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## **FINANCIAL CRISIS AND INTERNATIONAL TRADE IN DEVELOPING ECONOMIES**

Amrita Bhattacharya<sup>1</sup>

Southern Illinois University Carbondale

### **ABSTRACT**

This paper examines how the turmoil in international financial crises that hit the world impacts the causation from trade to different sectoral shares from (1960-1990) and (1990- 2012) respectively by taking year 1990 as the threshold level and emphasizes on how post 1990 crises can have an impact on the causal effect from trade to production shares of different sectors of the economy for all the developing economies. We found no evidence that trade mattered for the sectoral shares and financial crises did not matter regarding how trade affects or doesn't affect the sectoral shares.

**Keywords:** International Trade, Financial Crisis, Causation

**JEL Classification:** B17, B23, B26, B4, C4, F14

### **1. INTRODUCTION**

Financial crises including overshooting exchange rates, withdrawal of foreign capital, internal credit crunches has had different effects on global trade. Several studies discuss the impact of financial crisis on the developing countries suggesting that although there will be countries which are going to be adversely affected there will also be countries which will be less affected and may recover sooner than expected. Given the financial origin of the crisis, financial constraints and liquidity shortages have also been suggested to be determinants. Even in normal times, finance is particularly important for trade for different reasons. McKibbin and Stoeckel (2009) emphasizes the larger contraction of trade in durables relative to its production during the crisis. (Iacovone and Zavacka; 2009) suggests how export growth is slower in sectors susceptible

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<sup>1</sup> PhD candidate, Department of Economics, Southern Illinois University, Carbondale, IL 62901.

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to external finance past banking crises. Sector specific shocks like fall in the demand for semiconductors in 1996 and adverse trade fluctuations also led to the trade worsening situation during 1996-1997 (Corsetti, Pesenti, Roubini; 1999). According to, Amiti and Weinstein (2009), following the banking crisis, one third of the 1993 Japanese export collapse is explained by the decrease in financing. Borchert and Mattoo (2009) document that trade in services was more resilient than trade in manufactured goods during the global financial crisis. The Financial Crisis of 2008 raises enough analytical and empirical issues to keep interested economists busy for the foreseeable future (Dwyer and Tkac; 2009). There are stronger spillover effects between exchange rates and stock returns during the 2007–2009 financial crisis. According to (Whitt, 1996), the Mexican Peso Crisis led to high inflation thus leading to severe recession in Mexico. (Dodzin and Vamvakidis;2003) employs estimates from a panel of 92 developing countries from 1960–2000 to investigate the impact of international trade on the allocation of production across sectors in developing countries. Their study suggests that an increase in openness to trade leads to an increase in the industrial value added share of production at the expense of the agricultural share. My value added to this paper is that I want to examine whether the turmoil in international financial crisis that hit the world during the last three decades can determine the causation from trade to different sectoral shares. To capture this, I extend the data period till 2012 and divide it into two sub periods: (1960- 1990) and (1990-2012) respectively. Since, the consequences of post 1990 crises had a much remarkable impact on the developing economies, my primary concern, henceforth, is to inspect in detail how it significantly affects the causation effect and what are the policy implications. My results differ from what the authors have deduced. This paper has found no evidence that trade mattered for the sectoral shares. Hence, my results are in contrast with (Dodzin and Vamvakidis;2003) and this may be due to the inclusion of all the developing countries in my sample, different data period, employing different empirical specification being time fixed effects or due to the different time periods.

The rest of the paper is organized as follows. Section 2 discusses the previous studies how financial crises led to contraction of global trade and hence had a severe impact on trade. Section 3 discusses the various financial crises the world economy faced in the recent years. Section 4 examines how the turmoil in international financial crisis that hit the world impacts the causation from trade to different sectoral shares. Section 5 discusses the empirical results. Section 6 concludes and highlights some implications of the results.

## **2. PREVIOUS RESEARCH**

A free trade world enables nations to focus on their core competitive advantage(s), thereby maximizing economic output. This has been a crux of most theories supporting the infant industry argument which states that developing countries are justified to put tariffs on imports if

they are seeking to develop new industries. While the world is becoming more globalized day by day; under the current form of globalization, neoliberalism, free trade and open markets are coming under much criticism. (Dodzin and Vamvakidis;2003) examines the impact of openness to international trade on the production shares of agriculture, industry and services in developing economies by addressing the concerns whether developing countries become more agricultural after opening to international trade. The paper focuses on production movements across aggregate sectors of production. Their study suggests that developing countries who opened up to international trade experienced an increase in industrial production share at the expense of agriculture and henceforth, concludes that trade leads developing countries to industrialization in contrast to infant industry argument. Their evidence suggested that production pattern of a developing economy towards the industrial sector was one of the channels through which the positive openness growth connection worked when they opened up to international trade. I want to extend this paper by including a longer time period and a much larger sample of countries. The sole purpose of the extension is to focus on how global economic crises post 1990 influence the results of estimation. Throughout the recent years, the world economy has experienced an upsurge of remarkable economic crisis in history whose effects were not only economic but also political, social and environmental and affected all the sectors worldwide. It gave rise to acute instability and proliferated the financial vulnerability of countries, especially developing countries open to the international capital markets, following early 1980's financial liberalization. The ramifications in terms of cumulative production losses were more severe for post 1990 crises. Most of the economic crisis that happened pre-1990 were largely related to developed economies. During the post 1990's and due to the advent of globalization, economic crises became more integrated on the world scale and developing countries such as Togo could feel the effect of a crisis in Japan. (Bricongne, Fontagné, Gaulier, Taglioni, Vicard;2011) document how global economic crises led to a severe decline in international trade. Freund (2009) and Levchenko (2010) suggests that during the global financial crisis, contraction in global trade relative to the decline in GDP, became more prominent, especially in recent downturns. Berman and Martin (2010) expounds the impact of crisis on African countries' exporting prospects. Moreover, such shocks exert a significant effect on asset prices and also on exchange rates (for example Andersen, 2003; Ehrmann and Fratzscher, 2005). Currency and banking crises occur frequently and have serious consequences. The relationship between currency and banking crises has attracted a lot of attention since the Asian financial crisis in 1997. When two crises occur at the same time (twin crises), their costs are high (Hutchison and Noy, 2005). (Dell'Araccia, 2008) discusses the impact of banking and financial crises on economic outcomes such as sectoral growth or firms' planned R&D, employment and capital spending (Campello,2010). Previous literature such as (Naude;2009) discusses the impact of financial crisis on the developing countries. It concludes the fact that although there will be

countries which are going to be adversely affected there will also be countries which will be less affected and may recover sooner than expected. Smaller highly indebted countries significantly dependent upon the US economy will be most severely affected however; many developing countries like Brazil, China, India will continue to grow at relatively strong rates. The developing world can limit the potential for future crisis by building appropriate financial system. (Levchenko, Lewis and Tesar; 2010) analyzes the constitution of the collapse in international trade due to the recent recession from US economy perspective. Across different sectors, automobiles, durable industrial supplies, and capital goods experienced pronounced percentage drops in trade. Sectors that are used intensively as intermediate inputs and those with greater reductions in domestic output, experienced stark reductions in trade. By contrast, the paper unearths the fact that trade credit did not play a role in the recent trade collapse. (Eaton, Kortum, Neiman, and Romalis; 2015) concludes that a decline in the investment in durable manufacturing capital led to a reduction in spending on tradable sectors thus driving the collapse of trade. Changes in the composition of demand rather than increased trade protectionism led to the trade downfall. While one kind of shock is the most salient feature for the global trade collapse in some country while not for others. Their results suggest that productivity played a particularly large role in the case of China while an analysis focused on Japan concludes the same about aggregate demand. (Barro;2001) analyzes the economic growth in East Asia pre and post financial crises and concludes that contraction in real GDP was severe compared to the five east Asian countries being Indonesia, Philippines, South Korea, Thailand, Malaysia which were less affected by the financial crisis. While it is widely accepted that global economic crises had adverse consequences on economic growth and global trade, relatively little empirical work investigates how global crisis can influence the causal effect from trade to production shares of different sectors of the economy namely; agriculture, industry and services.

### **3. BACKGROUND**

The Asian Financial Crisis of the late 90s was deeper and more severe than the other financial crises. As a result, trade structure as well as economic growth of many developing countries was affected. Among the crises of the 1990s, it has certainly played a key role in generating the perception of a vanishing middle ground for exchange rate regimes in developing countries. The East Asian financial crisis is one of the sharpest financial crisis to hit the developing world. A partial list of recent analyses of the Asian crisis includes Alba et al. (1998), Dornbusch (1998), Feldstein (1998), and Radelet and Sachs (1998). Pomerleano (1998) looks at the corporate roots of the financial crisis in Asia. The long period of stagnation of the Japanese economy in the 1990's led to a significant export growth slowdown from the Asian countries. Based on NIA data, the current account deficit in Thailand was over 6% of GDP virtually in each year in the 1990's and approached 9% of GDP in 1999 and 1996. Similarly in Malaysia, deficit was above

10% of GDP in 1993. Indonesia started the decade with a large imbalance (over 4% of GDP in 1990-1991) but the deficit shrank in 1992-1993. Later, the current account imbalance widened again, reaching 3-4% of GDP in 1995-1996. Of the remaining countries, Hong Kong started the decade with current account surpluses between 1990 and 1993 but situation worsened after 1993. In China, initially the current account was in surplus (1.5% of GDP) but turned into a 2% deficit in 1993 (Corsetti, Pesenti, Roubini; 1999). The financial crisis that began in 2007 has created the greatest financial dislocations since the Great Depression of the 1930s. Russia had more-or-less completed the privatization of its manufacturing and natural resource sectors by the end of 1997. In February 1998, the annual inflation rate dipped into the single digits. Privatization should have helped with stronger micro-foundations for growth. The conquest of inflation should have cemented macroeconomic credibility, lowered real interest rates, and spurred investment. Instead, Russia suffered a massive public debt-exchange rate-banking crisis just six months later, in August 1998 (B. Pinto, S. Ulatov; 2013). The economic impact of the Russian financial crisis had a large impact on the scaling behavior in Russian and Ukrainian economies (Vladimir A. Litvin). In 1998, Argentina entered what turned out to be a four-year depression, during which its economy shrank 28 percent. Argentina's experience has been cited as an example of the failure of free markets and fixed exchange rates, among other things. The evidence does not support those views. Rather, bad economic policies converted an ordinary recession into a depression. Three big tax increases in 2000-2001 discouraged growth. The Argentine economy suffered a deep crisis during 2001 and 2002. In a series of blunders that made matters even worse, from December 2001 to early 2002, succeeding governments undermined property rights by freezing bank deposits; defaulting on the government's foreign debt in a thoughtless manner; ending the Argentine peso's longstanding link to the dollar; forcibly converting dollar deposits and loans into Argentine pesos at unfavorable rates; and voiding contracts (Saxton, 2003). The Argentine crisis combined all evils put together. Social drama was excruciating, the state was in default, financial paralysis lingered on, and the fiscal situation was unresolved (Murphy, Artana, and Navajas; 2003). Among recent studies which focuses on large-scale speculative episodes in the 1990's before the Asian crisis are (Eichengreen and Wyplosx; 1993) and (Buiter and Corsetti ; 1998) on the European Monetary System crisis of (1992-1993), and (Sachs, Tornell and Velasco; 1996) on the Mexican peso crisis of 1994. Since, the Great Depression, the 1973 oil price shock with the accompanying 1973-74 stock market crash was the first discrete event to have a persistent economic effect on oil exporting nations. (Balassa; 1985) conducts a study of 43 developing countries in the 1973-78 period of external shocks suggesting that differences in investment rates and the rate of growth of the labor force affect the intercountry differences in the rate of economic growth through initial trade policy stance and by the adjustment policies, as well as, by the level of economic development and the product composition of exports. "On October 6, 1983, the Tel Aviv Stock Exchange (TASE) was shut down for 18 days. In the fall of

1983, however, the sell-off was much greater than in the past, so that share purchases strained bank liquidity, raising concerns about overall banking stability. These concerns threatened to cause a run on deposits and a decline in foreign exchange reserves, which, together with other political considerations, led the government to close the Exchange” (Blass, Grossman;1996). In the developing world, there were severe crises in both pre-1990 and post-1990. But the nature of crises was quite different between the two decades. In due course post 1990, most of the developing economies around the world encountered notable ups and downs. Compared to the pre-1990 crises, the global maelstrom crises post-1990 immensely affected the developing economies and had a much significant effect in terms of both economic growth and its impact upon global trade. Hence, this paper takes the year 1990 as the threshold level and emphasizes on how post 1990 crises can have an impact on the causal effect from trade to production shares of different sectors of the economy.

#### **4. EMPIRICAL STRATEGY**

(Dodzin, Vamvakidis; 2003) estimates the impact of trade on sectoral production shares using a panel regression with fixed effects. Hausman specification test justifies the use of fixed effects. I would cling to their empirical methodology and would estimate the same model for two different time periods (1960-1990) and (1990-2012). The data are in the form of 5 year averages. Also, since data is available for a larger sample of countries, I increased my sample size, thereby, including all developing countries. All data are from World Development Indicators. The three different sectors considered are; agriculture, industry and services. All the production shares are in real terms deflated by their deflators. Real trade share (real exports plus real imports over real GDP) is the main openness measure.

The estimated model for each sector of production  $i$  is the following

$$\ln(s_{ij})_t = c_{ij} + b_1 \ln(g_j)_t + b_2 i(tr_j)_t + b_3 i(tr_j)_t - 1 + \beta t$$

where,  $c_{ij}$  are the country fixed effects,  $s_{ij}$  is the ratio of real value added over real GDP of sector  $i$  in country  $j$ ,  $g_j$  is the real per capita GDP in country  $j$ ,  $\beta t$  is the year fixed effects,  $tr_j$  is the real trade share of country  $j$ . (Dodzin, Vamvakidis; 2003) captures the relationship how trade affects sectoral production shares. However, I want to examine how economic crisis influences the causal effect from trade to sectoral shares of production. I will run their same model but twice with two different time periods retaining all the explanatory variables. As estimated by (Dodzin, Vamvakidis; 2003), I would expect that an increase in trade openness rises the industrial value added share of production at the expense of agricultural share but the magnitude of  $b_3$  can increase or decrease as a consequence of the global crisis which had a significant effect on the world economy as a whole. Hence, the key coefficient of interest is  $b_3$ . The relationship between

trade and *sij*, henceforth, might be steeper or flatter. Nevertheless, as they suggested, I would expect the world production shares to have positive estimates for all sectors while GDP to have positive effect on the non-agricultural sector and negative for the agricultural sector. To deal with the problem of endogeneity, I test the robustness of the results using lagged trade share and also conduct Granger Causality tests.

## **5. RESULTS AND DISCUSSIONS**

Table 1 presents estimates from a regression with fixed effects, including the current and lagged trade shares for the full sample (1960-2012). The estimates for the variables are negative but not statistically significant for the agricultural sector when regressed individually with the exception of lagged trade share variable being positive though insignificant when both current and lagged trade share are included in the regression. The lagged trade share estimates are smaller than the current trade share estimates when both are included in the regression for the agricultural sector whereas in contrast to (Dodzin, Vamvakidis; 2003) lagged share estimates are larger than the trade share estimates for both industrial and services sector particularly when both the variables are included in the regression. For the industrial sector, both trade share and lagged trade share variables are positive and statistically significant at 1% and 5% level respectively when each of them are regressed individually on industry value added over GDP whereas they are positive too but statistically insignificant when both are included in the regression. However, for the services sector, though statistically insignificant both trade share and lagged trade share have positive estimates with the exception of trade share having a negative sign when both the variables are included in the regression. The estimates of the other variables are as expected with the exception of the world sector value added being negative for some sectors for different time periods.

**Table 1: The impact of openness on the sectors of production in developing countries: fixed effects estimates, 1960– 2012**

Independent Variables	Dependent Variables								
	Agriculture value added/GDP			Industry value added/GDP			Services ValueAdded/GDP		
GDP per capita	-0.515*** (0.042)	-0.578*** (0.045)	-0.559*** (0.044)	0.278*** (0.048)	0.308*** (0.050)	0.302*** (0.050)	-0.102*** (0.039)	-0.075* (0.041)	-0.069* (0.041)
Trade Share	-0.034 (0.022)		-0.042 (0.027)	0.046* (0.024)		0.021 (0.031)	0.004 (0.021)		-0.014 (0.026)
Lagged Trade Share		-0.016 (0.020)	0.009 (0.024)		0.046** (0.021)	0.035 (0.027)		0.026 (0.018)	0.032 (0.022)
1960-1964	-0.028 (0.116)	-0.012 (0.118)	-0.023 (0.114)	0.058 (0.129)	0.057 (0.129)	0.055 (0.129)	-0.053 (0.105)	-0.063 (0.104)	-0.061 (0.104)
1965-1969							-0.048 (0.035)	-0.041 (0.035)	-0.041 (0.035)
1970-1974	-0.014 (0.035)	-0.008 (0.036)	-0.008 (0.035)	-0.081** (0.041)	-0.075* (0.041)	-0.075* (0.041)			
1975-1979	0.025 (0.034)	0.022 (0.035)	0.022 (0.033)	-0.101*** (0.039)	-0.101*** (0.039)	-0.102*** (0.039)	0.037 (0.024)	0.040 (0.024)	0.041* (0.024)
1980-1984	-0.000 (0.034)	-0.004 (0.035)	-0.004 (0.033)	-0.110*** (0.039)	-0.116*** (0.039)	-0.117*** (0.039)	0.015 (0.024)	0.022 (0.024)	0.023 (0.024)
1985-1989	0.054 (0.033)	0.049 (0.034)	0.050 (0.033)	-0.071* (0.039)	-0.069* (0.039)	-0.070* (0.039)	-0.027 (0.023)	-0.025 (0.024)	-0.024 (0.024)
1990-1994	0.025 (0.033)	0.025 (0.034)	0.023 (0.033)	-0.075** (0.038)	-0.077** (0.038)	-0.077** (0.038)	-0.033 (0.023)	-0.027 (0.023)	-0.027 (0.023)
1995-1999	0.009 (0.033)	0.011 (0.034)	0.012 (0.032)	-0.132*** (0.038)	-0.130*** (0.038)	-0.131*** (0.038)	-0.013 (0.023)	-0.008 (0.023)	-0.008 (0.023)
2000-2004	0.042 (0.033)	0.038 (0.033)	0.038 (0.032)	-0.098*** (0.038)	-0.096** (0.037)	-0.097*** (0.038)	-0.007 (0.022)	0.002 (0.022)	0.002 (0.022)
2005-2009	0.037 (0.033)	0.030 (0.034)	0.040 (0.032)	-0.139*** (0.038)	-0.143*** (0.038)	-0.142*** (0.038)	0.017 (0.022)	0.023 (0.022)	0.021 (0.023)
_cons	-0.026 (0.033)	-0.032 (0.033)	-0.022 (0.033)	0.055 (0.038)	0.054 (0.038)	0.048 (0.039)	0.029 (0.024)	0.004 (0.023)	0.009 (0.024)
Number of observations	537	517	513	530	512	508	500	482	478
R2	0.329	0.341	0.351	0.137	0.147	0.147	0.057	0.061	0.060

note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: Standard errors are expressed in parentheses. The above results have been estimated using country fixed estimates.

Table 2 presents estimates from a regression with fixed effects, including the current and lagged trade shares for the sample period of (1960-1990). The estimates for the variables are positive for trade share and negative for the lagged trade share respectively for the agricultural sector. Both the variables are statistically insignificant. Again, in contrast to (Dodzin and Vamvakidis; 2003) the agricultural and services sector the estimates of the lagged share are smaller than the estimates of trade share whereas it is not the case for industrial sector when both are included in the regression. For the industrial sector, both the variables have positive estimates but

insignificant when regressed individually and also jointly. The estimates for both the variables are negative but statistically insignificant for the services sector. The estimates of other variables being GDP during this time period is not as expected but statistically significant for agricultural and industrial sectors. Additionally, the estimates of world sector value added are different for different time periods for all the three sectors.

**Table 2: The impact of openness on the sectors of production in developing countries: fixed effects estimates, 1960– 1990**

Independent Variables	Dependent Variables								
	Agriculture value added/GDP			Industry value added/GDP			Services ValueAdded/GDP		
GDP per capita	-0.597***	-0.597***	-0.611***	0.304***	0.316***	0.319***	0.003	-0.033	0.012
	(0.085)	(0.083)	(0.085)	(0.092)	(0.090)	(0.093)	(0.115)	(0.113)	(0.118)
Trade share	0.011		0.060	0.016		-0.012	-0.122		-0.133
	(0.067)		(0.076)	(0.072)		(0.083)	(0.091)		(0.104)
Lagged Trade Share		-0.025	-0.051		0.058	0.064		-0.072	-0.020
		(0.060)	(0.069)		(0.065)	(0.075)		(0.085)	(0.094)
1970-1974	-0.014	-0.008	-0.008	-0.075**	-0.076**	-0.076**	0.032	0.034	0.028
	(0.032)	(0.031)	(0.031)	(0.035)	(0.035)	(0.035)	(0.044)	(0.045)	(0.045)
1975-1979	0.015	0.011	0.010	-0.093***	-0.092***	-0.092***	0.073*	0.077*	0.073*
	(0.031)	(0.030)	(0.031)	(0.034)	(0.034)	(0.034)	(0.043)	(0.044)	(0.044)
1980-1984	-0.014	-0.012	-0.012	-0.104***	-0.112***	-0.112***	0.055	0.067	0.062
	(0.031)	(0.031)	(0.031)	(0.035)	(0.034)	(0.034)	(0.043)	(0.044)	(0.044)
1985-1989	0.037	0.040	0.041	-0.065*	-0.067*	-0.067*	0.011	0.022	0.012
	(0.032)	(0.031)	(0.031)	(0.035)	(0.035)	(0.035)	(0.044)	(0.044)	(0.045)
_cons	-0.035	-0.015	-0.035	0.070	0.046	0.050	0.056	0.018	0.071
	(0.049)	(0.044)	(0.051)	(0.053)	(0.049)	(0.057)	(0.070)	(0.063)	(0.076)
Number of observations	199	191	191	193	187	187	181	173	173
R2	0.389	0.400	0.403	0.162	0.180	0.180	0.065	0.060	0.073
note: *** p<0.01, ** p<0.05, * p<0.1									

Note: Standard errors are expressed in parentheses. The above results have been estimated using country fixed estimates.

Table 3 presents estimates from a regression with fixed effects, including the current and lagged trade shares for the sample period of (1990-2012). Neither lagged trade share nor trade share for this sample period are statistically significant which again differ from (Dodzin and Vamvakidis; 2003). The estimates for the variables are negative for trade share and positive for the lagged trade share respectively for both agricultural and services sector. For both the agricultural and

services sector, lagged trade share estimates are smaller than trade share estimates in particular when both the variables are included in the regression. The estimates for the two variables in the industrial sector are positive with the exception of trade share being negative when both the variables are included in the regression. The estimates of the other variables are as expected with the exception of the world sector value added being negative for some sectors for different time periods. Table 4 shows the estimates of the impact of openness on the non-agricultural sector which is aggregation of industrial and services sector. It presents estimates from a regression with the ratio of non-agricultural value added over GDP as the dependent variable. Trade share and lagged trade share have positive estimates with only lagged trade share being statistically significant. Pre and post 1990 there is no significant effect of trade on any of the sectoral shares suggesting that the financial crises did not matter regarding how trade affects or doesn't affect the sector shares. This paper has found no evidence that trade mattered for the sectoral shares. Hence, my results are in contrast with (Dodzin and Vamvakidis; 2003) and this may be due to the inclusion of all the developing countries in my sample, different data period, employing different empirical specification being time fixed effects or due to the different time periods. Policy makers in developing countries try to promote industrialization through trade channel but this policy might not be really effective because trade doesn't really impact the different sectors of the economy.

**Table 3: The impact of openness on the sectors of production in developing countries: fixed effects estimates, 1990– 2012**

Independent variables	Dependent Variables								
	Agriculture value added/GDP			Industry value added/GDP			Services ValueAdded/GDP		
GDP per capita	-0.479***	-0.544***	-0.528***	0.214***	0.241***	0.236***	-0.100**	-0.060	-0.053
	(0.056)	(0.062)	(0.058)	(0.062)	(0.067)	(0.068)	(0.043)	(0.046)	(0.045)
Trade share	-0.062		-0.083	0.037		-0.001	-0.054		-0.045
	(0.058)		(0.061)	(0.064)		(0.071)	(0.048)		(0.050)
Lagged Trade Share		0.005	0.020		0.041	0.041		0.030	0.034
		(0.029)	(0.028)		(0.031)	(0.032)		(0.021)	(0.022)
1995-1999	-0.014	-0.013	-0.009	-0.057**	-0.053**	-0.053**	0.022	0.019	0.020
	(0.020)	(0.021)	(0.020)	(0.022)	(0.023)	(0.023)	(0.016)	(0.016)	(0.016)
2000-2004	0.018	0.010	0.016	-0.017	-0.015	-0.014	0.029*	0.028*	0.029*
	(0.020)	(0.021)	(0.020)	(0.023)	(0.023)	(0.023)	(0.016)	(0.016)	(0.016)
2005-2009	0.011	-0.002	0.018	-0.051**	-0.055**	-0.051*	0.056***	0.046***	0.048***
	(0.023)	(0.022)	(0.023)	(0.026)	(0.024)	(0.027)	(0.018)	(0.017)	(0.018)
_cons	0.015	-0.024	0.019	-0.014	-0.019	-0.019	0.039	-0.023	0.004
	(0.041)	(0.026)	(0.044)	(0.046)	(0.028)	(0.051)	(0.034)	(0.019)	(0.036)
Number of observations	338	326	322	337	325	321	319	309	305
R2	0.287	0.304	0.318	0.087	0.093	0.092	0.052	0.048	0.048

note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: Standard errors are expressed in parentheses. The above results have been estimated using country fixed estimates.

**Table 4: The impact of openness on the non-agricultural sectors:  
fixed effects estimates, 1960–2012**

Independent Variables	Dependent Variables		
	Non agricultural value added/GDP		
GDP per capita	0.102*** (0.029)	0.097*** (0.035)	0.100*** (0.036)
Trade Share	0.009 (0.016)		-0.008 (0.017)
Lagged Trade Share		0.040** (0.017)	0.041** (0.017)
World Sector Value Added/GDP			
1960-1964	-0.008 (0.070)	-0.004 (0.069)	-0.003 (0.069)
1965-1969	-0.012 (0.025)		
1975-1979	-0.002 (0.016)		
1980-1984	-0.000 (0.016)	-0.002 (0.015)	-0.001 (0.015)
1985-1989	-0.011 (0.016)	-0.012 (0.015)	-0.012 (0.015)
1990-1994	-0.038** (0.016)	-0.036** (0.014)	-0.035** (0.014)
1995-1999	-0.058*** (0.015)	-0.057*** (0.014)	-0.056*** (0.014)
2000-2004	-0.043*** (0.015)	-0.040*** (0.014)	-0.039*** (0.014)
2005-2009	-0.053*** (0.015)	-0.052*** (0.014)	-0.053*** (0.014)
_cons	0.136*** (0.013)	0.133*** (0.012)	0.132*** (0.012)
Number of observations	473	414	411
R2	0.140	0.14 1	0.144
note: *** p<0.01, ** p<0.05, * p<0.1			

Note: Standard errors are expressed in parentheses. The above results have been estimated using country fixed estimates.

## **6. CONCLUSION**

While it is widely accepted that global economic crises had adverse consequences on economic growth and global trade, relatively little empirical work investigates how global crisis can influence the causal effect from trade to production shares of different sectors of the economy namely; agriculture, industry and services. There is no evidence that associations between trade and the sector shares differ pre and post-1990 hence suggesting that financial crises did not matter regarding how trade affects or doesn't affect the sector shares. Trade share and lagged trade share have positive estimates with only lagged trade share being statistically significant. Hence, my results are in contrast with (Dodzin and Vamvakidis;2003) and this may be due to the inclusion of all the developing countries in my sample, different data period, employing different empirical specification being time fixed effects or due to the different time periods. Policy makers in developing countries try to promote industrialization through trade channel but this policy might not be really effective because trade doesn't really impact the different sectors of the economy.

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## **Appendix A**

### Countries in the regressions

Algeria, Argentina, Bangladesh, Barbados, Benin, Bolivia, Botswana, Brazil, Burkina Faso, Burundi, Cameroon, Cape Verde, Chad, Chile, China, Colombia, Comoros, Dem. Rep. of Congo, Republic of Congo, Costa Rica, Co<sup>^</sup>te d'Ivoire, Czech Republic, Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, Fiji, Gabon, Gambia, Ghana, Greece, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, Iceland, India, Indonesia, Iran, Jamaica, Jordan, Kenya, Korea, Lesotho, Madagascar, Malawi, Malaysia, Mali, Mauritania, Mauritius, Mexico, Morocco, Mozambique, Namibia, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Romania, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Spain, Sri Lanka, Suriname, Swaziland, Syrian Arab Republic, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Uganda, Uruguay, Yemen, Zambia, Zimbabwe, American Samoa, Cambodia, Fiji, Kiribati, Korea, Dem Republic, Lao, Marshall Islands, Micronesia, Mongolia, Myanmar, Palau Samoa, Timor-Leste, Tonga, Tuvalu, Vanautu, Vietnam, Albania, Armenia, Azerbaijan, Belarus Bosnia and Herzegovina, Bulgaria, Georgia, Kazakstan, Kosovo, Kyrgyz Republic, Macedonia, Moldova, Montenegro Serbia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, Belize, CubaDominica, Grenada, St.Lucia, St.Vincent and the Grenadines, Suriname, Djibouti, Iraq, Jordan, Lebanon, Libya, West Bank and Gaza, Afghanistan, Bhutan, Maldives, Angola, Central African Republic, Eritrea, Liberia, Sao Tome and Principe, Somalia, South Sudan.