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THE EFFECT OF HOSTING A MEGA SPORT EVENT ON THE ENTREPRENEURIAL ACTIVITY IN THE HOST COUNTRY.

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Abstract

Does hosting a mega sport event have an effect on the entrepreneurial activity of a country? This question is addressed by using a panel data set on 188 countries worldwide over the time period of 1970-2019 for a total of 97 mega sport events. In this research a fixed effects model is used with time (year) and country fixed effects to estimate if there is a causal effect of being the host to a mega sport event on a country's domestic credit to private sector rate in the host year. For this relationship no empirical evidence is found. This means that hosting a mega sport event has no effect on the entrepreneurial activity of a country.

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1. Introduction

The upcoming FIFA World Cup in Qatar is one of the most controversial sport events in time. Besides the fact that Qatar is not seen as a 'soccer' nation, a ton on human rights organizations question the current state of affairs (Amnesty International, 2021). Despite all the critique, the World Cup in 2022 is still set for execution. One might wonder, why would Qatar organize such a big event if there is so much commotion and it is very costly? Does hosting a mega sport event come with so much economic or entrepreneurial benefits if they are so eager to organize it? It is commonly known that hosting such a big event attracts a lot of international attention, tourists and sponsors who can provide for a large income. These could be reasons for Qatar but also any other country to be willing to host such a big sporting event.

The last Olympic summer games in 2016 in Brazil attracted more than half a million visitors in the month August only (Vanderlei J. Pollack, n.d.). But being a host does not only come with gains. Hosting such a mega event requires a lot of investments, thus costs that have to be made. Beside the hordes of tourists Brazil welcomed due to the 2016 Olympic Games, they had a grand total of $3.27 billion in costs (Zimbalist, 2016). This both proves the size of the business and therefore it's importance. Hence it is crucial to be aware of the consequences such an event has on a country's economy and therefore also it's entrepreneurship.

In sports economic literature, hosting a mega sport event and their impact on different facets of society is a popular research theme. This research combines both the economic and sport related viewpoints.

As mentioned earlier, mega sport events attract a lot of attention and tourists. According to Spilling (1996), organizing the 1994 Olympic Winter Games in Lillehammer caused a significant growth in the tourism industry. Moreover, Peeters et al. (2014) find similar results for the 2010 FIFA World Cup in South-Africa where the event caused for a large stream of tourists. And according to earlier research such a wave of tourists can lead to enduring economic benefits for the host country (Matheson & Baade, 2004). This means that hosting a mega sport event and thereby attracting a lot of foreign tourists can cause for an economic effect, most likely economic benefits, for the host country. Since most often economic benefits are desired, it is an important relationship to investigate.

To explore the economic and entrepreneurial effect of a mega sport event, a study by Hayduk (2019) investigates the effect of hosting a mega sport event on a country's Foreign Direct Investment as an indicator of the economic and entrepreneurial state of the country. When obtaining their results, they find that for the developed countries a positive relationship between the two was found. This meant that when hosting a mega sport event, foreign investments went up. This indicates a relationship between hosting a mega sport event and the entrepreneurial performance of a country. Therefore, it becomes of

importance to investigate this relationship since policy makers can adapt their policy to what is most beneficial to entrepreneurial activity if they wish to increase it if they know how this effect behaves.

In previous academic research about mega sport events, most often a single event and its economic, societal and touristic effects are investigated and estimated. For example, Kang and Perdue, (1994) establish that the 1988 Olympics in Seoul provided economic benefit to the country. Research by Li et al. (2013) finds that the Summer Olympic games in Beijing contributed positively to the country's economy. Looking at more than one event will give a more general picture of the economic impact of a mega sport event, which can help countries when making the decision whether to host or not. This because every country is very different so looking at one specific case might not be as helpful when estimating the causal effect of hosting a mega sport event on the economy or entrepreneurial activity. Since previous research is very specific and generally only covers one or two events, broadening the perspective and looking at multiple different events at once will improve the view. Therefore, it is scientifically relevant to investigate and will fill this gap in the literature.

When hosting a mega sport event, it is crucial to be aware of the economic and entrepreneurial benefits and costs organizing such an event brings to the country. Knowing if there is a relationship between the two can help counties to decide whether they are eager to organize such an event or if they rather pass it on to another country. If counties are aware of the full economic effect, they are able to adapt their strategy due to more complete information and make a more optimal decision for their economic benefits. Making the optimal economic choice is overall, from a rational point of view, preferred and will therefore bring economic benefits for society compared to a situation where they do not make an optimal choice. Hence, the societal relevance of this subject is substantial.

1.1 Research question

It seems to be clear that hosting a mega sport event, like the Olympic Games, drags full attention for a relative short amount of time. It is also an event that, as seen in the case of Qatar, is something that is very much desired by some countries despite the big investments that have to be made.

However, what is the exact effect of being in the spotlight for a short amount of time? This after having to invest a ton of money in building stadiums, accommodation and infrastructure. If it effects the economy does it also effect entrepreneurship? Does such an event provide opportunities for new and established entrepreneurs and does this effect remain after the event is finished? To give an answer to these questions the following research question of this paper is formulated:

What is the effect of hosting a mega sport event on the host country's entrepreneurial activity in the year of the event?

Every country is very different form another. When organizing a mega sport event this means that the extent to which such an event influences the entrepreneurial activity can be very different for developing economies compared to developed economies. This since they operate in very different circumstances. Therefore, the first sub question is:

Is the effect of hosting a mega sport event on entrepreneurial activity different for developing economies compared to developed economies?

When organizing a mega sport event, all parties are living up to the month that the event takes place, but what happens with the effect on entrepreneurial activity when the event is over? Since all investments are mostly made for that special moment, do they bring benefit for entrepreneurial activity on the long term? Therefore, the second sub question is:

Does hosting a mega sport event have a different effect on short-term entrepreneurial activity than on the long-term entrepreneurial activity of the host country?

It is in fact that not all mega sport events are the same. Despite that all sports are different, some mega sport events include only one sport, like at the FIFA World Cup they only play soccer, others include all different sports, like the Olympic games. It could be the case that since these events are different, that they also have a different effect on entrepreneurial activity. Therefore, the third and the last sub question is:

Is the effect of hosting a more general sport event different on entrepreneurial activity of the host country compared to organizing a more specific sport event?

This research paper consists of 6 sections. In the second section the theoretical framework of this subject is provided. Previously written literature is described and the most important definitions are defined to make sure the used concepts are clear. Additionally, the hypotheses are stated. In section 3 the data used to perform the research and its collection is described. Thereafter, the methods that are used to perform the research and to test the hypothesis are described in section 4. In section 5 the results from the performed research are presented, with these results the hypotheses are interpreted. In chapter 6 a conclusion is drawn from the hypothesis stated in chapter two. Lastly the limitations of this research are discussed together with further research ideas.

2. Theoretical framework

In order to find an answer to the main question of this research paper that has been proposed earlier in chapter 1, already existing literature on the different effects of mega sport events is analyzed. This literature review will help to define the key concepts of this paper, give a clear overview of the existing literature and additionally analyze the in-dept relationship proposed in the main question by formulating hypotheses that will be tested later in this paper.

2.1 Definitions of the concepts

The goal of this research is to investigate the effect of a mega sport event on the host country's entrepreneurial activity in the year of the event. But when doing research about this topic, it is fundamental to define the key concepts that are used in this paper. These concepts are defined below.

The term 'mega event' can have different definitions that can depend on the extend that you consider something big. Mega events do not always have to be sport events. According to Müller (2015) there are multiple dimensions that have to be taken into account to define whether an event is considered mega. He states that a mega event is an event for a pre-defined period of time, with attraction to a large number of visitors. The event also has big mediated reach, brings large costs with them and has a fundamental impact on the population of the host country and their environment. To put this into practice a score card is developed to classify the events according to their different dimensions that are described above. To be classified as a mega event the event has to score 'large' in at least three out of the four criteria.

Another important term in the research question is the term of 'host country'. The country is the host of the sporting event when a substantial part of the matches that takes place that is within the country's borders. This can also be two countries hosting the same event in the same year. An example of this is the FIFA world championship in the year 2002 when the event took place in both Japan and South-Korea.

The International Olympic committee (IOC) (2021) states that the responsibility of the host country of the Olympic games is to gain public interest for the event. They are also required to organize the event in such a way that it is conductive to the long-term environment goals. At last, they are expected to act in the best interest of the Olympic Movement.

Lastly, entrepreneurship is defined, according to Bruyat and Julien (2001) as the creation of new businesses and them creating new values. It is a combination of both the environment and the individual. Research by Boulding and Cole (1959) stated that entrepreneurship is an activity which is done on

purpose to preserve a profitable business. Additionally, growth is also seen as a characteristic of entrepreneurship, Schumpeter (1961) found a strong linkage between both. All these characteristics combined together are used to define entrepreneurship. This as a concept that exists of attempts to preserve an already existing business, to creating a new one.

2.2 Literature about mega sport events

2.2.1 Tourism

In previous literature a lot of research has been done on the effects of a mega sport event on all kinds of facets of society. A prominent field of research over time is the effect of mega sport events on a host country's popularity in tourism. This since such an event attracts visitors from all over the world. Allmers and Maennig (2009) conclude that when analyzing both FIFA World Cups in France and Germany (1998 and 2006) they appear to have different effects on tourism. In France they did not find any extra income or overnight stays while the German event resulted in a rise for both of them. Research by Fourie and Santana-Gallego (2011) finds that when looking at different mega sport events, there is a significant rise in tourists when being the host country. However, how much a country economically benefits from this depends on the kind of event. It also finds that it differs per host country and the timing of the event, which is in line with Allmers and Maennig (2009).

Likewise, an empirical paper by Peeters et al. (2014) finds that organizing the 2010 FIFA World Cup caused an 12% increase of foreign tourist in the year of the event. Although this sounds positive, these additional tourists were very expensive for South-Africa, which softens the positivity of this effect. This is in agreeance with research by Preuss (2007) since he states there is a crowding out effect for tourists. If the maximum number of tourists is reached, extra tourism due to the mega sport event will only crowd out the ordinary visitors. This means many additional tourists will not generate extra income.

What is interesting is that mega sport event tourism is not always predetermined. Research on the FIFA World Cup in Brazil by Baumann and Matheson (2018) concludes that foreign tourist arrivals increased by 1 million during the World Cup. Next to this rise in touristic attention they also find an extra increase due to on-field results of the Argentinian team. This means that positive results during the event can trigger more tourists to decide to travel to the host country.

Additionally, to the effects that hosting a mega sport event itself has on extra tourism, according to Chalip et al. (2003) media advertisement and a good destination image can positively influence the intention to visit during a sport event. This effect also works the other way around, so a negative destination image can have a negative influence on intentions to visit. However, in this research, this effect appears to differ for the United States when compared to New Zealand, so it is not considered a general effect.

Overall, as seen in the literature there is expected to be a positive effect of a mega sport event on the number of tourists in the host country. However, this effect depends on the event and country. It is also concluded that having a big number of tourists can cause for additional costs without additional benefits.

2.2.2 Social impact

Next to the impact on tourism, hosting a mega sport event can also influence the host country's image. Findings of the 2006 FIFA World Cup show that respondents had a more positive image of the host country after they visited the event then before the event took place. This is due to the special circumstances that the host country uses to portray the country in the most positive way during the event (Florek et al., 2008). Not only the tourist's viewpoint is important, the event also has to be supported by the residents of the host country. According to Gursoy et al. (2011) the short-term perceptions of the residents are more positive than the long-term perceptions. This because after a while residents realize the costs that come with hosting the event, which makes them less enthusiast. Somewhat contradictory is what Kenyon and Bodet (2018) find when researching the domestic image impact of the 2012 Summer Olympics in London. They find that in advance of the event there tend to be more concerns and the image of the event is more negative to the London residents. However, from a business perspective the event is mostly positive perceived.

Not only image is influenced by a mega sport event since also the country's wellbeing is at stake. It is also discovered that there is indeed a feel-good effect when hosting a mega sport event. Although this effect is only significant in the short term (Kavetsos & Szymanski, 2010).

Overall, it seems clear that hosting a mega sport event has a positive impact on society and country image for tourists. However for residents, the long-term perceptions can cause a negative opinion.

2.2.3 Economic impact

Additionally to the previous relationships mentioned, hosting a mega sport event can have an effect on a country's economy. According to Lee and Taylor (2005) organizing a mega sport event comes with a lot of excitement and positivity, however it is hard to value this in money. Although many researchers tried to estimate the economic effect of a mega sport event. For instance, Kang and Perdue (1994) establish that the 1988 Olympics in Seoul had an estimated three-year benefit of 1.3 billion dollars. Also, research finds that hosting a mega sport event in South-Africa is expected to contribute to a higher economic growth and development. This shows from the rise in macroeconomic measures like the country's GDP (Bohlmann & Van Heerden, 2005). Overall this all suggests a positive relationship between being a host and economic success.

Not only the relationship between hosting a mega sport event and the economic success is investigated but also the effect on entrepreneurship. More recently Hayduk (2019) states that hosting a mega sport event can positively affect entrepreneurial rents for firms in the host country. They indicate a positive relationship of hosting a mega sport event for entrepreneurs in developed countries. Findings from Tennent and Gillett (2018) discuss that over the years the organizational approach for mega events (FIFA World Cup in particular) have become more corporate in order to become economically bigger. It also shows that entrepreneurs have made a bigger contribution over time in organizing a mega sport event.

Not all researches advocate for a fairly positive economic effect by being a host. According to Spilling (1996) there is an economic effect on the short-term. However, the effect on the long-term is limited. Lee et al. (2017) also finds that hosting a mega sport event can have almost no contribution to employment. This due to the fact such events are relatively short. Critique also shows that when organizing a mega sport event, a lot of the costs are underestimated and most of the time benefits are overestimated. This could lead to a misleading estimation of the economic benefits (Müller, 2015).

All in all can be seen that the general effect of hosting a mega sport event is positive on a country's economy. However, the size and direction of the effect differs per country, event and time perspective.

2.3 Development of hypothesis

When reviewing the literature, it seems possible that hosting mega sport events can have an effect on the host country's entrepreneurial activity. Hosting a mega sport event results in attracting a lot of attention, from tourists or the media, and creating an overall positive impact on society. This should sound like having positive circumstances to undertake entrepreneurial actions. As seen in the previous paragraph, the literature shows that in general, hosting a mega sport event has a positive economic impact.

Additional to this, two papers by Castanño et al. (2015) and Bosma et al. (2008) advocate that a country's economic development and their entrepreneurship are highly correlated. To understand entrepreneurship better, they suggest you first have to look at a country's economy since they are connected, which implies both are related. Therefore, it could be assumed that since mega sport events have a positive impact on a country's economy, they could also impact their entrepreneurial performance positively.

The first hypothesis states that organizing a mega sport event has a positive effect on the entrepreneurial performance of the host country:

H1: Hosting a SME has a positive impact the entrepreneurial performance of the host country.

So, the first hypothesis assumes a positive relationship between hosting a mega sport event and entrepreneurial activity, but is this effect active for a short or a longer period of time? According to Kang and Perdue (1994) the economic effect of a mega sport event on the host country is the strongest at the first three years after the event. They find empirical evidence from Korea where the effect diminishes over a three-year time period after the event. This is confirmed by Spilling (1996) who finds that the economic effect of a mega sport event in the long run is limited. Especially when you compare it to the huge costs that are made. Meurer and Lins (2018) even find that the positive effect of the 2016 Olympic Games in Brazil on international travel receipts diminishes 1 month after the event. This effect can be considered as a short-term effect. As a critique on generalizing all events Chen et al. (2013) notes that if you want both the economic and sociological effects of a mega event to last there is no universal strategy. Each host country focusses on different goals to achieve, and will need different strategies.

The described literature shows that almost all economic or touristic effects are only significant on the short term and long-term effects diminish fast. Since we have previously established that entrepreneurship and economic development are related it could be assumed that being a host of a mega sport event has a bigger effect on the short-term entrepreneurship than on long-term entrepreneurship. To investigate this, the second hypothesis is formulated:

H2: Hosting a SME has a bigger effect on short-term entrepreneurship than on long-term entrepreneurship in the host country.

After making assumptions about the different economic impacts a mega sport event can have, you cannot deny that all mega sport events are different. Vierhaus (2019) compares the tourist arrivals of both the FIFA World Cup and the Olympic games. The FIFA world cup we call a specific sport event because it only consists of one sport, soccer. The Olympic Games, which consists of almost all sports is called a general sport event. His research finds that the Olympic Games accounted for higher tourist arrivals not only during the event year but also years before and after compared to the FIFA World Cup. This shows that the Olympic games attracts more general attention and tourists which can assume more opportunities for economic benefit and entrepreneurial activity (Preuss, 2005). This makes general sport events, from an economic and entrepreneurial point of view, more interesting to organize if you want to raise economic profits and entrepreneurial activity. This suspected relationship is portrayed in the third hypothesis:

H3: Hosting a more general sports event (Olympic games) instead of a specific sports event (World Cup) will have a bigger effect on the entrepreneurial performance of the host country.

Besides differing per kind of event, the effect on entrepreneurial activity can also be different per country. Since every country is unique the impact of hosting a mega sport event can differ.

According to Matheson and Baade (2004) the economic benefits that result from hosting a mega sport event are exaggerated for developing countries compared to industrialized countries. They conclude that the investment that has to be made to be a host for developing countries is not worthy since it's benefits will be less rewarding. Additionally, Hayduk (2019) states something very similar. His research finds that hosting a mega sport event will have a positive influence on a developed country's entrepreneurial rent. However, the research finds no such relationship for developing countries.

This both indicates that the effect of hosting a mega sport event differs if the host country has a developed or a developing economy. It also implies that the effect appears to be bigger in developed economies. This is stated in the fourth hypothesis:

H4: The effect of hosting an SME on entrepreneurial performance is larger in developed economies compared to developing economies.

3. Data

3.1 Data sources

The data that is used to test the hypotheses, and therefore help to answer the main question, is collected from different databases. The dependent variable to measure the extend of entrepreneurial activity that is used in hypothesis 1, 3 and 4 and all the control variables are collected from the World Bank Open Data (The World Bank, 2021). This is a data base with data on various categories of almost all the countries in the world. The World Bank Open Data data set is considered to be a reliable data source. This since the data is collected directly from the statistical system of the reported member country and confidential information is used with professionality (The World Bank, z.d.). Also, since the variety in data in this bank is considered large it is seen as a good point of collection. The data from 1970 until 2019 is used in this research paper since this period of time had the most available data.

To test the second hypothesis and divide the long-term entrepreneurial impact from the short-term entrepreneurial impact, measures from the Global Entrepreneurship Monitor (GEM) are used as the dependent variable (Global Entrepreneurship Monitor, 2021). This institution carries out research about entrepreneurship that is survey based. They evaluate the national levels of entrepreneurship and economic development in various countries annually. With the entrepreneurial based data from the GEM, the difference between the long and short term is presented. The data form 2001 until 2019 is used in this research paper since this was the available period.

To establish whether the country is hosting an event in a specific year, the events official website was used (IOC for the Olympics, FIFA for the FIFA World Cup, UEFA for the UEFA European Football Championship, AFC for the AFC Asian Cup, International Rugby Board for the Rugby World Cup and ICC for the Cricket World Cup). These are the official organizers for that specific event so in order to document the host (or hosts) of the specific event, their data is considered extremely reliable.

Lastly, to classify the countries used into categories, in this case to establish whether a country has a developed or developing economy, the classification of the United Nations (UN) is used. The UN has divided all nation states into four categories according to their GNI per capita: Low-income, Lower middle income, Upper middle income and High-income (UN, n.d.). This data is used to be able to test the fourth hypothesis. The UN retrieves the data directly from the reported countries and is therefore considered a reliable source. All the countries used in this research are recognized by the UN as nation states.

3.2 Data sets

To test the first hypothesis a panel data set is used consisting of observed data of 188 countries, all recognized as nation states by the UN, over the period of 50 years (1970-2019). After listwise deletion a dataset of N = 997 observations is obtained. For the third hypothesis the same period and countries are

used. The data set differs from hypothesis one since there is filtered for hosting a mega sport event. After listwise deletion there is a total of N = 27 observations. To test the fourth hypothesis there is tested separately for developing and developed economies. For countries with developing economies there are N = 500 observations, for developed economies N = 497 observations. For the second hypothesis, data is collected over the period of 19 years (2001-2019) for 68 countries. Having performed listwise deletion N = 393 observations are found for the short-term measure, N = 405 observations for the long-term measure.

3.3 Variables

3.3.1 Entrepreneurial activity measure

To establish the effect of hosting a mega sport event on the entrepreneurial activity, a measure of entrepreneurial activity is needed. Lelarge et al. (2010) find that giving French firms a loan guarantee raised the number of businesses and business growth. Additionally, research by Lee (2017) establishes that giving out loans caused a regional business growth. Both suggest a positive relationship between loans in the private sector and entrepreneurial activity. In order to capture the entrepreneurial activity and taking the mentioned relationship in the back of our minds, Domestic Credit to Private Sector is used as the measure for entrepreneurial activity. Domestic Credit to Private Sector is the percentage of resources, provided in loans and nonequity securities to the private sector. It is an indicator of entrepreneurial activity since it is suggested that more loans to the private sector insinuate a higher entrepreneurial activity. More money (from the loans) will provide more entrepreneurial possibilities for businesses. The data for Domestic Credit to Private Sector variables is retrieved from The World Bank (The World Bank, 2021).

To find a relationship between hosting a mega sport event and the entrepreneurial activity of a country, the percentage of Domestic Credit to Private Sector is used as the dependent variable for hypothesis 1, 3 and 4.

3.3.2 Host

To establish whether a country was hosting a mega sport event in the designated time period the variable host is introduced. The criteria for being a host consist of a country organizing a mega sport event within their borders. It is possible for an event to have two host countries. In that case both countries are documented as a host in that year for the same mega sport event. Based on the information that is provided by the official websites of the organizations of the different mega sport events the countries are categorized.

Being a host is a dummy variable. A dummy variable can hold either the value 'one' if the concerned country is a host in the reported year and holds the value 'zero' if they were not a host in the reported year. In this research paper being a host is the independent variable in hypotheses 1, 2 and 4.

The events that are considered as mega sport events in this paper are: Summer Olympics, Winter Olympics, FIFA World Cup, UEFA European Football Championship, AFC Asian Cup, Rugby World Cup and the Cricket World Cup. These events are considered mega events by Müller (2015) and Hayduk (2019). There is a total of 97 cases of hosting a mega sport event in this sample.

3.3.3 Long- and short-term measures

To evaluate if there is a difference in the effect hosting a mega sport event has on the long- and short-term entrepreneurial activity two new dependent variables are introduced to test the second hypothesis: entrepreneurial intentions and the TEA-rate. According to Crant (1996) entrepreneurial intentions are the likelihood that an individual will establish their own business. If these individuals carry these intentions out and actually start their own business they become established entrepreneurs. This is why the short-term measure is the rate of entrepreneurial intentions. To be able to measure the long-term impacts the TEA-rate is introduced. The TEA-rate is the percentage of the population that is either a nascent entrepreneur or own or manage a new business (Global Entrepreneurship Monitor, n.d.).

This classification is chosen since intending to start a business requires almost no legal steps. It is an easier activity to undertake compared to setting up an actual business and is therefore possible on the short term. Having entrepreneurial intentions is generally also the step that comes before starting an actual business and therefore being a nascent entrepreneur or owning or managing a new business is an effect on the longer term.

Both the entrepreneurial intention and TEA-rate are displayed as a percentage of the population of 18 until 64 years that are engaged in these activities. This makes these variables both continuous.

3.3.4 Control variables

When inspecting if hosting a mega sport event has an effect on a country's entrepreneurial performance a few control variables are introduced to the regression to control for the differences between the countries in the model and omitted variable bias. In order for the control variables to work they have to be correlated with both the dependent and the independent variable. In this case this means that the control variables have to be correlated with the entrepreneurial performance of a county and are also determinants of a country being a host. The data for the control variables is retrieved from The World Bank (The World Bank, 2021).

The first control variable that is introduced into the model is education, which is a continuous variable. According to İlhan Ertuna and Gurel (2021) higher educated individuals have a higher intention to become entrepreneurs. Therefore, if a country has a high educational spending there might be more

entrepreneurial activity. Education is measured as the percentage of the GDP spend on education by the government.

Additionally, a country's political stability is included as the second control variable. This variable is a continuous variable. Research by Dutta et al. (2013) found that when there is more political stability in the environment, more firms, and therefore entrepreneurs enter the market. To portray the political environment of the countries the amount of homicides that happened in that particular year per 100.000 residents is used. According to Asongu et al. (2019) a country with a high political instability is an environment where more homicides happens. Therefore, this number is used to give an indication of the political stability in a country. This is a continuous variable.

Also, having a strong infrastructure is seen as a key feature for more and better entrepreneurship (Audretsch et al., 2014). Since almost all forms of infrastructure require electricity for its use, the electric power consumption (kWh per capita) is introduced as the third control variable. This control variable is continuous.

International relations are also added to the model as a control variable. Having a good international relationship and orientation will provide more entrepreneurial investments, as stated by Balasubramanyam et al. (1996). As suggested by Rosson and Ford (1982) it is assumed that the international relationship is positively associated with the export rate. Therefore, the percentage of the GDP of the export of goods and services is used as the reflection of international relations. This is a continuous variable.

Lastly the unemployment rate of the country is added to the model as a control variable. According to Deli (2011) unemployment leads to more entrepreneurial activity in a country. This is mostly necessity entrepreneurship. To include this relationship the unemployment rates of the countries are added as a control variable to the model. This last control variable is a continuous variable.

3.3 Descriptive statistics

In table 1 the pairwise correlations of the different variables used in this research are displayed. Pairwise correlation is used since some of the macro-economic variables contain some missing values. The table used is a contingency table, in this table both column and row headings are variables. The correlation table is used to interpret the strength and direction between the different variables that are used. As seen from the table there is a positive and significant correlation between hosting a mega sport event and the domestic credit to private sector. Interestingly to see, hosting is negatively correlated with the entrepreneurial intentions measure. Furthermore, almost all variables are significantly correlated with domestic credit to private sector, except for the type of event. Correlations are interesting to inspect; however, they are not a good tool to predict causality. To do this more advanced analytical techniques have to be used, these are described in the next chapter about the used methodology.

In Table 2 the mean and standard deviation of each variable is displayed. Also, the minimum and the maximum that each variable that each variable could take. Values of domestic credit to private sector that took a value of 1000 and higher were deleted from the dataset since this is not considered a reasonable value for this measure.

Table 1: Correlation table

variable	1	2	3	4	5	6	7	8	9	10
1. Entrepreneurial activity	1									
2. Education	0.24*	1								
3. Political stability	-0.18*	-0.04	1							
4. Infrastructure	0.47*	0.32*	-0.24*	1						
5. International relations	0.25*	0.13*	-0.13*	0.26*	1					
6. Entrepreneurial intentions	-0.46*	-0.33*	0.33*	-0.39*	0.19*	1				
7. Established entrepreneurship	-0.07*	-0.15*	0.03	-0.11*	-0.10*	0.39*	1			
8. Host	0.13*	0.02	-0.03	0.07*	-0.03*	-0.07*	0.00	1		
9. Type of event (general)	0.09*	0.02	-0.02	0.07*	-0.03*	-0.04	0.00	0.51*	1	
10. Unemployment	0.01	0.19*	0.17*	-0.11*	-0.01	-0.02	-0.16*	-0.02	-0.00	1

*Note: * $p < 0.05$*

Table 2: Descriptive statistics for the variables used in this research

Variable	Mean	Std. Dev.	Min.	Max.
Entrepreneurial activity	40.09	37.68	0	308.98
Education	4.37	1.90	0	44.33
Political stability	8.15	12.66	0	141.72
Infrastructure	3150.32	4529.19	5.76	54799.17
International relations	36.26	25.95	0.01	228.99
Entrepreneurial intentions	19.90	15.49	0.70	91
Established entrepreneurship	7.77	5.17	0.42	37.74
Host	0.01	0.10	0	1
Type of event (general)	0.00	0.05	0	1
Unemployment rate	8.10	6.21	0.11	37.97

4. Methodology

4.1 Fixed effects model

In this research paper a panel dataset is used with secondary data. To be able to test our hypotheses, 2 different fixed effects regressions are made. Fixed effects regression models use within-individual variation in order to estimate a causal effect. This to account for time-invariant country and time characteristics that are observed and unobserved. For all models listwise deletion is used, there is a total of 9400 cases from 188 different countries over the time period of 50 years (1970-2019).

4.1.1 Hypothesis 1

The first model that is used, is the most general model. This model is a fixed effects regression with time (year) and country fixed effects with only one regressor. The entrepreneurial activity, which is measured through the domestic credit to private sector, is the dependent variable. The independent variable is the dummy that indicates whether a country was a host in that specific year. The model is designed as following:

$$Y_{it} = \beta_0 + \beta_1 * X_{1,it} + \beta_2 * Year_t + \beta_3 * Country_{i,t} + \varepsilon_{it} \quad (1)$$

, where Y_{it} is the dependent variable, the entrepreneurial activity of country i in year t measured through the domestic credit to private sector. β_0 is the unobserved time-invariant individual effect. $X_{1,it}$ is the variable we are foremost interested in, namely whether country i is a host of a mega sport event in year t. $Year_t$ and $Country_{i,t}$ are vectors for time and country fixed effects. ε_{it} is the error term.

However, it seems quite clear that by only using the dependent and the independent variable and therefore doing a simple with-and-without comparison, will not cover the whole effect that hosting a mega sport event has on the entrepreneurial activity of a county. To estimate a more accurate effect and to deal with potential differences between the countries, in the second model control variables are added to the first, simpler model. In this model, again time (year) and country fixed effects are added. In that case the model looks like this:

$$Y_{it} = \beta_0 + \beta_1 * X_{1,it} + \beta_2 * X_{2,it} + \ldots + \beta_6 * X_{6,it} + \beta_7 * Year_t + \beta_8 * Country_{i,t} + \varepsilon_{it} \quad (2)$$

, where Y_{it} is the dependent variable is again the entrepreneurial activity of country i in year t. β_0 is the unobserved time-invariant individual effect. $X_{1,it}$ is the independent variable, this is the indicator if a country hosted a mega sport event in the presented year. The difference with the previous model is that

here control variables are added. X_2 to X_6 stand for the education, political environment, infrastructure, international relations and the unemployment in the particular country. $Year_t$ and $Country_{i,t}$ are vectors for time and country fixed effects. ε_{it} is the error term.

4.1.2. Hypothesis 2

In order to test the second hypothesis, four models are introduced. To estimate the effect that hosting a mega sport event has on short-term entrepreneurship, first a simple model is computed (model 1). In this model Y_{it} is the dependent variable and the measure for short-term entrepreneurship (entrepreneurial intention-rate) in county i in year t. β_0 is the unobserved time-invariant individual effect. $X_{1,it}$ is the independent variable, which indicates whether country i is a host of a mega sport event in year t. $Year_t$ and $Country_{i,t}$ are vectors for time and country fixed effects. ε_{it} is the error term.

To capture a more complete effect, a model with control variables is introduced (model 2). In this model X_2 to X_6 are the control variables and stand for the education, political environment, infrastructure, international relations and the unemployment in the particular country. $Year_t$ and $Country_{i,t}$ are vectors for time and country fixed effects. ε_{it} is the error term.

In order to establish the difference between the short- and long-term impact on entrepreneurship models 1 and 2 are also estimated like described above but this time with the measure for long term entrepreneurship (TEA-rate) as the dependent variable. The outcome of the regressions will be compared.

4.1.3. Hypothesis 3

To test the third hypothesis, again a fixed effects regression is used with time (year) and country fixed effects to estimate the causal relationship of hosting a general mega sport event on entrepreneurial activity. First, model 1 is used to test for a relationship, where Y_{it} is the dependent variable and the measure for the entrepreneurial activity in county i in year t. β_0 is the unobserved time-invariant individual effect. $X_{1,it}$ is the independent variable, this is the indicator if a country hosted a specific or a general mega sport event in the presented year. The regression is only performed for the countries that have hosted a mega sport event.

Model 2 is introduced to estimate a more complete effect. In this model the control variables that are previously described are added for the full model.

4.1.4 Hypothesis 4

In order to test the fourth and last hypothesis, the countries in the dataset are classified into ‘developed’ and ‘developing’ economies. Subsequently to test the difference for both categories’, again both model 1 and 2 are used. All dependent, independent and control variables are identical to those in hypothesis 1. However, the regression is performed separately for developing and developed economies.

This in order to establish the difference between hosting a mega sport event in developing and developed economies on entrepreneurship. The outcome of the regressions will be compared to estimate a difference in effect between countries with developed and developing economies.

4.2 Robustness/diagnostic checking

Even when working with all the different regression models there are usually still concerns whether there could be selection bias since secondary data is used. Selection bias means that the selection of individuals is not perfectly random. This can lead for the sample to not represent the reality due to observed and unobserved differences. Part of the solution is introducing control variables to control for the differences between the two groups observed. In this case the countries and their variable of interest, namely domestic credit to private sector. The specific control variables that are introduced are described in the data chapter. However, there has to be noted that introducing control variables will not always account for all the differences between the groups. The control variables most often control for the observed differences between the groups of interest. To control for unobserved differences a fixed effects regression is performed. In a fixed effect regression you control for the average differences, the within-individual variation, between the countries. This by capturing the individual effect in the constant. Therefore, you are able to estimate the effect of the treatment without selection bias since you are using a perfect counterfactual.

To test if there is multicollinearity a Variance Inflation Factor (VIF) test is performed. Multicollinearity occurs when predictors are not only correlated with the dependent variables but also with each other. The VIF test is performed to test whether such relationships are present in this model.

An additional problem could be that there is heteroskedasticity in the fixed effects model. There is heteroskedasticity in a model if the standard deviation of the residuals differs between the elements of the vector. If the error-term is heteroskedastic, this means the standard-errors will be incorrect. In order to deal with this, robust standard errors are used to compute the model, this to be able to have unbiased standard errors. Additionally, clustered standard errors are used to deal with both heteroskedasticity and autocorrelation.

5. Results

In this section the different analyses described in the methodology chapter are performed to test the different hypotheses stated in the theoretical framework. The results of the analyses are presented together with their interpretation.

5.1 Hypothesis 1

To start off, the first step of our research is to perform a very simple regression of the indicator of being a host on the entrepreneurial activity in a country (Model 1 and 2). To control for selection bias and to make sure to control for the difference between the proposed countries, control variables are introduced in the model (Model 3 and 4). This to increase the robustness of the results.

The results of the performed regressions are displayed in Table 3. As stated in the first hypothesis of this paper, it is implied that hosting a mega sport event is expected to cause higher entrepreneurial activity, measured through domestic credit to private sector. All models include time fixed effects however the first and third model exclude country fixed effect. Model 1 and 3 both suggest hosting a mega sport event has a positive and significant effect on entrepreneurial activity since $p < 0.05$. The first model suggests that hosting a mega sport event causes a 28.09% higher domestic credit to private sector, which is used to portray entrepreneurial activity. The third model, which includes control variables, estimates this effect slightly higher at 29.19%.

The models that include country fixed effects (model 2 and 4) both suggest a negative relationship; however, both the coefficients are not significant since $p > 0.05$. This means the coefficients cannot be interpreted.

The models with country fixed effects are used to draw a conclusion. It is important when testing the hypothesis to control for these differences since country differences can impact the causal effect, thus these models give a more complete estimate. Out of both of the models (Model 2 and 4), which include country fixed effects, the first hypothesis has to be rejected. Therefore, it cannot be said that hosting a mega sport event has a positive impact on entrepreneurial activity. This since the relationship that is found is insignificant.

Table 3: Results for the linear regression to establish the relationship between hosting a mega sport event and the entrepreneurial activity (% of domestic credit to private sector) of a country with year fixed effects. Fixed effects estimates.

	Model 1 Entrepreneurial activity	Model 2 Entrepreneurial activity	Model 3 Entrepreneurial activity	Model 4 Entrepreneurial activity
Host	0.2809*	-0.0047	0.2919**	-0.0050
	(0.1030)	(0.0428)	(0.0984)	(0.0408)
Education			0.0515**	0.0396*
			(0.9323)	(0.0196)
Political stability			-0.0063**	-0.0044
			(0.0006)	(0.0023)
Infrastructure			0.0000**	0.0000*
			(0.0000)	(0.0000)
International			0.0019**	-0.0026
relationships			(0.0003)	(0.0026)
Unemployment			0.0095**	0.0093
			(0.0022)	(0.0058)
Constant	0.6683	0.3794	0.2077	0.2231
	(0.0028)	(0.0827)	(0.0480)	(0.1336)
Observations	997	997	997	997
Country FE	No	Yes	No	Yes
R^2 within	0.0078	0.2431	0.2095	0.2759

*Note: Dependent variable is domestic credit to private sector, this is the percentage of the country's resources, provided in loans and nonequity securities by the private sector. Host is the independent dummy variable which is one if the country is a host in the described year. Education is measured as the percentage of the GDP spend on education by the government. Political stability is indicated by the amount of homicides per 100,000 residents. The indicator for infrastructure is the electric power consumption (kWh per capita). International relations are portrayed by the percentage of the GDP of the export of goods and services. Unemployment is the percentage of the residents that does not have a job. Indicator for country fixed effects. Controlled for year fixed effect. * $p < 0.05$, ** $p < 0.01$; standard errors are between parentheses.*

5.2 Hypothesis 2

Table 4 contains the results of the regressions performed. The second hypothesis states that hosting a mega sport event has a bigger effect on short-term entrepreneurship than on long-term entrepreneurship in the host country. Short term effects are measured through entrepreneurial intentions, long term effects through the TEA-rate of a country.

For the short term impact all models show a negative relationship of hosting a mega sport event on entrepreneurial intentions. When controlling for time fixed effects, hosting causes a 7.14% decrease in the percentage of people with entrepreneurial intentions. This effect is significant. It is again necessary to control for country fixed effects to control for country differences. When controlling for this, the effect still remains negative, however becomes insignificant for both the models with and without control variables. Therefore, this coefficient cannot be interpreted.

In order to estimate the effect of hosting on the long-term effect, the same regressions are performed but with the TEA-rate as the dependent variable. Both models without the country fixed effects (model 5 and model 7) indicate negative but insignificant effect of hosting a mega sport event on the long-term entrepreneurial measures. When adding country fixed effects this effect appears to be positive, however is still insignificant thus cannot be interpreted.

As can be seen from Table 4 it cannot be stated that hosting a mega sport event has a bigger effect on short-term entrepreneurship than on long-term entrepreneurship. When comparing Models 1 to 4 and models 5 to 8 it can even be suspected that effect on the short term is lower compared to the long term. However, one cannot draw solid conclusions from this since the independent variables of the models, including the country fixed effects, are not significant and can therefore not be interpreted.

Based on the performed analysis the second hypothesis has to be rejected. This shows that there is no bigger effect of hosting a mega sport event on short-term entrepreneurship compared to long-term entrepreneurship.

Table 4: Results for the linear regression to establish the relationship between hosting a mega sport event and both the entrepreneurial intentions and the TEA rate of a country (both % of the population) with year fixed effects. Fixed effects estimates.

	Model 1 Entrepreneurial intentions	Model 2 Entrepreneurial intentions	Model 3 Entrepreneurial intentions	Model 4 Entrepreneurial intentions	Model 5 TEA rate	Model 6 TEA rate	Model 7 TEA rate	Model 8 TEA rate
Host	-0.0368*	-0.0036	-0.0714**	-0.049	-0.0046	0.0050	-0.0154	0.0056
	(0.0161)	(0.0110)	(0.0196)	(0.0119)	(0.0205)	(0.0084)	(0.0201)	(0.0093)
Education			-0.0151*	0.0060			-0.0067	0.0014
			(0.0059)	(0.0087)			(0.0033)	(0.0045)
Political stability			0.0042**	-0.0015			0.0021**	0.0011**
			(0.0004)	(0.0015)			(0.0002)	(0.0004)
Infrastructure			-0.0000	0.0000			-0.0000	-0.0000
			(0.0000)	(0.0000)			(0,0000)	(0.0000)
International relationships			-0.0005**	0.0003			-0.0002*	0.0006
			(0.0001)	(0.0007)			(0.0001)	(0.0004)
Unemployment			-0.0034**	-0.0017			-0.0028**	-0.0024**
			(0.0009)	(0.0016)			(0.0002)	(0.0006)
Constant	0.1581	0.2622	0.2734	0.2499	0.0928	0.0990	0.1452	0.0814
	(0.0004)	(0.012)	(0.0300)	(0.0292)	(0.0006)	(0.0060)	(0.0173)	(0.0277)
Observations	393	393	393	393	405	405	405	405
Country FE	No	Yes	No	Yes	No	Yes	No	Yes
R^2 within	0.0023	0.1452	0.2956	0.1519	0.0002	0.1483	0.2733	0.2065

Note: Dependent variable is the percentage of residents that has entrepreneurial intentions (models 1 and 2). For models 3 and 4 the dependent variable is the TEA-rate which is the percentage of residents that is either a nascent entrepreneur or own or manage a new business (Global Entrepreneurship Monitor, n.d.). Host is the independent dummy variable which is one if the country is a host in the described year. Education is measured as the percentage of the GDP spend on education by the government. Political stability is indicated by the amount of homicides per 100,000 residents. The indicator for infrastructure is the electric power consumption (kWh per capita). International relations are portrayed by the percentage of the GDP of the export of goods and services. Unemployment is the percentage of the residents that does not have a job. Indicator for country fixed effects. Controlled for year fixed effect.

** $p < 0.05$, ** $p < 0.01$; standard errors are between parentheses.*

5.3 Hypothesis 3

In order to capture the relationship between hosting a general sport event and the entrepreneurial activity both a simple regression (Model 1 and 2) and an extensive regression with control variables is performed (Model 3 and 4).

Table 5 presents the results of the regression performed. The third hypothesis states that hosting an event with various different sports (general) has a bigger effect on the entrepreneurial activity of the host country compared to events that only contain one sport. The models with only one regressor (model 1 and 2) have negative and significant coefficients and are almost equal when controlling for country fixed effects. This means that hosting a mega sport event causes a 32.13% (model 1) or 31.31% (model 2) lower domestic credit to private sector, which is used to portray entrepreneurial activity.

The third and fourth model show the complete models which include the control variables. Both models suggest a negative and significant relationship between hosting a mega sport event and entrepreneurial activity. However, this effect increases when controlling for country fixed effects. This indicates that hosting a mega sport event causes a 48.15% (model 3) or 166.68% (model 4) lower domestic credit to private sector.

From all models can be concluded that there is a negative and significant relationship between hosting a general sport event and the entrepreneurial activity. A general sport event is expected to have a rather negative relationship on entrepreneurial activity. Therefore, the third hypothesis has to be rejected. This indicates that hosting an event with various different sports does not have a bigger effect on the entrepreneurial activity of the host country compared to events that only contain one sport.

Table 5: Results for the linear regression to establish the relationship between hosting a general mega sport event and the entrepreneurial activity (% of domestic credit to private sector) of a country for all countries that were hosting a mega sport event that year with year fixed effects. Fixed effects estimates.

	Model 1 Entrepreneurial activity	Model 2 Entrepreneurial activity	Model 3 Entrepreneurial activity	Model 4 Entrepreneurial activity
General	-0.3213*	-0.3131**	-0.4815**	-1.6668**
	(0.1211)	(0.0000)	(0.1119)	(0.0002)
Education			0.1612**	-10.8355**
			(0.0474)	(0.0017)
Political stability			-0.0511**	-0.6541**
			(0.0090)	(0.0001)
Infrastructure			0.0000	-0.0059**
			(0.0000)	(0.0000)
International relationships			-0.0104**	1.3432**
			(0.0029)	(0.0002)
Unemployment			0.0279*	-0.0165**
			(0.0104)	(0.0000)
Constant	0.9664	0.9898	0.6834	44.3409
	(0.0224)	(0.0000)	(0.1159)	(0.0060)
Observations	27	27	27	27
Country FE	No	Yes	No	Yes
R^2 within	0.1183	1.0000	0.7083	1.0000

Note: Dependent variable is domestic credit to private sector, this is the percentage of the country's resources, provided in loans and nonequity securities by the private sector. General is the independent dummy variable, which is one if the organized event is general. Education is measured as the percentage of the GDP spend on education by the government. Political stability is indicated by the amount of homicides per 100,000 residents. The indicator for infrastructure is the electric power consumption (kWh per capita). International relations are portrayed by the percentage of the GDP of the export of goods and services. Unemployment is the percentage of the residents that does not have a job. Indicator for country fixed effects. Controlled for year fixed effects

** $p < 0.05$, ** $p < 0.01$; standard errors are between parentheses.*

5.4 Hypothesis 4

For the last hypothesis the analysis starts with doing simple regressions of the indicator of being a host on the entrepreneurial activity in a country, this for both developed and developing economies separated and controlled for year fixed effects. In order to increase the robustness of this analysis, for both the developing and developed economies control variables and country fixed effects are added.

In Table 6 the results of the performed regressions are displayed. The fourth and last hypothesis states that the effect of hosting a mega sport event is bigger on the entrepreneurial activity for developed compared to developing economies. For developing economies, the first and third model show that hosting a mega sport event has a positive but insignificant effect. When adding country fixed effects this effect becomes negative but is still insignificant thus both cannot be interpreted.

For the developed economies the same regressions are performed. It shows that hosting a mega sport event has a positive but insignificant effect on entrepreneurial activity. When controlling for observables and country fixed effects this effect still remains positive but is also still insignificant.

From Table 6 can be seen that hosting a mega sport event does not have a bigger effect for developed compared to developing economies. And since the independent variables in the models are not significant, the effects can't be interpreted. Thus, the fourth hypothesis has to be rejected. This implies that there is no bigger effect of hosting a mega sport event on entrepreneurial activity for developing and developed economies.

Table 6: Results for the linear regression to establish the relationship between hosting a mega sport event and the entrepreneurial activity (% of domestic credit to private sector) of a country for divided in countries with developing and developed economies. Fixed effects estimates.

	Model 1 Entrepreneurial activity (developing)	Model 2 Entrepreneurial activity (developing)	Model 3 Entrepreneurial activity (developing)	Model 4 Entrepreneurial activity (developing)	Model 5 Entrepreneurial activity (developed)	Model 6 Entrepreneurial activity (developed)	Model 7 Entrepreneurial activity (developed)	Model 8 Entrepreneurial activity (developed)
Host	0.2665	-0.0005	0.2063	-0.0085	0.2186	0.0207	0.1768	0.0356
	(0.1962)	(0.0362)	(0.1311)	(0.0392)	(0.1298)	(0.0593)	(0.0239)	(0.0557)
Education			0.0049	0.0176			0.0311	0.0451
			(0.0091)	(0.0093)			(0.0239)	(0.0378)
Political stability			-0.0019**	-0.0027*			-0.0498**	0.0034
			(0.0004)	(0.0011)			(0.0079)	(0.0053)
Infrastructure			0.0000	-0.0000			0.0000**	0.0000
			(0.0000)	(0.0000)			(0.0000)	(0.0000)
International relationships			0.0049**	0.0002			-0.0021**	-0.0083*
			(0.0004)	(0.0016)			(0.0006)	(0.0034)
Unemployment			0.0230**	0.0049			-0.0310*	0.0062
			(0.0024)	(0.0059)			(0.0117)	(0.0079)
Constant	0.4563	0.2829	0.0959	0.2200	0.8840	0.5246	1.1207	0.4945
	(0.0039)	(0.0768)	(0.0381)	(0.0788)	(0.0044)	(0.1231)	(0.2065)	(0.2169)
Observations	500	500	500	500	497	497	497	497
Country FE	No	Yes	No	Yes	No	Yes	No	Yes
R^2 within	0.0115	0.2919	0.3467	0.3276	0.0049	0.3390	0.2175	0.3901

Note: Dependent variable is domestic credit to private sector, this is the percentage of the country's resources, provided in loans and nonequity securities by the private sector. Host is the independent dummy variable which is one if the country is a host in the described year. Education is measured as the percentage of the GDP spend on education by the government. Political stability is indicated by the amount of homicides per 100,000 residents. The indicator for infrastructure is the electric power consumption (kWh per capita). International relations are portrayed by the percentage of the GDP of the export of goods and services. Unemployment is the percentage of the residents that does not have a job. Indicator for country fixed effects. Controlled for year fixed effect.
** $p < 0.05$, ** $p < 0.01$; standard errors are between parentheses.*

5.5 Robustness check

As introduced in the methodology chapter, a VIF test is performed to check the robustness of the models used to test the multiple hypotheses.

The test performed is the Variance Inflation Factor (VIF) in order to detect whether the model has multicollinearity (Mansfield & Helms, 1982). If there is detected a high VIF rate the model is suspected of multicollinearity. According to (Kim, 2019) the threshold for 'present multicollinearity' is a VIF score of 5 or higher. Therefore, in this research there is no concern for serious multicollinearity since the mean VIF score is 1.15, which is way below that threshold (see Appendix I table 1).

6. Conclusion and discussion

The goal of this research is to investigate whether if hosting a mega sport event has an impact on the entrepreneurial activity of the country. In order to find this relationship, three additional sub questions were formulated. The start of this paper consists of the review of previously written literature on the relationship between hosting a mega sport event and the economy, tourism and the social life. From this review, 4 hypotheses are stated which are all tested by performing a fixed effects regression. The model is performed with data that was primary collected form the World Data Bank, the General Entrepreneurship Monitor and the websites of the chosen events.

With the results of the research that is described in the previous chapter of this paper, the main question that was proposed earlier, can be answered. The main question is as following:

What is the effect of hosting a Mega Sport Event on the host countries entrepreneurial activity in the year of the event?

After doing research, the findings can be concluded and provide an answer to the main and sub questions. According to the first hypothesis, there is no positive effect of hosting a mega sport event on a country's entrepreneurial activity. From the second hypothesis can be concluded that hosting a mega sport event does not have a bigger effect on short-term entrepreneurship compared to long-term entrepreneurship. This answers the second sub question. From this research, hosting a general sporting event is expected to have a negative effect on a country's entrepreneurial activity. This result is contradictory with what was expected. This can be concluded form the third hypothesis and provides answer to the third sub question. The fourth hypothesis, which answers the first sub question, provides evidence that there is no bigger effect of hosting a mega sport event on entrepreneurial activity for countries with developing and developed economies. Actually, no relationship is found in both models.

The answer to the main question of this research that follows from the data is that hosting a mega sport event has a no effect on the entrepreneurial activity of a country compared to the one's that do not host a mega sport event. This statement does not agree with the already existing literature that mostly finds positive relationship between hosting a mega sport event and determinants of economic success.

The findings from this research are contradicting with those of previous literature. As Hayduk (2019) states in his research hosting a mega sport event influences entrepreneurship positively. For this, evidence has not been found in this paper. Additionally, he finds that this effect is only present for developed economies. This cannot be substantiated as well.

This is both surprising since research indicates this relationship to be present and positive. The reason for this deviation is not clear, but it may have something to do with the fact that the dependent variable might not capture the full entrepreneurial effect. Therefore, no relationship is found. Additionally, it could be that the developing countries organizing the events in this sample are not behaving differently from developed countries. Due to that there could be no relationship found.

As suspected from Meurer and Lins (2018) the short-term effect of hosting a mega sport event is larger compared to the long-term effects. However, no evidence for this is found in this paper. This could be because of the fact that the effect is for such a short term that it is negligible in the model for the longer term.

It could also be the case that the research is not giving significant results since not all governments support mega sport events in the same way. Countries that see the importance of organizing such an event invest more that one's that do not find such events important. This can lead for differences in entrepreneurial activity during the hosting period and influences the result of the research to have differing/no effects.

6.1 Limitations and further research

In this study there are some limitations that have to be taken into account. In this research we try to estimate an effect by observing different countries and comparing them with each other. However, it has to be noticed that since all countries are different, estimating a general effect will not result in very valid results. As noted earlier, not all unobservable differences could be considered. It is also the case that a lot of the same countries are hosting mega sport events. This also makes it hard to estimate a general effect since the effect is based on a lot of the same cases.

It could also be that the success of organizing a mega sport event is subjective to not only country differences, but also differs throughout time. Time effects are considered in a fixed effects model. This also in combination with the country differences. However, there is controlled for many differences, a fixed effects model cannot estimate the causal effect of time-invariant treatment variables, such as the geographical location. It is only possible estimate for the causal effect of time-varying treatment variables. It is assumed that such time-invariant treatment variables can impact the dependent variable but cannot be measured. Because of this remark, it can be concluded that when investigating this relationship, the models only provide evidence for an association between the dependent and independent variables. Although it does not qualify to draw conclusion about any causal effects that might be present.

Furthermore, with fixed effects models there is a focus on within-individual changes. However, when looking at these changes there can occur measurement errors. A measurement error is the

difference between the observed value and the value in reality. Measurement errors can be more problematic in a fixed effects model since the estimation of the effect is dependent on multiple observations per country over time. Therefore, if only one of these observations is incorrect, this can immediately influence the entire country estimation negatively.

In line with this is the fact that not all countries statistics are as closely monitored. In developed countries this is easier since monitoring requires independence and profession which they are better skilled in. This has to be compared to developing countries where they sometimes do not have means to be able to be as precise and independent, so estimations can be more inaccurate. Also, in developing countries the informal economy is usually bigger, which is not or badly captured in the statistics. When data is not representing the actual state of affairs this could lead to bias in the results.

In sum, additional research on the impact of hosting a mega sport event on the entrepreneurial activity in the host country can be very necessary. This to be able to find a causal relationship in a case without all the above introduced limitations. Since we find that the previous mentioned impact is negative and insignificant, other relationships are also of interest. When mentioning that differences between countries have to be handled with care, dividing countries in groups according to similarity could help. This to avoid generalizing the effect. For further investigation, the effect for countries that are alike could be estimated separately in order to overcome the differences in effect hosting can have on a country's entrepreneurial activity. To account for all differences additionally a research can be performed by estimating the separate effect for each different sports event since this is partly generalized in this research. Moreover, entrepreneurial activity is hard to measure and not all entrepreneurial activity is performed with private credit. Therefore, to give a more accurate estimation of the effect on entrepreneurial activity, more facets that indicate entrepreneurial activity could be included in this measure when doing future research.

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8. Appendices

8.1 Appendix I – VIF score

Table 1: VIF score for the variables Infrastructure, Education, Political stability, Unemployment, International relations and Host.

Variable	VIF
Infrastructure	1.26
Education	1.22
Political stability	1.20
Unemployment	1.16
International relations	1.07
Host	1.01
Mean VIF	1.15