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ENTREPRENEURIAL ENVIRONMENT AND VARIETIES OF CAPITALISM

A Master's Thesis

by
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ENTREPRENEURIAL ENVIRONMENT AND VARIETIES OF CAPITALISM

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by

FATIMA KURNİA AÇIKÖZ

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ENTREPRENEURIAL ENVIRONMENT AND VARIETIES OF CAPITALISM
By Fatıma Kurnia Açıköz

I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Political Science and Public Administration.

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ABSTRACT

ENTREPRENEURIAL ENVIRONMENT AND VARIETIES OF CAPITALISM

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A countries' variety of capitalism could become vulnerable to change under the existence of an external factor. This thesis seeks answers for "In which varieties of capitalisms does the entrepreneurial environment have a statistically significant impact on the enrolment rates of secondary school vocational education and training (VET)?", and in the varieties of capitalism where we find statistically significant impact, "Which entrepreneurial factors (i.e., prominent principal components (PCs)) structure the entrepreneurial environment the most?" By using the Feasible Generalized Least Square and Principal Component Analysis models, I argue that the entrepreneurial environment shapes the institutional educational VET structure of a country, in other words, varieties of capitalism, by statistically significantly impacting the secondary school VET enrolment rates. I found that the entrepreneurial environment impacts the VET structures of Emerging Market Economies (EMEs), Advanced EMEs, and European Market Economies. In addition, the most prominent PCs in the Brazilian, Chilean, Chinese, and Hungarian entrepreneurial environments are risk capital, internationalization, and product innovation. Lastly, I finalize this thesis by stating further research suggestions and policy implications.

Key Words: Entrepreneurial Environment, Vocational Education and Training, Varieties of Capitalisms, FGLS, PCA

ÖZET

GİRİŞİMCİ ÇEVRE VE KAPİTALİZM ÇEŞİTLERİ

Açıköz, Fatıma Kurnia
Yüksek Lisans, Siyaset Bilimi ve Kamu Yönetimi Bölümü
Tez Danışmanı: Doç. Dr. Hasan Tolga Bölükbaşı

Ocak 2023

Ülkelerin kapitalizm çeşitleri, bir dış faktörün varlığında değişime açık hale gelebilir. Bu yüzden; bu tez, "Girişimci çevrenin hangi tür kapitalizm çeşitlerinde lise seviyesi MEÖ'ye kayıt oranları üzerinde istatistiksel olarak anlamlı bir etkisi vardır?" ve istatistiksel olarak etkisi anlamlı bulunan kapitalizm türlerinde, "Hangi girişimcilik faktörleri (öne çıkan temel bileşenler) girişimci çevreyi yapılandırır?" sorularına cevap aramaktadır. Bu tezde, girişimci çevrenin ülkelerin kurumsal eğitim yapısını, diğer bir deyişle kapitalizmin çeşitlerini, lise seviyesi MÖE kayıt oranlarını istatistiksel olarak önemli ölçüde etkileyerek şekillendirdiğini Fizibilite Genelleştirilmiş En Küçük Kareler ve Temel Bileşen Analizi modellerini kullanarak ileri sürmekteyim. Girişimci çevrenin Yükselen Pazar Ekonomileri'nin, Gelişmiş Yükselen Pazar Ekonomileri'nin ve Avrupa Pazar Ekonomileri'nin MEÖ yapısını etkilediğini bulmuştur. Ayrıca, Brezilya, Şili, Çin ve Macaristan girişimci çevrelerinde en belirgin temel bileşenler risk sermayesi, uluslararasılaşma ve ürün yeniliği olarak öne çıkmaktadır. Son olarak, araştırma önerileri ve politika çıkarımları ile bu tez sonlandırılmıştır.

Anahtar Kelimeler: Girişimci Çevre, Mesleki Eğitim ve Öğretim, Kapitalizm Çeşitleri, FGLS, PCA

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CHAPTER 1

INTRODUCTION

1.1. Introduction

Think about a family that has five children. The eldest two children are entirely different from each other. One likes apples the most, and the other prefers to have an orange. And there are three more little children. The parents do not have any idea about their future preferences. Are they going to enjoy apples more than oranges? Or they will like something totally different from what their bigger siblings do. Maybe these little children think that there are only two likeable fruits, oranges and apples. Eventually, they will choose one of them. Or maybe, one day, one of the younger siblings will start to enjoy eating strawberries because of the neighbor's daughter. The parents will become curious; hence, they will decide to observe their three little kids about their eating preferences. The idea will make the parents even more excited. What if one of the eldest children switches his favorite fruit to some other fruit? This story sounds pretty familiar, does it not? Let me introduce you to the family of "varieties of capitalism theory".

The two eldest children of the family represent Liberal Market Economies (LMEs) and Coordinated Market Economies (CMEs) in the Hall of Soskice's (2001) varieties of capitalism theory. These varieties of capitalism diverge from each other in the case of secondary school vocational education and training (VET). LMEs prefer to provide VET in the form of on-the-job-training. However, CMEs prefer to utilize state institutions (secondary-level VET high schools) for providing VET. The remaining three little siblings are Emerging Market Economies (EMEs), Advanced Emerging

Market Economies (Advanced EMEs), and European Market Economies (EU-MEs). The stances of the abovementioned varieties of capitalism on VET have not been absolutely defined, according to Hall & Gingerich's (2009) "the third type" of varieties of capitalism perspective. They have a flexible VET structure, which allows them to implement new policies easier when compared to their big siblings. The possible motivation behind the new VET policies is the entrepreneurial environment, which is the neighbor's daughter. And, I am the parent, researcher, who is curious about these varieties of capitalism' behaviors.

This thesis carries an aim of testing Hall & Soskice's (2001) varieties of capitalism theory. Feasible Generalized Least Square (FGLS) was used to determine the statistically significant impact of the entrepreneurial environment on secondary school VET across different varieties of capitalism. In addition, to capture the principal components (PCs) of the entrepreneurial environment, which has a statistically significant association among the secondary school VET and entrepreneurial environment, Principal Component Analysis (PCA) was used. The source of the data is the recently published Global Entrepreneurship Index (GEI). Lastly, selection of the GEI enabled the detection of the current validity and applicability of the varieties of capitalism theory assumptions. The significance of this thesis arises from the utilization of FGLS and PCA that are not used in the literature yet, on a recent dataset (the GEI).

1.2. The Problem and Its Setting

Cooperation among market actors in a variety of capitalism and educational structures (i.e., VET at the secondary/ high schools) has thus far been considered as an essential and even necessary step for the economic development of countries all around the

world. Hall & Soskice (2001) referred to the varieties of capitalism as "institutional variation across nations" (Hall & Soskice, 2001: 1). Hence, by taking VET as a component of institutional structure, the different approaches of VET implementation across nations became the main driving approach in this thesis. Similar to the approach of Dilli et al. (2018), the entrepreneurial environment was conceptualized as a motivating factor that creates incentives for the market agents to behave in a certain way. Within the logical framework, eventually, these pattern of behaviors shape the VET structure of a country in an institutional manner. Thus, the logic of this thesis hypothesizes an entrepreneurial environment as an influential factor on the institutional VET structure, which also creates the variation across nations, and finally impacts the varieties of capitalism of a country.

In a theoretical manner, the significance of this thesis comes from the order of the policy-setting processes. The conventional logic of thinking foresees that a policy-maker decides on the beneficial settings for institutional structures; thus, the outcomes of the policies shape the institutional structure (Hall & Gingerich, 2009). However, the loose defining boundaries of institutions enable this logic to be reversed and answer to be sought for the scenario of "What if an external factor is shaping the mindset of a policy maker?". Thus, the logic of thinking of this thesis has a pull mechanism, which allows for pulling the representative data for an entrepreneurial environment and relating it with the data of secondary school VET enrolment rates. By using this relating process, we can observe the possible impact of an external factor, in this case the entrepreneurial environment, on the institutional trait of a country, which is the secondary VET enrolment.

In the case of methodological contribution, the significance of this thesis is that social scientists have a tendency to take a theory for granted and stop questioning it with the

newly found evidence. The GEI dataset was used with the samples of five varieties of capitalism; LMEs, CMEs, EMEs, Advanced EMEs, and EU-MEs. First, the aim was to test the applicability of the varieties of capitalism theory in the relation of entrepreneurial environment and VET structure, and second, to calibrate the prominent core components of the respective countries' entrepreneurial environments using the GEI. By applying these methods and making use of a recently published dataset, it was aimed to contribute to varieties of capitalism and secondary VET literatures by bringing the lens of FGLS and PCA methods. Testing the contemporary applicability and validity of the varieties of capitalism theory with newly applied methods and published dataset brings an exploratory nature to this thesis.

Taking the abovementioned theoretical and methodological approaches, the relation of this thesis with the academic area of Political Science comes from attempting to grasp institutional structure change with the real-life data. The possible statistically significant impact of entrepreneurial environment on secondary school VET enrolment rates is an indication of incremental change on the institutional education structure of a country. This change of motion impacts the initial institutional structure of varieties of capitalism. Hence, by using the GEI and making the most of the FGLS and PCA models, this thesis makes a contribution to Political Science by capturing the possible institutional education change across different varieties of capitalism.

1.3. Research Questions

The varieties of capitalism literature is divided into two different groups of arguments on secondary school VET and varieties of capitalism. The first group of arguments centers on the view that educational structures of varieties of capitalism would not be impacted by the entrepreneurial environment (Ebbinghaus & Manow, 2001; Thelen &

Kume, 2006; Bohle & Greskovits, 2009). The second group of arguments states that educational structures of the later-comer varieties of capitalism have flexibility to adapt effects of entrepreneurial environment (Ahmad & Tanzi, 2002; Goergen et al., 2012; Witt et al., 2018). Hence, this thesis copes with the accuracy of these two different standpoints, when the source is the GEI. This thesis argues that the entrepreneurial environment has a statistically significant impact on the enrolment rates of secondary school VET, in alignment with the educational structure of the countries' varieties of capitalism.

The research questions of the thesis were: "In which varieties of capitalism does the entrepreneurial environment have a statistically significant impact on the enrolment rates of secondary school VET?", and in the varieties of capitalism where we find statistically significant impact, "Which entrepreneurial factors (i.e., prominent principal components) structure the entrepreneurial environment the most?". This thesis seeks for the existence of a probable statistically significant impact of the entrepreneurial environment, rather than its reasons; thus, the research questions and analyses were conducted in an exploratory manner.

1.4. The Argument and Core Hypotheses

In this thesis, I argued that by statistically significantly impacting the secondary school VET enrolment rates, the entrepreneurial environment shapes the institutional trait of a country, in other words varieties of capitalism. Additionally, in alignment with two separate perspectives among the scholars, the logical equation of this thesis is reported below.

$$SSVETER_{Varieties\ of\ Capitalisms_{i,t}} = \beta_0 + \beta_1 GEI_{i,t} + \beta_2 RGDP\ per\ capita_{i,t} + \varepsilon_{i,t}$$

Here, *SSVETER* is the secondary school VET enrolment rates, *i* is the varieties of capitalism (LMEs, CMEs, EMEs, Advanced EMEs, or EU-MEs), *GEI* is the annual institutional scores of the GEI for each country, *RGDP per capita* is the annual change in the Real Gross Domestic Product per capita in local currency (RGDP (LCU)), and *t* is the year, starting in 2006 until 2016. As the equation indicates, the independent variables are the countries' annual institutional scores of the GEI and annual per capita RGDP (LCU). More specifically, I the annual institutional GEI scores of the countries were used as the scores for measuring the entrepreneurial environments.

The abovementioned logical equation, in other words the model of the thesis, visualizes the engagement of the literature. The model takes the secondary school VET enrolment rates as a dependent and takes the GEI scores and RGDP per capita (LCU) as independent variables. In relation to the literature, secondary school VET enrolment rates represent the institutional structure of a country, which is one of the core-making characteristics of the varieties of capitalism. Similarly, the GEI score indicates the entrepreneurial environment, which is a factor that carries a possibility to have a pull impact on the institutional structure. According to the literature, the RGDP per capita (LCU) is a factor that has a booster impact on the secondary school VET (Barro, 1991). Moreover, some scholars have observed the RGDP per capita (LCU) as the main component of the secondary schools VET enrolment decision (Iyigun & Owen, 1998; Harmina, 2016; Doran et al., 2018). Thus, the addition of an annual change in the RGDP (LCU) per capita aimed to bring robustness to the dataset. Lastly, the dependent variables of this thesis were the enrolment rates of secondary school VET. The further inclusion of other independent variables seems unnecessary

in the case of this thesis, since it would result in inflated and misleading statistical outcomes.

In this thesis, a mathematical model was structured to present the relations among the dependent variable and independent variables in the abovementioned logical equation. More specifically, FGLS and PCA were chosen as the hybrid descriptive and analytical models. Since the execution of these quantitative models requires hypothesis testing, the hypotheses of this thesis is reported below. These hypotheses have two levels: general-level and varieties of capitalism-specific. In addition, a country-specific sub-hypotheses was set, by taking the countries' varieties of capitalism into account.

Hypothesis 1: Entrepreneurial environments do not have a statistically significant impact on the enrolment rates of secondary VET, regardless of the varieties of capitalism.

Hypothesis 2: Entrepreneurial environments do not have a statistically significant impact on the enrolment rates of secondary VET in Liberal Market Economies.

Hypothesis 2.a: Entrepreneurial environments do not have a statistically significant impact on the enrolment rates of secondary VET in the United Kingdom.

Hypothesis 3: Entrepreneurial environments do not have a statistically significant impact on the enrolment rates of secondary VET in Coordinated Market Economies.

Hypothesis 3.a: Entrepreneurial environments do not have a statistically significant impact on the enrolment rates of secondary VET in Belgium, Finland, Germany, or Norway.

Hypothesis 4: Entrepreneurial environments do not have a statistically significant impact on the enrolment rates of secondary VET in Emerging Market Economies.

Hypothesis 4.a: Entrepreneurial environments do not have a statistically significant impact on the enrolment rates of secondary VET in Brazil, China, Colombia, Peru, or Russia.

Hypothesis 5: Entrepreneurial environments do not have a statistically significant impact on the enrolment rates of secondary VET in Advanced Emerging Market Economies.

Hypothesis 5.a: Entrepreneurial environments do not have a statistically significant impact on the enrolment rates of secondary VET in Chile or South Africa.

Hypothesis 6: Entrepreneurial environments do not have a statistically significant impact on the enrolment rates of secondary VET in EU-Market Economies.

Hypothesis 6.a: Entrepreneurial environments do not have a statistically significant impact on the enrolment rates of secondary VET in France, Hungary, Italy, or Spain.

Hypothesis 1 aims to grasp the probable statistically significant impact of entrepreneurial environment on the secondary level VET enrolment rates, by testing the entire sample, which includes sixteen countries across five different varieties of capitalism. *Hypothesis 2*, *3*, *4*, *5*, and *6* represents the clusters of the countries in alignment with their varieties of capitalism. Furthermore, the sub-hypotheses (*Hypothesis 2.a*, *3.a*, *4.a*, *5.a*, and *6.a)* aim to test country-specific statistical significance of the impact. Witt et al. (2018)'s separation approach was used on Hall & Soskice's (2001) Mixed Market Economies (MMEs) into three sub-categories (EMEs, Advanced EMEs, and EU-MEs), since these economies have valuable

structural differences (Gerschenkron, 1962). Moreover, this categorization was necessary to achieve precision on the analyses and prevent reporting biased results.

Last but not least, in order to provide further insight, the current global significance of the VET should be addressed, in the framework of entrepreneurial environment. First, the COVID-19 pandemic left a deep scar on the global job market. People lost their jobs either temporarily or permanently (Montenovo et al., 2020). However, the new areas for job opportunities increased due to the convenience of technology. People began to search and find job positions as well as create employment by conducting business (Chege & Wang, 2020). In this framework, the demand for laborers, who have specific and job-appropriate skills, demonstrated an inclining trend. As affective solutions, businesses began to either provide on-the-job-trainings to prepare their new laborers for tasks or hire newly graduated laborers from VET-providing institutions. Since the entrepreneurial environment provides maneuver space for businesses creating job opportunities, an increase in the vocationally skilled laborers was seen. This occurrence makes the VET and entrepreneurial environment current and globally significant topics.

1.5. Case Selection and Limitations

The sample countries were selected in accordance with Witt et al.'s (2018) approach of major economies clustering by their business systems. As an initial step, in the country selection (sample gathering) process, three main criteria were followed: 1) the country has to be reported in the GEI, 2) the country has to belong in one of the determined varieties of capitalism, and 3) the GEI scores of the country should have been completed between 2006 and 2016. Sixteen countries fulfilled these criteria, which are given in *Table.1*.

Table.1 *Selected Countries (by Varieties of Capitalism)*

LMEs	CMEs	EMEs	Advanced EMEs	EU-MEs
The United Kingdom	Belgium	Brazil	Chile	France
	Finland	China	South Africa	Hungary
	Germany	Colombia		Italy
	Norway	Peru		Spain
		Russia		

Notes: The clustering was motivated by Witt et al. (2018).
"LMEs" stands for Liberal Market Economies, "CMEs" means Coordinated Market Economies, "EMEs" represents Emerging Market Economies, "Advanced EMEs" means Advanced Emerging Market Economies, and "EU-MEs" is an abbreviation of European Market Economies.

In the secondary step, the representation power of the countries was checked to determine if it was in alignment with their varieties of capitalism by referring to the literature. The majority of scholars, who conducted research on the varieties of capitalism, considered the United Kingdom as an ideal type of LME, which means the solid structure of providing VET as on-the-job-training is highly unlikely to change even if there is an external influencer. Similarly, these scholars also perceived Germany as the main representative of CME, which has varieties of capitalism that provide VET through institutional channels, such as secondary schools. In the cases of Belgium, Finland, and Norway, Katzenstein (1985) justified these abovementioned countries as the fitting representatives of CME due to their high amount of social expenditure on VET. According to Witt et al. (2018) the cluster of EMEs is the most heterogeneous when compared to others. Thus, the selection of Brazil, China, Colombia, Peru, and Russia, and eliminating the others (Argentina, Bangladesh, Egypt, India, Malaysia, Philippines etc.) enabled this thesis to utilize the most prominent EMEs among the other countries in the same varieties of capitalism cluster. These selected EMEs carry a common trait, which is obtaining VET skills via private sources of education and short-term job tenures. The consideration of Chile and South Africa as adequate representatives for Advanced EMEs comes from their sector-

specific on-the-job-training and secondary school VET education when compared to Israel and Turkey. These latter two countries are not eligible in the scope of the analysis of this thesis, since they have a more resilient-to-change educational structure (Witt et al., 2018), which would not allow this study to capture the possible statistically significant impact of the entrepreneurial environment. Finally, the selection of France, Hungary, Italy, and Spain came from their structural alignment of business systems. All of these abovementioned EU-MEs prefer to provide general education rather than VET-specific, have long-term hiring contracts, and welcome industrial as well a craft unions. There are other candidates such as Czech Republic, Greece, and Slovakia, however, due to their slight business structure differences, they were not included in the sample.

Furthermore, the numbers of countries per varieties of capitalism cluster were not uniform. This absence created the first limitation of this thesis, which was that the representation power per cluster differed in the sample. Second, high correlation and covariance among the GEI pillars prevented this thesis from applying the Pooled Ordinary Least Square (OLS), Fixed, and Random Effect methods, due to the omitted variable problem. Finally, the timespan of this thesis is inadequate to demonstrate a long-term impact of the entrepreneurial environment on secondary school VET enrolment rates.

1.6. Data Sources and Time-Frame

The dependent variables of the thesis were the secondary school VET enrollment rates. They were calculated by taking the ratio between the numbers of the secondary education vocational students, and the number of secondary education general

students, from 2006 to 2016. The related data come from the World Bank (WB) DataBank database.

In the case of the annual change in the RGDP (LCU), the RGDP (LCU) was collected from the WB website in the local currency (LCU) format. The RGDP (LCU) measurement was chosen rather than constant 2015 US$. This selection brought an ease to the calculation process of the RGDP (LCU), since the GDP deflator was used in the process. Moreover, the natural logarithm of the RGDP (LCU) for the time span of 2005 to 2016 was also used, which provided the annual RGDP (LCU) scores.

Finally, the pillars scores and institutional scores of the GEI were collected from the Global Entrepreneurship & Development Institute (GEDI) database, starting from 2006 until 2016. The already standardized nature of the gathered data brought about an ease of eliminating the unnecessary standardization processes. In this case, the fourteen pillars of the GEI, which consist of opportunity perception, startup skills, risk acceptance, networking, cultural support, opportunity startup, technology absorption, human capital, competition, product innovation, process innovation, high growth, internationalization, and risk capital, were used for the PCA. Similarly, the GEI institutional scores were used in the FGLS.

1.7. Structure of the Data

The dataset in this thesis had the following characteristics: 1) An eleven-year timespan (from 2006 to 2016). 2) Sixteen countries (the United Kingdom, Belgium, Finland, Germany, Norway, France, Hungary, Italy, Spain, Brazil, China, Colombia, Peru, Russia, Chile, and South Africa). This thesis comprised 176 observations (N = 176). 3) These countries were clustered in alignment with their varieties of capitalism,

which were LMEs, CMEs, EMEs, Advanced EMEs, and EU-MEs. The data had many units of observations over the eleven years without any missing observations. Thus, the data were strongly balanced cross-sectional panel data.

The units of the dataset were the GEI pillars (opportunity perception, startup skills, risk acceptance, networking, cultural support, opportunity startup, technology absorption, human capital, competition, product innovation, process innovation, high growth, internationalization, and risk capital), institutional GEI score, annual change in the RGDP (LCU), and secondary school VET enrolment rates. Dummy variables for each group were prepared so that the varieties of capitalism-related clusters became statistically appropriate to analyze.

1.8. Why FGLS and PCA?

Scholars have mostly preferred the Pooled OLS, Fixed and Random Effect, Autoregressive Conditional Heteroskedasticity (ARCH), and Autoregressive Distributed Lag (ARDL) methods in studies on entrepreneurial environments. Pooled OLS is preferred by scholars who seek unbiased results by eliminating the cross-sectional and time effects (Cho & Honorati, 2014; Asadullah & Ullah, 2018). On the other hand, some scholars have used Fixed and Random Effect analyses, to determine the statistically significant difference between the population data and the individual-specific observations (Falck et al., 2012; Hanushek et al., 2017). Furthermore, some scholars have conducted their analyses using the ARCH method with the intention of forecasting future volatility (French & Püchner, 1999). Last but not least, some scholars have applied the ARDL model to find dynamic relations among the variables in a single equation (Abada et al., 2021).

The scholars decide on the method by considering the study's aim, approach (exploratory or explanatory), and data structure. Hence, herein, the nature of the GEI allowed for conducting FGLS and PCA analyses due to 1) its inadequacy to fulfill the assumptions of linear regression, 2) the fact that this thesis sought to determine the possible statistically significant impact among the variables, and 3) the fact that this study was concerned about the existence of prominent PCs in specific entrepreneurial environments rather than their reasons.

By considering the residual diagnostics results, it was concluded that FGLS and PCA were the most efficient methods for analyzing the GEI. First, FGLS enables a researcher to perform a panel data analysis with the existence of heteroskedasticity and autocorrelation (Greene, 2008). In alignment with the aim of this thesis, FGLS brought an opportunity to detect a possible statistically significant impact of entrepreneurial environments that shapes the institutional education structure of a country. If this significance was approved by the outcomes of the FGLS analysis, the affectability of the varieties of capitalism, in the case of educational structure, would be proven.

Second, PCA represents a multidimensional dataset in a two-dimensional way by allowing correlation and covariance in the dataset. In addition, PCA allows a researcher to detect the multi-variation patterns in the data and define their positions (Abdi & Williams, 2010). Thus, the utilization of PCA not only confirms the possible institutional structural change of varieties of capitalism, in the case of VET, but also provides nuances of which factors are the leading ones in this change. Conclusively, this thesis perceived FGLS and PCA analyses as the most appropriate methods to analyze the GEI.

1.9. Conceptual and Operational Definitions

First, scholars have defined the entrepreneurial environment as a set of conditions that allows entrepreneurship to occur, such as market rules and definitions, tax incentives, and accessibility to financial sources (Fogel, 2001). This definition seems too narrow to reflect the content of the entrepreneurial environment. The inclusion of the European Commission (2009)'s required social conditions to achieve a healthy entrepreneurial environment (i.e., the state policy for the later-comer firms and societal perspective on self-employment) broadens Fogel (2001)'s definition. Furthermore, some scholars have touched upon the significance of individually motivated conditions of entrepreneurship by referring to the entrepreneurial environment as a "readiness provider" environment for executing various production ideas in a practical manner (Jarvi, 2012). By merging the abovementioned definitions, this thesis conceptually defined the entrepreneurial environment as a "production-wise and socially supportive enough environment that enables the entrepreneur to take action".

The entrepreneurial environment is operationalized by taking the GEI scores as the measure. The GEI includes production-related (opportunity start-up, risk capital, process innovation, product innovation, high growth, and technology absorption), social (cultural support, competition, risk acceptance, internationalization, and networking) and individualistic (start-up skills, opportunity perception, and human capital) pillars that accurately fulfills the conceptual definition of entrepreneurial environment in this thesis. Thus, the GEI is comprehensive enough to test the probable statistically significant impact of the entrepreneurial environment on the enrolment rates of secondary school VET. Moreover, the parsimonious nature of the

GEI enabled this thesis to apply ceteris paribus criteria. Finally, an application of the standardization process seemed unnecessary in the calculations, since both the pillar-specific and institutional scores of the index were already calibrated between zero and one.

Second, scholars have defined VET in two different stances. On the one hand, VET is defined as a structure of education that aims to equip people for the labor market or a particular occupation by providing knowledge, skills, and know-how (CEDEFOP, 2008). In other words, VET is a refined way of human capital investment. On the other hand, VET is conceptualized as a social capital accumulator in the production function by sculpting desired laborers for specific sectors (Okolie & Ogbaekirigwe, 2014). Prior to conceptually defining VET, human capital was defined as an aggregation of the social capital in the sense of VET. In alignment with this aggregation, this thesis defined VET as a beneficial component for the marketplace, regardless of the varieties of capitalism. VET was conceptualized as broad as possible in this thesis to inclusively represent the benefit of all of the entrepreneurial environment actors (self-employer, government, and employees).

The operationalization of VET consists of the ratio between the numbers of secondary education vocational students, and the number of secondary education general students, from 2006 to 2016. With the aim of reaching efficient empirical findings, the standardization steps were applied, which are presented the below:

$$\left(\frac{Secondary\ Education, Vocational\ Pupils}{Secondary\ Education, General\ Pupils}\right)_{i,t} = USVETER_{i,t}$$

$$SVETER_{i,t} = \left(\frac{USVETER_{i,t} - min(USVETER_{i,t})}{max\left(USVETER_{i,t}\right) - min(USVETER_{i,t})}\right)$$

Here, *i* is the countries of the sample (the United Kingdom, Belgium, Finland, Germany, Norway, Brazil, China, Colombia, Peru, Russia, Chile, South Africa, France, Hungary, Italy, and Spain) and *t* is the year, which starts in 2006 and goes to 2016. *USVETER* is an abbreviation for Unstandardized Secondary Education, VET Enrolment Rates and *SVETER* is an abbreviation for Standardized Secondary Education, VET Enrolment Rates. As a result of these standardization steps, the secondary education VET enrolment rates were calibrated between zero and one.

Third, the majority of scholars have defined the RGDP (LCU) as an indicator of economic well-being of an individual, in relation to purchasing power parity (Mazumdar, 2000; Van den Berg, 2002). This thesis set the same conceptual definition for the RGDP (LCU), since the RGDP (LCU) is perceived as an outcome-affecting component in the VET literature (Doran et al., 2018). The annual change in the RGDP (LCU) was operationalized by applying the equation below:

$$ln(\left(\frac{1}{Deflator + 1}\right) * (GDP\ per\ capita\ (LCU)) = Annual\ Change\ in\ RGDP\ per\ capita\ (LCU)$$

With the aim of maintaining a standard format through the variables, the RGDP (LCU) measurement was adjusted between zero and one by taking the natural logarithm of the RGDP (LCU), starting from 2005 until 2016, in Stata software. This standardization was necessary to prevent the empirical findings from either being overestimated or underestimated.

1.10. Organization of the Thesis

The analytical framework of this thesis had four stages. In the first stage, the data were gathered from related sources, within a decided timeframe, and a sample of the

countries was taken. In continuation, the methods were decided on by taking the empirical findings of the residual diagnostics. In the second stage, the hypotheses was set in accordance with the varieties of capitalism literature. After completing the data standardization procedure, the hypotheses were tested using the FGLS model. The FGLS model enabled this thesis to obtain empirical findings for the research question "In which varieties of capitalism does the entrepreneurial environment have a statistically significant impact on the enrolment rates of secondary school VET?". As an intermediary stage, the countries, whose enrolment rates of secondary school VET were statistically significantly impacted by entrepreneurial environment, were detected. The third stage consisted of applying PCA to these abovementioned countries to answer the research question: "Which entrepreneurial factors (i.e., prominent PCs) structure the entrepreneurial environment the most?". In the final stage, the empirical findings were reported by providing self-explanatory tables and figures.

In the organization of this thesis, *Chapter 1* consists of stating the problem and its setup, presenting the logical equation, research questions, and hypotheses, and providing conceptual and operational definitions of the terminologies. *Chapter 2* demonstrates the standpoints on the literature of entrepreneurial environment and VET in relation to varieties of capitalism. The research design is reported in *Chapter 3*, by explaining the research approach, data sources, timeframe, selected methods, case selection, and limitations. *Chapter 4* shows the empirical findings on FGLS analysis in descriptive, general, and varieties of capitalism-specific and country-specific levels. It also reports the empirical findings on PCA in the cases of Hungary, Brazil, China, and Chile. Finally, *Chapter 5* summarizes the empirical findings by

revisiting the literature, explains the special case of Hungary, suggests possible contributions for the further research, and reports policy implications.

CHAPTER 2

ENTREPRENEURIAL ENVIRONMENT AND VOCATIONAL EDUCATION AND TRAINING IN DIFFERENT VARIETIES OF CAPITALISM

2.1. Relationship between Entrepreneurial Environment and Enrolment in Secondary School Vocational Education and Training

Scholars of the entrepreneurship literature agree upon its benefits on the economy. Some scholars perceive entrepreneurship as an opportunity to create new business formations in the economy (Flory et al., 2013). Others consider entrepreneurship as an economic enhancer due to its nature of allowing job-creation (Albornoz, 2013). The majority of scholars have pointed out that the most efficient way to get benefits from entrepreneurship is integrating it through educational structure (Stadler & Smith, 2017). The benefits are: First, entrepreneurship in an educational structure allows countries to cover the need for sector-oriented laborers. Second, the average rate of human capital increases in countries that provide entrepreneurial education; thus, the unemployment rate decreases (Fonseca et al., 2001). Third, secondary school VET graduates have a higher tendency to become self-employers and make contributions in the technology sector (Liu et al., 2018). Hence, scholars have highlighted both the individual-level and societal-level beneficial outcomes of entrepreneurship when it is integrated in the educational structure of a country. In this sense, the formation of an entrepreneurial environment is a positive outcome of the integration of entrepreneurship in a country's educational system. Secondary school entrepreneurial VET strengthens the network among the entrepreneurs, new-comer self-employers,

the state, and international partners (Pilkova et al., 2014). Conclusively, this thesis expected an entrepreneurial environment to have a statistically significant impact on the enrolment rates of secondary school VET.

2.2. Entrepreneurial Environment

The most prominent benefit of the entrepreneurial environment is the reduction of unemployment. Awogbenle & Chijioke (2010) explained the outcomes of entrepreneurial secondary VET in the case of the Nigerian Entrepreneurship Program. The outcomes revealed the inclining trend on self-employment and the decrease in the unemployed secondary school graduates owing to the flourished entrepreneurial environment. Iyıgun & Owen (1998) mentioned the entrepreneurial environment as an important component for a healthy business structure. This significance resulted in two things: first, an increase in the intermediary good supply by the entrepreneurs would pump the final good production, and second, the know-how would be spilled over among the different stages of the producers (Iyıgun & Owen, 1998).

Additionally, the entrepreneurial environment also contributes to human capital accumulation. The entrepreneurs' capacity to build new businesses by innovation would increase human capital. Employees of the innovative start-ups become more acknowledged and skilled compared in the market (Unger et al., 2011). The connection between the social network and accumulated market knowledge results in the increase in the country-wise social capital (Batjargal, 2007). The entrepreneurial environment provides significant opportunities for the self-employed, employees, and the government. Additionally, the incremental accumulation of knowledge on human capital and social capital becomes stronger. Finally, the overall economic structure of a country enhances due to declining unemployment.

2.3. Vocational Education and Training across Different Varieties of Capitalism

The majority of scholars have stated that the function of VET is determined by the economic structure. These structures are LMEs, CMEs, and MMEs (Hall & Soskice, 2001). Hall & Soskice (2001) stated that hierarchies among firms results in price setting and cost-minimization. The firms in LMEs minimize the production cost by providing VET as on-the-job-training. On-the-job-training prevents knowledge spill-over and protects the firms' stance in the hierarchy (Audretsch & Lehmann, 2005). Moreover, on-the-job-training determines the skillset of workers in a job-specific manner. Job-specific VET prevents a knowledge transfer among the firms, which disables the transfer of knowledge among the firms so that the competition power of the firm increases. Additionally, on-the-job-training is time efficient, since it provides only job-specific skills (Davari & Farokhmanesh, 2017).

Contrary to the hierarchy in the market, high coordination among the market and non-market actors in the CMEs results in the standardized VET (Hall & Soskice, 2001). In the CMEs, secondary VET graduate students are educated as skilled laborers for a specific sector, so the additional cost of training newly hired workers is reduced (Nölke, 2008). In contrast to LMEs, this standardization allows the firms and the government to consolidate the accumulated knowledge on technology (Hoque et al., 1995). CMEs perceive VET as an initial human capital investment; however, LMEs appreciate VET as a complementary education (Hall & Soskice, 2001). Thus, the prioritization of VET differs among the varieties of capitalism. The firms in LMEs aim to limit knowledge transfer due to market competition. However, the firms in

CMEs have a willingness to provide additional VET, regardless of the educational background of the workers. This results in highly specialized workers. Conclusively, LMEs prefer to provide on-the-job-training, while CMEs support VET through institutions.

In addition to LMEs and CMEs, Hall & Gingerich (2009) conceptualized a "third type" of varieties of capitalism. This "hybrid form" occurs as Mixed Market Economies (MMEs). The lack of market structure, uncertain division on the market roles, and changing power relations among the market actors separate MMEs from LMEs and CMEs (Campbell & Pederson, 2007). This market structure flexibility enables MMEs to adjust global market trends (Jagannathan et al., 2019). The adjustment occurs in two ways: first, MMEs limit their VET investment in alignment with the labor demand of multinational corporations, and second, by enhancing the investment on VET in the state-supported sectors (Nölke & Vliengenthart, 2009). Furthermore, globalization could lead the MMEs to be more unstructured. Briefly, they would diverge from the structures of LMEs and CMEs even further (Campbell & Pederson, 2007). In contrary, some scholars have stated that the structure of MMEs would get closer to that of either LMEs or CMEs, regardless of the globalization effect (Jagannathan et al., 2019).

Witt et al. (2018) presented three prominent types of MMEs: EMEs, Advanced EMEs, and EU-MEs. EMEs are late-comers among developing economies, which prioritize institutional innovations (Gerschenkron, 1962). Advanced EMEs carry the same structural traits as EMEs; however, they have a higher GDP per capita. EU-MEs include Southern European (France, Spain, and Italy) and Central European (Hungary) countries (Bohle & Greskovits, 2012). EU-MEs prefer to provide high-level general education rather than VET and have high union mobility (Witt et al.,

2018). Since EMEs, Advanced EMEs, and EU-MEs carry highly diverse market structures, it was decided herein to use these varieties of capitalism separately, rather than combining them as MMEs.

CHAPTER 3

RESEARCH DESIGN

3.1. Research Approach

Social scientists have heavily studied educational structures and their roles in the economy, regardless of their specialization. The received education enables an individual to enhance their living standards by drawing a career path. In addition, human capital investment through education strengthens the power of survival of the economies. In this framework, factors like the entrepreneurial environment would leave an impact on the educational structure. This thesis ontologically questioned the possible existence of an entrepreneurial environment's statistically significant impact, by analyzing its relation with a real world component, secondary school VET enrolment rates. This thesis created knowledge by using the FGLS and PCA methods on the recently published GEI. This knowledge creation resulted in the fulfillment of the epistemological motivation of the study.

Quantitative methodology was used in accordance with the ontological and epistemological stances of this thesis. Inspiration was drawn from King, Keohane, & Verba's (1994) idea of "seeking a common language for framing issues" in a positivist and replicable manner. Some scholars have chosen to conduct case-specific qualitative configurational analyses to present causal inferences. However, this thesis was structured to provide knowledge about the question of "what" rather than the "why and how". More specifically, It was aimed to highlight the existence of an impact, rather than its reasons.

This thesis is abstract, concrete, researchable, efficient, and parsimonious enough in accordance with Hancke's (2009) empirical project criteria. Studying a specific topic from a broad literature by using unique empirical methods made this thesis abstract. This thesis is concrete enough, since the conceptual definitions are well-constructed and tangible. The limitations of this thesis were drawn carefully without losing any sufficient information, which made it researchable. The utilization of two independent variables (entrepreneurial environment and annual change in the RGDP (LCU)) and a dependent variable (enrolment rates of secondary school VET), and consideration of the other parameters as ceteris paribus, made this thesis efficient and parsimonious. Finally, the hypotheses of this thesis could be tested by different methods in the literature, such as Pooled OLS, Fixed and Random Effect Analysis, and ARDL methods. Therefore, this thesis is falsifiable.

3.2. Residual Diagnostics on Linearity

The linearity of the dataset was examined by plotting residuals against fitted values. The figure of the Residual-Versus-Fitted (RVF) plot for the main indicators indicated the partially linear behavior of the data, as shown in *Figure.1*.

Similarly, Figure.2 states the non-linear behavior of the data in the inclusion of all variables. The curved line in the Figure.2 is the visual demonstration of non-linearity.

Figure.1 *RVF Plot (Main Indicators)*

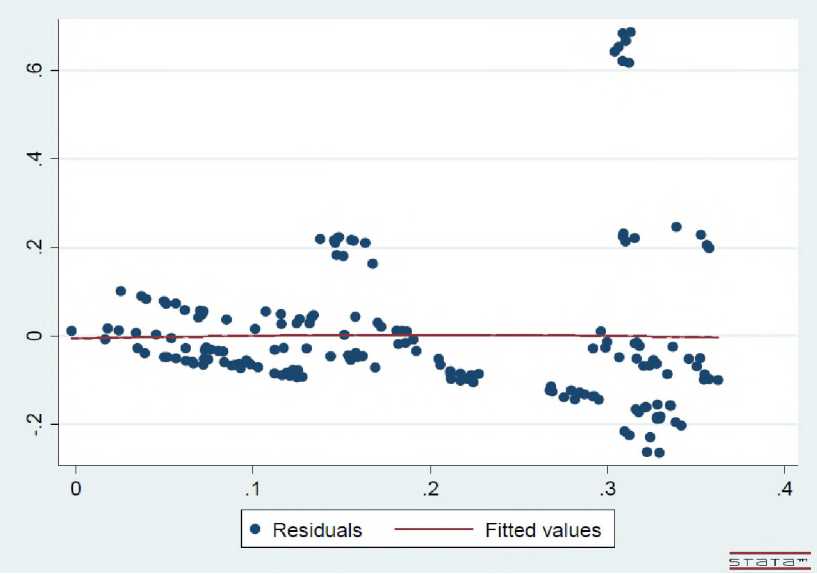
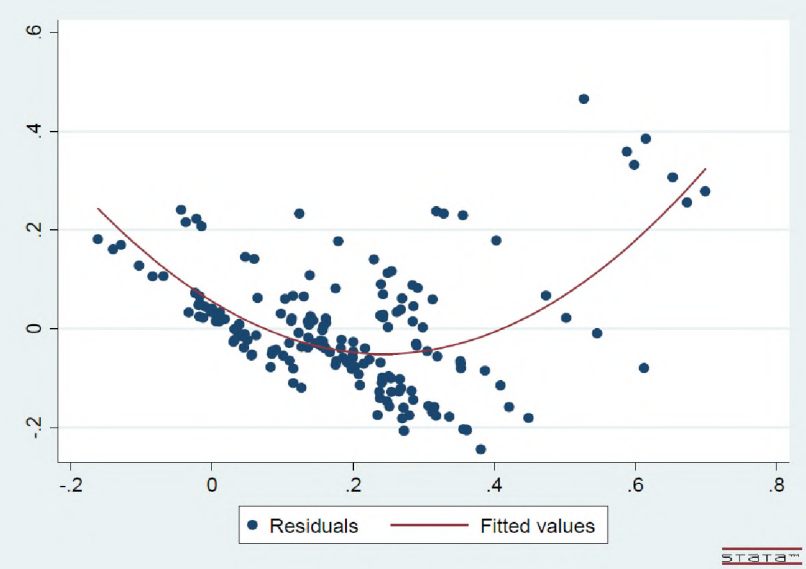


Figure.2 *RVF Plot (All Indicators)*



However, partially linear behavior is perceived as the nature of panel data by scholars, since higher dimensionality in the dataset results in correlation between the errors and regressors (Li & Stengos, 1996). Baltagi & Li (2002) defined this as "the curse of dimensionality". Conclusively, the utilized dataset in this thesis had partial linearity.

3.3. Residual Diagnostics on Heteroskedasticity

Generally, a non-linear behavior in the dataset signals heteroskedasticity. The outputs of the Breusch-Pagan and White heteroskedasticity tests indicated severe heteroskedasticity on the dataset. As can be seen in *Table.2*, the P-values of these tests remained under 0.05, Therefore, the rejected null hypothesis indicated the existence of heteroskedasticity.

Table.2 *Results of Heteroskedasticity Tests*

	Breusch- Pagan Test		White Test		Cameron and Trivedi's Decomposition of the IM-test			
	Heteroskedasticity		Heteroskedasticity		Skewness		Kurtosis	
	Chi-square Statistic (df)	p-value	Chi-square Statistic (df)	p-value	Chi-square Statistic (df)	p-value	Chi-square Statistic (df)	p-value
Main Indicators	65.61 (2)	0.0000	17.17 (15)	0.0042	21.60 (2)	0.0000	9.07 (1)	0.0026
All Indicators	114.67 (15)	0.0000	168.38 (135)	0.0272	76.96 (15)	0.0000	2.78 (1)	0.0957

Notes: Main Indicators consisted of the annual change in the RGDP (LCU), institutional GEI scores, and enrolment rates of secondary VET institutions. Moreover, All Indicators refers to the annual change in the RGDP (LCU), GEI pillars, and enrolment rates of secondary VET.

Table.2 also presents Cameron and Trivedi's Decomposition of the IM-test, which provides information on the dataset's normality. As a general rule, if skewness is greater than one or smaller than minus one, the dataset is accepted as skewed. If the value of kurtosis is greater than one, the dataset has a peaked distribution. Thus, outputs of Cameron and Trivedi's Decomposition of the IM-test indicated skewed and peaked distribution in the Main Indicators and All Indicators groups. However, these results did not necessarily indicate a violation of the normality assumption.

3.4. Residual Diagnostics on Multicollinearity

The Variance Inflation Factor (VIF) was calculated to verify the independence of the dataset. As a general criterion, the multicollinearity does not exist if the VIF of an indicator gets a score under ten. The reported results in *Table.3* demonstrate an absence of multicollinearity at the general level among main indicators.

Table.3 *Multicollinearity Statistics (VIF) Among Main Indicators*

Variable	VIF	Tolerance= 1/VIF
GEI Institutional Score	1.28	0.778442
Yearly Change of RGDP Per Capita (LCU)	1.28	0.778442
Mean VIF	1.28	

Notes: "Main Indicators consisted of the annual change in the RGDP (LCU), institutional GEI scores, and enrolment rates of secondary VET institutions. Moreover, All Indicators refers to the annual RGDP (LCU), GEI pillars, and enrolment rates of secondary VET.

However, the calculations on the All Indicators indicated the existence of multicollinearity only on the cultural support (VIF = 11.25), as seen in *Table.4*. In both cases, the dataset was detected as independent.

Table.4 *Multicollinearity Statistics (VIF) Among All Indicators*

Variable	VIF	Tolerance= 1/VIF
Cultural Support	11.25	0.888920
Opportunity Startup	8.32	0.120239
Opportunity Perception	7.21	0.138781
Startup Skills	5.26	0.190146
Competition	4.04	0.247453
Risk Acceptance	3.69	0.271297
Process Innovation	3.28	0.305161
Risk Capital	3.07	0.325448
Internationalization	3.03	0.329918
Networking	2.87	0.348437
High Growth	2.63	0.379849
Human Capital	2.62	0.382020
Product Innovation	2.41	0.414504
Technology Absorption	2.15	0.464907
Yearly Change of RGDP Per Capita (LCU)	1.75	0.570510
Mean VIF	4.24	

Notes: Main Indicators consisted of the annual change in RGDP (LCU), institutional GEI scores, and enrolment rates of secondary VET institutions. Moreover, All Indicators refers to the annual RGDP (LCU), GEI pillars, and enrolment rates of secondary VET.

3.5. Residual Diagnostics on Autocorrelation

In this thesis, the Wooldridge test was applied, since it has general and comprehensive enough conditions to detect autocorrelation (Drukker, 2003). *Table.5* indicates an existence of autocorrelation for the Main Indicators and All Indicators groups. The probability of F-statistics in both groups remained under 0.05; thus, the null hypothesis was rejected.

Table.5 *Wooldrigde Test for Autocorrelation*

	F- value	Prob> F
For Main Indicators	F(1,15) = 1555.377	.0000
For All Indicators	F(1,15) = 1355.499	.0000

Notes: H_0: No first-order autocorrelation.
Main Indicators consisted of the annual change in the RGDP (LCU), institutional GEI scores, and enrolment rates of secondary VET institutions. Moreover, All Indicators refers to the annual RGDP (LCU), GEI pillars, and enrolment rates of secondary VET institutions.

The GEI pillar scores were calculated by assigning different weights to the selected set of components. The reason for this is that one pillar represents one trait in the entrepreneurial environment, which has real-life components. In this sense, the index openly stated the impossibility to apply ceteris paribus criteria among the pillars. Hence, the nature of the GEI was the cause of high correlation and covariance among the pillars (GEDI, 2018).

CHAPTER 4

EMPIRICAL FINDINGS ON THE IMPACT OF ENTREPRENEURIAL ENVIRONMENT ON ENROLLMENT RATE OF SECONDARY SCHOOL VOCATIONAL EDUCATION AND TRAINING

4.1. Empirical Findings I: Descriptive Statistics

The mean, standard deviations, minimum, median and maximum values of the GEI pillars are reported in *Table.6*. The highest six overall average scores of the GEI pillars were in risk acceptance (M = 0.58, SD = 0.24), competition (M = 0.54, SD = 0.26), process innovation (M = 0.54, SD = 0.25), technology absorption (M = 0.53, SD = 0.25), cultural support (M = 0.53, SD = 0.27), opportunity perception (M = 0.52, SD = 0.26), networking (M = 0.52, SD = 0.22), and product innovation (M = 0.52, SD = 0.25). The descriptive statistics of the secondary school VET enrolment rates (M = 0.19, SD = 0.20) indicated that 19% of students enroll in VET high schools rather than general ones. Finally, the annual change in the RGDP (LCU) (M = –0.03, SD = 0.03), had a decreasing average of 3%.

The GEI institutional score had a positive and statistically significant correlation with secondary VET enrolment rates (M = 0.53, $P < 0.05$). Similarly, the annual change in the RGDP (LCU) (M = 0.28, $P < 0.5$) also statistically significantly and positively correlated with secondary school VET enrolment rates, as seen in *Table.7*.

Table.6 *Means, standard deviations, minimum, median, and maximum values*

Variables	*N*	*Mean*	*SD*	*Min*	*Median*	*Max*
Secondary School VET Enrolment Rates	176	.19	.20	0	.14	1
Opportunity Perception	176	.52	.26	.11	.47	1
Startup Skills	176	.46	.24	.05	.43	1
Risk Acceptance	176	.58	.24	.14	.57	1
Networking	176	.52	.22	.17	.48	1
Cultural Support	176	.53	.27	.05	.43	1
Opportunity Startup	176	.51	.27	.03	.44	1
Technology Absorption	176	.53	.25	.03	.51	1
Human Capital	176	.47	.19	.09	.46	.98
Competition	176	.54	.26	.11	.49	1
Product Innovation	176	.52	.25	.00	.55	1
Process Innovation	176	.54	.25	.06	.54	1
High Growth	176	.51	.19	.13	.52	1
Internationalization	176	.46	.25	.01	.48	1
Risk Capital	176	.50	.25	.09	.55	1
Annual Change in RGDP Per Capita (LCU)	176	-.03	.03	-.22	-.02	.05

Table.7 *Correlations (Main Indicators)*

Variables	1	2	3
1. Secondary School VET Enrolment Rates	1		
2. The GEI Institutional Score	.53*	1	
3. Annual Change in RGDP Per Capita (LCU)	.28*	.47*	1

Notes: * p<.05, **p<.01, ***p<.001.

The general pairwise correlation results indicated a statistically significant and positive correlation among the GEI pillars (except high growth), secondary school VET enrolment rates, and annual change the RGDP (LCU), as seen in Table 8. The calculation nature of the GEI pillars was the reason for this high correlation, as given in Chapter 3.3.5. The secondary school VET enrolment rates had the highest statistically significant correlation with process innovation (57%), risk acceptance (54%), and risk capital (52%). The lowest statistically significant correlation was determined on product innovation (23%), opportunity perception (24%), and the annual change in the RGDP (LCU) (28%).

Table.8 *Correlations (All Indicators)*

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Secondary School VET Enrolment Rates	1															
2. Opportunity Perception	.24*	1														
3.Startup Skills	.48*	.74*	1													
4. Risk Acceptance	.54*	.56*	.65*	1												
5. Networking	.29*	.54*	.63*	.52*	1											
6. Cultural Support	.29*	.84*	.70*	.71*	.69*	1										
7. Opportunity Startup	.46*	.75*	.75*	.80*	.57*	.86*	1									
8. Technology Absorption	.33*	.44*	.53*	.56*	.34*	.59*	.64*	1								
9. Human Capital	.49*	.25*	.44*	.39*	.26*	.30*	.50*	.33*	1							
10. Competition	.30*	.53*	.36*	.59*	.41*	.73*	.71*	.53*	.38*	1						
11. Product Innovation	.23*	.37*	.30*	.27*	.45*	.40*	.30*	.18*	.11	.31*	1					
12. Process Innovation	.57*	.26*	.39*	.61*	.44*	.53*	.57*	.56*	.32*	.62*	.44*	1				
13. High Growth	.12	.52*	.29*	.34*	.31*	.48*	.42*	.21*	.44*	.43*	.54*	.28*	1			
14. Internationalization	.47*	.39*	.34*	.46*	.23*	.51*	.55*	.53*	.40*	.67*	.41*	.63*	.42*	1		
15. Risk Capital	.52*	.37*	.47*	.66*	.41*	.59*	.61*	.49*	.40*	.55*	.44*	.64*	.31*	.59*	1	
16. Annual Change in RGDP Per Capita (LCU)	.28*	.28*	.37*	.41*	.24*	.40*	.43*	.34*	.07	.33*	.29*	.38*	.09	.46*	.54*	1

Notes: * p<.05, **p<.01, ***p<.001.

4.2. Empirical Findings II: FGLS across Different Varieties of Capitalism

The FGLS method demonstrates the existence of statistically significant associations and impacts among the variables. In this framework, the significance level was set to 5%. Thus, if the P-value of the FGLS output is greater than 5% ($P > 0.05$), rejection of the null hypothesis will fail. This rejection indicates that the association is statistically insignificant. However, if ($P < 0.05$) is observed, then the association would be statistically significant and the null hypothesis will be rejected. See Chapter 1.4: The Argument and Core Hypotheses. The level of significance criterion was applied on both the z-test and Wald chi-square test results.

In addition, the GEI Institutional Score is representative of the entrepreneurial environment. Thus, herein, the GEI Institutional Score was referred to as the "entrepreneurial environment" throughout the reporting process.

4.2.1. General-level FGLS Results across Different Varieties of Capitalism

The reported results in *Table. 9* indicated the statistically significant impact between the secondary school enrolment rates and the GEI institutional score at the general level ($P = 0.000$). Moreover, each additional SD of the GEI institutional score increased the secondary school VET enrolment rate by 22%. The general-level FGLS regression had an overall significance, which means that the variables were statistically significantly associated (P-value of the Wald chi-square = 0.00). The entrepreneurial environment did not have a statistically significant impact on the secondary school VET enrolment rates in the LMEs ($P = 0.884$) and CMEs ($P = 0.709$). Since the value for the general level FGLS was smaller than the 5%

significance level (P = 0.05), Hypothesis 1 was rejected. The P-values of the LMEs and CMEs appeared as greater than the significance level; so that, Hypotheses 2 and 3 failed to be rejected. Finally, the P-values of the Wald chi-square on the FGLS regressions for the LMEs (P = 0.99) and CMEs (P = 0.72) exceed the 5% significance level. Thus, the variables in the LMEs and CMEs were statistically insignificantly associated.

Table.9 *FGLS Results on General-level, LMEs, and CMEs*

	General			LMEs			CMEs		
Variables	Coef. (SE)	z	P|z|	Coef. (SE)	z	P|z|	Coef. (SE)	Z	P|z|
The GEI Institutional Score	.22*** (.04)	5.30	.000	-.25 (1.69)	-.15	.884	.14 (.38)	.37	.709
Yearly Change of RGDP Per Capita (LCU)	-.02 (.03)	-.90	.368	.01 (3.84)	.00	.997	-.06 (.07)	-.80	.423
Constant	-.01 (.03)	-.40	.689	.39 (1.46)	.27	.789	.13 (.33)	.40	.686
N	176			11			44		
Wald Chi-square	28.47 (*p*= .00)			.03 (*p*= .99)			.67 (*p*= .72)		

Notes: * p<.05, **p<.01, ***p<.001.

In the case of MMEs, the entrepreneurial environment did not have a statistically significant impact on the secondary school VET enrolment rates in EU-MEs (P = 0.693) and EMEs (P = 0.057). Hence, *Hypotheses 4* and *6* were rejected. On the contrary, a statistically significant impact of the entrepreneurial environment was observed in the Advanced EMEs (P = 0.000), as seen in *Table.10*. Hence, *Hypothesis 5* failed to be rejected. In addition, the P-values of the Wald chi-square report in the regressions for the EU-MEs (P = 0.89) and EMEs (P = 0.16) reported statistically insignificant associations among the variables. However, the Wald chi-square P-value in the Advanced EMEs regression demonstrated a statistically significant association (P = 0.00). The standardized coefficient of the GEI score was greater than 1 in the

case of the Advanced EMEs. Even if that seems to be a problem, in accordance with Deeagan (1978), it is possible. The possibility comes from, first, the fact that this thesis used a panel dataset, and second, the GEI institutional scores of the countries of the Advanced EMEs (Chile and South Africa) created high multicollinearity in the cluster.

Table.10 *FGLS Results on MMEs (EU-MEs, EMEs, and Advanced EMEs)*

	EU-MEs			EMEs			Advanced EMEs		
Variables	Coef. (SE)	z	P|z|	Coef. (SE)	z	P|z|	Coef. (SE)	Z	P|z|
The GEI Institutional Score	.03 (.08)	.39	.693	.14 (.07)	1.91	.057	1.02*** (.18)	5.69	.000
Yearly Change of RGDP Per Capita (LCU)	-.03 (.16)	-.19	.849	.01 (.04)	.10	.919	-.06 (.13)	-.45	.653
Constant	.12* (2.03)	2.03	.042	-.01 (.03)	-.33	.740	-.53*** (.11)	-5.00	.000
N	44			55			22		
Wald Chi-square	.23 (*p*= .89)			3.64 (*p*= .16)			32.45 (*p*= .00)		

Notes: * p<.05, **p<.01, ***p<.001.

4.2.2. Country-Specific FGLS Results across Different Varieties of Capitalism

The country-specific FGL results indicated statistically insignificant impact of the entrepreneurial environment on the United Kingdom (P = 0.884), as seen in *Table.11*.

Table.11 *FGLS Results on LMEs*

	The United Kingdom		
Variables	Coef. (SE)	z	P|z|
The GEI Institutional Score	-.24 (1.69)	-.15	.884
Yearly Change of RGDP Per Capita (LCU)	.01 (3.84)	.00	.997
Constant	.39 (1.46)	.27	.789
N	11		
Wald Chi-square	.03 (*p*= .98)		

Notes: * p<.05, **p<.01, ***p<.001.

Thus, *Hypothesis 2.a* failed to be rejected. The P-value of the Wald chi-square indicated statistically insignificant associations among the variables in the case of the United Kingdom (P = 0.98).

In the case of the CME countries, Belgium (P = 0.908), Finland (P = 0.793), Germany (P = 0.201), and Norway (P = 0.887) the secondary school VET enrolment rates were not statistically significantly affected by the entrepreneurial environment, as seen in *Table.12*. Moreover, the associations among the variables were determined to be statistically insignificantly in alignment with the Wald chi-square P-values for Belgium (P = 0.71), Finland (P = 0.84) and Norway (P = 0.23). Only the regression of Germany demonstrated a statistically significant association (P-value of the Wald chi-square = 0.02), which was caused by the annual change in the RGDP (LCU). As a result, *Hypothesis 3.a* failed to be rejected.

The existence of a statistically significant impact of the entrepreneurial environment on the secondary school VET enrolment rates was not determined in the EME countries of Colombia (P = 0.213), Peru (P = 0.344), and Russia (P = 0.094). Furthermore, only the variables in the regression of Peru (P-value of the Wald chi-square = 0.63) did not have statistically significant associations. Moreover, Brazil's (P = 0.021) and China's (P = 0.001) secondary school VET enrolment rates were statistically significantly affected by the entrepreneurial environment. One SD increase in the GEI institutional score led to a 27% increase in Brazil's, and 36% increase in China's enrolment rates of secondary school VET, as seen in *Table.13*. Hence, *Hypothesis 4.a* was partially rejected, specifically in the Brazilian and Chinese cases.es.

Table.12 *FGLS Results on CMEs*

Variables	Belgium			Finland			Germany			Norway		
	Coef. (SE)	z	P|z|	Coef. (SE)	z	P|z|	Coef. (SE)	z	P|z|	Coef. (SE)	z	P|z|
The GEI Institutional Score	.66 (5.77)	.12	.908	.79 (3.03)	.26	.793	.31 (.24)	1.25	.210	.06 (.43)	.14	.887
Yearly Change of RGDP Per Capita (LCU)	-4.76 (5.90)	-.81	.420	1.74 (3.17)	.55	.582	.75* (.34)	2.17	.030	-.12 (.07)	-1.64	.101
Constant	.12 (4.89)	.03	.979	-.30 (2.74)	-.11	.910	-.10 (.21)	-.48	.629	.21 (.37)	.58	.564
N	11			11			11			11		
Wald Chi-square	.68 (*p*= .71)			.33 (*p*= .84)			8.35 (*p*= .02)			2.93 (*p*= .23)		

Notes: * p<.05, **p<.01, ***p<.001.

Table.13 *FGLS Results on EMEs*

Variables	Brazil			China			Colombia			Peru			Russia		
	Coef. (SE)	z	P|z|	Coef. (SE)	z	P|z|	Coef. (SE)	z	P|z|	Coef. (SE)	z	P|z|	Coef. (SE)	z	P|z|
The GEI Institutional Score	.27* (.12)	2.30	.021	.36*** (.10)	3.48	.001	.05 (.04)	1.24	.213	-.02 (.02)	-.95	.344	-.06 (.04)	-1.67	.094
Yearly Change of RGDP Per Capita (LCU)	-.08 (.29)	-.28	.781	.01 (.10)	.14	.888	.17* (.07)	2.37	.018	-.00 (.03)	-.00	.999	-.01 (.01)	-.96	.337
Constant	-.12* (.05)	-2.29	.022	-.04 (.05)	-.82	.412	.02 (.02)	1.10	.273	.01 (.01)	1.41	.159	.15*** (.01)	7.82	.000
N	11			11			11			11			11		
Wald Chi-square	8.98 (*p*= .01)			12.56 (*p*= .00)			8.90 (*p*= .01)			.93 (*p*= .63)			5.04 (*p*= .08)		

Notes: * p<.05, **p<.01, ***p<.001.

The reported outputs in *Table.14* demonstrate that Chile's secondary school VET enrolment rate was statistically significantly affected by the entrepreneurial environment (P = 0.000). On the contrary, South Africa's secondary school enrolment rates were statistically insignificantly impacted (P = 0.067), as seen in *Table.14*. Moreover, the variables in the regression of Chile were statistically significantly associated with each other (P-value of the Wald chi-square = 0.00). However, these statistically significant associations were not observed in the South African case (P-value of the Wald chi-square = 0.14). The 77% decrease in the secondary school enrolment rate was observed in the case of one SD increase in the GEI institutional score of Chile. Hence, *Hypothesis 5.a* failed to be rejected in the South African case, yet rejected in the Chilean one.

Table.14 *FGLS Results on Advanced EMEs*

	Chile			South Africa		
Variables	Coef. (SE)	z	P|z|	Coef. (SE)	z	P|z|
The GEI Institutional Score	-.77*** (.19)	-4.01	.000	.37 (.20)	1.83	.067
Yearly Change of RGDP Per Capita (LCU)	.01 (.06)	.28	.779	-.003 (.14)	-.02	.982
Constant	.69*** (.12)	5.40	.000	-.17 (.11)	-1.56	.120
N	11			11		
Wald Chi-square	16.50 (*p*= .00)			4.00 (*p*= .14)		

Notes: * p<.05, **p<.01, ***p<.001.

With the exception of Hungary's secondary school VET enrolment rate (P = 0.001), France's (P = 0.717), Italy's (P = 0.648), and Spain's (P = 0.943) rates were statistically insignificantly affected by the entrepreneurial environment in the scope of

the EU-MEs. A one SD increase in the enrolment rate of Hungarian secondary school VET required a 25% increase in the GEI institutional score of Hungary. Moreover, the overall statistical significance among the variables was observed on the Hungarian case (P-value of the Wald chi-square = 0.00), yet not observed in the French (P = 0.63), Italian (P = 0.26), and Spanish (P = 0.35) cases. Thus, *Hypothesis 6.a* was rejected in the case of Hungary, yet failed to be rejected in any of the other cases.

Table.15 *FGLS Results on EU-MEs*

	France			Hungary			Italy			Spain		
Variables	Coef. (SE)	z	P|z|	Coef. (SE)	z	P|z|	Coef. (SE)	z	P|z|	Coef. (SE)	z	P|z|
The GEI Institutional Score	-.04 (.12)	-.36	.717	.25*** (.07)	3.31	.001	-.14 (.31)	-.46	.648	.01 (.16)	.07	.943
Yearly Change of RGDP Per Capita (LCU)	-.16 (.17)	-.94	.348	.12 (.20)	.63	.530	-1.19 (.72)	-1.64	.101	.27 (.19)	1.44	.151
Constant	.18 (.09)	1.84	.066	-.04 (.04)	-1.01	.314	.42* (.18)	2.30	.021	.12 (.11)	1.09	.276
N	11			11			11			11		
Wald Chi-square	.91 (*p*= .63)			11.03 (*p*= .00)			2.70 (*p*= .26)			2.10 (*p*= .35)		

Notes: * p<.05, **p<.01, ***p<.001.

4.3. Empirical Findings III: PCA in Hungary, Brazil, China, and Chile

4.3.1. Composition of the PCs

The main motivation behind PCA consists of taking the multi-dimensional dataset and transforming it into a two-dimensional vector plot, which presents the most prominent PCs among the others. In this sense, *Table.16* demonstrates the explaining powers of the first two principal component (PCs) sets. PC1 of Brazil explains 57.19% of the accumulated amount of variance, which for Chile is 64.20%, for China is 54.42%, and for Hungary is 51.77%, which also indicates the cumulative impact of the indicators. The second highest PC in regard to the power of explanation was determined as PC2, and the scree plots of the countries given in the Appendix. The proportion of variance (the additional explanation power) of PC2, was 24% for Brazil, 15.49% for Chile, 32.61% for China, and 32.47% for Hungary. Since PC1 and PC2 demonstrated the highest explanation power, the upcoming analysis would be conducted upon these component sets.

Table.16 *Standard Deviation, Proportion of Variance, and Cumulative Proportion of Components*

	Brazil		Chile		China		Hungary	
	PC1	PC2	PC1	PC2	PC1	PC2	PC1	PC2
Standard Deviation	0.1960	0.1284	0.3637	0.1786	0.2655	0.2055	0.2958	0.2342
Proportion of Variance	0.5719	0.2456	0.6420	0.1549	0.5442	0.3261	0.5177	0.3247
Cumulative Proportion	0.5719	0.8174	0.6420	0.7969	0.5442	0.8702	0.5177	0.8424

The distribution of the GEI pillar-specific contributions are visualized in *Figures.3-6*.[1] Internationalization (PC1), risk acceptance (PC2), technology absorption (PC1 and PC2), product innovation (PC1), process innovation (PC1), and high growth (PC1)

[1] The abbrevations in the figures stand for Opportunity Perception (OP), Start-up Skills (SS), Risk Acceptance (RA), Networking (NET), Cultural Support (CS), Opportunity Start-up (OS), Technology Absorption (TA), Human Capital (HC), Competition (COM), Product Innovation (PTI), Process Innovation (PSI), High Growth (HG), Internationalization (INT), and Risk Capital (RC).

were the prominent PCs in the Hungarian case, as seen in *Figure.3*. The entrepreneurial environment of Brazil was structured around networking (PC1 and PC2), cultural support (PC1 and PC2), technology absorption (PC1), process innovation (PC1), and risk capital (PC2), as seen in *Figure.4*. Similar to Hungary, China's entrepreneurial environment revolved around internationalization (PC2), risk capital (PC1), technology absorption (PC1 and PC2), product innovation (PC1), and high growth (PC1 and PC2), as seen in *Figure.5*. Finally, in Chile, the PCs appeared as startup skills (PC1), cultural support (PC1 and PC2), risk acceptance (PC1 and PC2), internationalization (PC1), opportunity perception (PC1), and product innovation (PC1 and PC2), as seen in *Figure.6*.

Figure.3 *PC1 and PC2 Loadings Plot in the case of Hungary*

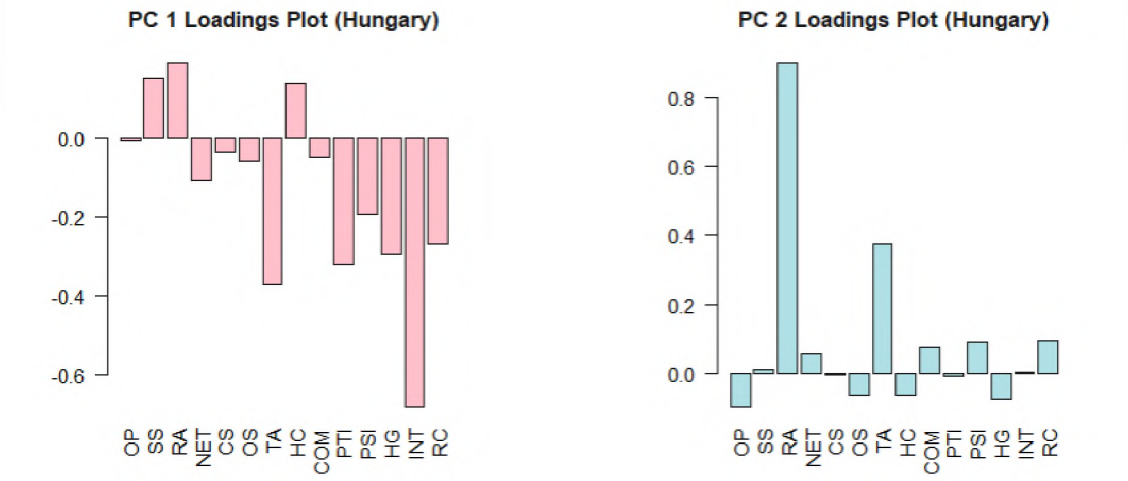


Figure.4 *PC1 and PC2 Loadings Plot in the case of Brazil*

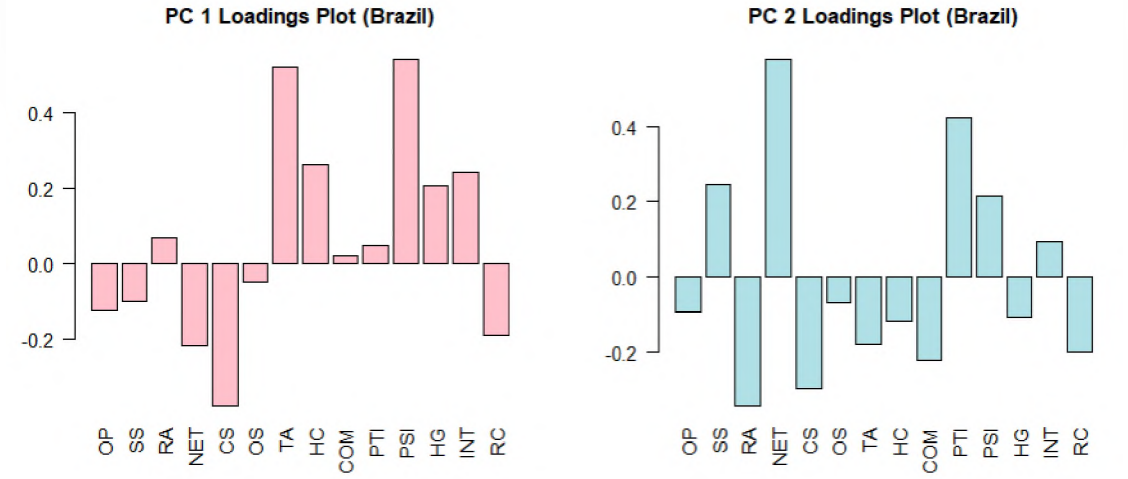


Figure.5 *PC1 and PC2 Loadings Plot in the case of China*

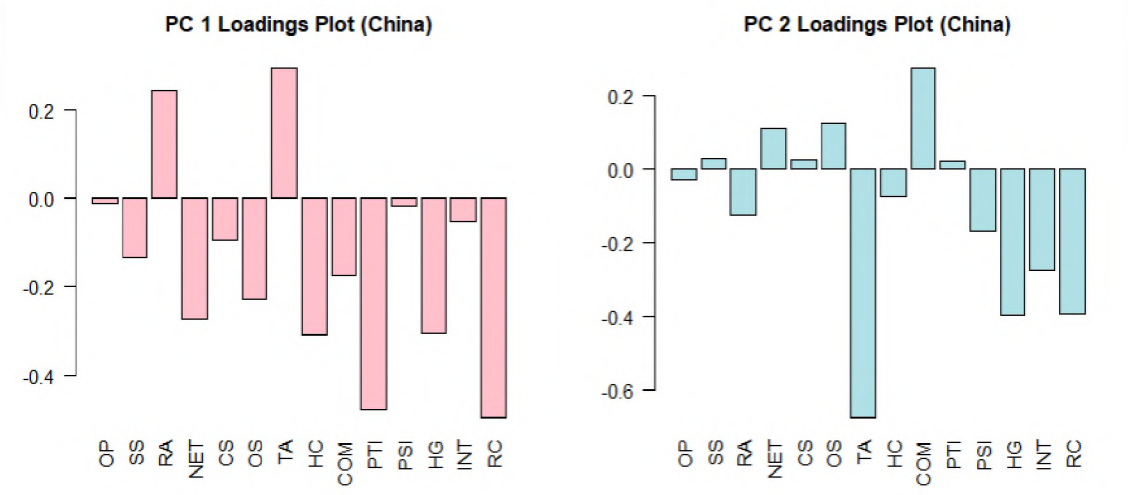
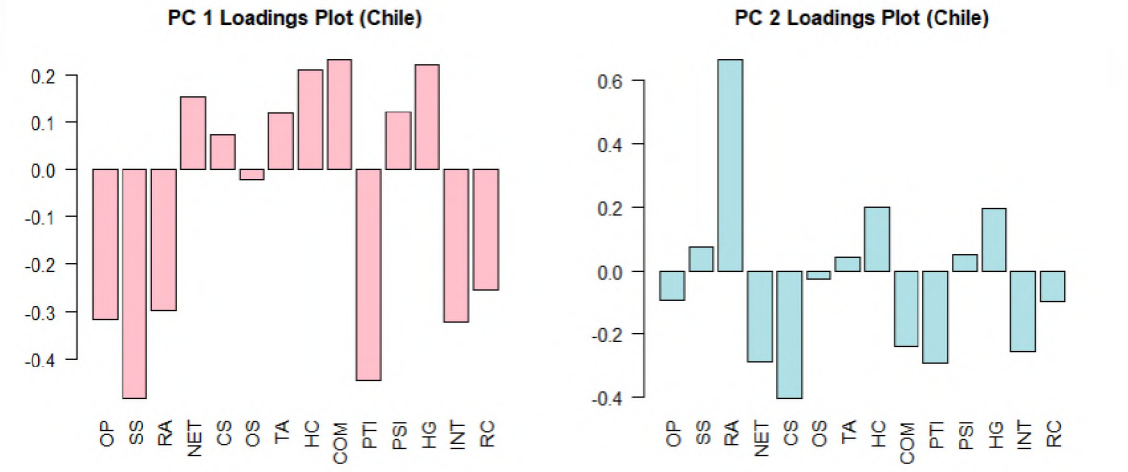


Figure.6 *PC1 and PC2 Loadings Plot in the case of Chile*



4.3.2. Loadings of PCs

Table.17 demonstrates the loadings of the PCs. Briefly, the loadings of a component show the relations among the PCs and represent it as a vector in two-dimensional space. The numericized version of this vector was the loading, which indicates the direction of the relation, positive or negative.

In this sense, the top three PCs in PC1 of Brazil were determined as technology absorption (0.5227), product innovation (0.5425), and cultural support (–0.3783), and in PC2; networking (0.5798), product innovation (0.4218), and risk acceptance (–0.3444). In the case of the Chile startup skills (–0.4851), product innovation (–0.4464), internationalization (–0.3230), risk acceptance (0.6640), cultural support (–0.4036), and product innovation (–0.2893) were the effective ones, the first three of them in PC1, and the latter in PC2. In China, risk capital (–0.4971), product innovation (–0.4791), and high growth (–0.3046) were the PCs in PC1, and technology absorption (–0.6757), high growth (–0.3950), and risk capital (–0.3927) were in PC2. Lastly, internationalization (–0.6818), technology absorption (–0.3703), and product innovation (–0.3230) for PC1 and risk acceptance (0.9000), technology absorption (0.3748), and opportunity perception (–0.0981) for PC2 were the PCs in the Hungarian entrepreneurial environment.

Finally, the vectorial representation of loadings can be seen in Figures 5 and 6. The colored areas in these figures represent the data scores in two different groups, which were before 2010 and after 2010. This division enabled us to perceive potential diversification in the dataset by the 2008 financial crisis. However, the overlap in the colored areas indicates a statistically insignificant difference between the two groups.

In other words, the potential 2008 crisis effect on the entrepreneurial environments of the selected countries does not exist.

Table.17 *Loadings of Components in PC1 and PC2*

	Brazil		Chile		China		Hungary	
Variables	PC1	PC2	PC1	PC2	PC1	PC2	PC1	PC2
Opportunity Perception	-.1235	-.0942	**-.3161**	-.0934	-.0113	-.0272	-.0071	**-.0981**
Startup Skills	-.1004	**.2480**	**-.4851**	.0745	-.1334	.0294	.1479	.0115
Risk Acceptance	.0696	**-.3444**	**-.2981**	**.6640**	**.2440**	-.1264	.1886	**.9000**
Networking	**-.2180**	**.5798**	.1537	**-.2884**	**-.2743**	.1122	-.1086	.0560
Cultural Support	**-.3783**	**-.2986**	.0737	**-.4036**	-.0935	.0263	-.0381	-.0057
Opportunity Startup	-.0498	-.0702	-.0213	-.0276	-.2292	.1264	-.0601	-.0645
Technology Absorption	**.5227**	-.1791	.1202	.0408	**.2957**	**-.6757**	**-.3703**	**.3748**
Human Capital	**.2613**	-.1183	.2101	.1996	-.3083	-.0730	.1350	-.0640
Competition	.0183	**-.2234**	.2331	**-.2378**	-.1750	**.2760**	-.0517	.0735
Product Innovation	.0488	**.4218**	**-.4464**	**-.2893**	**-.4791**	.0229	**-.3230**	-.0080
Process Innovation	**.5425**	.2159	.1235	.0511	-.0171	**-.1686**	**-.1929**	**.0890**
High Growth	**.2075**	-.1068	.2219	.1963	**-.3046**	**-.3950**	**-.2963**	**-.0763**
Internationalization	**.2425**	.0920	**-.3230**	**-.2552**	-.0541	**-.2749**	**-.6818**	.0020
Risk Capital	-.1899	**.4422**	**-.2551**	-.0988	**-.4971**	**-.3927**	**-.2704**	**.0947**

Notes: The top six loading scores are reported in bold.

Figure.7 *PC1 and PC2 Scores and Loadings Plot in the cases of Hungary (Left) and Brazil (Right)*

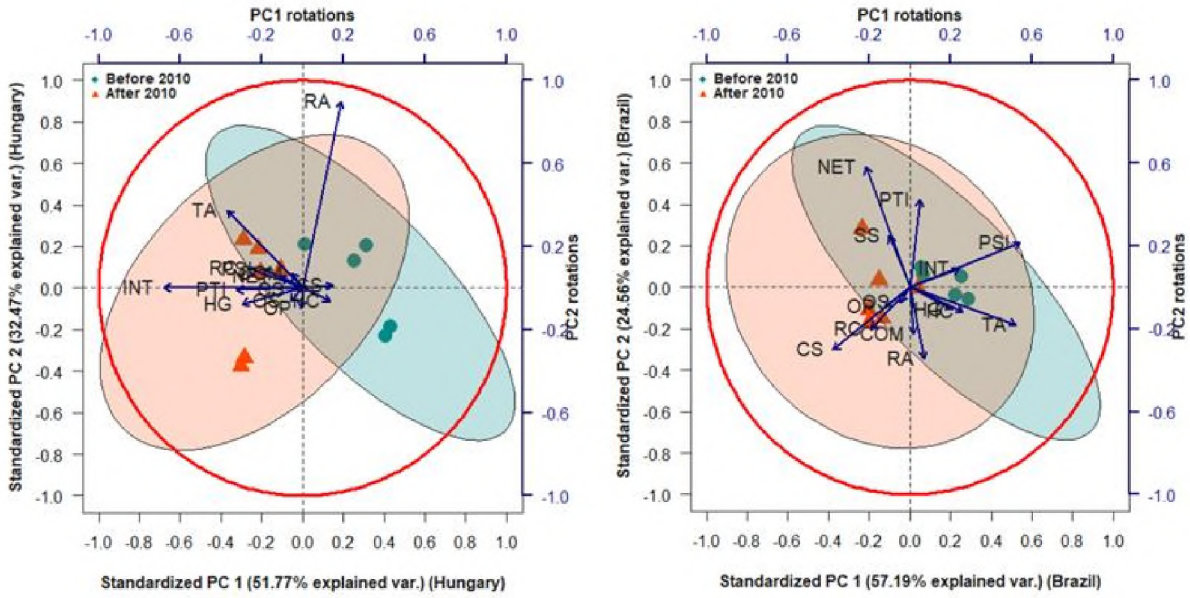
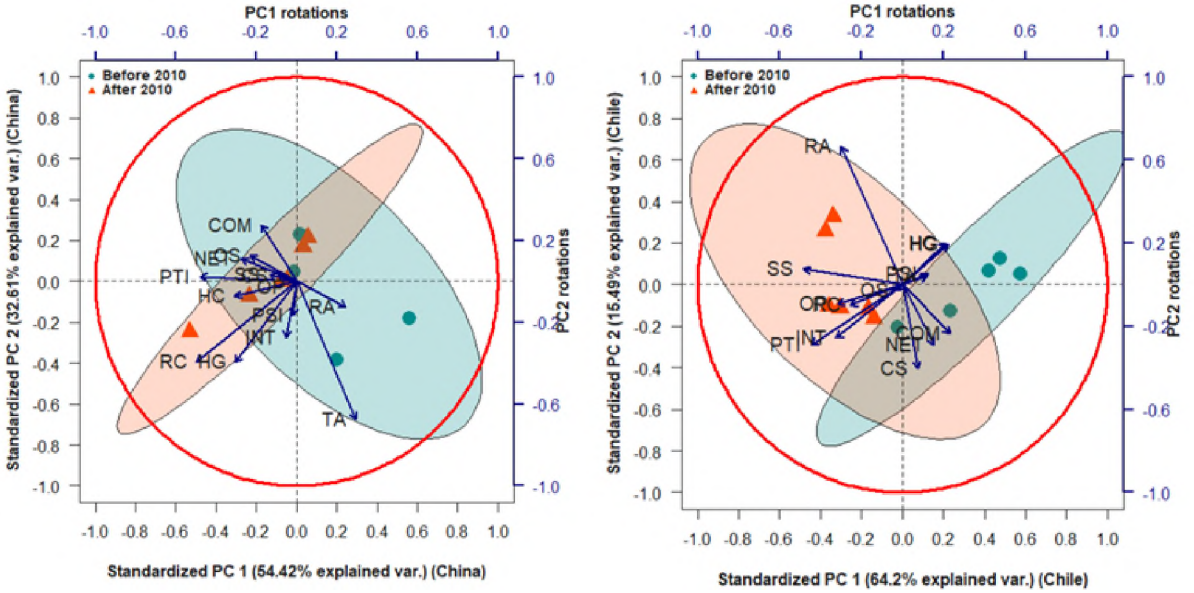


Figure.8 *PC1 and PC2 Scores and Loadings Plot in the cases of China (Left) and Chile (Right)*



CHAPTER 5

COMPARATIVE CONCLUSIONS

5.1. Summary of Findings

The FGLS analysis was conducted to find answers to the question "In which varieties of capitalism does the entrepreneurial environment have a statistically significant impact on the enrolment rates of secondary school VET?". The empirical results of the general-level FGLS indicated that the entrepreneurial environment has an overall statistically significant impact on secondary school VET enrolment rates. This statistically significant impact was also observed across different varieties of capitalism, specifically in the Advanced EMEs. In addition, the general-level FGLS regression model indicated statistically significant associations among the entrepreneurial environment and secondary school VET enrolment rates. To eliminate the underestimation in the varieties of capitalism clusters, country-specific FGLS analysis was applied. As a result, the statistically significant effects of the entrepreneurial environment were determined in the cases of Brazil (EME), Chile (Advanced EME), China (EME), and Hungary (EU-ME). The regressions, which were conducted for all of the abovementioned countries, reported statistically significant associations among the variables, as seen in *Table.18*.

Table.18 *Summary of the Country-Specific FGLS Results*

	China (EME)			Brazil (EME)			Hungary (EU-ME)			Chile (Advanced EME)		
Variables	Coef. (SE)	z	P|z|	Coef. (SE)	z	P|z|	Coef. (SE)	z	P|z|	Coef. (SE)	z	P|z|
GEI Institutional Score	.36*** (.10)	3.48	.001	.27* (.12)	2.30	.021	.25*** (.07)	3.31	.001	-.77*** (.19)	-4.01	.000
Yearly Change of RGDP Per Capita (LCU)	.01 (.10)	.14	.888	-.08 (.29)	-.28	.781	.12 (.20)	.63	.530	.01 (.06)	.28	.779
Constant	-.04 (.05)	-.82	.412	-.12* (.05)	-2.29	.022	-.04 (.04)	-1.01	.314	.69*** (.12)	5.40	.000
N	11			11			11			11		
Wald Chi-square	12.56 (*p*= .00)			8.98 (*p*= .01)			11.03 (*p*= .00)			16.50 (*p*= .00)		

Notes: * p<.05, **p<.01, ***p<.001.

Table.19 *The Highest Common Loadings of Components in Brazil, Chile, China, and Hungary*

	Brazil (EME)		Chile (Advanced EME)		China (EME)		Hungary (EU-ME)	
Variables	PC1	PC2	PC1	PC2	PC1	PC2	PC1	PC2
Product Innovation	0.0488	**0.4218**	**-0.4464**	**-0.2893**	**-0.4791**	0.0229	**-0.3230**	-0.0080
Internationalization	**0.2425**	0.0920	**-0.3230**	**-0.2552**	-0.0541	**-0.2749**	**-0.6818**	0.0020
Risk Capital	-0.1899	**-0.1998**	**-0.2551**	-0.0988	**-0.4971**	**-0.3927**	**-0.2704**	**0.0947**

Notes: The significant loading scores are reported in bold.

The PCA allowed this thesis to answer, in the varieties of capitalism where we find a statistically significant impact, "Which entrepreneurial factors (i.e., prominent PCs) structure the entrepreneurial environment the most?". The most prominent PCs in the Brazilian, Chilean, Chinese, and Hungarian entrepreneurial environments were risk capital, internationalization, and product innovation, as seen in *Table.19*.

Table.19 reports that product innovation and internationalization positively contributed to the Brazilian entrepreneurial environment, yet played a negative role in the Chilean, Chinese, and Hungarian ones. These results indicated that product-based innovation entrepreneurship is common among Brazilian start-ups in accordance with the global markets' needs due to internationalization. Furthermore, the overall contribution of the risk capital in the entrepreneurial environments of Brazil, Chile, China, and Hungary was negative, which indicated the risk-averse characteristic of these countries.

Table.20 *The Highest Common Loadings of Components in Brazil ,China, and Hungary*

	Brazil (EME)		China (EME)		Hungary (EU-ME)	
Variables	PC1	PC2	PC1	PC2	PC1	PC2
Technology Absorption	**0.5227**	-0.1791	**0.2957**	**-0.6757**	**-0.3703**	**0.3748**
Process Innovation	**0.5425**	**0.2159**	-0.0171	**-0.1686**	**-0.1929**	**0.0890**
High Growth	**0.2075**	-0.1068	**-0.3046**	**-0.3950**	**-0.2963**	**-0.0763**

Notes: The significant loading scores are reported in bold.

High growth, process innovation, and technology absorption were detected in Brazil, China, and Hungary, as seen in *Table.20*. By looking at the results, technology absorption boosted the start-ups in the early stages of the Brazilian and Chinese markets. However, the Chinese start-ups switched their utilization of technology absorption from replicating the products to producing higher level technology products. Process innovation plays a significant role in Brazilian start-ups, since it

allows achieving efficiency through the production process. However, the Chinese and Hungarian start-ups focus on the production of final goods rather than presenting their updated versions. Therefore; process innovation appears as a negative component in the Chinese and Hungarian entrepreneurial environments. Lastly, the high growth created a negative impact on the Chinese and Hungarian entrepreneurial environment, since start-ups in these environments have to compete with the newly emerging start-ups.

Table.21 *The Highest Common Loadings of Components in Brazil, Chile, and China*

	Brazil (EME)		Chile (Advanced EME)		China (EME)	
Variables	PC1	PC2	PC1	PC2	PC1	PC2
Risk Acceptance	0.0696	**-0.3444**	**-0.2981**	**0.6640**	**0.2440**	-0.1264
Networking	**-0.2180**	**0.5798**	0.1537	**-0.2884**	**-0.2743**	0.1122

Notes: The significant loading scores are reported in bold.

Risk acceptance and networking were found in Brazil's, Chile's, and China's entrepreneurial environments. Risk acceptance appeared as a negative component in the Brazilian and Chilean entrepreneurial environments. The reason for this may be the limitation on the state-supported safety funds for the start-ups in these environments. However, the Chinese entrepreneurial environment is more accepting towards losses, since both the government and the banks are enhancing start-up safety-funding systems. The geographical stance of Brazil, Chile, and China may be the reason for the overall negative impact of the networking. The competition among the start-ups gets intense in the international market if the bordering countries' economies are similar to that countryy.

5.2. Revisiting the Literature: Who is partly right? Who is partly wrong?

In alignment with the empirical results of the FGLS and PCA analyses, Hall & Soskice's (2001) varieties of capitalism theory was confirmed in the LMEs and CMEs. However, their theory fell short of predicting the cases of the MMEs (EMEs, Advanced EMEs, and EU-MEs). Contrary to Hall & Gingerich's (2009) theory of "the third type of varieties of capitalism, MMEs", Brazil (EME), Chile (Advanced EME), China (EME), and Hungary (EU-ME) did not present any convergence towards the LMEs or CMEs. Rather, these countries conducted their own entrepreneurial structure, which allowed secondary school VET enrolment rates to be affected by the entrepreneurial environment. The upcoming pieces of information present the possible reasons of the empirical findings by shortly referring to the scholars. The complete explanations of these reasons exceeded the scope of this thesis. Thus, just a glimpse of the possibilities is given.

First, the commonality among the Brazilian and Chinese VET systems comes from the implementation of educational entrepreneurship integration policies into the VET systems. The study of Stadler & Smith (2017) revealed that the teaching method of entrepreneurial classes and the content of the courses affect the VET students' perceptions of entrepreneurship in a positive manner. By referring to the literature, the reason for is that the Brazilian educational policy makers perceive the entrepreneurial VET as a path for economic growth and social cohesion (Stadler & Smith, 2017). Thus, the Brazilian state supports enhancement of the entrepreneurial environment at a secondary school VET level. Similarly, scholars have provided the same explanation for China, by stating that the Chinese government has a pretty supportive stance on widening VET throughout the country (Hao, 2012). The Chinese

government initially implemented the secondary school VET enhancement policies in the rural areas of China, to fulfill the need for manpower in the sectors. Improvement in the Chinese technology sector opens a door for policy implementations on "lifelong entrepreneurship" (Ni & Ye, 2018). Therefore, the Chinese entrepreneurial environment possibly opens a door for embracing a lifelong vocational occupation approach.

Second, the Hungarian entrepreneurial environment has a unique structure. Even if the entrepreneurial environment has a statistically significant impact on Hungary's secondary school VET enrolment rates, the PCs in the Hungarian entrepreneurial environment demonstrate negative associations, see *Chapter 5.1: Summary of the Findings*. From the point of view of some scholars, the reason for this is the Hungarian entrepreneurs' definition of a start-up. The definition for a start-up is "the ability to open and sustain a small-business" in the case of Hungary (Amable, 2003). This definition may limit Hungarian entrepreneurs from making connections in the global market. Because of this limitation, all globalization-related PCs, which are product innovation, risk capital, technology absorption, and process innovation, had a negative association in the Hungarian entrepreneurial environment, in accordance with the analytical outcomes of this thesis.

Finally, the entrepreneurial environment had a negative impact on the secondary school VET enrolment rates in Chile. Valiente et al. (2021) argued that students from a lower socioeconomic class prefer to enroll in secondary school VET, so that they would be able to find a job as blue-collar workers. Thus, the unregulated market structure works in favor for the foreigner entrepreneurs, who come to Chile to start a business with their own investments. And, by applying an on-the-job-training form of VET rather than hiring secondary school VET graduates, the entrepreneurs may

discourage the preference of secondary school VET enrolment. In alignment with the study of Valiente et al. (2021), the improving trends in the Chilean entrepreneurial environment possibly resulted in the decrease in the enrolment rates on secondary school VET.

Conclusively, Hall & Soskice's (2001) theory was confirmed by the GEI in the case of the LMEs and CMEs. However, the assumption of Hall & Gingerich's (2009) that MMEs will eventually converge towards either LMEs or CMEs appeared as partially wrong. In the Brazilian and Chinese cases, the policy makers of VET integrate entrepreneurial education in their VET structures. Thus, these countries shape their own entrepreneurial VET policies without converging to LMEs or CMEs. In the Hungarian case, this thesis' definition of entrepreneurial environment does not correspond to the entrepreneurial idea in Hungary. In accordance with the literature, the possible explanation for this could be that state-centered small businesses with the solid boundaries toward global trends create an inverse relation between the entrepreneurial environment and secondary school VET enrolment rates. The Chilean entrepreneurial environment was the only convergence case that proved Hall & Soskice's (2001) varieties of capitalism theory. The welcoming state approach towards foreign entrepreneurs strengthens the policy implementations as on-the-job-training. In other words, the enhancement of the entrepreneurial environment lowers the secondary school VET enrolment rates.

5.3. Potential Contributions

This thesis tested the assumption of Hall & Soskice's (2001) varieties of capitalism theory by using the GEI and applying the FGLS and PCA methods, which are new to the literature. Even though this thesis analyzed the applicability and validity of the

varieties of capitalism theory with a recently published dataset, it fell short of detecting the impact of the other variables on the secondary school VET enrolment rates. Thus, an investigation of the impact of the different independent variables would be a good research area. Additionally, this thesis only reported the empirical results of the analyses in an exploratory manner. Hence, in future studies, determining the manners of how entrepreneurial environment impacts the enrolment rates of secondary school VET by conducting case-specific configurational qualitative analysis would be beneficial. Furthermore, although this thesis touched upon the possible impact of the 2008 economic crisis, it does not provide sufficient information. So that, a future study that explains the trend change in the entrepreneurial environment would be beneficial. In continuation, the narrow timespan of the analysis in this thesis prevented it from demonstrated the long-run and short-run behavioral patterns of the entrepreneurial environment's PCs. A future study with a longer timespan may allow for grasping those behavioral trends. Finally, the number of countries per varieties of capitalism clusters differed from one another. This means that the representation power of each cluster was not the same and created a possible bias in the results. Because of that, a future study that is conducted with more comprehensive case selection would be beneficial to reveal the real power of impact.

5.4. Policy Implications

This thesis discussed, first, the possible statistically significant impact of the entrepreneurial environment on secondary school VET enrollment rates across different varieties of capitalism and, second, the principal entrepreneurial components of the Brazilian, Chilean, Chinese, and Hungarian entrepreneurial environments.

Clearly, the empirical findings of this thesis partially confirmed Hall & Soskice's (2001) varieties of capitalism theory to some degree. First, the entrepreneurial environment of the LMEs and CMEs did not statistically significantly affect the secondary school VET enrollment rates, which confirmed Hall & Soskice's (2001) theory. Second, in the cases of the EMEs and Advanced EMEs, the entrepreneurial environments had a statistically significant impact on the enrolment rates of the secondary school VET and these market economies implement necessary policies to improve their educational VET structures. Therefore, Hall & Soskice's (2001) expectation on "third types", in other words, hybrid form, market economies was not applicable in the case of the abovementioned economies. The expectation was that the hybrid forms of varieties of capitalism would merge to either LMEs or CMEs. However, this expectation could be valid in the case of the Chilean enrolment rates of secondary VET schools. In this context, in accordance with the literature, policy-makers of the Chilean economy prefer to adopt an imported type of VET from foreign entrepreneurs, which is on-the-job-training. Hence, even if the entrepreneurial environment has a statistically significant impact on the secondary school VET enrolment rates in Chile, the correlation that enabled this thesis to open an opportunity to partially reject Hall & Soskice's (2001) hybrid forms of varieties of capitalism theory was inverse. A possible, yet untested explanation of the Chilean case was provided, which had an uncertainty due to the limited scope of this thesis. Finally, the common prominent PCs of the Brazilian, Chilean, Chinese, and Hungarian entrepreneurial environments were product innovation, internationalization, and risk capital.

Policy Implication I: The tendency of merging to LMEs or CMEs, in the context of the educational VET structure among hybrid forms, is highly impacted by the global

factors. Thus, scholars should investigate the crucial roles of product innovation, the global-level networking among the market economies (internationalization), and the financial safety net of the corresponding markets economies (risk capital) very closely.

The research evidence demonstrated that the connection across different market economies leaves more or less of an impact on the interested parties. Product innovation could be beneficial for market economies in two major ways: first, it allows for improvement of the technology level of a country by applying know-how on the imported goods, and second, if a country already has some degree of technology, innovative improvements on the goods would bring an opportunity to gain a market place. Any kind of entrepreneurship-related transactions take place among the various types of market economies. In this case, one of the possible explanations that further research should investigate is that the geographical distance of the countries to the more developed ones could bring privilege to the entrepreneurs. In this possible case, networking and distance matters for entrepreneurship across varieties of capitalism. Moreover, scholars should also capture the scenario of, even if a country would like to boost its entrepreneurial environment, the risk of starting a business and sustaining it plays a crucial role for the entrepreneurs. In this context, financial support as a safety-net and its distributors (the state or the banking system) could probably become determining factors for nourishment of the entrepreneurial environments. In conclusion, investigation of the relationships among the varieties of capitalism and their corresponding entrepreneurial environments should be conducted as a whole system, rather than dividing them into sub-groups of varieties of capitalism.

Policy Implications II: Scholars should determine the policy choices of the Advanced EMEs' (in this thesis, Chile's) policy-makers', since the economic well-being and market needs of the labor types could be potential determinants.

Apart from the other varieties of capitalism, the Advanced EMEs have higher degrees of annual change in the RGDP (LCU) and they pay attention to research and development, like the EMEs (Witt et al., 2018). In accordance with the literature, the Chilean case could have arisen from the policy-makers' choice of utilizing VET to decrease the numbers of unemployed among the low-incomers by fulfilling the market needs for sector-based workers, while the same state prefers to allow foreign entrepreneurs to provide on-the-job-training. Conclusively, the market needs and the economic well-being of an Advanced EME appear as the indicative milestones on shaping entrepreneurial VET education.

Policy Implications III: Scholars should pay attention to the business structure and educational VET structure of a country simultaneously.

In accordance with the findings of this thesis, the countries' secondary school VET structure was influenced by the entrepreneurial environments of these respective countries, in the case of the EMEs, Advanced EMEs, and EU-MEs. Thus, scholars should investigate the origin of the VET structure and then look at the nuances of the external factors, such as the entrepreneurial environment, as in this thesis.

Policy Implications IV: Scholars should seek to determine the potential intentions of the policy-makers, whether they consider integrating their secondary school VET structure in alignment with the incremental changes on the business environment, which is entrepreneurship, in the case of the MMEs.

The empirical findings of this thesis revealed the existence of pulling impact of the entrepreneurial environment on the secondary school VET enrolment rates. Thus, there was a conformation of the EMEs, Advanced EMEs, and EU-MEs, and the educational VET structures were fertile toward adapting influences from an external factor, which was the entrepreneurial environment. Thus, it is necessary for future research to touch upon the issue of the changing motions of the business environment.

Policy Implications V: Scholars should aspire to develop an open-minded approach toward the application of new methods that could reveal significant findings on the topic.

The analyses (FGLS and PCA) of this thesis are good instances for applying appropriate methods according to data structure, which violates all linear regression assumptions (except collinearity). In alignment with the research aim and the structure of the data, the majority of scholars have preferred to utilize ARCH, ARDL, Fixed and Random Effects, and Pooled OLS models to demonstrate possible statistically significant relationships among entrepreneurship/entrepreneurial environment and secondary school VET. Even if social scientists, who apply qualitative methods in their research, conduct case-specific configurational qualitative analysis, it is not the only beneficial method to determine the PCs of entrepreneurial environments. As this thesis demonstrated by applying PCA, an index (the GEI) could state a comprehensive degree of information in a case-specific manner, like in the configurational qualitative analysis. Therefore, all of the data count in the area of research and it is crucial to not underestimate the quantitative methods in the scope of social sciences. Hence, scholars should not be hesitant to consider quantitative data as resourceful as quantitative data.

Conclusively, this thesis examined the validity and applicability of Hall and Soskice's (2001) varieties of capitalism theory by using the FGLS and PCA methods with the GEI. As a social scientist, I believe in the benefits of challenging a theory's assumptions with contemporary observations. This belief allows me to prevent myself from taking a theory for granted and losing the spark of research curiosity. Therefore, the significance of this thesis arose from its structure to challenge Hall & Soskice (2001) varieties of capitalism theory by utilizing new-to-the-literature methods with recently published data. Finally, the empirical findings of this thesis confirmed Hall & Soskice's (2001) assumptions of the theory in the cases of LMEs and CMEs. The partial rejection of the assumptions on the third type of varieties of capitalism occurred in the cases of Brazil, China, and Hungary. Chile was the only case that failed to reject the assumptions of Hall & Soskice (2001) in the context of the MMEs.

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