China Syndrome:
How the Rise of Chinese Competition Affects SME Performance in Canada and the U.S.?

by

Melissa Candace Smith

A Thesis Submitted to

Saint Mary's University, Halifax, Nova Scotia

In fulfillment of the Requirements for

The Degree of Masters of Business Administration

December 2015, Halifax, Nova Scotia

Approved: Dr. Mohammad Rahaman

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Abstract

China Syndrome: How the Rise of Chinese Competition Affects SME Performance in Canada

and the U.S.?[1]

By Melissa Candace Smith

This thesis delves into the competitiveness of North American Small and Medium Enterprises

(SMEs) in an increasingly global marketplace. It examines how they fare against increased

competition from low-wage countries such as China in their local markets. Increased competition

is good for the consumer in that it usually leads to greater options in the marketplace as well

more efficient processes reflected by reduced market prices (Hatzichronoglou, 1996). However,

markets with intense rivalry or which are perfectly competitive turn into a zero sum game in

which profits are not sustainable and businesses cannot sustain business. SMEs were found to be

more so negatively impacted by Chinese import competition than large firms, and 3-5% more

likely to incur bankruptcy due to this import competition.

December 1, 2015

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1. Autor, D., Dorn, D., & Hanson, G. (2013), inspired this title in their paper "The China Syndrome: Local Labor Market Effects of Import Competition in the United States."

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I. Introduction

The rise of China as a global manufacturing powerhouse has generated vigorous debates about the merits of globalization, in general, and trade liberalization, in particular, in many developed countries. This is not entirely surprising since the remarkable economic success of China was primarily export-driven and the bulk of those exports were absorbed by developed countries like the United States and Canada. This raises the natural question of whether and to what extent market shares of domestic firms in developed countries were stifled in the face of rising competition from Chinese manufacturers. More importantly, how did the Small and Medium-sized Enterprises (SMEs) in developed countries cope with the onslaught of elevated Chinese import competition? The purpose of this thesis is to examine this issue using a sample of U.S. and Canadian manufacturing firms. Using four different performance measures and a host of estimation techniques, this thesis argues that rising import competition from China was detrimental to U.S. and Canadian manufacturing firms' performance in general. However, the overall impact on the SMEs sector was not obvious. Results show that Chinese import competition has a negative and statistically significant impact on SME's performance in some specifications, but the statistical significance disappears in other model specifications. Overall, the results indicate that the performance of some firms in the SME sector was severely distressed by Chinese competition while others may have evolved to cope with the phenomenon.

Small and Medium Enterprises (SMEs) are defined by Canada's statistics bureau, Statistics Canada, as businesses having between 0-499 employees. Businesses with above 99 employees represent medium enterprises and businesses with 99 employees or below represent small

enterprises. SMEs are an important part of any economy in that they are an important source of job creation and economic growth. In Canada, SMEs employ almost 70% of the total private labor force and in 2008, after the economic recession, SMEs contributed between 25 and 41 percent to Canada's GDP (Q&A on the State of SMEs in Canada, 2014). Similarly, SMEs also play a pivotal role in the broader U.S. economy. In 2011, there were 5.68 million employer firms in the United States. Firms with fewer than 500 workers accounted for 99.7% of those businesses, and businesses with less than 20 workers made up 89.8% (U.S. Census Bureau). SMEs produce approximately 46% of the private nonfarm U.S. GDP and in 2014 alone the SME sector was responsible for 84% of all jobs created in the U.S. (Small Business Administration). It is, therefore, important to investigate how this vital segment of the U.S. and Canadian economy fares in the face of rising competition from low-wage countries such as China.

With the foregoing impetus in mind, this thesis seeks to examine the competitiveness of North American SMEs, where competitiveness is defined as the ability of an individual firm to successfully assert itself in a market (Schwanitz & Will, 2002) in light of the increasing competition in domestic markets as import penetration increases. This thesis also seeks to examine if firm size plays a part in the ability of firms to withstand international competition.

The degree of competitiveness of North American SMEs is important in determining how they will fare under heightened rivalry in the local markets as well as global markets. In Canada accessibility to Chinese imports has grown almost five-fold between 2001 and 2011 according to Statistics Canada, with imports amounting to 48.6 billion in 2011. Competition is good for

consumers as it increases consumer welfare and provides a larger array of products at lower costs (Godfrey, 2008). Britton and Mark (2006) noted that between 2001 and 2010 increased trade with China reduced US prices by 0.8%, which is equivalent to an increase of approximately $1000 USD per household in net disposable income annually.

With the rise of globalization, businesses have benefited through access to different markets and resources, though not equally. Larger firms are found to have a greater propensity to export and establish gain through trade partnerships (Amarjit & Nahum, 2012), but at what cost to SMEs? In accordance with the Richardian model and Basic Endowment Theory (Ricardo, 1911), trade is motivated and influenced by the relative proportions of the factors of production. Thus low-wage countries have a comparative advantage in producing more labor intensive products and services, and countries with more skilled labor forces and higher wages have the advantage in more capital intensive products and services (Dornbusch & Samuelson, 1977). Less efficient producers are shown to be driven from the market, and at the microeconomic level profit is given to the company that creates the most value in the mind of the consumer.

As most SMEs are usually small startups or entrepreneurs seeking to test ideas in the marketplace, efficiency is not always a key element in their elementary stages. This makes them more susceptible to the turmoil brought by competition. As SMEs are important economic drivers, their survival and competitiveness can have a direct impact on GDP.

In this thesis, we will delve into basic trade theory to uncover why countries trade and what are the expected benefits and costs of trading. We will examine a recent example of comparative advantage through China's accession into the World Trade Organization (WTO), and then properly develop and define the hypotheses. From there, we will present how we seek to answer the questions posed by our hypotheses and justify the variables chosen for our regression model. The summary statistics will be analyzed and univariate analysis completed to gather a better understanding of the North American marketplace. Then the results will be explained and relevant suggestions for improvement given.

Immediately following, Section II discusses the relevant theoretical and empirical literature. Section III develops the testable empirical hypotheses. Section IV illustrates our empirical methodology, specifically the regression design. Section V describes our data generating process and the construction of main variables to be used in testing our hypotheses. Section VI discusses the univariate and multivariate regression results, with the conclusion provided in Section VII.

II. Related Literature

2.1 Theory

When seeking to understand trade effects and the reasons why countries trade, comparative advantage is a key concept to understand. Adam Smith first wrote about comparative advantage in *The Wealth of Nations* noting, "If a foreign country can supply us with a commodity cheaper than we ourselves can make it, better buy it of them with some part of the produce of our own

industry, employed in a way in which we have some advantage." (Book IV, Section ii, 12). Here we see that comparative advantage not only explains why countries trade but also the redistribution of labor that occurs because of trade. He notes that those employed in industries where we do not have a comparative advantage will need to be distributed to places where we do have a comparative advantage (Smith, 1975).

The idea of comparative advantage was further built on in the Ricardian model by David Ricardo in 1911. In his book, *The Principles of Political Economy and Taxation,* Ricardo drew on an example of two countries, England and Portugal. In the example, he simplified the production possibility frontier by limiting the output to two goods, cloth and wine depicted in the diagram that follows. He assumed that England was more productive at producing both goods, and therefore had an absolute advantage in that they used fewer factors of production and had lower opportunity costs to produce both cloth and wine. Using the production possibility frontiers of both countries, Ricardo illustrated that by specializing and trading, both countries could increase their welfare and the amount of each good that they had available giving birth to comparative advantage. A country is therefore said to have comparative advantage in producing a good or service if it can produce the good or service at a lower opportunity cost.

Source: http://www.policonomics.com/ricardian-trade-theory/
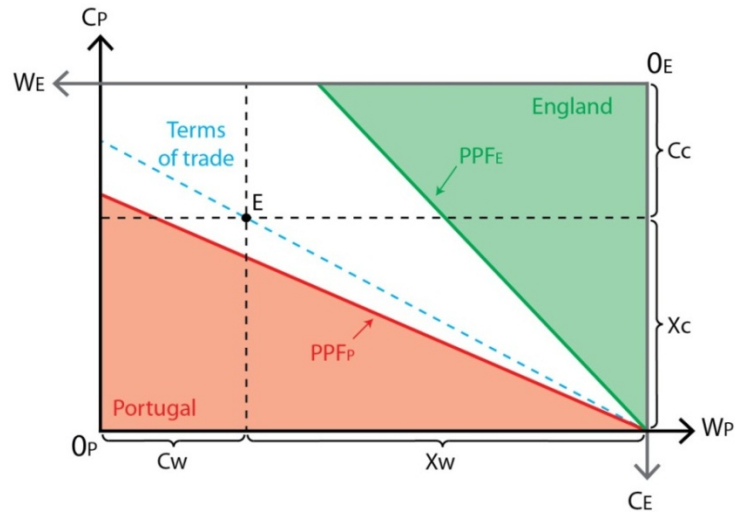
In the above Edgeworth box, Cp and Ce represent the relative labor cost of cloth for Portugal and England respectively; and Wp and We represent the relative labor cost of wine for Portugal and England respectively. Point E can be seen to be unattainable or outside the limits of their resources to both Portugal and England when producing both goods. However, when both countries produce only the good they have comparative advantage in and trade that good in the amount of Xc and Xw, then point E is attainable to both Portugal and England. In this way, trade can be seen to expand the economic welfare of both countries by increasing the amount of goods available to each.

Whilst the Ricardian model focuses on technological differences between countries, the Heckscher-Ohlin (HO) model instead emphasized factor endowment differences assuming that technology is the same across countries (Leamer, 1995). This is fairly intuitive in that some countries have more people and are thus more labor abundant and access to certain natural resources is based solely on their geography. The HO model expanded on the production-

possibility frontier noting that the opportunity cost was not constant across the production of commodities for any one country. Opportunity cost was seen to be low when a country produces only a small amount of the good in which they do not have comparative advantage, but high when a country produces a large amount of the good in which they do not have comparative advantage; leading to a production possibility frontier that is curved instead of a straight line (depicted below).

Quantity of Wine, Qw

PPF

Quantity of Cloth, Qc
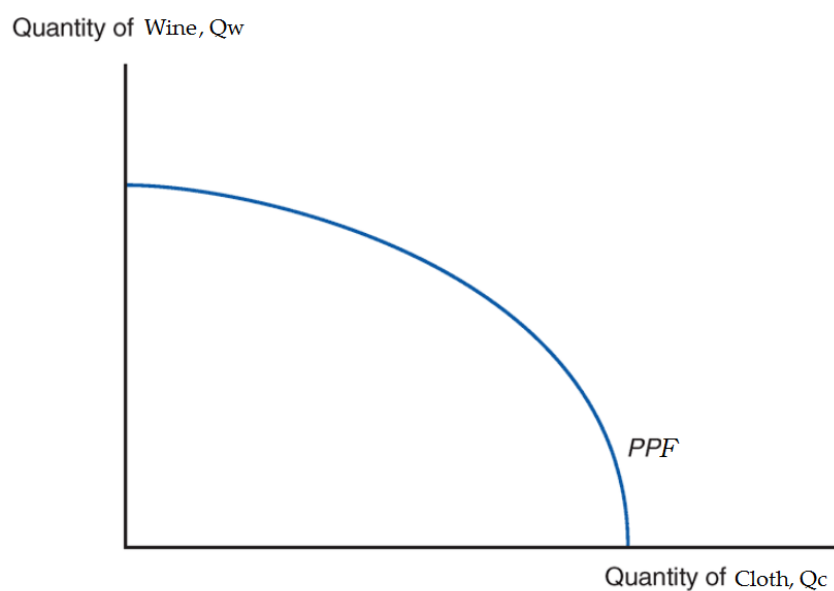
As such the HO theorem notes that a country will have comparative advantage in the good that uses its more abundant factor more intensely, and will trade that good. When examining trade patterns through this lens, it can be seen that countries will export in disproportionate amounts in industries that use their abundant factor more intensely. For example countries with large supplies of labor such as China and India will have a comparative advantage in goods and industries that are more labor intensive. However in this same industry, these goods will come at the cost of the owner of the scarce resource in importing countries when trade is liberalized (Leamer, 1995).

2.2 Empirical Evidence

An example of this can be seen when China gained access to the World Trade Organization (WTO) on December 11, 2015 after 15 years of negotiation. China's entrance into the WTO changed the global economic landscape. WTO membership generated tremendous benefits for China: expanding trade, furthering economic reform, and attracting even higher levels of foreign investment. It also triggered rapid growth in merchandise exports from China. China opened up its market to foreign investment and in doing so gained access to foreign technologies which had previously been banned. This is in line with the HO model that assumes technology is the same across geographic regions. By 2011, China had emerged as the US and Canada's second- largest trade partner after each other; mainly in consumer goods such as textiles, apparel, bags, footwear, toys, and furniture (labor-intensive industries). This increase in imports is depicted in Figure 1 and Figure 2.

[Figure 1 & 2 are about here]

Auer and Fischer (2009) found that import competition was concentrated only in labor-intensive industries when looking at import competition brought about by low wage countries. A 1% increase in low-wage countries' share of the US sector decreased industry supply prices by 2.35%. They established that the price shock resulting from import competition was equivalent to 0.5% lower Producer Price Index (PPI) inflation in the US between 1997 and 2006. When looking at a variety of low wage countries and their effect on Europe prices, China was found to

have the strongest influence on producer prices. When Chinese importers captured a 1% share of European imports, producer prices decreased by 3%.

When studying the pre and post periods surrounding China's entrance into the WTO, Baldwin and Lileeva (2008) found that the exit rate of firms in the manufacturing sector increased by 0.5% in Canada from 1.6% to 2.1%. This is also in line with the HO model and the idea of comparative advantages which suggests that import gains come at the cost of local owners of scarce resources in importing countries. Plants producing more homogenous products were more strongly affected by the low wage competition as supposed to plants producing more differentiated products. The increased low-wage competition led to a restructure of Canadian firms away from labor-intensive production activities and toward more innovative and focused plant activities on core commodities. Most firms were found to narrow their focus toward core commodities as these commodities faced less competition. These firms divested and outsourced more labor intensive activities.

This outcome is in line with general trade theory that argues that high- tech and capital intensive industries are less susceptible to low-wage competition as opposed to more labor intensive industries. Factors (i.e. land, labor, capital) flow from areas where they are abundant to areas where they are scarce transforming local markets to global markets (Leamer, 1995). In the case of China and Canada, each country will export goods in which they have comparative advantage, and doing so will lead to greater specialization and productivity. Trade theory argues that marginal productivity of capital is directly offset by the shift of product mix toward capital

intensive products. However, in the short term, it has been seen that temporary or frictional unemployment increases during this time as people search for new jobs in different industries or seek to undergo skill upgrading.

In Belgium, industry-level import competition from China was shown to reduce firm employment growth and induce skill upgrading in low-tech manufacturing industries. Import competition from China accounted for 27% of the total observed increase in skill upgrading within firms when looking at the share of non-production (highly educated) workers in low-tech Belgian manufacturing from 1996 to 2007.

This is further emphasized by Autor, Dorn and Hanson (2013), who found that increasing import competition from Chinese imports had detrimental effects on the US economy and explained 25% of the aggregate decline in manufacturing employment between 1990 and 2007. This rise in unemployment was accompanied by increasing transfer benefit payments, disability, retirement, and healthcare costs in trade-exposed labor markets.

In contrast to the foregoing studies, some researchers argue that lower trade barriers induce higher firm productivity (Melitz, 2003; Melitz & Ottaviano, 2008; Baldwin & Forslid, 2010; Topalova & Khandelwal, 2011) which leads to faster economic growth (Dollar, 1992; Ben-David, 1993; Sachs & Warner, 1995; Edwards, 1998). In particular, Melitz (2003) argues that exposure to trade will induce inter-firm reallocations towards more productive firms, and that the aggregate industry productivity growth generated by the reallocations contributes to a welfare gain, thus highlighting a benefit from trade. Furthermore, trade-induced import competition can

increase managerial effort, as the fear of bankruptcy is higher (Hart, 1983; Schmidt, 1997; Bloom & Van Reenen, 2007) and, in turn, force discipline on managers and act as a substitute for corporate governance mechanisms. As a result, firms are more efficiently run, more profitable, and less risky in competitive industries. Trade-induced competition can also foster innovation by enabling domestic firms to access better overseas' knowledge (Coe & Helpman, 1995; Acharya & Keller, 2008; Schmidt, 1997; Raith, 2003) and technology (Bloom, Draca, & Van Reenen, 2011).

In sum, the foregoing theories and empirical studies point to both positive and negative effects of trade-induced import competition from a low-wage country like China. However, the extant literature remains relatively silent on how the effects of import competition vary depending on whether a firm is a SME or a large firm. This thesis seeks to better understand the spread or distribution of these effects across North American small and medium-sized firms. This will determine whether the experience felt by small and medium enterprises are the same as found in industry-wide analysis.

III. Hypotheses Development

Figure 3 shows that upon accession into the WTO, import penetration (defined later in the data section) from China increased exponentially. The total variability in import penetration across the 6-digit NAICS industries also increased after 2001 signaling a change in the overall impact of Chinese imports on Canada and the US. Prior studies show that the percentage import share of Chinese imports, as well as Chinese import penetration, can have a negative effect on the

employment and industry growth (Baldwin et al, 2008; Autor et al, 2013) but this study seeks to decipher if the effect is the same for small and medium enterprises as it is for large enterprises. With this in mind, the following hypotheses will be tested and analyzed. Understanding which firms are more susceptible to bankruptcy, losses in revenues and unemployment will help the government to allocate resources more efficiently to strengthen the economy. SMEs are an important source of job creation and innovation for every economy and thus it is important to understand how trade reforms affect them.

H1: Chinese import competition negatively affects firm performance in North American manufacturing industries.

H2: Chinese import competition negatively affects SME performance in North American manufacturing industries.

[Figure 3 & 4 are about here]

IV. Empirical Methodology

To examine empirically the foregoing hypotheses we first examine Chinese import and firm performances data in a univariate framework, followed by regression analysis. More specifically, we estimate the following model:

$$Y_{ijt} = \alpha + \beta.CHN_{jt} + X'_{ijt}\delta + \mu_i + \theta_j + \epsilon_{ijt} \qquad (1)$$

In the model (1) above, Y_{ijt} refers to performance of firm '*i*', in industry '*j*', and in year '*t*'. We use four dependent variables namely sales growth, employee growth, profitability, and the z-score measure. The constructions of these variables are detailed in the next section of the thesis. The CHN_{jt} variable measures Chinese import competition. We use two different measures of CHN_{jt} in this thesis. The first one is the share of Chinese import in industry '*j*' and year '*t*' relative to the total import for that industry in a given year. The second one a measure of industry-based Chinese imports penetration. In model (1) above, β will provide key insight into the relationship between Chinese imports and firm performance in general in U.S. and Canadian manufacturing industries. Finally, in model (1) above X'_{ijt} is a set of firm characteristics that is controlled for in the regression, $\mu_i, \theta_j, and \ \epsilon_{ijt}$ are, respectively, firm-fixed effects, industry-fixed effects, and white noise. The additional set of control variables are intuitive and help determine firm performance and better understand the characteristics of SMEs compared to large firms in North America. Specifically, we use firm size (measured by Log(Total assets)), financial leverage, current ratio, profitability, future growth opportunity (measured by Tobin's Q), cash-holdings, and the interest-coverage ratio as additional controls for firm '*i*' in industry '*j*' and year '*t*'. Balance sheet items such as cash and short-term investments, leverage, cash flow, and tangibility were all normalized against total assets to maximize the variance. Similarly, firm size and interest coverage were normalized by finding the natural log. Each of these variables were winsorized to remove extreme values. The descriptions of each these variables are listed in the Appendix. We estimate model (1) both for NAICS industry classification as well as SIC industry classification.

To isolate the SME effect from that of the large firm effect, we estimate the following interaction model:

$$Y_{ijt} = \alpha + \beta.CHN_{ji} + \gamma.SME_{ijt} + \lambda.\left(CHN_{ji} \times SME_{ijt}\right) + X'_{ijt}\delta + \mu_i + \theta_j + \epsilon_{ijt} \qquad (2)$$

In model (2) above the new variable is SME_{ijt}, which is a dummy variable indicating whether the firm is an SME. The variable returns 1 if the number of employee is less than or equal to 499 and it returns 0 if the number of employee is more than or equal to 500. This variable is used as a control parameter within the regression to analyze SME specific performance to Chinese import competition. Interaction variables between the SME dummy variable and the industry-based import competition $\left(CHN_{ji} \times SME_{ijt}\right)$ is used to captures how Chinese import competition affects firm performances via the SME status of the firm.

V. Data and Main Variables

5.1 Data

To properly address the hypotheses proposed industry statistics were gathered from the US Census Bureau, Compustat, and NBER for public firms from 1990-2012. Firm financial information was gathered from Compustat annual files while North American import information was gathered from NBER and the Census Bureau. The observations were limited to public companies due to the ease of access to performance measures and firm data. From these sources were yielded a sample of nearly 240,000 observations for sample years 1990-2012.

Examination of the summary statistics helps to reveal the characteristics of SMEs as opposed to large firms. The summary statistics noted in Table 1 give a better idea of the balance sheet composition, risk behavior, and overall competitiveness of SMEs as opposed to large firms. The differences noted in the independent variables (explained later) of both groups provide insight into in why they respond differently to the stimulus of increasing import competition.

5.2 Chinese import competition

We use two measures to capture Chinese import competition in North American manufacturing industries. Drawing on the value share framework from Bernard, Jensen, & Schott (2006), the following measure is used to help signal the share of industry imports, j, from China in year t.

$$CHN_{jt} = \frac{M_{jt}^{L}}{M_{jt}}$$

where M_{jt}^{L} represents industry imports from China and M_{jt} represents total industry imports. This measure along with import penetration is used to analyze the effect of Chinese imports on the performance of small and medium enterprises. The equation below is used to calculate import penetration in industry j and in year t. Import Penetration differs from the import share measure in that it also includes the value of import shipments (VSH) received from China and the total exports per industry j and year t.

$$Penchn_{jt} = \frac{M_{jt}^{L}}{M_{jt} + VSH_{jt} + X_{jt}}$$

5.3 Firm performance measures

As mentioned previously, the firm performance metrics used as dependent variables in the model are profitability, sales growth, employee growth and the z-score measure. These measures were chosen because they provide insight into the financial health of the firm and are relevant to the model. These variables are found for every firm i in industry j and year t.

The profitability measure helps to show firms' capacity to generate revenues over and above their expenses or operating costs. The excess revenues are seen as gains or profit. As competition heightens, profits become stifled, and are given to the most efficient firms or the firms that create the most value in the mind of the customer. In this way, profits are a good indicator of efficiency and market share. If profits decrease for North American firms as Chinese import competition increases, this shows that they are losing some of their previous market share, all else being equal.

Profitability is calculated using the total revenues minus total expenses excluding interest, taxes, depreciation, and re-adding amortization values (EBITDA), all over sales. This measure calculates efficiency as it indicates the level of profit derived from each unit of sales. Firms with higher levels of profit per sale are seen to be more efficient than firms with lower levels of profit per sale.

$$Profitability = \frac{EBITDA}{Sales}$$

Sales growth is a growth measure that helps to indicate if the firm is growing versus stagnating or declining. Sales growth is an important gauge of the financial health of the firm and can be used as a precursor measure for both firms and industries alike to signal danger or whether a shift

is necessary. Sales growth is calculated as current period sales minus prior period sales, all over prior period sales. Period, t, in our model is years.

$$Sales\ Growth = \frac{Sales_t - Sales_{t-1}}{Sales_{t-1}}$$

Employee growth is another growth measure that indicates if the number of employees working at a firm are increasing, decreasing, or remaining constant. Healthy firms are seen to be growing and taking on new employees whilst those facing bankruptcy are losing employees. Employee growth is calculated by using current period employee numbers minus prior period employee numbers, all over prior period employee numbers. Annual periods are also used in this equation.

$$Employee\ Growth = \frac{Employees_t - Employees_{t-1}}{Employees_{t-1}}$$

The z-score measure gauges the financial health and credit risk of the firm by looking at key financial indicators such as working capital, retained earnings, earnings before interest and tax, market values, as well as sales. Companies with z-scores of 1.8 or less are seen to be very likely to face bankruptcy whereas companies with scores of 3.0 or higher are seen as unlikely to face bankruptcy (Altman and Sabato, 2007). The z-score measure is calculated as follows:

$$Z-score = 1.2\left(\frac{WC}{TA}\right) + 1.4\left(\frac{RE}{TA}\right) + 3.3\left(\frac{EBIT}{TA}\right) + 0.6\left(\frac{MV}{TL}\right) + 1.0(\frac{Sales}{TA})$$

Here *WC* represents working capital and *RE* and *TA* represents retained earnings and total assets respectively. *EBIT* is earnings before interest and taxes, and *MV* and *TL* are market value and total liability respectively.

5.4 Other control variables

The log of total assets was used to help ascertain the size of the firms, with larger firm having a larger amount of total assets under management and smaller firms having fewer assets under management. This holds true when comparing the total assets of large firms to small firms in Table 1. The natural log is found to help normalize the variable so that useful comparisons can be made. It can be seen that large firms as defined in this study as firms with more than 499 employees have more than twice the amount of total assets as small and medium firms, who have less than 500 employees.

Tobin's q (Brainard & Tobin, 1968) is another useful variable that indicates firms' future growth prospects and works as a stock price valuation mechanism within our model. A key assumption of Tobin's q is that the market value of a firm is equal to the sum of the firm's assets or their replacement costs (Brainard et al, 1968). Firms with values below 1 are undervalued and firms with values above 1 are overvalued. The average stocks prices of both large and small firms were reasonably reflected in the market, with a small spread between the maximum and minimum values. This shows that the North American marketplace is an efficient market, and stock prices on average follow Tobin's assumption.

Leverage values are used as a proxy for risk and help to rule out poor risk management in SMEs performance when facing import competition. Risk is an important explanatory variable when looking at the performance of firms so it is important to include within the model. Larger firms on average undertake more risk than smaller firms with the median value being much higher for larger firms than it is for SMEs.

As expected, large firms on average are better able to cover interest on long-term debt obligations and have more tangible assets. However, SMEs on average have more current assets such as cash and short-term investments. This explains their on average higher current ratios. These characteristics along with the firm's product mix help to determine how susceptible they are to low-wage import competition.

[Table 1 is about here]

VI. Estimation Results

6.1 Univariate Analysis

The performance variables that are used as dependent variables are examined in tables 2 and 3. The average profitability of SMEs is seen to be less than the average profitability of large firms. The profitability distribution for SMEs appears to be negatively skewed as the minimum value is much lower than the maximum value. The variance and standard deviation of profit are also much higher for SMEs than it is for large firms.

[Table 2 and 3 are about here]

Similarly when looking at the z-score measure, SMEs are seen to be 12 times more likely to incur bankruptcy than large firms. In the sample, the average SME undergoes bankruptcy with only elite firms surviving. The z-score distribution appears to be negatively skewed with the minimum value dropping much lower than the maximum value.

Employee growth and sales growth are seen to occur almost twice as much in large firms as opposed to SMEs. Though the variance seen between these two variables are similar for the two groups, the maximum value is substantially higher for large firms in both instances.

6.2 Regression Analysis

In the findings, size was shown to have a positive relationship on profitability, employee growth, and the z-score measure. Similar to the univariate analysis, large firms were seen to be much less likely to face bankruptcy, had higher employee growth, and higher net profit margins. However, the relationship between size and sales growth was not statistically significant. Smaller firms were seen to be more likely to face bankruptcy, and had lower profit margins, employee growth, and z-scores.

[Tables 4-11 are about here]

Leverage was shown to have a positive relationship with each of the performance metrics. This showed that leverage was rewarded by higher profitability, sales growth, and employee growth. Alternatively, these relationships were not seen to be as strong as the relationship between

leverage and the bankruptcy. The greater the degree of leverage used, the greater the probability that a company would undergo bankruptcy.

Inconsistent results were yielded for Tobin's q against profitability, employee growth, and sales growth. The only dependent variable that yielded a consistent Tobin's q measure when controlling for firm-level effects and industry effects was the z-score measure. A significant negative relationship was found between Tobin's q and the z-score measure, meaning that firm's with larger q ratios were found to be less likely to undergo bankruptcy.

Investments in tangible assets were not seen to be worthwhile for North American firms. Tangibility or investments in property, plant, and equipment were found to lead to lower profitability, sales growth, and employee growth. Likewise, this investment in fixed assets did not help firms to avoid bankruptcy. Interest coverage, on the other hand, yielded a positive result for each dependent variable showing that firms that had the ability to meet their interest obligations on outstanding debt were more profitable, saw more employee and sales growth, and were less likely to face bankruptcy intuitively.

Liquidity measures such as the current ratio and cash produced different results. The current ratio was not found to have a consistent relationship with profitability, while having a negative relationship with sales growth and employee growth, and a positive relationship with the z-score measure. This is likely due to the inclusion of assets such as inventory and cash within the independent variables, and their relationship with sales growth and employee growth. Inventory

must be sold to increase sales reflecting a negative relationship, and many times wages are paid out of cash also depicting a negative relationship. Cash values were seen to have a negative relationship on profitability, sales growth, employee growth and the z-score measure. In this way having cash on hand can lessen the probability of bankruptcy, but it seems to decrease profitability and growth options for SMEs. This showed that this money can likely be better invested elsewhere.

Lastly, the findings indicate that Chinese imports and import penetration both have a negative effect on the profitability, employee growth, sales growth, and overall survival of North American firms. This proved hypothesis 1 which proposed that low-wage competition from Chinese imports negatively affects North American firms in general. When the SME dummy variable was placed against each dependent variable, it yielded a positive result. However, the Chinese imports drove down SME performance, with the negative impact from the Chinese import competition sometimes outweighing the SME's positive impact.

When looking at profitability, the regression model used explained between 70-80% of the variation that was seen in firms' profitability. To get sense of economic significance of the results, the effect of Chinese import share on firm profitability in column (3) of Table 4 (where we control for both the firm and industry fixed effects) can be expressed as: $\frac{\Delta\,Profitability}{\Delta\,CHN} =$

$-0.286 \Rightarrow \Delta\,Profitability = -0.286 \times \Delta\,CHN$, where CHN refers to Chinese import share. Following this logic, a 1 standard deviation increase in Chinese import share (equivalent to 0.14) leads to a $\Delta\,Profitability = -0.286 \times \Delta\,CHN = -0.286 \times 0.14 = -0.04 \approx -4\%$ decline

in firm profitability. Results are similar when we use import share and import penetration measures based on both 4-digit SIC and 6-digit NAICS classification of industries.

The import share and import penetration variable were seen to yield negative results when interacted with the SME dummy variable, though the results were not statistically significant. To get a sense of the economic significance of the results, the effect of Chinese import share on firm profitability in column (3) of Table 5 (where we control for both the firm and industry fixed effects) can be expressed as: $\frac{\Delta\,Profitability}{\Delta\,CHN} = -0.267 - 0.107 \times SME \Rightarrow \Delta\,Profitability =$ $(-0.267 - 0.107 \times SME) \times \Delta\,CHN$, where CHN refers to Chinese import share. Following this logic, a 1 standard deviation increase in Chinese import share (equivalent to 0.14) leads to a $\Delta\,Profitability = (-0.267 - 0.107 \times SME) \times \Delta\,CHN = (-0.267 - 0.107 \times SME) \times 0.14$. By plugging SME dummy equal to 1, we can see that $\Delta\,Profitability = -0.0524 \approx -5.24\%$. Results are similar when we use import share and import penetration measures based on both 4-digit SIC and 6-digit NAICS classification of industries.

Similarly, following the logic of economic significance outlined above, a 1 standard deviation increase in Chinese import share led to a 20-22% decrease in the of the sales growth of North American firms when using the 4-digit SIC code; and a 14-18% decline in North American firms sales growth when using the 6-digit NAICS code. Chinese import penetration was shown to explain 21-22% of the variability in firms sales growth when using the 4-digit SIC code, and 34-39% when using the 6-digit NAICS code.

The interaction variable between the import share variable and the SME dummy variable yielded significant results at the 1% significance level, with a 1 standard deviation increase in the Chinese import share leading to a 15-17% decline in SME sales growth when using the 4-digit SIC code and a 13-18% decline when using the 6-digit NAICS code. The interaction variable between import penetration and the SME variable did not yield consistent or statistically significant results. When using the 6-digit NAICS code the results were seen to be positive. Alternatively when using the 4-digit SIC code the results were positive when controlling for firm effects, but yielded a negative result when controlling for firm and industry effects. This result could indicate that not all SMEs are being negatively impacted by the growth in Chinese imports but are coping well and growing their sales in spite of competition. This result is in line with previous studies that indicate that competition forces firms to improve management processes and incites innovation (Raith, 2003; Terziovski, 2010).

Employee growth was the only dependent variable that yielded a negative relationship with the SME dummy variable. As SMEs grow in employee numbers, they are removed from the SME category which could explain the negative relationship. A 1 standard deviation increase in Chinese import share decreased employee growth in North American firms by 15-18% when using the 4-digit SIC code and 14-18% when using the 6-digit NAICS code. Chinese import penetration was shown to decrease firms employee growth by 9-10% when using the 4-digit SIC code and 15% when using the 6-digit NAICS code when it increased by 1 standard deviation.

The interaction between Chinese import share and the SME dummy variable did not yield consistent or statistically significant results. A 1% increase in Chinese imports resulted in a 2-3% decline in employee growth when using the 4 digit SIC code and a 4-7% increase when using the 6 digit NAICS code. Similarly, a 1% increase in import penetration was seen to lead to a 17% increase in employee growth at the 1% significance level when only controlling for firm effects using the 6-digit NAICS code; and a 13% increase in employee growth at the 5% significance level when controlling for industry and firm effects. This inconsistency in results for SMEs further strengthens the argument that some SMEs are taking advantage of opportunities that have come available through increased trade with low-wage countries such as China.

Chinese import competition had the largest effect on the z-score variable, with the increase of Chinese import share and import penetration both increasing firms' and SMEs' likelihood of facing bankruptcy exponentially. SMEs were already likely to face bankruptcy, on average, without the additional factor of import competition. However, a 1 unit of increase in Chinese import share reduces z-score by 3.38-4.62 points (a significant increase in the bankruptcy risk of the firm) when using the 4-digit SIC code; and by 1.83-2.62 points when using the 6-digit NAICS code. Chinese import penetration yielded similar results with a 1 unit of increase in Chinese import penetration, increasing SMEs likelihood of bankruptcy by reducing z-score up to 1.32 to 1.42 when using the 4-digit SIC code and by 0.50 to 0.59 when using the 6-digit NAICS code. However, the interaction between import penetration and the SME dummy variable did not yield statistically significant results.

North American firms, in general, saw a huge increase in the likelihood of bankruptcy due to Chinese import competition. A 1 unit of increase in Chinese import share was seen to increase firms likelihood of bankruptcy by lowering z-score up to 5.63-7.15 when using the 4-digit SIC code and by 5.46-6.05 when using the 6-digit NAICS code. Import penetration yielded similar results with a 1unit of increase in import penetration increasing the likelihood of bankruptcy by decreasing the z-score up to 2.77-2.84 when using the 4-digit SIC code and by 5.39-5.45 when using the 6-digit NAICS code. These large values indicate that North American firms are more likely to incur bankruptcy due to this increasing competition but also that much more efficiency is required to sustain business within the North American market. Firms can allow increases in the efficiency requirements to defeat them or they can raise their business practices and products to the required level.

Overall North American firms' competitiveness was found to be wanting or deficient. Firms were not able to successfully assert themselves in the market when facing increasing competition from Chinese imports. SMEs were found to be at more risk than larger firms, as only the top 10% of SMEs are able to avoid bankruptcy. However, the inconsistency in the results for SMEs brings hope for the overall fate of SMEs. Some SMEs have been able to increase sales growth and growth their businesses in spite of the rising competition. These are likely the SMEs that have been able to innovate and diversify their product mix from the competition, taking advantage of globalization and the efficiencies and knowledge sharing that it brings.

VII. Conclusion

North American firms are negatively impacted by the rise in local competition brought about by Chinese imports. Lower trade barriers have brought about more choice and lower prices to the consumer, and greater market opportunities to companies. The findings indicate that, in general, firms have had difficulty capturing the benefits of globalization; though some SMEs have been able to grow in spite of competition which signals that they have taken advantage of the market opportunities.

North American firms face two problems in that they face the task of increasing their competitiveness in order to maintain their market position and market share, and have difficulty taking advantage of the opportunities that come available through trade partnerships and decreasing trade barriers. According to the *Survey of Financing and Growth of Small and Medium Enterprises 2011,* only 10.2% of small businesses and 34.3% of medium businesses exported their goods and services abroad illustrating many of them do not take advantage of the opportunities available in other markets.

North American firms can increase their efficiency by offshoring labor intensive processes and goods to China so that they can work with the change in the market construct. This would allow them to specialize and diversify their product offering. In Belgium, offshoring of finished goods to China was found to increase firms' probability of survival (Mion et al, 2013). In this way,

firms can seek to capitalize on the benefit of globalization and not let the competition overshadow them.

To overcome some of their limitations and inefficiencies brought about by their size, SMEs can seek to cluster. Clusters are groupings of firms linked either vertically or horizontally in a single geographic location. Clustering has been shown to lead to enhanced division of labor, and can facilitate knowledge transmission and learning which can bolster innovation (Porter, 1998). Firms, in general, can bolster competitiveness by maintaining a structure that allows for adaptability and adjustment to changes in the economic environment. Organic structures have been shown to be responsive to change, as well as facilitate innovation and organizational learning (Terziovski, 2010).

In order to capture all the potential from globalization, North American firms should outsource labor intensive processes, diversify their products, and maintain a more organic structure. SMEs can seek to cluster with other local SME's to improve their efficiency. These steps will help to improve their North American firms' competitiveness domestically and globally. These changes will increase their overall efficiency and heighten their competitiveness so that they can thrive instead of simply survive.

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APPENDIX

Dependent Variable	Variable description
Tobin's q	Market Value/ (0.9*Market Value +0.1*Book Value)
Leverage	Long- term debt/ Total Assets
Current Ratio	Current Assets/Current Liabilities
Tangibility	Property, Plant, and Equipment /Total Assets
Cash Flow	Income before Extraordinary Items + Depreciation/ Total Assets
Firm size	log (Total Assets)
Cash/Total Assets	Cash and Short -term Investments/ Total Assets
SME	Firms with less than 100 employees
Large	Firms with more than 100 employees
Interest Coverage	log(1+ (Ebitda/ Interest))
Chinese Import Share	Chinese imports (per industry, per year)/ Total imports (per industry, per year)
Chinese Import Penetration	Total Chinese Imports/[V-ship (Value of all shipments, i , t)+ Total Imports (i, t) - Total Exports (i,t)]
Interaction variables:	
Chinese import share based on SIC4	
Chinese import penetration based on SIC4	
Chinese import share based on NAICS	
Chinese import penetration based on NAICS	

Note: i denotes industry and t denotes year

Figure 1: Chinese import in Canada over time

This figure shows the level of Chinese import (in 000's $) in Canadian manufacturing industries over the last decade.

Imports to Canada from China (000's)
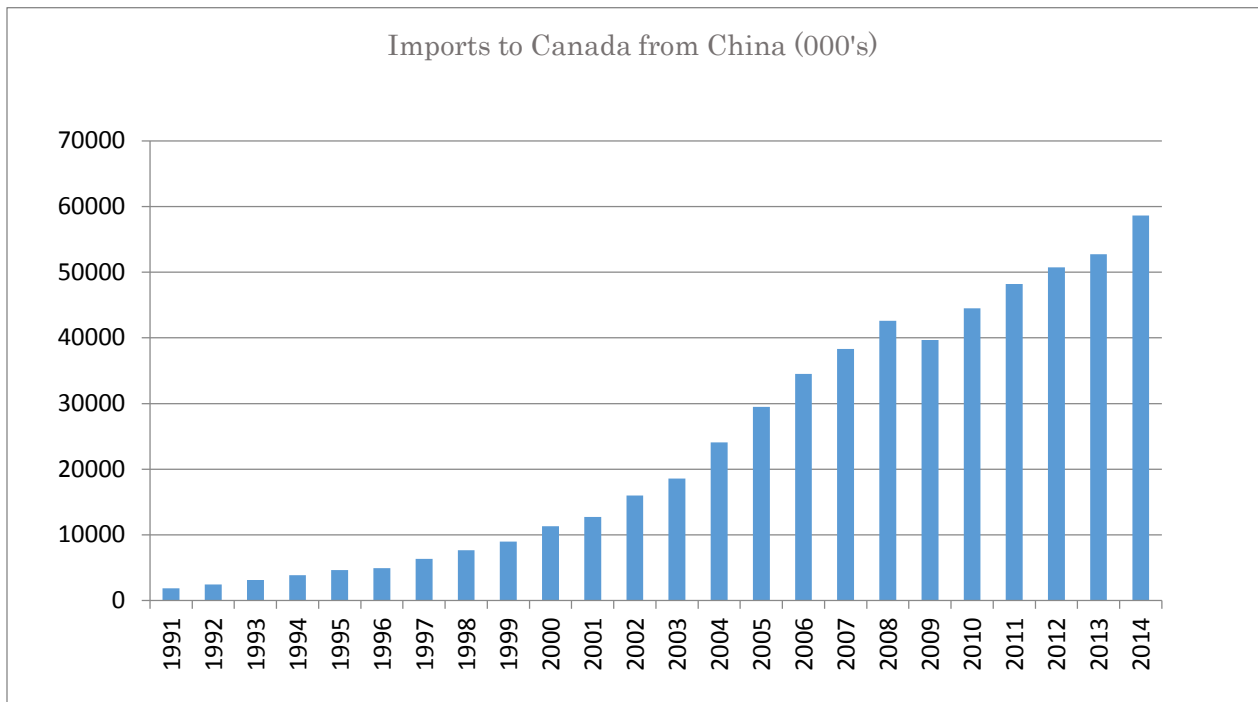
[1]This table is based on the North American Product Classification System (NAPCS 2007). For information specifically related to the classification, http://www.statcan.gc.ca/subjects-sujets/standard-norme/napcs-scpan/notice-avis/napcs-scpan-agg-02-eng.html

Figure 2: Chinese import in the U.S. over time

This figure shows the level of Chinese import (in 000's $) in U.S. manufacturing industries over the last decade.

Imports to USA from China (000's)

https://www.census.gov/foreign-trade/balance/c5700.html
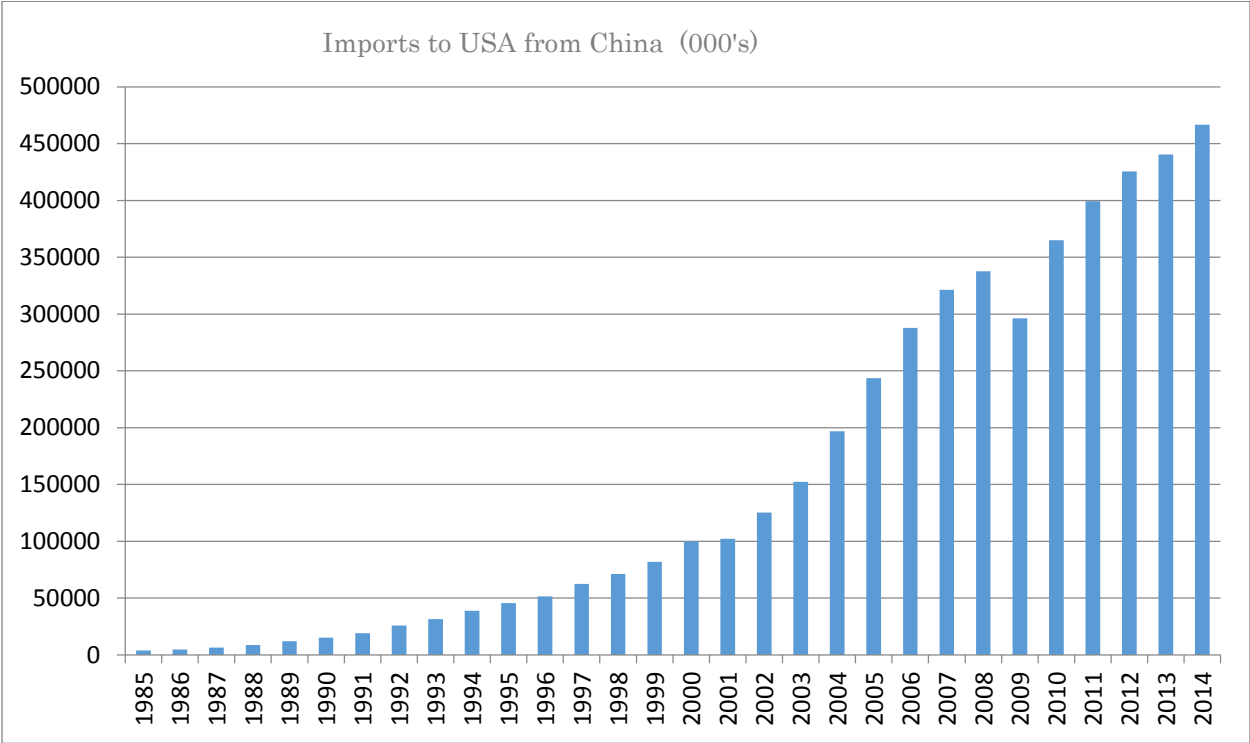
Figure 3: Chinese import penetration in Canada and the U.S. over time (1990-2009)

This figure shows the trend in Chinese import penetration in U.S. and Canadian manufacturing industries during 1990-2009. The import penetration measure is defined in the main text of the thesis.
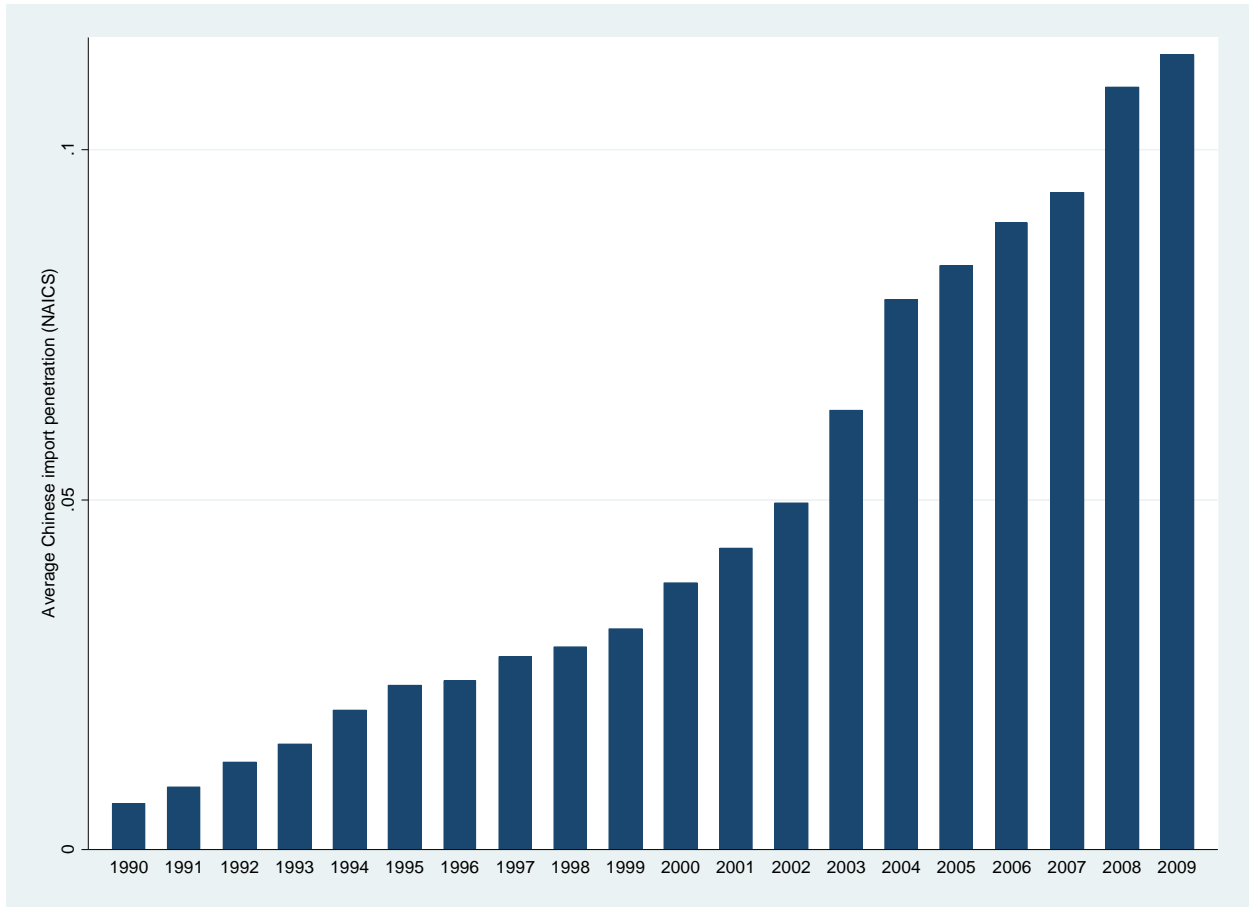
Figure 3: Variations of Chinese import penetration in Canada and the U.S. manufacturing industries over time (1990-2009)

This figure shows the box plot of Chinese import penetration in U.S. and Canadian manufacturing industries during 1990-2009. The import penetration measure is defined in the main text of the thesis. Each box in the plot captures the variation in Chinese import penetration across 6-digit NAICS industry in a given year.
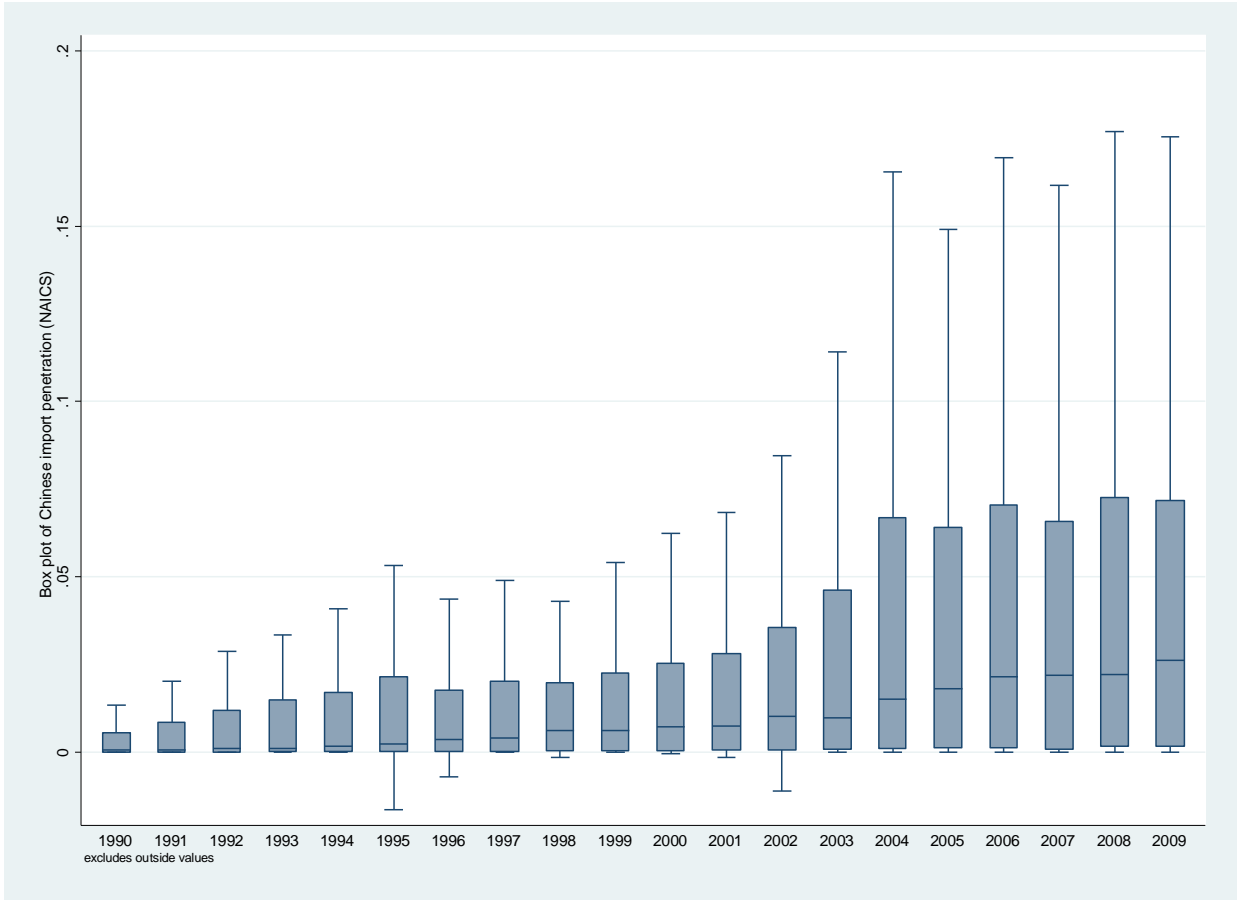
Table 1: Sample summary statistics: 1990-2012

This table shows the summary statistics for various firm-level characteristics as well as the Chinese import competition measures based on 6-digit NAICS and 4-digit SIC. Panel A shows the summary statistics for all firms for the sample years 1990-2012. Panel B and panel C show the summary statistics for SMEs and large firms, respectively.

	Mean	Median	P25	P75	Min	Max	N
Panel A: All firms							
Firm-level summary statistics:							
Log (Total assets)	4.980	5.039	3.156	6.843	-1.743	10.847	223730
Tobin's Q	1.030	1.029	1.002	1.062	0.898	1.108	175821
Leverage	0.181	0.088	0.000	0.284	0.000	1.072	223056
Tangibility	0.271	0.172	0.044	0.437	0.000	0.941	218631
Interest coverage ratio	2.144	1.915	1.265	2.788	-1.123	6.567	130172
Current ratio	2.958	1.714	1.022	3.019	0.035	27.721	184764
Cash/Total assets	0.179	0.076	0.021	0.243	0.000	0.935	223375
Import competition summary statistics:							
Chinese import share (NAICS)	0.083	0.029	0.004	0.114	0.000	0.978	119469
Chinese import penetration (NAICS)	0.045	0.006	0.000	0.030	-0.327	1.458	62862
Chinese import share (SIC)	0.137	0.091	0.010	0.249	0.000	0.948	110759
Chinese import penetration (SIC)	0.035	0.004	0.000	0.022	-0.324	2.816	48487
Panel B: SME firms							
Firm-level summary statistics:							
Log (Total assets)	3.418	3.414	2.045	4.837	-1.743	10.847	92724
Tobin's Q	1.036	1.038	1.003	1.075	0.898	1.108	79111
Leverage	0.145	0.028	0.000	0.200	0.000	1.072	92576
Tangibility	0.223	0.101	0.026	0.325	0.000	0.941	89952
Interest coverage ratio	2.048	1.791	1.015	2.902	-1.123	6.567	36944
Current ratio	3.714	1.960	0.953	4.171	0.035	27.721	75454
Cash/Total assets	0.245	0.120	0.030	0.400	0.000	0.935	92699
Import competition summary statistics:							
Chinese import share (NAICS)	0.081	0.026	0.002	0.108	0.000	0.978	42104
Chinese import penetration (NAICS)	0.051	0.006	0.000	0.031	-0.327	1.458	27934
Chinese import share (SIC)	0.092	0.033	0.003	0.134	0.000	0.948	38875
Chinese import penetration (SIC)	0.037	0.004	0.000	0.021	-0.324	2.816	23787
Panel C: Large firms							
Firm-level summary statistics:							
Log (Total assets)	6.885	6.720	5.463	8.197	-1.743	10.847	93544
Tobin's Q	1.025	1.023	1.003	1.048	0.898	1.108	76157
Leverage	0.225	0.183	0.042	0.335	0.000	1.072	93325
Tangibility	0.311	0.249	0.105	0.481	0.000	0.941	92165
Interest coverage ratio	2.221	1.976	1.388	2.771	-1.123	6.567	78201
Current ratio	2.042	1.651	1.124	2.454	0.035	27.721	81553
Cash/Total assets	0.112	0.056	0.017	0.151	0.000	0.935	93504
Import competition summary statistics:							
Chinese import share (NAICS)	0.095	0.037	0.005	0.122	0.000	0.958	34880
Chinese import penetration (NAICS)	0.043	0.006	0.000	0.030	-0.049	1.458	27139
Chinese import share (SIC)	0.101	0.047	0.004	0.144	0.000	0.948	28143
Chinese import penetration (SIC)	0.036	0.005	0.000	0.025	-0.324	2.816	20095

Table 2: Performance Metrics for SMEs

This table shows the summary statistics of the four dependent variables used in various estimation models for SME firms. The Profitability is defined as EBITDA/Sales; it measures the operating performances of the firm. The ZSCORE measure is constructed following Altman (2000) and captures the financial health of the firm. The employment and sales growth measures are constructed on a yearly basis, based on the number of employees and sales revenues of the firm reported in the COMPUSTAT North America database.

	Mean	Standard Deviation	Min	Max
Profitability	-6.351824	122.9182	-12906	358.2105
ZSCORE	-50.75701	1220.223	-113762.7	25064.67
Employee Growth	.2696639	3.782304	-1	328
Sales Growth	2.618783	110.1851	-165.3	15054
N	119977			

Table 3: Performance Metrics for Large Firms

This table shows the summary statistics of the four dependent variables used in various estimation models for large firms. The Profitability is defined as EBITDA/Sales; it measures the operating performances of the firm. The ZSCORE measure is constructed following Altman (2000) and captures the financial health of the firm. The employment and sales growth measures are constructed on a yearly basis, based on the number of employees and sales revenues of the firm reported in the COMPUSTAT North America database.

	Mean	Standard Deviation	Min	Max
Profitability	-.2206043	97.21308	-29325.7	3910.333
Z-score	4.666669	6.691419	-79.80212	691.5735
Employee Growth	.4165665	22.55069	-.9989833	5665.667
Sales Growth	.4269999	27.27438	-199.2909	5887.231
N	121082			

Table 4: Regression results with dependent variable, Profitability

This table shows the regression results against the performance metric, Profitability, whilst holding company related effects as well as some industry effects constant. The t-stats are in parentheses. `*" refers to significance at the 10% level; "**" refers to significance at the 5% level; "***" refers to significance at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (Total Assets)	0.0526***	0.0306***	0.0513***	0.0250***	0.0468***	0.0292***	0.0409***	0.0222***
	(10.90)	(8.05)	(9.77)	(6.74)	(11.14)	(9.25)	(9.48)	(7.24)
Tobin's Q	-0.285*	0.241*	-0.347*	0.240**	0.0148	0.290***	0.0237	0.291***
	(-2.29)	(2.53)	(-2.54)	(2.67)	(0.14)	(3.79)	(0.22)	(4.08)
Leverage	0.0167	-0.0554**	0.101***	0.00469	0.0487*	-0.00590	0.111***	0.0404**
	(0.61)	(-2.65)	(3.45)	(0.24)	(2.12)	(-0.36)	(4.84)	(2.66)
Tangibility	0.101*	0.0233	0.103*	-0.0193	0.125***	0.0322	0.0752*	-0.00258
	(2.30)	(0.66)	(2.12)	(-0.56)	(3.41)	(1.19)	(2.01)	(-0.10)
Interest Coverage	0.0507***	0.0276***	0.0547***	0.0303***	0.0471***	0.0298***	0.0488***	0.0316***
	(15.15)	(11.19)	(15.21)	(13.01)	(16.23)	(14.64)	(16.92)	(16.64)
Current Ratio	0.000571	0.00235	0.000410	0.00202	0.000389	0.00202	-0.000642	0.00114
	(0.24)	(1.27)	(0.16)	(1.16)	(0.18)	(1.29)	(-0.30)	(0.78)
Cash	-0.128**	-0.0539	-0.135**	-0.0647*	-0.125***	-0.0643**	-0.118***	-0.0548*
	(-3.13)	(-1.83)	(-3.08)	(-2.31)	(-3.54)	(-2.64)	(-3.34)	(-2.39)
Import Share by SIC4	-0.258***		-0.286***					
	(-5.34)		(-4.66)					
Import Penetration by SIC4		-0.0761**		-0.0678*				
		(-2.58)		(-2.28)				
Import share by NAICS					-0.180***		-0.190***	
					(-4.89)		(-4.59)	
Import Penetration by NAICS						-0.108***		-0.0895**
						(-3.84)		(-3.19)
Fixed Effects	j	j	j , SIC4	j , SIC4	j	j	j , NAICS	j , NAICS
N	33161	22878	28996	22878	41707	30542	39306	30542
R-square	0.720	0.843	0.737	0.867	0.718	0.841	0.751	0.871

Table 5: Regression results with dependent variable, Profitability
(Controlling for SMEs)

This table shows the regression results against the performance metric, Profitability, whilst holding company related effects as well as some industry effects constant. This regression has an additional SME dummy variable to determine the effect that SMEs have on the performance metric. Key Interaction variables are used to better understand the relationship between import share/penetration and SMEs. The t-stats are in parentheses. `*" refers to significance at the 10% level; "**" refers to significance at the 5% level; "***" refers to significance at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (Total Assets)	0.0603***	0.0344***	0.0589***	0.0281***	0.0536***	0.0333***	0.0468***	0.0252***
	(11.69)	(8.40)	(10.48)	(7.08)	(11.97)	(9.82)	(10.19)	(7.67)
Tobin's Q	-0.286*	0.244*	-0.344*	0.243**	0.0166	0.293***	0.0269	0.295***
	(-2.30)	(2.56)	(-2.51)	(2.70)	(0.16)	(3.84)	(0.25)	(4.12)
Leverage	0.0164	-0.0548**	0.100***	0.00505	0.0489*	-0.00531	0.111***	0.0409**
	(0.60)	(-2.63)	(3.42)	(0.26)	(2.13)	(-0.33)	(4.84)	(2.70)
Tangibility	0.108*	0.0288	0.109*	-0.0151	0.132***	0.0386	0.0799*	0.00143
	(2.45)	(0.81)	(2.24)	(-0.44)	(3.58)	(1.42)	(2.13)	(0.05)
Interest Coverage	0.0510***	0.0277***	0.0550***	0.0304***	0.0472***	0.0299***	0.0489***	0.0316***
	(15.23)	(11.25)	(15.29)	(13.06)	(16.28)	(14.70)	(16.97)	(16.66)
Current Ratio	0.000323	0.00226	0.000192	0.00195	0.000243	0.00194	-0.000741	0.00108
	(0.13)	(1.22)	(0.07)	(1.12)	(0.11)	(1.24)	(-0.35)	(0.74)
Cash	-0.137***	-0.0584*	-0.144**	-0.0687*	-0.133***	-0.0691**	-0.125***	-0.0585*
	(-3.34)	(-1.98)	(-3.28)	(-2.45)	(-3.77)	(-2.83)	(-3.56)	(-2.54)
Import share based on SIC4	-0.232***		-0.267***					
	(-4.34)		(-4.06)					
SME	0.0800***	0.0316**	0.0763***	0.0259*	0.0649***	0.0320**	0.0555***	0.0217*
	(4.44)	(2.59)	(3.94)	(2.23)	(4.30)	(3.22)	(3.64)	(2.32)
Import Share by SIC4 (controlled for SMEs)	-0.119		-0.107					
	(-1.52)		(-1.14)					
Import Penetration by SIC4		-0.0678		-0.0620				
		(-1.87)		(-1.74)				
Import Penetration by SIC4 (controlled for SMEs)		-0.0215		-0.0150				
		(-0.40)		(-0.28)				

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Import Share by NAICS					-0.174***		-0.185***	
					(-4.28)		(-4.14)	
Import Share by NAICS (controlled for SMEs)					-0.0434		-0.0382	
					(-0.75)		(-0.62)	
Import Penetration by NAICS						-0.107***		-0.0948**
						(-3.37)		(-3.03)
Import Penetration by NAICS (controlled for SMEs)						-0.00451		0.0156
						(-0.10)		(0.35)
Fixed Effects	j	j	j , SIC4	j , SIC4	j	j	j , NAICS	j , NAICS
N	33161	22878	28996	22878	41707	30542	39306	30542
R-square	0.720	0.843	0.737	0.867	0.718	0.841	0.751	0.871

Table 6: Regression results with dependent variable, Sales Growth

This table shows the regression results against the performance metric, Sales Growth, whilst holding company related effects as well as some industry effects constant. The t-stats are in parentheses. `*" refers to significance at the 10% level; "**" refers to significance at the 5% level; "***" refers to significance at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (Total Assets)	-0.0116*	-0.00562	-0.00233	-0.00812	-0.00921	0.00325	-0.00588	-0.00138
	(-2.03)	(-0.95)	(-0.41)	(-1.32)	(-1.81)	(0.61)	(-1.13)	(-0.25)
Tobin's Q	3.166***	3.445***	3.296***	3.435***	3.297***	3.308***	3.419***	3.328***
	(21.75)	(23.65)	(22.20)	(23.28)	(25.66)	(26.20)	(26.44)	(26.32)
Leverage	0.161***	0.174***	0.154***	0.187***	0.141***	0.156***	0.149***	0.172***
	(5.13)	(5.53)	(4.93)	(5.86)	(5.23)	(5.90)	(5.54)	(6.47)
Tangibility	-0.386***	-0.375***	-0.313***	-0.409***	-0.288***	-0.316***	-0.303***	-0.379***
	(-7.58)	(-6.98)	(-5.98)	(-7.36)	(-6.60)	(-7.10)	(-6.80)	(-8.29)
Interest Coverage	0.0396***	0.0309***	0.0356***	0.0320***	0.0335***	0.0282***	0.0321***	0.0300***
	(10.31)	(8.39)	(9.29)	(8.57)	(9.81)	(8.56)	(9.47)	(9.10)
Current Ratio	-0.0133***	-0.00823**	-0.00829**	-0.00823**	-0.0149***	-0.0115***	-0.0126***	-0.0109***
	(-4.80)	(-2.98)	(-3.01)	(-2.94)	(-5.86)	(-4.51)	(-4.96)	(-4.27)
Cash	-0.228***	-0.241***	-0.214***	-0.239***	-0.186***	-0.168***	-0.183***	-0.171***
	(-4.86)	(-5.47)	(-4.58)	(-5.30)	(-4.47)	(-4.24)	(-4.42)	(-4.29)
Import Share by SIC4	-0.436***		-0.470***					
	(-7.77)		(-7.10)					
Import Penetration by SIC4		-0.213***		-0.240***				
		(-4.92)		(-5.09)				
Import Share by NAICS					-0.293***		-0.375***	
					(-6.69)		(-7.59)	
Import Penetration by NAICS						-0.319***		-0.387***
						(-7.00)		(-7.95)
Fixed Effects	j	j	j , SIC4	j , SIC4	j	j	j , NAICS	j , NAICS
N	30992	21385	27119	21385	39039	28716	36956	28716
R-square	0.491	0.514	0.495	0.525	0.481	0.493	0.502	0.525

This table shows the regression results against the performance metric, Sales Growth, whilst holding company related effects as well as some industry effects constant. This regression has an additional SME dummy variable to determine the effect that SMEs have on the performance metric. Key Interaction variables are used to better understand the relationship between import share/penetration and SMEs. The t-stats are in parentheses. `*" refers to significance at the 10% level; "**" refers to significance at the 5% level; "***" refers to significance at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (Total Assets)	-0.00940	-0.00362	0.00185	-0.00590	-0.00623	0.00512	-0.00148	0.00118
	(-1.55)	(-0.57)	(0.30)	(-0.90)	(-1.15)	(0.90)	(-0.27)	(0.20)
Tobin's Q	3.158***	3.446***	3.293***	3.436***	3.296***	3.310***	3.419***	3.331***
	(21.69)	(23.66)	(22.19)	(23.29)	(25.65)	(26.21)	(26.45)	(26.34)
Leverage	0.161***	0.174***	0.154***	0.188***	0.142***	0.156***	0.149***	0.172***
	(5.13)	(5.54)	(4.92)	(5.87)	(5.24)	(5.91)	(5.53)	(6.49)
Tangibility	-0.381***	-0.372***	-0.308***	-0.405***	-0.284***	-0.313***	-0.299***	-0.375***
	(-7.49)	(-6.91)	(-5.90)	(-7.28)	(-6.50)	(-7.02)	(-6.70)	(-8.19)
Interest Coverage	0.0398***	0.0310***	0.0359***	0.0321***	0.0336***	0.0282***	0.0323***	0.0300***
	(10.36)	(8.40)	(9.38)	(8.59)	(9.85)	(8.56)	(9.53)	(9.11)
Current Ratio	-0.0135***	-0.00829**	-0.00850**	-0.00829**	-0.0150***	-0.0115***	-0.0126***	-0.0109***
	(-4.86)	(-3.00)	(-3.08)	(-2.97)	(-5.89)	(-4.53)	(-4.98)	(-4.29)
Cash	-0.230***	-0.243***	-0.217***	-0.241***	-0.190***	-0.169***	-0.188***	-0.174***
	(-4.90)	(-5.51)	(-4.64)	(-5.35)	(-4.55)	(-4.27)	(-4.54)	(-4.36)
Import Share by SIC4	-0.361***		-0.399***					
	(-5.86)		(-5.63)					
SME	0.0469*	0.0154	0.0631**	0.0199	0.0448*	0.0109	0.0558**	0.0190
	(2.24)	(0.83)	(3.02)	(1.05)	(2.49)	(0.67)	(3.08)	(1.16)
Import Share by SIC4 (controlling for SMEs)	-0.270**		-0.302**					
	(-3.02)		(-3.03)					
Import Penetration by SIC4		-0.217***		-0.225***				
		(-4.08)		(-4.00)				

Import Penetration by SIC4 (controlling for SMEs)	0.0102		-0.0398					
	(0.13)		(-0.47)					
Import Share by NAICS					-0.249***		-0.334***	
					(-5.17)		(-6.28)	
Import Share by NAICS (controlling for SMEs)					-0.161*		-0.165*	
					(-2.38)		(-2.30)	
Import Penetration by NAICS						-0.337***		-0.391***
						(-6.56)		(-7.20)
Import Penetration by NAICS (controlling for SMEs)						0.0557		0.00966
						(0.75)		(0.13)
Fixed Effects	j	j	j , SIC4	j , SIC4	j	j	j , NAICS	j , NAICS
N	30992	21385	27119	21385	39039	28716	36956	28716
R-square	0.492	0.514	0.495	0.525	0.482	0.493	0.502	0.525

Table 8: Regression results with dependent variable, Employee Growth

This table shows the regression results against the performance metric, Employee Growth, whilst holding company related effects as well as some industry effects constant. The t-stats are in parentheses. `*" refers to significance at the 10% level; "**" refers to significance at the 5% level; "***" refers to significance at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (Total Assets)	0.0197***	0.0166***	0.0215***	0.0176***	0.0232***	0.0231***	0.0263***	0.0249***
	(5.78)	(4.01)	(6.06)	(4.10)	(7.51)	(6.17)	(8.11)	(6.35)
Tobin's Q	1.847***	2.055***	1.844***	2.022***	1.764***	1.916***	1.783***	1.910***
	(21.36)	(20.06)	(20.22)	(19.60)	(22.76)	(21.42)	(22.22)	(21.13)
Leverage	0.187***	0.208***	0.209***	0.220***	0.166***	0.184***	0.179***	0.193***
	(10.08)	(9.42)	(10.91)	(9.89)	(10.25)	(9.92)	(10.81)	(10.25)
Tangibility	-0.164***	-0.145***	-0.155***	-0.167***	-0.118***	-0.0616*	-0.136***	-0.0985**
	(-5.47)	(-3.87)	(-4.87)	(-4.33)	(-4.53)	(-1.97)	(-4.98)	(-3.03)
Interest Coverage	0.0356***	0.0369***	0.0370***	0.0372***	0.0352***	0.0377***	0.0353***	0.0374***
	(15.59)	(14.17)	(15.71)	(14.19)	(17.13)	(16.15)	(16.83)	(15.85)
Current Ratio	-0.00681***	-0.00747***	-0.00671***	-0.00774***	-0.00594***	-0.00782***	-0.00622***	-0.00840***
	(-4.06)	(-3.80)	(-3.88)	(-3.92)	(-3.81)	(-4.30)	(-3.89)	(-4.56)
Cash	-0.283***	-0.301***	-0.287***	-0.310***	-0.274***	-0.272***	-0.279***	-0.287***
	(-10.15)	(-9.67)	(-9.98)	(-9.83)	(-10.90)	(-9.65)	(-10.87)	(-10.00)
Import Share by SIC4	-0.295***		-0.347***					
	(-8.91)		(-8.69)					
Import Penetration by SIC4		-0.152***		-0.154***				
		(-4.98)		(-4.72)				
Import Share by NAICS					-0.255***		-0.313***	
					(-9.86)		(-10.45)	
Import Penetration by NAICS						-0.233***		-0.243***
						(-7.24)		(-7.03)
Fixed Effects	j	j	j , SIC4	j , SIC4	j	j	j , NAICS	j , NAICS
N	29806	20798	26350	20798	37933	27823	35774	27823
R-square	0.325	0.325	0.337	0.349	0.314	0.314	0.337	0.347

Table 9: Regression results with dependent variable, Employee Growth
(Controlling for SMEs)

This table shows the regression results against the performance metric, Employee Growth, whilst holding company related effects as well as some industry effects constant. This regression has an additional SME dummy variable to determine the effect that SMEs have on the performance metric. Key Interaction variables are used to better understand the relationship between import share/penetration and SMEs. The t-stats are in parentheses. `*" refers to significance at the 10% level; "**" refers to significance at the 5% level; "***" refers to significance at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log(Total Assets)	0.0112**	0.00738	0.0147***	0.00790	0.0129***	0.0123**	0.0171***	0.0141***
	(3.08)	(1.66)	(3.89)	(1.72)	(3.94)	(3.09)	(4.97)	(3.38)
Tobin's Q	1.841***	2.048***	1.840***	2.014***	1.760***	1.908***	1.778***	1.900***
	(21.31)	(20.01)	(20.18)	(19.54)	(22.75)	(21.37)	(22.18)	(21.05)
Leverage	0.186***	0.206***	0.210***	0.219***	0.165***	0.182***	0.179***	0.191***
	(10.06)	(9.35)	(10.93)	(9.84)	(10.19)	(9.84)	(10.79)	(10.15)
Tangibility	-0.170***	-0.160***	-0.161***	-0.181***	-0.129***	-0.0803*	-0.145***	-0.116***
	(-5.71)	(-4.26)	(-5.04)	(-4.69)	(-4.95)	(-2.56)	(-5.27)	(-3.56)
Interest Coverage	0.0355***	0.0365***	0.0369***	0.0369***	0.0351***	0.0374***	0.0352***	0.0370***
	(15.57)	(14.06)	(15.67)	(14.08)	(17.09)	(16.01)	(16.79)	(15.73)
Current Ratio	-0.00653***	-0.00716***	-0.00648***	-0.00746***	-0.00566***	-0.00755***	-0.00604***	-0.00817***
	(-3.89)	(-3.64)	(-3.75)	(-3.78)	(-3.64)	(-4.16)	(-3.78)	(-4.44)
Cash	-0.274***	-0.290***	-0.279***	-0.299***	-0.263***	-0.259***	-0.268***	-0.274***
	(-9.82)	(-9.33)	(-9.69)	(-9.45)	(-10.49)	(-9.20)	(-10.44)	(-9.54)
Import Share by SIC4	-0.276***		-0.333***					
	(-7.62)		(-7.82)					
SME	-0.0720***	-0.0800***	-0.0591***	-0.0818***	-0.0989***	-0.0965***	-0.0845***	-0.0922***
	(-5.76)	(-6.15)	(-4.58)	(-6.20)	(-9.10)	(-8.37)	(-7.49)	(-7.85)
Import Share by SIC4 (controlling for SMEs)	-0.0360		-0.0222					
	(-0.67)		(-0.36)					
Import Penetration by SIC4		-0.183***		-0.176***				
		(-4.87)		(-4.49)				

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Import Penetration by SIC4 (controlling for SMEs)		0.0821		0.0592				
		(1.49)		(1.00)				
Import Share by NAICS					-0.266***		-0.316***	
					(-9.39)		(-9.82)	
Import Share by NAICS (controlling for SMEs)					0.0729		0.0460	
					(1.81)		(1.05)	
Import Penetration by NAICS						-0.283***		-0.279***
						(-7.84)		(-7.26)
Import Penetration by NAICS (controlling for SMEs)						0.168**		0.125*
						(3.17)		(2.26)
Fixed Effects	j	j	j , SIC4	j , SIC4	j	j	j , NAICS	j , NAICS
N	29806	20798	26350	20798	37933	27823	35774	27823
R-square	0.326	0.326	0.338	0.351	0.316	0.316	0.338	0.349

Table 10: Regression results with dependent variable, Z-score

This table shows the regression results against the performance metric, Z-score, whilst holding company related effects as well as some industry effects constant. The t-stats are in parentheses. `*" refers to significance at the 10% level; "**" refers to significance at the 5% level; "***" refers to significance at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (Total Assets)	0.646***	0.656***	0.718***	0.637***	0.790***	0.749***	0.787***	0.712***
	(13.04)	(10.06)	(12.97)	(9.44)	(17.67)	(13.78)	(16.70)	(12.51)
Tobin's Q	47.03***	55.94***	49.69***	56.17***	46.63***	51.16***	48.43***	51.49***
	(36.97)	(34.29)	(34.65)	(34.26)	(40.88)	(38.88)	(41.07)	(38.84)
Leverage	-6.870***	-6.948***	-6.762***	-6.814***	-7.417***	-6.976***	-7.122***	-6.936***
	(-24.78)	(-19.42)	(-22.05)	(-18.89)	(-30.47)	(-24.99)	(-28.58)	(-24.57)
Tangibility	4.548***	5.156***	4.312***	4.861***	5.093***	4.141***	4.609***	3.829***
	(10.22)	(8.50)	(8.48)	(7.81)	(13.18)	(8.85)	(11.32)	(7.92)
Interest Coverage	0.693***	0.700***	0.686***	0.664***	0.614***	0.619***	0.549***	0.575***
	(20.28)	(16.57)	(18.22)	(15.63)	(19.96)	(17.65)	(17.50)	(16.32)
Current Ratio	1.216***	1.250***	1.194***	1.234***	1.267***	1.217***	1.236***	1.212***
	(49.45)	(39.70)	(44.29)	(39.13)	(55.45)	(45.19)	(52.84)	(44.69)
Ratio	-1.636***	-1.750***	-1.578***	-1.547**	-1.813***	-1.235**	-1.192**	-0.951*
	(-3.94)	(-3.48)	(-3.46)	(-3.04)	(-4.85)	(-2.95)	(-3.13)	(-2.23)
Import Share by SIC4	-6.520***		-8.229***					
	(-13.13)		(-12.72)					
Import Penetration by SIC4		-3.364***		-3.310***				
		(-6.67)		(-6.09)				
Import Share by NAICS					-5.899***		-6.676***	
					(-14.97)		(-14.75)	
Import Penetration by NAICS						-5.622***		-5.532***
						(-11.56)		(-10.63)
Fixed Effects	j	j	j , SIC4	j , SIC4	j	j	j , NAICS	j , NAICS
N	32742	22834	28657	22834	41114	30471	38872	30471
R-square	0.806	0.791	0.810	0.799	0.818	0.784	0.834	0.796

Table 11: Regression results with dependent variable, Z-score
(Controlling for SMEs)

This table shows the regression results against the performance metric, Z-score, whilst holding company related effects as well as some industry effects constant. This regression has an additional SME dummy variable to determine the effect that SMEs have on the performance metric. Key Interaction variables are used to better understand the relationship between import share/penetration and SMEs. The t-stats are in parentheses. `*" refers to significance at the 10% level; "**" refers to significance at the 5% level; "***" refers to significance at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (Total Assets)	0.740***	0.744***	0.811***	0.722***	0.906***	0.858***	0.892***	0.813***
	(13.99)	(10.61)	(13.70)	(9.96)	(19.01)	(14.73)	(17.77)	(13.34)
Tobin's Q	46.96***	56.00***	49.72***	56.25***	46.66***	51.25***	48.48***	51.60***
	(36.93)	(34.34)	(34.69)	(34.32)	(40.94)	(38.96)	(41.15)	(38.94)
Leverage	-6.874***	-6.936***	-6.770***	-6.807***	-7.410***	-6.961***	-7.126***	-6.919***
	(-24.81)	(-19.39)	(-22.09)	(-18.87)	(-30.47)	(-24.95)	(-28.61)	(-24.52)
Tangibility	4.646***	5.293***	4.400***	4.987***	5.203***	4.314***	4.700***	3.971***
	(10.44)	(8.71)	(8.66)	(8.00)	(13.47)	(9.21)	(11.54)	(8.20)
Interest Coverage	0.697***	0.703***	0.693***	0.668***	0.617***	0.622***	0.553***	0.578***
	(20.40)	(16.67)	(18.40)	(15.73)	(20.07)	(17.75)	(17.64)	(16.41)
Current Ratio	1.212***	1.247***	1.191***	1.232***	1.264***	1.216***	1.235***	1.210***
	(49.33)	(39.63)	(44.20)	(39.07)	(55.40)	(45.14)	(52.83)	(44.64)
Cash	-1.743***	-1.857***	-1.671***	-1.655**	-1.958***	-1.368**	-1.330***	-1.079*
	(-4.19)	(-3.69)	(-3.66)	(-3.24)	(-5.24)	(-3.26)	(-3.48)	(-2.53)
Import Share by SIC4	-5.631***		-7.154***					
	(-10.28)		(-10.31)					
SME	1.168***	0.789***	1.205***	0.751***	1.221***	0.891***	1.187***	0.803***
	(6.33)	(3.77)	(5.92)	(3.54)	(7.61)	(5.21)	(7.14)	(4.62)
Import Share by SIC4 (controlling for SMEs)	-3.384***		-4.618***					
	(-4.24)		(-4.67)					
Import Penetration by SIC4		-2.841***		-2.777***				
		(-4.57)		(-4.26)				

Import Penetration by SIC4 (controlling for SMEs)	-1.329		-1.424					
	(-1.46)		(-1.46)					
Import Share by NAICS					-5.464***		-6.048***	
					(-12.58)		(-12.37)	
Import Share by NAICS (controlling for SMEs)					-1.829**		-2.617***	
					(-2.98)		(-3.93)	
Import Penetration by NAICS						-5.450***		-5.390***
						(-9.93)		(-9.28)
Import Penetration by NAICS (controlling for SMEs)						-0.589		-0.507
						(-0.73)		(-0.61)
Fixed Effects	j	j	j , SIC4	j , SIC4	j	j	j , NAICS	j , NAICS
N	32742	22834	28657	22834	41114	30471	38872	30471
R-square	0.806	0.791	0.811	0.799	0.818	0.784	0.834	0.796