Deindustrialization, labour and violence in El Salvador

Luis René Cáceres

Abstract

This study explores how deindustrialization is influencing the labour market in El Salvador. The variables under analysis are disaggregated by sex in order to permit an analysis of the differences in the ways that women and men react to deindustrialization. The results indicate that deindustrialization has led to a decline in quality employment and an upswing in self-employment, at the same time that the female labour force participation rate has risen and the male participation rate has fallen. This all occurred in parallel with the economic measures introduced in the 1990s and reflects the role that women have assumed in order to safeguard the well-being of their families. Deindustrialization has also been associated with increasing violence, since it paves the way for an increase in poor-quality jobs. This article concludes by underscoring the importance of reinstating tariff protections and supporting a reindustrialization process, together with regional integration, gender equality and education.

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I.   Introduction

The subject of deindustrialization has received a considerable amount of attention in the economics literature over the past three decades.[1] Some of the studies conducted in an effort to determine the causes of deindustrialization have identified both domestic factors, such as intersectoral productivity differentials, and external ones, such as imports of manufactured goods. Others have postulated that the root cause is the overvaluation of the exchange rate, which triggers the onset of Dutch disease and thus a decline in the competitiveness of the manufacturing sector.

Studies have also been done on the social repercussions of deindustrialization for individuals and communities in terms of unemployment, underemployment and difficulties in re-entering the labour market (Whyte, 1985; Belcher and DiBlasio, 1993). Other studies have turned up evidence that a period of unemployment leads to a loss of income throughout a person's life and leaves permanent scars (Arulampalam, 2001). Evidence has also been gathered on the consequences of underemployment and unemployment in terms of mental disorders, alcoholism, depression and divorce (Darity and Goldsmith, 1996; Sen, 1997; Dooley, 2003). In addition, it has been shown that people who have undergone episodes of underemployment or unemployment tend to die earlier than those who have not (Junakar, 1991).Deindustrialization leads not only to unemployment and underemployment, but also personal experiences of declining physical and psychological well-being and, on a more general scale, to public health problems, the deterioration of communities and regions, a loss of social capital and the eruption of social conflict (Wilson, 1987). It is therefore important to be aware of the high social cost that a slowdown in industrial production activity, outsourcing and downsizing can have for a country.

This study will explore the ways in which deindustrialization alters the behaviour of selected labour-market variables in El Salvador and specifically of self-employment, underemployment, quality jobs, part-time jobs and the labour force participation rate. As part of this analysis, these variables are disaggregated by gender so that the differing responses of women and men to deindustrialization can be tracked. The level of remittances as a percentage of GDP was one of the independent variables that has been factored into the equations with a view to determining what role it plays in the labour market within a deindustrializing economic system.

Section II of this article introduces the subject of deindustrialization in El Salvador, while section III offers a discussion of the relevant data and their statistical properties. Section IV presents the results of estimates arrived at using cointegration equations to gauge the impact of deindustrialization on the behaviour of the labour market. Section V explores the role that deindustrialization may play in heightening social exclusion and the prevalence of violence. Section VI concludes.

II.   Deindustrialization in El Salvador

El Salvador has been undergoing a deindustrialization process ever since the mid-1990s, and this has been reflected in a decline in the value added to GDP by the country's manufacturing sector from 25% in 2001 to 20% in 2013. Over the period 1990–2013, the agricultural sector's share of value added in GDP fell from 14.6% to 10.84%, while the services sector's share expanded. This course of events has been coupled with economic stagnation since the mid-1990s, with an average economic growth rate of 1.9%. Cáceres (2017) has shown that deindustrialization and the stagnation of the economy are the outcome of economic reforms introduced in the mid-1990s and, in particular, of the drastic rollback of import duties from 22.68% in 1986 to 5.80% in 2009, according to the data presented by

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[1]   "Deindustrialization" is defined here as a reduction in the share of value added by the manufacturing sector to GDP. The references to the causes and consequences of deindustrialization made in this section are drawn from Cáceres (2017).

Lora (2012). This, in turn, led to a situation in which the consumption of imported goods crowded out manufacturing production. The rollback was paired with other reform measures dealing with financial matters, pensions and social insurance and privatizations. In order to gauge the intensity and scope of these reforms, Lora (2012) has constructed a general reform index for the Latin American countries in which the coefficient for El Salvador rose from 0.43 in 1990 to 0.64 in 2009 (the last year covered in the study). Cáceres (2017) has devised equations for calculating the negative effects that the reductions in average tariffs, together with the variables reflected in the rising coefficient on the general reform index, have had on economic growth, investment and the share of value added by tradable goods sectors as measured in terms of GDP.

III. The model and the data

The model to be presented here consists of the estimation of cointegration equations that express Salvadoran labour market variables in terms of annual variations in the manufacturing sector's share of value added to GDP. The data used here have been drawn from the World Development Indicators database of the World Bank. All of the data correspond to the period 1990–2013 unless otherwise indicated. The definitions of the variables and their average values and standard deviations are given in table 1.

Table 1
Definition of the variables, their average annual values and standard deviations

Variable	Average annual value	Standard deviation
Agricultural sector's share of GDP (AGRIC)	12.53	2.38
Manufacturing sector's share of GDP (MANU)	22.69	1.56
Services sector's share of GDP (SERV)	58.27	2.24
Tradable goods' share of GDP (AGRIC+MANU)	35.22	2.60
Remittances as a percentage of GDP (REMY)	13.81	3.15
Economic growth rate (GDPGROWTH)	3.16	2.29
Female self-employment rate (SEMPFEMALE)	48.75	1.62
Male self-employment rate (SEMPMALE)	37.86	2.12
Female wage employment rate (QUALITYEMPFEMALE)	45.81	5.51
Male wage employment rate (QUALITYEMPMALE)	61.24	2.96
Female labour force participation rate[a] (PARTTIMFEMALE)	44.10	2.22
Male labour force participation rate[a] (PARTTIMMALE)	79.96	2.10
Average tariff (%)[b]	8.66	3.58
General reform index[b] (GENERALINDEX)	0.57	0.07
Number of homicides per 100 000 persons (HOMICIDES)	23.4444	21.7817
Annual level of remittances divided by GDP (REMITT)	13.8142	3.1456
Rule of law index (RULELAW)	-0.4771	0.6541
Human Opportunity Index (HOI)	74.1177	14.3696
Size of the shadow economy, divided by GDP (SHADOW)	30.57	7.42
Coefficient for the percentage of national income received by the fifth income quintile/ the percentage received by the first income quintile (Q5Q1)	16.18	5.16
Per capita social spending (SOCIALEXP)	780.69	681.61
Gender inequality index (GENDER INEQUALITY)	0.4340	0.0523
Adolescent fertility rate (ADOLESFERTILITY)	70.7647	21.2622

Source: Prepared by the author.
[a] Data are for 1993–2013.
[b] Data are for 1990–2009.

Augmented Dickey-Fuller unit root tests were performed on all the variables, and the results indicated that, with the exception of the female and male self-employment rates, they are all integrated of order 1. The unit root tests are detailed in annex A1. With a view to detecting the existence of

cointegration, the Johansen test was applied; it indicated that the variables are cointegrated in all the equations that are to be estimated here. Therefore, the estimates were conducted using the fully modified least squares method (Phillips and Hansen, 1990) in order to take into account the fact that, in a cointegration vector, all the variables are endogenous.

1. Deindustrialization and self-employment

The following analysis will focus on the impact of deindustrialization on the self-employment rate, which is generally used as a proxy for the informal or shadow economy (Loayza, 1997; Loayza and Rigolini, 2011). Cáceres and Cáceres (2017a) found that the main determinants of self-employment in a sample of six Latin American countries were the economic growth rate and the level of remittances as a percentage of GDP. These two variables will be considered here —along with the change in the manufacturing sector's share of GDP (D (Manu)) and a qualitative variable (Quali1) representing the drop in GDP in 2009—to be the determinants of self-employment in El Salvador. The results are shown in table 2.

Table 2
Determinants of self-employment
(Dependent variable: self-employment rate)

Independent variables	Female	Male
Constant	51.4940	47.9516
	(37.15)	(21.48)
D (MANU)	-1.6588	-1.5416
	(3.70)	(2.15)
GDPGROWTH	-0.2620	-0.3710
	(2.17)	(1.91)
REMY	-0.1877	-0.6812
	(2.28)	(5.16)
QUALI1	5.8842	7.4984
	(5.00)	(3.95)
R-squared	0.80	0.74

Source: Prepared by the author.

Since the D (MANU) coefficient is negative and significant for female and male self-employment, it can be inferred that deindustrialization contributes to the growth of the informal economy. The high value of the D (MANU) coefficient in the equation for female self-employment is in line with other types of evidence that indicate that women are more likely than men to be employed in low-quality jobs (Lichter and Landry, 1991). A number of studies have provided evidence on the steep increases in self-employment and underemployment seen in the United States as industrial enterprises have closed their doors (Belcher and DiBlasio, 1993), while, using a sample composed of both developed and developing countries, Pietrobelli, Rabellotti and Aquilina (2004) have found that the rate of self-employment tends to decline as the degree of industrialization rises. In the same vein, Acs, Audretsch and Evans (1992) have shown that self-employment tended to rise in a sample of developed and developing countries in parallel with a decline in the manufacturing sector's share of GDP.

An increase in the economic growth rate has a negative impact on female and male self-employment rates, which indicates that economic growth creates better job opportunities for persons who are self-employed in the formal economy. This agrees with the evidence presented by Cáceres and Cáceres (2017a), who found that economic growth drove down the self-employment rate in a sample of panel data for 1993–2012 from six countries in the region.

The coefficients for remittances are significant and negative in both cases, which indicates that they are a source of liquidity that enables both women and men to exit self-employment. This also is in keeping with the results obtained by Cáceres and Cáceres (2017a), which indicate that an increase in real wages that represents an injection of liquidity similar to what is provided by remittances is reflected in a decrease in the female and male self-employment rates.

2. Deindustrialization and quality employment

The way in which deindustrialization influences the rate of quality employment —which, according to the definition used for the World Development Indicators of the World Bank, is employment affording established pay levels and benefits— was also analysed. The results of the estimates arrived at using cointegration equations and data for 1993–2012 are shown in table 3. The fact that the D (MANU) coefficients are positive indicates that deindustrialization has a negative effect on the prevalence of quality employment, particularly for women. The GDPGROWTH coefficient is positive and significant for the quality of female employment, but is not significant for the quality of male employment, which would appear to indicate that women are more strongly affected by the business cycle than men are. This, in turn, indicates that economic growth has a different impact on the quality of female employment in the formal sector of the economy (an increase in quality female employment) than it does in the shadow economy (a reduction in female as well as male self-employment). This could be a reflection of the existence of fragmented labour markets. The coefficients for remittances are positive and significant in both cases, a sign of their role in both reducing employment in the shadow economy (see table 2) and in boosting quality employment in the formal economy (see table 3).

Table 3
Determinants of quality employment
(Dependent variable: rate of quality employment)

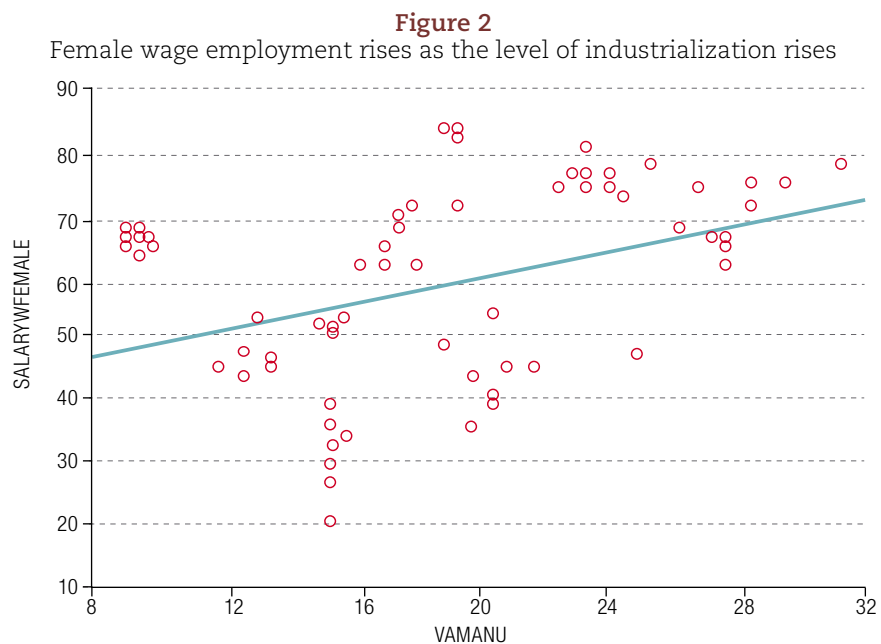| Independent variables	Female	Male
Constant	22.7123	50.5396
	(3.48)	(23.18)
D (MANU)	7.6244	1.9188
	(3.66)	(2.76)
GDPGROWTH	1.4903	0.1031
	(2.31)	(0.48)
REMY	1.4243	0.7737
	(3.70)	(6.02)
QUALI1	11.6427	-7.8340
	(2.01)	(4.05)
R-squared	0.31	0.71

Source: Prepared by the author.

In order to provide a graphic illustration of the results shown in tables 2 and 3, figures 1 and 2, which are taken from Cáceres and Cáceres (2017a), depict, respectively, the drop in female self-employment (SEMFEMALE) and the increase in quality female employment (SALARYWFEMALE) associated with an increase in the manufacturing sector's share of GDP (VAMANU). The data correspond to panel data for a sample of six countries in the region for 1993–2012.[2]

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[2] The countries included in the sample are: Colombia, Costa Rica, Dominican Republic, Ecuador, Jamaica and the Plurinational State of Bolivia.

Figure 1
Female self-employment falls as the level of industrialization rises
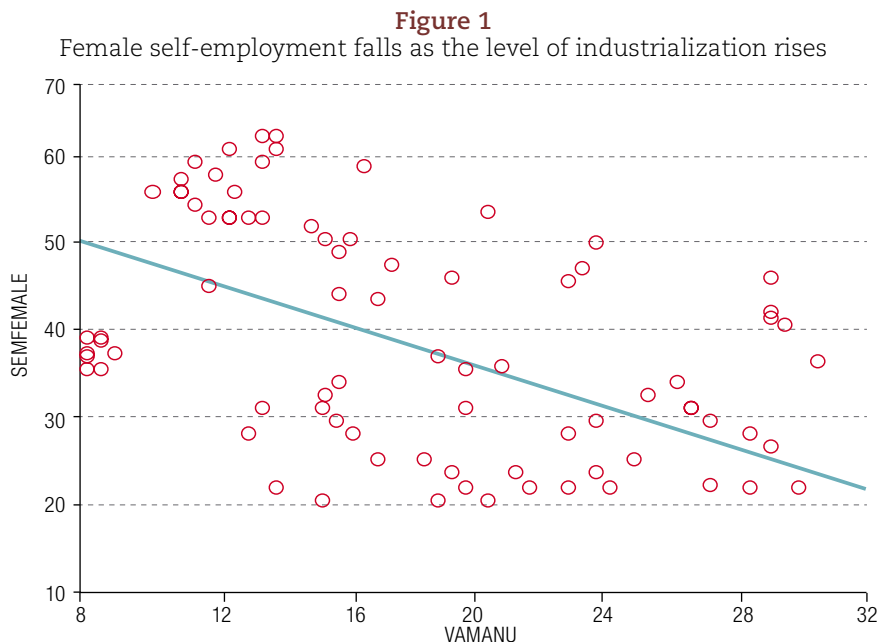
Figure 2
Female wage employment rises as the level of industrialization rises

Figures 1 and 2 can be construed as providing additional evidence that industrialization results in a decrease in female self-employment and an increase in quality female employment.

## 3. Deindustrialization and participation in the labour force

Some recent studies have turned up evidence that indicates that, in Latin American countries, many women act as "secondary" workers in the sense that they enter the workforce when the head of household becomes unemployed, or in response to adverse situations that have a negative impact on household well-being (Cáceres and Cáceres, 2017a).[3] This trend is not evident in developed countries, where broad-coverage social safety nets (notably unemployment insurance) are in operation. Thus, in the Latin American countries, these types of situations may force children to take over domestic chores from their mothers or to withdraw from school if their mother fails to find work, thereby heightening the transmission of poverty from one generation to the next (Cáceres, 2014).[4] In other words, the economic and social maladjustments triggered by deindustrialization, which have been identified by various authors (Wilson, 1987; Belcher and DiBlasio, 1993; Pietrobelli, Rabellotti and Aquilina, 2004), could be forcing women to act as social safety nets, in the absence of other institutional forms of protection, giving rise to a negative correlation between the production of tradables and women's participation in the workforce. This trend is depicted in figure 3, which suggests that women tend to enter the labour market in search of work in response to the stagnation of the economy as the manufacturing and agricultural sectors' shares of GDP shrinks. In El Salvador, the manufacturing sector has a stronger influence on economic growth, while the services sector has a negative impact (Cáceres, 2017). As noted earlier, the Salvador economy has been sluggish ever since the mid-1990s.

As shown in figure 4, the male labour force participation rate exhibits the opposite trend. This could mean that, as tradable goods sectors' share of GDP contracts, more men become "discouraged workers" and abandon the labour market (Borjas, 2008).

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[3] Data showing the existence of this type of trend in other Latin American countries, such as Argentina (Cerruti, 2005) and Mexico (Mckenzie, 2003), have also been published.

[4] In the United States, *The Washington Post* (2015) has reported that, based on data from the 2008-2012 American Community Survey, researchers from the Urban Institute have found that nearly one third of the 563,000 teenagers who dropped out of secondary school during that period did so in order to work so that they could help to support their families. Hispanic males made up a disproportionate share of this population of young people between the ages of 16 and 18 who dropped out of school either at the start or nearly at the end of their secondary education. On average, these teenagers' earnings provided nearly one fourth of the income that their families needed to live, and that money kept 42% of these households from slipping below the poverty line. The study concludes that, given the stagnation of wages and the disappearance of many well-paid blue-collar jobs, more and more low-income families need more of their members to go out to work just to remain afloat (p. A11).

Figure 3
Value added by the manufacturing and agricultural sectors relative to GDP
and the female labour force participation rate
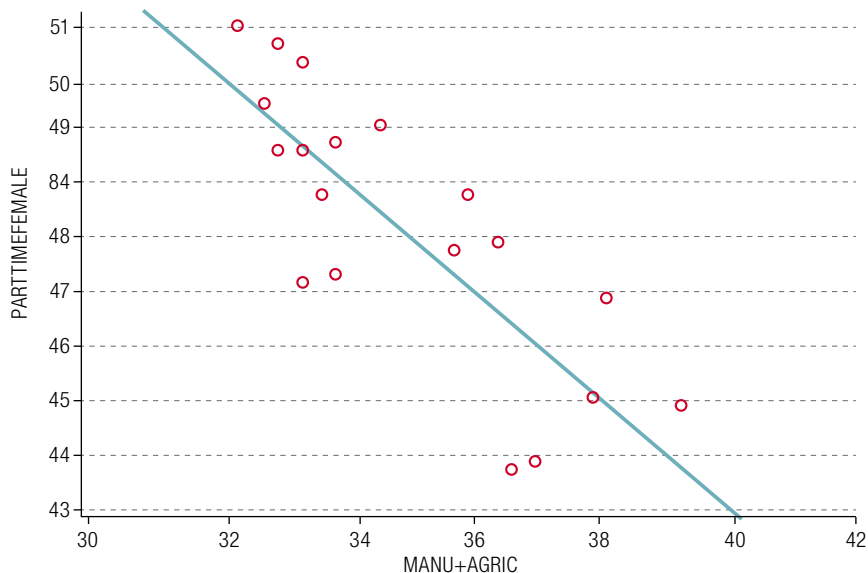
Source: Prepared by the author.

Figure 4
Value added by the manufacturing and agricultural sectors relative to GDP
and the male labour force participation rate
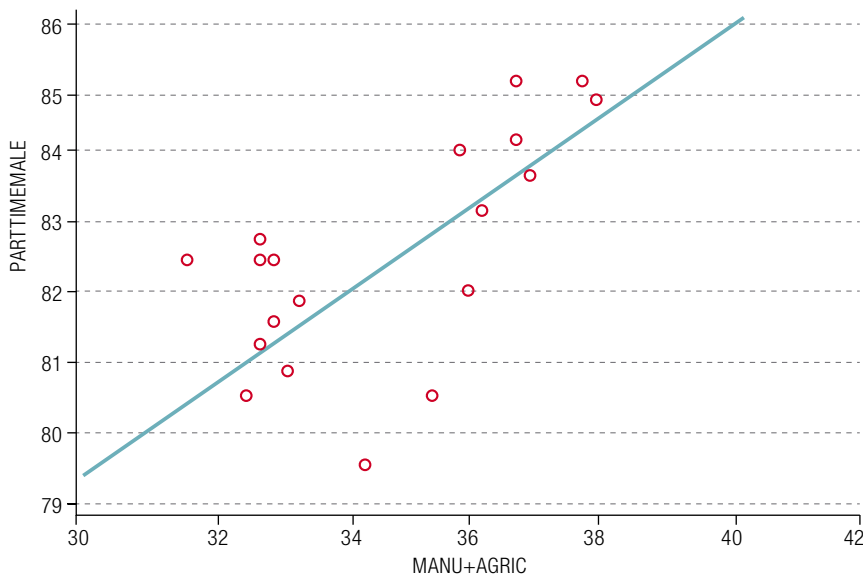
Source: Prepared by the author.

Table 4 shows the estimates calculated on the basis of cointegration equations that express labour force participation rates in terms of the percentages of GDP represented by the value added by the manufacturing and agricultural sectors.

Table 4
Determinants of the labour force participation rate
(Dependent variable: labour force participation rate)

Independent variables	Female		Male	
Constant	73.7867	30.0552	59.4692	105.4692
	(4.72)	(10.17)	(5.06)	(24.17)
QUALI1	1.6115	1.2542	3.5272	1.9775
	(0.46)	(1.46)	(2.18)	(1.56)
REMY	0.0070			-0.0080
	(0.03)			(0.96)
MANU+AGRIC	-0.8517			0.5341
	(2.15)			(1.78)
GENERALINDEX		23.7353		-43.9743
		(4.80)		(6.01)
R-squared	0.60	0.66	0.63	0.71

Source: Prepared by the author.

As shown in the table, these equations account for between 60% and 71%of the variability in the female and male participation rates, while the coefficients for remittances are not significant.

The MANU+AGRIC coefficient is negative and significant in the case of the female participation rate, which indicates that deindustrialization and the shrinkage of the agricultural sector tend to push up the female participation rate as women enter the workforce in order to cushion the effect on their households of the contraction of these production sectors.

In the case of the male labour force participation rate, on the other hand, the MANU+AGRIC coefficient is positive and marginally significant, which appears to indicate that, in the face of deindustrialization and the contraction of the agricultural sector, male workers become discouraged and may withdraw from the workforce. Their withdrawal from economic activity could also be attributable to the fact that they have their own system of "unemployment insurance", which is based on their wives' or partners' willingness to save them by throwing them out a "lifeline". The absence of participation may also be a sign that the men have decided to emigrate, however.

The coefficient for the MANU+AGRIC variable for the female participation rate (-0.8517) is, in absolute terms, nearly double the male participation rate (0.5341); this could be interpreted as signalling a greater responsiveness on the part of women to a deterioration in their households' level of well-being (as a result of deindustrialization and sluggish economic growth) as they remain true to their commitment to keep their households afloat.

Table 4 also gives the results for the two equations for which the independent variable was the general reform index (GENERALINDEX), whose coefficients were positive for female participation and negative for male participation. This would appear to indicate that, because of the reform process, more women joined the workforce in order to counter the effect of the economic stagnation to which that process gave rise and safeguard their families' well-being. The negative coefficient for male participation in the labour force could be an indication that, in response to the disturbances generated by the reform measures, many men chose to withdraw from the labour market and were able to do so because of the support provided by women who found ways to become self-employed. It should be noted that the general reform index alone accounted for 66% and 63%of the variance of the female and male labour force participation rates, respectively.

In 2015 and 2016, labour market trends in the region as a whole were similar to those seen in El Salvador in relation to the "secondary worker" phenomenon and especially in regard to the decline in

quality employment and the rise in self-employment as real GDP shrank[5] (coupled with the contraction of the manufacturing sector), as well as the decrease in the male labour force participation rate and the increase in the female participation rate.[6]

IV. Part-time work

There is a very close correlation between the general reform index and the part-time employment rates for women and men (see figures 5 and 6). These results attest to the upward trend in underemployment that accompanied the progressive introduction of the reform measures.

Figure 5
The general reform index and the part-time employment rate for women
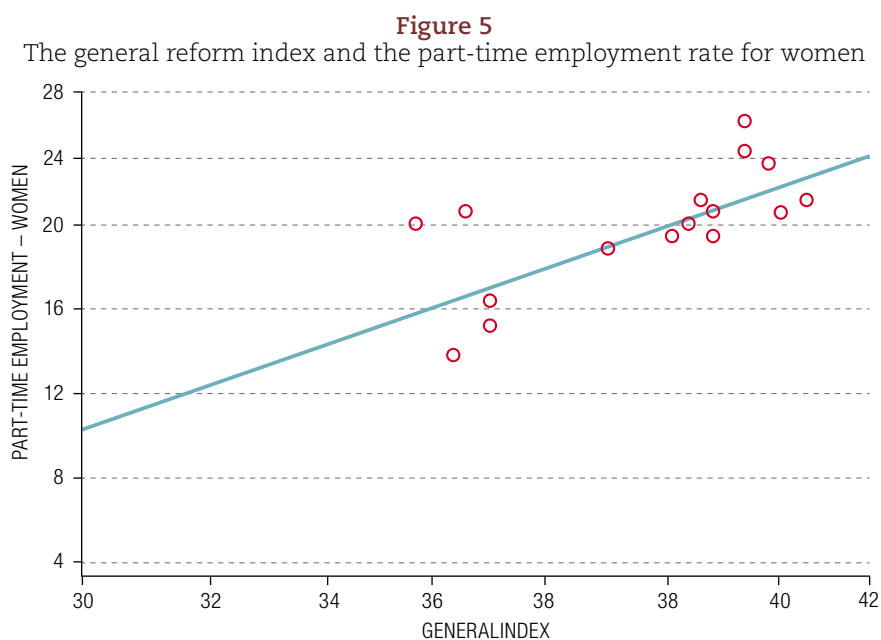
Source: Prepared by the author.

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[5] ECLAC (2016) reported that the increase in the proportion of working women occurred in a context of worsening job quality. On the basis of information from 11 countries showing the contraction of regional output and the concomitant weakness of employers' demand for labour, it has been estimated that the number of wage workers fell slightly (-0.2%). In contrast, own-account work continued to follow a markedly countercyclical trend, rising by 2.7%.

[6] Regarding the drop in the employment rate in 17 countries of the region, ECLAC (2016) noted that: "…the rise in the unemployment rate, averaged over the first three quarters of 2016, was 0.5 percentage points. … this increase was more marked for women than for men (0.7 versus 0.3 percentage points), so that the gender gap for this variable widened. The processes driving up unemployment rates were different for men and women. In the case of men, the decisive factor was the drop in the employment rate, which outstripped the decline in the participation rate. In contrast, what predominated for women was the rise in the participation rate, while the employment rate held steady" (p. 55).

Figure 6
General reform index and part-time employment rate for men
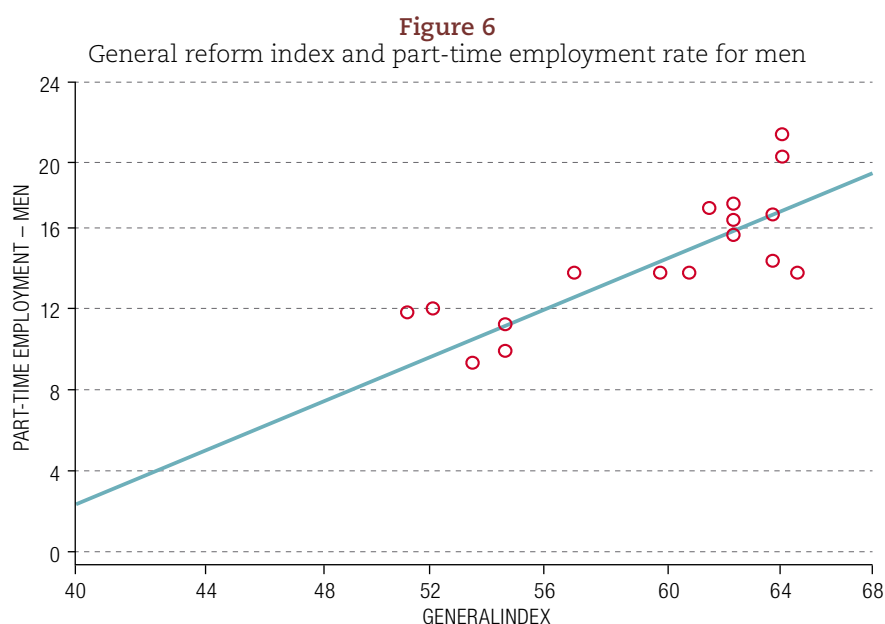
Source: Prepared by the author.

Cointegration equations were estimated that express part-time employment in terms of the general reform index. The results are shown in table 5. The coefficients for the index are significant and positive in both equations and account for 44% and 53%, respectively, of the variance in the part-time employment rates.

Table 5
General reform index and part-time employment
(Dependent variable: part-time employment rate)

Independent variables	Women	Men
Constant	-5.1286	-16.733
	(0.62)	(2.30)
GENERALINDEX	41.9871	50.1177
	(3.01)	(4.09)
R-squared	0.44	0.53

Source: Prepared by the author.

Other equations were estimated while controlling for deindustrialization and economic growth and including the unemployment rates for women and men as independent variables, since there is solid evidence that unemployment is one of the main determinants of part-time employment (Cáceres and Cáceres 2017a). The results, as shown in table 6, indicate that, even when these additional variables were included, the coefficients for the reform index were significant and positive –and were greater in the case of the female underemployment rate. The coefficients for D (MANU) were significant and negative in the case of female underemployment but were not significant for male unemployment, which shows that deindustrialization has helped to drive up the part-time employment rate for women.

In the equation for female underemployment, the coefficients for the female and male unemployment rates were significant and positive. This indicates that, when faced with an upswing in unemployment (whether among women or men), women will resort to part-time work. However, in the case of the male underemployment rate, the coefficients for the female and male unemployment rates were not significant, which could be a reflection of a reluctance on the part of men to accept part-time work.

Table 6
Determinants of part-time employment
(Dependent variable: part-time employment rate)

Independent variables	Women	Men
Constant	-68.8701	53.1577
	(10.25)	(3.35)
GENERALINDEX	116.0061	92.1577
	(9.22)	(4.75)
D (MANU)	-0.9102	-0.7896
	(5.48)	(1.11)
UNEMFEMALE	2.3188	1.0178
	(5.48)	(1.56)
UNEMMALE	0.6605	0.5921
	(2.13)	(1.24)
GDPGROWTH	0.5000	0.3865
	(3.57)	-1.8
R-squared	0.80	0.68

Source: Prepared by the author.

It is surprising to note that, in the case of the part-time employment of women, the coefficient for the economic growth rate is both significant and positive. This could mean that economic growth opens up opportunities for women but primarily on a part-time basis. In the case of part-time employment for men, the coefficient of the economic growth rate was positive and marginally significant. This indicates that the business cycle has a particularly strong influence on women's underemployment rate.[7] It is to be noted that there are no legal provisions in El Salvador governing part-time employment. Cáceres (2014) has presented findings that show that, in the Latin American countries, part-time employment is an outgrowth of the downturn in GDP and is a leading indicator of unemployment.

1. Trade within Central America, self-employment and quality employment

In order to gauge the impact of trade within Central America on the labour market in El Salvador, cointegration equations were estimated that included the variable ExpCAy, which measures total Salvadoran exports to other Central American countries as a percentage of GDP. The equations identify the role that this variable plays in determining men's and women's self-employment and quality employment rates. The results of these computations are shown in table 7, where it can be seen that all the variables included in the estimates shown in tables 5 and 6 remain significant and have the expected signs.

In the equations for the female and male self-employment rates, the coefficients for EXPCAY are positive but not significant. This means that intra-subregional trade does not influence female or male self-employment rates and thus does not have an impact via that effect on the shadow economy. A particularly important point to be noted is that the coefficients for EXPCAY are both positive and significant, which leads to the conclusion that Central American integration has contributed to the creation of good-quality jobs for women and men —an objective whose attainment has generally proved to be quite elusive in the subregion. It is significant, in this connection, that El Salvador's exports to other Central American countries made up 48% of its total exports in 2015 (the highest percentage of any country in the subregion) and that 80% of those exports were manufactured goods.

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[7] There is evidence that a rise in the part-time employment rate leads to a decline in labour productivity (Cáceres and Cáceres, 2017b). The drop in productivity could curb economic growth and put downward pressure on the level of value added by the manufacturing sector and, hence, could drive up the part-time employment rate, thereby creating an underemployment trap.

Independent variables	Dependent variable: self-employment		Dependent variable: quality employment	
	Women	Men	Women	Men
Constant	50.1849	46.8954	21.0028	40.1305
	(64.98)	(30.68)	3.79)	(13.35)
D (MANU)	-1.3139	-1.3549	5.2474	2.9566
	(3.34)	(2.02)	(2.83)	(2.94)
GDPGROWTH			1.9383	0.8460
			(3.45)	(2.77)
REMY	-0.2262	-0.8113	0.2068	0.3816
	(2.57)	(4.66)	(0.44)	(1.51)
QUALI1	7.6687	9.3378	11.8488	0.7942
	(12.12)	(7.85)	(2.45)	(0.30)
EXPCAY	0.2105	0.3649	2.9190	1.2879
	(1.33)	(1.17)	(2.83)	(2.79)
R-squared	0.80	0.78	0.48	0.53

Source: Prepared by the author.

Trade with the rest of the countries in Central America played a greater role in the increase in quality employment for women than for men (the coefficients are 2.9190 and 1.2879, respectively). In other words, unlike unilateral tariff rollbacks, subregional integration fuels the creation of good-quality jobs. Hence the importance of supporting the growth of trade within Central America and, more generally, of promoting increasingly close regional integration.

2. Deindustrialization and social exclusion

Wilson (1987) advanced the hypothesis that deindustrialization and the changes in the structure of urban economies in the United States that began to occur in the 1970s led to a loss of good-quality jobs which have since been replaced by poor-quality jobs in the services sector. He went on to say that, as a consequence of deindustrialization, poverty and unemployment have been on the rise and the composition of families has been altered. He described this situation as "social disadvantage" and added that it was the chief cause of crime in the United States. This hypothesis has inspired numerous researchers to try to test out and validate his conclusions; their findings indicate that social exclusion, deprivation of employment opportunities and poverty are the most influential determinants of urban crime.[8] A number of studies inspired by the work of Wilson are summarized below.

Almgren and others (1998) looked at the causes of homicides committed in 75 different neighbourhoods in Chicago, Illinois, using data from 1970 and 1990. In their initial analysis, they used ordinary least squares (OLS) equations that expressed the 1990s rate of homicides committed by African-American men in terms of the unemployment rates for 1970 and 1990. The results yielded significant coefficients that accounted for 72% of the homicide rate. In estimating the same equation for Caucasian men, the unemployment rate for 1970 was not significant and the variance accounted for by the equation dropped to 56%. Given the higher homicide rate in African-American neighbourhoods, the authors' computations indicated that this group had a lower life expectancy than the counterpart group of Caucasian men did (on average, the African-American men died 11 years earlier than their Caucasian counterparts). This difference was explained in terms of the higher unemployment rate in African-American neighbourhoods (42.3% in 1990 versus an average rate of 15% in the Caucasian neighbourhoods). This is evidence that unemployment constitutes a violation of the right to life enshrined in the Universal Declaration of Human Rights.

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[8] See the summaries of the findings of Krivo and Peterson (1996) and of Crutchfield, Matsueda and Drakulich (2002).

Krivo and Peterson (1996) undertook research into the determinants of crime in neighbourhoods in Columbus, Ohio, using independent variables relating to social exclusion. Their starting point was the work of J. W. Wilson, who argued that changes in the economic structure of the United States, and particularly deindustrialization, had given rise to persistent poverty and unemployment. These authors compiled the data on property crimes (vehicle theft, burglary) and violent crimes (homicide, rape, armed robbery) from each of 177 tracts in the 1990 census. They estimated OLS equations that expressed the crime variable in terms of various indicators of social exclusion and found that, in the case of property crime, the variables that had the highest and most significant coefficients were the indicators of high unemployment and extreme disadvantage. Other variables that had significant coefficients were the percentage of vacant houses (positive) and the percentage of professionals living in the tract (negative). The equations accounted for around 40% of the variance in the crime rate. In the case of the equations for violent crimes, the coefficients for the percentages of households headed by women and for extreme poverty were the highest; other significant variables were the male unemployment rate and the percentage of vacant houses. On average, 70% of the variance was explained by these equations.

These authors also estimated other equations after dividing the sample into two groups by census tract: those with Caucasian populations and those with African-American populations. Their results showed that the rate of property crime was higher in the Caucasian neighbourhoods than it was in the African-American ones but that the differential was not statistically significant. By the same token, the rate of violent crime was higher in the African-American neighbourhoods than in the Caucasian ones, but the differential was not significant in this case either. They concluded that crime is a reflection of the social and economic situation (especially poverty and unemployment) where a person lives and that membership in a given ethnic group does not, in itself, play an influential role. They pointed out that a large part of the racial differential in crime rates is attributable to the fact that Caucasians and African-Americans usually live in communities that are structured very differently. It is more probable that Caucasians will live in less disadvantaged areas and that African-Americans will live in more disadvantaged communities. Consequently, their findings indicate that racially correlated differences in violent crime rates are attributable to structural differences in the communities where they live (pp. 635-636).

Kubrin and Wadsworth (2003) analysed disaggregated statistics on homicides committed by African-Americans between 1985 and 1995 in the city of Saint Louis, Missouri. They constructed a composite indicator for social exclusion that consolidated per capita income and the percentages of the African-American population who were living in poverty, who were unemployed, who did not have a secondary school diploma and whose households were headed by women. Their findings indicate that social exclusion was the determining variable for the various types of homicides. Thus, they concluded that crime is an outgrowth of social exclusion and is not associated with any given ethnic group. They contend that, if the same unmet needs and shortcomings (especially in terms of unemployment) that are typically found in African-American neighbourhoods were present in Caucasian neighbourhoods, then those neighbourhoods would also be exposed to an equivalent level of criminal activity. They went on to assert that social exclusion is the result of the interplay of structural factors that have created and maintained a system of stratification that has given rise to neighbourhoods populated by minorities that are disadvantaged in multiple ways, including poverty, unemployment and broken families. The social, political and economic forces that help to create these structural factors include a legacy of slavery and discrimination, discriminatory practices, residential segregation, globalization and deindustrialization. If these or other forces had placed the Caucasian population at the same type of disadvantage, it would exhibit similar cultural adaptations. This did not happen, however. The overlapping disadvantages found in many urban African-American communities are rarely found in primarily Caucasian neighbourhoods (p. 29).

Parker and Pruitt (2000), for their part, provide evidence that poverty is a motive for criminal activity among both Caucasian and African-American populations in the United States but that it has a stronger impact on the former. In addition, a concentration of poverty, defined as the percentage of persons of the corresponding ethnic group residing in a census tract where the poverty rate is above 40%, was a driver of criminal activity only among Caucasian population groups.

3. Economic and social repercussions of trade liberalization and deindustrialization

Figure 7 depicts the economic and social repercussions of the liberalization of external trade and deindustrialization. The first quadrant shows the monopolistic model of competition in the domestic market, with the y axis representing the average producer price plus the import duty and the x axis representing the number of firms in the domestic market.[9] The line marked as CC indicates that, as the number of companies increases, the average cost also climbs, since the client base of each firm will shrink and it therefore loses access to certain economies of scale. The line marked as EE shows that the average price falls as the number of firms rises owing to greater inter-firm competition. The equilibrium point is reached at average price Po, which corresponds to a tariff of To and a number of companies equal to NO. In the scenario depicted in quadrant 1, the tariff is lowered to T1, the price therefore drops to P1 and the number of firms falls to N1.

Figure 7
Repercussions of trade liberalization and deindustrialization
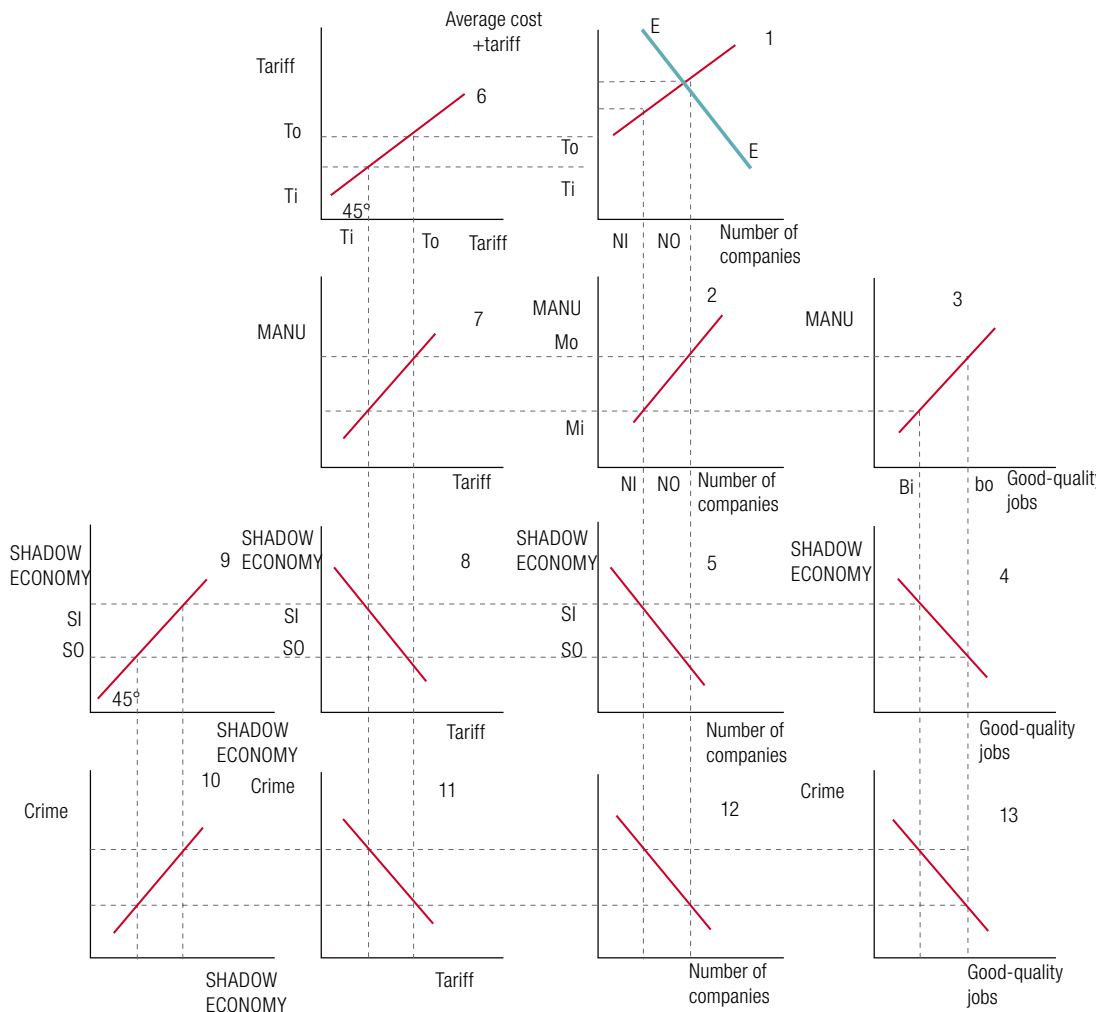
Source: Prepared by the author.

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9   This model is based on Krugman and Obstfeld (1991).

Quadrant 2 illustrates the positive relationship existing between the number of firms and the manufacturing sector's share of GDP; thus, as the number of (formal-sector) companies decreases from N0 to N1, the value of MANU, falls from M0 to M1. In quadrant 3, as a result of the positive relationship between MANU and the creation of good-quality jobs, the latter falls from b0 to b1. Quadrant 4 depicts the negative association between good-quality jobs and the shadow economy (Cáceres and Cáceres, 2017a). On that basis, the negative relationship between the number of firms and the size of the shadow economy is traced in quadrant 5, where it can be seen that a reduction in the tariff from T0 to T1 causes the shadow economy to grow from S0 to S1. Quadrant 6 shows the 45° line used to construct the positive relationship between MANU and the tariff shown in quadrant 7; this is where higher tariffs correspond to higher shares of value added by the manufacturing sector in GDP.

Quadrant 8 shows the negative relationship between tariffs and the shadow economy, with a lower tariff being associated with a larger shadow economy. Quadrant 9 traces the 45° line used to show the shadow economy on the *x* axis in quadrant 10, where the *y* axis represents the murder rate. Using that as a base, the negative relationship between crime and tariffs is sketched out in quadrant 11, which shows that, as tariffs are lowered, the crime rate tends to climb. In quadrant 12, it can be seen how the reduction in the number of companies is associated with a rising crime rate, while, in quadrant 13, it can be seen that a decrease in the number of good-quality jobs boosts the crime rate.

It could be argued that lower tariffs would help to boost a country's exports. However, with unilateral tariff rollbacks, there is no guarantee that the country in question will have access to other markets, given its limited supply of exportables and the absence of economies of scale, whereas its companies are having to compete with imports from countries where exporters are subsidized and where companies can take advantage of economies of scale. This is borne out by the evidence for Latin American countries, which indicates that trade liberalization has not led to an expansion of exports or economic growth (Pacheco-López and Thirlwall, 2007 and 2008). In addition, many of the workers who are displaced by imports may not be able to find other decent jobs and will tend to emigrate, to find some type of employment in the shadow economy or turn to crime to make a living.

V. Social exclusion and violence in Latin America

The Human Opportunity Index (HOI) is a good indicator to use for gauging social exclusion. It is used by the World Bank (Molinas and others, 2011) to measure the extent to which the children in a given country have access to drinking water, electricity, sanitation, education and housing and the opportunity to finish sixth grade by the expected age of completion, regardless of their parents' income and regardless of where they live. Thus, the HOI is used to measure the degree of equality of opportunity on a scale that goes from 0 to 1, with 0 representing absolute inequality and 1 being equivalent to full equality of opportunity. This indicator serves as a yardstick for the distribution of social services within a country by income level; in other words, it measures the concentration of public social services by geographic area (urban/rural) and by income distribution.

Use can be made of the 2012 statistics on murder rates per 100,000 persons compiled by the United Nations Office on Drugs and Crime (UNODC) and the 2008 HOI ratings published by the World Bank in order to determine whether there is an association between equality of opportunity and the murder rate. A comparison made using a sample of 16 Latin American countries yields a negative relationship between the two (see figure 8): countries with low HOI ratings, such as El Salvador, Guatemala and Honduras, have high murder rates, whereas countries with high HOI ratings, such as Argentina, Chile, Costa Rica and Uruguay, have low murder rates.

Figure 8
The Human Opportunity Index and murder rates
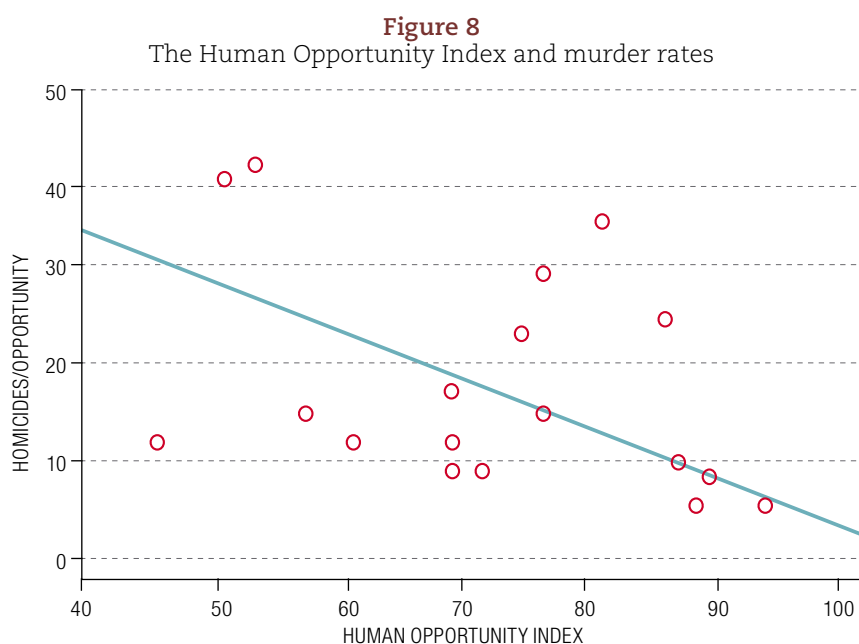
Cáceres and Cáceres (2017b) report that their results for a sample of Latin American countries point to a positive association between the HOI and labour productivity. The productivity gains associated with greater equality of opportunity drive up wages and thus reduce violence and poverty rates. This, in turn, further increases productivity, thereby creating a virtuous cycle. Evidence has been compiled in the United States that social mobility, which is a reflection of the presence of equality of opportunity, increases as the quality of primary schools, social capital and family stability increases and residential segregation and inequality of income distribution decreases (Chetty and others, 2014).[10]

The size of the informal economy can also be used as a yardstick for measuring social exclusion. For a sample of 10 Latin American countries, figure 9 traces the association between the 2012 rates of homicides per 100,000 persons and the 2007 share of GDP represented by the shadow economy (using data from Buehn and Schneider, 2012). As illustrated in the figure, as the size of the shadow economy grows, the murder rate rises.

The correlation seen in Latin American countries between self-employment (i.e. the shadow economy) and the murder rate fits in with Wilson's theory that social exclusion leads to anti-social behaviour. Since the role played by deindustrialization in increasing self-employment (i.e. the informal economy) has already been demonstrated in the equations shown in table 2, these results establish a link between deindustrialization and violence.

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[10] In short, these authors state that areas of high social mobility have: (i) less residential segregation; (ii) a less unequal income distribution; (iii) better elementary schools; (iv) more social capital; and (v) more stable family structures (p. 1554).

Figure 9
Size of the informaleconomy and murder rates
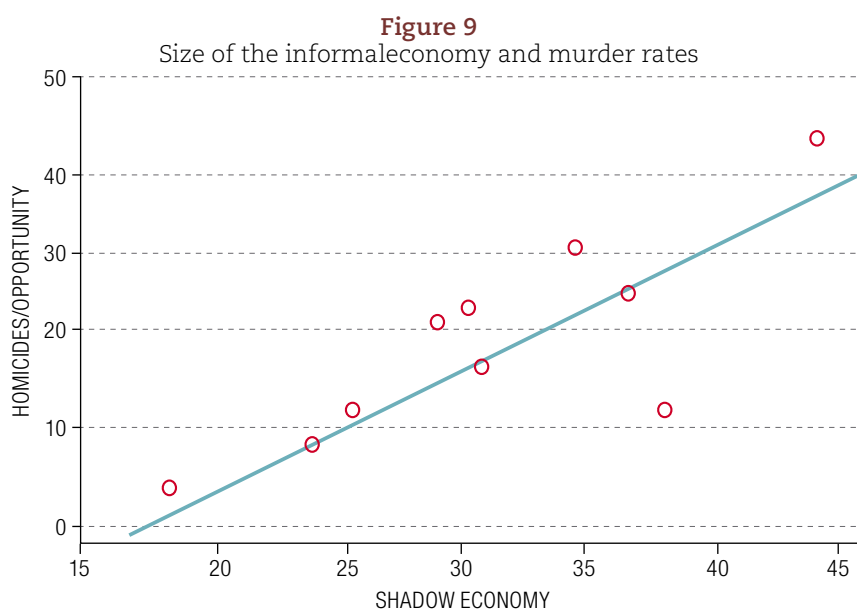
Source: Prepared by the author.

1. Estimation of cointegration equations for identifying determinants of the murder rate in Latin American countries

Table 8 shows the results of the estimation of various equations in which the dependent variable is the murder rate (number of homicides per 100,000 persons) in 2012 and various independent variables are used. The estimates include a qualitative variable, Quali1, that takes a value of 1 when a country has a murder rate lower than or equal to 20 per 100,000 and a value of 0 when the murder rate is above 20 per 100,000. Another qualitative variable, Quali2, has a value of 1 when the murder rate is for Honduras and a value of 0 otherwise.

Table 8
Determinants of the murder rate
(Dependent variable: murder rate)

Independent variables	Equation number:			
	(1)	(2)	(3)	(4)
Constant	25.1749	3.4338	28.4221	47.9468
		(3.43)	(4.71)	(21.92)
QUALI1	-17.0631			-18.1928
	(11.83)			(9.31)
QUALI2		70.0700		
		(5.85)		
REMITT	0.8416			
	(6.65)			
TAX2012		-	0.7027	
		(1.65)		
TAX1870			-2.2487	
			(1.90)	
HOI				-0.2580
				(4.69)
R-squared	0.75	0.76	0.28	0.86

Table 8 (concluded)

Independent variables	Equation number:			
	(5)	(6)	(7)	(8)
Constant	10.5328	23.0669	34.8962	35.4566
	(9.23)	(7.14)	(9.91)	(8.98)
QUALI1	-18.8875	-18.2332	-18.3068	-18.2914
	(3.41)	(10.81)	(10.02)	(10.95)
Female self-employment	0.1403			
	(2.53)			
Male self-employment		0.1385		
		(1.96)		
Female quality employment			-0.1085	
			(1.88)	
Male quality employment				-0.11411
				(1.72)
R-squared	0.78	0.74	0.75	0.72

Source: Prepared by the author.

In equation (1), the coefficient for remittances as a percentage of GDP, Remitt, is positive and significant and the R2 is 0.75. This makes it clear that remittances represent a shortage of good-quality jobs and the existence of an insufficient social safety net –two factors that spur emigration and, hence, remittances.

In equation (2), the coefficient for the ratio of tax revenues to GDP in 2012 (TAX2012) is negative and significant at 11%, which means that the greater the tax burden in a Latin American country, the lower its murder rate will be. This suggests that, since a higher level of tax receipts will enable the government to raise the level of social spending, the end result will be a more highly educated population and more good-quality jobs, which will provide employment options for people that are more attractive than engaging in violent behaviour.

In equation (3), the 2012 murder rate is expressed in terms of the per capita taxes paid in the year 1870 in 11 Latin American countries, using data from Sokoloff and Zolt (2004). This variable has a negative and significant coefficient, with the equation explaining 28%of the murder rate. This indicates that the level of violence existing today can be viewed as a legacy of the past, inasmuch as it is a reflection of the effects of a historically low level of social investment that was associated with a low level of tax revenues. In other words, the consequences of low tax rates have been perpetuated over time, as they reflect the historical inequality characteristic of the region, which has generated a cycle of low tax rates, low levels of social spending and violence.

In equation (4), the HOI coefficient is negative and significant, and the R2 is 0.86 —the highest value of any of the equations. This result shows that equality of opportunity plays an important role in the reduction of violence in Latin American countries.

In equations (5) and (6), the coefficients for the female and male self-employment rates are positive and significant and the values of R2 in these equations are high (0.78 and 0.74), which provides evidence of an association between self-employment (i.e. employment in the informal sector) and violence.

In equation (7), the coefficient for the quality employment rate for women is negative and significant. However, in equation (8), the coefficient for the quality employment rate for men is negative but only marginally significant. This suggests that women who have good-quality jobs have a "pacification" effect that is not seen among their male counterparts. The explanation for this effect may lie in the observation, which is backed up by documentary evidence, that, when a woman has a good income, all the members of her household benefit, which does not occur in the case of men (World Bank, 2011). The irony of this situation is that, in most Latin American countries, fewer women than men have good-quality jobs. If there

were gender equity in terms of access to good, well-paid jobs, crime levels could be expected to decline as a result of the "internalities" associated with women's propensity to share. A recent study on Mexico reports that women workers in the manufacturing sector have a greater share of decision-making power in the household than they would otherwise have and, when the number of such women increases, children benefit (Majlesi, 2016).[11] Mention should be made here of the study done by Klasen (1999), who found evidence that gender disparities in education and employment depress the economic growth rate.[12]

It would be easier for women to secure good-quality jobs if childcare centres were designed and established where children could receive early developmental support. This would also help women (especially single mothers) to continue their education, which would eventually help them to obtain good-quality jobs. It would also lead to an increase in the female labour force participation rate, which, as shown by Van Ewijk and others (2006), would help to narrow the fiscal deficit.

The foregoing suggests that raising social spending levels with a view to attaining greater equality of opportunity would be an investment of pivotal importance in the reduction of violence. This could be an investment that pays for itself, given the evidence that social mobility helps to boost economic growth and, hence, tax revenues (Molina, Narayan and Saavedra-Chanduvi, 2013).

2.   Determinants of self-employment and quality employment

Given how significant a role quality employment and self-employment rates play in determining the level of violence in a society, it is important to identify the variables that influence these rates. Table 9 shows the results of the corresponding computations when the independent variable is the per capita level of social expenditure (ECLAC, 2011). In equations (1) and (2), the dependent variables are the self-employment rates for women and men, respectively. As shown in the table, the coefficients for the per capita levels of social spending are negative and significant, and R^2 is 0.54 and 0.61, respectively. In equations (3) and (4), the dependent variables are the quality employment rates for women and men, and, in these equations, the coefficients for per capita social spending are positive and significant, while R^2 is 0.67 and 0.60, respectively. Since quality employment rises and self-employment falls as per capita social expenditure increases, it can be deduced that social spending is a "weapon" for fighting crime.

Table 9
Determinants of quality employment

Independent variables	Dependent variable:			
	Self-employment		Quality employment	
	Women	Men	Women	Men
	Equation number:			
	(1)	(2)	(3)	(4)
Constant	56.9588	55.0328	39.3271	43.7550
	(12.51)	(25.41)	(13.72)	(16.80)
Social expenditure per capita	-0.0332	-0.0254	0.0361	0.0264
	(6.14)	(7.28)	(7.81)	(6.28)
R-squared	0.54	0.61	0.67	0.60

Source: Prepared by the author.

[11] This author concludes that, as the relative demand for female labour rises, women gain greater decision-making power regarding their own services and private assets, such as their labour status and the parents' incomes, as well as gaining greater bargaining power in respect of some public goods.

[12] This author states that gender inequality curbs economic growth both directly, by distorting incentives, and indirectly, by influencing population growth and investment. The extent of these effects is considerable. If South Asia and Sub-Saharan Africa had had more gender-equal levels of educational attainment in 1960 and had done more to promote the expansion of education based on gender equality, these economies' growth rates could have been as much as 0.9% higher per year than they have been (p. 23).

3.   Inequality, taxation and violence

Low taxation rates in El Salvador impede increases in social spending. As a percentage of GDP, tax rates are four percentage points lower than they would need to be in order to be aligned with the rates seen in other Latin American countries that are of a similar level of development (Gómez-Sabaini, 2006; Sen Gupta, 2007).

A number of recent studies have looked at the reasons why tax rates are so low in some Latin American countries. Cárdenas and Tuzemen (2010) and Cárdenas (2010) have found evidence that indicates that, in Latin America, the capacity of the State is greater in countries where there is less inequality. These authors define the capacity of the State in terms of tax collection as a percentage of GDP and an index that measures the capacity of the government bureaucracy to formulate and implement public policies.[13] They have also estimated equations that explain these indicators; their results suggest that the unequal distribution of income and political power has a negative impact on State capacity indicators and hence on the ability to mobilize tax revenues.

Ardanaz and Scartascini (2011) have found that the low tax rates on personal income in the countries of Latin America are accounted for by the overrepresentation in their legislatures of districts populated by high-income groups. Accordingly, attempts to raise income taxes run up against strong opposition.[14] These authors also found evidence which indicates that this type of political overrepresentation has been made possible, in part, by the unequal distribution of income.

Inequality in income distribution feeds into inequality in the distribution of political power, which in turn has an impact on institutional capacity. A study by the Inter-American Development Bank (IDB) (Scartascini and Tommasi, 2009) uses a model in which the unequal distribution of political power promotes a "policy" of favouritism that generates instability and weakens State institutions. The authors add that if the population perceives the political system as an instrument for protecting privileges and granting favours, some segments of the population will adopt other forms of political expression, such as anti-government demonstrations, strikes, disturbances, political assassinations, guerilla warfare and government crises (p. 26).[15]

Therefore, the greater the degree of inequality in income distribution, the greater the level of violence in a given country. The correlation between the inequality of income distribution —represented by the result of dividing the income of the fifth quintile by the income of the first quintile (Q5Q1)— and the murder rate shows that inequality is closely related to violence in the region (see figure 10). This may be attributable to the fact that, the greater the level of inequality, the greater opposition there will be to any increase in taxes. This makes it impossible to increase social spending, which in turn blocks human capital formation and the creation of good-quality jobs.[16] These links or tie-ins have been building up and growing stronger over time. Figure 11 illustrates the negative relationship existing between the tax rate (tax receipts as a percentage of GDP) in 1972 (TAX 1972) in a sample of 14 Latin American countries (World Bank, 1984) and the 2012 murder rate.

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[13] Indices that measure institutional capacity for public policy formulation are constructed and published by the National Resource Governance Institute and the Brookings Institution (see [online] www.govindicators.org).

[14] The press release issued by the Inter-American Development Bank (IDB) regarding this study states that: "Legislative malapportionment increases the weight of districts that favour the wealthy in the electoral process, giving them additional leverage in policymaking. As a result, they are better able to protect their interests and influence tax policy in their favour … The study also found that economic disparities are a significant driver of political representation bias: the level of legislative malapportionment is significantly higher in countries characterized by more unequal distributions of wealth and income" (IDB, 2011).

[15] Regarding the inequality existing in Latin American countries, Bértola (2011) asserts that a high concentration of power and wealth creates a situation in which it is easier for the elites to appropriate wealth and income and abuse the power that they hold, but this type of situation hinders human capital formation. An asymmetric distribution of income and wealth is likely to curb the accumulation of education and knowledge by a majority of the population and thus impede growth (p. 6).
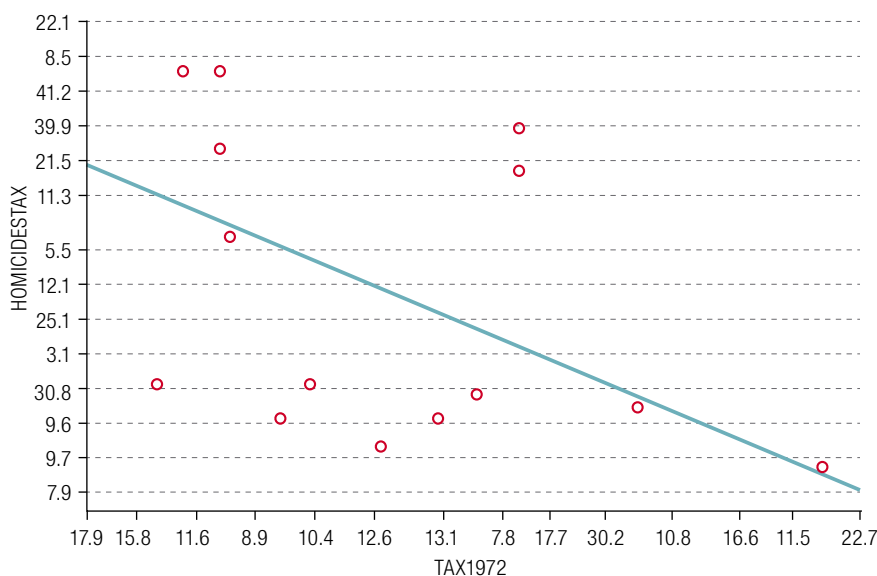
[16] The estimated equation is: SOCIALEXPPC = 1044.4750 − 35.3796Q5Q1 R2 = 0.21.

$$(3.60) \qquad (2.07)$$

Figure 10
Inequality in income distribution and murder rates
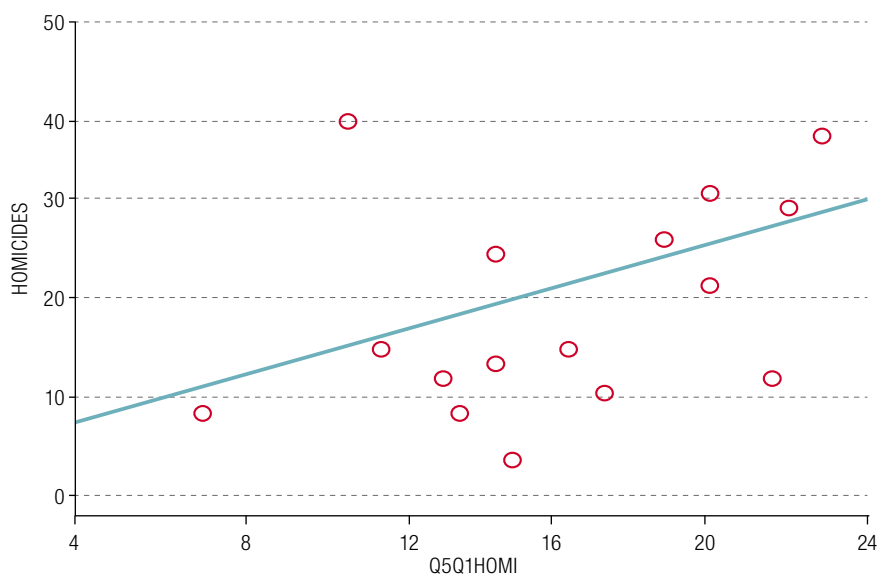
Source: Prepared by the author.

Figure 11
Tax rate in 1972 and murder rate in 2012

Source: Prepared by the author.

4. Gender and violence

The relationship between gender inequality and violence is an issue of particular importance. The panel data depicted in figures 12 and 13 point to the existence of negative relationships between the gender inequality index constructed by the United Nations Development Programme (UNDP, 2014) and the murder rates and female self-employment rates for a sample of Latin American countries. The gender inequality index measures the average differentials between women and men in three categories: reproductive health, the labour market and empowerment.

It may be seen from figure 12 that there is a positive association between gender inequality and violence. The explanation for this may lie in the positive relationship existing between gender inequality and the female self-employment rate, as shown in figure 13.

Figure 12
Gender inequality index and murder rates
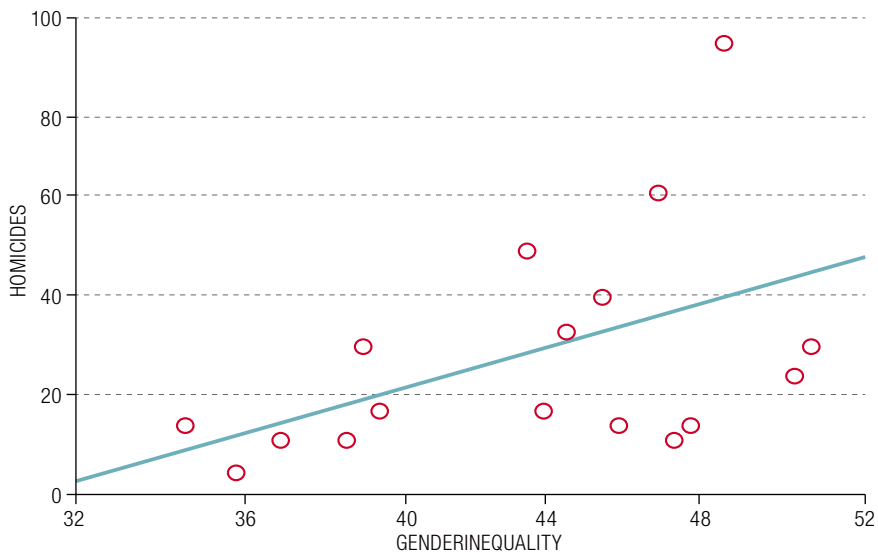
Source: Prepared by the author.

Figure 13
Gender inequality index and female self-employment rates
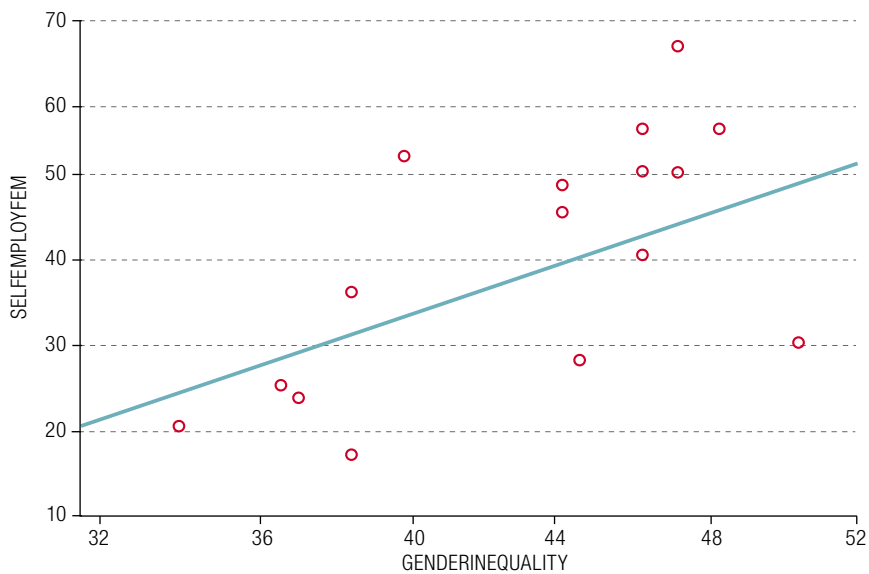
Source: Prepared by the author.

As the econometric results show, self-employment is positively associated with crime. Therefore, if gender inequality drives women to opt for self-employment, then it will also be a contributing factor in terms of the crime rate.

Table 10 shows the results for equations that express the murder rate in terms of the gender inequality index and remittances. These equations include two qualitative variables: QUALI1, which takes a value of 1 when the murder rate is above 20 per 100,000 persons and 0 otherwise; and QUALI2, which takes a value of 1 when the value corresponds to Honduras and a value of 0 otherwise.

Table 10
Gender inequality and the murder rate

Dependent variable	Murder rate	
Constant	-20.3307	36.9490
	(1.38)	(2.53)
QUALI1	20.8197	22.5727
	(5.85)	(7.07)
QUALI2	57.4158	53.7129
	(8.06)	(8.51)
Gender inequality	71.2805	103.4636
	(2.07)	(3.15)
Remittances		0.5402
		(2.00)
R-squared	0.88	0.94

Source: Prepared by the author.

Equation (1) shows that gender inequality (and the qualitative variables) account for 88% of the variance in murder rates in Latin America. In equation (2), the coefficient for remittances is positive and significant, which means that the combination of gender inequality and remittances (i.e. emigration, a lack of quality job opportunities) accounts for almost all the variance in the level of violence in the region. This implies that, in order for the level of violence in Latin American countries to be reduced, progress needs to be made towards gender equality.

The fertility rate among adolescents published by UNDP (2014) represents the number of births per 1,000 women between the ages of 15 and 19 years. The econometric relationships between murder rates and teenage fertility rates are shown in table 11. In equation (1), the fertility rate for adolescents explains 48% of the murder rate in Latin American countries and its coefficient is positive, but it is significant only at 11%. This means that the teenage pregnancy is not in itself a driver of crime, and it would therefore not be valid to associate crime with the absence of access to abortions or contraceptives.

Table 11
Murder rate, gender inequality and adolescent fertility rate

Dependent variable	Homicides	Gender inequality	Fertility rate for the adolescent population
Equation number	(1)	(2)	(3)
Constant	-3.7363	0.5212	-27.4887
	(0.45)	(13.28)	(0.64)
QUALI1	20.0761		
	(5.66)		
QUALI2	59.2307		
	(8.50)		
Fertility rate for adolescents	0.2000		
	(1.76)		
Rule of law		-0.0334	5.2957
		(3.16)	(0.94)
HOI		-0.0013	-0.2317
		(7.71)	(0.96)
Gender inequality			276.5893
			(3.56)
R-squared	0.48	0.51	0.48

Source: Prepared by the author.

In equation (2), the dependent variable is the gender inequality index, and the coefficient for the HOI is negative and significant, even when the variable for the prevalence of the rule of law, whose coefficient is also significant and negative, is included in the equation. This indicates that the gender inequality index reflects the access barriers to social services that girls are confronted with, along with the weakness of national institutions. The R2 in this equation is only 0.51, which indicates that gender inequality is more than simply a reflection of unequal access to social services and a weak institutional structure and that it may be associated with "cultural practices" involving abuse, impunity, arbitrariness and oppression.

Equation (3) is particularly important. Its dependent variable is the fertility rate among adolescents, and it shows that the coefficients for the HOI and the rule of law are not significant. Interestingly, the coefficient for gender inequality is significant, while access to social service and the existence of weak institutions are not. This would appear to indicate that the fertility rate among adolescents reflects the arbitrariness, violence and abuse associated with gender inequality, which may be present even in a country with sound institutions and good social service coverage. Figure 14 traces the close association between gender inequality and teenage pregnancy, while figure 15 depicts the positive association between female self-employment rates and fertility rates for adolescents.

Figure 14
Gender inequality index and adolescent fertility rates

Source: Prepared by the author.

There does not appear to be any correlation between remittances and fertility rates among adolescents, as is apparent from a reading of figure 16. On the basis of this evidence, therefore, it cannot be argued that emigration is a determinant of teenage pregnancy.[17]

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[17] The estimated equation is: teenage pregnancy = 7.5386 + 0.5663
Remittances   (16.07)   (0.97)   R2 = 0.05

Figure 15
Female self-employment and adolescent fertility rates

Source: Prepared by the author.

Figure 16
Remittances and adolescent fertility rates
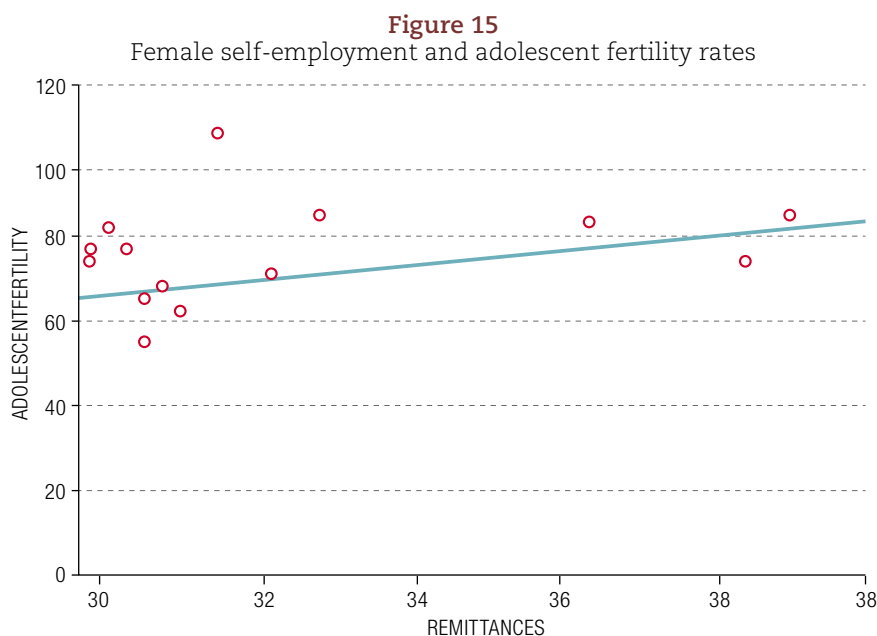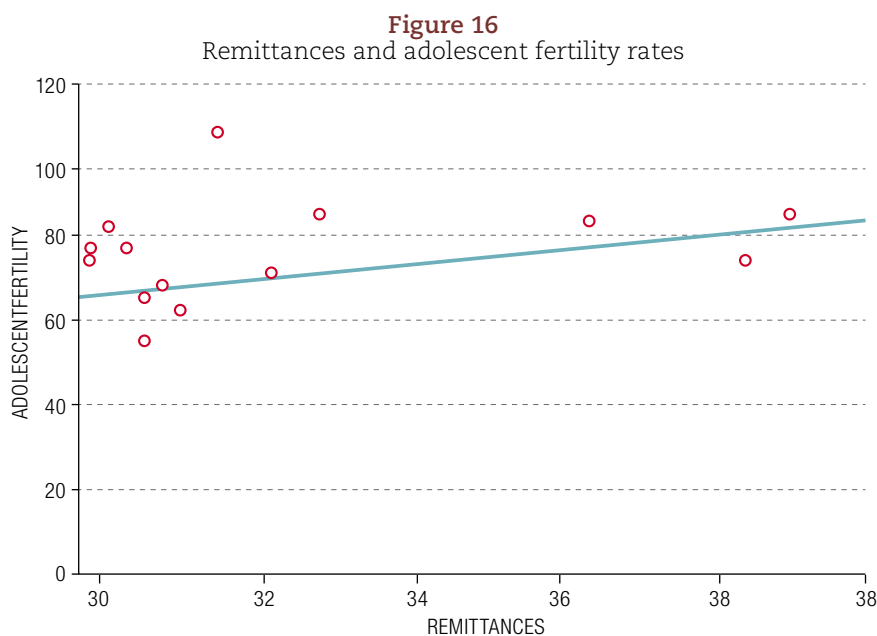
Source: Prepared by the author.

VI. Conclusions

The results presented here indicate that the extreme openness of the Salvadoran economy and the ensuing deindustrialization process have had perverse effects on the labour market in terms of both rising levels of self-employment and part-time employment and declining levels of employment in good-quality jobs. These repercussions have translated into productivity losses which are reflected in flagging aggregate demand and slower economic growth. These factors, in turn, set off another spate of deindustrialization. In other words, extreme trade liberalization sets in motion a self-sustaining process that creates a deindustrialization trap and, as a result, a persistent trend towards stagnation and self-employment.

These findings point to the need to promote a reindustrialization process and to roll back the extreme openness of the economy while assigning a high priority to regional integration and to the promotion of human capital formation as a platform for national development. After various decades of extreme openness that has failed to yield tangible benefits, it is imperative that economic policy change its course and plot a new one that is grounded in the history of today's developed countries, which achieved their developed status by opting for protection, regulation and solid support for human development. It is illusory to believe that the country can become developed while ignoring the social gaps that exist. According to Easterlin (1981), the history of economic development shows us that social development precedes rapid economic development. In fact, he presents historical evidence that rapid economic development only begins to occur once a society has accorded as much priority to education as it does to religion.

The results show that an unequal income distribution impedes any increase in tax receipts and therefore puts a ceiling on social spending, thereby blocking efforts to address social gaps in any effective way. This kind of situation engenders violence, as is reflected in the correlation between inequality and violence that is illustrated in figure 12. As has been shown by a number of different authors (World Bank, 2011), violence holds back economic growth, which in turn reduces tax receipts, setting off another round of declining social spending and the consequent upswing in violence and so on in a vicious cycle of low taxation.

Social exclusion is not the only cause of violence, but it is an important one: the regression equations show that underemployment accounts for 60% of the variance in the murder rate in Latin America, while the HOI explains 70%. The results obtained here provide evidence that the manifestations of social exclusion may account for a large part of the violence occurring in these countries.[18] The violence committed by youth gangs cannot be discounted, but the fact remains that the highest murder rates in the region and the areas in which gang violence is expanding the most are found in countries where the tax rates, social spending levels and the HOI ratings are the lowest and where the shadow economy is the largest and self-employment rates the highest. What is more, gang violence may also be viewed from the standpoint of social exclusion, in line with the work done by Wilson (1987).

Crutchfield (1989) and Crutchfied and Pitchford (1997) have presented evidence that parents who are unemployed or underemployed are generally less likely to emphasize the importance of doing well at school to their children, who, as they witness the difficult situation in which their parents find themselves, are inclined to criticize the established order and to refuse to abide by the rules of the game, since they see their families as being second-class members of society and feel that the same fate awaits them. This state of affairs can give rise to a critical mass of people who feel that they have little to lose by entering into a life of violence. All of this suggests that, in the absence of an ambitious development policy that provides for a substantial increase in social expenditure, it will be unlikely that the violence in these societies can be curbed.

Historically, tax revenues have been too meagre to allow the population of El Salvador to attain the levels of human capital formation needed to spur the creation of good-quality jobs, boost productivity or, in more general terms, promote development.[19]

In some countries of the region, the reluctance to raise taxes and increase social spending may be bolstered by the view that poor people or persons belonging to certain ethnic groups are not responsible enough to lead their lives in a way that would permit them to acquire social public goods. There is also a misconception that poor people are likely to take decisions that do not help them to lift

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[18] There is evidence that, in the United States, the suicide rate among African Americans is higher in those areas where income and employment inequalities are the sharpest (Burr, Hartman and Matteson, 1999).

[19] It suffices to note that, according to data provided by Barro-Lee (n/d), the average number of years of education completed by the population in 1950 –a full 130 years after independence– was one year.

themselves out of poverty. This line of thinking fails to take into account the evidence that shows that poverty is, in large part, a function of the economic status of a person's parents; poverty is transmitted from one generation to the next because persons with very limited resources cannot provide their offspring with the education or health support required in order for them to position themselves in the workforce advantageously (Cunha and Heckman, 2009; Currie, 2009).

The imperative need for redistributive measures in order to reduce inequality is underscored by the evidence that an unequal distribution of income and political power makes it possible for some groups to block attempts to raise taxes and undermines both the State's tax collection and policymaking capacity —thereby preventing the expansion of social services and thus fueling violence. In one study on Latin American countries, González and Martner (2012) demonstrate that inequality declines when there are increases in social expenditure and public investment, pensions, public spending on education, secondary education enrolment rates and direct taxes. This indicates that raising tax rates and social spending can give rise to a more equitable economy, society and political process, thereby helping to shield large segments of the population from the cruel fate that has been theirs for generation after generation.

A World Bank study (2011) found that a 10% reduction in homicides in El Salvador would translate into an additional 1% increase in the economic growth rate. This shows that the fiscal effort required to address the problems faced by the country in the areas of security and human development could pay for itself, since the expansion of the country's economy would give rise to the creation of new good-quality jobs, along with higher sales and profits for its businesses.

A fiscal compact therefore needs to be achieved on the basis of agreements regarding the additional fiscal effort that is needed, the allocation of the increased tax receipts and a reduction in unnecessary public expenditure. The additional tax revenues should be channeled into substantial increases in spending on safety and security, rural physical infrastructure and the country's rural schools, along with emergency job creation programmes. A substantial improvement in the quality of education is also imperative; the evidence shows that students in secondary schools of acknowledged quality were 50% less likely to become involved in crime than those who attended schools that were not highly ranked (Deming, 2011). It is therefore extremely important to build a sound preschool system in all parts of the country, as numerous studies have demonstrated that preschool education is a highly valuable means of enhancing children's cognitive abilities and thus of putting them on a path for obtaining good jobs and higher wages when they reach adulthood and enter the labour market (Chetty and others, 2011). The establishment of a nationwide network of childcare centres should also figure as part of this effort.

The above is not intended to be a "shopping list". It is the least of what should have been done decades ago to stave off the current wave of violence. It is not only a dream; it underlies a conviction that El Salvador can have a brighter future, that the women and men of the country deserve to live in prosperity and dignity and that the bloodshed can be stopped.

Because every life is important.

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Annex A1

Table A1.1
Unit root tests

Variable	ADF statistic
AGRIC	1.8690
MANU	2.2036
AGRIC+MANU	1.9504
REMY	2.1962
GDPGROWTH	3.5353
EXPCAY	3.1041
SEMPFEMALE	3.5900
SEMPMALE	4.4362
QUALITYWFEMALE	4.0768
QUALITYMLE	3.9318
TIEMPOPARCIALFEMALE	1.2115
TIEMPOPARCIALMALE	1.2408
ARANCELPROMEDIO	1.4525
GENERALINDEX	1.4558
HOMICIDES	3.0399
RULELAW	3.5832
GENDERINEQUALITY	2.1483
GASTOSOCIAL	2.7822
REMITT	1.6296
Adolesfertility	1.7712
IOH	1.0271

Source: Prepared by the author.