

Examining economic and technology-related barriers of small- and medium-sized enterprises internationalisation: An emerging economy context

By

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Abstract

In today's global marketplace, Small and Medium Sized Enterprises (SMEs) are increasingly looking at internationalisation strategies to boost growth, profitability and competitiveness. However, challenges, such as, socio-cultural differences, political institutions, limited resources, competitive challenges, market threats, economic and technological barriers all hinder SMEs from entering and competing favourably in the international markets. Considering the important link between lack of resources and internationalisation of SMEs, this study examined economic and technology related barriers of SMEs internationalisation from a neglected yet emerging market context in Bangladesh.

To compare the relative importance of these two particular categories of barriers, this study developed and validated a Partial Least Square based Structural Equation Model (PLS-SEM) with primary data gathered from questionnaires from 212 Bangladeshi SMEs. The findings of the paper suggest that, technology related barriers seem slightly more influential than economic barriers. As the difference is very low, importance should be given to both types of barriers as found.

Conceptually, this study extends this area of research by reframing economic and technology related barriers of internationalisation as a hierarchical reflective model within an emerging economy context. Empirically, it confirms that PLS-SEM can be used to compare the relative importance of these two types of barriers. Practically, policy makers can give slightly more priorities on the technology related barriers where it is not possible to give equal importance to both because of limited resource and research neglect on developing economies.

Keywords: SMEs, Internationalisation, Emerging economy, Institutions

1. Introduction

Small and Medium Sized Enterprises (SMEs) in both developed and developing countries are considered as a major source of employment, economic growth and competitive innovation (Lee and Chung, 2018; Nhemachena & Murimbika, 2018). Some scholars have also argued that internationalisation is a viable strategy for SMEs if they wish to grow and survive their businesses amidst local and national economic downturn (Sui & Baum, 2014). Such a strategy is also recommended at the same time that SMEs are expanding their market territories and activities across national borders. However, evidence from empirical research show that SMEs face a myriad of barriers and operate in high risk environments as they attempt to internationalise and become competitive in the market place (Hulbert et al., 2013; Kahiya, 2017). Although extant literature and empirical research on SMEs internationalisation have identified different types of barriers, majority of these studies are related to developed countries, and less explored in the context of emerging economics (Gonzalez-Perez, Manotas and Ciravegna, 2016). Considering the economic importance of SMEs in developing countries, it also leaves potential research gap. The findings from developed regions context may not be applicable to emerging countries based on socio-economic and cultural differences (Ketkar and Acs, 2013). Therefore generalising theories discovered in developed countries may be misleading in relation to the topic under investigation. Most significant barrier for SMEs to internationalise in developed countries may not necessarily be significant for SMEs' need to internationalise in emerging countries. Thus, it is crucial to further carry out research on the key significant barriers to SMEs internationalisation using samples and findings from emerging countries. In addition, the most significant barrier identified in empirical studies might be inconsistent due to the use of relatively weak methodologies (Arteaga-Ortiz and Fernández-Ortiz, 2010). It is within this context that this paper seeks to find out which of the Economic and Technology barriers is more significant in the internationalisation of SMEs in Bangladesh which is a developing country from Asia.

In Bangladesh, 82% of enterprises are SMEs which is similar to the share of small and micro-enterprises in the UK and other western economies (Rahman, Uddin & Lodorfos, 2017). In addition, Bangladesh has huge potential to become one of the leading exporters of garments products produced by Bangladeshi businesses including SMEs (Mendy and Rahman, 2019). It is further stressed that Bangladesh has the potential to become the world's leading emerging

market through SMEs foreign market expansion although the issue of barriers to internationalisation was not discussed (Rahman, Billah & Hack-Polay, 2019). However, as a result of insufficient empirical study designed to identify the most significant SMEs internationalisation barriers for SMEs in Bangladesh, potential business entrepreneurs and managers from this might possess insufficient or incorrect information about the most important challenges to face while entering and competing in the international markets. Therefore, it is imperative to uncover the most significant factor that hinders Bangladesh SMEs to facilitate its promising potential of the leading exporters of products in Asian emerging countries. The organisation of this paper is as follows: The next section focuses on the literature and theoretical background with the development of hypotheses based on a proposed conceptual model. Section three describes the research method and data, and explains the method of data analysis. Section four highlights the Summary of findings. Finally, in section five, a summary has been provided.

2. Literature Review

In response to a criticism from Knight and Liesch (2016), theories relevant to this research study are extracted from two areas- internationalisation theories and the Institutional theory. This is because both areas theoretically and empirically addressed this paper's key research objectives. With reference to the traditional Uppsala model, organisations make some assumptions of barriers of internationalisation. This model implies that firms increase their international involvement in small incremental steps within those foreign markets in which they currently operate. The theory further opined that business firms in their bid to internationalise often encountered entry barriers as a result of what was termed 'Psychic distance' (Johanson and Wiedersheim-paul, 1975; Johanson and Vahlne, 1977). In other words, physic distance refers to socio-economic and political differences between the firm home market and the target market. These factors may include economic differences, language differences, and cultural orientation, different political and institutional systems that make more difficult for a firm to fully understand crucial aspect of foreign market business environments and fully enter the market (Ruzzier et al., 2006). Thus economic and technological barriers can constrain small business from internationalising (Wentrup, 2016; Lee and Chung, 2018). However, this study will consider the economic barriers of SMEs Internationalisation as postulated by Uppsala theoretical model. Also, Born Global or Global

Start-up is a more recent approach of internationalisation, which has been studied for over a decade and still evolving (Gabrielsson et al., 2008). This model of SMEs internationalisation is designed to the firms entering into international or global market immediately from their birth and does not seem to follow any kind of stages. This new form of internationalisation challenges the conventional internationalisation theories including Uppsala Model (Melén and Nordman, 2009). The approach has been noted to be familiar with the emerging information and communication technology. However, Born Global theory is criticised as it is more suitable for economies with high-tech industries in which technology innovation is more important than adaptation of the products to local consumer preferences (Olejnik and Swoboda, 2012). Thus, some small firms in some countries may be disadvantaged as a result of lacking required technology to internationalise.

Descotes, Walliser and Guo (2007) argue that institutions not only influence firms' internationalisation behaviour but also help facilitate their competitive advantage both in domestic and international markets. Postulating the 'institutional theory', North (1991) defines institutional framework as the combination of the fundamental economic, political, social and legal ground rules that establish the basis for production and distribution. Institutional barriers are also defined as humanly devised constraints with significant variations across countries (Mendy and Rahman, 2019). Peng, Wang and Jiang (2008) suggest that strategic choices, such as export decision, is not just driven by industry conditions and firm capabilities, but also by formal and informal institutional constraints faced by the managers and owners of firms. Arslan and Larimo (2011) argue that formal and informal institutions play a vital role in internationalisation decisions as they affect transaction and coordination costs that engage in internationalisation. Due to smaller size, SMEs are more vulnerable to institutional barriers, and careful attention should be given to such obstacles to maintain expected growth (Lofstrom, Bates and Parker, 2014). Also, profitability, viability and even survival and growth of SMEs largely depends on the existing institutional matrix because the quality of the institution can reduce transaction costs, and make the economic activities more predictable. Consequent upon North (1990), theoretical assumptions and empirical findings (such as, Mendy and Rahman, 2019) stated that the nature of institutions in a given society or country could either be a curse or blessings. Similar findings were noted in Rahman and Mendy (2019) as they referred that the diverse forms or manifestation of institutions could serve as barriers and/or provide incentives for SMEs to grow or cease to exist.

The economic and technological barriers are external environmental factors typically identified as impacting on the internationalisation of SMEs (Bose, 2016). Empirical literature revealed that economic barriers impact negatively in the internationalisation of SMEs (Rahman, Uddin and Lodorfos, 2017). Economic conditions, economic policies and the economic system are the important external factors that constitute the economic environment of a business. The economic conditions of a country-for example, the nature of the economy, the stage of development of the economy, economic resources, the level of income, the distribution of income and assets are among the very important determinants of business strategies when entering foreign markets (Melén and Nordman, 2009). There are many ways that the economic environment might influence the business environment. First, the economic policy of the government, needless to say, has a very great impact on business. The changes in government policy have might have three different types of effect- positive impact, negative impact or no impact. For example, a restrictive import policy may greatly harm exporting firm within a country. Second, government's fiscal and monetary policies directly influence the way of doing business. Finally, the situation of political stability has great impact on the ease of doing business. Ibeh et al. (2012) and Ayob, Ramlee and Rahman (2015) found that economic related constraints have significant effect of export potentials of SMEs. Similarly, Okpara (2012) revealed that economic and financial barriers are the most significant barriers in the internationalisation of SMEs. Cardoza et al., (2015) noted that adverse economic climate pose difficulties on SME internationalisation. Further, Mendy and Rahman (2019) highlight economic and financial constraints as highly relevant for the internationalisation of SMEs in Developing countries. Thus, it is crucial to ease economic burden impose on business because it can significantly reduce the operational costs and create a more attractive environment for SMEs internationalization.

Technological barriers pose huge challenges to SMEs particularly for internationalisation (Okpara, 2012; Ibeh et al., 2012). In fact, technological constraints were placed among top five most barriers for SME growth in a survey where 31.2 per cent firms indicate this as a serious problem for their growth and expansion (World Bank, 2014). Okpara (2012) found home country technological barrier as one of the very significant constraints faced by SMEs at the time of expansion to foreign markets. SMEs in Jordan noted technology as a significant

impediment they face particularly during exporting (Al-Hyari, et al., 2011). Even in developed countries, SMEs are greatly disadvantaged in the international market as a result of lack of necessary technology. In developing economies, less priority have been placed on technological usage, which is having huge impact of small business potential opportunities to internationalise. Rahman, Uddin and Lodorfos (2017) found that technological barriers were responsible for the inability of some firms to internationalisation in developing countries. SMEs in developing countries are insufficiently equipped for current trade practices, such as, e-commerce. Lack in expected level of efficiency in business communications can severely affect the development of new international business relationship as well maintaining the existing networks. Based on this literature review, this study proposes following conceptual research model (see figure 1).

Please insert Figure 1

In figure 1, the economic barriers consist of lack of capital or finance, non-preferential tax, non-preferential customs duty, higher inflation and exposure to foreign exchange risk. Technology barriers consists of inadequate infrastructure, underdeveloped ICT, poor warehouse facilities and a lack of research and development.

2.1 Economic Barriers of SMEs Internationalisation (H1)

Access to capital and finance have been considered as the most important barrier hindering most SMEs and entrepreneurs to Internationalise. Existing literatures have focused on the issues concerning huge expenses faced by the SMEs in the process of entering foreign markets. These expenses include gathering information, upgrading product quality, changing packaging, and establishing marketing channels. Considering the significant capital requirement, access to finance is considered as one of the most important determinants of investment, reinvestment and further growth for the SMEs internationalisation. It is also argued that the most significant institutional weakness facing internationalised SMEs is their lack of access to external finance (Abor and Harvey, 2008). Even in developed countries, particularly after the financial meltdown, smaller businesses appear to have been harder hit than larger corporates by the reduction in lending. Evidence shows that the share of SME loans to total business loans went

down significantly. In developing countries, SMEs had been strongly restricted in accessing the capital that they needed to internationalise. Banks do not provide SMEs with adequate capital in many of these countries. In fact, only few SMEs in developing countries have a line of credit from a financial institution. Beck, Demirgüç-Kunt, & Maksimovic, (2006) suggest that financial constraints affect the smallest firms most adversely and thus reduce their potential to internationalize. Given the above discussion, it is hypothesized that:

H1a: Lack of Capital and Finance as an Economic Barrier and Bangladeshi SMEs' participation in international market will be associated

While SMEs in some countries enjoy preferential taxes, it is also pointed out that most SMEs are missing out of the benefits of international and global businesses as a result of diverse government policies on taxes. Mohamad, Zakaria & Hamid (2016) found that high and multiple taxes imposed on SMEs are hindering most businesses from potential growth. It is also revealed that the sky-high tax and tariff imposed by home country is ranked as sixth on problems faced by SMEs at the time of expansion to international market. Further international report conducted on the effect of different taxes on small firms willing to expand in foreign markets as very significant. It is also stated that one of the greatest administrative burdens on European business was to comply with national taxation and customs rules. However, the impact of non-preferential taxes of SMEs internationalization remains less explored in the empirical literature. A typical example is tax holiday benefits granted to businesses however these benefits are not applicable to resource constrained SMEs. In addition to the financial matter, the procedure of tax payment is also a complex and time consuming practice. While some countries are making the procedures comparatively better, this procedural barrier is well spotted by some international organisation including World Bank, IMF, OECD and UNIDO. Preparing tax return is completely a burdensome task for SMEs due to their lack of expertise. OECD (2017) addressed this issue as an area to reform for promoting SME friendly business environment. In the light of above discussion, it is hypothesized that:

H1b: Non-preferential tax as an economic barrier and Bangladeshi SMEs' participation in international market will be associated

Internationalization of SMEs and custom duty are closely associated as an economic barrier hindering the potentials of small firms entering in the international markets. Barriers related to custom duties is a sky-high obstacle because of unnecessarily complex regulations, behavior of custom authority, customs red tape, and uncertainty in terms of customs duties documentation. Even the large firms are concerned of custom duties as a major obstacle to international trade and impact of tariff on trade. Compare to large firms, impact of custom duty or tariff is more burdensome for SMEs due to their limited capability. It is pointed out that high or changing level of customs tariff and problems encountered in custom procedure as significant barriers to SMEs' internationalization. It is further highlighted that even a small change in addition to product's cost of production, such as, custom duty may lead to lose of a sale for SMEs (Leonidou, 2004). While trade theorists have explored the benefits of incorporating SMEs in the country's trade policy, institutional experts are bringing more diversification in terms of custom duty. As result, both developed and developing countries are including SME-related provisions in their Regional Trade Agreements (RTAs), while few countries have preferential custom duty for international but small sized firms. Several examples are notable in the region of developing economy i.e. Japan-Thailand trade agreement with the highest SME provisions, Japan-Malaysia-Philippines-Singapore-Viet Nam trade agreement, Colombia-EI Salvador-Guatemala –Honduras trade agreement, and European Union-South Africa- Cameroon RTAs. Based on the above discussion, following hypothesis is proposed:

H1c: Non-preferential custom duty as an economic barrier and Bangladeshi SMEs' participation in international market will be associated

As the prices of currencies fluctuate, it is considered as one of the key economic barriers of internationalisation both for small and large firms (Bilal & Al Mqbali, 2015). It is also reported as highest obstacle for SMEs in their involvement in the internationalization particularly in developing countries (Roy et al., 2016). Although the fluctuation can bring both profit and loss, it is very difficult for the resource constrained small firms to bear the uncertainty in most of the cases. Foreign exchange risk is considered as an important element for financial forecasting even in developed countries like UK. As each country has its own currency, therefore risk related to foreign exchange is country specific economic variable. As a result, this issue was addressed by many country-specific research works and the results of these studies provide

different views (Al-Hyari et al., 2012). Thus, this study proposes that foreign exchange risks as economic barriers poses a huge barrier to Bangladeshi SMEs' participation in internationalisation:

H1d: *Foreign exchange risk as an economic barrier and Bangladeshi SMEs' participation in international market will be associated*

2.2 Technology-related Barriers of SMEs Internationalisation (H2)

While advanced technology act as the driver of internationalisation, lack of basic infrastructure and technological advancement constitute a huge barriers to SMEs internationalisation. Okpara (2012) stated that basic infrastructure such as electricity supply and hi-tech machine deter most SMEs from communication and relating with customers abroad. It is also stressed that lack of basic infrastructure is particularly prominent in developing countries and as a result most developing countries SMEs are not able internationalise. Rahman et al. (2017) found that insufficient basic infrastructure is one the most mentioned reasons SMEs in developing countries refuses to enter foreign markets. Infrastructure development is a key element of a countries' ability to produce and move goods within and beyond borders. International business transactions relies on a complex chain of interdependent operators and players that include exporters, customs administrations, suppliers and carriers of information, bankers, insurers, transporters, and eventually importers. Transport costs are also considered as a major determinant of international competitiveness – the cost of international transport is often above the applicable tariff in export markets, and intra-national transport costs can be a multiple of international costs. Improvements in transportation services and infrastructure can lead to improvements in SMEs foreign market performance (Okpara, 2012). Thus, this study proposes that lack of basic infrastructure has negative influence on SMEs' participation in internationalisation.

H2a: *Lack of basic infrastructure as a technology related barrier and Bangladeshi SMEs' participation in international market will be associated*

The internet can be a crucial factor in enhancing SMEs foreign market reach and operational efficiency. Studies revealed that internet based technologies provide small firms the

opportunity to overcome the limitations of size and compete more effectively and/or in foreign markets with bigger sized establishments. It is also suggested that the internet has increased international opportunities for SMEs by increasing ability of small firms to compete with other companies both locally and internationally (Kshetri & Dholakia, 2011). Despite these huge opportunities, underdeveloped ICT facilities limit the ability of some SMEs to enter and compete for international market opportunities. In many developing countries, telecommunications bandwidths are inadequate. Software development tools are still evolving and changing rapidly, and it becomes difficult to integrate the internet and developing countries SMEs software with some existing applications and databases. Okpara (2012) stated inability of government to provide sufficient ICT facilities to exporting SMEs often deter them from competing in the international market. Thus, this study proposes that under developed ICT has negative influence on SMEs' participation in internationalisation.

H2b: Underdeveloped ICT as technology related barrier and Bangladeshi SMEs' participation in international market will be associated

Another technology and infrastructural barriers is poor warehouse facilities for SMEs internationalisation. While there are several barriers SMEs face in the process of internationalising, lack of warehouse facilities in both domestic and international market remain a significant barrier. Okpara (2010) considered warehousing and controlling of physical product flow in the expected country as a huge fear most SMEs fear when considering exporting abroad. While the warehouse facilities are better in developed country, in many cases it is very expensive for the resource constrained SMEs. Rahman et al. (2017) concluded that a huge number of SMEs' from developing countries suffer from poor warehouse facilities. Thus, this study proposed that poor warehouse facilities has negative influence on SMEs' participation in internationalisation.

H2c: Poor warehouse facilities as technology related barrier and Bangladeshi SMEs' participation in international market will be associated

Research and development (R&D) is the initiative of discovering new understanding about a product, service or process. While the ability of a firm to increase technological development

is considered as an important dimension of competitive advantages, R&D is viewed as the key source of such ability (Yam et al., 2011). Considering the investment in R&D as the investment in knowledge, public and private R&D investment is increasing. Although developed countries spend a larger part of public R&D investment, the large and established companies do the majority of the private R&D investments. Therefore, the SMEs from developing countries (such as Bangladeshi SMEs) may find it difficult to face global challenges due to the lack of better R&D facilities. Due to the lack of R&D facilities, many organisations find it difficult to compete internationally (Deng, 2009). In contrast, some other studies overlook the lack of R&D facilities as the key barriers of internationalisation of SMEs (Okpara and Kabongo, 2010). Considering the important link between lack of R&D facilities with social (and cultural) barriers of internationalisation, this study proposes lack of R&D facilities as a function of technological and infrastructural barriers of internationalisation in the context of developing countries' SMEs. In the light of the above discussions, the following hypothesis is proposed:

H2d. Lack of R&D facilities as a technology related barrier and Bangladeshi SMEs' participation in international market will be associated.

3. Research Methodology

For the purpose of development and empirical validation of a structural model on the economic and technological barriers of internationalisation from a developing country context, a hierarchical reflective model is proposed. To develop the model, this study conducted extant literature review. Subsequently, an empirical survey was conducted to get data for the purpose of validation of the structural model on economic and technological barriers of internationalisation from Bangladeshi SMEs point of view. This study also attempts to measure a casual network relationship as proposed on the barriers to entering foreign markets for Bangladeshi SMEs. In order to carry out empirical investigation of this study, cross-sectional survey technique was applied to extract views from the respondents as suggested by Malhotra (2008). Also, as opposed using the modern techniques of data collection of employing e-mail, telephone and online survey, data collection via postal survey has been used considering the institutional environment of the study field. Thus, postal survey method of data collected is noted for maximising the response rate of survey respondents (Malhotra, 2008).

A questionnaire was developed and has been used for the purpose of this data collection. Survey data were gathered from four major divisions of Bangladesh- Dhaka, Khulna, Chittagong and Rajshahi. This data were collected between the periods of July 2011 to September 2011. SMEs participating in the international business were taken into consideration to define the population for this research. Using cluster-sampling technique, 250 questionnaires were distributed to each division. SMEs that are participating in international market were selected from each villages and wards that are located in the four major city corporation areas of the selected districts of each division. Systematic random sampling technique was followed to ensure the equal chances of being selected for each SME located in the chosen villages and wards of each division. A total of 1000 questionnaire distributed among four divisions and 219 responses were received. Of the 219 completed questionnaires 212 were acceptable as 7 questionnaires were unsuitable due to excessive missing data. Finally data from 212 questionnaires were analysed from the data collected.

Please insert Table 1

The demographic profiles (see Table 1) of the respondents indicate a range of cross sectional participants from different perspectives, such as, the proportion of male and female respondents is 68.1% and 32.9%. Similarly, the proportion of different sectors are- 13.9% are from primary sector followed by 51.4% in manufacturing and 34.7% in service sector. From divisional distribution point of view, 28.5% from Dhaka, 25.8% from Chittagong, 22.1% from Rajshahi and 23.6% from Khulna division. In case of business types by ownership among the respondents, 28.9% sole traders, 21.4% Partnership, 9.1% family business, 6.9% co-operative and 33.7% private limited company.

Key economic and technology related barriers of the internationalisation of SMEs were identified from systematic review of literature review. Therefore, the research strategy is deductive in nature. All of the items of the questionnaire were measured in 5 point Likert-scale, which was selected, based on the pilot study. The pilot study or the pre-test were carried out among 20 samples (5 academics, 5 policy makers and 10 SME owners) to ensure the

appropriateness of wording, contents, scales, sequence and format. Very minor modifications were made on the basis of the suggestions from those 20 samples.

3.1 Hierarchical Reflective Model

A hierarchical construct, which is also known as multidimensional construct, is developed with more than one dimension and contribute to the overall latent variable (Jarvis et al, 2003). The application of this model is very successful in increasing theoretical parsimony and reducing model complexity (Edwards 2001). Further success of hierarchical constructs is based on the capacity in matching the level of abstraction for predictor and criterion variables (Edwards 2001). Again, according to Bagozzi (2011, p. 263), “... the theoretical meaning of a construct inheres in what it is and to what it relates conceptually. A construct standing alone is less rich in meaning than one that is explained by something else or one that also explains or predicts something else.” In this study, PLS path modeling (or Component based structural equation modeling) has been applied in estimating a hierarchical reflective model of hypothetical economic and technology-related barriers Bangladeshi SMEs facing in entering international markets (see Figure 1). Application of this technique increases the robustness of the methodology of this study by maximizing theoretical parsimony and reducing model complexity (Chin 2010; Wetzels et al. 2009). Moreover, PLS path modeling is considered as effective approach for studies with relatively small sample size and studies involve in theoretical development at the early stage (Hernández-Perlines et al., 2016). Additionally, this method provides more accurate estimates of higher order constructs by accounting for the measurement error that attenuates the estimated relationships (Akter et al., 2010) and avoid problematic measures as highlighted by Pangarkar (2008). Use of PLS-SEM helps to calculate complex relationships among all variables simultaneously, which is not possible with Multiple Regression Method or Linear Structural Relationship Modeling (Zhou et al., 2012).

With PLS-SEM methodology, a hierarchical component model has been developed with two reflective constructs -*economic barriers and technology-related barriers* Bangladeshi SMEs face in entering international markets. Finally, all of the constructs of this model reflect the overall barriers of SME internationalisation. It is assumed that the correlation between two measures must be highly positive for a reflective construct and should be internally consistent

(Bollen and Lennox, 1991; Jarvis et al. 2003). As this study applies hierarchical approach, economic barriers and technology related barriers are considered as first-order level that are related to the respective indicators; labelled as manifest variables (MVs). At the second-order level, barriers to entering international markets faced by the Bangladeshi SMEs are executed in a hierarchical reflective model that is formulated by eight MVs (four + four) of two first-order constructs (see Figure 2).

Please insert Figure 2

Please insert Table 2

The equation of estimating the hierarchical reflective models on regulatory barriers has been presented in Table 2. In the first-order model, y_i represents the first-order model MVs, η_j represents latent variable, Δ_y represents factor loadings and ε_i represents error term. The equation of the second-order model specifies the first-order factors (η_j) in terms of the second-order latent variables (ξ_k) and error (ζ_j) for the first-order factor and second-order latent variable loadings (Γ).

3.2 PLS-SEM Results

The PLS model was interpreted and analyzed in three steps in order to ensure the validity and reliability of the measurement scales: (a) interpretation of the measurement model; (b) interpretation of the structural model; and (c) assessment of the relationships (hypothesis testing) in the model (Rahman et al. 2017).

3.2.1 Interpretation of the Measurement Model

In this study, PLS graph 3.0, proposed by Wetzels et al. (2009), has been used to assess the barriers that holding back the Bangladeshi SMEs to participate in the foreign markets. To investigate the inside approximation, PLS graph 3.0 was used by applying the hierarchical model with PLS path modeling with a path weighting scheme as suggested by Akter et al. (2011). In order to establish a measurement model, the repeated indicator approach (Hair et

al., 2017) was used in this reflective-reflective higher order structural model. The confirmation of the statistical significance of path coefficients in the model was ensured throughout the evaluation of the structural model using a bootstrapping procedure by using 500 sub-samples replications (Wetzels et al., 2009; Hernández- Perlines et al., 2016). As a result, the second-order factor (overall barriers facing by the Bangladeshi SMEs) is measured without changing the direction by the indicators (MVs) of the first-order factors (*economic and technology-related barriers*).

Following the PLS path modeling, a confirmatory factor analysis is conducted to test the model and assess the reliability and validity as instructed by Wetzels et al. (2009). The results indicate that the items measured in this research possess statistically significant at the 1% level ($p < 0.01$) (see Table 3) and each item loading is higher than 0.70, which is also satisfactory (Mendy and Rahman, 2019). Values of Cronbach's Alpha for all latent constructs were above 0.7, demonstrating uni-dimensionality and high internal consistency of the measurement scale (Rahman and Mendy, 2019). Moreover, AVE (shown in Table 3) both for administrative and economic regulatory barriers is also well above the modest threshold point of 0.50 (Fornell and Bookstein, 1982, Hair et al., 2010), which also indicates that each construct captures adequate variance from its items and all the constructs are conceptually distinct (Rahman et al., 2017), which ensure the convergent validity of all the scales used in the model. Finally, the composite reliability (CR) of all constructs is above 0.7, which is acceptable (Fornell and Bookstein, 1982).

Please insert Table 3

The values of the square root of AVE (see Table 4) confirm the discriminant validity and ensure that these values are higher than the corresponding correlation coefficients in the correlation matrix (Fornell and Bookstein, 1982; Vlačić et al., 2019). Therefore, it can be stated that all the empirical results related to the analysis of the measurement exhibit satisfactory level based on adequate reliability, convergent validity and discriminant validity of the analysis in this study.

Please insert Table 4

3.2.2 Interpretation of the Structural (higher-order) Model

The statistical significance of structural coefficients of PLS path model is presented in Table 3. The *overall barriers* considered as second-order constructs are reflected in first-order constructs. The extent of explained variances of second-order construct as reflected in first-order constructs is *economic barriers* (77 per cent) and *technology-related barriers* (84 per cent). All the path coefficients (in Figure 3) from second-order (*overall barriers*) to first-order (*economic barriers* and *technology-related barriers*) are significant at the 1% level ($p < 0.01$). Accordingly, the evidence of reliable higher order reflective model is confirmed from the CR and AVE values are more than their cut-off levels 0.70 and 0.50 respectively (see Table 3).

3.2.3 Assessment of Structural Model and Hypotheses Testing

The relationship between *overall barriers* (second-order construct) and its sub-dimensions, i.e. *economic* and *technology-related barriers* (first-order constructs) found in the present study is shown in Figure 3. Overall, the model gives a standardized β of 0.774 and 0.842 accordingly, which indicate a strong interdependence between those variables (see Table 5). All the path coefficients are significant at the 1% level ($p < 0.01$), hence, overall findings support the hypotheses (see Table 6).

Please insert Figure 3

Please insert Table 5

Please insert Table 6

4. Summary of Findings

From the outset of this paper, this research study set out its main objectives in two fold. First, it set out to identify key economic and technology related barriers of SMEs internationalisation. Second it aimed to compare relative importance of these two particular categories. In order to fulfil these objectives, this study developed and validated a barriers model that is able to explain two key barriers (economic and technology) faced by the Bangladeshi SMEs to enter into the international market. Also, to compare the relative importance of these two particular categories of barriers, this study further developed a PLS-SEM model. It is noteworthy to

mention that this technique was employed and developed because it is often used to explain the complex relationships among variables.

Furthermore, this study contributes to empirical studies by extending our knowledge on the barriers of SMEs internationalisation within Bangladesh context by classifying the SMEs barriers to foreign market entry in two dimensions (Economic and Technology) with eight indicators. In addition, the study effectively enclosed barriers to international markets entry for SMEs in a second-order reflective model where both dimensions reflect overall economic-technology barriers. Thus by way of contributing to empirical knowledge, this study provided theoretical support to the previous studies such as WTO (2016), APEC (2015), Narayanan (2015) and Serrano and Romero (2014), which tried to identify the barriers of SME internationalization with particular reference for developing countries. This research study particularly extends all these conceptualisation, as the model of this study is also competent to provide the ranking of these barriers.

Overall, the study result reveals that technology related barriers to Bangladesh SMEs foreign market entry appears to be little more significant than economic barriers. This result outcome is evident in the study's PLS-SEM analysis which indicate 84 per cent of the variance of overall technology barriers and 77 per cent variances of the barriers are explained by the economic barriers (see Figure 3). This result has number of implications to SMEs, researchers and policy makers including priority identification and efficient resource allocation. Although the ranking has been done on the basis of explanation power of individual constructs, the magnitude of difference is relatively very little. Therefore, it can be recommended that all these constructs should be given relatively equal attention.

One other key objectives of this study was to show the complex relationship among the economic and technology barriers while entering foreign markets for SMEs empirically via PLS path modelling. A second-order reflective hierarchical model was developed using the data collected from SMEs in Bangladesh in order to substantiate this objective. As a result, this model should be able to better explain the complex relationship that exists as suggested by (Fornell and Bookstein, 1982). Also, consequent to the recommendation made by Wold (1985),

this study applied repeated indicators from first-order model to second-order model, which confirmed the adequate validity and reliability of measurement and structural properties of research model of this study. Consequently, the study has successfully shifted individual barriers of internationalisation to overall barriers of internationalisation as proposed by Wold (1985, p. 589). Validation of this model clearly indicates the suitability of PLS SEM for this type of study where sample size is smaller with many variables.

Generally, this study has been able to address its main objectives by identifying key economic and technology related barriers of internationalisation and was also able to compare relative importance of these two particular categories. Furthermore, the study has apparently extended our knowledge particularly from the Bangladeshi SMEs and their barriers to entering foreign markets context. Therefore, it is hoped that this document will inform, guide and assist SMEs owners and policy makers to prioritise the more important barriers when considering the internationalisation of SMEs. Using the instrument of PLS path model, this study convincingly rated the barriers faced by SMEs in the process of entering foreign markets. Therefore, support policies and services granted by both government and non-government entities to assist the growth strategies of SMEs internationalising from developing economies should firstly give priorities to technology related factors and subsequently followed by economic related barriers where it is not possible to give equal priority from very beginning.

5. Conclusion

This study by developing a higher order reflective model through applying PLS path modelling identified the major barriers faced by the Bangladeshi SMEs in participating in international markets. The study also successfully categorised the economic and technology barriers to entering international markets for SMEs in Bangladeshi as a second-order hierarchical model while also indicating both dimensions of barriers significantly showing on the overall economic and technological barriers. All the developed eight hypotheses are supported. Although barriers to firms' market entry should be country specific, to our knowledge, there is no past study so far that have address the economic and technology barriers from Bangladesh point of view. As a result, result findings from study will fill this gap in knowledge. In addition, this study improved our understanding by making known the conceptual background and severity of

economic and technology barriers faced by developing countries with respect to Bangladesh SMEs when entering the international markets.

One of this study's limitations is that the model developed in this research study is based on a specific domain of international business (SMEs) and specific context (Bangladesh, a developing economy). Thus poses an implication of limiting the potential of this study to be generalised on a broader scale of developed economies or to large firms. Second, data employed in this study was cross-sectional. The implication of using a cross sectional technique is that it may have some common method variance. However, future study that employs for example a longitudinal analysis could achieve better measurement reliability. Lastly, future research can conduct the study under different circumstances, for example instead of running a comparative analysis between the hierarchical models of component-based PLS and covariance-based. SEM could otherwise be carried out through the use of MVs, sample size per latent variables, and distributional properties of the MVs. Future studies should consider this study as a template to compare other environmental factors including political, regulatory and social perspectives both from emerging and developed economies.

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Figures

Figure 1: Hypothesis on Economic and Technology-related Barriers of Internationalisation for the SMEs in a Developing Country

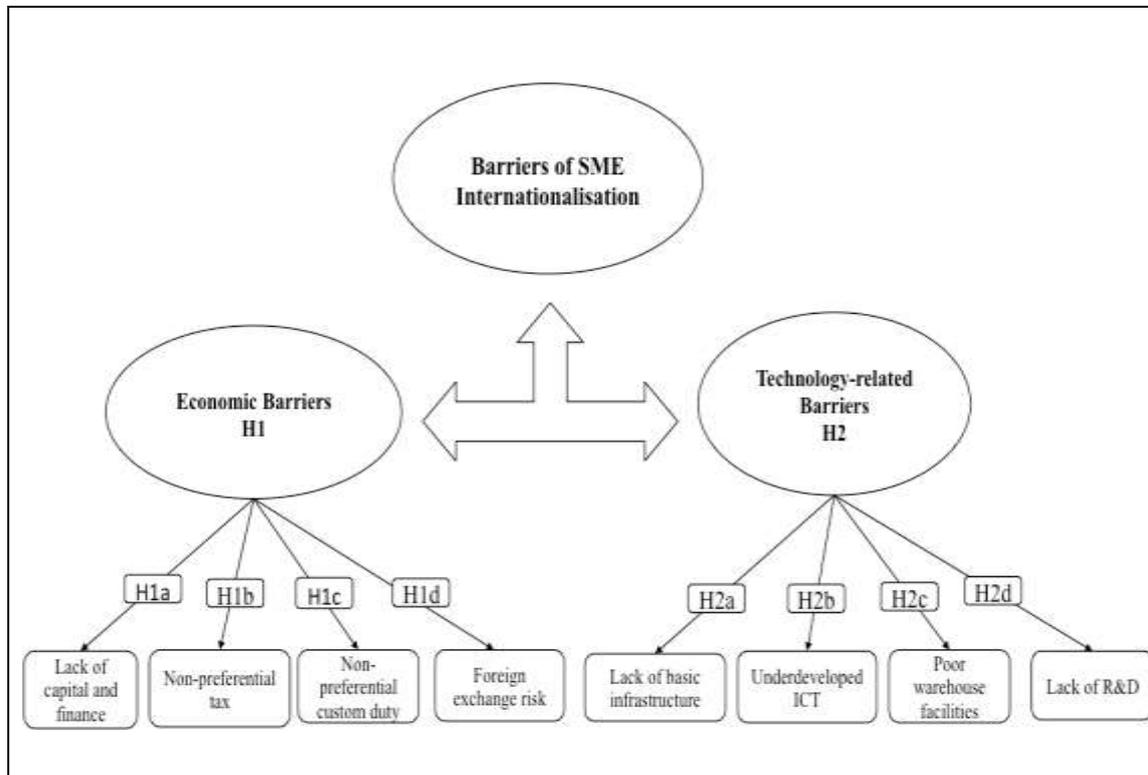


Figure 2: Economic and Technology-related Barriers as a Hierarchical Reflective Model.

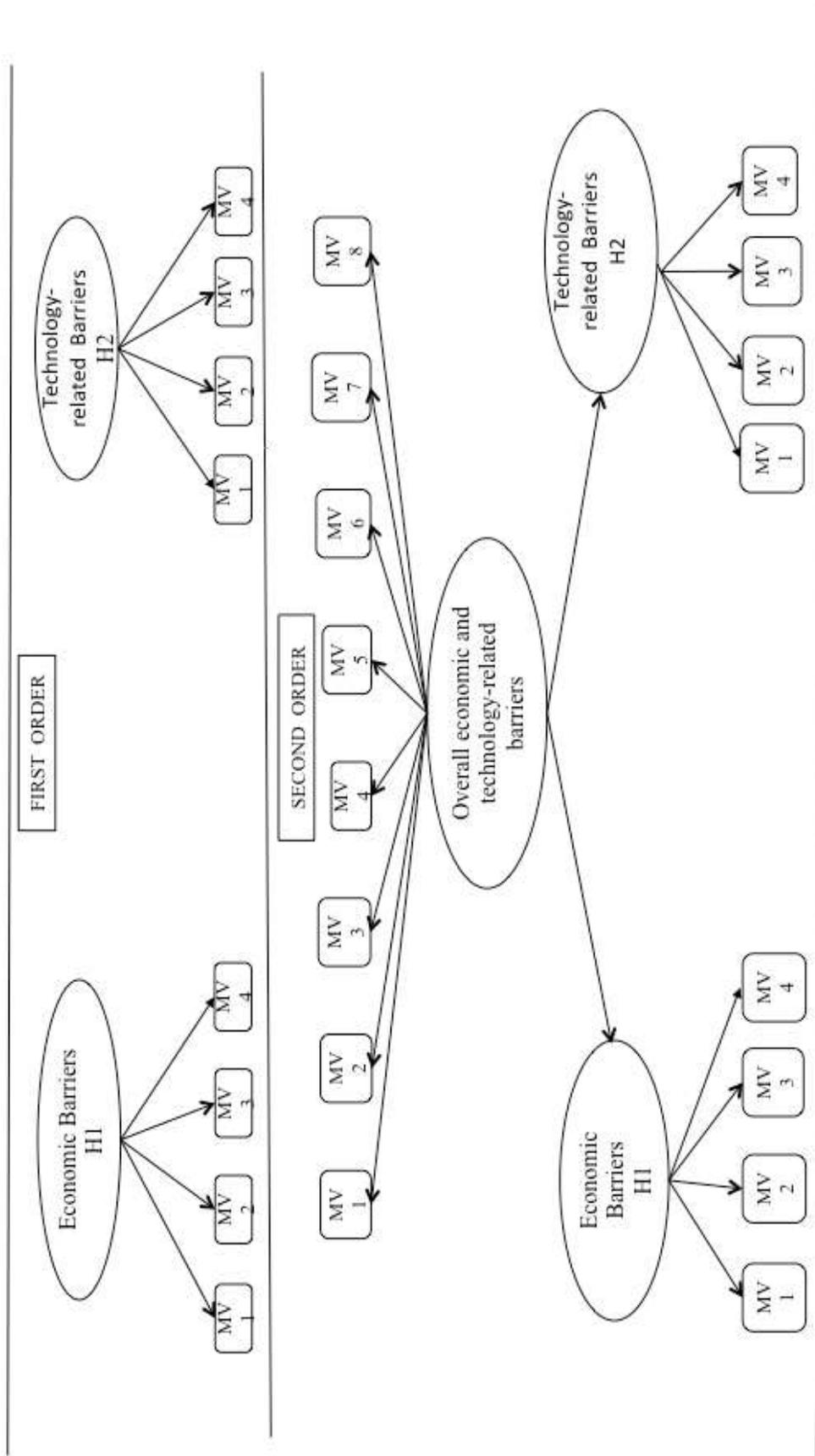
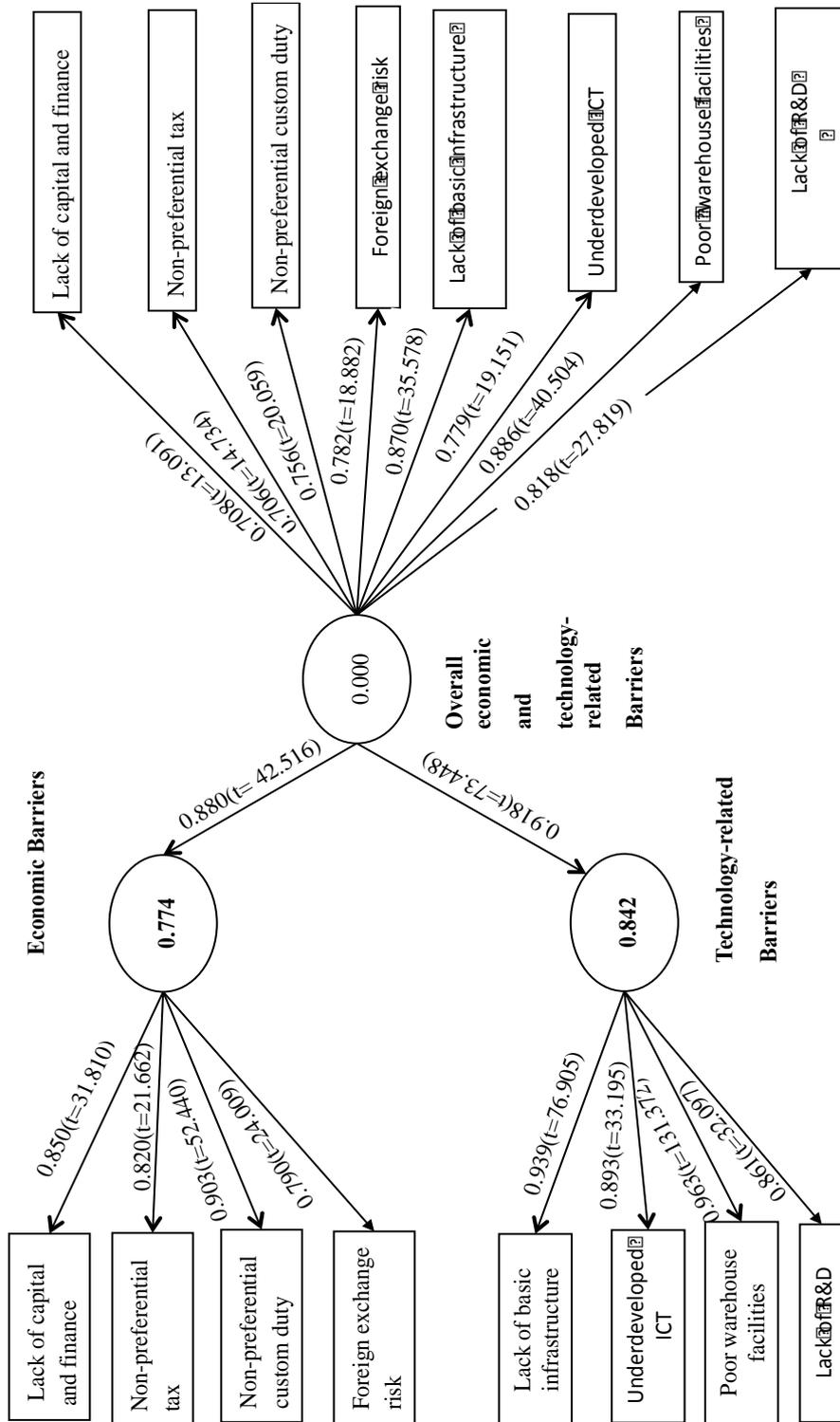


Figure 3: Main Loadings of the Model



Tables

Table 1: *Demographic Profiles of Respondents*

Particulars	Category	%	Particulars	Category	%
Gender	Male	68.10	Sector of business	Primary	13.90
	Female	32.90		Manufacturing	51.40
Area	Dhaka	28.50		Service	34.70
	Chittagong	25.80		Sole trader	28.90
	Rajshahi	22.10		Partnership	21.40
	Khulna	23.60		Family	09.10
			Co-operative	06.90	
			Private Ltd	33.70	

Table 2: *Estimation of the Economic and Technology-related Barriers*

First Order	Second Order
$y_i = \Delta_y \cdot \eta_j + \varepsilon_i$	$\eta_j = \Gamma \cdot \xi_k + \zeta_j$
y_i = manifest variables	η_j = first order factors (e.g. economic barriers)
Δ_y = loadings of first order latent variables	Γ = loadings of second order latent variables
η_j = first order latent variables (economic and technology-related barriers)	ξ_k = second order latent variables (e.g. lack of capital and finance)
ε_i = measurement error of manifest variables	ζ_j = measurement error of first order factors

Table 3: Psychometric properties for first order constructs

Constructs	Items summary	Loadings	CR	CA	rho_A	AVE
Economic (H1)	Lack of capital and finance	0.850	0.907	0.862	0.863	0.709
	Non-preferential tax	0.820				
	Non-preferential custom duty	0.903				
	Foreign exchange risk	0.790				
Technology-related (H2)	Lack of basic infrastructure	0.939	0.954	0.935	0.938	0.837
	Underdeveloped ICT	0.893				
	Poor warehouse facilities	0.963				
	Lack of R&D	0.861				

Table 4: Latent Variable Correlations

Constructs	Economic	Technology
Economic	0.842*	
Technology	0.619	0.914*

Note: square root of AVE on the diagonal*

Table 5: Analysis of Structural Model Path Coefficients (Mean, STDEV, T-Values)

	Original Sample coefficient	Sample Mean coefficient	Standard Deviation (STDEV)	P Values	T Statistics
Overall	0.880	0.880	0.021	0.000	42.516
Barriers -> Administrative					
Overall	0.918	0.918	0.012	0.000	73.448
Barriers -> Economic					

Table 6: Results on Hypotheses

Hypothesis	Path coefficient	t-value	Conclusion
H1a: Lack of Capital and Finance as Economic Barriers has a negative impact on Bangladeshi SMEs' participation in internationalization.	0.850	31.810	Supported
H1b: Non-preferential tax as economic barriers has negative influence on Bangladeshi SMEs' participation in internationalization.	0.820	21.662	Supported
H1c: Non-preferential custom duty as economic barriers has negative influence on Bangladeshi SMEs' participation in internationalization.	0.903	52.440	Supported
H1d: Risk related to foreign exchange as economic barriers has negative influence on Bangladeshi SMEs' participation in internationalisation.	0.790	24.009	Supported
H2a: Lack of basic infrastructure as technology barriers has negative influence on Bangladeshi SMEs' participation in internationalisation.	0.939	76.905	Supported

H2b: Underdeveloped ICT as technology barrier has negative influence on Bangladeshi SMEs' participation in internationalisation.	0.893	33.195	Supported
H2c: Poor warehouse facilities as technology barrier has negative influence on Bangladeshi SMEs' participation in internationalisation.	0.963	131.372	Supported
H2d: Lack of R&D as a factor of technology barriers has negative influence on Bangladeshi SMEs' participation in internationalisation.	0.861	32.097	Supported
