986	0.973
Credit	1.000	1.000	1.000
RDEXP	0.992	0.995	0.985
HC	0.948	0.972	0.945
Taxes	0.574	0.624	0.525
Innovation	0.897	0.936	0.831
Researchers	0.831	0.922	0.855

Table 2   Reliability measurements. Source: Own elaboration.

	Cashflow	Economic Growth	Credit	RDEXP	HC	Taxes	Innovation	Researchers
Cashflow	1.000							
Economic Growth	0.106	1.000						
Credit	0.019	0.333	1.000					
RDEXP	0.158	0.461	0.123	1.000				
HC	−0.093	0.675	0.071	0.410	1.000			
Taxes	0.458	0.209	0.032	0.735	0.246	1.000		
Innovation	0.162	0.454	0.218	0.977	0.383	0.669	1.000	
Researchers	−0.149	0.780	0.235	0.358	0.556	0.286	0.269	1.000

Table 3   Matrix of correlations between latent variables. Source: Own elaboration.

In Table 4, the cross-loads are always greater for the latent variables on which the respective items are loaded, except T2. However, T2 is well assigned to the latent variable "taxes" because it is where it makes sense with the theoretic definition.

	Cashflow	Credit	Economic Growth	HC	Innovation	RDEXP	Researchers	Taxes
CB	0.019	1.000	0.333	0.071	0.218	0.123	0.235	0.032
CF	1.000	0.019	0.106	−0.093	0.162	0.158	−0.149	0.458
EG1	0.041	0.325	0.987	0.665	0.464	0.489	0.831	0.200
EG2	0.172	0.331	0.985	0.667	0.431	0.418	0.702	0.212
HC1	−0.052	0.148	0.659	0.954	0.228	0.227	0.519	0.175
HC2	−0.109	0.032	0.662	0.990	0.443	0.483	0.556	0.271
INN1	0.036	0.204	0.476	0.306	0.949	0.894	0.223	0.425
INN2	0.023	−0.012	0.307	0.336	0.924	0.960	0.256	0.614
INN3	0.402	0.415	0.459	0.410	0.859	0.817	0.257	0.809
RDE	0.118	0.077	0.475	0.441	0.957	0.995	0.396	0.731
RDSP	0.106	0.084	0.376	0.388	0.976	0.993	0.288	0.716
RDU	0.247	0.206	0.520	0.392	0.977	0.989	0.380	0.740
RES1	−0.273	0.225	0.713	0.622	0.219	0.322	0.921	0.244
RES2	−0.009	0.210	0.729	0.413	0.277	0.339	0.929	0.284
T1	0.349	−0.206	0.159	−0.064	−0.092	−0.106	−0.006	0.267
T2	0.487	0.000	0.222	0.224	0.621	0.682	0.271	0.990

Table 4 Cross-loading table. Source: Own elaboration.

The results of the PLS estimation are in accordance with the theoretical approaches previously exposed. In this manner, it is verified that the relationship Q1 (human capital along with R&D expenditures have positive effects on innovation) is fulfilled since a positive relationship is observed between human capital, personnel dedicated to R&D activities, the R&D expenditures made by the employers, the government, and the universities; in addition, all of it is positively related to innovation. Table 2 shows that the AVE and Cronbach's alpha are elevated; therefore, the reliability of the specification of the latent variables is adequate. Moreover, the results of the estimated model confirm the thesis of Lawson and Samson (2001).

Regarding the Q2 relationship (a greater cash flow means more innovation), the results also corroborate it, in this case, the AVE and Cronbach's Alpha is 1 because in this case there is no latent variable defined by various indicators. Therefore, only being comprised of one indicator, the value of the average variance extracted (AVE) and of the remaining reliability measures of the constructs is 1.

The same could be said about the Q3 relationship (greater credit favors innovation), because an expansive monetary policy favors innovation by providing entrepreneurs with the necessary resources to undertake investments. As in the previous case, the AVE and Cronbach's Alpha is 1, since we are actually measuring the relationship between the indicator "bank credit" and the latent variable "innovation".

As for Q4, its relationship is also fulfilled (a tax increase means less innovation), because it is observed in the results that a negative relationship exists between the taxes paid by the businesses and innovation, since if the entrepreneurs dedicate those resources to paying taxes instead of investing in R&D activities, innovation will be reduced. In this case, AVE is superior to 0.5, although the Cronbach's alpha is less than 0.7. Nevertheless, the latent variable would be well constructed, in that it collects the taxes that the businesses are forced to pay in their respective countries.

Finally, a positive relationship is also observed between innovation and economic growth (Q6). Additionally, the AVE and Cronbach's Alpha values are elevated, so the latent variables "innovation" and "economic growth" would be adequately constructed.

It should also be pointed out that Table 5 shows the total and indirect effects among all the considered latent variables, and it can be observed that all the latent variables, except the latent variable "taxes", have positive effects on economic growth.

	Total Effects			Indirect Effects	
	Economic Growth	GRD	Innovation	Economic Growth	Innovation
Cashflow	0.025		0.056	0.0254	
Economic Growth					
Credit	0.041		0.091	0.041	
RDEXP	0.481		1.058	0.481	
HC	0.147	0.306	0.323	0.147	0.323
Taxes	−0.062		−0.137	−0.062	
Innovation	0.454				
Researchers	0.090	0.188	0.199	0.090	0.199

Table 5   Total and indirect effects between latent variables. Source: Own elaboration.

5. Conclusion

The specialized literature has centered on studying the relationship that exists between the entrepreneur and innovation, since the former is considered as a driver for innovation, given that, if the Schumpeterian approach is accepted, the entrepreneur must confront a changing system forcing him to look for all those elements and actions that allow him to survive.

Thus, it is important to know the factors that may influence and motivate the entrepreneur to innovate, and to know the effects that innovation has on growth, which is one of the important objectives pursued by the political decision maker. In this sense, we have included in this paper, along with the role played by the entrepreneur, other factors that would influence innovation, such as cash flow, bank credit, and tax policy.

The obtained results show that innovation is favored by adequate human capital, a monetary policy that favors credit, and companies having greater cash flows. On the contrary, a tax increase would have the opposite effect. These circumstances are important to consider because the decisions and measures taken to deal with the problems an economy faces can favor or damage innovation, along with the effects that this would imply on growth, as shown by the results and a broad specialized literature, there is a positive relationship between the two variables.

This analysis has been carried out for a group of European countries, and our intention is to extend it to a wider range of nations and different geographical areas. We also intend to analyze the effects that larger growth would have on some of the considered variables, such as verifying the "virtuous circle" that generates a greater innovation in the economy.

References

Acs, Z.J., & Szerb, L. (2007). Entrepreneurship, economic growth and public policy. *Small Business Economics*, *28*(2–3), 109–122. [CrossRef]

Acs, Z.J., Audretsch, D.B., Braunerhjelm, P., & Carlsson, B. (2004). *The missing link the knowledge filter and entrepreneurship in endogenous growth* (Working Paper 4783). London: Center for Economic Policy Research.

Acs, Z.J., Audretsch, D.B., Braunerhjelm, P., & Carlson, B. (2005). *Growth and entrepreneurship: An empirical assessment* (Working Paper 3205, Discussion Papers on Entrepreneurship, Growth and Public Policy). Jena: Max Plank Institute of Economics.

Bank for the Accounts of Companies Harmonized (BACH) Database. (2017). Retrieved from https://www.bach.banque-france.fr/?lang=en.

Audretsch, D.B., Bonte, W., & Keilbach, M. (2008). Entrepreneurship capital and its impact on knowledge diffusion and economic performance. *Journal of Business Venturing*, *23*(6), 687–698. [CrossRef]

Audretsch, D.B., & Keilbach, M. (2004a). Does entrepreneurship capital matter? *Entrepreneurship: Theory and Practice*, *28*(5), 419–429. [CrossRef]

Audretsch, D.B., & Keilbach, M. (2004b). Entrepreneurship capital and economic performance. *Regional Studies*, *38*(8), 949–959. [CrossRef]

Audretsch, D.B., & Keilbach, M. (2008). Resolving the knowledge paradox: Knowledgespillover entrepreneurship and economic growth. *Research Policy*, *37*(10), 1697–1705. [CrossRef]

Audretsch, D.B., Keilbach, M.C., & Lehmann, E. (2006). *Entrepreneurship and economic growth*. New York, Oxford: Oxford University Press.

Bates, T., Kahle, K., & Stulz, R. (2009). Why do U.S. firms hold so much more cash than they used to? *Journal of Finance*, *64*, 1985–2021. [CrossRef]

Barclay, D., Higgins, C., & Thompson, R. (1995). The partial least squares (PLS) approach tocausal modeling. Personal computer adoption and use as an illustration. *Technology Studies*, *2*(2), 285–309.

Barreneche, A. (2014). Analyzing the determinants of entrepreneurship in European cities. *Small Business Economics*, *42*(1), 77–98. [CrossRef]

Brown, J., & Petersen, B. (2011). Cash holdings and R&D smoothing. *Journal of Corporate Finance*, *17*, 694–709.

Cáceres, R., Guzman, J., & Rekowski, M. (2011). Firms as source of variety in innovation: Influence of size and sector. *International Entrepreneurship and Management Journal*, *7*(3), 357–372.

Castaño, M.S., Méndez, M.T., & Galindo M.A. (2015). Innovation, internationalization and business-growth expectations among entrepreneurs in the services sector. *Journal of Business Research*, *69*(5), 1690–1695.

Cohen, W., & Levin, R. (1989) Empirical Studies of Innovation and Market Structure. In R. C. Schmalensee & R. Willig, (Eds.), *Handbook of Industrial Organization* (pp. 1059–1107). Amsterdam: Elsevier.

De Cleyn, S.H., & Braet, J. (2012). Do board composition and investor type influence innovativeness in SMEs? *International Entrepreneurship and Management Journal*, *8*(3), 285–308. [CrossRef]

Del Giudice, M., Della Peruta, M.R., & Maggioni, V. (2013). Collective knowledge and organizational routines within academic communities of practice: An empirical research on science–entrepreneurs. *Journal of the Knowledge Economy*, *4*(3), 260–227. [CrossRef]

Drucker, P.F. (1998). The discipline of innovation. *Harvard Business Review*, *76*(6), 149–157. [CrossRef]

Eurostat Database. (2017). Retrieved from http://ec.europa.eu/eurostat/data/database.

Falk, R.F., & Miller, N.B. (1992). *A primer for soft modeling*. Akron: University of Akron Press.

Fornell, C. (1982). A second generation of multivariate analysis: An overview. In C. Fornell (Ed.), *A second generation of multivariate analysis*. New York: Praeger Publishers.

Fornell, C., & Larcker, D. (1981). Evaluating structural equations models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*, 39–50. [CrossRef]

Galindo, M.A., & Méndez, M.T. (2013). Innovation, entrepreneurship and economic growth. *Management Decision*, *51*(3), 501–514. [CrossRef]

Galindo, M.A., & Méndez, M.T. (2014). Entrepreneurship, economic growth, and innovation: Are feedback effects at work? *Journal of Business Research*, *67*, 825–829. [CrossRef]

Gefen, D., Straub, D.W., & Bordeau, M.C. (2000). Structural equation modelling and regression: Guidelines for research practice. *Communications of the Association for Information Systems*, *4*(7), 1–79. [CrossRef]

Hamilton, B. (2007). Entrepreneurship and economic growth. *International Small Business Journal*, *25*(5), 568–570. [CrossRef]

Jiménez, J.D., & Sanz, V.R. (2004). Determinantes del éxito de la innovación. *Revista de Empresa*, *7*, 24–38.

Krauss, S.I., Frese, M., Friedrich, C., & Unger, I.M. (2005). Entrepreneurial orientation: A psychological model of success among southern African small business owners. *European Journal of Work and Organizational Psychology*, *14*(3), 315–344. [CrossRef]

Lawson, B., & Samson, D. (2001). Developing innovation capability in organisations: A dynamic capabilities approach. *International Journal of Innovation Management*, *5*(3), 377–400. [CrossRef]

Lumpkin, G.T., & Dess, G.G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, *21*(1), 135–172. [CrossRef]

Martínez, J.A.B. (2005). Equilibrium entrepreneurship rate, economic development and growth. Evidence from Spanish regions. *Entrepreneurship and Regional Development*, *17*(2), 145–161. [CrossRef]

Méndez-Picazo, M.T., Ribeiro-Soriano, D., & Galindo-Martín, M.A. (2015). Drivers of social entrepreneurship. *European Journal of International Management*, *9*(6), 766–779.

Mueller, P. (2007). Exploiting entrepreneurial opportunities: The impact of entrepreneurship on growth. *Small Business Economics*, *28*(4), 355–362. [CrossRef]

Nissan, E., Galindo, M.A., & Méndez, M.T. (2012). Innovation, progress, entrepreneurship and cultural aspects. *International Entrepreneurship and Management Journal*, *8*(4), 411–420. [CrossRef]

Noseleit, F. (2013). Entrepreneurship, structural change, and economic growth. *Journal of Evolutionary Economics*, *23*(4), 735–766. [CrossRef]

Nunnally, J., & Bernstein, I. (1994). *Psychometric theory.* New York: McGraw Hill.

Opler, T., Pinkowitz, L., Stulz, R., & Williamson, R. (1999). The determinants and implications of corporate cash holdings. *Journal of Financial Economics*, *52*, 4–46. [CrossRef]

Pentland, B.T., & Feldman, M.S. (2008). Designing routines: On the folly of designing artifacts, while hoping for patterns of action. *Information and Organization*, *18*(4), 235–250. [CrossRef]

Podolski, E. (2016). Free cash flow and R&D productivity. Retrieved from https://ssrn.com/abstract=2564308.

Raymond, L., & St-Pierre, J. (2005). Antecedents and performance outcomes of advanced manufacturing systems sophistication in SMEs. *International Journal of Operations and Production Management*, *25*(5–6), 514–533. [CrossRef]

Ringle, C.M., Wende, S., & Becker, J.M. (2015). *SmartPLS 3.* Boenningstedt: SmartPLS GmbH, Retrieved from http://www.smartpls.com.

Roper, S. (2007). Entrepreneurship, innovation and economic growth. *International Small Business Journal*, *25*(3), 337–338. [CrossRef]

Rothaermel, F.T., & Hess, A.M. (2006). *Building dynamic capabilities: Innovation driven by individual, firm, and network level effects.* (Working Paper). Atlanta, GA: Georgia Institute of Technology.

Schumpeter, J.A. (1911). *The theory of economic development.* New York: Oxford University Press.

Schumpeter, J.A. (1942). *Capitalism, socialism and democracy.* New York: Harper and Row.

Schumpeter, J.A. (1947). Theoretical problems of economic growth. *Journal of Economic History Supplement*, *7*, 1–9. [CrossRef]

Silva, A. (2007). Determinantes de la innovación en la empresa. *Anales de la Universidad Metropolitana*, *7*(2), 53–71.

Spencer, A.S., Kirchhoff, B.A., & White, C. (2008). Entrepreneurship, innovation, and wealth distribution: The essence of creative destruction. *International Small Business Journal*, *26*(1), 9–26. [CrossRef]

Tenenhaus, M. (1998). *La régression PLS: Théorie et pratique.* París: Technip.

West, G.P., Bamford, C.E., & Marsden, J.W. (2008). Contrasting entrepreneurial economic development in emerging Latin American economies: Applications and extensions of resource-based theory. *Entrepreneurship Theory and Practice*, *32*(1), 15–36. [CrossRef]

World Bank. (2017). World Development Indicators. Retrieved from http://data.worldbank.org/data-catalog/world-development-indicators.

Zahra, S.A., & Nielsen, A.P. (2002). Sources of capabilities, integration and technology commercialization. *Strategic Management Journal*, *23*(5), 377–398. [CrossRef]

Zortea-Johnston, E., Darroch, J., & Matear, S. (2012). Business orientations and innovation in small and medium sized enterprises. *International Entrepreneurship and Management Journal*, *8*(2), 145–165. [CrossRef]