The drivers behind the export behavior of entrepreneurs: a cross country analysis

Master thesis Strategy Economics

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Abstract: This research tries to understand the drivers behind the export strategy of entrepreneurs by investigating both the market perceptions of the entrepreneur and the external market environment in which they operate. The research on export behavior of entrepreneurs is very limited, as most research on export focusses on the drivers of firms with greater resources, and research on entrepreneurship focusses more on their intent rather than their strategy. This paper therefore aims to investigate this middle ground by using data on entrepreneurs from the Global Entrepreneurship Monitor from 49 countries. Hypotheses are formed on how perceptions of competition and the uniqueness of their product positively translates in an entrepreneurs' propensity to export. These relations are measured by employing a multilevel model, including the moderating effects of ownership, the behavior of competitors and the competitiveness of the country according to the Global Competitiveness Index (GCI). Having the perception of a unique product shows to stimulate entrepreneurs to engage in export activities, even when controlling for firm size and the level of firm establishment. Perceived competition shows to not be a significant determinant. Against expectations, the GCI seems to have no significant moderating impact on the behavior of its entrepreneurs, nor does the behavior of competitors. Instead, it is found that the level of development and innovativeness of a country can explain between country differences. The significant moderating effect of ownership is questionable given how the variables are measured and operationalized in the study. It is concluded that having a perception of a unique idea can be considered a competitive advantage in international markets, and therefore stimulate export regardless of the level of development of a country. Therefore, governments should focus on policies that stimulate innovation as not only will it allow for the generation of new ideas, but it also gives entrepreneurs the tools to go across borders. Further research is needed to understand how governments can further assist entrepreneurs that have a unique idea.

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1.0 Introduction

This paper investigates the drivers behind entrepreneur's export behavior by assessing how their perceptions of the market shape their strategy. By doing so, I aim to contribute to the literature on the strategy of entrepreneurs and export determinants. The research on the drivers of export behavior amongst entrepreneurs is limited. Navarro-Garcia (2016) is the only paper that investigates the drivers behind entrepreneurial export, but only focusses on Spanish firms ignoring the role of market conditions. Similarly, most studies on the decision to export focus on firm characteristics and not taking the outlook and perceptions of the entrepreneur in consideration. This paper tries to fill these gaps by not only investigating what role the owner's perceptions play in their decision to export, but also how the macroeconomic conditions and the comparative advantages of the country could affect these perceptions translating into strategy. To the best of my knowledge, this is the first paper to address the drivers behind export strategy of entrepreneurs whilst taking between country differences in consideration.

Firstly, the drivers behind entrepreneurial export strategy are assessed. I look at the owner's perceptions of the uniqueness and competitiveness of their product in their respective markets. Entrepreneurs are known for bringing innovative products to the market and challenging the status quo for incumbent firms (Hessels and van Stel, 2009), forcing their hands for more efficient allocation of resources. Their impacts become especially significant when the firm also operates on international markets, as not only does this stimulate growth for the firm itself, export is known to stimulate economic growth for the country as a whole (Atkin et al., 2017). There is often the misconception that only large conglomerates dominate international markets. However, with born-global firms and the early internationalization of firm it makes one question what drives their strategic decision to export. In this research I attempt to understand what drives these start-ups to go across borders.

Secondly, I try to explore which macroeconomic conditions are important for an economic infrastructure that supports export growth amongst start-up companies in a

country. Export is known to provide significant growth advantages for economies through improved productivity, higher levels of employment and wealth accumulation (Hessels and van Stel, 2009). Therefore, stimulating exports is crucial from a government perspective. However, start-ups may face even greater barriers to export relative to larger firms, and thus may have a greater need for support (Leonidou, 2004). By understanding the responsiveness of export to economic determinants, governments could target export growth in a more efficient manner. I try to address these determinants by comparing export behavior of entrepreneurs of countries that vary in their level of development and economic strengths and weaknesses.

The research question is empirically investigated by using data from the Adult Population Survey provided by the Global Entrepreneurship Monitor. I use data from 2011-2017 on 37.212 individuals living in 49 different countries. This data set gives insights on the perceptions of entrepreneurs across the globe and the characteristics of their startups. A multilevel logistic model is employed due to the nested structure of the data with having multiple individual observations per country. Employing this multilevel model recognizes the presence of interdependence of living in the same country, which is highly probable given they all operate under the same economic conditions. Similarly, this model enables the research to control for both individual level characteristics and perceptions, and country level economic characteristics, both which are relevant to answer the research question. Lastly, as a robustness check and to assess whether the results hold external validity, the results are also obtained for developed and developing nations separately.

The results support the hypothesis that entrepreneurs are more likely to export when they believe their product is unique. The hypothesis that entrepreneurs export more when they perceive competition to be high however cannot be proven. The estimations for the moderators are, similarly, also somewhat unexpected but can be explained throughout reasoning from the literature and limitations of the research. The results do highlight the importance of innovation to the overall export propensity of startups in a country, however, given the limitations to the research, the results need to be interpreted with caution. It is however believed that, with further research, there should

be a focus on what role governments can play in supporting export strategies of entrepreneurs that do have a unique idea.

The remainder of the paper is structured as follows. In section 2, an overview of the existing literature is given and the hypotheses are outlined. Section 3 contains a detailed description of the data, and the research method used is outlined and motivated through empirical testing. In Section 4 the empirical results are presented. Finally, in Section 5, the empirical findings are further discussed, as well as the limitations of these findings and concluding remarks are made.

2.0 Literature review

In this section, I will discuss how entrepreneurial export strategy fits in with the current theoretical and empirical literature on export motives. Secondly, I look at how perceptions of the market and the uniqueness of the product could affect the decision to export, and how the ownership structure could affect how their perceptions are translated into strategy. Lastly, I look how both the microeconomic and macroeconomic market determinants could affect the decisions by assessing the actions of competitors, and thee macroeconomic conditions. Based upon the existing literature, eight hypotheses are developed that evaluate both the intrinsic and extrinsic motives behind the export behavior amongst entrepreneurs.

2.1 Theories about firm export behavior

The decision of firms to export has been heavily investigated in the empirical literature. Gaining entrance to additional foreign markets offers significant advantages to a firm, as it has shown to be important for the firm's growth, financial performance and expansion of sales (Hessels, 2007). However, entering foreign markets poses significant risks. Not only does the firm have the uncertainty of political and financial fluctuations in the target country, firms also have to deal with cultural and linguistic differences that can have impact on their operations and overall demand for their products. This "liability of foreignness" (Zaheer et al., 1995) makes it challenging for firms trying to enter foreign markets. The high risk is further accentuated due to it being a high-cost investment which often is irreversible, creating significant sunk costs to the firm. Managing directors of firms should therefore carefully consider whether they have the means to overcome such barriers of entry.

The dominant view across theoretical and empirical literature is that export is mostly driven by older and larger firms. According to the resource-based view a firms' ability to export is solely dependent upon both the tangible and intangible assets available to them. In line with this theory, empirical studies thus find that tangible assets such as human and financial capital, often proxied in empirical studies by firm size, are said to be an

important determinant of export intensity (Javalgi, White and Lee, 2000; Ganotakis and Love, 2012). It is believed that such larger firms are able to substantially benefit more from economies of scale relative to smaller firms, giving them a lower risk perception and making them more open to export. Therefore, this view is supported by research stating that export activity is mostly dominated by larger and productive firms. This concept is formally described in the model proposed by Melitz (2003). The model proposes that when a firm opens up its barriers to trade, only the most productive firms will enter the export market, whilst the least productive firms will continue to serve the domestic market. As an industry further opens up, greater shares of the benefit of trade are given to the most productive firms, and thus, this will eventually lead in less productive firms to leave the market. This is in line with the evolutionary perspective, which suggests that only the most productive firms survive because international trade acts as the catalyst in making resource reallocations. This is as only those firms that have the productive capacity to financially overcome the high sunk costs will able to capture the most promising foreign markets, ultimately outcompeting less productive firms in domestic markets as well (Prašnikar et al., 2017). Exporting is also said to be a product of accumulated knowledge and experience. Johnson and Valne (1977) investigated the relationship between age acting as a proxy of experience and export, and found that age positively impacted exports amongst Swedish owned subsidiaries. Other studies further support that both the firm and its managers export experience, with the latter often being proxied by a firms age, are found to positively affect a firm's export intensity (D'Angelo et al, 2013). Thus, it is believed that export is part of a natural growth path and is often a result of gradual expansion.

However, such beliefs that only large and established firms can export are conflicting with the rise of early stage export activity by smaller entrepreneurial firms. Many firms directly engage in exporting behavior rather than accumulating the above-mentioned necessary assets. Such "born global firms", or international entrepreneurship, that adopt the process of internationalization in their early stages are motivated by the accumulation of international experience that is beneficial to their organizational capabilities, even if they may not have the above-mentioned productive capabilities. International entrepreneurship, a term that was first coined by Morrow (1998), was later on defined as

those businesses that engaged in "proactive and risk seeking behavior by crossing international borders" (McDougal and Ovitatt, 2000). These new entrepreneurial firms are able to engage in more risk seeking as they have greater strategic flexibility relative to incumbent firms. Older, well-established firms may develop "competency traps" where certain organizational routines are hard to unlearn as they age (D'Angelo et al., 2013) and thus an aging firm may be linked to "sclerotic thinking, inflexibility and an inability to change strategy and/or behaviour" (Love et al., 2016). Most research that finds a negative relationship between age and exporting behaviour (Kirpalani and McIntosh, 1980; D'Angelo, 2013) link this relationship to the literature on organisation theory, stating that structural inertia, its inability to change its structural organization and strategy due to a more rigid firm structure (Hannan and Freeman, 1984). The absence of such inertia may give entrepreneurial firms a competitive edge over incumbent firms.

However, the knowledge about such early "born global" entrepreneurs seems to be relatively scarce (Hessels and van Stel, 2011) and the drivers behind their export strategy remain unclear (Oviatt and McDougall, 2005). The only study that tries to explain early exporting is the study conducted by Dana et al. (2016). This study investigating the export behavior of winemaking SME's based in Italy finds that international experience is an indicator of export behavior. However, this study fails to consider the drivers behind exporting in the first place.

What is clear from the evaluation of the literature on exporting behavior is that there seems to be conflicting ideas regarding the necessary qualities a firm must possess to ultimately target foreign markets, as export strategy theoretically does not fit in with the characteristics of early entrepreneurship. This may lie in the conflicting ideas on what one considers to be the competitive advantage necessary for effective export strategy.

2.2 Entrepreneur's market perceptions

2.2.1 Competitive advantages

The OLI (Ownership, Location, and Internalization) paradigm as proposed by Dunning (2000) states that the type of foreign investment a firm will engage in is dependent upon

the interaction of internalization, locational and competitive advantages a foreign country has to offer. In the case of choosing to export over its alternatives (relative to other modes of entry such as a merger, acquisition or outsourcing) a business has chosen to actively seek out additional markets while its domestic market may offer prominent locational advantages allowing them to produce domestically. Thus, according to this theory, exporting whilst producing domestically may only take place if the firm has a certain competitive advantage to overcome the previously mentioned liability of foreignness.

For entrepreneurial firms their competitive advantage may lie in other aspects, such as the above-mentioned strategic flexibility and risk seeking behavior allowing them to respond to changes in demand more rapidly. Additionally, to challenge incumbent firms in foreign markets they might offer a more unique service or product. Research by Pope (2002) attempts to highlights the drivers of export of small firms. By using a questionnaire, managing directors of 565 firms within the state of California across different industries were asked to highlight the most important factors stimulating their export behavior. Using an ANOVA model with firm size as the independent variable, this study finds that especially for firms with fewer resources, having a unique product was a significant determinant in the decision to export.

Therefore, entrepreneurs, especially those who may export early on in their lifecycle and compete with large multinationals with greater resources, may feel more confident in doing so when they have a strong perception of such a competitive advantage. Therefore, based on the above theoretical and empirical propositions, I hypothesize:

H1: Entrepreneurs that believe they have a unique product are more likely to export than those who do not.

2.2.2 Market determinants of export propensity

Not only might perceived uniqueness play a role, the perceived level of domestic competition could potentially affect a firms' ability to export. The relationship between export and domestic competition has been described through rivalling hypotheses. The

national champion hypothesis states that larger firms are handicapped by domestic competition as it prevents them from exploiting economies of scale. Given that this theory believes that export behavior is mainly driven by larger firms, a negative relationship between domestic competition and export is to be expected. On the other hand, the domestic rivalry hypothesis predicts a positive relationship. This is attributed to the mechanism that as firms are faced with higher level of competition, they have to become innovative in both their products and processes, to cut costs and retain their competitive advantage. This competitive advantage may thus transcend to foreign markets, incentivizing the firms to engage in exporting behavior (Bramati et al., 2005).

Some empirical evidence exists for the national champion hypothesis showing a negative relationship between domestic competition and export (Marvel 1980; Krugman 1984; Chou 1986). However, most empirical research agrees on this relationship being positive. Poddar (2004) uses a discrete choice model to study export patterns of the incumbent Indian firms after the implementation of economic liberalization policy. He finds that with the exogenous shock of increased domestic competition through higher levels of foreign direct investment, the policy change positively impacted export behavior of incumbent firms, showing a positive relationship between competition and export. Bramati et al. (2005) investigated the opposing hypothesis using panel data from Belgian firms and finds that both export propensity (the decision to export) and the export intensity (the level of export a firm engages in) to be positively related to the level of domestic competition, which they capture through the Herfindahl Hirshell Index across the industries of the firms in their dataset. They also find that this relationship is independent of a firms' size, measured as the number of employees. This thus provides evidence that export behavior is not limited to larger firms, disproving the mechanism behind the national champion theory. Lastly, Clougherty and Zhang (2009) investigate the same relationship using data from the world airline industry. They find that domestic competition both improves firm performance in foreign markets and exporting behavior, finding a positive relationship between domestic competition and international market shares. This therefore provides direct evidence for the mechanism underlying the domestic rivalry hypothesis, as they isolate the effect on exporting strategy through greater firm performance transcending to foreign markets.

This may not only be true for firms that already are experienced and have long established operations as investigated by the priory mentioned studies, but could also impact decision making by entrepreneurs running small and new businesses. Entrepreneurs based in highly competitive industries or countries may be forced to be more cost efficient relative to entrepreneurs operating in markets with lower concentrations, as it is required for their survival. As a result, entrepreneurs based in highly competitive markets are more likely to export, even in the earlier stages.

Therefore, based on the above findings, I hypothesize:

H2: The perceived level of competition by an entrepreneur positively affects a firms' export propensity.

2.3 Perception and decision making

Hypotheses one and two are based on the assumptions that the owner's perception of the market for their product ultimately will drive their strategic decisions. This phenomenon is mostly explored within the literature of industrial organization. The dominant view across the literature is that important decisions within organizations are affected by the owners cognitive processes and perceptions (Beyer et al., 1997).

This relationship however may be impacted when the ownership structure of the firm consists of multiple owners. Individuals may have different cognitive processes, and thus subsequentially may have different perceptions of market opportunities and risk, which ultimately affects what they deem to be appropriate strategy for the firm. Therefore, multiple owners could in turn posit less strategic flexibility as contradicting beliefs may significantly slow down the decision-making process, and thus also may negatively impact the decision to export.

Papers that specifically assess the relationship between owner structure and export behavior agree with the above phenomena. Literature suggests that through the principal agent problem firms with concentrated ownership are more likely to take the risk to export as they can focus on maximizing their own utility, rather than having to the needs of other shareholders in consideration when multiple owners are in place. Thus, this

strategic flexibility has shown to have a positive impact on both export propensity and export intensity (Kim and Park, 2011; Salas and Deng, 2017).

Based upon the above-mentioned literature, the number of owners could have an impact on the strategic decision-making process through individual perceptions of perceived uniqueness and domestic competition, and thus I hypothesize

H3: The greater the number of owners in a firm, the lower the likelihood of exporting when perceiving one's product is unique.

H4: The greater the number of owners in a firm, the lower the likelihood of exporting when perceiving the domestic competition is high.

2.4 The microeconomic environment

The decision to export may not only be a result of perceptions of its own product. The research by Pope (2002) also suggests that another reactive driver for export is to avoid losing out on foreign opportunities as the strategic move of exportation is said to bring advantages to (competing) firms. By gaining access to additional markets firms could make greater profits, allowing them to benefit from economies of scale, leading to overall firm growth. Additionally, by gaining foreign markets firms are able to diversify their revenue streams for the risk of their domestic market becoming too saturated, and they could also expand the lifecycle of mature products that may be relatively new to other markets. Lastly, central to this argument is that not only firms are able to improve productivity through economies of scale as a result of serving a larger number of customers through export, but also through gaining greater technical efficiency through the mechanism known as "learning by exporting" (de Loecker 2007). This theory states that as firms access new markets, they will have improved access to new resources such as improved managerial and marketing practices, new technologies and even greater competition requiring greater efficiency. Some studies have indeed found a positive relationship between firm performance and exporting (Aw and Hwang 1995; Bernard and Jensen 1999).

However, empirically it is hard to establish causal evidence for such mechanisms, as most of the studies are believed to suffer from self-selection bias. The roots of this self-selection bias lies within the earlier mentioned literature stating that only those larger firms that are already have high productivity and high profitability are more likely to export in the first place (Melitz 2003; Prašnikar et al., 2017). Thus, studies find it hard to disentangle this potential reverse causality, making it unclear whether export actually enables improved efficiency (an outward shift of their production possibility frontier) or merely allows for a more efficient redistribution of their existing scale and scope (movement along the production possibility frontier) for those firms that already have high productivity (Atkin et al., 2017).

In order to establish such a causal relationship, studies would have to be able to isolate the productivity before and after a firm entering foreign markets. Atkin et al. (2017) effectively address the problem of the selection bias by conducting a randomized control trial on Egyptian Rug manufactures. They randomly assign non-exporting firms in their subset into exporting by providing export opportunities to them. The firms are asked to produce identical products with the same inputs (to ensure the firms have similar production possibility frontier starting the trial) within a given time frame (11 weeks), and were offered subsequent orders given that the prior orders were met with satisfaction from the customer. With this experiment the authors were able to monitor the treatment group (those assigned to exporting) relative to the control group (those that were not given export opportunities). The quality and productivity of firms was measured throughout the experiment, and communication between the foreign customers and supplier were recorded. The authors found that, relative to the control group and adjusting for product specifications, there was both a significant rise in the product quality and the efficiency at which the rugs were produced. Rather than this being simply a movement along their productive capacity, they found that the quality improvements that were made targeted towards the feedback they received from their customers. Thus, giving partial evidence for the "learning by exporting effect" and that these improvements were a result of an outward shift in the Production Possibility Frontier (PPF)

From these studies it is evident that through export, competitive advantages are to be obtained relative to those firms that choose to not export. Thus, the opportunity cost of not exporting and falling behind on one's competitors may be greater than the sunk costs required when one exports in the long run. Therefore, the decision of competitors to engage in exporting behavior may influence a firm's decision to export out of the fear of falling behind and missing out on growth opportunities.

The most prominent example displaying such a strategic interaction were Campbell and Heinz whom both operated in the Soup Industry. Campbell decided to enter the US market that was still untouched by competitors allowing them to dominate the market. Heinz on the other hand established its dominance in the UK market as a response, and both firms ended up targeting each other's markets as a result. Even though this example is mostly cited for the first mover advantage (the concept of being able to establish market dominance by being the first to introduce your product and establish brand recognition and loyalty before others enter the market), it also illustrates that competing firms follow each other's footsteps to ensure one does miss out on potential profits.

Such interplay between large firms can also transcend to smaller entrepreneurial firms. Entrepreneurs who aim to enter a market that is already highly competitive locally may feel a stronger need to export if their competitors, which could both be larger multinationals or other smaller firms, are actively seeking out such advantages in foreign markets. Considering this study focusses on what drives the export propensity of entrepreneurial firms rather than the strategic rationale behind the choice of specific foreign markets, the choice to export can either be to simply not stay behind on its competitors or to have the above described first mover advantage. Therefore, based on the above, I hypothesize that:

H5: The higher the export propensity of geographically proximate firms, the more likely an entrepreneur is to engage in exporting activities when they perceive their product as unique.

H6: The higher the export intensity of geographically proximate firms, the more likely an

entrepreneur is to engage in exporting activities when they perceive the domestic competition as high.

2.5 The external macroeconomic environment

Whether entrepreneurs engage in exporting activities may not only depend upon their own strategic intentions, but also whether their external environment provides a favorable environment for doing so. Anderson and Williams (2004) state that a firm's environment affects its strategies, and thus its internationalization. As exporting firms no longer just compete on the domestic markets, their products should not simply have a domestic competitive advantage but also an international comparative advantage, which could be impacted by a country's policies and how the country performs on a global scale.

Firstly, demand for their products may be impacted by the market access firms have. This is a direct result of trade relations a country has with neighboring countries. Such relationships are important as they determine the level of tariffs, which impact the price competitiveness of a product relative to similar products that are currently offered by the foreign market itself. High tariffs can negatively impact both a firm's export directly, and even more strongly it hits the supply chain channel (if raw materials are obtained from other countries). A study conducted by Handley and Kamal (2020) on the impact of an increase in US tariffs by 24 percentage points on US exports found that through the weakening of these supply chains US exports were reduced by 2 percentage points, as the new tariff policies resulted in an additional cost of $900 per worker in new duties. Thus, such increased costs as a result of higher tariffs ultimately have a negative impact on the global demand for a country's products and services. Macroeconomic stability could also impact the price competitiveness of one's products. The overvaluation of the domestic currency reduces a country's global competitiveness, and as a result dampens the export intensity of a country. Additionally, unstable currencies that constantly fluctuate create profit risks due to the high uncertainty, which could discourage firms to engage in export (Ethier, 1973).

The supply capacity of a firm may also be dependent upon a country's characteristics. The level of industrialization determines how effectively one can allocate both its natural and human resources, and thus ultimately how productive firms can be in the production of their goods and provision of their services (UNTCAD, 2005). The quality of human capital is also said to be an important indicator for export performance of firms. According to the resource-based view, the quality of human capital is considered to be one of the intangible assets that gives firms competitive advantage. However, the ability of firms to attract high quality human capital is dependent upon the general level of skill and education of the available workforce in the country.

Even if a firm's environment provides a favorable climate for high productivity, there may still be additional structural and physical barriers in the exporting of their products. The quality of institutions has been highlighted as a determinant of the quality of exports. Low quality institutions could discourage exports through several channels. Firstly, inefficient bureaucracy and high levels of corruption could create additional risk of the investment, creating high transaction costs in addition to the already high sunk costs associated with an export strategy. Secondly, a lack of propriety rights causes a high risk of appropriation, thus preventing firms to come up with innovative and unique products that could give them a comparative advantage in both domestic and international markets (Faruq, 2011). The literature indicates the importance of institutional quality on export performance. Lu et al. (2009) analyze the impact of corporate governance and institutional environment on the export behavior of Chinese-listed firms, and find that the export propensity of locations is much greater the higher the institutional quality. Even more relevant to this research is the distinction in sensitivity towards institutional quality and the type of firm. LiPuma et al. (2011) investigate whether this sensitivity differs between smaller and newer firms relative to larger and more established firms. They hypothesize that smaller firms are more strongly affected by institutional quality, given that small firms often lack sufficient insurance against default. Additionally, institutions often favor larger and older firms over smaller entrepreneurial firms due to the market power they possess. By exploiting firm level data across continents from the WBES (World Business Environment Survey), the authors measure how export intensity is affected by perceived institutional barriers as captured by the survey. They find that overall export intensity is

negatively affected by poor institutional quality, but that these effects are more strongly felt by younger and smaller firms, confirming their hypothesis.

Lastly, physical barriers to export could also negatively impact export intensity. Most traditional international trade theories assume zero transportation costs; however, the quality of transport infrastructure determines transport cost and thus effectively determines the level of export. Hoekman and Nicita (2008) find that a 10% increase in infrastructure investment generated a 5% increase in exports in developing countries. Similar results were found by a meta-analysis conducted by Nijkamp et al. (2013) across 36 primary studies investigating the elasticity of exports towards improvements in infrastructure. They found that for every 1 percent increase in infrastructure, exports rose by about 0.6 percent. This is not only because the infrastructure of a country determines not only a firm's ability to reach foreign markets through the quality of their roads and trading routes, it also impacts their cost of production and thus the competitiveness of their products on a global scale (Clark et al., 2004).

It is evident from these studies that there are many economic indicators at the country level that can affect the ability of a firm to export. Entrepreneurs that may have a unique idea and feel the urge to access foreign markets to enact on their competitive advantages might be handicapped by domestic conditions such as poor physical and institutional infrastructures, unstable financial markets, a lack of industrialization needed for their production or a lack of skilled workers that can help to realize their ideas on a global scale. Therefore, how competitive the country is in terms of the above-mentioned aspects relative to other countries could affect the decision to export, and could have a moderating effect on the entrepreneur's perception of export opportunities. Thus, I hypothesize that:

H7: The greater the global competitiveness of a country based on its inherent characteristics, the greater the likelihood of exporting when believing one's product is unique

H8: The greater the global competitiveness of a country based on its inherent characteristics, the greater the likelihood of exporting when domestic competition is high.

3.0 Data and methods

In order to test the hypotheses described in Section 2, this research employs a multilevel logit regression. This section first elaborates upon the data source and the variables. Thereafter, it describes the methodology.

3.1 Data sources

In order to capture the behavior of entrepreneurs, the research uses the Ault Population survey that is yearly collected by the Global Entrepreneurship monitor (GEM, 2021). Annually, a minimum of 2000 respondents, including entrepreneurs that may be in different stages of their business life cycle, are interviewed per country. Participants are questioned regarding their outlook, business and drivers to give greater insight in entrepreneurial perceptions and decision-making. Therefore, it provides a great source for individual level data that is balanced across a large number of countries with different market environments, giving the necessary variation of how motives differ across borders to investigate the hypotheses of this research. For the purpose of my research, I limit the APS data to those individuals that either have a new (null to three and a half years) or an established business (more than three and a half years) to ensure it only captures data from business owners. The distribution of both new and established entrepreneurial firms across countries in the analysis sample can be seen in Appendix A Table A1. Even though the number of participants is not evenly distributed across all countries, each country has a large number of participants, with the majority (98.50%) of businesses being younger than three years.

For data regarding the external market environment in which the entrepreneurs operate, the Global Competitive Index (World Economic Forum, 2019) is employed. The GCI is released on an annual basis by the World Economic forum (WEF). The GCI assesses a country's microeconomic and macroeconomic foundations of national competitiveness on a global scale, through evaluating the national institutions, policies, and factors that determine the overall productivity of a country. The GCI is a weighted index that ranges from 1-7, and is built upon a weighted average of data falling across 12

pillars. These pillars include the quality of a nations its institutions, infrastructure, macroeconomic development, health and primary education, higher education and training, goods and market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication and innovation. The global competitive index therefore serves as a great measure that considers the whole cumulative physical, policy and market infrastructure of a nation that could directly impact a firms' capabilities and productivity, thus in turn is export abilities.

Even though GEM APS data is available from 1999 0nwards, the data on the GCI and its subsequent pillars is only publicly available from 2011-2017. Thus, I limit my data set to this time overlap. After merging the two datasets from 2011 till 2017, and keeping only those entrepreneurs who actually have an operating business and drop the observations that have incomplete responses, a final dataset is generated with 37,212 entrepreneurs from 49 of countries.

3.2 Variables

3.2.1 Dependent variables

The dependent variable, Export propensity, is a binary variable that captures whether the firm engages in export behavior depicted by "1" or " 0" respectively. This variable is appropriate for the research given that it captures the decision of going abroad, which allows for the drivers behind such a decision to be explored. Data from this dependent variable is retrieved from the GEM's APS dataset. The survey question belonging to this variable is " What proportion of your customers live outside of your country?". Therefore, a "1" was assigned to those firms that had customers outside of their country of origin, and a zero otherwise. The variable of export propensity therefore measures the decision to export rather than the intensity at which they export.

3.2.2 Independent variables

The variables of interest, product uniqueness and competition, are both operationalized as binary variables and similarly obtained from the APS. Both variables are measured through their owners' perceptions of their products/services. In order to capture product uniqueness, the question "How many (potential) customers will consider your product/service unfamiliar?" was used. Respondents could answer this question with "All " or "Some" and " None". The binary variable was given a "1" if the entrepreneur perceived some product uniqueness (all and some) and a "0" if none of the customers perceived the product as unfamiliar. For product competition, the same logic was applied for the question "How many Businesses offer the same product?". Therefore, both variables are based upon the owners' perceptions, which will ultimately drive their strategic decisions.

3.2.3 Control variables

Several control variables at the individual level from the APS that have shown to be of importance according to prior literature have been included. As highlighted in the prior section the dominant view across empirical and theoretical papers is that larger businesses and more established businesses that are further down in their business life cycle are more likely to export. In order to control for size, a categorical variable is generated for micro (< 10 employees), small (10 – 50 employees), medium (50-250 employees) and large business (> 250 employees). in line with the definition of the OECD (OECD, 2005). For the level of establishment, the model differentiates between a young business (0-3,5 years) and an established business (> 3.5 years).

Secondly, aside from business characteristics, socio-economic demographics captured by the APS that could have an impact on strategic decision making have also been taken into consideration. The level of education is said to reflect the owner's cognitive abilities, and human capital accumulation is said to be a necessary component to develop the managerial practices for proper export performance (Ganotakis and Love, 2012). Thus,

higher levels of educational attainment have been said to positively affect export performance. Therefore, a categorical variable for education level is employed (none; some secondary, secondary degree, post-secondary, and graduate). Gender has also shown to be of significance in the decision to export. A study by Orser et al. (2010) found that once controlling for a business its sector, firm and owner's attributes, females are significantly less likely to export than men (Orser et al., 2010), which they believe may be related to different perceptions in risk amongst males and females. Thus, a binary variable "Male" is generated taking on the value of "1" when the entrepreneur is male and "0" if female. Other demographic variables that have specifically been linked to risk aversion are income and age. Older people seem to be more risk averse than younger people (Albert and Duffy, 2012), whilst household income has shown to positive impact on risk taking behavior (Savage, 1993). Given that risk aversion could ultimately impact their business strategy, and therefore impact the entrepreneurs' willingness to export, both age (employed as a continuous variables in years), income (a categorical variable stating whether the individuals income belongs in the first, second or third tercile) and gender (as a binary variable that takes on "1" if male and "0" otherwise) are included in the model.

3.2.4 Moderating variables

As hypothesized, the market environment in which the entrepreneur operates could potentially impact some of the above-described relationships. In order to test the fifth and sixth hypothesis, the actions of competitors need to be quantified. In order to do this, a variable is created that takes the mean of all entrepreneurs that engage in exporting activities within that country and within that given year. In order to test the third and fourth hypothesis on how the organizational structure affects perceptions and thus the export strategy, the number of owners is employed as a continuous variable.

The other moderator is the Global Competitiveness Index which ranges from 1-7 and is employed as a continuous variable in the model. Given that some pillars may impact export propensity in different ways, and could therefore make the overall GCI potentially insignificant, or to simply have a look at which pillar carries greater

significance in promoting export amongst entrepreneurs, the pillars are also included as moderators individually in a subsequent model. Given that the raw data of these pillars are unweighted and are an accumulation of a large number of sub factors, the data is standardized to a z-score to allow for greater comparison between the pillars. By gaining information on which pillars carry the greatest significance in stimulating exports, the results generated will carry significant policy relevance for those nations that want to better support and stimulate its entrepreneurs.

3.2.5 Descriptive statistics

A summary of all variables considered and their descriptive statistics can be found in Table 1. Table 1 shows that only 0,8% of the entrepreneurs in the sample engage in export behavior. The majority of the firms are relatively young, with only 1.5% of the firms having been established for longer than 3.5 years. The underrepresentation of established businesses is because these businesses often had incomplete responses to our variables of interest, and were thus dropped as a result. The majority of the firms in the sample are small (92.1%). Business ownership ranges from sole ownership, to 10 owners, with the average number of owners showing most firms to be a partnership. In total, 46.3% of the entrepreneurs perceive their product as somewhat unique, and 92,7% percent perceives the markets in which they operate as competitive. There is a good split between male and female entrepreneurs (58.7% is male), and the average age of the entrepreneurs in the sample is 38 years.

Table 1. Descriptive statistics of the analysis sample (49 countries).

		(1)	(2)	(3)	(4)	(5)
VARIABLES	Description	N	Mean	S.D.	Min.	Max.
Dependent variable						
Export propensity	Binary variable that takes 1 if exporting, zero if not	37, 212	0.008	0.092	0	1
Independent variables						
Perceived	Binary variable that takes 1 if	37, 212	0.927	0.260	0	1

Competition	owner believes that there are many or few competitors offering similar products, 0 if none				
Perceived Uniqueness	Binary variable that takes 1 if owner believes that many or few customers perceive their product as unique, 0 if none	37, 212	0.463	0.499	0	1

Level 1 Control variables

Business older than 3.5 years	Binary variable that takes on 1 if business is older than 42 months, 0 if younger than 42 months	37, 212	0.015	0.122	0	1
Income lower tercile ($< 33\%$)	Categorical variable that takes on 1 if the entrepreneur's income belongs to the lowest 33%	37, 212	0.239	0.426	0	1
Income middle tercile (33-66%)	Categorical variable that takes on 1 if the entrepreneur's income belongs to the middle 33%	37, 212	0.296	0.457	0	1
Income upper tercile ($> 66\%$)	Categorical variable that takes on 1 if the entrepreneur's income belongs to the upper 33%	37, 212	0.465	0.499	0	1
No education	Categorical variable that takes on 1 if entrepreneur has not had any education	37, 212	0.095	0.294	0	1
Some secondary education	Categorical variable that takes on 1 if entrepreneur has obtained some secondary education	37, 212	0.146	0.353	0	1
Secondary education	Categorical variable that takes on 1 if entrepreneur has obtained a secondary degree	37, 212	0.366	0.482	0	1
Post secondary education	Categorical variable that takes on 1 if entrepreneur has obtained post secondary education	37, 212	0.323	0.468	0	1
Graduate education	Categorical variable that takes	37,212	0.070	0.256	0	1

	on 1 if entrepreneur has obtained a graduate education					
Male	Binary variable that takes on 1 if entrepreneur is male, 0 if female	37, 212	0.587	0.492	0	1
Age	Continuous variable capturing the age in years of the entrepreneur	37, 212	38.17	11.74	16	90
Small business	Takes on 1 if number of employees is between 10-50 (Small)	37, 212	0.921	0.269	0	1
Medium business	Takes on 1 if number of employees is between 51-250 (Medium)	37, 212	0.068	0.251	0	1
Large business	Takes on 1 if number of employees is between 251-1000 (Large)	37, 212	0.008	0.087	0	1
Micro business	Takes on 1 if number of employees is between 0-10 (Micro business)	37, 212	0.003	0.057	0	1

Moderating variables

GCI	Global Competitiveness Index that ranges between 0-6	37, 212	3.778	1.782	0.034	5.858
Surrounding firms	The mean export propensity of all entrepreneurs in a given country	37, 212	0.008	0.011	0	0.079
Ownership	Continuous variable indicating the number of owners present in business.	37, 212	1.945	1.345	1	10
Innovation	Level of innovation in a country, standardized	37, 212	-0.000	0.997	-0.345	4.264
Institution	Quality of institutions in a country, standardized	37, 212	-0.007	0.987	-0.257	5.674
Infrastructure	Quality of a country's infrastructure, standardized	37, 212	-0.003	0.992	-0.378	3.495

Macroeconomic	The macroeconomic health of a country, standardized	37, 212	0.002	1.004	-0.370	3.625
Health	The overall level of health and primary education, standardized	37, 212	0.000	0.998	-0.380	3.041
Education	The quality of higher education and training in the country, standardized	37, 212	0.000	0.998	-0.376	3.362
Technology	The technological progress in a country, standardized	37, 212	-0.000	0.988	-0.353	3.557
Business	Quality of business strategies, operations and their networks	37, 212	-0.002	0.995	-0.375	3.513
Financial	The level to which financial markets are developed, standardized	37, 212	-0.002	0.998	-0.319	4.123
Goods	Efficiency of the good market given policy infrastructure, standardized	37, 212	-0.000	0.998	-0.376	3.250
Labour	Efficiency of labor market, standardized	37, 212	-0.002	0.995	-0.361	3.536
Marketsize	The size of the country's market, standardized	37, 212	-0.363	0	-0.363	-0.363
Innovative stage	A binary variable that takes on 1 if an economy resides in the innovation driven stage, and takes on 0 if the economy of a country resides in the factor driven and efficiency driven stage	37, 212	0,323	0,468	0	1

3.3 Model

In this section the choice of model is motivated through analysis of the data structure and to confirm whether the multilevel model is the more appropriate choice relative to its simple logistic regression counterpart. The final specification of the model to test the

hypothesis, including its cross-level interactions will be presented, and tests will be carried out to ensure this final specification best fits the data.

3.3.1 The multilevel model

As the individual level data from GEM's APS is combined with GCI's country level characteristics, multiple levels are created within the dataset. Each individual i (level 1 variable) is now nested within a country j (level 2 variable). Since entrepreneurs within the same country are expected to behave more similarly relative to entrepreneurs in another country, a nested structure is created.

Given that the dependent variable, export propensity, has a binary nature, the literature suggests a logit model would be the most appropriate fit. This is because a linear regression, such as an OLS regression, would allow the outcome variable to exceeds its numerical limits between 0-1. However, employing a linear logistic regression rather than a multilevel model could pose a bias in the results if the above natural hierarchy exists within the data set. If such a structure is neglected, it could lead to a violation of the principal assumption, as the standard errors within the second level could be correlated. This happens if the observations in the data are interdependent given that individuals within the same country are more likely to behave similarly relative to individuals from another country. Thus, using a linear regression when a nested structure exists within the data could lead to significant bias in the parameters of the model. It could lead to the underestimation of standard errors, and in turn could lead to an overestimation in the significance of the variables of interest. The multilevel model in this case would thus pose a more appropriate fit as it aims to disentangle the effects within clusters (the extent to which the characteristics of the entrepreneur is associated with export behavior) and between clusters (the extent to which the country characteristics impact export behavior of entrepreneurs). The model therefore allows for the differentiation between the average effect of our lower level variables (and thus our variables of interest; perceived competition and perceived uniqueness) and how this effect differs across clusters if this effect significantly differs (referred to later on in this section as the random slope variance). This is also of importance as failure of taking the

potential differentiating effects across these clusters in consideration, the significance of our variables of interest may also be grossly underestimated given that opposing effects across clusters could cancel each other out.

3.3.2 The level of fit

In order to test the level to which such a hierarchy exists and to subsequently assess whether the multilevel model is the most appropriate fit for the dataset, the interclass correlation coefficient (ICC) is calculated. As shown in formula one, the ICC is measured by taking the proportion of the between-cluster variation var(u_{0j}) relative to the total variation, which also includes the variance of within-cluster variation (α).

$$ICC = \frac{\text{var}(u_{0j})}{\text{var}(u_{0j}) + \alpha}$$

(1)

In the context of this study, it therefore measures the proportion of export variation of entrepreneurs i within countries j, relative to the total variation of export behavior of entrepreneurs of both within a country and across countries. The ICC takes on a value between 0 to 1. If zero, the observations do not depend on an individual's cluster membership, or in this case the entrepreneur's country of origin (there would be no between country variation). In this case a traditional linear logit model could be used. If the ICC=1 one could say there is a perfect interdependence of the residuals, and thus observations would strictly vary between countries (and thus there would be no within-country variation).

In order to estimate the ICC, one has to first estimate the null model without any control variables nor independent variables. We thus estimate:

$Exportdum_{ij} = \beta_0 + \mu_{ij}$ {with i = 1, ... N; j = 1, ... K}

(2)

The estimates of the ICC can be seen in Appendix B Table B1. The ICC is estimated at 0.2508. This means that 25.08% of the variation in export propensity is due to between country

differences, whilst 75.92% of the variation is due to within country differences in entrepreneurial choices. According to Heck et al. (2013) one can consider a nested structure to exist when the ICC exceeds 0.05. Additionally, the likelihood test that captures how the multilevel model with intercepts varies by country improves the level of fit relative to a single level logistic model with randomly varying intercepts shows to be significant. Therefore, there shows to be a strong presence of hierarchy nested within the data's structure, and therefore we employ a multilevel model rather than a linear logistic model.

Additionally, one now has to test whether there is a need for employing random slope variance rather than a fixed slope. If the individual level variables (level 1) impact the dependent variable export propensity differently across clusters, then one would want the slope to vary. If the effect however does not significantly vary across clusters, one could opt for a fixed slope. In order to make such a choice, one can run both a constrained intermediate model (CIM) and an augmented intermediate model (AIM), and through a likelihood ratio test get a greater understanding of which model provides a better fit. The constrained intermediate model contains an intercept β_0, all level-1 variables (indicated by δ_{ij}) , all level-2 variables (indicated by γ_{ij}),the subsequent slope variables β_n ,as well as all intra-level interactions (level-1 * level-1 or level-2 * level-2 interactions), residual μ_{ij}, but excludes cross level interactions

$$Export_{ij} = \beta_0 + \beta_1\delta_{ij} + \beta_2\gamma_{ij} + \beta_3\theta_{ij} + \mu_{ij}$$

(3)

The augmented model on the other hand includes similar interactions to the CIM, but additionally includes the residual term (η_{ij}) associated with the relevant level-1 variable (in our case, our independent variables of product uniqueness and perceived competition). In the case that the AIM provides a better fit, the cluster-based variation of the effect of the lower-level variable improves the model, and thus a random slope should be included in the model.

$$Export_{ij} = \beta_0 + (\beta_1 + \eta_{ij}) \delta_{ij} + \beta_2\gamma_{ij} + \beta_3\theta_{ij} + \mu_{ij}$$

(4)

Both models were run separately for both the variables of interest (product uniqueness and product competition), of which the results can be seen from Appendix B Table B2. The likelihood ration in this case measures the difference in defiance of the AIM and the CIM (with the CIM being nested in the AIM). If the AIM provides a better fit and thus has a significantly lower deviance relative to the CIM (meaning that the sum of (deviance CIM) – (deviance of AIM) > 0), the likelihood ratio test will show to be significant. In the case of product uniqueness, the likelihood ratio shows to be insignificant ($p = 0.6152$), meaning the hypothesis that the AIM provides a better fit can be rejected, and thus the effect of product uniqueness does not significantly vary from one cluster to another. In the case of perceived competition, the likelihood ratio tests also suggest that the AIM does not provide a better fit ($p = 0.1816$). Thus, for the final specification of the model, for both regressions a fixed slope will be employed.

3.3.3 Final specification of model

The final specification of the model, also including the cross-level interactions, based upon the structure of the data, level of hierarchy and the above-mentioned literature leads to the following specification.

$$Export_{ij} = \beta_0 + \beta_1\delta_{ij} + \beta_2\gamma_{ij} + \beta_3\theta_{ij} + \beta_4\psi_{ij} * \delta_{ij} + \mu_{ij}$$

(5)

where β_0 the intercept, β_1 the slope of our variables of interest δ_{ij} (product uniqueness and product competitiveness), β_2 the individual slopes of all our level 1 variables γ_{ij} (age, education, income, ownership structure , gender) , β_3 the slope of our level 2 variable θ_{ij}(the Global Competetiveness index) , β_4 the slope of the moderator variables ψ_{ij}(mean export of surrounding entrepreneurs, the GCI, ownership, and the individual 12 pillars of the GCI) on the variables of interest, and the residual term μ_{ij}.

Product uniqueness and product completeness will be explored in separate models. For each variable of interest, the basic model without any moderating effects will be measured, and subsequently, separate models will be estimated to investigate the individual impact of the 15 moderators. Therefore, a total of 32 regressions will be run.

3.3.4 Robustness check

In order to check whether the relationships hold in different economic settings, 2 steps are taken to ensure the findings are robust. Firstly, an alternative measure of the GCI is used to indicate the level of sophistication in a country's economy is the stage of development the country is in. The level of development is often split into three different stages each marked by their own competitive advantages, in which countries are allocated based on their Gross Domestic Product per capita. One is marked by the factor driven stages, which strength is marked in its labor and natural endowments. The consequent efficiency driven stage is where the focus lies on the manufacturing of standard goods and services at economies of scale. The final stage, the innovation driven stage, is marked by the production of complex product and services of an innovative nature, using advanced and complex methods. Developed economies are in the innovation driven stage, whereas developing economies reside in the factor driven or efficiency driven stage, and thus lack the complexity and human capital of the innovation driven stage. The GEMS's Adult Population Survey makes the distinction between these different stages at country level, and thus capture this distinction in development across nations. This measure thus serves as an alternative to the Global Competitiveness Index. Research on entrepreneurship has shown that the nature of entrepreneurship varies across these three stages (Carree and Thurik, 2010), and the level of development has similarly been used as a moderator for entrepreneurial perceptions of entrepreneurship (Patel and Rietveld, 2021) Therefore, this measure could potentially be used to explain between country differences in export strategy by entrepreneurs.

In order to assess the robustness of the results of this study, these stages of development will be taken as an alternative measure. A dummy variable " Innovative stage" that takes on "1" if the economy resides in the innovation driven stage and "0" if the economy resides in the factor driven or efficiency driven stage is employed to assess whether this can explain between country differences. Secondly, by running the regressions for both developed and developing nations separately it can be seen whether the hypothesized relations hold external validity or only apply in certain economic settings. How the countries in this study are divided based on this standard can be seen from Appendix A Table A2, where 24 countries to this standard are considered developing nations and 25 countries are considered developed.

4.0 Results

In this section, I will discuss the outcomes of the regressions. First, the base model without any moderating effects is analyzed to understand how only perceptions of entrepreneurs (on product uniqueness and competition), business characteristics and the entrepreneur's socioeconomic demographics impact their business strategy. Thereafter, the moderating effects of both business characteristics (ownership) and external market characteristics (export behavior of surrounding entrepreneurs, GCI and its sub-pillars) will be discussed. Lastly, to explain some of the unusual findings of this research and to assess the robustness of the results, the above described relationships will be tested using an alternative measure of economic development and within the subsets of developed and developing countries separately.

4.1 The base model

The results of the base models for both our variables of interest are shown in Table 2. Model 1 describes the relationship between product uniqueness and export propensity, and Model 2 analyzes the impact of perceived competition on export propensity. As can be seen from Model 1, the effect of product uniqueness is positive and significant at the 1% significance level, meaning that those who perceive their product/service to be unique are more likely to export than those that do not. These findings are thus in line with Hypothesis 1. However, the regression coefficient of perceived competition in Model 2 is insignificant. This result is not line with Hypothesis 2.

Some of the control variables are significant in both models. The coefficient for the level of establishment is positive and significant, meaning that a business that has been established more than 3.5 years ago is more likely to export relative to its younger counterparts. The size of the business also deems to have a significant impact on the export propensity. Relative to a small business which is taken as our base category (10-50 employees), medium (51-250) and large businesses (>250) have a higher likelihood to engage in export behavior. The regression coefficients for the socioeconomic variables age, income, education and gender are insignificant in both models.

Table 2. The relationship between the export propensity of entrepreneurs (dependent variable) and perceived product uniqueness (Model 1) and product competition (Model 2).

	(1) Base model Perceived product uniqueness	(2) Base Model Perceived product competition
Perceived uniqueness	0.549***	
	(0.196)	
Male	0.285	0.255
	(0.198)	(0.197)
Business older than 3.5 years	6.992***	7.004***
	(0.208)	(0.208)
Medium business (51-250 employees)	0.560**	0.561**
	(0.244)	(0.244)
Large business (251-1000 employees)	1.108*	1.061*
	(0.579)	(0.593)
Micro business (<10 employees)	0.447	0.471
	(0.809)	(0.817)
Income middle tercile (33-66%)	-0.141	-0.170
	(0.324)	(0.324)
Income upper tercile (>66%)	0.390	0.376
	(0.293)	(0.291)
Some secondary education	0.172	0.187
	(0.552)	(0.551)
Secondary education	0.0437	0.0788
	(0.504)	(0.501)
Post secondary education	0.730	0.793
	(0.495)	(0.492)
Graduate education	0.647	0.712
	(0.537)	(0.534)
Perceived competition		-0.155
		(0.283)
Constant	-8.226***	-7.809***
	(0.601)	(0.644)
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

In order to quantify the magnitude of the relationships, the odds ratios are calculated, and are displayed in Appendix C Table C1. The odds ratio allows to compare the relative odds of the outcome of interest (an entrepreneur that exports), given its exposure to the variable of interest (perceiving a product as unique or perceiving high competition for the products). Thus, in the

example of perceived product uniqueness in relation to engaging in export behavior, which both are operationalized as dummy variables, it is the division of ratios perceiving product as unique and exporting to not exporting, divided by the ratio of *not* perceiving their product as unique and exporting to not exporting. Looking at model 1 showing the results for perceived uniqueness, it shows that if individuals perceive their product/ service as unique, they are 1.8 (p < 0.05) times more likely to export relative to individuals that do not perceive their product as unique. Similarly, entrepreneurs that have a medium sized business (51-250 employees) are also 1.8 times (p < 0.10) more likely to export relative to entrepreneurs with a small business (10-50 employees), and those running a large business (>250 employees) are 3.0 times (p < 0.10) more likely to export relative to those running a small business. The impact of having an established business is rather large in magnitude. Entrepreneurs that have a business that has been established for more than 3.5 years are 1087 times (p < 0.01) more likely to export relative to entrepreneurs that have a relatively young business (<3.5 years). The odds ratios for the socioeconomic variables age, income, education and gender are insignificant.

4.2 The moderation model

Now that the relationships (or lack of relationships) of our main variables of interest with export intensity have been assessed, the impact of our moderators can be analyzed. The first moderator is ownership, and the results of the moderation model can be found in Table 3. Contradictory to expectations, ownership seems to have a positive and significant effect (p < 0.05) on export propensity in Model 1, but the relationship is negative and insignificant in Model 2. When interacted with our variables of interest to analyze how the number of owners affects export through owner perceptions, we find that these relations are negative but insignificant. Thus, Hypotheses 6 and 7 cannot be accepted.

Table 4 shows the impact of export behavior by geographically proximate firms. Evidently, the variable on its own is highly significant in relation to export propensity. However, the interaction term with perceived uniqueness and competition is insignificant. Thus, hypothesis 5 and 6 cannot be accepted.

Table 3. The moderating impact of ownership on the relationship between the export propensity of entrepreneurs (dependent variable) and perceived product uniqueness (Model 1) and product competition (Model 2).

	(1) Perceived product uniqueness	(2) Perceived product competition
Perceived uniqueness	0.441*	
	(0.267)	
Ownership	0.179**	0.116
	(0.072)	(0.125)
Perceived uniqueness * Ownership	0.218	
	(0.369)	
Male	0.290	0.255
	(0.198)	(0.197)
Business older than 3.5 years	6.974***	6.993***
	(0.210)	(0.209)
Medium business (51-250 employees)	0.547**	0.555**
	(0.244)	(0.245)
Large business (251-1000 employees)	1.092*	1.045*
	(0.578)	(0.593)
Micro business (<10 employees)	0.405	0.460
	(0.814)	(0.818)
Income middle tercile (33-66%)	-0.138	-0.174
	(0.325)	(0.324)
Income upper tercile (>66%)	0.391	0.373
	(0.293)	(0.292)
Some secondary education	0.153	0.184
	(0.551)	(0.551)
Secondary education	0.0126	0.0714
	(0.503)	(0.501)
Post secondary education	0.698	0.782
	(0.494)	(0.493)
Graduate education	0.610	0.701
	(0.537)	(0.535)
Perceived competition		-0.0894
		(0.375)
Perceived competition * Ownership		-0.021
		(0.569)
Constant	-8.081***	-7.810***
	(0.633)	(0.694)
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Table 4. The moderating impact of surrounding firms on the relationship between the export propensity of entrepreneurs (dependent variable) and perceived product uniqueness (Model 1) and product competition (Model 2).

	(1) Effect surrounding firms Perceived product uniqueness	(2) Effect surrounding firms Perceived product competition
Perceived uniqueness	0.592**	
	(0.278)	
Surrounding firms	61.70***	57.49***
	(9.051)	(16.90)
Perceived uniqueness * Surrounding firms	1.829	
	(10.12)	
Male	0.297	0.272
	(0.198)	(0.198)
Business older than 3.5 years	6.810***	6.832***
	(0.211)	(0.210)
Medium business (51-250 employees)	0.607**	0.608**
	(0.243)	(0.243)
Large business (251-1000 employees)	1.133*	1.047*
	(0.590)	(0.604)
Micro business (<10 employees)	0.454	0.465
	(0.799)	(0.809)
Income middle tercile (33-66%)	-0.190	-0.221
	(0.316)	(0.316)
Income upper tercile (>66%)	0.254	0.230
	(0.283)	(0.281)
Some secondary education	0.112	0.133
	(0.535)	(0.534)
Secondary education	0.108	0.149
	(0.482)	(0.480)
Post secondary education	0.750	0.826*
	(0.473)	(0.471)
Graduate education	0.674	0.756
	(0.513)	(0.511)
Perceived competition		-0.223
		(0.433)
Perceived competition * Surrounding firms		4.889
		(17.18)
Constant	-8.979***	-8.466***
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Table 5 shows the impact of the Global Competitiveness Index. The impact of the GCI however, seems to be non-significant, both on its own and when interacted with the variables of interest. Therefore, hypotheses 7 and 8 cannot be accepted. Possibly, heterogeneous effects of the GCI sub-pillars cancel out each other, and therefore regressions of the individual pillars are also analyzed. These regression results are available in Tables D2.1-D2.12 in Appendix D. Even though the majority of the pillars show to be insignificant both individually and when interacted, some unexpected results are found. The efficiency of the labor market (Table D3.3), the level of sophistication of businesses nationally (Table D3.6), and the quality of higher education and training all are insignificant individually (Table D3.8), have a negative and significant moderating impact on the relationship between export propensity and product uniqueness. Practically, this would mean that if one considers their product to be unique, they are less likely to export if they live in countries that have greater efficiency of labor markets, more sophisticated business operations and countries that can provide greater education and training. The level and quality of innovation (Table D3.12) is the only pillar of the Global Competitiveness Index that on its own seems to have a positive and significant effect ($p < 0.10$) on export behavior of entrepreneurs in a country. However, similar to the others, the effect shows to be negative and significant when interacted with product uniqueness (p<0.10). Thus, splitting up the GCI in its pillars does not resolve the insignificance of the GCI but rather provides results contradictory to hypotheses 7 and 8.

Table 5. The moderating impact of the GCI on the relationship between the export propensity of entrepreneurs (dependent variable) and perceived product uniqueness (Model 1) and product competition (Model 2).

	(1) Effect GCI Perceived product uniqueness	(2) Effect GCI Perceived product Competition
Perceived uniqueness	0.583***	
	(0.205)	
Perceived uniqueness * GCI	0.255	-0.110
	(0.205)	(0.263)
PU_Dum * GCI	-0.111	
	(0.216)	
Male	0.288	0.243
	(0.198)	(0.197)
Business older than 3.5 years	6.982***	6.996***
	(0.208)	(0.208)
Medium business (51-250 employees)	0.576**	0.574**
	(0.244)	(0.245)
Large business (251-1000 employees)	1.117*	1.055*
	(0.584)	(0.596)
Micro business (<10 employees)	0.419	0.419
	(0.814)	(0.821)
Income middle tercile (33-66%)	-0.139	-0.147
	(0.324)	(0.326)
Income upper tercile (>66%)	0.379	0.384
	(0.293)	(0.294)
Some secondary education	0.180	0.191
	(0.553)	(0.551)
Secondary education	0.0390	0.0510
	(0.505)	(0.503)
Post secondary education	0.724	0.776
	(0.496)	(0.493)
Graduate education	0.643	0.676
	(0.537)	(0.536)
Perceived competition		-0.182
		(0.285)
Perceived competition * GCI		0.323
		(0.273)
Constant	-8.279***	-7.806***
	(0.602)	(0.643)
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses
*** *p*<0.01, ** *p*<0.05, * *p*<0.10

4.3 Robustness checks

4.3.1 Alternative measure

Given the unexpected results regarding the GCI, an alternative measure of economic development is employed as there might be other factors at country level that could explain between country differences in export propensity which are not effectively captured by the GCI. Therefore, the GCI is replaced by in a dummy for a country being in the innovation driven stage. The results of these can be seen in Table E1 Appendix E1.

Table E1 shows how the level of development affects the overall export propensity and how the level of development moderates the effects of our variables of interest on export propensity. Unlike the GCI, the level of development shows to be positively and significantly ($p < 0.10$) related to the export propensity of entrepreneurs in a country, meaning that entrepreneurs in the innovation driven stage are significantly more likely to export relative to entrepreneurs that operate in the economies in the factor and efficiency driven stage. However, the level of development seems to have no significant moderating impact on the relationships between export propensity and our variables of interest (perceived product uniqueness and product competition), meaning that product competition remains insignificant and perceived product competition has a significant impact on the likelihood to export regardless of the level of development of the economy in a country.

4.3.2 Country subsets

In order to assess whether our results carry external validity or only apply within a particular setting of economic development, the regressions are run for developed and developing nations separately. Additionally, it gives greater information on whether there is a difference in drivers of entrepreneurs between developing and developed nations. The results from the base regressions can be found in Table 6. What can be seen is that the relationships of perceived product uniqueness and product competition hold regardless of the country being in the innovation stage or in the factor or efficiency driven stage. Product uniqueness remains to have a positive and significant impact ($p < 0.10$) on the export propensity of entrepreneurs, whereas perceived product competition remains insignificant. Similarly, the level of establishment ($p < 0.01$) of the entrepreneurial firm shows to have a significant impact across the stages of development. The size of the business however only shows to be of significant importance in less developed countries. Additionally, gender significantly impacts export propensity in the factor and efficiency driven stage, as males are significantly more likely to export relative to

females ($p < 0.10$).

Table 6. *The relationship of perceived product uniqueness and product competition to the export propensity of entrepreneurs for developed (Model 1 and Model 2) and developing nations (Model 3 and Model 4) separately*

	(1)	(2)	(3)	(4)
	Innovation driven stage		Factor/Efficiency driven stage	
	Perceived product Uniqueness	Perceived product Competition	Perceived product Uniqueness	Perceived product Competition
Perceived product uniqueness	0.612*		0.464*	
	(0.363)		(0.251)	
Male	-0.295	-0.404	0.418*	0.395*
	(0.417)	(0.415)	(0.237)	(0.236)
Business older than 3.5 years	8.871***	8.957***	6.229***	6.237***
	(0.526)	(0.532)	(0.234)	(0.234)
Medium business (51-250 employees)	0.543	0.553	0.550*	0.553*
	(0.518)	(0.520)	(0.282)	(0.283)
Large business (251-1000 employees)	-0.735	-1.150	1.416**	1.413**
	(1.507)	(1.531)	(0.599)	(0.603)
Micro business (<10 employees)	-0.262	-0.371	0.660	0.639
	(1.149)	(1.146)	(1.252)	(1.262)
Income middle tercile (33-66%)	-0.613	-0.595	-0.0634	-0.0786
	(0.661)	(0.670)	(0.389)	(0.389)
Income upper tercile (>66%)	-0.0403	-0.0364	0.444	0.456
	(0.605)	(0.614)	(0.349)	(0.349)
Some secondary education	-1.765	-1.777	0.451	0.482
	(1.504)	(1.479)	(0.601)	(0.604)
Secondary education	-1.295	-1.434	0.162	0.210
	(1.423)	(1.398)	(0.552)	(0.554)
Post secondary education	-0.635	-0.714	0.810	0.889
	(1.376)	(1.349)	(0.546)	(0.548)
Graduate education	-0.0190	-0.0780	0.426	0.465
	(1.396)	(1.370)	(0.623)	(0.625)
Perceived product competition		0.447		-0.394
		(0.527)		(0.337)
Constant	-7.003***	-6.963***	-8.439***	-7.885***
	(1.515)	(1.553)	(0.711)	(0.759)
Observations	12,040	12,040	25,172	25,172
Number of groups	26	26	24	24

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Also, some of the moderation effects investigated change when the dataset is split up in developed and developing nations. The most important ones discussed here can be found in Appendix E. The unexpected regression coefficients for the GCI pillars efficiency of the labour market (Table E3), the level of sophistication of businesses (Table E4), and the quality of higher education and training (Table E5) all are insignificant in the subsamples of developed and developing nations. The only exception to this rule is the pillar on the level of innovativeness. Innovation on its own seems to no longer have a significant impact on the overall export propensity of entrepreneurs. However, for developing countries, once interacted with product uniqueness this effect becomes positive and significant ($p < 0.10$), meaning that given entrepreneurs perceive their product as unique and the more innovative the developing country is, the more likely it is that the entrepreneur engages in export. This is thus the only macroeconomic moderator that is somewhat in line with hypothesis 7.

The last interesting finding is regarding the effect of ownership. In Table 3, it shows that ownership has an overall positive effect on export propensity, but no moderating effect as hypothesized in hypotheses 3 and 4. When splitting the data into developed and developing nations, Table E2 in Appendix E shows that for developed countries ownership has a positive direct impact on export propensity ($p < 0.01$) but a negative and significant effect when interacted with perceived product uniqueness ($p < 0.01$). These results thus indicate that overall a greater number of owners promotes the export propensity of an organization, however, this greater number of owners discourages export propensity when they consider their product as unique. These findings are thus in line with Hypothesis 3.

5.0 Discussion and conclusion

This research aims to fill the gap of the drivers behind entrepreneurial export behavior. The role of the entrepreneur's perceptions of the uniqueness and competitiveness of their product in relation to their decision to export (export propensity) is investigated among entrepreneurs across countries. In order to answer this question, the Adult Population Survey data from 2011-2017provided by GEM are used. Additionally, I investigate how these relations are moderated by both firm (ownership) and country level (global competitiveness of economy and behavior of competitors) characteristics.

The data from the APS consists of a hierarchical structure with entrepreneurs (level 1) being nested in countries (level 2). Given the binary nature of the dependent variable (export propensity taking on 1 if the entrepreneur engages in export behavior), and significant nesting was shown through statistical testing (ICC = 0.2508), a multilevel logit model was employed. In line with the hypothesis it is found that having a perception of a unique product is a significant determinant in the decision to export. These results are robust when the regressions are performed for developed and developing countries separately, showing external validity. These findings are therefore contradictory to findings by Pope (2002), who finds product uniqueness to be a significant driver for countries with fewer resources only. In line with the dominant literature on export behavior of firms, it is found that firm size and the longevity of the firm's existence (Ganotakis and Love, 2012) plays a significant role for export strategy, but uniqueness shows to be still significant when controlling for these determinants. This result suggests that having a unique selling point could be one of the competitive advantages that is adequate for expansion to international markets (Dunning, 2002).

Contradictory to hypothesis 1, perceived product competition shows to be insignificant. This goes against prior evidence that has shown domestic competition to be a significant determinant for export (Bramati et al. 2005, Marvel 1980; Krugman 1984; Chou 1986). However, a potential explanation for this can be endogeneity of the measure of domestic competition in this study. The question in the APS employed does not distinguish between domestic competition or overall competition (also across borders), as it merely

asks the participants if many competitors offer similar products. Whereas high domestic competition may push entrepreneurs to explore gaps in foreign markets (Bramati et al. 2005, Marvel 1980; Krugman 1984; Chou 1986), competition globally may not have the same push affect for export strategy. Given that prior evidence of this relationship specifically focusses the relationship between domestic competition and export strategy, this potential difference in perception of the scope of competition may create endogeneity in the results.

Similarly, some unexpected results are found when investigating the impact of the moderators. Overall, a greater number of owners seems to promote export across firms in all countries, which goes against the literature stating that concentrated ownership promotes export strategy (Kim and Park, 2011; Salas and Deng, 2017). These results are only partially robust, as the significance of this relationship is maintained for developed countries only. This unexpected result could be explained by how the question may be interpreted. The data only indicates how many owners the businesses have, but does not indicate the structure and how the responsibility or risk is shared amongst them. The ownership could still be concentrated if the additional owners to the business are minority shareholders, and aren't entitled to large shares of the profits nor responsible for the risk. The entrepreneur may thus still engage in risky behavior that maximizes their own utility if the risk mostly applies to them personally. Therefore, the lack of detail on the ownership structure may bias these results. Support for the hypothesis 3 that multiple owners negatively influence export when one perceives to have a unique product however is found. This would mean that having multiple individuals with individual cognitive processes could negatively influence how perception translates into strategy. However, similarly to as stated above, given that the data lacks information on the structure and voting rights of its owner's caution has to be placed on drawing such conclusions.

The behavior of competitors, which on its own has a large and highly significant coefficient, becomes insignificant when interacted. This may be because the variable itself doesn't truly capture the essence of direct competition for each entrepreneur. Given it takes the mean export propensity of all entrepreneurs in a given country in a given year, it rather displays whether the entrepreneur operates in a country where other entrepreneurs across all industries and sectors

engage in export activities. In order to effectively capture the response to the export strategy of competitors, one preferably should take the average export propensity of the specific sector in which the entrepreneur operates. Even though the Adult Population Survey does provide detail on the sector in which the entrepreneur operates, the sample wasn't evenly distributed across the sectors and thus lacking the variation for effective analysis. The significance of the variable does however indicate that some country's must possess underlying characteristics that do promote the export propensity amongst its entrepreneurs. The Global Competitiveness Index however, contradictory to expectation, fails to explain these differences between countries as it has no significant impact on export propensity. It also does not have a moderating impact on product uniqueness and competition. A potential explanation for this could have been that given the index is made of many pillars that individually could have opposing effects export propensity, generating an insignificant result. However, when splitting up the GCI in its pillars, no improvements in these relations can be found. The only pillars that have a significant moderating impact have a negative impact. The only pillar that seems to positively impact the export propensity of entrepreneurs in a country is the level of innovativeness of the country, which also has a negative moderating effect on product uniqueness. This would mean that overall entrepreneurs in innovative countries are more likely to export, but that the perception of having a unique product seems to be a less important driver of export for countries that have high innovative capabilities.

The importance of innovation for export propensity is confirmed when performing the robustness check. Being in the efficiency driven stage, which is marked by having its comparative advantage in the complexity and innovativeness of products/and services, shows to positively and significantly promote export propensity in a country. The level of innovation could thus potentially explain between country differences in export for entrepreneurs. This also becomes evident when innovation is interacted with product uniqueness. Innovation only seems to positively and significantly moderate product uniqueness for developing nations, indicating that amongst developing nations higher quality of innovation stimulates export propensity when one perceives their product as unique. A potential explanation for this could be that even though one considers their product as unique, being in a developing country one could still doubt whether their product could effectively compete in markets of developed nations where such products may already exist. Thus, the perception of having a unique selling

point may only translate into an actual (perceived) competitive advantage and in turn stimulate export if the country has the innovative infrastructure to compete in international markets.

The empirical analysis employed in this research also provides limitations. Even though the ICC showed significant clustering justifying the use of a multilevel model rather than a linear logit model, the size of the sample may pose a problem for the use of this model. The current data set has a total of 37,212 observations (level 1), spread over 49 countries (level 2) after the data sets of the GCI and the APS are merged together and missing observations are dropped from the dataset. In order to estimate the standard errors without bias, research suggests that a minimum group size of 50 (level 1) with at least 50 groups (level 2) is needed (Moineddin, Mathheson & Glazier, 2007). However, for interaction effects that are cross level, Schoeneberger (2016) says a minimum of 80 groups with a size of 100- level 1 observations is needed. Therefore, even though the data satisfies the recommendation for direct relationships, the data set does not have enough level 2 variation to satisfy the requirement for cross level interactions. Thus, the moderating effects of country level characteristics (The GCI (and its sub pillars) and the stage of development) have to be interpreted with caution due to this potential bias. The potential bias in standard errors could thus also provide an explanation for some of the unexpected (insignificant) relations found in the moderating effects of the GCI and its sub pillars. In order to overcome this type 1 error due to insufficient sample size, Sommet & Morselli (2017) suggest using a Monte Carlo simulation to detect this bias in coefficients and standard errors. Running this simulation however is beyond the scope of this research, but can be considered for the purpose of future research.

A second limitation of the method is the underrepresentation of exporting firms in the sample, as only 0.8% of the firms engage in export behavior. King and Zheng (2001) define a binary outcome variable as "rare" when the dependent variable has an occurrence lower than 5%. The lack of variation creates a bias as the probability of the event occurring is underestimated. This problem is usually addressed by down sampling the "non-events" to even the distribution in outcomes, or as these authors show is to use a bias-corrected logit estimator. This bias is especially prevalent for small sizes (where the number of observation is lower than 200) and is over parametrized relative to the

lack of variation in outcomes. Even though this study has a large number of observations, the underrepresentation of exporting firms in the sample may thus lead to the underestimation of the export propensity of firms. Similarly, to the previous limitation, a Monte Carlo simulation could correct for this potential bias (Morio and Balesdent, 2015) and thus could be employed in future research to assess whether the findings of this research are robust.

Thirdly, the model may overestimate the explanatory power of our variables of interest given not all variables are controlled for. There are many factors that have an impact on a firm's export propensity, and can't all be included in the model due to data limitations of the APS. Examples of important missing variables to the model include experience and financial resources. The experience of the manager has shown to be a significant determinant of the decision to export (Ganotakis and Love ,2012). Johanson & Vahlne (1977) discusses the aspects which result in increased involvement in foreign countries, focusing on Swedish firms. They state that market knowledge, which one can only gain through market experience is considered a great resource, and positively impacts the propensity to export," (Johanson and Vahlne, 1977). Unfortunately, the APS does not provide any information regarding the experience of the entrepreneur in the sector in which they operate. The level of education has been used as a measure of human capital in other studies (Tuaño, Manzano and Villamil , 2014) and similarly is included in the study. However, international experience cannot be captured through this proxy. Similarly, financial resources have shown to be of great importance in the decision to export due to the high costs involved. Forte and Moreira (2018) find that SMEs in less healthy financial positions are less likely to export. Unfortunately, no information in the APS is provided by the APS and could not be included in the model.

The last limitation of this research is the use of survey data. The validity of the results is based on two assumptions. The first one being that the views and perceptions of the entrepreneurs ultimately drive their strategy, the second one that all entrepreneurs interpret the questions in the same manner. The first assumption may be easier to satisfy given that literature on the subject agrees that the cognitive processes of the owner translate into the business strategy (Beyer et al., 1997). However, the relations of

perceived uniqueness and product competition may only hold true if the respondent to the questions holds enough executive power to make strategic decisions. This is questionable as even though the model controls for the number of owners in the study and has been included as a (moderating) variable, we have no information regarding the ownership structure of the firm. Larger firms in the sample with diffused ownership may have managers enacting strategy rather than its founder, and these individuals may have conflicting perceptions and motives affecting strategy. Thus, this lack of information could pose bias to the relations drawn. The second assumption has already been discussed for the matter of perceived product competition. Similarly, the number of owners could be interpreted different. One may consider only the executive partner's owners, whereas others might take (potential) shareholders in consideration. The questions from the APS could thus be interpreted differently by each respondent, and these disparities could affect the relations found in this research.

To conclude, managers' perceptions regarding their product do play a role in driving their exporting activities. Results indicate that entrepreneurs are more likely to export when they believe they have a unique selling point. These results have external validity as it holds for both developing and developed nations, showing that perceived competitive advantages are important in determining strategy regardless of the market in which one operates. Not only does this study provide insight into drivers behind export strategy, it also carries a certain policy relevance. Overall, entrepreneurs have shown to be more confident to engage in export behavior in developed countries (marked by being in the efficiency driven stage). Given that export positively promotes economic growth, it is essential that governments are aware how they could promote export behavior amongst entrepreneurs with unique ideas. Not only will this enable the growth of local business, it could also act as a factor to closing the gap between developing and developed countries by putting them on the map. It is found that amongst developing nations, the level of innovativeness of a country positively stimulates those entrepreneurs that believe they have a unique product. However, given the empirical limitations of this study, further research should focus under which economic conditions entrepreneurs export and how governments could offer support those with a unique idea.

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Appendix A

Table A1. The number of entrepreneurs distributed across countries given the level of establishment of their business

Country	New business (0-3.5 Years)	Established Business (>3.5 years)	Total
United States	889	21	910
South Africa	660	5	665
Greece	327	4	331
Netherlands	714	8	722
Belgium	166	2	168
France	166	4	170
Spain	2,895	21	2,916
Hungary	311	1	312
Italy	147	3	150
Romania	372	9	381
Switzerland	362	9	371
Austria	344	8	352
United Kingdom	923	8	931
Denmark	107	4	111
Sweden	430	3	433
Norway	297	2	299
Poland	602	2	604
Germany	601	8	609
Peru	751	13	764
Mexico	835	5	840
Argentina	597	5	602
Brazil	4,529	14	4,643
Chile	3,628	95	3,823
Colombia	2,18	27	2,207
Australia	430	10	440
Indonesia	2,461	92	2,558
Japan	118	2	120
China	2,143	8	2,151
Turkey	1,843	36	1,883
India	753	4	757
Canada	609	16	625
Morocco	270	2	272
Zambia	556	16	572

Madagascar	252	18	270
Portugal	308	3	311
Luxembourg	219	10	229
Ireland	338	5	343
Cyprus	124	1	125
Finland	285	3	288
Bulgaria	83	3	86
Lithuania	344	7	351
Latvia	457	8	465
Estonia	449	9	458
Croatia	284	5	289
Slovenia	242	2	244
Czech Republic	173	5	178
Costa Rica	152	1	153
Saudi Arabia	524	10	534
Israel	398	9	407
Total	**36,649**	**563**	**37,212**

Table A2. Distribution of countries across the stages of economic development

Factor and efficiency driven countries (n=24)	Innovation driven countries (n = 25)
Argentina	Australia
Brazil	Austria
Bulgaria	Belgium
Chile	Canada
China	Cyprus
Colombia	Czech Republic
Costa Rica	Denmark
Croatia	Finland
Estonia	France
Hungary	Germany
India	Greece
Indonesia	Ireland
Latvia	Israel
Lithuania	Italy
Madagascar	Japan
Mexico	Luxembourg
Morocco	Netherlands
Peru	Norway
Poland	Portugal
Romania	Slovenia
Saudi Arabia	Spain
South Africa	Sweden
Turkey	Switzerland
Zambia	United Kingdom
	United States

Appendix B

Table B1. Intraclass Coeffient

	(1) Model 1	(2) Model 1
var(_cons[Country])		1.106***
		(0.335)
Constant	-4.959***	
	(0.180)	
ICC	0,252***	
	(0,057)	
Observations	37,212	37,212
Number of groups	49	49

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Table B2 . Constrained Intermediate Models (CIMs) and Augmented Intermediate Models (AIMs)explaining Product Uniqueness and Perceived Competition.

	(1) CIM Product Uniqueness	(2) AIM Product Uniqueness	(3) CIM Product Competition	(4) AIM Product Competition
PU_Dum	0.549***	0.536**		
	(0.196)	(0.213)		
Male	0.284	0.284	0.254	0.266
	(0.198)	(0.198)	(0.197)	(0.199)
Business older than 3.5 years	6.992***	6.999***	7.004***	7.046***
	(0.208)	(0.213)	(0.208)	(0.214)
Medium business (51-250 employees)	0.560**	0.558**	0.560**	0.556**
	(0.244)	(0.244)	(0.244)	(0.245)
Large business (251-1000 employees)	1.108*	1.105*	1.060*	1.076*
	(0.579)	(0.581)	(0.592)	(0.593)
Micro business (<10 employees)	0.440	0.449	0.464	0.524
	(0.811)	(0.813)	(0.819)	(0.817)
Income middle tercile (33-66%)	-0.141	-0.142	-0.170	-0.164
	(0.324)	(0.325)	(0.324)	(0.326)
Income upper tercile (> 66%)	0.390	0.390	0.376	0.380
	(0.293)	(0.293)	(0.291)	(0.294)
Some secondary education	0.172	0.166	0.187	0.153
	(0.552)	(0.553)	(0.551)	(0.552)
Secondary education	0.0432	0.0413	0.0783	0.0612
	(0.504)	(0.504)	(0.501)	(0.502)
Post secondary education	0.729	0.726	0.792	0.758
	(0.495)	(0.495)	(0.492)	(0.493)
Graduate education	0.646	0.645	0.712	0.679
	(0.537)	(0.537)	(0.534)	(0.536)
Ownership	0.000535	0.000526	0.000555	0.000475
	(0.00514)	(0.00515)	(0.00510)	(0.00516)
Perceived competition			-0.155	-0.119
			(0.283)	(0.286)
Constant	-8.227***	-8.224***	-7.810***	-7.940***
	(0.601)	(0.601)	(0.644)	(0.651)
Observations	37,212	37,212	37,212	37,212
Countries	49	49	49	49

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

Appendix C

Table C1. Odds ratios of base models perceived product uniqueness and perceived product competition

	(1) Odds ratios Product Uniqueness	(2) Odds ratios Product Competition
PU_Dum	1.732**	
	(0.339)	
Male	1.329	1.289
	(0.262)	(0.254)
Business older than 3.5 years	1087.695***	1100.769***
	(226.632)	(228.913)
Medium business (51-250 employees)	1.750**	1.752**
	(0.426)	(0.428)
Large business (251-1000 employees)	3.209*	2.887*
	(1.753)	(1.711)
Micro business (<10 employees)	1.563	1.602
	(1.265)	(1.308)
Income middle tercile (33-66%)	0.868	0.844
	(0.282)	(0.273)
Income upper tercile (> 66%)	1.477	1.456
	(0.293)	(0.424)
Some secondary education	1.188	1.206
	(0.656)	(0.664)
Secondary education	1.045	1.082
	(0.526)	(0.542)
Post secondary education	2.074	2.210
	(1.206)	(1.086)
Graduate education	1.909	2.039
	(1.025)	(1..088)
Perceived competition		0.856
		(0.243)
Constant	-8.227***	-8.224***
	(0.601)	(0.601)
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Appendix D

Table D1. Moderating impact of export behavior of surrounding firms

	(1) Effect Surrounding firms Perceived product uniqueness	(2) Effect Surrounding firms Perceived product competition
Perceived uniqueness	0.592**	
	(0.278)	
Surrounding firms	61.70***	57.49***
	(9.051)	(16.90)
Perceived uniqueness * surrounding firms	1.829	
	(10.12)	
Male	0.297	0.272
	(0.198)	(0.198)
Business older than 3.5 years	6.810***	6.832***
	(0.211)	(0.210)
Medium business (51-250 employees)	0.607**	0.608**
	(0.243)	(0.243)
Large business (251-1000 employees)	1.133*	1.047*
	(0.590)	(0.604)
Micro business (<10 employees)	0.454	0.465
	(0.799)	(0.809)
Income middle tercile (33-66%)	-0.190	-0.221
	(0.316)	(0.316)
Income upper tercile (> 66%)	0.254	0.230
	(0.283)	(0.281)
Some secondary education	0.112	0.133
	(0.535)	(0.534)
Secondary education	0.108	0.149
	(0.482)	(0.480)
Post secondary education	0.750	0.826*
	(0.473)	(0.471)
Graduate education	0.674	0.756
	(0.513)	(0.511)
Perceived competition		-0.223
		(0.433)
Perceived competition * Surrounding firms		4.889
		(17.18)
Constant	-8.979***	-8.466***
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Table D2.1 Moderating effect of institutional quality explaining product uniqueness and perceived competition.

	(1) Effect Institutional quality Perceived product uniqueness	(3) Effect Institutional quality Perceived product competition
Perceived uniqueness	0.545***	
	(0.196)	
Institution	0.0211	-0.0505
	(0.179)	(0.289)
Perceived uniqueness * Institution	-0.141	
	(0.217)	
Male	0.283	0.254
	(0.198)	(0.197)
Business older than 3.5 years	6.986***	6.993***
	(0.209)	(0.208)
Medium business (51-250 employees)	0.565**	0.564**
	(0.244)	(0.244)
Large business (251-1000 employees)	1.118*	1.062*
	(0.579)	(0.593)
Micro business (<10 employees)	0.451	0.473
	(0.810)	(0.816)
Income middle tercile (33-66%)	-0.143	-0.173
	(0.324)	(0.324)
Income upper tercile (> 66%)	0.384	0.373
	(0.292)	(0.291)
Some secondary education	0.176	0.194
	(0.552)	(0.550)
Secondary education	0.0397	0.0829
	(0.503)	(0.500)
Post secondary education	0.727	0.798
	(0.494)	(0.491)
Graduate education	0.643	0.720
	(0.537)	(0.533)
Perceived competition		-0.160
		(0.284)
Perceived competition *.Institution		-0.0199
		(0.312)
Constant	-8.214***	-7.798***
	(0.600)	(0.643)
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Table D2. 2.Moderating effect of institutional quality on product uniqueness and perceived competition.

	(1) Effect market size Perceived product uniqueness	(3) Effect market size Perceived product competition
Perceived uniqueness	0.549***	
	(0.196)	
Market size	-	-
Perceived uniqueness * Market size	0	
	(0)	
Male	0.285	0.255
	(0.198)	(0.197)
Business older than 3.5 years	6.992***	7.004***
	(0.208)	(0.208)
Medium business (51-250 employees)	0.560**	0.561**
	(0.244)	(0.244)
Large business (251-1000 employees)	1.108*	1.061*
	(0.579)	(0.593)
Micro business (<10 employees)	0.447	0.471
	(0.809)	(0.817)
Income middle tercile (33-66%)	-0.141	-0.170
	(0.324)	(0.324)
Income upper tercile (> 66%)	0.390	0.376
	(0.293)	(0.291)
Some secondary education	0.172	0.187
	(0.552)	(0.551)
Secondary education	0.0437	0.0788
	(0.504)	(0.501)
Post secondary education	0.730	0.793
	(0.495)	(0.492)
Graduate education	0.647	0.712
	(0.537)	(0.534)
Perceived competition		-0.155
		(0.283)
Perceived competition * Market size		0
		(0)
Constant	-8.226***	-7.809***
	(0.601)	(0.644)
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Table D2.3. Moderating effect of labour market on product uniqueness and perceived competition.

	(1)	(3)
	Effect labour market efficiency Perceived product uniqueness	Effect labour market efficiency Perceived product competition
Perceived uniqueness	0.549***	
	(0.197)	
Labour market efficiency	0.163	0.113
	(0.154)	(0.225)
Perceived uniqueness *Labour market efficiency	-0.321*	
	(0.179)	
Male	0.300	0.263
	(0.199)	(0.197)
Business older than 3.5 years	7.022***	7.002***
	(0.211)	(0.208)
Medium business (51-250 employees)	0.560**	0.563**
	(0.244)	(0.244)
Large business (251-1000 employees)	1.142**	1.071*
	(0.571)	(0.591)
Micro business (<10 employees)	0.439	0.459
	(0.812)	(0.816)
Income middle tercile (33-66%)	-0.192	-0.196
	(0.326)	(0.324)
Income upper tercile (> 66%)	0.373	0.354
	(0.293)	(0.292)
Some secondary education	0.178	0.196
	(0.554)	(0.549)
Secondary education	0.0264	0.0851
	(0.505)	(0.500)
Post secondary education	0.708	0.809*
	(0.497)	(0.491)
Graduate education	0.620	0.726
	(0.539)	(0.533)
Perceived competition		-0.133
		(0.287)
Perceived competition *Labour market efficiency		-0.209
		(0.241)
Constant	-8.219***	-7.821***
	(0.602)	(0.643)
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Table D2.4 Moderating effect of Goods market on product uniqueness and perceived competition.

	(1) Effect goods market efficiency Perceived product uniqueness	(3) Effect goods market efficiency Perceived product competition
Perceived uniqueness	0.560***	
	(0.197)	
Goodsmarket efficiency	0.111	0.146
	(0.150)	(0.230)
Perceived uniqueness * Goodsmarket efficiency	-0.221	
	(0.174)	
Male	0.294	0.257
	(0.199)	(0.197)
Business older than 3.5 years	7.010***	7.006***
	(0.210)	(0.208)
Medium business (51-250 employees)	0.558**	0.558**
	(0.244)	(0.244)
Large business (251-1000 employees)	1.133**	1.068*
	(0.574)	(0.592)
Micro business (<10 employees)	0.438	0.472
	(0.812)	(0.814)
Income middle tercile (33-66%)	-0.183	-0.189
	(0.326)	(0.324)
Income upper tercile (> 66%)	0.370	0.361
	(0.292)	(0.291)
Some secondary education	0.163	0.188
	(0.551)	(0.549)
Secondary education	0.0194	0.0799
	(0.502)	(0.500)
Post secondary education	0.705	0.803
	(0.494)	(0.491)
Graduate education	0.621	0.716
	(0.536)	(0.533)
Perceived competition		-0.132
		(0.286)
Perceived competition * Goodsmarket efficiency		-0.215
		(0.244)
Constant	-8.206***	-7.819***
	(0.599)	(0.643)
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Table D2.5. Moderating effect of financial market on product uniqueness and perceived competition.

	(1) Effect financial market development Perceived product uniqueness	(3) Effect financial market development Perceived product competition
Perceived uniqueness	0.563***	
	(0.197)	
Financial market development	0.107	0.119
	(0.148)	(0.200)
Perceived uniqueness * Financial market development	-0.225	
	(0.167)	
Male	0.292	0.263
	(0.199)	(0.197)
Business older than 3.5 years	7.017***	7.008***
	(0.210)	(0.208)
Medium business (51-250 employees)	0.556**	0.553**
	(0.244)	(0.245)
Large business (251-1000 employees)	1.129**	1.072*
	(0.572)	(0.591)
Micro business (<10 employees)	0.432	0.469
	(0.811)	(0.811)
Income middle tercile (33-66%)	-0.184	-0.191
	(0.326)	(0.324)
Income upper tercile (> 66%)	0.376	0.361
	(0.292)	(0.291)
Some secondary education	0.158	0.184
	(0.552)	(0.549)
Secondary education	0.0183	0.0711
	(0.502)	(0.500)
Post secondary education	0.706	0.801
	(0.494)	(0.491)
Graduate education	0.628	0.713
	(0.536)	(0.533)
Perceived competition		-0.114
		(0.290)
Perceived competition * Financial market development		-0.212
		(0.214)
Constant	-8.214***	-7.836***
	(0.599)	(0.645)
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Table D2.6. Moderating effect of business environment on product uniqueness and perceived competition.

	(1) Effect Business Sophistication Perceived product uniqueness	(3) Effect Business Sophistication Perceived product competition
Perceived uniqueness	0.565***	
	(0.197)	
Business Sophistication	3	0.0602
	(0.147)	(0.235)
Perceived uniqueness * Business sophistication	-0.284*	
	(0.173)	
Male	0.291	0.257
	(0.199)	(0.197)
Business older than 3.5 years	7.019***	7.003***
	(0.211)	(0.208)
Medium business (51-250 employees)	0.555**	0.560**
	(0.245)	(0.244)
Large business (251-1000 employees)	1.135**	1.064*
	(0.573)	(0.592)
Micro business (<10 employees)	0.435	0.472
	(0.814)	(0.815)
Income middle tercile (33-66%)	-0.189	-0.180
	(0.326)	(0.324)
Income upper tercile (> 66%)	0.369	0.367
	(0.292)	(0.292)
Some secondary education	0.161	0.188
	(0.551)	(0.550)
Secondary education	0.0179	0.0783
	(0.502)	(0.500)
Post secondary education	0.700	0.798
	(0.494)	(0.491)
Graduate education	0.610	0.715
	(0.536)	(0.533)
Perceived competition		-0.144
		(0.286)
Perceived competition * Business sophistication		-0.0986
		(0.249)
Constant	-8.208***	-7.812***
	(0.599)	(0.644)
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Table D2.7. Moderating effect of technological development on product uniqueness and perceived competition.

	(1) Effect technology Perceived product uniqueness	(3) Effect technology Perceived product competition
Perceived uniqueness	0.563***	
	(0.197)	
Technology	0.187	0.0954
	(0.142)	(0.218)
Perceived uniqueness * Technology	-0.259	
	(0.168)	
Male	0.288	0.254
	(0.199)	(0.197)
Business older than 3.5 years	7.018***	7.005***
	(0.210)	(0.208)
Medium business (51-250 employees)	0.551**	0.558**
	(0.245)	(0.244)
Large business (251-1000 employees)	1.124**	1.059*
	(0.574)	(0.593)
Micro business (<10 employees)	0.432	0.469
	(0.814)	(0.816)
Income middle tercile (33-66%)	-0.177	-0.173
	(0.326)	(0.324)
Income upper tercile (> 66%)	0.379	0.372
	(0.292)	(0.292)
Some secondary education	0.169	0.186
	(0.552)	(0.551)
Secondary education	0.0243	0.0784
	(0.503)	(0.501)
Post secondary education	0.703	0.795
	(0.494)	(0.492)
Graduate education	0.612	0.709
	(0.536)	(0.534)
Perceived competition		-0.136
		(0.287)
Perceived competition *Technology		-0.101
		(0.232)
Constant	-8.219***	-7.825***
	(0.600)	(0.645)
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

Table D2.8. Moderating effect of higher education on product uniqueness and perceived competition.

	(1) Effect higher education Perceived product uniqueness	(3) Effect higher education Perceived product competition
Perceived uniqueness	0.556***	
	(0.197)	
Higher education	0.205	0.0880
	(0.150)	(0.229)
Perceived uniqueness * Higher education	-0.347**	
	(0.175)	
Male	0.290	0.258
	(0.199)	(0.197)
Business older than 3.5 years	7.019***	7.003***
	(0.210)	(0.208)
Medium business (51-250 employees)	0.560**	0.562**
	(0.245)	(0.244)
Large business (251-1000 employees)	1.143**	1.069*
	(0.571)	(0.592)
Micro business (<10 employees)	0.441	0.477
	(0.813)	(0.813)
Income middle tercile (33-66%)	-0.193	-0.185
	(0.326)	(0.324)
Income upper tercile (> 66%)	0.371	0.365
	(0.292)	(0.291)
Some secondary education	0.161	0.188
	(0.551)	(0.549)
Secondary education	0.0125	0.0770
	(0.501)	(0.500)
Post secondary education	0.691	0.799
	(0.493)	(0.491)
Graduate education	0.605	0.716
	(0.535)	(0.533)
Perceived competition		-0.141
		(0.285)
Perceived competition * Higher education		-0.152
		(0.244)
Constant	-8.201***	-7.814***
	(0.598)	(0.643)
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Table D2.9. Moderating effect of health and education on product uniqueness and perceived competition.

	(1) Effect Health and education Perceived product uniqueness	(3) Effect Health and education Perceived product competition
Perceived uniqueness	0.553***	
	(0.197)	
Heatlh and education	0.155	0.0820
	(0.154)	(0.232)
Perceived uniqueness * Health and education	-0.269	
	(0.180)	
Male	0.290	0.257
	(0.199)	(0.197)
Business older than 3.5 years	7.017***	7.003***
	(0.210)	(0.208)
Medium business (51-250 employees)	0.552**	0.558**
	(0.245)	(0.244)
Large business (251-1000 employees)	1.133**	1.064*
	(0.574)	(0.592)
Micro business (<10 employees)	0.436	0.472
	(0.813)	(0.814)
Income middle tercile (33-66%)	-0.179	-0.181
	(0.326)	(0.324)
Income upper tercile (> 66%)	0.375	0.367
	(0.292)	(0.291)
Some secondary education	0.161	0.188
	(0.551)	(0.550)
Secondary education	0.0183	0.0775
	(0.502)	(0.500)
Post secondary education	0.701	0.798
	(0.494)	(0.491)
Graduate education	0.614	0.715
	(0.536)	(0.533)
Perceived competition		-0.143
		(0.286)
Perceived competition * Health and education		-0.132
		(0.248)
Constant	-8.207***	-7.813***
	(0.599)	(0.643)
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Table D2.10. Moderating effect of macroeconomic conditions on product uniqueness and perceived competition.

	(1) Effect Macroeconomic quality Perceived product uniqueness	(3) Effect Macroeconomic quality Perceived product competiton
Perceived uniqueness	0.553***	
	(0.197)	
Macroeconomic quality	0.136	0.0555
	(0.153)	(0.229)
Perceived uniqueness *	-0.277	
Macroeconomic quality	(0.177)	
Male	0.295	0.262
	(0.199)	(0.197)
Business older than 3.5 years	7.016***	7.002***
	(0.210)	(0.208)
Medium business (51-250	0.562**	0.561**
employees)	(0.244)	(0.244)
Large business (251-1000	1.146**	1.069*
employees)	(0.573)	(0.591)
Micro business (<10 employees)	0.439	0.460
	(0.813)	(0.817)
Income middle tercile (33-66%)	-0.187	-0.190
	(0.326)	(0.324)
Income upper tercile (> 66%)	0.372	0.360
	(0.292)	(0.291)
Some secondary education	0.179	0.195
	(0.553)	(0.550)
Secondary education	0.0285	0.0860
	(0.505)	(0.500)
Post secondary education	0.718	0.808
	(0.496)	(0.491)
Graduate education	0.632	0.726
	(0.538)	(0.533)
Perceived competition		-0.143
		(0.285)
Perceived competition *		-0.133
Macroeconomic quality		(0.243)
Constant	-8.221***	-7.816***
	(0.601)	(0.643)
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Table D2.11. Moderating effect of quality of infrastructure on product uniqueness and perceived competition.

	(1) Effect infrastructure Perceived product uniqueness	(3) Effect infrastructure Perceived product competition
Perceived uniqueness	0.556***	
	(0.197)	
Infrastructure	0.183	0.0759
	(0.151)	(0.234)
Perceived uniqueness * Infrastructure	-0.285	
	(0.178)	
Male	0.289	0.256
	(0.199)	(0.197)
Business older than 3.5 years	7.020***	7.004***
	(0.211)	(0.208)
Medium business (51-250 employees)	0.551**	0.559**
	(0.245)	(0.244)
Large business (251-1000 employees)	1.129**	1.062*
	(0.573)	(0.593)
Micro business (<10 employees)	0.433	0.472
	(0.814)	(0.815)
Income middle tercile (33-66%)	-0.182	-0.177
	(0.326)	(0.324)
Income upper tercile (> 66%)	0.375	0.370
	(0.292)	(0.292)
Some secondary education	0.164	0.187
	(0.551)	(0.550)
Secondary education	0.0205	0.0778
	(0.502)	(0.501)
Post secondary education	0.701	0.796
	(0.493)	(0.491)
Graduate education	0.612	0.712
	(0.536)	(0.533)
Perceived competition		-0.144
		(0.286)
Perceived competition * Infrastructure		-0.103
		(0.249)
Constant	-8.209***	-7.816***
	(0.599)	(0.644)
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

Table D2.12. Moderating effect of innovation on product uniqueness and perceived competition.

	(1) Effect innovation Perceived product uniqueness	(3) Effect innovation Perceived product competition
Perceived uniqueness	0.565***	
	(0.197)	
Innovation	0.229*	0.0179
	(0.136)	(0.233)
Perceived uniqueness * Innovation	-0.333**	
	(0.164)	
Male	0.283	0.254
	(0.199)	(0.197)
Business older than 3.5 years	7.022***	7.004***
	(0.211)	(0.208)
Medium business (51-250 employees)	0.555**	0.560**
	(0.245)	(0.245)
Large business (251-1000 employees)	1.134**	1.060*
	(0.573)	(0.593)
Micro business (<10 employees)	0.439	0.471
	(0.815)	(0.817)
Income middle tercile (33-66%)	-0.186	-0.170
	(0.326)	(0.324)
Income upper tercile (> 66%)	0.377	0.376
	(0.292)	(0.292)
Some secondary education	0.172	0.187
	(0.551)	(0.551)
Secondary education	0.0238	0.0789
	(0.502)	(0.501)
Post secondary education	0.697	0.793
	(0.493)	(0.492)
Graduate education	0.600	0.712
	(0.536)	(0.534)
Perceived competition		-0.153
		(0.285)
Perceived competition * Innovation		-0.0168
		(0.245)
Constant	-8.215***	-7.811***
	(0.599)	(0.645)
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Appendix E

Table E1. Robustness check relationship level of development to Export Propensity for developed versus developing nations

	(1) Base model PU	(3) Base Model PC
Perceived uniqueness	0.487*	
	(0.270)	
Innovation driven stage	0.823*	0.815*
	(0.447)	(0.452)
Perceived uniqueness * Innovation driven stage	0.136	
	(0.392)	
Male	0.279	0.243
	(0.198)	(0.197)
Business older than 3.5 years	6.979***	7.001***
	(0.208)	(0.208)
Medium business (51-250 employees)	0.564**	0.567**
	(0.244)	(0.245)
Large business (251-1000 employees)	1.115*	1.068*
	(0.578)	(0.591)
Micro business (<10 employees)	0.384	0.382
	(0.814)	(0.822)
Income middle tercile (33-66%)	-0.142	-0.156
	(0.324)	(0.325)
Income upper tercile (> 66%)	0.395	0.393
	(0.292)	(0.293)
Some secondary education	0.164	0.195
	(0.554)	(0.554)
Secondary education	0.0362	0.0667
	(0.505)	(0.504)
Post secondary education	0.697	0.759
	(0.497)	(0.496)
Graduate education	0.599	0.654
	(0.538)	(0.537)
Perceived competition		-0.360
		(0.369)
Perceived competition * Innovation driven stage		0.517
		(0.578)
Constant	-8.575***	-8.019***
	(0.643)	(0.708)
Observations	37,212	37,212
Countries	49	49

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Table E2. Moderating impact of ownership for developed versus developing nations

	(1) Innovation driven stage Perceived product Uniqueness	(2) Innovation driven stage Perceived product Competition	(3) Effect Factor/Efficiency driven stage Perceived product Uniqueness	(4) Effect Factor/Efficiency driven stage Perceived product Competition
Perceived uniqueness	1.419**		0.506	
	(0.588)		(0.367)	
Ownership	0.340***	0.254	0.0611	0.0970
	(0.123)	(0.243)	(0.120)	(0.148)
Perceived uniqueness * Ownership	-0.310*		-0.0269	
	(0.177)		(0.139)	
Male	-0.357	-0.487	0.419*	0.395*
	(0.427)	(0.421)	(0.237)	(0.236)
Business older than 3.5 years	8.889***	8.942***	6.230***	6.237***
	(0.538)	(0.538)	(0.234)	(0.234)
Medium business (51-250 employees)	0.328	0.315	0.531*	0.533*
	(0.528)	(0.527)	(0.282)	(0.283)
Large business (251-1000 employees)	-0.443	-1.001	1.363**	1.351**
	(1.426)	(1.520)	(0.602)	(0.607)
Micro business (<10 employees)	-1.231	-0.779	0.526	0.559
	(1.224)	(1.173)	(1.309)	(1.279)
Income middle tercile (33-66%)	-0.635	-0.574	-0.0600	-0.0650
	(0.667)	(0.671)	(0.389)	(0.390)
Income upper tercile (> 66%)	-0.0552	-0.0140	0.436	0.458
	(0.612)	(0.615)	(0.349)	(0.350)
Some secondary education	-2.090	-2.003	0.459	0.477
	(1.431)	(1.444)	(0.602)	(0.605)
Secondary education	-1.554	-1.581	0.163	0.198
	(1.340)	(1.354)	(0.552)	(0.554)
Post secondary education	-0.952	-0.908	0.806	0.870
	(1.290)	(1.302)	(0.547)	(0.548)
Graduate education	-0.404	-0.321	0.419	0.445
	(1.317)	(1.327)	(0.624)	(0.625)
Perceived competition		0.729		-0.220
		(0.872)		(0.518)
Perceived competition * Ownership		-0.0873		-0.0657
		(0.261)		(0.162)
Constant	-7.474***	-7.355***	-8.542***	-8.116***
	(1.456)	(1.656)	(0.745)	(0.852)
Observations	12,040	12,040	25,172	25,172
Countries	26	26	24	24

Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Table E3. Moderating impact of labour market efficiency for developed versus developing nations

	(1)	(2)	(3)	(4)
	Innovation driven stage		Factor/Efficiency driven stage	
	Perceived product Uniqueness	Perceived product Competition	Perceived product Uniqueness	Perceived product Competition
Perceived uniqueness	0.615*		0.435*	
	(0.366)		(0.253)	
Labour market efficiency	0.280	-0.0513	0.146	0.244
	(0.260)	(0.388)	(0.239)	(0.295)
Perceived uniqueness * Labour market efficiency	-0.260		-0.343	
	(0.318)		(0.261)	
Male	-0.303	-0.416	0.438*	0.424*
	(0.422)	(0.418)	(0.238)	(0.237)
Business older than 3.5 years	8.957***	9.027***	6.258***	6.251***
	(0.545)	(0.548)	(0.236)	(0.234)
Medium business (51-250 employees)	0.504	0.556	0.557**	0.559**
	(0.526)	(0.524)	(0.281)	(0.282)
Large business (251-1000 employees)	-0.678	-1.137	1.445**	1.435**
	(1.514)	(1.532)	(0.590)	(0.598)
Micro business (<10 employees)	-0.229	-0.318	0.665	0.648
	(1.162)	(1.156)	(1.255)	(1.258)
Income middle tercile (33-66%)	0.0178	-0.0384	-0.437	-0.428
	(0.610)	(0.620)	(0.350)	(0.349)
Income upper tercile (> 66%)	-0.622	-0.549	-0.538**	-0.533**
	(0.454)	(0.448)	(0.268)	(0.268)
Some secondary education	0.0574	0.119	-0.442	-0.491
	(1.426)	(1.396)	(0.623)	(0.624)
Secondary education	-1.680**	-1.748**	-0.00193	-0.00468
	(0.829)	(0.822)	(0.482)	(0.483)
Post secondary education	-1.194*	-1.342**	-0.305	-0.281
	(0.612)	(0.607)	(0.373)	(0.376)
Graduate education	-0.561	-0.645	0.347	0.416
	(0.489)	(0.487)	(0.349)	(0.352)
Perceived competition		0.435		-0.361
		(0.536)		(0.346)
Perceived competition * Labour market efficiency		0.224		-0.450
		(0.417)		(0.316)
Constant	-7.164***	-7.117***	-7.549***	-7.002***
	(0.731)	(0.838)	(0.594)	(0.643)
Observations	12,04	12,040	25,172	25,172
Countries	26	26	24	24

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Table E4. Moderating impact of Business Sophistication for developed versus developing nations

	(1)	(2)	(3)	(4)
	Innovation driven stage		Factor/Efficiency driven stage	
	Perceived product Uniqueness	Perceived product Competition	Perceived product Uniqueness	Perceived product Competition
Perceived uniqueness	0.604*		0.469*	
	(0.367)		(0.253)	
Business Sophistication	0.268	-0.105	0.149	0.151
	(0.262)	(0.422)	(0.209)	(0.291)
Perceived uniqueness * Business sophistication	-0.211		-0.325	
	(0.317)		(0.234)	
Male	-0.306	-0.413	0.429*	0.411*
	(0.422)	(0.419)	(0.238)	(0.237)
Business older than 3.5 years	8.963***	9.034***	6.248***	6.245***
	(0.546)	(0.549)	(0.235)	(0.234)
Medium business (51-250 employees)	0.511	0.577	0.555**	0.555**
	(0.525)	(0.524)	(0.282)	(0.282)
Large business (251-1000 employees)	-0.679	-1.103	1.444**	1.431**
	(1.512)	(1.524)	(0.591)	(0.601)
Micro business (<10 employees)	-0.218	-0.299	0.693	0.743
	(1.162)	(1.157)	(1.248)	(1.219)
Income middle tercile (33-66%)	0.00321	-0.0673	-0.432	-0.450
	(0.614)	(0.626)	(0.349)	(0.349)
Income upper tercile (> 66%)	-0.614	-0.542	-0.533**	-0.536**
	(0.454)	(0.448)	(0.268)	(0.268)
Some secondary education	0.0688	0.144	-0.418	-0.464
	(1.428)	(1.397)	(0.619)	(0.623)
Secondary education	-1.707**	-1.744**	0.000181	0.00868
	(0.827)	(0.823)	(0.482)	(0.482)
Post secondary education	-1.203**	-1.341**	-0.297	-0.272
	(0.612)	(0.608)	(0.373)	(0.375)
Graduate education	-0.567	-0.653	0.354	0.421
	(0.488)	(0.488)	(0.348)	(0.350)
Perceived competition		0.428		-0.370
		(0.536)		
Perceived competition* Business sophistication		0.300		
		(0.448)		
Constant	-7.157***	-7.121***	-7.562***	
	(0.730)	(0.839)	(0.594)	
Observations	12,040	12,040	25,172	
Countries	26	26	24	

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Table E5. Moderating impact of Higher education and training for developed versus developing nations.

	(1)	(2)	(3)	(4)
	Innovation driven stage		Factor/Efficiency driven stage	
	Perceived product Uniqueness	Perceived product Competition	Perceived product Uniqueness	Perceived product Competition
Perceived uniqueness	0.605*		0.474*	
	(0.365)		(0.253)	
Higher education	0.315	-0.177	0.157	0.179
	(0.277)	(0.460)	(0.201)	(0.269)
Perceived uniqueness *	-0.330		-0.308	
Higher education	(0.338)		(0.223)	
Male	-0.308	-0.404	0.430*	0.412*
	(0.422)	(0.419)	(0.238)	(0.237)
Business older than 3.5	8.955***	9.016***	6.248***	6.247***
years	(0.545)	(0.548)	(0.235)	(0.234)
Medium business (51-250	0.505	0.567	0.556**	0.556**
employees)	(0.526)	(0.525)	(0.282)	(0.282)
Large business (251-1000	-0.665	-1.131	1.442**	1.430**
employees)	(1.515)	(1.528)	(0.591)	(0.601)
Micro business (<10	-0.229	-0.316	0.681	0.733
employees)	(1.164)	(1.156)	(1.253)	(1.223)
Income middle tercile (33-66%)	0.0313	-0.0285	-0.432	-0.446
	(0.609)	(0.619)	(0.349)	(0.349)
Income upper tercile (> 66%)	-0.624	-0.538	-0.533**	-0.534**
	(0.455)	(0.449)	(0.268)	(0.268)
Some secondary education	0.0589	0.112	-0.420	-0.464
	(1.426)	(1.394)	(0.619)	(0.623)
Secondary education	-1.648**	-1.735**	0.00175	0.00833
	(0.830)	(0.824)	(0.482)	(0.483)
Post secondary education	-1.185*	-1.349**	-0.298	-0.271
	(0.612)	(0.607)	(0.373)	(0.375)
Graduate education	-0.552	-0.657	0.352	0.422
	(0.490)	(0.488)	(0.348)	(0.351)
Perceived competition		0.450		-0.353
		(0.535)		(0.345)
Perceived competition *		0.348		-0.313
Higher education		(0.486)		(0.286)
Constant	-7.160***	-7.123***	-7.566***	-7.012***
	(0.731)	(0.837)	(0.594)	(0.648)
Observations	12,040	12,040	25,172	25,172
Countries	26	26	24	24

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Table E6. Moderating impact of Innovation for developed versus developing nations.

	(1)	(2)	(3)	(4)
	Innovation driven stage		Factor/Efficiency driven stage	
	Perceived product Uniqueness	Perceived product Competition	Perceived product Uniqueness	Perceived product Competition
Perceived uniqueness	0.628*		0.473*	
	(0.367)		(0.253)	
Innovation	0.259	-0.228	0.358	0.155
	(0.231)	(0.428)	(0.265)	(0.293)
Perceived uniqueness *Innovation	0.217		0.341*	
	(0.283)		(0.167)	
Male	-0.309	-0.399	0.423*	0.404*
	(0.422)	(0.419)	(0.238)	(0.237)
Business older than 3.5 years	8.958***	9.020***	6.249***	6.241***
	(0.545)	(0.548)	(0.236)	(0.234)
Medium business (51-250 employees)	0.497	0.575	0.556**	0.555**
	(0.526)	(0.526)	(0.282)	(0.283)
Large business (251-1000 employees)	-0.679	-1.128	1.438**	1.422**
	(1.515)	(1.524)	(0.591)	(0.602)
Micro business (<10 employees)	-0.227	-0.306	0.668	0.707
	(1.163)	(1.156)	(1.263)	(1.236)
Income middle tercile (33-66%)	0.0169	-0.0387	-0.430	-0.452
	(0.610)	(0.619)	(0.348)	(0.349)
Income upper tercile (> 66%)	-0.628	-0.514	-0.529**	-0.533**
	(0.457)	(0.450)	(0.268)	(0.268)
Some secondary education	0.0630	0.111	-0.422	-0.459
	(1.430)	(1.397)	(0.618)	(0.623)
Secondary education	-1.673**	-1.771**	0.00453	0.0145
	(0.831)	(0.827)	(0.482)	(0.483)
Post secondary education	-1.190*	-1.362**	-0.292	-0.263
	(0.613)	(0.608)	(0.372)	(0.374)
Graduate education	-0.556	-0.680	0.352	0.422
	(0.490)	(0.491)	(0.348)	(0.350)
Perceived competition		0.418		-0.365
		(0.538)		(0.343)
Perceived competition *Innovation		0.402		0.357
		(0.445)		(0.312)
Constant	-7.177***	-7.100***	-7.561***	-7.009***
	(0.733)	(0.839)	(0.594)	(0.649)
Observations	12,040	12,040	25,172	25,172
Countries	26	26	24	24

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.10$