

Deindustrialization and economic stagnation in El Salvador

Luis René Cáceres

Abstract

This study will analyse the deindustrialization process in El Salvador. Deindustrialization has been a factor in the Latin American countries since the 1980s and contributes to economic stagnation and quality job loss. The first section reviews selected studies in the literature on this subject and is followed by an exploration of the possible causes of deindustrialization in El Salvador. The idea that remittances may have triggered a bout of Dutch disease is the first possibility to be examined, but it is then ruled out. The focus then turns to the repercussions of economic reforms carried out in the 1990s and, by estimating cointegration equations, evidence is found that the extreme form of trade liberalization that was implemented in El Salvador is the chief reason for the contraction of tradable goods sectors. The study closes with a series of recommendations and conclusions.

Keywords

Deindustrialization, economic conditions, economic growth, trade policy, economic indicators, El Salvador

JEL classification

O11, O18, O54

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I. Introduction

The term “deindustrialization” refers to a decline in the manufacturing sector’s share of gross domestic product (GDP) or a decrease in the percentage of total employment represented by that sector. This phenomenon first made its appearance in developed countries in the 1970s and then emerged in developing countries, especially those of Latin America, in the following decade. In the Latin American region, mean manufacturing employment fell from 16.5% of total employment in 1980 to 14.2% in 2003, and the drop in that sector’s share of GDP was even sharper (from 28.1% in 1960 to 16.7% in 2003) (Palma, 2008). As the share of the manufacturing sector has shrunk, the value added by the service sector to GDP has been climbing steadily.

The deindustrialization of developed countries has been interpreted as an intrinsic effect of the economic development process itself, since productivity gains enable manufacturing enterprises to function with fewer and fewer workers. Using a database from 1990, Rowthorn (1994) contends that the manufacturing sector’s share of total employment in developed countries begins to shrink once per capita income reaches the threshold of US\$ 12,000. The Latin American countries, however, have begun to witness a deindustrialization process at much lower per capita income levels and without having managed to establish a high-technology industrial base, and this has stunted their development. There is evidence that the manufacturing sector is the main driver of economic growth and productivity. This belief, which dates back to the work of List,¹ was later taken up by Kaldor (1967) and is backed up by empirical evidence compiled in a variety of studies (Pieper, 2003; Wells and Thirlwall, 2003). And in fact, the decline in productivity in the Latin American countries seen since the mid-1980s has gone hand in hand with their deindustrialization (Cáceres, 2015; Palma, 2010). It is also noteworthy that deindustrialization in the Latin American economies during this century has been occurring more rapidly than it has in other regions (Rodrik, 2015).

This sector is a source of quality jobs, skill-building opportunities and technology generation and diffusion, and it is also the biggest recipient of research and development (R&D) funding. Manufactured goods also have high income and international price elasticities, which spur export growth. Manufacturing growth correlates positively with social indicators such as life expectancy at birth and literacy rates, among others, and has been a decisive factor in the democratization of developing countries (Rodrik, 2015).

This study seeks to determine the underlying causes of the rapid deindustrialization process witnessed in El Salvador, where the manufacturing sector’s share of total GDP fell from 25% in 2001 to 20% in 2013.² In tandem with its deindustrialization, the Salvadoran economy has been prone to persistent stagnation ever since the mid-1990s, with a mean annual growth rate for that period of 1.92%. Meanwhile, the agricultural sector’s share of GDP contracted from 14.56% in 1990 to 10.84% in 2013. This contraction in the relative shares of tradable sectors has occurred against the backdrop of the intensive economic reform programmes of the 1990s and the adoption of the United States dollar as legal currency by El Salvador in 2001. Another important macroeconomic factor in the last three decades has been the huge influx of remittances, which amounted to 16.34% of GDP in 2013 and propelled private consumption up to levels of over 90% of GDP. Ironically, all of the country’s economic modernization initiatives and the copious inflow of external resources notwithstanding, the value added by tradables to GDP has been on the decline.

¹ According to List (1983), industry is the mother and father of science, literature, the arts, enlightenment, freedom, useful institutions, and national powers and independence (cited by Ho, 2006).

² Data on workers who pay social security taxes (2014) also attest to the manufacturing sector’s shrinking share of total employment, with a downward trend taking that share from 28.82% in 2003 to 21.75% in 2013.

This study is divided into five sections, including this introduction. The second section reviews the most relevant studies in the literature, and the third looks at the data sources that were used. The fourth section examines the possible explanations for the deindustrialization of El Salvador. This analysis shows that imports of consumer goods have increased disproportionately as a result of the reductions made in import duties and have displaced domestic production of tradables. The conclusion that emerges is that deindustrialization has been brought about by the external trade reforms carried out in the 1990s. Cointegration methods are then used to research the possible existence of a relationship between the value added by tradable sectors and trade reform indicators. The fifth and final section of the study offers a number of concluding observations.

II. A selective literature review

Rowthorn and Ramaswamy (1998) studied the cases of 18 developed countries using annual data for 1963-1994 in an effort to determine whether deindustrialization was being brought about by internal factors in those countries' economies or was an effect of their trade relations with other nations. The results of their estimation of econometric equations indicate that domestic variables, such as the manufacturing sector's higher productivity levels vis-à-vis the service sector and reductions in the investment rate and price of manufactures, accounted for 80% of the downturn in that sector's share of total employment, while the remaining 20% was accounted for by external variables, such as imports of manufactures from developing countries. These authors also found that the negative impact of this latter variable had a dampening effect on the sector's productivity gains. They therefore concluded that deindustrialization was primarily attributable to domestic economic factors in each country. The empirical study done by Lawrence (1987) on Germany, France and Sweden based on data from 1973 to 1985 found that deindustrialization was due to internal variables, as did the study of the United States conducted by Dollar and Wolff (1993). In a more recent study, Lawrence and Edwards (2013) showed that the decline in manufacturing employment in that country was the result of rising productivity coupled with decreasing demand for manufactures relative to services.

Saeger (1997) noted that the reduction in the share of value added by the manufacturing sector to GDP in the countries of the Organization for Economic Cooperation and Development (OECD) was paired with an increase in trade with developing countries. Using data gathered at five-year intervals during the period 1970-1990, Saeger's estimated equations for a 23-country panel that indicated that imports of manufactures from developing countries had a negative impact on the manufacturing sector's share of total employment and its value added to GDP, even when the equations included variables for human capital, productivity, per capita income and oil exports (the latter in order to test for the presence of Dutch disease). This negative impact of imports of manufactures represented between 25% and 30% of the variance in the deindustrialization of OECD countries, while productivity and oil exports accounted for around 40%.

Nickell, Redding and Swaffield (2008) estimated equations for each OECD country for the share of the different sectors of the economy in GDP as a function of total factor productivity, level of education, relative prices between sectors and investment. Their results indicate that the effects of these variables differ from one country to the next. In all the countries, the greatest driver of deindustrialization was the relative price of manufactures and non-manufactured goods, whereas total factor productivity and the expansion of human capital reined it in. In addition, changes in the different sectors' shares of GDP occurred more rapidly in countries where labour laws provided less employment protection.

In the case of Sweden, Lind (2011) found that manufacturing's share of total employment and value added to GDP began to decline in 1950 and then levelled off in the early 1970s. Later on, the rise in productivity in that sector —which outstripped productivity gains in the service

sector— translated into a decrease in its share of total employment but an increase in its share of value added to GDP. This is a case in which the lower relative prices in the manufacturing sector vis-à-vis prices in the service sector has spurred the demand for manufactures, thus giving rise to a reindustrialization process.

Tregenna (2011) identified 52 countries in which the manufacturing sector's share of GDP expanded in 1985-2005. This author underscored the importance for developing countries of initiating a reindustrialization process by, among other things, adopting industrial policies that will help to prevent national industries from being displaced by imports.³

Dasgupta and Singh (2006) noted that, because manufacturing is the foremost sector in the economy, deindustrialization has costs in terms of slow economic growth. These authors used data for 1990-2000 on 48 countries to estimate equations representing the relationship that is known as Kaldor's first law, which states that there is a direct link between increases in the value added by manufacturing and GDP growth. The authors' findings corroborate the existence of this relationship, as they show that each percentage point increase in the manufacturing sector was associated with 0.4 points of GDP growth, thus confirming how important a role this sector plays in driving economic growth.

Palma (2005 and 2008) proposed various explanations for deindustrialization. The first has to do with the inverted "U" relationship between the percentage of total employment accounted for by manufacturing and per capita income, which stems from the movement of manufacturing labour to the service sector as economies become more developed. The second is based on the declining relationship between manufacturing employment and per capita income associated with the sector's productivity gains, outsourcing and a reduction in the income elasticity of demand for manufactures. The threshold value of per capita income that marks the beginning of an economy's deindustrialization has also changed: in 1980, the level of per capita income at which the manufacturing sector's share of GDP began to decline was US\$ 21,000, but the figure had dropped to US\$ 10,000 by 1990. A third explanation points to the effects of Dutch disease in countries where there has been a boom in commodity exports. Palma asserted that countries that did not have a trade surplus in manufactures were the ones that underwent deindustrialization. He pointed to Argentina, Brazil, Chile and Uruguay as countries that experienced deindustrialization after introducing economic reforms that led to the build-up of hefty trade deficits in manufactures, a relative decrease in employment in the manufacturing sector and a slower rate of economic growth. He refers to these phenomena as an example of a "not very creative destruction".

Frenkel and Rapetti (2012) argued that the inflows of capital directed towards the region since the 1990s may lead to an appreciation of the countries' currencies that will in turn cause their tradables sectors to shrink, thereby undermining economic growth. These authors provided data that show how much labour costs (in dollars) rose in a number of the countries of the region in 2002-2003, which squeezed profit margins and made tradable goods less competitive. When they looked into the causes of the increase in the unit cost of labour, they found that the main factors, in order of importance, were the appreciation of the currency from 2002 on, rising real wages and declining productivity. They concluded that currency appreciations triggered by capital inflows can put downward pressure on the manufacturing sector's value added and employment levels and, hence, on economic growth.

Brady, Kaya and Gereffi (2008) examined a variety of possible explanations for deindustrialization in Latin America relating to comparative advantage, institutionalism and dependency theory. They used data collected at five-year intervals over the period 1980-2006 on 20 countries of the region

³ For analyses of the deindustrialization and subsequent reindustrialization of India and Japan, see Clingingsmith and Williamson (2005) and Tahara and Uemura (2013), respectively.

to estimate equations using the percentage of total employment represented by the manufacturing sector as the dependent variable. In the estimation with variables for comparative advantage, only the coefficients for inflation and investment rates had significant positive effects. These variables also had significant coefficients of the same sign in subsequent estimates. In the equations using institutional indicators, the coefficient of the qualitative variable representing membership in the Central American Integration Programme was significant and positive, indicating that this integration scheme served as a means of combating deindustrialization. On the other hand, the coefficient of the variable representing membership in the Southern Common Market (MERCOSUR) was negative. In this estimation, the coefficient for military spending as a percentage of GDP was also negative. The results obtained with the variables for dependency theory show that the importation of manufactures had a dampening effect on employment in the sector, as did foreign investment as a percentage of GDP and mineral and ore exports as a percentage of total exports, while the coefficient for exports to the United States as a percentage of total exports was positive.

In Colombia, the manufacturing sector's share of GDP had slipped from 25% in 1975 to 22% by the mid-1980s and to 12% by 2014. According to Clavijo, Vera and Fandinho (2014), the causes include a substantial increase in mineral and oil exports — and the resulting appreciation of the currency — and economic modernization, measured as the increases in per capita income and the service sector's share of GDP. The authors estimated cointegrating equations for each of their hypotheses and found that an increase of 1 percentage point in the ratio of mineral and oil exports to total exports translated into a 0.4 percentage-point drop in the manufacturing sector's share of GDP, while a 1 percentage-point appreciation of the currency led to a contraction of 0.12 points. This supports the hypothesis that deindustrialization has been the result of the appreciation of the currency in conjunction with Dutch disease.⁴ The results for the economic modernization hypothesis indicated that there was no vector of cointegration between the variables.

A review of the foregoing studies indicates that deindustrialization has occurred or is occurring in countries of differing levels of development and that no one cause can be singled out. Instead, the emergence of this phenomenon will depend on the varying ways that currency appreciations, productivity gains in the manufacturing sector, declining investment and trade liberalization influence a country's production capacity.

III. Data

The data used in this analysis have been drawn from the World Bank's World Development Indicators DataBank, except in the case of the real exchange rate series, which was based on data from the Economic Commission for Latin America and the Caribbean (ECLAC). As a first step in the empirical analysis, unit root tests were conducted for all the variables included in the study using the augmented Dickey-Fuller (ADF) test; the results are given in annex A1. In all cases, these statistics indicated that the variables were non-stationary at 1% except for the economic growth rate (GDPgrowth) and the private investment rate (Ipri), which were non-stationary at 10%. When these tests were applied at first differences, they showed that the variables were stationary, and it can therefore be deduced that all the series are integrated at order 1. Table 1 shows the mean values, standard deviations and the definitions of the variables included in this study.

⁴ Using the database on several countries of the region, Salama (2012) also argued that deindustrialization is caused by Dutch disease.

Table 1
Definitions, mean annual values and standard deviations of the variables

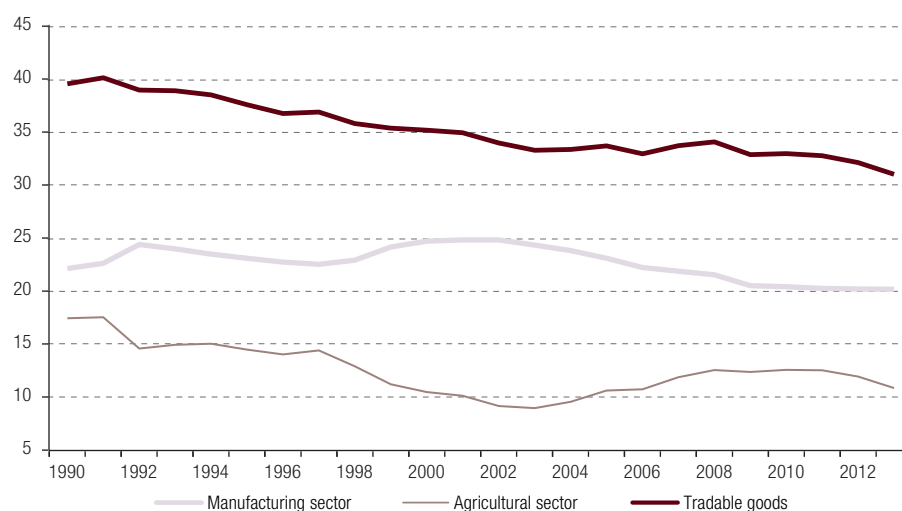
Variable	Mean value	Standard deviation
Agric: agricultural sector's share of GDP	12.53	2.38
Manu: manufacturing sector's share of GDP	3.68	3.25
Agric+Manu: tradable goods' share of GDP	3.63	3.25
Remy: remittances as a percentage of GDP	13.81	3.15
Gdpgrowth: economic growth rate	3.16	2.29
RER: real exchange rate	107.21	13.10
Imports: total imports as a percentage of GDP	39.33	5.58
Exports: total exports as a percentage of GDP	23.52	3.61
ExpCAy: exports to Central America as a percentage of GDP	5.72	1.13
Importconsumondy: imports of non-durable consumer goods as a percentage of GDP	9.07	2.29
Ipri: rate of private investment	12.97	1.11
Grosssavings: national savings rate	13.80	2.63
Serv: service sector's share of GDP	58.27	2.24
TB: trade balance as a percentage of GDP	16.23	3.09
AverageTariff: average tariff (%)	8.66	3.58
GeneralIndex: general index of reforms	0.57	0.07

Source: Prepared by the authors, on the basis of World Bank, World Development Indicators.

IV. Analysis of possible causes of deindustrialization in El Salvador

Figure 1 plots out the trend in the manufacturing and agricultural sectors' shares of value added to GDP in 1990-2013 in El Salvador. The downward paths of these variables illustrate the deindustrialization and relative contraction of the tradable goods sectors.

Figure 1
El Salvador: manufacturing and agricultural sectors' shares of value added to GDP, 1990-2013 (Percentages)

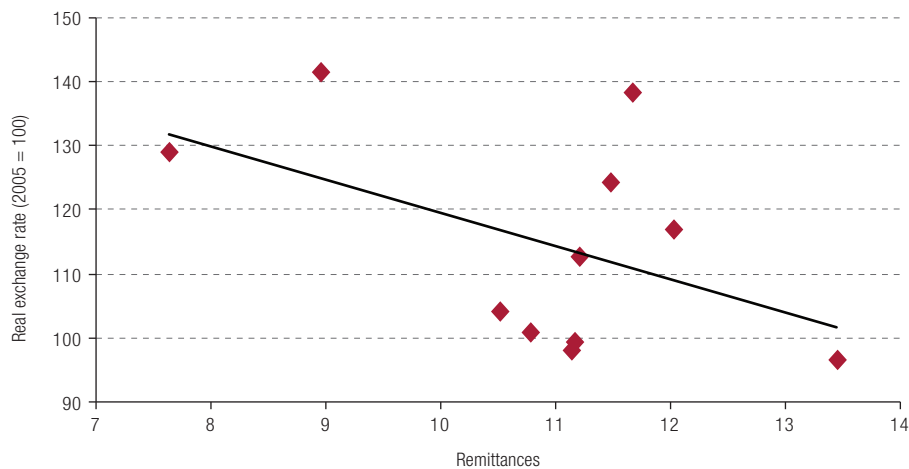


Source: Prepared by the authors, on the basis of World Bank, World Development Indicators.

1. Appreciation of the currency

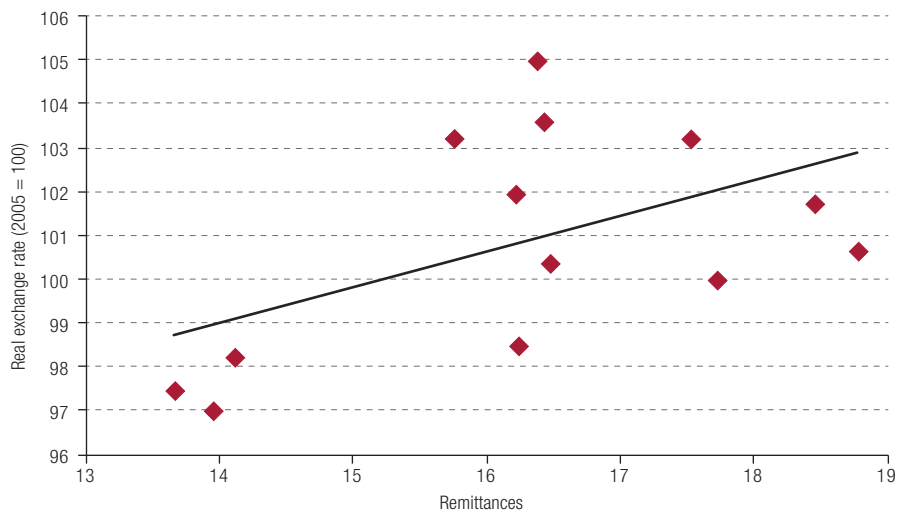
As a first step in searching for an explanation for this trend, the possibility of a link to Dutch disease was examined, since that disease can be brought about by a sharp increase in remittances. In El Salvador, the share of GDP represented by remittances soared from 7.63% in 1990 to 16.37% in 2013, with a peak level of 18.77% being recorded in 2006. This sizeable inflow could drive up the price index and, in turn, lead to an appreciation of the currency. This would then cause tradable goods to become less competitive, and their share of GDP would consequently shrink. A number of studies have provided evidence that remittances fuel an upturn in the value of the local currency (Lartey, Mandelman and Acosta, 2008; Díaz González, 2009). Before the dollarization of the economy in 2001, the relationship between the real exchange rate (RER) and remittances as a percentage of GDP (Remy) exhibited a negative slope (see figure 2), whereas, from 2000 on, it trended upward (see figure 3).

Figure 2
El Salvador: real exchange rate and remittances, 1990-2000
(Index: 2005=100 and percentages of GDP)



Source: Prepared by the authors, on the basis of World Bank, World Development Indicators.

Figure 3
El Salvador: real exchange rate and remittances, 2001-2013
(Index: 2005=100 and percentages of GDP)



Source: Prepared by the authors, on the basis of World Bank, World Development Indicators.

Before dollarization, remittances tended to result in a revaluation of the currency, as was to be expected, whereas, after dollarization, they contributed to a depreciation. This real depreciation of the Salvadoran currency (the dollar) is attributable to the fact that the neighbouring countries belonging to the Central American Economic Integration Programme, with which El Salvador has strong trade ties, usually have had higher inflation rates than it has had since 2001. This gives El Salvador a competitive advantage in its bilateral trade with these countries. Salvadoran exports to other Central American countries, measured as a percentage of total exports, amounted to around 20% in the 1990s, but in 2003 this figure began to climb, reaching 32.28% in 2013. The large amounts of remittances received by other Central American countries, with the exception of Costa Rica, have an influence on this result.

In order to verify what kind of role remittances play in changes in the real exchange rate, a fully modified ordinary least squares (FM-OLS) regression was used to estimate a cointegrating equation; this method corrects the OLS results, since it takes the fact that all variables of a cointegration vector are endogenous into account (Phillips and Hansen, 1990).⁵ Equation (1) in table 2 expresses the real exchange rate (RER) as a function of the volume of remittances, measured as a percentage of GDP (Remy), and of a qualitative variable (Qualid), which takes a value of 1 for each year after dollarization and a value of 0 before dollarization; this is included in the equation to detect changes in the intercept and in the Remy coefficient. All the coefficients are significant, but the values of R-squared and the Durbin-Watson statistic are low. For the pre-dollarization period, the coefficient of Remy is negative, indicating that the increase in this variable gave rise to a revaluation of the currency. In the later period, the coefficient of Remy has a positive effect on the real exchange rate equal to 0.7614 (8.6710-7.9096), which means that —contrary to expectations— the effect of the increase in the ratio of remittances to GDP was a depreciation of the currency.

The same method was used to estimate a second equation for the manufacturing sector's share of GDP as a function of Remy and Qualid (see table 2). The coefficient of RER is not significant in the first period, but it is significant and negative in the second (-0.7144). This indicates that the depreciation of the real exchange rate was positively associated with deindustrialization, which runs counter to the Dutch disease explanation.

Table 2
Remittances, exchange rate and manufacturing value added, 1990-2013
(Index: 2005=100 and percentages of GDP)

(1)	RER =	199.4563	-	110.5512Qualid	-	7.9096Remy	+	8.6713Remy*Qualid
		(4.88)		(1.87)		(2.01)		(1.88)
R-squared = 0.34 DW = 0.56								
(2)	Manu =	2.0080	+	70.7726Qualid	+	0.0030RER	-	0.7144RER*Qualid
		(11.81)		(7.12)		(0.17)		(7.28)
R-squared = 0.76 DW = 1.55								

Source: Prepared by the authors, on the basis of World Bank, World Development Indicators.

These results demonstrate that El Salvador has not been suffering from Dutch disease and that the depreciation of the currency has not helped to halt the deindustrialization process. Therefore, the search for an explanation for the deindustrialization of El Salvador must turn to other variables and economic policy measures.

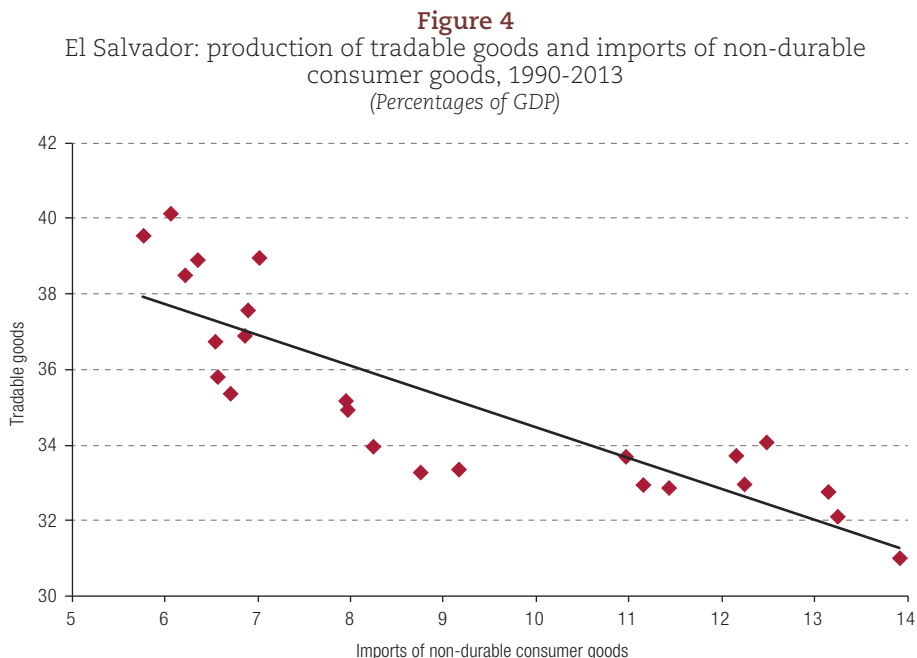
⁵ Before starting to estimate cointegrating equations, we tested for the existence of cointegration vectors among the variables present in the various equations. The results of the Johansen trace test indicate that there were one or two cointegration vectors in the equations shown in tables 2, 3, 4, 5 and 6; the exception was equation (12) in table 6, which was estimated using ordinary least squares.

2. Trade liberalization

In the mid-1980s, El Salvador began to introduce a series of trade policy measures that did away with quantitative restrictions on imports and, most importantly, lowered import duties. According to data from Lora (2012), the mean import duty was lowered from 22.68% in 1986 to 12.92% by 1993 and to 5.8% by 2009.⁶ This last value was just half of the mean duty in the Andean countries and MERCOSUR. Other sources, such as the World Bank's World Development Indicators, give an even lower mean import duty for El Salvador (around 2% in 2013). Other economic liberalization measures in such areas as finance, taxation, labour and privatization were also introduced in the 1990s.

3. Imports and deindustrialization

The increase in imports of non-durable consumer goods (Importconsumondy) from 6% to 12% of GDP between 1990 and 2013 is related to the contraction of the share of GDP represented by tradable goods (Manu+Agric) (see figure 4).



Source: Prepared by the authors, on the basis of World Bank, World Development Indicators.

In order to analyse this point, cointegrating equations were estimated using the FM-OLS methodology that expressed the Manu variable in terms of Importconsumondy and other variables. Equation (3) (see table 3) shows that imports of consumer non-durables, measured as a percentage of GDP, have a negative impact on national manufacturing output, while remittances have a positive effect. This equation explains 77% of the variance of Manu. Equation (4) includes the private investment rate (Ipri), whose coefficient is positive and significant. The coefficient of Remy is significant only at the 14% level. This equation explains 81% of the variance of Manu. El Salvador's exports to the other Central American countries, measured as a percentage of GDP (ExpCAy), were included as an independent variable in equation (5). The significant and positive coefficient indicates that regional trade flows shield

⁶ The data series prepared by Lora (2012) covers the period 1985-2009.

the countries from deindustrialization. This is because Central America's intraregional trade flows are chiefly composed of manufactured goods. In fact, Rodrik (2015) notes that countries in which over 75% of total exports were represented by manufactures did not experience any deindustrialization.

Table 3
El Salvador: deindustrialization and imports of non-durable consumer goods, 1990-2013
(Percentages of GDP)

(3)	$\text{Manu} = 25.2115 + 1.178\text{Qualid} - 0.9200\text{Importconsumondy}$
	$(24.92) \quad (2.13) \quad (9.14)$
	$+ 0.3731\text{Remy}$
	(3.43)
	R-squared = 0.77 DW = 1.28
(4)	$\text{Manu} = 21.0886 + 1.6427\text{Qualid1} - 0.7611\text{Importconsumondy}$
	$(11.23) \quad (3.34) \quad (6.56)$
	$+ 0.1884\text{Remy} + 0.3812\text{lpri}$
	$(1.54) \quad (2.57)$
	R-squared = 0.81 DW = 1.42
(5)	$\text{Manu} = 20.5967 + 2.0065\text{Qualid1} - 1.2475\text{Importconsumondy}$
	$(11.91) \quad (4.60) \quad (6.76)$
	$+ 0.2022\text{Remy} + 0.3993\text{lpri} + 0.7543\text{ExpCAy}$
	$(1.90) \quad (3.05) \quad (3.03)$
	R-squared = 0.84 DW = 1.68
(6)	$\text{lpri} = 15.3626 - 0.2744\text{Importconsumondy}$
	$(3.38) \quad (20.27)$
	R-squared = 0.30 DW = 1.22

Source: Prepared by the authors, on the basis of World Bank, World Development Indicators.

Equations (4) and (5) in table 3 show that private investment has a positive effect on the manufacturing sector's share of GDP. However, as shown in equation (6) of table 3, the *Importconsumondy* variable has a negative effect on the private investment rate. In other words, large-scale imports of consumer goods displace private investment. This has been observed in a number of countries.⁷ Thus, in addition to deindustrialization and "de-agriculturalization", El Salvador has undergone a process of decapitalization, as the extreme openness of its economy inhibits the mobilization of additional productive capital. In fact, since the mid-1990s, private and total investment rates have been lower than they were in the 1960s and 1970s.

⁷ Using a sample of developing and developed countries, Tregenna (2011) found that deindustrialization was accompanied by a slump in investment. Bennell (1998) presented evidence that private investment in the countries of sub-Saharan Africa fell following the liberalization of those economies in the 1980s. Citing the findings of a study by the International Financial Corporation (IFC) (1995) on private investment in those countries, he asserts that the hoped-for rebirth of the private sector following economic liberalization has simply not materialized in sub-Saharan Africa. Although there are signs of dynamism in small-scale farming and the informal sector, the formal sector has yet to respond to any appreciable extent in most of the countries. Noorbakhsh and Paloni (1999) furnish evidence of deindustrialization in the countries of sub-Saharan Africa against the backdrop of structural adjustment programmes. For additional evidence of deindustrialization in sub-Saharan Africa, see Jalilian and Weiss (2000).

4. Tariff reductions

The reduction of import duties sparked a steep rise in imports of consumer goods. A cointegrating equation was therefore estimated using data for 1990-2009 that expressed the share of tradables (Manu+Agric) in value added to GDP in terms of the mean value of the tariff, which was taken from Lora (2012) (see equation (7) of table 4). The coefficient for the mean tariff is significant and positive, which indicates that a higher level of protection would translate into a larger share for tradables in GDP: if the mean value of tariffs were brought up to the Latin American mean value of 12% (a 7 percentage-point increase), tradable goods' share of value added to GDP would climb by 2.8 percentage points. In fact, tariff levels and the qualitative variable representing the advent of dollarization explain 92% of the variance in tradable goods' share of GDP.

A cointegrating equation was estimated to express the annual economic growth rate (GDPgrowth) in terms of manufacturing's share of GDP (Manu) and the mean tariff (see equation (8) of table 4). The coefficients for Manu and the tariff are positive and significant, which indicates that, if the tariff were to increase by 7 percentage points, the economic growth rate would rise by around 2 points (7×0.283). This finding is all the more important in view of the failed attempts that have been made to galvanize the economy over the last two decades.

Table 4
El Salvador: tariffs, deindustrialization and economic growth, 1990-2009
(Percentages of GDP)

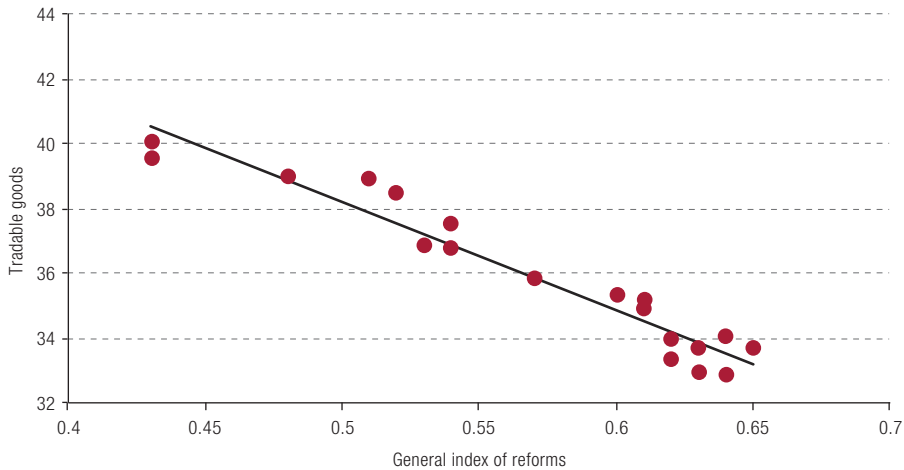
(7)	Manu + Agric =	33.4477	- 2.5392	Qualid +	0.3974	AverageTariff
		(97.78)	(12.31)		(12.21)	
R cuadrado = 0.92 DW = 2.90						
(8)	Gdpgrowth =	-15.3940	- 1.3328	Qualid +	0.7268	Manu +
		(2.02)	(1.54)		(2.26)	
				0.2830	AverageTariff	
				(2.08)		
R-squared = 0.48 DW = 1.13						

Source: Prepared by the authors, on the basis of World Bank, World Development Indicators.

5. General index of reforms

Lora (2012) computed a general index of structural reforms for each country in Latin America and the Caribbean. The index runs from 0 to 1 based on coverage and depth or intensity. El Salvador's ranking on this general index rose from 0.43 in 1990 to 0.64 in 2009. A cointegration equation was estimated (see equation (9) of table 5) that expresses tradable goods' share of GDP in terms of the general reform index, *GeneralIndex*. The results indicate that the headway made by the reforms and the Qualid variable explain 94% of the variance in the decline of tradable goods' share of GDP. In fact, this increase on the general index of 0.21 percentage points ($0.64 - 0.43$) is associated with the contraction of 6.35 percentage points (30.2406×0.21) in tradable goods' share of GDP, which is quite close to the real value (6.68 percentage points) computed for deindustrialization and de-agriculturalization between 1990 and 2009 ($39.55 - 32.87$) (see figure 5).

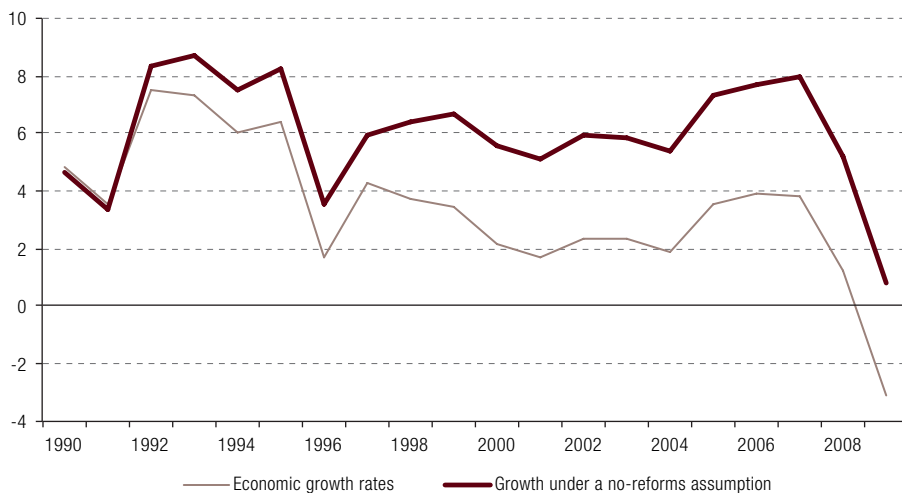
Figure 5
El Salvador: share of GDP represented by tradable goods and general index of reforms
(Percentages of GDP)



Source: Prepared by the authors, on the basis of World Bank, World Development Indicators.

In equation (10) in table 5, it can be seen that an increase in the general index of reforms has a negative impact on economic growth, such that “progress” in this area equates with a downturn in economic growth amounting to nearly 4 percentage points (0.21×18.77). Equation (10) provides a means of calculating the annual loss of economic growth caused by reforms based on the assumption that the general index of reforms remained at its 1990 value throughout the period of study. That loss is added to the real value of economic growth (GDPgrowth) to obtain the economic growth series based on the assumption that there were no reforms (CRECSINREF) (see figure 6). The difference between the two lines in figure 6 is the (partial) cost of the reforms.

Figure 6
El Salvador: real and hypothetical economic growth rates under a no-reforms assumption, 1990-2009
(Percentages of GDP)



Source: Prepared by the authors, on the basis of World Bank, World Development Indicators.

Table 5
El Salvador: general index of reforms and deindustrialization, de-agriculturalization and economic growth, 1990-2009
(Percentages of GDP)

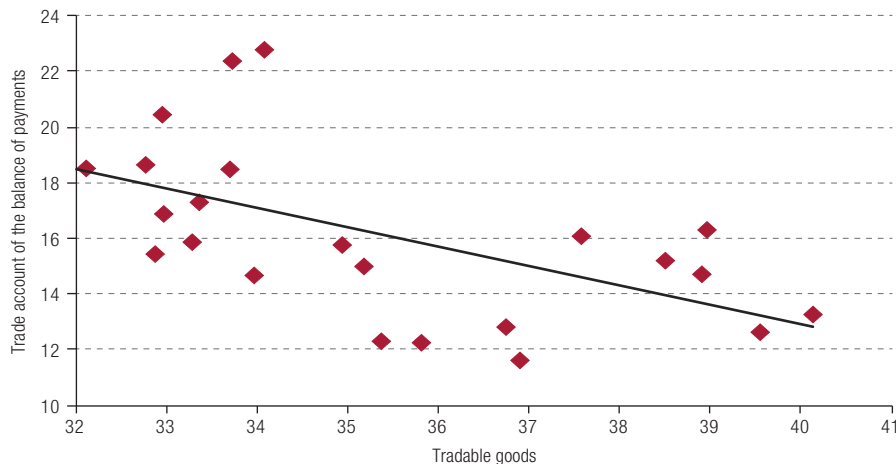
(9)	Manu + Agric = 5.4286	- 0.8441	Qualid = 30.2406	GeneralIndex
	(26.57)	(1.84)	(8.0540)	
R-squared = 0.94 DW = 1.40				
(10)	Gdpgrowth = 3.8731	- 0.5036	Qualid + 0.7762	Manu - 18.7672
	(0.40)	(0.40)	(2.31)	(1.84)
R-squared = 0.43 DW = 1.13				

Source: Prepared by the authors, on the basis of World Bank, World Development Indicators.

6. Deficit on the trade account of the balance of payments

Another phenomenon that has been of particular importance over the last three decades is the country's large deficit on the trade account of the balance of payments (TB), which swelled from 12.67% of GDP in 1990 to 22.82% in 2008 and 19.41% in 2013. The expansion of this deficit is closely associated with the contraction in tradable goods' share of GDP (Manu+Agric) (see figure 7).

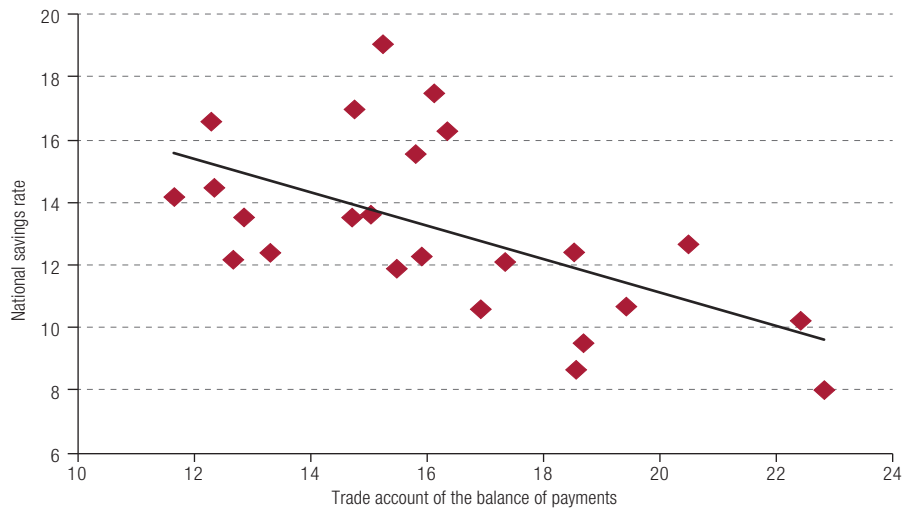
Figure 7
El Salvador: deficit on the trade account of the balance of payments and share of GDP represented by tradable goods, 1990-2013
(Percentages of GDP)



Source: Prepared by the authors, on the basis of World Bank, World Development Indicators.

One consequence of the large trade deficit has been a sharp reduction in national saving, which has fallen to extremely low levels in recent years (around 8%) (see figure 8).

Figure 8
El Salvador: national savings rate and deficit on the trade account of the balance of payments
(Percentages of GDP)



Source: Prepared by the authors, on the basis of World Bank, World Development Indicators.

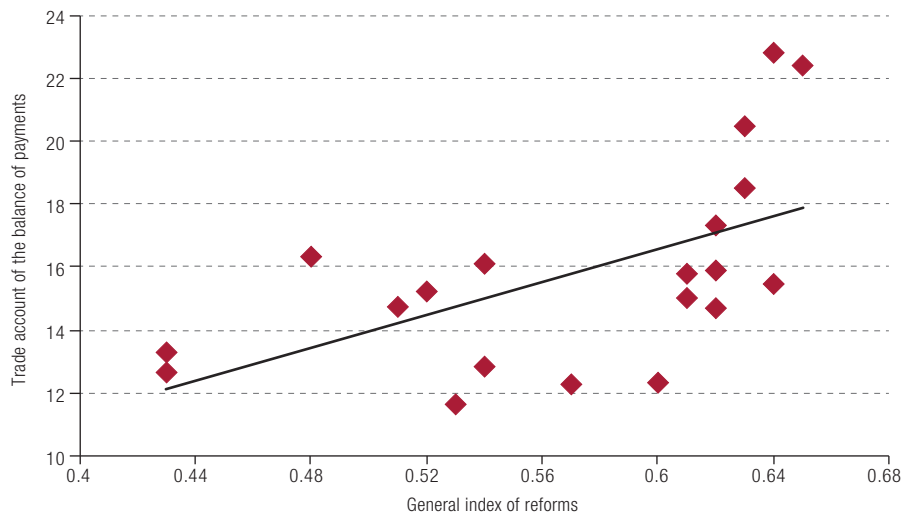
The explanation for this lies in the fact that, as the trade deficit mounts, more and more external savings are needed to cover the current account deficit, displacing national savings.⁸ This is shown in the estimation of equation (11) of table 6, which expresses the national savings rate in terms of $Manu$, Gdp growth and TB . The results show that this last variable has a negative and significant coefficient, which signals the negative impact of the trade deficit on saving.

The decrease in national saving entails a contraction in private investment, which is another factor in the stagnation of tradables production. This fuels an even greater deterioration in the trade deficit and thus gives rise to a domino effect in the reduction of external tariffs, deindustrialization, deteriorating external accounts, a decline in national saving and investment, increasing deindustrialization and so on.

The deindustrialization and decapitalization processes can be attributed to the reforms, since there is a close correlation between the general index of reforms and the trade deficit (see figure 9). Lawrence and Edwards (2013) have provided evidence for Germany, Italy and Japan — countries with large trade surpluses for manufactures — that deindustrialization (measured as a percentage of total employment accounted for by manufacturing employment) has not been as marked as in other developed countries.

⁸ Prasad, Rajan, and Subramanian (2007) offered evidence that external saving bears a negative relationship to national savings, which underscored the importance of reducing the trade deficit.

Figure 9
El Salvador: deficit on the trade account of the balance of payments and the general index of reforms, 1990-2009
(Percentages of GDP and values of the reform index (between 0 and 1))

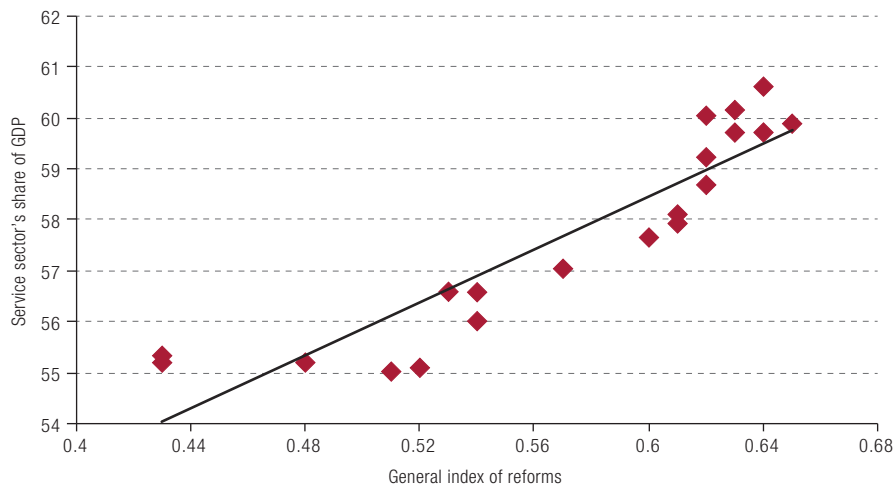


Source: Prepared by the authors, on the basis of World Bank, World Development Indicators.

7. Service sector and economic growth

As the reforms were put in place, tradable goods sectors grew weaker and the service sector's share of GDP expanded (from 55.32% in 1990 to 62.20% in 2013) (see figure 10). Using OLS to estimate an equation that expresses the rate of economic growth in terms of private investment and the service sector's share of GDP, the calculations show that this curbed the growth of the economy (see equation (12) in table 6).

Figure 10
El Salvador: service sector's share of GDP and the general index of reforms, 1990-2009
(Percentages of GDP and the reform index (from 0 to 1))



Source: Prepared by the authors, on the basis of World Bank, World Development Indicators.

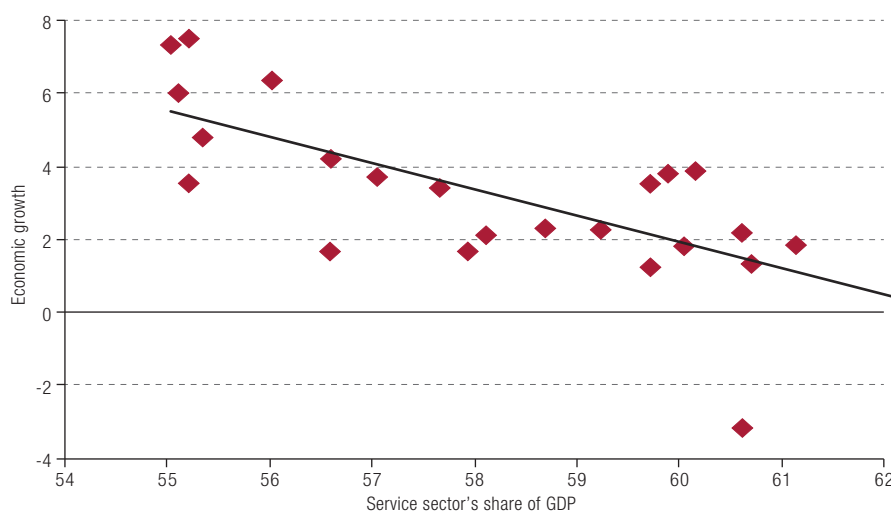
Table 6
El Salvador: manufacturing and service sectors' shares of GDP, national saving
and economic growth
(Percentages of GDP)

(11)t	Grosssavings = 26.5673 + 0.7536Manu - 0.5495TB + 0.5008Gdpgrowth			
	(1.58)	(2.89)	(2.11)	(2.52)
R-squared = 0.72 DW = 2.27				
(12)	Gdpgrowth = 29.6530 + 0.0111Qualid - 0.6105Serv + 0.7005lpri			
	(1.57)	(0.01)	(1.96)	(2.28)
R-squared = 0.60 DW = 1.52				

Source: Prepared by the authors, on the basis of World Bank, World Development Indicators.

The results indicate that the coefficient for the Serv variable is negative and significant, with a 1 percentage-point increase in the service sector's share of GDP being matched by a drop of 0.5 of a point in GDP growth. Although the coefficient for the private investment rate is positive and significant, this variable has been declining steadily since the mid-1990s and therefore cannot be expected to counteract the negative impact of Serv. The problem posed by this situation is that the fastest-growing sector of the economy exerts a negative impact on economic growth (see figure 11), while the sector that drives growth is shrinking. This heralds a continuation of the Salvadoran economy's stagnation unless sufficient protection for tradable goods is restored.

Figure 11
El Salvador: economic growth and the service sector's share of GDP, 1990-2013
(Percentages of GDP)



Source: Prepared by the authors, on the basis of World Bank, World Development Indicators.

8. Safeguard clauses and free trade

The World Trade Organization (WTO) recognizes the right of its member countries to request the introduction of restrictions on imports in situations where they are justified. The imposition of such measures, as well as temporary tariff increases and antidumping measures, is a common practice in world trade. Using data for 1980-1998 on Australia, Canada, United States and the countries of the European Union, Knetter and Prusa (2003) found that an appreciation equal to one standard deviation of the currency of an exporter country translated into a 33% increase in antidumping filings by the

importer country, while a contraction equivalent to one standard deviation of the importer country's real GDP led to a 23% increase in antidumping filings.

Bown and Crowley (2013) estimated equations to identify the variables associated with the adoption of protectionist measures in Australia, Canada, the countries of the European Union, the Republic of Korea and the United States in 1988-2010. They found that around 5% of the goods imported by these countries were subject to temporary trade barriers in 2010. One of the decisive variables influencing the erection of such barriers in all the countries except Australia was a real appreciation in bilateral exchange rates with the importer. A 4% appreciation in the currency of the importing country gave rise to increases of between 60% and 90% in the goods subject to such barriers. A slowdown in economic growth also triggered the erection of barriers to imports in all the countries except Canada. By way of example, a drop in Australia's economic growth rate from 3.3% to 0.7% was associated with a 40% increase in the antidumping measures that it adopted.

Kee, Neagu and Nicita (2013) examined the trade policies in effect in 2009 in 131 countries in an effort to detect changes made in response to the global crisis. They found that Argentina, Bolivia (Plurinational State of), China, Ecuador, Malawi, the Russian Federation and Turkey had raised their tariffs, whereas the countries of the European Union and the United States had mainly relied on the introduction of antidumping duties.

In May 2015, Ecuador raised its import duties by 45%.⁹

Given the importance of the balance of payments for national saving and economic growth, El Salvador should follow the lead of developed countries and resort to protectionist measures in economic recessions or when the currency appreciates.

V. Conclusions

This study provides evidence that deindustrialization has various types of negative impacts on the Salvadoran economy, with the most notable of those effects being a slowdown in economic growth, a decline in the national savings rate, the growth of the underground economy and a deterioration in external accounts and investment.

The combination of deindustrialization and the expansion of the service sector has curbed economic growth and has led to an upturn in the trade deficit, which has had an adverse impact on private investment. This engenders a vicious circle in which deindustrialization drives up the external deficit and, in turn, puts downward pressure on private investment, which then fuels further deindustrialization, which boosts the trade deficit even further, and so on and so forth. In other Latin American countries, deindustrialization has not had such adverse effects on economic growth as it has had in El Salvador because of the commodity price boom that was occurring until fairly recently. However, as commodity prices weaken, the negative impact of economic openness will begin to be felt more keenly.

The chief cause of deindustrialization in El Salvador has been the extreme liberalization of the economy carried out in the 1990s under the influence of the Washington Consensus. The empirical evidence presented in this study also points to the adverse repercussions of the wide-ranging reforms introduced during that period.

All of this underscores the urgent need to reinstate protection measures for the national manufacturing and agricultural sectors. Rodrik (1998) has demonstrated that there was nothing

⁹ Published by the Inter-American Development Bank (IDB) (2015). *The Washington Post* edition of 26 April 2015 reported that, since 2008, the Group of 20 (G-20) countries had added 1,200 additional export and import restrictions.

“inefficient” about the import substitution process and that it had not “run its course”, as was argued during the 1990s in order to justify the reforms that followed.

Studies on the erection of international trade barriers by developed countries show that “free trade” for these countries is discretionary: it prevails when macroeconomic conditions are favourable, but is set aside when given industries’ interests are threatened by, for example, a currency appreciation. Countries like El Salvador should emulate the effective practices of developed countries and introduce import restrictions, not only in response to a slowdown in economic growth or an overvaluation of the currency, but also as a means of helping their manufacturing sectors to develop. In other words, it is important to return to an import substitution model in order to speed economic growth and combat unemployment, underemployment and violence. In addition, as noted by Rodrik (2006), the liberalization model has no historical or conceptual foundation but is instead based on a series of assumptions that are unlikely to be borne out in the real world.

This is particularly important now that the downturn in commodity prices has triggered recessionary trends that will need to be counteracted. Taking the same route as developed countries have in protecting their trading positions is a highly advisable approach.

Tregenna (2014) has argued that deindustrialization will alter the structure and nature of the working class as employment declines in the manufacturing sector —where it is not as arduous to organize labour unions as it is in other sectors— and rises in the service sector, where organizing the unions is more complicated. The corollary is that the establishment and growth of labour unions in the service sector need to be supported in order to bolster the bargaining power of large segments of the population. Tregenna also contends that deindustrialization prompts the banking system to place its highest priority on serving short-term borrowers in the service sector, which makes national development banks’ provision of long-term financing to production sectors all the more important.

In addition to reintroducing protective measures, productivity levels in the service sector will have to be increased. This has major implications in terms of gender issues because it calls for a substantial increase in the value added by large segments of the female workforce employed in the underground economy.

This study’s findings provide evidence of just how important a role El Salvador’s exports to other Central American countries are playing in countering deindustrialization. It follows that a determined effort should be made to support Central American integration in order to help to sustain the subregion’s industrialization process. The consideration of this issue dates back to the works of Prebisch (1950 and 1951), who argued that Latin American integration was an important means of driving the growth of exports of manufactures, overcoming balance-of-payments constraints, enhancing the use of technology and boosting productivity. Other authors who came after Prebisch advocated economic integration as a tool for promoting industrialization (Balassa, 1961; Reynolds, 1968).

For El Salvador, economic policy needs to be seen as a tool for nation-building. Priority should be given to the restitution of productive power as a vehicle for creating quality jobs, investment, exports, innovation and social cohesion. The term “productive power” was used by List (1991, cited in Ho, 2005) to differentiate his concept of political economy from that of other noted economists (Smith, among others). For List, political economy was not a “science that teaches only how values in exchange are produced by individuals, distributed among them and consumed by them. ... a statesman will know and must know, over and above that, how the productive powers of a whole nation can be awakened, increased and protected, and how on the other hand they are weakened, laid to sleep, or utterly destroyed, and how by means of those national productive powers the national resources can be utilised in the wisest and best manner so as to produce national existence, national independence, national prosperity, national strength, national culture, and a national future.”¹⁰

¹⁰ List as cited by Ho (2005).

The objectives of independence, prosperity, culture and a national future, while these may seem elusive today, should be the chief aim of El Salvador's economic policy, which should be grounded in the protection of the country's production sectors and the pursuit of equality of opportunity.

Bibliography

- Balassa, B. (1961), *The Theory of Econ Integration*, Homewood, Illinois, Irwin.
- Bennell, P. (1998), "Fighting for survival: manufacturing industry and adjustment in sub-Saharan Africa", *Journal of International Development*, vol. 10, No. 5, Wiley.
- Bown, Ch. and M.A. Crowley (2013), "Import protection, business cycles, and exchange rates: evidence from the Great Recession", *Journal of International Economics*, vol. 90, No. 1, Amsterdam, Elsevier.
- Brady, D., Y. Kaya and G. Gereffi (2008), "Why is Latin America deindustrializing?", Duke University, unpublished.
- Cáceres, L.R. (2015), "Labor Productivity in Latin America", unpublished.
- Clavijo, S., A. Vera and R.A. Fandinho (2014), "Deindustrialization in Colombia: quantitative analysis of determinants", *Working Paper*, Bogota, National Association of Financial Institutions.
- Clingingsmith, D. and J.G. Williamson (2005), "India's deindustrialization in the 18th and 19th centuries", Harvard University, unpublished.
- Dasgupta, S. and A. Singh (2006), "Manufacturing, services and premature de-industrialization in developing countries: a Kaldorian empirical analysis", *Working Paper*, No. 327, Cambridge, Centre for Business Research, University of Cambridge.
- Díaz González, E. (2009), "The impact of remittances on macroeconomic stability: the cases of Mexico and Central America", *CEPAL Review*, No. 98 (LC/G.2404-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).
- Dollar, D. and N. Wolff (1993), *Competitiveness, Convergence, and International Specialization*, Cambridge, Massachusetts, The MIT Press.
- Frenkel, R. and M. Rapetti (2012), "External fragility or deindustrialization: what is the main threat to Latin American countries in the 2010's?", *World Economic Review*, No. 1, Bristol, World Economic Association.
- Ho, P. (2006), "Analyzing and arresting uneven development: Friedrich List and Gunnar Myrdal compared", *Journal of Economic Issues*, vol. 40, No. 2, Taylor & Francis.
- _____(2005), "Distortions in the trade policy for development debate: a re-examination of Friedrich List", *Cambridge Journal of Economics*, vol. 29, No. 5, Oxford University Press.
- IDB (Inter-American Development Bank) (2015), *News*, Washington, D.C., 8 June [online] <http://www.iadb.org/en/news/news,2359.html>.
- IFC (International Finance Corporation) (1995), *Trends in Private Investment in Developing Countries 1995: Statistics for 1980-93*, Discussion Paper, No. 25, Washington, D.C.
- Jalilian, H. and J. Weiss (2000), "De-industrialisation in sub-Saharan Africa: myth or crisis?", *Journal of African Economies*, vol. 9, No. 1, Oxford University Press.
- Kaldor, N. (1967), *Strategic Factors in Economic Development*, Ithaca, Cornell University Press.
- Kee, H., C. Neagu and A. Nicita (2013), "Is protectionism on the rise? Assessing national trade policies during the crisis of 2008-2009", *Review of Economics and Statistics*, vol. 95, No. 1, Cambridge, Massachusetts, The MIT Press.
- Knetter, M.M. and T.J. Prusa (2003), "Macroeconomic factors and antidumping filings: evidence from four countries", *Journal of International Economics*, vol. 61, No. 1, Amsterdam, Elsevier.
- Lartey, E., F. Mandelman and P. Acosta (2008), "Remittances, exchange rate regimes and the Dutch disease: a panel data analysis", *Working Paper*, Atlanta, Federal Reserve Bank of Atlanta.
- Lawrence, R.Z. (1987), "Trade performance as a constraint on European growth", *Barriers to European Growth: A Transatlantic View*, R. Lawrence and C. Schultze (eds.), Washington, D.C., The Brookings Institution.
- Lawrence, R.Z. and L. Edwards (2013), "US employment deindustrialization: insights from history and the international experience", *Policy Brief*, No. 13-27, Washington, D.C., Peterson Institute for International Economics.
- Lind, D. (2011), "The myths and reality of deindustrialization in Sweden: the role of productivity", *International Productivity Monitor*, vol. 22, Ottawa, Centre for the Study of Living Standards.
- List, Friedrich (1991), *The National System of Political Economy*, Fairfield, Augustus M. Kelley.
- _____(1883), *The Natural System of Political Economy 1837*, London, Frank Cass.

- Lora, E. (2012), "Las reformas estructurales en América Latina (versión actualizada)", *Working Paper*, No. IDB-WP-346, Washington, D.C., Inter-American Development Bank.
- Nickell, S., S. Redding and J. Swaffield (2008), "The uneven pace of deindustrialization in the OECD", *The World Economy*, vol. 31, No. 9, Wiley.
- Noorbakhsh, F. and A. Paloni (1999), "Structural adjustment programs and industry I Sub-Saharan Africa: restructuring or de-industrialization?", *The Journal of Developing Areas*, vol. 33, No. 4, Nashville, Tennessee State University.
- Palma, G. (2010), "Why has productivity growth stagnated in most Latin American countries since the neo-liberal reforms?", *Cambridge Working Papers in Economics*, No. 1030, Cambridge, University of Cambridge.
- _____(2008), "De-industrialization, 'premature' de-industrialization and the Dutch disease", *The New Palgrave Dictionary of Economics*, S.N. Durlauf and L.E. Blume (eds.), London, Palgrave Macmillan.
- _____(2005), "Four sources of 'de-industrialization' and a new concept of the Dutch-disease", *Beyond Reforms: Structural Dynamic and Macroeconomic Vulnerability*, J. A. Ocampo (ed.), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).
- Phillips, P. and B. Hansen (1990), "Statistical inference in instrumental variables regressions with I(1) processes", *Review of Economic Studies*, vol. 57, No. 1, Oxford University Press.
- Pieper, U. (2003), "Sectoral regularities of productivity growth in developing countries – A Kaldorian interpretation", *Cambridge Journal of Economics*, vol. 27, Oxford, University Press.
- Prasad, E., R. Rajan and A. Subramanian (2007), "Foreign capital and economic growth", *Brookings Papers on Economic Activity*, vol. 1, Washington, D.C., Brookings Institution.
- Prebisch, R. (1951), *Economic Survey of Latin America, 1949* (E/CN.12/164/Rev.1), New York, United Nations.
- _____(1949), *The Economic Development of Latin America and Its Principal Problems* (E/CN.12/89), New York, United Nations.
- Reynolds, S.E. (1968), "Custom unions among developing countries", *Malayan Economic Review*, Kuala Lumpur, University of Malaya.
- Rodrik, D. (2015), "Premature deindustrialization", *Economic Working Papers*, No. 107, Princeton, Institute for Advanced Study.
- _____(2006), "Good bye Washington Consensus, hello Washington confusion", *Journal of Economic Literature*, vol. 44, No. 4, Nashville, American Economic Association.
- _____(1998), "Globalization, social conflict and economic growth", *The World Economy*, vol. 21, No. 2, New York, Wiley.
- Rowthorn, R. (1994), "Korea at the cross roads", *Working Paper*, No. 11, Cambridge, Centre for Business Research, University of Cambridge.
- Rowthorn, R. and R. Ramaswamy (1998), "Growth, trade and deindustrialization", *IMF Working Paper*, No. WP/98/60, Washington, D.C., International Monetary Fund.
- Saeger, S. (1997), "Globalization and deindustrialization: myth and reality in the OECD", *Weltwirtschaftliches Archiv*, vol. 133, Kiel, Springer.
- Salama, P. (2012), "Globalización comercial: desindustrialización prematura en América Latina e industrialización en Asia", *Comercio Exterior*, vol. 62, No. 6, Mexico City, Banco de Comercio Exterior.
- Salvadoran Social Security Institute (2014), *Anuario estadístico 2013*, San Salvador.
- Tahara, S. and H. Uemura (2013), "The transformations of growth regime and de-industrialization in Japan", *Discussion Paper Series*, No. 2012-CEGS-02, Yokohama, Yokohama National University.
- Tregenna, F. (2014), "A new theoretical analysis of deindustrialization", *Cambridge Journal of Economics*, vol. 38, No. 6, Oxford University Press.
- _____(2011), "Manufacturing productivity, deindustrialization, and reindustrialization", *WIDER Working Paper Series*, No. 57, Helsinki, World Institute for Development Economics Research (UNU-WIDER).
- Wells, H. and A. Thirlwall (2003), "Testing Kaldor's growth laws across the countries of Africa", *African Development Review*, vol. 15, No. 2-3, African Development Bank.

Annex A1

Table A1.1
Unit root tests

Variable	Augmented Dickey-Fuller test
Agric	1.8690
Manu	2.2036
Agric+Manu	1.9504
Remy	2.1962
Gdpgrowth	3.5353
RER	0.8678
ExpCAy	1.1324
Consumondy	1.9946
Ipri	3.3675
Grosssavings	4.9742
Serv	2.7143
TB	2.4187
AverageTariff	1.4525
GeneralIndex	1.4558

Source: Prepared by the authors.

