Monopolistic Competition and International Business Law

By

[Janel Linger

Monopolistic Competition and International Business Law

Introduction

The main purpose of this study is to investigate the role of the international business law and its policies on the monopolistic competition. In particular, we estimate as to what extent are the country's monopolistic competition patterns and flows impacted by the adoption of a stricter competition policy of the international law. Competition issues, such as restrictive practices and the abuse of dominant position by the multinational and domestic firms, were observed during 1970s through 1990s. These competition concerns, resulting in market access barrier to foreign firms, negatively affect the expected benefits of business liberalization. For this reason, in 1997, WTO established a working group to examine the relationship between competition and business policies.

Recently, a growing number of countries (approximately 113) has adopted some competition laws or improved the existing ones, moving toward competition, which are policies that are more active. In addition to complementing the business liberalization benefits, another reason for this expansion is that competition policy is a crucial element for successful, market-oriented economic and regulatory reforms. Substantial privatizations and deregulation of the industrial sectors that occurred in most countries after 1990s required the adoption or improvement of their national competition laws.

In this study, the terminology of international business law and its policies on the monopolistic competition refers to a broader meaning than just competition law (some studies refer to competition law as competition policy), and include instruments such as privatization and deregulation. These instruments are intended to restrict anticompetitive behavior and mega-mergers between competitors. Although each country enforces the competition policy

differently, its primary goal remains promoting and achieving greater economic efficiency through better resource allocation.

The multiple relationships between competition policy and business received new attention by late 1970s and early 1980s given the developments of the monopolistic competition theory of business. The literature analyzed these linkages, mainly from three distinct viewpoints. The first is the literature related to the effects of competition policy on business. The second is the research dealing with the effects of business policy on competition policy. The third is papers treating the possibility of harmonization or coordination of national competition policies.

The purpose of competition policy is to improve competition that leads to increase in the firm's efficiency and market's performance. The economic benefits of competition policy changes are realized mainly through lowering fixed entry costs. A lower entry cost will lead to higher entry level and, as a result, to a following 'positive firm selection' process that occurs within industries. Both channels lead to an increased number of firms and variety, lower price markups, higher static and dynamic efficiency, increased productivity, R&D intensity, and innovations.

Findings from the literature that investigate the multidirectional linkages between business and competition policy consider some of the market performance indicators as business determinants. Furthermore, they point out that the impact of competition policy on exports is transmitted through changes of these indicators. Partly related to this study are the findings of several empirical studies that show the positive effects of competition policy and deregulation on market performance and business. It is through the lower fixed entry costs, and a 'positive firm selection' process that competition policy affects the market performance indicators, business determinants, and, therefore, exports.

Comparative case studies suggest that competition enhance productivity. Authors Comanor and Scherer (1995) compared the productivity in the US petroleum-refining industry with that of the U.S. steel industry. They attributed the differences between the better performance of the Standard Oil Co and the poorer performance of the US Steel Corporation to the antitrust enforcement on the Standard Oil Co. In addition, Disney et al. (2000) find that the market competition significantly raises the productivity levels and its growth rates. Kee and Hoekman (2002) analyze the effects of competition law on price-cost markup, which is a business determinant, in an empirical study. The authors find evidence that the existence or adoption of competition law positively affects the long-run equilibrium number of home firms, and thus, indirectly reduces industry markups. Moreover, their results show that the number of the domestic firms responds to fix entry costs. Therefore, regardless of the approach or the proxy variables used for competition policy, the results of all cited studies point to a positive effect of competition policy on market performance indicators.

Since the interactions between competition policy and international business are bidirectional, it means that the latter also affects the former. The effects of business policies on competition policy are reflected mainly in the degree of the antitrust law enforcement regarding mergers. Although liberalized business and tight competition policy are categorized as pro-competitive, there are differences between the two policies. These differences are based on their impact as competitive discipline to the domestic markets. The empirical evidence supports the "import - as - market - discipline" hypothesis, which considers the liberal business policy as a substitute to a tight competition policy, especially in the intra-business industries.

However, Cadot, Grether, and de Melo (2000) point out that there are a number of arguments critical of this hypothesis. First, the imports do not affect the competition level in the

non-tradable sectors such as domestic services and distribution, which represent a relatively large share of the country's GDP. Second, the existence of anti-competitive practices in the non-tradable home sectors, such as the market foreclosures and vertical arrangements, is not subject to the liberalized business policy. Thus, it limits the exporters' access into the domestic markets. Third, in monopolistic competition, import is not as efficient as competition policy in disciplining the domestic firm's market power, because they compete in quality and other non-price dimensions. Fourth, in the presence of the relevant transportation costs, which increase the degree of product differentiation, a liberal business policy will not be as effective as competition policy in enhancing markets' competitiveness.

We use this theoretical framework, and the monopolistic competition model of business to formulate this study's main hypothesis and to construct the empirical model of export. As we discussed earlier, a stricter competition policy would result in a lower fixed entry cost and positively influence the market performance. The monopolistic competition models of business predict an increase in domestic firms and a higher level of a country's exports as the result of a stricter competition policy. Thus, we hypothesize that pro-competitive changes in competition policy positively affect a country's level of exports. To test our hypothesis, we chose the manufacturing sector because it operates in a monopolistic competition framework with relevant fixed entry and exit costs. Relatively high fixed costs are considered entry barriers, and, therefore, the consequences of competition policy changes on firm's competitiveness and international business will be more significant than those in competitive sectors. This is also related with competition policy primarily affecting entry barriers and its costs.

In his paper, Levinsohn (1994) points out "if we ignore the interactions between competition policy and international business, especially in imperfect markets, it may result in

public policy consequences and misguided business or competition policies". In this study, we provide empirical estimates of competition policy impact upon manufacturing exports for the case of United States. These results are significant for a better understanding and valuation of the economic implications that arise from a change or introduction of the national competition policy. In addition, they serve to the policy and decision makers in formulating sound economic policies regarding this topic. Furthermore, the literature suggests that there is limited empirical evidence regarding effects of competition policy on the firm's performance and export. This is because it is complicated to provide evidence of effectiveness of competition policy on export since there are other factors simultaneously affecting the business determinants alongside the competition policy and the international law. In this aspect, our empirical results provide a contribution to the existing evidence of competition policy effectiveness on export.

Literature Review

The vast literature related to the interactions between monopolistic competition and the international business law and its policies can be organized into three areas. First, literature regarding competition policy effect on business and the monopolistic competition models of business; second, literature that deals with the effects of business on competition policy; and third studies that treat the possibility of harmonization of national competition policies along with the international business law.

Monopolistic Competition Models of Business

The first section of the literature review includes studies on how changes in competition policy, including antitrust laws and deregulation, affect business determinants and business. In addition, this section contains a brief description of monopolistic competition theory of business, which we use to formulate our hypothesis. The effects of competition policy on business

volumes are transmitted through lowering of fixed entry costs. These entry costs are considered as the primary reason for market barriers to entry and exit.

The reduced fixed entry cost due to a stricter competition policy will facilitate entry and enhance market competition. Because of lower fixed cost, the number of the home firm increases as predicted by monopolistic competition models of business. This increased market competition leads to 'positive firm selection' process and improvement of market performance. Competition policy impacts export through market indicators and business determinants such as the number of varieties, price markups, productivity, R&D and innovation.

The previous studies adopted the Dixit and Stiglitz model (1977), (DS model hereafter). The DS model analyzed the issue of 'whether the level of product diversity provided in a monopolistic competition market structure would be socially optimal?' It dealt with economies of scale in a monopolistic competition market structure from a tradeoff prospect of product quantity versus diversity. Following there is a brief description of the DS model. It assumes a separable utility function between a numeraire good (x_o) and differentiated products within industry (x_i). Utility function is symmetric in varieties, which are similar but imperfect substitutes, within an industry or group industries. Utility function is convex, embodies the desirability of variety, and homothetic in its arguments. Economies of scale are modeled by assuming that all products have an equal fixed and marginal cost, so firms are identical in production technology. In addition, each variety is produced by one firm only; all varieties have unit income elasticity, and the number of varieties (n) is reasonably large and yet possible to be provided by the economy. The literature refers to these assumptions as the "DS model preferences".

Krugman (1979, 1980) applied this model to international trade and pointed out that increasing return to scale, an IO feature of the economy, is a reason for trade of differentiated products between similar countries. Krugman argues that the free trade between two countries allows firms to produce a larger output and exploit economies of scale by expanding markets for domestic and foreign firms. Krugman's monopolistic competition model of trade was one of the first complete models based on the economies of scale. The new trade theory explains the intra-industry trade between similar countries, with trade gains coming from the internal firm's economies of scale and consumers' benefits of a larger variety of products.

Recent monopolistic competition models of trade, Melitz (2008) and others later seemed to address some of the limitations of previous DS based models. These models embrace realistic assumptions such as differences in firm's technologies and productivities. In these models, the only operative channel to obtain gains from trade is through an increase in product market competition. These gains come from a combination of increased product variety, lower markups, and higher efficiency through 'positive firm selection' process.

In this study, we use a different reasoning about gains from the increased domestic market competition and its effects on firms' performance. The previously mentioned gains are mostly considered because of changes in competition laws and economic deregulation. In addition, consumers benefit these gains through international trade channels. We use Krugman's (1979) and Kikuchi's (2008) monopolistic competition models of trade as our theoretical framework to formulate this study's hypothesis. We present a detailed description of these models in the methodology section. Even though this study analytical and empirical approach is different, our main result is closely related to theirs. We find that the country's export is related

inversely to competition policy, while they reach a similar result by focusing more in the market for imports. Furthermore, we use a monopolistic competition model of trade.

In Harris model (1998), industry output, price and the average cost are jointly determined by the degree of economies of scale, free entry and pricing strategy. Prices depend on whether firms adopt monopolistic competition model pricing, or the collusive pricing behavior. A stricter competition policy makes the industry more competitive and pressure firms to change their conduct and set prices closer to the monopolistic competition than the collusive level. Furthermore, changes in price markups are considered an important source by which the benefits from scale economies are achieved. The price markup can fall either due to a less collusive pricing strategy between firms, because of a stricter antitrust law and deregulation, or due to trade liberalization.

In a monopolistic competition market structure, the low-fixed-cost industries usually (because it also depends on the pattern of marginal cost) tend to be relatively competitive. In contrast, the high-fixed-cost industries are concentrated with a comparatively small number of firms. A stricter competition law and deregulation of the economic sectors, lowering fixed entry costs, will decrease the level of the average cost for any given level of firm's output. One of the determinants of trade in Krugman's (1980) model is the number of product variety. Consumers like having a greater number of varieties available through imports, and it is considered a key source for gains from trade. The utility function used in Krugman's model exhibits 'love of variety', meaning that consumer's utility rises as the number of products increase, even if prices remain constant.

International Business Law and Monopolistic Competition

The second segment of the literature review consists of papers analyzing the impact of trade on competition policy, especially regarding business policy and antitrust law enforcement. Studies by Harris (1984), Cox, and Harris (1985) analyze the effects of tariffs and protectionist trade policy on market access, performance, and economies of scale. To quantify the cost of tariff protection in a small open economy, they incorporate features into an empirical general equilibrium trade model. These features were imperfect competition, economies of scale, entry barriers represented by the fixed costs, and product's differentiation. The view regarding tariff protection is that it restricts market access by reducing foreign competition. Thus, it promotes too many small-scale and inefficient domestic firms within an industry.

Furthermore, another issue related to tariff protection is possible facilitation of oligopoly coordination (i.e. collusive pricing behavior) by the protected firms, as in the hypothesis put forth by Eastman and Stykolt (1967). Researchers suggest that calculations of competitive neoclassical models (assuming CRS in production) regarding the cost of tariff protection are minor compared to those of imperfect competition assumptions. These effects may become more accentuated in the case of a small open economy than in a large one. Cox and Harris (1985) using the approach to international trade model estimated the cost of tariff protection for Canadian economy (equivalent to gains from free trade) in the mid-1970s to be about 8-10 percent of GNP. These results are considerably greater than the estimates of free trade benefits based on conventional neoclassical trade models with assumptions that are in the range of 0.0-1.0 percent of GNP. Furthermore, it is through intra-industry rationalization that these benefits are achieved. These different estimates show that ignoring aspects of the economy may underestimate the effects of trade policy.

Studies by Krugman (1981), Brander and Krugman (1983), Ross (1988) and Pavcnik (2002) deal with the impact of trade liberalization on domestic industry rationalization, price markup, and market performance. Krugman (1981) addressed the question that trade liberalization will lead to industry rationalization theoretically. He argues that inefficient firms will exit market, and the more efficient firms will increase their production achieving economies of scale. The proof to this industry rationalization effect comes from empirical studies on countries that experienced free trade. Studying this topic, Pavcnik (2002) uses plant-level data for eight Chilean manufacturing sectors during 1979-1986, right after Chile's massive trade liberalization of 1975-1979. She finds that about 35% of the 1979 existing plants exited the industry. Furthermore, exiting firms were the least efficient ones and that their exit contributed to industry's productivity gains.

Labor productivity within the manufacturing sector increased overall by six (6) percent. Ross (1988) finds that rising labor productivity reflects technical efficiency gains. These gains came from, plants moving down the average cost curves with expansion of output at about 6-percent, and on import competing industries the exit or contraction of lower productivity plants. His main conclusion was, "Canada-US free-trade agreement was associated with short-term substantial employment losses that were compensated by the long-term permanent gains in labor productivity".

Coordination of the National Competition Policies

The third segment of the literature review contains several studies focusing on the idea of harmonization or coordination of the national competition policies. The possibility and the effects of harmonization of competition policies are analyzed from the prospect of the interactions that exist between competition policy and trade. The purpose of competition policy

coordination is to avoid distortions of and to further the recent gains from trade liberalization. Bliss (1996) states, "only recently have economists begun to take into account the fact that almost any national law affecting the production or consumption has consequences for international trade and competitiveness." These consequences are minimal in perfect competition but are larger under more realistic market structures characterized by imperfect competition and economies of scale.

Meiklejohn (1999) argues that it could be desirable to have a multilateral agreement on competition policy to realize gains from trade liberalization by eliminating restrictive business practices. The idea of an international competition policy seems to be not feasible in the short – run but might be desirable in the end from the viewpoint of maximizing the global welfare. In the short run, the cooperation between domestic antitrust authorities or harmonization of competition policies is more likely. They are already happening in the framework of bilateral or regional agreements such as US with EU, EU with EFTA, US with Canada, and within the EU members. In his paper, Graham (2003) tries to find out the best way to deal with some worldwide competition problems arising due to international cartels. His answer is, to internationalize competition policy possibly through two alternatives. The first one is to have a formally negotiated agreement on competition policy either within the WTO framework or outside of it. The second is having cooperative efforts by enforcement agencies in different countries.

Research Design - Theoretical Model

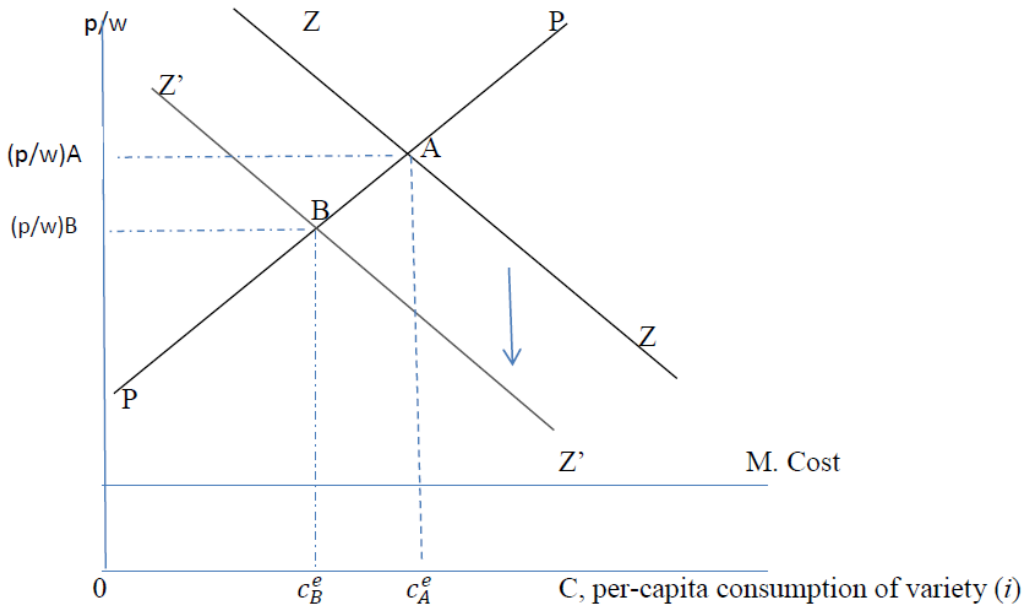
In this chapter, we consider monopolistic competition models of trade by Krugman (1979, 1980), and Kikuchi et al. (2008), to investigate the effects of competition policy on exports. We focus on the impact that the domestic competition policy has on the number of home firms and industry's exports, through lowering fixed entry cost. Thus, in order to capture the

effects of firm's technologies on exports, we analyze an asymmetric monopolistic competition model of trade. We start with Krugman's model (1979), and then extend our analysis by including firm's technical asymmetry regarding fixed cost.

The model format:

We use Krugman's (1979) monopolistic competition model of trade as a starting point because most of the fourteen (14) US manufacturing industries selected to test our study's hypothesis operate in an imperfect market structure. The characteristics of monopolistic competition are a large number of firms that manufacture differentiated products and face fixed and variable costs. Furthermore, we use the results from an asymmetric monopolistic competition model of trade, Kikuchi et al. (2008) to analyze this study's main question.

Figure 1. Home country ZZ- PP schedules, Krugman P. (1979) Monopolistic Competition Model of Trade.



We are interested in the number of firm variable, which is related to both competition policy and trade. Since this model assumes that each firm produces only one variety, the number

of firms and/or varieties are used interchangeably. The number of firms or varieties is one of the trade determinants and indicates the level of market or industry competition. This variable is subject to competition policy, especially antitrust law actions and deregulation, which affect entry barriers and, therefore, number of firms.

Our analysis is based on the premises that competition policy changes affect industry structure and performance through fixed entry costs and other barriers to entry. For example, the adoption of a stricter competition policy contributes to a lower fixed entry cost, which facilitates entry and positively affects the number of firms. Due to this increase in competition, price markups will decrease resulting in similar gains to those of economies of scale. In this aspect, competition policy influences trade and exports through changes in market performance and trade determinants. We use a two-step analysis; first, using the monopolistic competition model of trade, we establish the relationship between industry's fixed entry cost and the number of home firms. Second, we determine how, due to competition policy changes, the number of firm variations affects industry and country's exports.

Model Assumptions:

We start with Krugman's model assumptions: Firms experience economies of scale in production (Increasing Returns to Scale technologies), and they operate in a monopolistic competition market structure, manufacturing differentiated products. Demand curve of each firm is downward sloping reflecting some market power of firms on prices, so price markup is positive $(p - mc) > 0$. Each firm produces one variety, and the number of firms or varieties (n) is a finite and relatively large number. The economy can produce those varieties, and variety and/or firm -specific variables will be indexed by firm label (i), for $i = (1, \ldots, n)$. Consumer preferences are heterogeneous between and within countries, meaning that firms within a country will

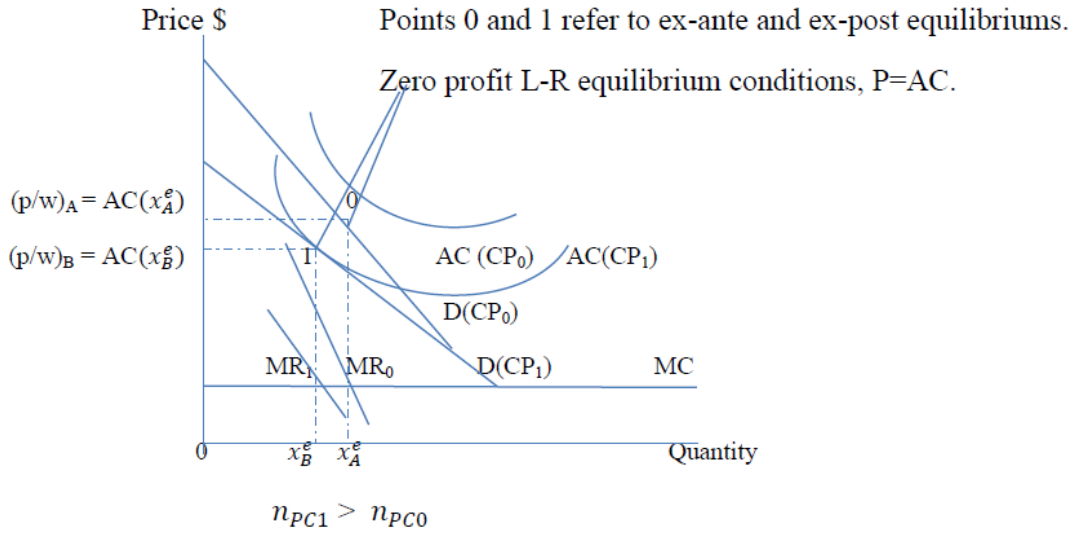
produce goods that are consumed domestically and abroad. All consumers have the same utility function.

Consumer's utility function is:

$$U = \sum_{i=1}^{n} V(C_i)$$

Where: C_i - is per-capita consumption of variety(i), and $V' > 0$ and $V'' < 0$ due to diminishing marginal utility of (C_i). The model's utility function exhibits the 'love' of variety.

Figure 2. The Short- and the Long-Run Equilibrium in a Monopolistic Competition Structure.



Analysis and Discussion

For instance, around 75 percent of Canada's foreign trade is directed to and from a 10 times larger, US market. Furthermore, between Canada's largest trading partners are UK, Germany, and Japan. Usually, larger trading partners' markets represent increased export opportunities, along with tougher competitiveness, relative to smaller partners. Large markets

may accommodate a relatively greater number of firms, therefore, leading to higher average productivity and lower prices.

Changes in US's competition policy around 1986, aimed to promote efficiency and adaptability of its economy. These changes provided domestic firms, through lower entry and network service's costs, with an opportunity to expand and compete successfully in foreign markets. Another characteristic of large markets (export markets for US) that make them more attractive to firms is that profits are higher than in smaller (domestic) markets. This is because the positive quantity effect offsets the negative one of the lower prices and markups due to tougher competition. This represents another good reason to direct changes in competition policy toward increases of domestic firms' opportunities to participate in foreign markets.

Pro-competitive changes in competition policy make domestic firms more competitive, and often result in a higher number of home firms. In addition to this, only the more productive firms and those that find some niche market share by competing in quality will be able to export. Because of a stricter competition policy, less concentrated domestic market will lead to more entry. In line with the prediction of the monopolistic competition trade model, as the number of the home firm increases the likelihood that more firms will engage in export rises, and, therefore, contributing positively to country's exports.

Based on results of the linear regressions' estimates for fourteen (14) industries, 13 out of 14 regressions are overall significant based on F-statistic critical values, except for Drugs and pharmaceutical products related industry. Our further analysis focuses on results for thirteen (13) industries. The *F*-statistic values of export regressions are above their respective critical values for the corresponding degrees of freedom for each of these industries. Differences in the

degrees of freedom for each sector are due to data set spanning in two various time periods and different lag periods of independent variables.

Table 1. Export Equations Regression Results, dependent variable is the industry's Log of Export
OLS estimates

Industries	MKTSH	REER-ULC	k1 lag	GDPHC	CR4	k2 lag	HHI	k3 lag	ser	R^2	nobs.
1. Petroleum & refining	0.044	-1.729 *	0	1.818 **	-0.032 **	1	-0.851 **	1	0.30	0.63	22
SIC 2919/2999	0.011	1.334		1.437	0.042		4.642				
2. Wood manufacturing	0.007 **	-0.945	0	1.448	-0.001 **	0	-2.498 *	0	0.12	0.53	23
SIC 2445+2591	0.006	0.511		0.539	0.010		2.253				
3. Leather manufacturing	0.043	-0.561 **	1	1.639	-0.021	1	-2.631 *	1	0.12	0.60	22
SIC 3121/3111	0.016	0.452		0.507	0.010		1.683				
4. Cement and Lime	0.001 *	-1.494	0	1.231	-0.006 **	2	-2.393 *	2	0.14	0.52	21
SIC 3242	0.001	0.583		0.684	0.006		1.468				
5. ceramic tiles & refractories	-0.066	-1.397	3	2.998	-0.026	2	-2.541 **	0	0.18	0.51	20
SIC 3254/3257	0.028	0.771		1.099	0.015		2.006				
6. Misch. Indust.& Commun.equi.	0.040	-5.192	0	0.152 **	-0.038 *	0	_	_	0.68	0.35	23
SIC 3591	0.019	2.663		2.778	0.039						
7. Electrical mach. & Equipments	0.024	-2.233	0	0.388 **	-0.019	0	_	_	0.20	0.37	23
SIC 3699	0.010	0.863		0.809	0.009						
8. Aircraft engine parts	0.004 **	-0.813	1	0.724 *	-0.005 *	3	-2.021 *	3	0.09	0.38	20
SIC 3722	0.004	0.331		0.505	0.004		1.254				
9. Rubber/plastic products	0.006 **	-0.595	0	1.525 *	-0.016	0	-2.710	2	0.04	0.68	14
SIC 3021	0.007	0.355		1.054	0.009		1.113				
10.Gen. indust. Mach.Equip.bearing	0.021	-0.777	1	0.213 **	-0.009	2	-3.083	2	0.05	0.63	12
SIC 3562	0.009	0.361		1.599	0.004		1.370				
11. Industrial mach. & equipments	0.007 **	-1.887	0	-4.240	-0.020	1	-3.224 *	1	0.08	0.76	13
metal containers,wire, SIC 3594/99	0.008	0.641		2.390	0.007		1.780				
12. Transportation equipment	0.029 **	-1.856	3	0.848 **	-0.020 **	0	_		0.15	0.50	11
motor veh.,pass. Cars, SIC 3711	0.040	1.053		5.103	0.024						
13. Ind. Machineries & equipment	0.013 *	-1.452	0	0.953 *	0.035	0	-2.478 **	0	0.15	0.51	23
SIC 3542/3549	0.009	0.651		0.609	0.012		3.838				
14.Drugs and Pharmaceutical prod.	0.023	-2.064	0	-4.244	-0.015	3	_	_	0.16	0.50	11
SIC 2831(a) The regression not sign.	0.018	1.188		5.501	0.022						
For all 13 industries											
Sample Mean	0.013	-1.608	0.70	0.691	-0.018	0.92	-2.523	1.2	0.18	0.54	
Median	0.013	-1.452		0.953	-0.019		-2.519				
St. deviation	0.027	1.157	1.07	1.647	0.011	1.00	0.738	0.98		0.12	
Minimum	-0.066	-5.192		-4.240	-0.038		-3.880				
Maximum	0.044	-0.561		2.998	-0.001		-0.851				

Notes on table 1: The dependent variable is the logarithm of export of each 14 manufacturing sector. The export equation is estimated using the OLS method. For every industry, the estimated coefficients and their standard errors (below the coefficient estimates) are provided. The lag periods with which the independent variables are entered into the export regression model (*k lag*), are provided for *Reer-ULC, CR4* and *HHI* respectively k_1, k_2, and k_3. Furthermore, we provide the following statistics: R^2, standard error of the regression (ser), and the number of observation for each industry (*nobs*). The *, **, represent respectively the significance level 10% and insignificance of the coefficients. All other coefficient's estimates without an asterisk are significant at 5% level. The descriptive statistics of the coefficient estimates from the regressions include only 13 sectors, because the 14th sector's regression is not significant.

One possible explanation might be the different techniques used to calculate the CR4 and HHI indices. The CR4 index includes only the market share of the four largest firms while the HHI includes all firms. Furthermore, a higher and quicker impact of CR4 variable than that of the HHI index on exports might be interpreted as an argument in favor of the large-scale of firm's production. Such scale of production may be a relevant factor associated with firm's export capabilities. In addition, in a 'small open economy', it is very likely that domestic companies may face output limitations related to the internal market size. Thus, in a correspondingly small economy, the possibility that the biggest firms, included in CR4 index, are going to reach efficient scales of output due to changes in competition policy is more likely. As such, they will seek to expand their markets and profits beyond their home territory, by competing and entering into export markets.

If the value of HHI index is:	HHI < 1000	1000<HHI<1800	HHI >1800
Or if the value of the CR4 is:	CR4<50%	CR4 >50%	CR4>50%
Markets are considered:	competitive	moderately concentrated	highly concentrated

Market with the CR4 > 75% are considered problematic in regard to the competition level.

Conclusions

This study examines the role of competition policy, especially antitrust law and deregulation, on a country's exports. In particular, what is the impact on the country's exports due to the adoption of a stricter competition policy? We hypothesize that movement toward a stricter competition policy, positively affects a country's level of exports. This occurs mainly through lowering fixed entry costs. It identifies these fixed entry costs as the primary reason for existence of market barriers to entry. The goal of competition policy is to promote the process of

market competition primarily by reducing artificial entry barriers and facilitating entry and exit. Both competition law and deregulation are used to achieve this goal. Competition law promotes competition by targeting anticompetitive business practices that serve as entry barriers and result in highly concentrated markets. Deregulation of key economic and service sectors promote competition by removing entry and price control and provide all firms with equitable access to these services. The theory that led to the formulation of study's hypothesis is derived from the current literature that considers competition policy as a trade promoting policy.

The monopolistic competition models of trade (Krugman (1979), Kikuchi et al. (2008)), predict that the reduced fixed costs enhance market competition and facilitate entry, leading to a higher number of home firms, due to a pro-competitive competition policy. The increased number of home firms leads to 'positive firm selection' process within each industry, which improves market performance indicators. Therefore, competition policy affects market performance indicators such as the number of domestic varieties, price markups, productivity, R&D, and innovation intensity. Because most of these indicators are also considered trade determinants, we predict that changes in competition policy will affect trade and export volumes. In addition, the presence of a 'positive self-selection' process in the domestic markets will allocate resources more efficiently. Because of lower fixed costs of entry and exit, the reallocation of resources will occur through the extra industry output from efficient new entrants and existing firms. These efficient incumbents, by expanding their output will move down along their average cost curve exploiting the economies of scale and replacing the least productive firms.

Following the above reasoning, this study assesses the direct impact of competition policy on the country's trade, including exports, by testing the hypothesis that a country's export

increases due to a stricter competition policy. This study's hypothesis is based on the monopolistic competition model of trade prediction, which asserts that the number of the domestic firm increases due to reduced fixed costs of the firm's entry. Specifically, we estimate the competition policy effects as measured by changes in the CR4 and HHI index levels, on exports for fourteen (14) US manufacturing industries from 1970-1997. We test this hypothesis on manufacturing industries because; generally, they operate in a monopolistic competition market structure with relatively large fixed entry and exit cost. As such, in the manufacturing sector, the effects of competition policy on trade determinants are expected to be more significant than in another sector of the economy.

This study's contribution consists in providing empirical estimates for competition policy's and the international business law impact on the country's export, which is useful to the decision and policy makers dealing with these topics. These estimates serve to a better understanding of the very important linkages between competition policy and international trade, including export. In addition, they further improve the insight about the economic implications arising from the implementation of a stricter competition policy. Furthermore, the study's results contribute to the limited empirical evidence that exists on the effectiveness of competition policy on the country's export.

Limitations of the study

In this study, we did not perform an empirical analysis of the model's prediction regarding the decrease in the domestic country's imports for industries where market's concentration levels fell due to a stricter competition policy. We suggest that such analysis could be undertaken as a future research, in conjunction with a longer time-series data availability of CR4 and HHI indices. As mentioned previously, our current availability of the CR4 and HHI

indices was limited during the period from 1970 until 1997. This conditioned the number of observations in the study's export regressions. Lastly, it would be of interest to test this study's main hypothesis over an expanded database, by using a larger sample size of industries and/or countries. If the sample size were to include a panel of countries, it would be interesting to estimate the effects of such policy change on trade volumes, especially in countries that are either about to adopt or have had their competition policy recently introduced.

References

Bliss, C. (1996). Trade and competition control. *Fair trade and harmonization: Prerequisites for free trade, 1*, 313-328.

Brander, J., & Krugman, P. (1983). A 'reciprocal dumping'model of international trade. *Journal of international Economics*, *15*(3), 313-321.

Cadot, O., Grether, J. M., & De Melo, J. (2000). *Trade and competition policy: where do we stand?*. Université de Neuchâtel, Faculté de droit et des sciences économiques, Division économique et sociale, Groupe d'économie politique.

Comanor, W. S. and Scherer, F. M. (1995), "Rewriting History: The Early Sherman Act Monopolization Cases", *International Journal of the Economics of Business*, 2(2), pp.263-89.

Cox, D., & Harris, R. (1985). Trade liberalization and industrial organization: Some estimates for Canada. *The Journal of Political Economy*, 115-145.

Disney, R., Haskel, J., and Heden, Y. (2000), "Restructuring and productivity growth in UK manufacturing," *CEPR Discussion Paper*, No. 2463, May.

Dixit, A. K., & Stiglitz, J. E. (1977). Monopolistic competition and optimum product diversity. *The American Economic Review*, 297-308.

Eastman, H. C., & Stykolt, S. (1967). *The tariff and competition in Canada*. Toronto: Macmillan of Canada.

Graham, E. M. (2003). Internationalizing competition policy: an assessment of the two main alternatives. *Antitrust Bull.*, *48*, 947.

Harris, R. (1984). Applied general equilibrium analysis of small open economies with scale economies and imperfect competition. *The American Economic Review*, 1016-1032.

Harris, R. (1998). Applied General Equilibrium Analysis of Small Open Economies with Scale Economies and Imperfect Competition. *International Economic Integration: Theory and measurement*, *1*(5), 476.

Kee, H. L., & Hoekman, B. (2002). Competition Law and Market Discipline: A Cross-Country, Cross-Industry Analysis. *World Bank, mimeo*.

Kikuchi, T., Shimomura, K., & Zeng, D. Z. (2008). On Chamberlinian-Ricardian Trade Patterns. *Review of International Economics*, *16*(2), 285-292.

Krugman, P. (1980). Scale economies, product differentiation, and the pattern of trade. *The American Economic Review*, 950-959.

Krugman, P. R. (1979). Increasing returns, monopolistic competition, and international trade. *Journal of international Economics*, *9*(4), 469-479.

Krugman, P. R. (1981). Intraindustry specialization and the gains from trade.*The Journal of Political Economy*, 959-973.

Levinsohn, J. (1994). *Competition policy and international trade* (No. w4972). National Bureau of Economic Research.

Meicklejohn, R. (1999). An international competition policy: do we need it? Is it feasible?. *The World Economy*, *22*(9), 1233-1249.

Melitz, M. J., & Ottaviano, G. I. (2008). Market size, trade, and productivity. *The review of economic studies*, *75*(1), 295-316.

Pavcnik, N. (2002). Trade liberalization, exit, and productivity improvements: Evidence from Chilean plants. *The Review of Economic Studies*, *69*(1), 245-276.

Ross, T. W. (1988). Movements towards free trade and domestic market performance with imperfect competition. *Canadian Journal of Economics*, 507-524.