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Assessing the effect of Female Entrepreneurship on Economic Performance

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Abstract

This research aims to fill a literary gap on female entrepreneurship by examining gender differences, and analysing the impact of female entrepreneurship on economic performance. A panel dataset on European countries between 2013 and 2017 is constructed, largely extracted from GEM and Worldbank. A fixed effects regression as well as an Arellano-Bond estimation is run for all hypotheses. The Arellano-Bond estimation allows for inclusion of lagged dependent variables, increasing the explained time-varying variance. The models show the impact of total entrepreneurship on GDP growth, differences between male and female entrepreneurship in terms of impact, and the impact of female entrepreneurs in countries with a high share of high-technology firms. The results show no significant impact of Total Entrepreneurial Activity on GDP growth and no significant difference between the impact of male and female entrepreneurship, also no significant results were found in comparing impact of female entrepreneurship in high- and low-tech countries. This implies that for the current data, hypotheses are not supported and no correlations can be established. Recommendations for future research include a broader dataset with a fit proxy for the economic state of development.

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1. Introduction

Literature on the subject of female entrepreneurship is extensive, since it has been a controversial topic for many years. With the rise of ideas about equal opportunities for the two genders, entrepreneurial activities were one of the parameters where inequality was most prevalent. According to the GEM Women's report (2010), women's participation in entrepreneurial activity varies widely around the globe, the ratio of female to male entrepreneurs ranges from 1:5 in the Republic of Korea to 6:5 in Ghana. This means that for every five male entrepreneurs there is one female entrepreneur in the Republic of Korea, and six in Ghana. Middle Europe and North American (MENA) economies have the fewest women entrepreneurs relative to men entrepreneurs, with none reporting that more than 1/3 of their entrepreneurs are female. These economies also report low overall TEA rates. In the Sub-Saharan African economies, on the other hand, women make up close to, or more than, half of entrepreneurs, these economies also have high TEA rates. This paper focuses on female entrepreneurship in European countries, which rate poorly on female entrepreneurship, according to GEM (2010).

Although literature and research are extensive, results are not unanimous when it comes to the impact of women on economic performance. The impact of female entrepreneurship on economic performance is less positive than male entrepreneurship for most researches, however, the underlying reasons are questioned. Is it because women are less skilled, or because they do not have access to the same resources and opportunities? The theoretical framework will provide background on the differing results in the existing literature.

This paper will look to add to the female entrepreneurship literature by examining the effect of female entrepreneurship on GPD growth and comparing it with their male counterparts. The data stems largely from the Global Entrepreneurship Monitor (GEM) and the Worldbank. This paper will also look into essential differences between male and female entrepreneurs, in terms of characteristics, opportunities and drivers. On basis of this research, also the difference in working sectors between male and female entrepreneurs will be examined. The main research question is:

What is the effect of Female Entrepreneurship on Economic Performance?

Firstly, a literature review will be conducted, outlining the theoretical framework for this research. Secondly, the findings will be hypothesized and explained why this is the expectation. Thirdly, the data will be explained and the methodology set out, after which the findings of this research will be covered. Finally, a discussion for future research will be outlined and the research will be concluded.

2. Theoretical Framework

In this section, an overview of the current state of female entrepreneurship literature is provided. The literature can roughly be divided into three categories, based around questions. Firstly, are female entrepreneurs different from their male counterparts, and in what regard? Secondly, when and why do women become entrepreneur? Are the main drivers different from male entrepreneurs? The last stream of literature focuses on the consequences of female entrepreneurship. Are female entrepreneurs beneficial for the economy? This paper will zoom in on the last category, however, to get a complete view, the literature review will contain papers on all three categories.

2.1 Differences between Male and Female entrepreneurs

For this research, it is important to understand the differences between male and female entrepreneurs, not only performance-wise, also the explanation why women differ from men in entrepreneurial positions. Gender differences have been researched extensively, however, outcomes differ throughout the existing literature. Some papers argue that women are more risk-averse than their male counterparts, and are thus less likely to invest in risky investments, consequently, they are also more reluctant to divest when performance decreases (e.g. Eckel & Grossman, 2008; Sapienza, Zingales & Maestripieri, 2009; Faccio, Marchica & Mura, 2016). This can be due to women having higher family-values, making them more reluctant to take high risks than men (Verheul, Stel & Thurik, 2006). Willingness to take risks is proved to be an important trait of entrepreneurs, Macko & Tyszka (2009) find that in naturalistic business-risky situations, entrepreneurs make more risky choices than non-entrepreneurs. Malach-Pines & Schwartz (2008) research differences between male and female entrepreneurs and non-entrepreneurs among the Israeli population, they showed that risk-taking was found to be a trait most closely connected to being an entrepreneur. Moreover, they find that men describe themselves as more confident, loving challenges more and loving to manage more, they also find that women value job security more.

Malach-Pines and Schwartz (2008) also introduce Schneider's (1987) Attraction Selection Attrition (ASA), where the basic proposition is that the longer one remains in an organization, the more similar one becomes to that organization. This also works for entrepreneurs, when people are an entrepreneur for a longer period, they develop more entrepreneurial traits. This is also supported by their findings; although there were two times more male than female entrepreneurs in their sample, the effect of gender differences seem to decrease when both genders are entrepreneurs. Women and men will become more alike when both are entrepreneurs. Other research shows that women are less confident in their own ability to start a firm than men, this can also be a valid reason that the entrepreneur market is still male-dominated. (Langowitz & Minniti, 2007)

In line with the ASA and Malach-Pines and Schwartz, some papers suggest that women in powerful positions differ from most women in terms of risk-aversity and other traits. Adams & Funk (2012) suggest in their research on women in boardrooms, that powerful women are slightly more risk-loving, and less tradition- and security oriented than their male counterparts.

Adams & Ferreira (2009) show that women in the boardroom have a positive impact on board governance. Diverse boards appear to be tougher monitors: directors attend more meetings, schedule more meetings and a larger fraction of their compensation is equity-based. Differences between genders in the boardroom can be helpful to understand the differences between men and women as entrepreneurs. Keloharju, Knüpfer & Tåg (2018) research differences between male and female executives, and their rise to the top. They control for crucial skills and experience variables, and find that aspiring women, in their data, are more driven, higher educated and are more experienced than their male counterparts. Other differences between men and women pointed out by literature are: Women are less keen to be exposed to competition (Niederle & Vesterlund, 2007; Hogarth, Karelaia & Trujillo, 2011), more altruistic when altruism is expensive (Andreoni & Vesterlund, 2001), and women were found to lie less frequently than men in order to secure monetary payoffs in experiments (Dreber & Johannesson, 2008).

The literature is not unanimous when it comes to gender differences in entrepreneurship. Overall, women seem to be more risk-averse, less confident in their abilities and perceive less opportunities to become an entrepreneur than men. This can be the reason that there are still more male entrepreneurs compared to female. Section 2.2 will delve deeper into different motives and perceived opportunities.

2.2 Drivers of entrepreneurship

A second stream of literature is devoted to determining the differences between the reason why men and women become entrepreneur. Important here is the distinction between necessity- and opportunity-driven entrepreneurship. Necessity-driven entrepreneurship is when regular jobs are scarce, and women have to find an entrepreneurial opportunity to support themselves, this is usually prevalent in a developing economy. Opportunity-driven entrepreneurship is more prevalent in a developed economy, women become entrepreneur where they see an opportunity, rather than because they have no other choice (GEM, 2010). Holienkad, Jančovičová, & Kovačičová (2016) describe the differences between the two kinds of entrepreneurship based on GEM data. They find that for both types of entrepreneurship having entrepreneurial self-confidence is the strongest driver to start an enterprise. Knowing an entrepreneur also proved to be significant for both cases, although the effect was stronger for opportunity entrepreneurship. Fear of failure proved a

significant inhibitor for both types. In terms of age, belonging to the oldest group of the working population (55 to 64 years) was a negative driver for both types of entrepreneurship. Differences between opportunity- and necessity-driven entrepreneurship exist in alertness to good business, this was found to only be significant with opportunity-driven activities. Other research also shows that informal factors, like self-confidence and recognition, are more important drivers than formal factors, like education and family context. (e.g. Noguera et al. 2015)

Another negative driver that inhibits women to become entrepreneur is the access to financial capital. GEM reports show that women are more likely to exit early-stage entrepreneurial activity due to limited access to financial capital (GEM, 2010). Consequently, women who think about starting an entrepreneurial adventure are discouraged, since they know it is harder for women to access start-up capital. This is one of the reasons why women will look towards informal ways of achieving capital, like savings or friends and family, as opposed to formal ways to attract capital, like banks and venture capital. (e.g. Orser, Riding, & Manley, 2006; Singh, Archer, & Madan, 2018)

2.3 Consequences of Female Entrepreneurship

The third stream of literature contains articles about the consequences of female entrepreneurship, including difference in performance compared to their male counterparts, and how economies can respond to this. Compared to men, fewer women believe there are lots of opportunities for entrepreneurship (e.g. due to restricted access to financial capital) and that they have the capabilities or the resources for this endeavour. This has consequences for the economy; when a major part of a population does not engage in entrepreneurship, economies lose the benefits that would otherwise be provided by new products and services, additional revenues, and new jobs. More specifically, when women do not participate equally in entrepreneurship, society loses out on the value that can be created by half its population (GEM, 2010).

The importance of women in start-ups has been proved by Weber & Zulehner (2010), who investigate the effect of female hires, among the first hires of a start-up, on the composition of employees and the success of the business. They find that a woman among the first hires significantly increases the share of female workers at the end of the year. They also find that a high female share of workers at the end of the first year significantly increases the firms survival rate. This shows the importance of an active role for women in the economy, Ellis (2007) also shows that in Tanzania, Uganda and Kenya women have a substantial role in the economy. Although they still have to deal with more difficult circumstances than their male counterparts, they make up for a substantial share of economic development. Er (2012) suggests that life standards for women should be improved, since this will result in more economic development.

Besides literary evidence, women make up for slightly more than half of the world population, showing the magnitude of their importance to the economy. Papers by Ellis (2007), Weber & Zulehner (2010) and Er (2012) prove that women can be crucial for the economy and having high barriers for female entrepreneurship mitigates the influence women can have on the economy. This paper will examine the difference in performance and effect on an economy between men and women, and partly the difference in sector choice. Existing literature on the performance of women agree on the fact that female entrepreneurs have lower performance than men. There is still a lot of debate on whether this stems from gender differences in skill or traits. Some papers argue that it is partly due to the fact that, especially in developing regions, women are more active in sectors with lower performance, like garments wholesale and retail, restaurants and hotels etc. (Bardasi, Sabarwal & Terrell, 2011). Other papers argue that it is due to discrimination in the search for financing etc. That is why some scholars argue that performance should be measured in input terms (e.g. ROA, ROE) as opposed to output terms (e.g. sales, profit). (Watson, 2002; Watson & Robinson, 2003; Johnsen & McMahon, 2005)

To understand the behaviour of female entrepreneurs concerning the sectors in which they are active in we use table 1.

Trait differences	Supporting papers	Connected sectors
Risk Aversity	Eckel and Grossman, 2008; Sapienza, Zingales and Maestripieri, 2009; Faccio, Marchica & Mura, 2016	Public sector
High Family Values	Verheul, Stel & Thurik, 2006; Keloharju, Knüpfer & Tåg, 2018	Education, childcare
Aversity towards competition	Niederle & Vesterlund, 2007; Hogarth, Karelaia & Trujillo, 2011	Public sector
Less frequent liars	Dreber & Johannesson, 2008	

Table 1: Differences between male and female entrepreneurs, supporting papers and sectors related to the entrepreneurial characteristics.

Table 1 provides an overview of different female entrepreneurial characteristics, the papers which suggest women differ from men in these aspects, and which sectors lean towards these characteristics. One of the main differences between men and women set out in the literature is risk aversity, women are more risk-averse than men. This means that sectors with higher risk-profiles (e.g. banking), might attract more men. This works both ways; sectors with low risk-profiles will attract more women, Bellante & Link (1981) show that people in the public sector usually have more risk aversity than in the private sector, implying that female entrepreneurs are more likely to start an

enterprise in the public sector. According to Verheul, Stel & Thurik (2006), women generally value family more than men. Sectors like education or childcare (e.g. day-care, kindergarten) are industries where it is beneficial to have high family values. This can imply that women start more firms in these sectors compared to other sectors. Niederle & Vesterlund (2007) argue that women are less keen to be exposed to competition, this could mean that women are less likely to compete in high competition industries, like banking, stock exchange or high-technology. Dreber & Johannesson (2008) suggest that women lie less frequently than men in order to achieve monetary benefits. Apart from it being a good moral characteristic, it does not imply any involvement towards a specific sector.

2.4 Relation Literature to Research Question

The main goal of this research is to assess the impact of female entrepreneurship on economic performance. The literature shows that men and women have different characteristic traits related to entrepreneurship, in terms of risk aversity (e.g Eckel & Grossman, 2008; Sapienza, Zingales & Maestripieri, 2009; Faccio, Marchica & Mura, 2016), family values (Verheul, Stel & Thurik, 2006; Keloharju, Knüpfer & Tåg, 2018) and aversity towards competition (e.g. Niederle & Vesterlund, 2007; Hogarth, Karelaia & Trujillo, 2011). Furthermore, papers by Macko & Tyszka (2009) and Malach-Pines & Schwartz (2008) prove that entrepreneurs are closely related to traits more prevalent for men (e.g. risk-taking). Connecting the dots leads to the conclusion that women's traits are less suitable for an entrepreneur. This research examines the effect of female entrepreneurship on economic performance, to see if this conclusion, drawn from the literature, is proven by empirical evidence.

3. Hypotheses

This paper studies the effect of female entrepreneurship on economic performance, first, the total effect of entrepreneurship on GDP growth will be analysed. Entrepreneurship has many different definitions, to assess the impact of entrepreneurship on growth, a clear definition of entrepreneurship needs to be established. Through the years, entrepreneurial concepts have been associated with many different aspects of the economy. Academic usage of the word is somewhat restricted, but this does not imply that researchers agree on the exact definition and usage of entrepreneurship (Davidsson, Delmar & Wiklund, 2006). Cole (1949) described entrepreneurship as: 'a purposeful activity to initiate, maintain and grow (aggrandize) a profit-oriented business'. This research estimates the effect of entrepreneurship on economic growth, in this definition, growth is already embedded in the concept. In this research, the definition by GEM on the Total early-stage Entrepreneurial Activity (TEA) is used: 'entrepreneurs are people who are either nascent entrepreneurs (engaged in creating new ventures) or owner-manager of a new business.'

The contribution of entrepreneurs to the economy has been a topic in literature for many years. Schumpeter (1934) in 'The Theory of Economic Development' explained that entrepreneurs are the 'prophets of innovation' and are crucial to the economy. They are not necessarily the possessors of capital, but innovation and credit have a close connection, which makes it possible to form new firms. Entrepreneurs are the founders of new combinations and contribute to the economy by building new firms and combinations. Partly because of Schumpeter, entrepreneurship has been considered as crucial for economic growth for many years. Baumol (2004) shows the importance of entrepreneurs by proving that innovation does not largely stem from the high private R&D costs by large multinationals, but rather from small entrepreneurial enterprises, pressuring all firms to innovate. More recent research by Cumming, Johan & Zhang (2014) shows that entrepreneurship has a positive impact on GDP growth, exports per GDP and innovation, and a negative influence on unemployment.

However, empirical studies on the role of entrepreneurship also show mixed results. Stam (2008) shows that, although the number of new firms grew, there are more weaknesses than strengths to entrepreneurship in his context. Reasons could be that self-employed workers start a new firm on their own, but continue with the same activities which they executed as an employee before, not improving innovativeness. Also, for entrepreneurs to contribute to economic performance, it is crucial that entrepreneurs are ambitious (Stam et al. 2011), this lacks in the context of his 2008 research.

Although entrepreneurship seems to contribute to economic growth in a straightforward manner, there are many obstacles that can impact the effect of entrepreneurship. Stam et al. (2011) show that not only different types of entrepreneurs can affect economic growth in different ways, also the country in which entrepreneurship is measured. They also suggest that a difference should be made between high- and low-income countries, since this affects the way economies benefit from entrepreneurs.

This is supported by more papers in the literature, this is why this research focuses solely on European countries, decreasing the disparity in income, compared to cross-continents research (Van Stel, Carree & Thurik, 2005; Valliere & Peterson, 2009). Although Europe consists of high- as well as low-income countries, overall it is expected that entrepreneurship is beneficial to the economy. Especially since competitiveness is controlled for, which proxies a country's competitiveness, we expect that a higher level of TEA results in a higher level of GDP growth:

Hypothesis 1: The higher the average level of entrepreneurship, the higher the economic performance

The main goal of this paper is to examine whether female entrepreneurship has a different effect on GDP than male entrepreneurship. As stated in the theoretical framework, literature shows that generally, male entrepreneurs report better performance than women. This can be due to several reasons, firstly, because men have different character traits from women, which might be beneficial for becoming a successful entrepreneur. Secondly, female entrepreneurs are more likely to start a firm in sectors with low performance, like wholesale or retail, decreasing total performance. Thirdly, differences in access to capital have been a reason attributed as an obstacle to women starting- and scaling-up firms, this can be due to gender-discrimination or information asymmetry. The arguments given, will be explained and supported by literature in the following part.

First of all, as extensively described in the theoretical framework, traits generally beneficial for entrepreneurs (e.g. risk-loving) are more prevalent for men than for women. As stated, papers by Eckel and Grossman (2008), Sapienza, Zingales and Maestripieri (2009), and Faccio, Marchica & Mura (2016) show that women are less risk-loving than men. Sexton & Bowman-Upton (1990) compare female owners of businesses that rate in the top 10% with respect to sales and number of employees with similar male business owners. On four out of the nine measured traits, they found significant differences between men and women. Women scored significantly lower on traits related to energy level and risk taking, whereas they scored higher on traits related to autonomy and change. This indicates that female entrepreneurs are less willing to be involved in risky situations, and have less energy level needed to maintain a business. This can be a reason that female entrepreneurs report different performances than their male counterparts.

Another factor why men report better performance, might be that women are active in sectors with low performance. Bardasi, Sabarwal & Terrell (2011) analyse three large regions to see how female entrepreneurs perform. They find that female-owned enterprises are significantly smaller than their male-owned counterparts. They argue that this is due to the low-profit sectors in which females are relatively more active, like garments wholesale and retail, restaurants and hotels. Their findings are supported by research from Singh, Archer & Madan (2018), they argue that a majority of women prefer to work in the relatively low-profit manufacturing industry, whereas men prefer to work in the trading sector, with higher sales and profit margins. Orser, Riding & Manley (2006) analyse women's behaviour with regard to attracting capital, and find that women are more active in businesses where it is less important to seek for external capital, like service sectors.

The last explanation for different performances is that men have better access to financial capital. Orser, Riding & Manley (2006) show that women-owned firms are smaller and less likely to grow than counterpart firms owned by men. Their observations are systematic differences that are reasonable to imply that, on average, women-owned businesses are less prone to need or to seek external capital. They also showed that women were less likely to seek any of the examined forms of external financing (commercial loans, leases, supplier financing and external equity). It was also found that female business owners were less liable to apply for external equity than were counterpart male owners, even after controlling for systematic and potentially confounding variables. They could not find evidence of discrimination in terms of lending or approval. More papers discover that women are less prone to seek external financing and rather look to private savings or help from family and friends. (Kon & Storey, 2003; Neeley & Van Auken, 2010; Singh, Archer & Madan, 2018)

The importance of access to capital is expressed by Bygrave, Hay, Ng, and Reynolds (2002, p. 105):

'Entrepreneurs are the engines that drive new companies, and financing is the fuel that drives them.'

If the growth and birth of new firms are the 'engines' of the economy, it is critical that all potential entrepreneurs have access to their fuel. If financial capital is the reason that women are less likely to start businesses, the economy misses out on potential entrepreneurs for half its population. However, since financial capital is still less accessible, women seek other methods, or do not start a business in the first place.

To conclude, men are more closely related to entrepreneurial traits than women, are active in sectors with higher profit/performance, and have better access to financial capital to found and grow enterprises. These arguments leads to the hypothesis that female entrepreneurs have a more positive effect on economic growth than their male counterparts.

Hypothesis 2: The level of male entrepreneurship has a higher effect on economic performance than their female counterparts.

Literature agrees that there are differences in characteristics between men and women, but what does this imply for their choice in starting a business? The third part of this research examines the difference between male and female entrepreneurs and how this is visible in their choice of business. The theoretical framework provides an overview of different character traits and how this relates to sector choice. This section is designed to provide more information into gender-distribution between sectors. As stated, women have different sector preferences from men when it comes to starting a business, this section analyses the implication for a generally male-dominated sector: high-technology. With data from GEM on gender and share of high-technology firms, the differences between men and women in their choice to start a business in a high-technology sector are examined.

As stated by Niederle & Vesterlund (2007), women are less keen to be exposed to competition. Among others, Eckel and Grossman (2008) find that women are more risk-averse than their male counterparts. The technology sector is renowned to be a high-risk and innovative sector, meaning that competition is high and probably attracting more men than women. On top of that, Evetts (1998) states that the culture in technology organizations gives rise to problems for women. Gendered expectations and processes within the organization constituted a real dilemma for women in the technology industry. Newton said, (in 1987, but still relevant) that the technology industry has been perceived as 'unsuitable' for women, both men and women have seen engineering as men's work and this notion has remained largely the same. This is why women in the high-technology industry are still seen as 'unusual'. This is why it is expected that women have a lower impact on economic performance in countries with a relative large technology sector:

Hypothesis 3: The impact on economic performance of female entrepreneurs is lower in countries with a high share of high-technology firms relative to others.

4. Data

To examine the hypotheses, a panel data set is constructed of data on 26 European countries between 2013 and 2017. The data is largely extracted from the Global Entrepreneurship Monitor and data from the Worldbank organization. GEM carries out survey-based research on entrepreneurship around the world, the data is collected from individual entrepreneurs. They feature data of 115 economies on all continents for over 22 years, enabling longitudinal analysis in and between countries. For this research, data from the Adult Population Survey surveyed in European countries, between 2013 and 2017, will be used. Only Europe is included in this data for two reasons; the data was most complete in European countries in this timeframe, and factors like culture or economic development are alike, enabling a longitudinal analysis with sufficient observations. Countries with only one surveyed year between 2013 and 2017 have been deleted from the data. All countries used in the dataset, can be found in the appendix. This research uses data on total entrepreneurial activity for hypothesis 1, gender distribution for hypothesis 2 and data on entrepreneurs in high-technology sectors for hypothesis 3.

To examine the effect of entrepreneurship on economic performance, GDP growth is used as a measure of economic performance. Data on GDP, GDP growth, unemployment and population is extracted from Worldbank. Worldbank is an institution that collects data on World Development Indicators: a compilation of relevant and high-quality statistics about global development and the fight against poverty. The Worldbank database contains 1,400 time series indicators for 217 economies and more than 40 country groups, enabling multi-year across country comparisons. The database for this research consists of data on European countries, between 2013 and 2017. This includes a total of 26 countries, and 108 observations on TEA-rates. Some variables used in the models will be explained in the following part.

4.1 Main Variables

The main variables in this research are Total Entrepreneurial Activity (TEA), GDP growth and Global Competitiveness Index (GCI). The source and use of these three will be elaborated in the next section

Total Entrepreneurial Activity

The TEA is an indicator of entrepreneurship in an economy, GEM describes the rate as: *'Percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business.'* Since the start of the GEM surveys, the TEA has been their most well-known index, enabling longitudinal analysis on entrepreneurship across multiple countries. Other measures, like organizations per capita or small business activity are available, however, TEA is the leading indicator

for entrepreneurship as a whole. To examine differences between male and female entrepreneurship the GEM data is a good fit, since it does not only contain data on average entrepreneurship, but also on the gender distribution in a country.

GDP growth

To examine the effect on the economy, this research uses GDP growth to indicate the economic performance. Worldbank data provides an annual overview of the GDP growth in each country in percentages.

Global Competitiveness Index

The World Economic Forum releases the Global Competitiveness Report each year to calculate the GCI for 151 countries, assessing the competitiveness landscape of economies, providing unique insight into the drivers of their productivity and prosperity. The GCI is a proxy for development in a country, based on pillars like institutions, health, education and innovation, with innovation being the most important pillar for this index. The GCI is the main control variable in our model, because it provides a good overview of time-varying variables that can affect GDP.

4.2 Other variables

TEA average is the average level of entrepreneurship in the country, consisting of male and female entrepreneurship divided by 2, extracted from GEM.

TEA Male is the percentage of men, surveyed by GEM, who are either a nascent entrepreneur or owner-manager of a new business.

TEA Female is the percentage of women, surveyed by GEM, who are either a nascent entrepreneur or owner-manager of a new business.

Technology is the percentage of entrepreneurs who are active in a high technology sector.

Unemployment is the percentage of unemployed people in the total labour force of the country. The table below provides more insight into the used variables.

4.3 Descriptive statistics

VARIABLES	(1) N	(2) Mean	(3) SD	(4) Min	(5) Max
GDP Growth	124	2.223	1.816	-2.742	9.129
TEA Average	108	8.007	2.904	3.445	19.43
TEA Male	108	10.23	3.785	4.010	24.51
TEA Female	108	5.784	2.231	2.070	14.35
Technology	108	7.238	3.237	0.560	17.57
Unemployment	124	10.12	6.049	3.420	27.69
GCI	123	4.803	0.546	3.705	5.858
Number of countries	25	25	25	25	25

Table 2: Descriptive Statistics including Observations (N), Mean, Standard Deviation (SD), Minimum and Maximum

5. Methods

5.1 Research Method

This research uses a panel dataset to assess the effect of entrepreneurship on GDP growth. A fixed effects regression is an appropriate method to use in this case. An advantage of the fixed effects regression is that it controls for time-invariant variables in a country. Factors which stay the same over time are accounted for in this analysis. Culture, for example, is a time-invariant factor, which is isolated in an individual fixed effects regression. However, it is crucial that the model controls for time-varying factors which affect GDP growth, in this case unemployment and competitiveness.

There are multiple methods applicable with panel data, difference-in-difference (DiD) for example. In a fixed effects regression, the time-invariant factors are isolated, although the source of the variation is unknown. A DiD analysis shows the source of this variation, making it a better fit than fixed effects in some cases. However, in this case a fixed effects regression is preferred, since there is a real chance that time-varying factors exist, disregarding the parallel trends assumption. An event study is also not an option, since this relies on an event taking place, affecting the variables, which is not the case here.

A third potential method for panel data is the 'random effects' model, this builds on the assumption that random effects are normally distributed and that independent variables are not correlated with each other. The last assumption is not likely in this case, since the independent variables are intertwined. Although unemployment is not an indicator of global competitiveness, it is possible that unemployment affects the competitiveness in a country, and vice versa.

5.2.1 Arellano-Bond estimated regression

For hypothesis 1, GDP growth is used as the dependent variable and Total Entrepreneurial Activity (TEA) as the independent variable. The model controls for unemployment and GCI as a proxy for the competitiveness of the economy. GDP growth is also determined by GDP growth in earlier years, however, since this is an unbalanced panel dataset, with relatively low N and T, the lagged dependent variable cannot be added without accumulating the Nickell bias (Nickell, 1981). This is why the Arellano-Bond estimator is used to include the lagged dependent variable (Arellano & Bond, 1991). This estimator is used to control for endogeneity between the lagged dependent variable, and the error term. By construct, unobserved panel data are correlated with lagged dependent variables. Arellano and Bond derived a Generalized Method of Moments (GMM) estimator for the parameters of this model. It requires no autocorrelation in the idiosyncratic errors. The fundamental regression in formula for the hypotheses, based on the Arellano-Bond estimator, takes the following form:

$$GDP\ growth = \beta_0 + \beta_1 * TEA + \beta_2 * Unemployment + \beta_3 * GCI + \beta_4 * GDP\ Growth(L-1) + \varepsilon \quad (5.1)$$

The most important assumption of the Arellano-Bond estimation is that there exists no autocorrelation in the first-differenced errors. However, the model used in this research reports no evidence that there is no autocorrelation between first-differenced errors at a higher order than 1. At a 5% significance level, the null hypothesis, which states that autocorrelation is zero, can be rejected. At a 10% significance level however, the null-hypothesis cannot be rejected. This leads to a limitation of this research. This is why for all hypotheses, there will also be a fixed effects estimated model, as described in 5.1, without a lagged dependent variable to estimate the effects of entrepreneurship on economic performance. Although leaving out the lagged dependent variable will decrease the fitness of the model, it is a relevant check for the results. The fixed-effects regression will take the following form:

$$GDP\ growth = \beta_0 + \beta_1 * TEA + \beta_2 * Unemployment + \beta_3 * GCI + \varepsilon \quad (5.2)$$

5.2.2 Estimating the effect of Female Entrepreneurship

In the second hypothesis, the expectation is that male entrepreneurship will have a higher effect on economic performance compared to their female counterparts. To estimate this effect, similar models to 5.1 and 5.2 will be run with male and female TEA instead of average TEA as independent variables. The fixed effects and Arellano-Bond estimation will respectively take the following form:

$$GDP\ growth = \beta_0 + \beta_1 * TEA\ Male + \beta_2 * TEA\ Female + \beta_3 * Unemployment + \beta_4 * GCI + \varepsilon \quad (5.3)$$

$$GDP\ growth = \beta_0 + \beta_1 * TEA\ Male + \beta_2 * TEA\ Female + \beta_3 * Unemployment + \beta_4 * GCI + \beta_5 * GDP\ Growth(L-1) + \varepsilon \quad (5.4)$$

The null hypothesis states that male and female TEA have the same addition to the model, and no significant difference. The null hypothesis cannot be rejected when at least one of two things happen: when both (male and female) entrepreneurship coefficients are not significant, or if the two variables prove to be not significantly different from each other. The former will be visible from the results of the model, to test the latter, a Wald test will show whether the effect of male and female TEA significantly differ. A Wald test allows to test variables in a model on their fitness to the model, it shows whether variables improve the fitness of the model.

5.2.3 Estimating the effect of Female Entrepreneurship in countries with a high concentration of High-Technology firms

Hypothesis 3 states: the impact on economic performance of female entrepreneurs is lower in countries with a high share of high-technology firms relative to others. To estimate a difference

between countries with a high share of high-technology firms and countries with a low share, interaction terms will be added to the existing fixed-effects model 5.3 and Arellano-Bond model 5.4. Respectively, the fixed effects and Arellano-Bond model will take the following form:

$$GDP\ growth = \beta_0 + \beta_1 * TEA\ Male + \beta_2 * TEA\ Female + \beta_3 * Unemployment + \beta_4 * GCI + \beta_5 * (TEA\ Male*Technology) + \beta_6 * (TEA\ Female*Technology) + \varepsilon \quad (5.5)$$

$$GDP\ growth = \beta_0 + \beta_1 * TEA\ Male + \beta_2 * TEA\ Female + \beta_3 * Unemployment + \beta_4 * GCI + \beta_5 * (TEA\ Male*Technology) + \beta_6 * (TEA\ Female*Technology) + \beta_7 * GDP\ Growth(L-1) + \varepsilon \quad (5.6)$$

For the Arellano-Bond estimation, a lagged dependent variable will be added to 5.5. The null hypothesis for hypothesis 3 states there is no significant difference in the effect of female entrepreneurship in countries with a high share of high-technology firms, relative to countries with a lower share of high-technology firms. The null hypothesis is to be rejected when there is no significant difference between the male interaction term and the female interaction term.

6. Results

The following section will present the results from the regressions on the effect of entrepreneurship on economic performance. The three hypotheses stated earlier will be rejected or accepted on the grounds of the data to form an answer to the research question: *'What is the effect of female entrepreneurship on economic performance?'*

6.1 Total Effect of Entrepreneurship on Economic Performance

The first hypothesis states that it is expected that Total Entrepreneurial Activity is beneficial to economic performance in a country. The null hypothesis, that there is no significant effect of entrepreneurship on economic performance, can be rejected if the coefficient of TEA average proves to be significant. The results can be found in table 3 in the appendix. The first column shows the results of the Arellano-Bond estimated regression, column 2 shows the results of the fixed effects regression without a lagged variable. Both models do not show significant results for the effect of average entrepreneurship on economic performance. The coefficient is slightly lower than zero for the Arellano-Bond model, and just positive for the fixed effects regression. The null hypothesis that there is no significant effect of entrepreneurship on GDP growth cannot be rejected, based on this dataset. Hypothesis 1: the higher the average level of entrepreneurship, the higher the economic performance, is not supported.

6.2 The Effect of Female Entrepreneurship on Economic Performance

The second hypothesis states that the level of male entrepreneurship has a higher effect on economic performance than their female counterparts. The null hypothesis states that the effect of male entrepreneurship on economic performance is equal to the effect of their female counterparts. The null hypothesis cannot be rejected when at least one of two things happen: when both (male and female) entrepreneurship variables are not significant or if the Wald test on the model does not prove significant. The null hypothesis can be rejected if both TEA male and TEA female are significant, and the Wald test has a significant result, proving that female entrepreneurship has a different effect on GDP growth than male entrepreneurship. The models set out in section 5.2 are tested and the results are shown in table 4 in the appendix. The results show that male as well as female entrepreneurship do not have a significant effect on GDP growth in this dataset. The null hypothesis cannot be rejected. Although we cannot reject the null hypothesis, a Wald test has been run to check the significance in the difference between male and female entrepreneurship. The outcome of the Wald test can be found in the appendix. As expected, male and female are not significantly different.

In combination with the unsignificant results of both male and female TEA, it provides evidence that the null hypothesis cannot be rejected and hypothesis 2 is not true for this dataset.

6.3 The Effect of Female Entrepreneurship on Economic Performance in High-Technology countries

The main goal of this research is to examine the effect of female entrepreneurship on economic performance, hypothesis 3 delves deeper into the differences in sector choice between male and female entrepreneurs, in particular technology sectors. Hypothesis 3 states that the effect of female entrepreneurship is lower in countries with a high share of high-technology firms, relative to others. Table 5 shows the results of regression 5.3 for the Arellano-Bond estimator (column 1) and a fixed effects regression (column 2). The interaction terms do not prove to be significant, this means that, in this dataset, there is no significant difference between female entrepreneurship in countries with a high share of high-tech firms and countries with a relative lower share. The null hypothesis stating that the interaction terms are equal, cannot be rejected, and hypothesis 3 is not supported under these circumstances.

7. Discussion

This section will delve deeper into the findings of this research and the limits of used data and methods. As stated in the theoretical framework and the hypotheses section, the hypotheses were based upon existing empirical evidence. For example, hypothesis 1 is based on Cumming, Johan & Zhang (2014) stating that entrepreneurship has a positive impact on GDP growth, exports per GDP and innovation, and a negative effect on unemployment. With this in mind, the results of this research were expected to show the same direction, however, the results were not quite as expected to that extent. In this section I will provide an overview of the limitations of this research and suggestions for further research.

7.1 Data limitations

The data of this research is mostly national level data extracted from GEM. Not all GEM countries are included in the data, this is mostly because rendering all countries would leave much room for unobserved time-varying variance in the data. Examining only European countries would decrease the number of unobserved control variables, avoiding omitted variable bias. Consequently, the total data set counts 26 countries over 5 years, thus 130 observations. With some missing values for the TEA variables, total observations are 108, this is a relatively low N. Generally, a larger N means more confident results. Since the Arellano-Bond estimation uses the lagged dependent variable, thus creating missing values for every country, observations are lower for that model.

Next to the national level data, GEM also reports the individual level data, which is the foundation for the national level data. This involves the answers to the surveys. To increase the observations and research options, I recommend future researchers to use the individual level data. It allows for more detailed and qualitative analysis. National level data was used in this research to keep the data compact and manageable.

The dataset also did not correct for different types of entrepreneurship. As shown by Stam et al. (2011), ambitious entrepreneurs account for most of the innovation accumulated by entrepreneurs.

7.2 Research method limitations

In this research, two methods have been implemented, the Arellano-Bond estimation for lagged dependent variables and a fixed effects regression without a lagged variable. The fixed effects model is the best fit for this panel dataset, as stated in section 5.1. For other methods not all assumptions can be satisfied, like the parallel trend assumption for Difference-in-Difference. Although fixed effects isolate the time-invariant variables, like culture, there can still be unobserved variance in the model. However, in this model the Global Competitiveness Index covers many aspects of unexplained

factors that can affect GDP growth. Unemployment plays an important role to cover the rest of the unobserved time-varying variance in the model. There still is a possibility that these two controls do not cover all unobserved factors, this can be more thoroughly analysed in future research.

In an attempt to explain the last unobserved errors in the fixed effects model, a lagged dependent variable has been added. However, this creates the problem of the Nickell Bias, where the lagged dependent variable creates endogeneity (Nickell, 1981). Since a lag does account for some variance, it was best to include a model where the lag would be included, hence the use of the Arellano-Bond estimator. The problem with the use of this estimator was that in this case, the Arellano-Bond test for autocorrelation did not show any autocorrelation in the first order lag, which is preferable, but did show autocorrelation in the second order lag variable, which inhibits the use of the estimator, for a 10% significance level. The estimator was still included, since it was not significant at a 5% level, to see if the results would vary from the fixed effects regression.

Concluding, since for the fixed effects regression, a piece of unobserved variance was missing in the lagged variable, and the Arellano-Bond estimation doubtfully meets its assumptions, the interpretation of the results are limited.

7.3 Developed and developing economies

According to the existing literature on this subject, the effect of entrepreneurship on an economy differs between countries in a developed and countries in a developing state. Van Stel, Carree & Thurik (2005) and Valliere & Peterson (2009) find results that there is a significant difference between how a developed economy reacts to entrepreneurship and how a developing economy reacts, especially towards the female extent. This is due to the drivers for entrepreneurship, whereas in developed economies firms are founded where entrepreneurs see opportunities, entrepreneurs in developing countries start firms to make ends meet. This has a different effect to the economy as a whole, since opportunity-driven enterprises might generate more jobs and capital than a necessity-driven sole proprietorship.

For this research however, the choice was made to include developed as well as developing economies. Primarily for two reasons: First, since all participating countries are located in Europe, the disparity would be kept to a minimum, examining across continents would include a larger gap. Second, dividing the countries in developed and developing countries would mean less observations left for analysis. For future research however, it can be beneficial to include more observations and a measure for development.

8. Conclusion

This research aimed to evaluate the effect of female entrepreneurship on economic performance. With a (dynamic) panel data set on European countries, largely extracted from the Global Entrepreneurship Monitor (GEM) and Worldbank, a fixed effects regression as well as the Arellano-Bond method have been estimated. The results from both methods did not show results that Total Entrepreneurial Activity (TEA) has a significant effect on GDP growth. The results also did not show significant results that female entrepreneurship has a significant effect on GDP growth, as well as no significant results that female entrepreneurship differs from male entrepreneurship in terms of economic impact. This was not in line with hypotheses 1 and 2. For hypothesis 3, the interaction terms did not show significant results for lower impact in countries with a high share of high-technology firms, this was also not in line with expectations. Although the hypotheses were not supported in the data, this research provides an overview of literature on female entrepreneurship and contributes to the literature by showing empirical evidence that is not in line with most of the existing literature. Future research can look to include individual level-data, increase the fitness of the models, and include a proxy for development.

9. Bibliography

Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, *94*(2), 291-309.

Adams, R. B., & Funk, P. (2012). Beyond the glass ceiling: Does gender matter?. *Management Science*, *58*(2), 219-235.

Andreoni, J., & Vesterlund, L. (2001). Which is the fair sex? Gender differences in altruism. *The Quarterly Journal of Economics*, *116*(1), 293-312.

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The review of Economic Studies*, *58*(2), 277-297.

Baumol, W. J. (2004). Entrepreneurial enterprises, large established firms and other components of the free-market growth machine. *Small Business Economics*, *23*(1), 9-21.

Bardasi, E., Sabarwal, S., & Terrell, K. (2011). How do female entrepreneurs perform? Evidence from three developing regions. *Small Business Economics*, *37*(4), 417.

Bellante, D., & Link, A. N. (1981). Are public sector workers more risk averse than private sector workers. *Industrial and Labor Relations Review, 34*(3), 408-412.

Bygrave, W., Hay, M., Ng, E., & Reynolds, P. (2003). Executive forum: a study of informal investing in 29 nations composing the Global Entrepreneurship Monitor. *Venture Capital: An International Journal of Entrepreneurial Finance*, *5*(2), 101-116.

Cole, A. H. (1949). *Entrepreneurship and entrepreneurial history: The institutional setting*. na.

Cumming, D., Johan, S., & Zhang, M. (2014). The economic impact of entrepreneurship: Comparing international datasets. *Corporate Governance: An International Review, 22*(2), 162-178.

Davidsson, P., Delmar, F., & Wiklund, J. (2006). Entrepreneurship as growth; growth as entrepreneurship. *Entrepreneurship and the Growth of Firms*, *1*(2), 21-38.

Dreber, A., & Johannesson, M. (2008). Gender differences in deception. *Economics Letters, 99*(1), 197-199.

Eckel, C. C., & Grossman, P. J. (2008). Men, women and risk aversion: Experimental evidence. *Handbook of Experimental Economics Results*, *1*, 1061-1073.

Ellis, A. (2007). Gender and economic growth in Tanzania: Creating opportunities for women. *World Bank Publications.*

Er, Ş. (2012). Women indicators of economic growth: a panel data approach. *Economic Research Guardian*, *2*(1), 27-42.

Evetts, J. (1998). Managing the technology but not the organization: Women and career in engineering. *Women in Management Review, 8*, 283-290.

Hogarth, R. M., Karelaia, N., & Trujillo, C. A. (2011). When should I quit? Gender differences in exiting competitions. *Journal of Economic Behavior & Organization*, *83*(1), 136-150.

Holienka, M., Jančovičová, Z., & Kovačičová, Z. (2016). Drivers of women entrepreneurship in Visegrad countries: GEM evidence. *Procedia-Social and Behavioral Sciences*, *220*, 124-133.

Faccio, M., Marchica, M. T., & Mura, R. (2016). CEO gender, corporate risk-taking, and the efficiency of capital allocation. *Journal of corporate finance*, *39*, 193-209.

Johnsen, G.J., & McMahon, R.G. (2005). Owner-manager gender, financial performance and business growth amongst SMEs from Australia's business longitudinal survey. *International Small Business Journal, 23*(2), 115-142.

Keloharju, M., Knüpfer, S., & Tåg, J. (2018). What Prevents Female Executives from Reaching the Top. *Centre for Corporate Governance Research.*

Kon, Y., & Storey, D. J. (2003). A theory of discouraged borrowers. *Small Business Economics*, *21*(1), 37-49.

Langowitz, N., & Minniti, M. (2007). The entrepreneurial propensity of women. *Entrepreneurship Theory and Practice*, *31*(3), 341-364.

Macko, A., & Tyszka, T. (2009). Entrepreneurship and risk taking. *Applied psychology, 58*(3), 469-487.

Malach-Pines, A., & Schwartz, D. (2008). Now you see them, now you don't: gender differences in entrepreneurship. *Journal of Managerial Psychology*, 811-832.

Neeley, L., & Van Auken, H. (2010). DIFFERENCES BETWEEN FEMALE AND MALE ENTREPRENEURS' USE OF BOOTSTRAP FINANCING. *Journal of Developmental Entrepreneurship*, *15*(01), 19-34.

Nickell, S. (1981). Biases in dynamic models with fixed effects. *Econometrica: Journal of the econometric society,* 1417-1426.

Niederle, M., & Vesterlund, L. (2007). Do women shy away from competition? Do men compete too much?. *The quarterly journal of economics*, *122*(3), 1067-1101.

Noguera, M., Alvarez, C., Merigo, J. M., & Urbano, D. (2015). Determinants of female entrepreneurship in Spain: an institutional approach. *Computational and Mathematical Organization Theory*, *21*(4), 341-355.

Orser, B. J., Riding, A. L., & Manley, K. (2006). Women entrepreneurs and financial capital. *Entrepreneurship Theory and Practice*, *30*(5), 643-665.

Sapienza, P., Zingales, L., & Maestripieri, D. (2009). Gender differences in financial risk aversion and career choices are affected by testosterone. *Proceedings of the National Academy of Sciences*, *106*(36), 15268-15273.

Schneider, B. (1987). The people make the place. *Personnel Psychology*, *40*(3), 437-453.

Schumpeter, J.A. (1934), The Theory of Economic Development, *Cambridge, MA USA: Harvard University Press.*

Sexton, D. L., & Bowman-Upton, N. (1990). Female and male entrepreneurs: Psychological characteristics and their role in gender-related discrimination. *Journal of Business Venturing*, *5*(1), 29-36.

Singh, S., Archer, G. R., & Madan, S. (2018). Gender and entrepreneurial activities: Microentrepreneurs in rural India. *Interdisciplinary Journal of Economics and Business Law*, *7*(3), 55-74.

Stam, E. (2008). Entrepreneurship and innovation policy. *Jena Economic Research Paper*, (2008-006).

Stam, E., Hartog, C., Van Stel, A., & Thurik, R. (2011). Ambitious entrepreneurship, high-growth firms and macroeconomic growth. *The Dynamics of Entrepreneurship: Evidence from Global Entrepreneurship Monitor Data*, 231-249.

Valliere, D., & Peterson, R. (2009). Entrepreneurship and economic growth: Evidence from emerging and developed countries. *Entrepreneurship & Regional Development*, *21*(5-6), 459-480.

Van Stel, A., Carree, M., & Thurik, R. (2005). The effect of entrepreneurial activity on national economic growth. *Small business economics*, *24*(3), 311-321.

Verheul, I., Stel, A. V., & Thurik, R. (2006). Explaining female and male entrepreneurship at the country level. *Entrepreneurship and regional development, 18*(2), 151-183.

Watson, J. (2002). Comparing the performance of male-and female-controlled businesses: relating outputs to inputs. *Entrepreneurship theory and practice*, *26*(3), 91-100.

Watson, J., & Robinson, S. (2003). Adjusting for risk in comparing the performance of male- and female-controlled SMEs. *Journal of Business Venturing, 18*(6), 773-788.

Weber, A., & Zulehner, C. (2010). Female hires and the success of start-up firms. *American Economic Review,* 100(2), 358-61.

Welter, F. (2011). Contextualizing Entrepreneurship—Conceptual Challenges and Ways Forward. *Entrepreneurship Theory and Practice*, 35(1), 165–184.

Appendix

List of Countries
Austria
Belgium
Bosnia and Herzegovina
Bulgaria
Croatia
Estonia
Finland
France
Germany
Greece
Hungary
Ireland
Italy
Latvia
Lithuania
Luxembourg
Netherlands
Norway
Poland
Portugal
Romania
Slovakia
Slovenia
Spain
Sweden
Switzerland

Table 3: The list of countries included in the dataset

VARIABLES	(1) ABOND	(2) Fixed Effects
Lagged GDP Growth	0.0189	
	(0.252)	
Average TEA	-0.0374	0.0331
	(0.145)	(0.137)
Unemployment	-0.376***	-0.420***
	(0.133)	(0.104)
GCI	-5.311	2.301
	(8.502)	(2.891)
Constant	32.23	-4.927
	(41.21)	(14.02)
Observations	50	102
R-squared		0.290
Number of country_num	21	25
Country FE		YES

Table 4: GDP Growth as dependent variable, Arellano-Bond estimator (model 1) and Fixed Effects Regression (model 2) with Standard errors in parentheses
***** p<0.01, ** p<0.05, * p<0.1**

VARIABLES	(1) ABOND	(2) Fixed Effects
Lagged GDP Growth	0.0262	
	(0.254)	
Male TEA	-0.0558	-0.0450
	(0.116)	(0.115)
Female TEA	0.0128	0.108
	(0.105)	(0.154)
Unemployment	-0.361**	-0.403***
	(0.144)	(0.107)
GCI	-5.165	2.498
	(8.537)	(2.917)
Constant	31.53	-5.949
	(41.57)	(14.16)
Observations	50	102
R-squared		0.294
Number of country_num	21	25
Country FE		YES

Table 5: GDP Growth as dependent variable, Arellano-Bond estimator (model 1) and Fixed Effects Regression (model 2) with Standard errors in parentheses
***** p<0.01, ** p<0.05, * p<0.1**

```
 ( 1)  male_ - female_ = 0

           chi2(  1) =    0.18
         Prob > chi2 =    0.6756
```

The Wald test for hypothesis 2

VARIABLES	(1) ABOND	(2) Fixed Effects
Lagged GDP Growth	-0.0255	
	(0.296)	
Male TEA	-0.0300	-0.00143
	(0.314)	(0.247)
Female TEA	-0.0355	0.349
	(0.281)	(0.337)
Unemployment	-0.379**	-0.405***
	(0.186)	(0.112)
GCI	-4.746	2.124
	(9.013)	(3.017)
Technology	-0.0101	0.304
	(0.210)	(0.200)
Male * Tech	-0.00188	-0.00930
	(0.0272)	(0.0276)
Female * Tech	0.00574	-0.0278
	(0.0325)	(0.0381)
Constant	29.72	-6.319
	(44.86)	(14.51)
Observations	50	102
R-squared		0.327
Number of country_num	21	25
Country FE		YES

Table 6: GDP Growth as dependent variable, Arellano-Bond estimator (model 1) and Fixed Effects Regression (model 2) with Standard errors in parentheses
***** p<0.01, ** p<0.05, * p<0.1**