



# EL SALVADOR

## SELECTED ISSUES

June 2018

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# EL SALVADOR

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## SELECTED ISSUES

Approved by  
**Western Hemisphere  
Department**

Prepared by Nitya Aasaavari, Fabio Di Vittorio, Rahul Giri,  
Ana Lariau, Bogdan Lissovlik, and Iulia Teodoru.

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# HIGH-FREQUENCY MONITORING OF THE SALVADORIAN ECONOMY<sup>1</sup>

*Quarterly GDP statistics in El Salvador are released by the Central Bank with a 3-month delay. This note proposes a simple nowcast model for an early assessment of the Salvadorian economy. The exercise is based on a bridge model, which exploits information for the period 2005-2017 from a large set of variables that are published earlier and at higher frequency than the variable of interest, in this case quarterly GDP. The estimated GDP growth rate in the 4<sup>th</sup> quarter of 2017, is 2.4 percent y/y, leading to an average GDP growth rate of 2.3 percent in 2017. This is in line with the GDP growth implied by the official statistics released two months later, in March 23, 2018.*

## A. Introduction

1. **The publication lag of crucial macroeconomic statistics requires the development of nowcast models to have an early estimate of economic conditions.** The nowcast provides an early indication of the current developments in economic activity, which allows to make a proper assessment of the economic stance before the official figures become available. In the case of El Salvador, national accounts are published with a 3-month delay. The basic principle of nowcasting is to exploit information that is published earlier and/or at higher frequency than the variable of interest, in this case quarterly GDP.
2. **The literature has proposed a variety of nowcasting methods.** The most prominent are autoregressive models, bridge equations, MIDAS regressions, vector autoregressive models (standard and with mixed frequencies), and the more sophisticated dynamic factors models. The different methodologies vary in the amount of high-frequency information used in the analysis, in the treatment of missing observation (particularly at the end of the sample period due to publication lags), and in the way the relationship between variables is modeled. Models that use monthly data generally outperform autoregressive models that are based only on quarterly data, and dynamic factor models produce more accurate nowcasts relative to the other model specifications (Liu, Matheson and Romeu, 2011). The simplicity of bridge and MIDAS equations reduces forecast accuracy relative to more sophisticated techniques, but facilitate the interpretation and communication of results. See Banbura et al. (2013) for a recent survey of nowcasting methods used in the literature.
3. **The Central Reserve Bank of El Salvador (BCR) has developed and is currently using a nowcast model based on Kalman filter techniques.** The methodology used by the institution was developed in 2009 as part of a cooperation agreement between ECLAC and the BCR, and updated in 2015 to include new high-frequency indicators. It is based on a dynamic factor model à la Stock and Watson (1991) as implemented by Camacho and Quiroz (2011). The BCR's nowcast model considers 17 indicators at monthly frequency: remittances, imports (excl. oil), cement consumption, U.S. monthly

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<sup>1</sup> Prepared by Ana Lariau.

retail trade, total exports, tax revenue deflated with CPI, total government expenditure deflated by CPI, electricity production, maritime ports freight, IVAE agriculture, IVAE total, ISSS contributors, index of activity in the construction sector (FUSADES), business confidence index (FUSADES), index of industrial production (FUSADES), index of sales in commerce (FUSADES), index of sales in services (FUSADES). This methodology, as implemented by the BCR, provides a coincident indicator and a short-term forecast for aggregate GDP, but not for its components. It is possible to determine the direction of the effect (positive/negative) of new data releases on the forecast. However, interpretation could be difficult and specific channels through which these effects occur cannot be disentangled. Also, many monthly indicators are more closely related to subcomponents of production than to aggregate GDP.

**4. The purpose of this exercise is to develop a nowcasting tool with a disaggregated approach, which would complement the one already in use at the BCR.** Although the direct forecast of aggregate GDP has been the dominant approach, a more disaggregated analysis, e.g. at the sectoral level, could facilitate interpretation and explanation of economic developments, as well as communication of the results. While higher disaggregation does not necessarily lead to better forecasting ability (Drechsel and Scheufele, 2018), it makes interpretation and communication easier, particularly in policy-related environments. It provides background information on the drivers of changes in the GDP forecast. The purpose of this exercise is to develop a nowcasting tool with a disaggregated approach, which would complement the one already in use at the BCR. The methodology selected in this case is a bottom-up bridge model from the production side. Several studies have resorted to this methodology in the literature. For example, Cors and Kouzine (2003) and Drechsel and Scheufele (2018) for Germany; Barhoumi et al (2008) for France; Hahn and Skudelny (2008) for the Euro area.

**5. This note is organized as follows.** Section B describes the data used for the analysis. Section C provides details on the bridge model and its implementation in the case of El Salvador. Section D reports the results and main findings. Section E concludes and outlines directions in which the findings from this exercise could be refined and improved.

## B. Data Description

**6. The first step in the nowcasting exercise is to collect a large set of high-frequency variables (see details in Table A.1 in the Appendix), available at monthly frequency over the period 2005-2017.** The time span of the dataset is limited by data availability. While many high frequency indicators are available for longer periods, the revised national accounts and the monthly economic activity indicator are only available starting from 2005 (previous years are inconsistent due to a change in the sources and methodology to collect and compile the data). The dataset covers all the different sectors in the economy: real sector, monetary and financial sector, external sector, indicators of expectations of local firms, and indicators for the U.S. economy. It combines both “hard” indicators, such as standard macroeconomic variables of economic activity, employment, trade and government finances, as well as “soft” indicators like the FUSADES enterprise survey.

Financial variables, which are available at very high frequency, are also considered.<sup>2</sup> Given the strong ties between el Salvador and the U.S., with empirical evidence supporting the synchronization of their business cycles and spillover effects (Roache, 2008), variables that capture U.S. economic activity are included as well.<sup>3</sup>

**7. The nature of the methodology used implies that only a reduced subset of explanatory variables from the large dataset of high-frequency indicators is considered for the analysis.**

The initial criteria to select variables from the comprehensive database is economic judgement as well as statistical testing procedures, rather than causal relationships. All possible variables at monthly frequency that could, at least theoretically, directly or indirectly affect the different supply components of GDP are considered and incorporated in the first round of regressions. Based on the results of this initial estimation, only the variables that showed a high explanatory power and a statistically significant relationship with the supply components of GDP are the ones that survive the selection process. This restricts the dataset only to a subgroup of variables that is detailed in Table 1.

**8. The analysis is done with annual growth rates.** Variables expressed in U.S. dollars are deflated using the CPI or the PPI (trade variables). When needed, monthly series are averaged up to the quarter. Seasonal adjustment is not needed since the analysis is based on annual growth rates. Growth rates are computed as the first difference of the logged variables relative to same month in the previous year. While quarterly and monthly growth rates would better capture the *momentum*, they are highly volatile, which makes it harder to establish statistically significant relationships between variables. Annual growth rates also address the drawbacks of standard techniques to remove seasonality and the effects of unit roots. First differences rather than growth rates are calculated in the case of unemployment rates, interest rates, and survey indicators.

## C. Methodology

**9. A supply-side bridge model is used to nowcast El Salvador's GDP growth.** This method is based on linear regressions that link a reduced number of high frequency indicators to the lower-frequency variable of interest, in this case the growth rate of quarterly GDP. Based on a bottom-up approach from the production side, GDP growth is nowcasted as the weighted sum of the nowcasted growth rates of the sectoral GDP in the quarterly national accounts, where the weights are the shares of each sector in the economy. The sectors considered, with their respective shares in parenthesis, are: agriculture, farming forestry and fishing (6 percent); construction (6 percent); manufacturing and mining (17 percent); electricity, gas and water supply (4 percent); transportation

<sup>2</sup> Banbura et al. (2013), find that financial variables have been proven to be not effective in improving the precision of short-term forecasts of GDP. However, they are the ones published at the highest frequency and with almost no delay, which are valuable features for nowcasting.

<sup>3</sup> The use of foreign indicators is a practice rarely found in the nowcasting literature. However, the strong ties of the U.S and the Salvadorian economies suggests that a forecasting model for El Salvador should consider the relationship with the U.S. This idea is developed by Caruso (2018), who proposes an econometric nowcasting model for the Mexican GDP that incorporates U.S. indicators.

**Table 1. El Salvador: Variables Used for Nowcasting the GDP Growth:  
Each Supply Component of GDP**

<b>Sector</b>	<b>Variable</b>	<b>Publication Delay</b>
Agriculture, Hunting, Forestry & Fishing	IVAE_A	2 months
	IMP_INT_A	1 month
Construction	IVAE_CONS	2 months
Manufacturing Industry and Mining	IVAE_IP	2 months
	ISSS_IP	2 months
	IMP_INT_MAN	1 month
Electricity, Gas and Water	PROENER	3 months
	IVAE_IP	2 months
Transportation and Storage	TCRGPOR	3 months
	IMP_K_TRAN	1 month
Commerce	IVAE_CTRH	2 months
	TAX_VAT	1 month
	ISSS_CTRHIC	2 months
	DECOMEMPL	1 month
Hotels and Restaurants	IVAE_CTRH	2 months
	ENTPSAJ	3 months
	TAX_VAT	1 month
	ISSS_CTRHIC	2 months
Information and Communication	IVAE_IC	2 months
Financial Services and Insurance	IVAE_FS	2 months
Real Estate	IVAE_RE	2 months
Government and Social Services	IVAE_GSS	2 months
Other Services	ISSS_PUB	2 months
	IVAE_OS	2 months



and storage (5 percent); information and communication (4 percent); commerce (14 percent); hotels and restaurants (3 percent); financial services and insurance (7 percent); real estate (8 percent); government and social services (17 percent); and other services (10 percent). The demand components could also be used to nowcast GDP growth in El Salvador. However, when this project started, the national accounts only had disaggregation of the supply side, but not of the demand side. With the release of the revised national accounts on March 23, 2018, which includes the disaggregation of GDP by demand component, this is now possible and it is the next natural step.

**10. The bridge model establishes a linear relationship between the growth rate of each supply component of GDP and the high-frequency indicators used as predictors.** Denote by  $\Delta GDP_q^j$  the annual growth rate in quarter  $q$  of component  $j$  of GDP, and by  $\Delta X_q^{ij}$  the annual growth rate in quarter  $q$  of the high frequency indicator  $i$  – aggregated to quarterly frequency – that is related to the component  $j$  of GDP. The nowcast of the growth rate of each supply component  $j$  is obtained by estimating the following regression. The specification of  $X_q^{ij}$  is different depending on whether the regressor is a flow variable, a rate or an index, or a stock variable. Denote by  $x_m^{ij}$  the observation as of

$$\Delta GDP_q^j = \alpha + \beta \times \Delta GDP_{q-1}^j + \sum_i \theta^i \times \Delta X_q^{ij} + \epsilon_q^j. \quad (1)$$

month  $m$  of the high frequency indicator  $i$  that is related to the component  $j$  of GDP. Then:

- *Flow variables* (e.g. imports, exports, tax revenue, production of energy):  $X_q^{ij}$  is the aggregate level of variable  $i$  in quarter  $q$ , i.e. the sum of the observations in the three months of quarter  $q$ :
- *Rates and indices* (e.g. IVAE, interest rates, indicators of expectations of local firms):  $X_q^{ij}$  is the

$$X_q^{ij} = \sum_{m=1}^3 x_m^{ij}.$$

average of variable  $i$  in quarter  $q$ , i.e. the average of the observations in the three months of quarter  $q$ :

$$X_q^{ij} = \frac{1}{3} \sum_{m=1}^3 x_m^{ij}.$$

- *Stock variables* (e.g. credit, number of contributors to social security):  $X_q^{ij}$  is the value of variable  $i$  at the end of quarter  $q$ , i.e. the value in the third month of quarter  $q$ :

$$X_q^{ij} = x_3^{ij}.$$

The equations for each sector of the economy are estimated by OLS using quarterly historical data for the period 2005-2014. Data for the period 2015-2017 is used to evaluate out-of-sample predictions.

Reference Month	Publication Delay		
	1 Month	2 Month	3 Month
October, 2017			
November, 2017	October, 2017		
December, 2017	November, 2017	October, 2017	
January, 2018	December, 2017	November, 2017	October, 2017
February, 2018		December, 2017	November, 2017
March, 2018			December, 2017

**11. Data arrives in a non-synchronous manner, thus leading to successive updates of the nowcast throughout the quarter.** The high frequency indicators used as regressors in the bridge equations may be published with a 1-, 2- or 3-month delay. For illustration purposes, consider the last quarter of 2017, as shown in Table 2. The October data point of variables that have a 1-month publication delay will only become available in November; of variables with a 2-month delay, in December; and of variables with a 3-month delay in January. The same occurs with the November and December data points. The methodology exploits these lags in the publication of information, and allows to successively update the nowcast when more information regarding a variable becomes available. For instance, the nowcast of 2017Q4 as of December 2017 is different from the nowcast as of November 2017 because: (i) it incorporates both the October and the November data for the variables with a 1-month publication delay (and not just the October data as in the November 2017 nowcast); (ii) it incorporates the October data for the variables with a 2-month publication delay, which was not available in the November 2017 nowcast.

**12. The nowcast is computed by applying the coefficients estimated with the historical data to the new data releases.** For illustration, consider the nowcast of the growth rate of GDP in sector  $j$  in the last quarter of 2017 ( $\Delta \overline{GDP}_{2017Q4}^j$ ). Denote by  $\hat{\alpha}$ ,  $\hat{\beta}$  and  $\hat{\Theta}^i$  the estimated coefficients of Equation (1). Given the non-synchronous arrival of data, the nowcast changes throughout the quarter as additional information becomes available. The nowcast with data as of October, which becomes available after October 2017 given the publication delays, is computed as:

Similarly, the nowcast with data as of November 2017 is computed as:

$$\Delta \widehat{GDP}_{2017Q4}^j = \hat{\alpha} + \hat{\beta} \times \Delta GDP_{2017Q3}^j + \sum_i \hat{\Theta}^i \left[ \frac{x_{2017m10}^{ij}}{x_{2016m10}^{ij}} - 1 \right]. \quad (4)$$

$$\Delta \widehat{GDP}_{2017Q4}^j = \hat{\alpha} + \hat{\beta} \times \Delta GDP_{2017Q3}^j + \sum_i \hat{\Theta}^i \left[ \frac{x_{2017m10}^{ij} + x_{2017m11}^{ij}}{x_{2016m10}^{ij} + x_{2016m11}^{ij}} - 1 \right]. \quad (3)$$

Finally, the nowcast with data as of December 2017 is computed as:

$$\Delta \widehat{GDP}_{2017Q4}^j = \hat{\alpha} + \hat{\beta} \times \Delta GDP_{2017Q3}^j + \sum_i \hat{\Theta}^i \left[ \frac{x_{2017m10}^{ij} + x_{2017m11}^{ij} + x_{2017m12}^{ij}}{x_{2016m10}^{ij} + x_{2016m11}^{ij} + x_{2016m12}^{ij}} - 1 \right]. \quad (2)$$

The calculations in equations (2)-(4) assume that all dependent variables are flow variables. If a dependent variable is an index, then the growth rate in brackets in equations (2)-(4) is computed with averages rather than sums. If a dependent variable is a rate, then the difference (rather than the growth rate) is computed, based on averages and not sums. If a regressor is a stock variable, its growth rate is calculated with the last data point available rather than with sums or averages.<sup>4</sup>

### 13. The fit of out-of-sample estimates is good, partly reflecting the consistency between the quarterly national accounts and the monthly economic activity indicator whenever used.

The out-of-sample nowcasts for each sector over the period 2015Q1-2017Q3 are shown in the shaded areas of Figure 1. There are sectors, such as Electricity Gas and Water, Transportation and Storage, and Hotel and Restaurants, for which the fit could be improved. These sectors do not have a disaggregated monthly activity indicator (it is just pooled with the one of other sectors); if more variables relevant for these sectors were available at high frequency and with shorter publication delays, the fit and predictions for these sectors could be improved.

## D. Results

14. **GDP growth in 2017Q4 is nowcasted at 2.4 percent.** Consequently, given the actual values for Q1-Q3, the nowcasted GDP growth for 2017 with data as of January 31<sup>st</sup>, 2018, stands at 2.3 percent, as shown in Table 3. This result is consistent with the actual GDP growth displayed by the revised statistics published on March 23, 2018.

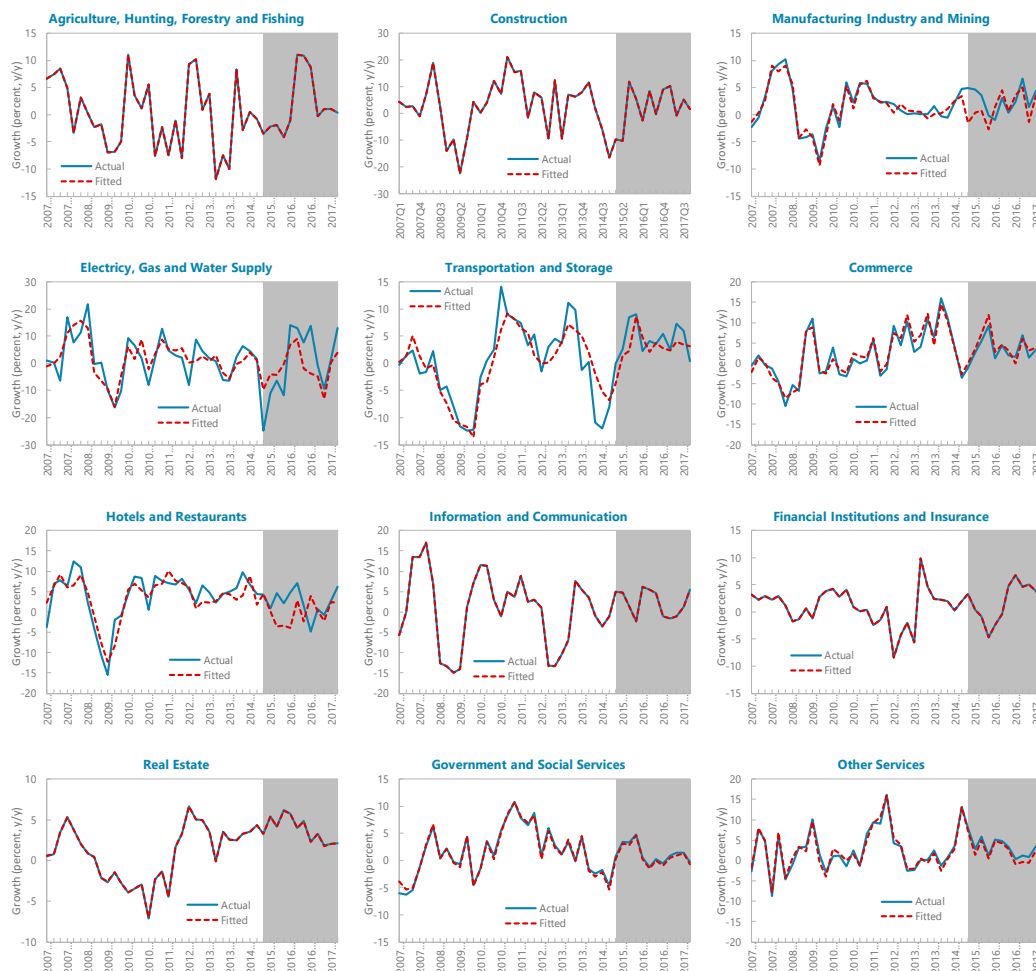
<sup>4</sup> Note that the calculations in equations (2)-(4) is the simplest way of addressing the presence of missing data at the end of the sample due to publication lags. Other approaches have been used in the literature. For example, resorting to univariate forecasting techniques to predict the behaviour of the regressors for the remainder of the quarter (Hahn and Skudelny, 2008). An alternative is to address the missing data problem using Kalman filter techniques in the context of a state space mode.

**Table 3. El Salvador: GDP Growth Nowcast for 2017Q4 as of January 31, 2018**

Quarter	GDP Growth (percent)	Type of Figure
2017 Q1	3.4	Actual
2017 Q2	0.3	Actual
2017 Q3	3.1	Actual
2017 Q4	2.4	Nowcast
<b>2017</b>	<b>2.3</b>	<b>Actual + Nowcast</b>

Sources: Central Reserve Bank of El Salvador and Fund staff estimates.

**Figure 1. El Salvador: Fitted Values of OLS Regressions and Out-of-Sample Predictions**



Sources: Central Reserve Bank of El Salvador and Fund staff estimates.

**15. The arrival of new data leads to the nowcast being successively altered.** The regression coefficients remain unchanged; the revised nowcast is driven by the incremental information provided by the new data. Table 4 illustrates this revision process for the nowcast of 2017Q4. The nowcast of GDP growth goes slightly up in November 2017 from 2.7 percent to 2.8 percent due to an acceleration in the activity of Hotels and Restaurants, which is partially offset by a slowdown in Commerce. In December, new information regarding all variables is released and, therefore, the nowcast is revised downwards to 2.1 percent. This behavior was driven by a slowdown in most sectors, particularly Construction, and Electricity Gas and Water. Again, this was partially offset by improved performance in Transportation, Information and Communication, and Other Services. Finally, in January the nowcast is revised up again to 2.4 percent. This is explained by positive signals in Construction and Electricity, Gas and Water, and to a lesser extent by Industrial Production. Also, several services activities showed improved performance. Only the primary sector, Financial Services and Insurance, and Government Services displayed a persistent slowdown in activity throughout the quarter. The lower growth rate of Government Services may reflect the fiscal consolidation efforts that took place towards the end of 2017.

**Table 4. El Salvador: Update of the Nowcast of GDP Growth in 2017Q4 for Each Supply Component of GDP**

Nowcast Period	t-2	t-1	t	t+1
Date	Oct-17	Nov-17	Dec-17	Jan-18
Agriculture, Hunting, Forestry & Fishing	1.0	1.0	0.7	0.4
Construction	5.3	5.3	-4.1	0.3
Manufacturing Industry & Mining	3.9	3.9	2.4	3.7
Electricity, Gas & Water	0.5	0.5	-1.5	4.8
Transportation and Storage	3.4	3.4	4.2	0.5
Information and Communication	1.2	1.2	6.0	5.5
Commerce	4.0	3.9	3.5	5.9
Hotels and Restaurants	2.5	3.5	2.7	2.9
Financial Institutions and Insurance	3.8	3.8	2.0	1.9
Real Estate	2.0	2.0	2.1	2.2
Government and Social Services	1.3	1.3	0.8	0.5
Other Services	2.5	2.5	5.6	3.3
<b>Nowcasted GDP Growth</b>	<b>2.7</b>	<b>2.8</b>	<b>2.1</b>	<b>2.4</b>

Source: Fund staff estimates.

Note: Cells highlighted in green (red) represent new information releases that are driving an upward (downward) revision in the GDP growth nowcast.

## E. Conclusions

**16. This note proposes a simple nowcasting model for high-frequency monitoring of the Salvadorian economy.** The exercise is based on a bridge model, which exploits information for the period 2005-2017 from a large set of variables that are published earlier and at higher frequency than the quarterly GDP. The nowcasted GDP growth in 2017 is 2.3 percent, consistent with the data published by the BCR in March 2018.

**17. The bridge model is one of the many tools available for nowcasting.** While it is the simplest tool from a technical point of view, this disaggregated approach helps to better understand the underlying drivers of the economy and the impact of new information on each component of GDP. In this sense, this tool could be thought as complementary to the model currently used by the BCR.

**18. This exercise could be improved in several dimensions.** Future lines of work include: (i) considering alternative methods to deal with missing data at the end of the sample period, e.g., using univariate techniques to produce forecasts of the regressors; (ii) considering alternative specifications of the bridge equations, by incorporating lags of the regressors and by changing the estimated equation over the forecast cycle as suggested by Hahn and Skudelny (2008); (iii) replicating this methodology using demand-side components rather than supply-side components. The latter would provide a more comprehensive view of economic developments in the short-run. It would to determine whether GDP growth is weak due to subdued growth of a specific demand component, or if it is the result from structural problems or shocks to a particular economic sector.

## Annex I. Data Description

**Table AI.1. El Salvador: Data Description**

Number	Abbreviation	Variable description	Start	End	Frequency	Source
<b>I. REAL SECTOR</b>						
<b>I.1 Economic Activity</b>						
1	IVAE	IVAE	Jan-05	Dec-17	Monthly	BCR
2	IVAE_A	IVAE: Agriculture	Jan-05	Dec-17	Monthly	BCR
3	IVAE_CONS	IVAE: Construction	Jan-05	Dec-17	Monthly	BCR
4	IVAE_IP	IVAE: Manufacturing industry and mining	Jan-05	Dec-17	Monthly	BCR
5	IVAE_CTRH	IVAE: Commerce, transportation and storage, hotels and restaurants	Jan-05	Dec-17	Monthly	BCR
6	IVAE_FS	IVAE: Financial services and insurance	Jan-05	Dec-17	Monthly	BCR
7	IVAE_RE	IVAE: Real estate	Jan-05	Dec-17	Monthly	BCR
8	IVAE_IC	IVAE: Information and communication	Jan-05	Dec-17	Monthly	BCR
9	IVAE_GSS	IVAE: Government and social services	Jan-05	Dec-17	Monthly	BCR
10	IVAE_OS	IVAE: Other services	Jan-05	Dec-17	Monthly	BCR
<b>I.2 Employment</b>						
11	ISSS	ISSS contributors: Total	Jan-99	Nov-17	Monthly	ISSS
12	ISSS_PRI	ISSS contributors: Private	Jan-91	Nov-17	Monthly	ISSS
13	ISSS_PUB	ISSS contributors: Public	Jan-99	Nov-17	Monthly	ISSS
14	ISSS_A	ISSS contributors: Agriculture	Jan-91	Nov-17	Monthly	ISSS
15	ISSS_IP	ISSS contributors: Manufacturing industry, mining, other industrial activities	Jan-91	Nov-17	Monthly	ISSS
16	ISSS_CONS	ISSS contributors: Construction	Jan-91	Nov-17	Monthly	ISSS
17	ISSS_CTRHIC	ISSS contributors: Commerce, transportation and storage, hotels and restaurants, information and communication	Jan-91	Nov-17	Monthly	ISSS
18	ISSS_FSRE	ISSS contributors: Financial services, insurance, real estate, corporate services	Jan-91	Nov-17	Monthly	ISSS
19	ISSS_OS	ISSS contributors: Communal, social and personal services	Jan-91	Nov-17	Monthly	ISSS
<b>I.3 Prices</b>						
20	CPI	Consumer Price Index	Jan-90	Dec-17	Monthly	DIGESTYC, published by BCR
21	PPI	Producer Price Index	Jan-09	Dec-17	Monthly	DIGESTYC, published by BCR
22	WPI	Wholesale Price Index	Jan-90	Oct-17	Monthly	DIGESTYC, published by BCR
<b>I.4 Other indicators</b>						
23	CONCEM	Cement consumption	Jan-90	Dec-17	Monthly	CESSA, published by BCR
24	CONENER	Electricity consumption	Jan-90	Dec-17	Monthly	UT, published by BCR
25	PROENER	Electricity production	Jan-90	Dec-17	Monthly	UT, published by BCR
26	TCRGAER	Air freight	Jan-90	Dec-17	Monthly	CEPAL, published by BCR
27	TCRGPOR	Maritime freight	Jan-90	Dec-17	Monthly	CEPAL, published by BCR
28	ENTPSAJ	Passenger entry	Jan-90	Dec-17	Monthly	BCR
29	SALPSAJ	Passenger exit	Jan-90	Dec-17	Monthly	BCR

Table AI.1. El Salvador: Data Description (continued)

Number	Abbreviation	Variable description	Start	End	Frequency	Source
<b>II. EXTERNAL SECTOR</b>						
30	EXP_SUGAR	Exports: Sugar	Jan-91	Dec-17	Monthly	BCR
31	EXP_COFFEE	Exports: Coffee	Jan-91	Dec-17	Monthly	BCR
32	EXP_SHRIMP	Exports: Shrimp	Jan-91	Dec-17	Monthly	BCR
33	EXP_MAQUIL	Exports: Maquila	Jan-91	Dec-17	Monthly	BCR
34	EXP_NTCA	Exports: Non-traditional to CA	Jan-91	Dec-17	Monthly	BCR
35	EXP_NTOCA	Exports: Non-traditional outside of CA	Jan-91	Dec-17	Monthly	BCR
36	EXP_NTRA	Exports: Non-traditional	Jan-91	Dec-17	Monthly	BCR
37	EXP	Exports: Total	Jan-91	Dec-17	Monthly	BCR
38	EXP_TRAD	Exports: Traditional	Jan-91	Dec-17	Monthly	BCR
39	IMP_OCA	Imports: Outside CA	Jan-91	Dec-17	Monthly	BCR
40	IMP_MAQUIL	Imports: Maquila	Jan-91	Dec-17	Monthly	BCR
41	IMP_CA	Imports: CA	Jan-91	Dec-17	Monthly	BCR
42	IMP	Imports: Total	Jan-91	Dec-17	Monthly	BCR
43	IMP_CONS	Imports: Consumer Goods	Jan-91	Dec-17	Monthly	BCR
44	IMP_INT	Imports: Intermediate Goods	Jan-91	Dec-17	Monthly	BCR
45	IMP_INT_man	Imports: Intermediate Goods: Manufacture Industry	Jan-91	Dec-17	Monthly	BCR
46	IMP_INT_agr	Imports: Intermediate Goods: Agricultural	Jan-91	Dec-17	Monthly	BCR
47	IMP_INT_con	Imports: Intermediate Goods: Construction	Jan-91	Dec-17	Monthly	BCR
48	IMP_k	Imports: Capital Goods	Jan-91	Dec-17	Monthly	BCR
49	IMP_K_man	Imports: Capital Goods: Manufacture Industry	Jan-91	Dec-17	Monthly	BCR
50	IMP_K_tran	Imports: Capital Goods: Transport	Jan-91	Dec-17	Monthly	BCR
51	IMP_K_tran_v	Imports: Capital Goods: Vehicular Transport	Jan-92	Dec-17	Monthly	BCR
52	IMP_K_agr	Imports: Capital Goods: Agricultural	Jan-91	Dec-17	Monthly	BCR
53	IMP_K_con	Imports: Capital Goods: Construction	Jan-91	Dec-17	Monthly	BCR
54	IMP_K_com	Imports: Capital Goods: Commerce	Jan-94	Dec-17	Monthly	BCR
55	IMP_K_serv	Imports: Capital Goods: Service	Jan-94	Dec-17	Monthly	BCR
56	IMP_K_util	Imports: Capital Goods: Electric & Water Services	Jan-94	Dec-17	Monthly	BCR
57	IMP_K_bank	Imports: Capital Goods: Banking	Jan-94	Dec-17	Monthly	BCR
58	IMP_K_other	Imports: Other Capital Goods	Jan-91	Dec-17	Monthly	BCR
59	REM	Remittances	Jan-91	Dec-17	Monthly	BCR
<b>III. FISCAL SECTOR</b>						
60	PUB_SPEND	Government spending	Jan-94	Dec-17	Monthly	Ministry of Finance, published by BCR
61	PUB_REV	Revenue	Jan-94	Dec-17	Monthly	Ministry of Finance, published by BCR
62	TAX	Tax revenue	Jan-94	Dec-17	Monthly	Ministry of Finance, published by BCR
63	TAX_VAT	VAT	Jan-94	Dec-17	Monthly	Ministry of Finance, published by BCR
64	TAX_INCOME	Income tax	Jan-94	Dec-17	Monthly	Ministry of Finance, published by BCR
65	PUB_INV	Public investment	Jan-94	Dec-17	Monthly	Ministry of Finance, published by BCR
<b>IV. MONETARY/FINANCIAL SECTOR</b>						
66	CREDIT	Total credit	Jan-02	Dec-17	Monthly	BCR
67	CREDIT_HH	Credit to households	Jan-02	Dec-17	Monthly	BCR
68	CREDIT_FIRMS	Credit to firms	Jan-02	Dec-17	Monthly	BCR
69	CREDIT_HOUSE	Credit to households for housing	Jan-02	Dec-17	Monthly	BCR
70	m3	M3	Jan-02	Dec-17	Monthly	BCR
71	TP30	Deposit rate (30 days)	Mar-95	Dec-17	Monthly	BCR
72	TB1Y	Loan rate (loans over 1 year)	Jan-96	Dec-17	Monthly	BCR
73	TB180	Deposit rate (180 days)	Jan-95	Dec-17	Monthly	BCR
<b>V. EXPECTATIONS (ENCUESTA DINAMICA EMPRESARIAL - FUSADES)</b>						
74	DERGI	Global - Investment	Mar-95	Dec-17	Monthly	FUSADES
75	DECOMEMPL	Retail trade - Employment	Mar-95	Dec-17	Monthly	FUSADES
76	DECOMINVR	Retail trade - Investment	Mar-95	Dec-17	Monthly	FUSADES
77	DEVSS	Services - Sales	Mar-94	Dec-17	Monthly	FUSADES
78	DEVSI	Industry - Sales	Mar-94	Dec-17	Monthly	FUSADES
79	DEVSCO	Retail trade - Sales	Mar-94	Dec-17	Monthly	FUSADES
80	DEPSI	Industry - Production	Mar-94	Dec-17	Monthly	FUSADES
81	DERV	Global - Sales	Mar-94	Dec-17	Monthly	FUSADES



**Table AI.1. El Salvador: Data Description (concluded)**

Number	Abbreviation	Variable description	Start	End	Frequency	Source
<b>VI. US</b>						
82	PIBTUSA	US Quarterly GDP	Mar-90	Dec-17	Quarterly	Bureau of Economic Analysis
83	DESPUSA	US civilian unemployment rate	Jan-90	Dec-17	Monthly	Bureau of Labor Statistics
84	DESHISPUSA	US hispanic civilian unemployment rate	Jan-90	Dec-17	Monthly	Bureau of Labor Statistics
85	FEDFE	Federal Funds Effective Rate	Jan-90	Dec-17	Monthly	Federal Reserve (FED)
86	IPGUS	US Total Production Index	Jan-90	Dec-17	Monthly	Federal Reserve (FED)
87	IPIG	US Industrial Production Index	Jan-90	Dec-17	Monthly	Federal Reserve (FED)
88	TB6CM	Interest rate on 6-month Treasury Bills	Jan-90	Dec-17	Monthly	Federal Reserve (FED)

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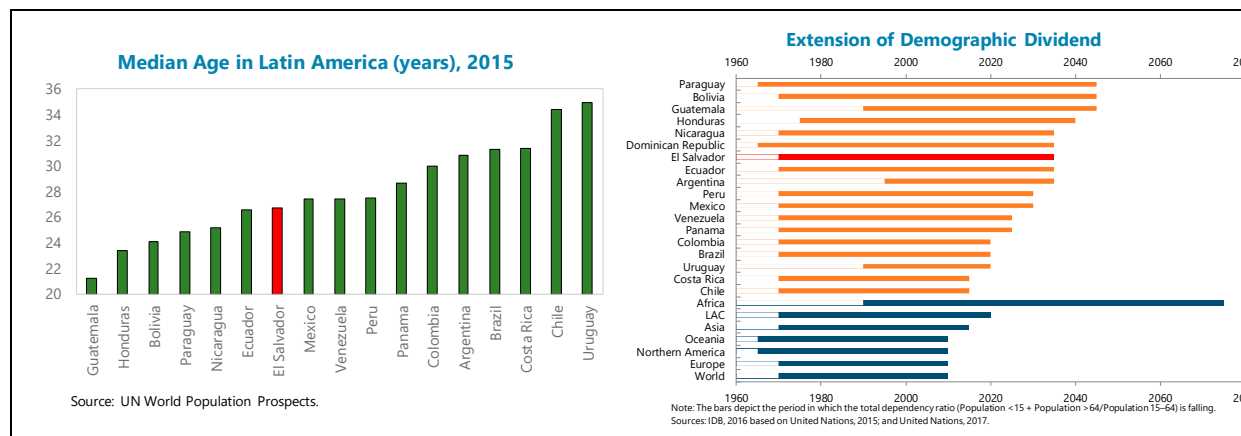
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# THE SALVADORIAN PENSION SYSTEM AND REFORM: AN UPDATE

Despite El Salvador's still-young population, its pension system has been marked by fiscal sustainability challenges. The transition to a defined contribution (DC) system that began in 1998 was designed to achieve fiscal sustainability. However, progress was derailed in the 2000s due to ad-hoc decisions to guarantee defined benefits, which increased fiscal costs and financing pressures. The 2017 reform provides medium-term fiscal relief and improves the system's institutional framework. However, the reform carries longer-term fiscal costs and does little to tackle the problems of low level and coverage and high inequality of benefits. Deeper reforms, including more ambitious increases in the retirement age, are necessary to decisively tackle the system's sustainability challenges. Also, fuller clarity on the government's back-stopping role is needed for bolstering confidence in the framework.

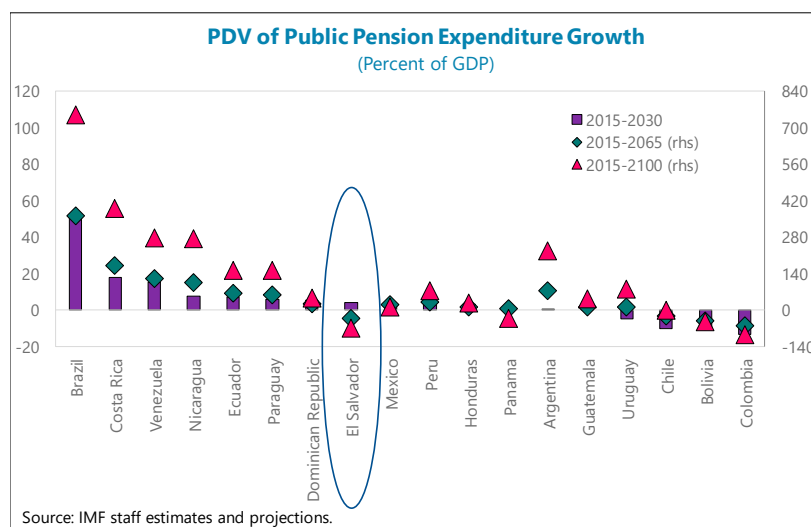
## A. Background

**1. El Salvador's population has remained relatively young but this is set to change.** Like many other countries in the Central America, El Salvador continues to enjoy a demographic dividend. However, the population aging is set to perceptibly accelerate in the next quarter-century and beyond: the share of the population over 64 compared with the population ages 15–64 is projected to surge from 13 percent currently to 28 percent in 2050 and 69 percent in 2100. The median age would rise from 27 currently to 42 in 2050 and 53 in 2100. Emigration has also affected the Salvadorian age structure, as most of the emigrants have tended to be relatively young thereby pushing upwards the average age of those who stay behind.



**2. The Salvadorian pension system initially emerged as a heavily subsidized defined-benefit (DB) scheme.** In early years, due to very low contribution and high guaranteed replacement rates, the system generated pronounced actuarial and fiscal imbalances.<sup>1</sup> By mid-1990s, the system was already assessed as fiscally untenable.

**3. In late 1990s, El Salvador embarked on a transition to the DC system that was designed to guarantee fiscal sustainability.** The system was based on individual accounts managed by private pension funds, to be phased in for the younger cohorts. The phase-in process entailed fiscal “transition costs,” as payroll contributions were directed away from public revenue to individual accounts, while legacy defined-benefit public pension entitlements for older cohorts were financed from the fiscal accounts. Reflecting the demographics of the older cohorts, those transition costs were expected to dissipate by 2030. Because of the switch to the DC system the long-term fiscal burden on the Salvadorian pension system was assessed as among the lowest in Latin America (see Figliuoli, 2018). It was also expected that the introduction of private individual accounts would bolster El Salvador’s low labor force participation and coverage of the pension system.



**4. Nonetheless, the transition to the DC system sputtered.** Disappointing asset returns and the resulting public discontent led the government to grandfather early DC retiree cohorts by guaranteeing them, in 2003 and 2006, DBs that were initially reserved only for the oldest cohorts. These decisions greatly increased the transition costs, which heavily weighed on fiscal accounts and became difficult to finance by 2016-17. In parallel, the low financial returns were further depressed by the 2008 global financial crisis given the government’s 2006 decision to link the returns on public pension bonds to LIBOR. This undermined confidence as benefits under the DC system were projected to fall sharply for the future cohorts who were not to be subsidized. At the same time, the labor force participation and coverage effects of the DC system turned out to be disappointing:

<sup>1</sup> See Lissovolik (2016) for more background information on the Salvadoran pension system.

affiliated individuals still represented only a quarter of the economically active population and the density (e.g., frequency) of worker contributions to the system was weak and declining.

**5. Recognizing these problems, in 2016 the government proposed to adopt a “mixed” pension system.** The key features of the proposal were: (i) transfer of more than one-half of pension-related payroll contributions and assets to the public sector; (ii) flat public pension benefits, corresponding to the (relatively high) contributory minimum pension; and (iii) a downsized DC pillar that would apply only to higher-earning contributors. The system was intended to reduce the fiscal transition costs in the short-to-medium term due to a boost in public revenues at the expense of generating significant permanent defined-benefit obligations from the large unfunded new minimum pension guarantee. Critics emphasized the questionable track record in the government’s management of pension-related assets and liabilities and that the system was no longer protected from population aging. In the event, the proposal did not command political support and had to be abandoned.

**6. In early-2017, the private sector reacted with its own reform proposal.** The blueprint was designed as a reaction to the mixed system proposal and sought to protect the privately-managed assets from being transferred to the public sector. To make this option more palatable politically, it committed to relieve the government of a significant part of the fiscal transition costs. This was to be done mainly through re-directing part of payroll contributions—without recourse to government funds—to the cohorts that were guaranteed defined benefits. The proposal was however criticized for potentially depressing replacement rates for future DC pensioners due to reduced contribution cash flow accruing to the individual accounts. Still, many observers acknowledged the proposal’s various constructive elements.

## B. 2017 Reform and its Elements

**7. The 2017 reform was a result of a broad-based but urgent political compromise.** Negotiations accelerated in September 2017 because of the difficult financing situation projected for Q4 of the same year. The pressure was compounded by adverse investor sentiment and ratings downgrades that followed the April 2017 missed payment on pension bonds. In a final compromise achieved on September 29, the private sector’s proposal served as the basis for the changes to the law, but further significant last-minute modifications were added, mainly to provide government-backed guarantees to augment the total amount of contributions accruing to the individual accounts. The law enjoyed strong backing across the political spectrum, with 71 of the 82 congressmen voting in favor.

**8. The September changes to the pension law are complex and involve the following key elements.** First, the reform re-calibrates pension system’s cash flows to increase the aggregate flow of payroll contributions to the system, raise pension fund returns, provide fiscal relief, and pay some of the public system’s transition costs. Second, it changes the pension benefits, mostly to ameliorate the large gap between the guaranteed defined benefit and defined contribution-based pensions. Third, it envisions various institutional changes aimed at improving the management, financial

viability, and political attractiveness of the system. Finally, it spells out specific channels through which government guarantees would be provided to the system. The detailed reform measures include the following:

### Re-calibration of Cash Flows:

- an increase in the pension payroll contribution rate from 13 to 15 percent to raise the flow of resources within the system;
- a (marginal) cut in the pension fund fees in the DC system (initially from 2.2 to 2 percent in 2018 and to 1.9 percent starting from 2020);
- a diversion of 5 percentage points of payroll contributions from individual account holders to a privately managed solidarity guarantee account (SGA), of which 3 percentage points would be temporarily diverted, while 2 percentage points would be set aside permanently to finance longevity benefits;
- use of the SGA to pay some of the public DBs to those who benefitted from top-ups in the 2000s having opted for the private system (*optados*), the DC system's minimum pension guarantee, and longevity benefits;
- a higher interest rate on government pension bonds to support pension fund returns (the nominal interest rate on new issuances would be 6 percent, while the interest rate on the old stock would gradually increase from 2.5 to 4.5 percent between 2018 and 2022);
- a grace period (either 3 or 5 years for old bonds) and a lengthening of the maturity of the pension bonds (from 25 years previously to 30-50 years) to help government cash flow in the medium term.

El Salvador: Main Parameters of the Pension System (Percent of payroll, unless otherwise noted)		
	Prior to 2017 reform	After 2017 reform
Social contributions	13	15
Pension funds commissions	2.2	1.9
Individual accounts 1/	10.8	8.1
Collective fund 1/		5
Longevity benefits		2
Payment of DBs 1/		3
Retirement age (years) 2/	55/60	55/60
Source: Salvadorian authorities.		
1/ 3 percent of payroll would be (temporarily) diverted from individual accounts to the collective fund to pay for DBs on a declining schedule, to be fully phased out by 2050. The government committed to reimburse the diverted contributions to account holders with interest.		
2/ An increase in retirement age would be considered in 2022.		

### Changes in the Level and Other Parameters of Pension Benefits

- reductions in guaranteed defined benefits for the *optados* who have yet to retire (their pension would be capped at 55 percent of the "basic wage" instead of around 68 percent previously);
- cap on the maximum pension for the *optados*, at USD 2,000 per month;
- a progressive levy, of between 3 and 10 percent depending on the amount, on existing pension benefits with proceeds from the levy accruing to the SGA;
- more stable pension benefits in the DC system over time through changes to the method of their calculation (the individual pension levels would no longer be declining during the

retirement phase, but would be kept stable in real terms and further supported by longevity benefits);

- new options for regular pension benefits for those who contribute less than 25 full years (beyond the only prior option of lump-sum withdrawal, those who contribute between 10 and 25 years could opt for periodic pension benefits).

### **Institutional Changes**

- an actuarial committee tasked to help ensure long-term financial sustainability of the system, including through the envisioned mechanism for small increases in the retirement age (up to a maximum of one year every 5 years, starting from 2022);
- improved processes and data enhancements for payroll collections;
- a risk committee to help improve the returns and diversification of investments;
- enhanced analysis and reporting requirements, including periodic actuarial studies of the system's long-term financial sustainability;
- additional options and financial intermediaries for diversifying pension fund investments;
- an option of anticipated withdrawal from pension accounts (up to 25 percent of balances) by eligible individuals that can be used for current consumption.

### **Government Guarantees and Resources**

- a permanent allocation of 2.5 percent of current revenues (about 0.5 percent of GDP) starting from 2020 (with temporarily smaller allocations, of 1.7 and 1.8 percent of revenues in 2018 and 2019 respectively) in the central government budget to pay public pension benefits and back-up government liabilities;
- reimbursement from the budget of 3 percentage points of payroll contributions that are diverted to the SGA to pay defined benefits to account holders upon their retirement, together with a return equal to that earned by the conservative fund in the system;
- reimbursement of a portion of the return on longevity benefits to those who take lump-sum withdrawal;
- a government guarantee to cover SGA operations should the latter run deficits;
- continuation of issuance of pension bonds to provide additional resources for legacy publicly guaranteed defined-benefit pensions.

**9. The reform's implementation is still ongoing, as it depends on follow-up by-laws and on how several new institutions would begin functioning.** The central bank was tasked to

operationalize implementation of several steps, including (i) accounting, reporting, and governance procedures for the SGA, (ii) modalities of anticipated withdrawal from the individual accounts, (iii) upgraded accounting norms for the pension funds, (iv) calculation of technical requirements that are needed to determine pension rights under the new system, as well as several other regulations. The financial sector super-intendency also participated in the drafting of some of the new regulations. While most of the by-laws were enacted by early-2018, institutions such as the actuarial and risks committees still needed to be made fully operational.

### C. Effects of the 2017 Reform

**10. The reform has substantial, and complex, effects on the government’s fiscal position as well as pension benefits and coverage.** The fiscal effects can be de-composed into two main blocks: (i) effects from the re-distribution of the financial flows in the system – these effects are generally favorable for fiscal accounts in the short-to-medium run and become unfavorable in the longer run, mainly because of the government guarantees that were attached to some of the decisions; and (ii) effects from underlying changes to the main parameters of the pension rules, including cuts in defined pension benefits and parametric reforms (prospective increases in the retirement age and the increase in the overall payroll contribution rate) – these effects are favorable for fiscal sustainability, and while initially they are very small, their impact is progressively increased going forward.

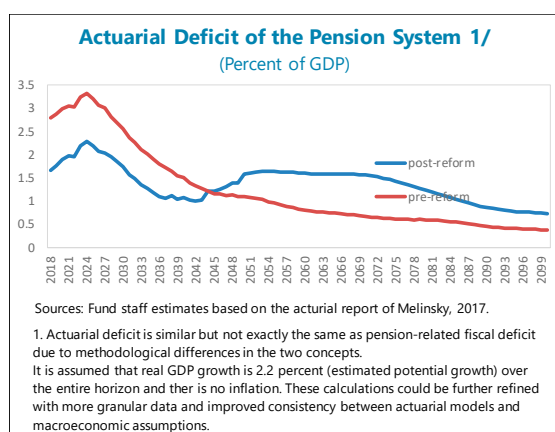
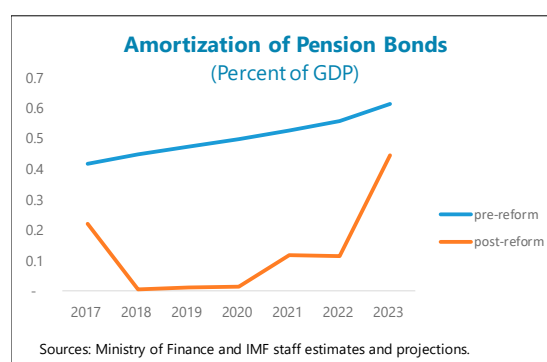
<b>Table 1. Taxonomy of Fiscal Effects from the Reform</b>		
	<b>Above the line (impact on the deficit)</b>	<b>Below the line (impact on financing)</b>
Short-to-medium term (10 years)	Diversion of contributions to pay DBs (+) Reductions in DBs (+) Levies on pension defined benefits (+) Changes in interest rates on pension bonds (ambiguous for the old stock of bonds, (-) for the newly-issued bonds)	Grace period and longer maturity of pension bonds (+) Availability of inflows earmarked for longevity benefits to finance other liabilities (+)
Longer-term	Reimbursement of diverted contributions (-) Higher interest rate on pension bonds (-) Lower interest payments because of the lower projected stock of pension-related debt (+) Reduced risks of recourse to the minimum pension (+) Potential liability for longevity benefits (-) Increases in the retirement age that reduce liability for longevity benefits (+) Potential liability for the overall deficits of the SGA (-)	Effects ambiguous and depend on the more precise timeframe, with significant uncertainty in the estimated effects
Note: + indicates a favorable effect for the fiscal accounts relative to the pre-September 2017 situation.		



**11. Short-to-medium-term effects on the fiscal deficit.** The diversion of social contributions to the SGA (3 percent of payroll in the first 10 years, or 0.7 percent of GDP annually) for paying public defined benefit pensions makes the largest immediate impact on reducing the fiscal deficit. While the operation entails a longer-term fiscal liability at the time when the individuals retire and receive pension rights, it is not classified as borrowing given that it does not generate survivorship rights.<sup>2</sup> Other fiscal savings from the reform (reductions in defined benefits, levies on pensions, and savings on the minimum pension guarantee) are initially estimated to be relatively small (less than 0.1 percent of GDP combined, annually). The change in the interest rate on pension bonds appears to have limited immediate effects: thus, the interest rate on those bonds was set at 2.5 percent for 2018, broadly in line with expected pre-reform interest rates that were based on LIBOR. Thus, total savings are estimated at around 0.8 percent of GDP annually in the first few years after the reform.

**12. Short-term effects on fiscal financing.** In addition to the fiscal savings that result in a lower deficit, the reform provides short-term below-the-line financing relief. The grace period on old pension bonds (formerly called CIPs) contrasts with the counterfactual of steadily increasing principal payments that were due on those bonds before the reform, generating savings of around ½ percent of GDP annually in those years. The lengthening of the maturity of pension bonds would also limit principal payments beyond 2020 relative to the counterfactual. Further, in addition to the 3 percent of payroll, the SGA could finance certain pension system obligations defined by law from inflows corresponding to the 2 percent of payroll (0.4 percent of GDP) contribution to longevity benefits, given that longevity-related spending obligations are projected to be backloaded (becoming significant by around 2040). Overall, the financing effects are favorable in 2018-23 and would be in the range of ½ to 1 percent of GDP annually but would vary by year.

**13. Longer-term fiscal effects.** The impact of the reform needs to be derived from a comprehensive analysis of all key flows in the system. The counterfactual is the pre-reform baseline scenario whereby the long-term fiscal burden of pensions is expected to decline as the DC system is fully phased in. Several actuarial studies have been prepared or are underway to



<sup>2</sup> The government's obligation to guarantee reimbursement of the diverted contributions would not materialize in cases of death of affiliated individuals (whether it occurs before or after their retirement).

assess the reform's overall effects.<sup>3</sup> The studies differ significantly in some of the results and have methodological weaknesses, including: (i) difficulty to integrate pension-related flows with a fully-consistent set of macroeconomic projections; and (ii) incomplete accounting of pension-related fiscal liabilities (interest on pension debt is not included in the analysis of most actuarial reports). Furthermore, making reliable projections is especially difficult because they hinge on the interaction of economic conditions and individual behavior (e.g., whether to work toward a full pension or take a lump-sum withdrawal option) over a long future horizon. Still, there are several points of convergence of the actuarial studies:

- The reform would **reduce the fiscal costs over the next quarter-century** mainly because of the lower need for public spending on some of the defined-benefit pensions, which will be paid by the SGA.
- However, **after around 2040, the reform would increase the costs** of the pensions system, as the SGA's 3 percent of payroll contribution would be phased out while costs would be higher, mainly due to (i) the increase in liabilities deriving from the government guarantee to reimburse the flows accruing to the SGA and (ii) growing liability for longevity benefits of the SGA and potentially the government, which backstops it.
- Still, the actuarial studies, which incorporate the above effects, imply that the **overall long-term fiscal costs of pension benefits will likely be contained** (e.g., below 2 percent of GDP annually)<sup>4</sup> – barring major economic under-performance (e.g., real GDP growth well below the estimated potential rate of 2.2 percent) or ad-hoc decisions (like in 2003 and 2006) to increase benefits at the expense of the budget.

**14. Rules and implications for the fiscal backstop.** As described above, the reform envisions several channels through which the government could provide resources and guarantees to the pension system. There is however substantial uncertainty whether, and in what measure, such channels could be activated. This uncertainty reflects differences in the actuarial projections, but also the lack of clarity on the scope and sequencing of these operations envisioned in the framework. Key not-fully-settled issues include:

- **Potential deficit of the SGA.** Actuarial studies differ in that preliminary projections elaborated by the private pension funds indicate that the SGA would not run any deficits in the future. At the same time, other projections (Melinsky, 2017) suggest that this government

<sup>3</sup> The studies include those of FUSADES (2017) and Melinsky (2017). In addition, the pension fund industry (Asafondos) and the financial sector superintendency (SSF) have been elaborating own actuarial studies, whose full results were not available at the time this Selected Issues paper was issued. The SSF study has a key advantage of relying on a granular individual-specific database for the calculations, while most other studies employed simplifying assumptions that may further reduce the reliability of results.

<sup>4</sup> This conclusion is preliminary until an actuarial report can be elaborated that is fully integrated with a macroeconomic framework.

guarantee is likely to be triggered relatively soon, putting more of a spotlight on this key policy issue.

- **Scope of government guarantees.** The law contains references to specific public government guarantees, but does not fully clarify whether the budget allocation of around ½ percent of GDP would effectively cap spending on all or some of the guarantees, or if more resources could still be provided through other mechanisms. The law acknowledges that the allocation could clearly be exceeded to pay “legacy” defined benefit pensions, but does not clarify if it can be exceeded for other purposes.
- **Sequencing of fiscal backstop operations.** When discussing the dedicated allocation from the budget, the pension law (Article 224) mentions several intended uses, such as (i) payment of “legacy” public pension benefits; (ii) payment of minimum contributory pensions; and (iii) reimbursement of government guarantees related to the diverted contributions and lump-sum withdrawals. It is however unclear if the order in which these uses are mentioned would be a factor in prioritizing these uses should the aggregate allocated amount prove to be constraining.

**15. Pension adequacy.** The 2017 reform aims to address the problem of low level of DC-based pension benefits, but the effects are likely to be relatively modest and backloaded. The main channels for achieving this are (i) a higher interest rate on pension bonds, which, over time, would increase returns on individual accounts; (ii) a recalibration of the method of calculating pension benefits (making overall pension benefits more stable and slightly higher) and (iii) the slightly increasing allocation of total funds that accrue to individual accounts (including those guaranteed by the government), from 10.8 to 11.1 percent of payroll. Still, preliminary calculations suggest that the replacement rates in the DC system would increase relatively modestly and would, at least for a few initial years, be in the 25-40 percent range, given the low replacement rates observed to date for the first cohort of unsubsidized DC pensioners that already retired in 2017 (e.g., women born in 1962). In this light, pension adequacy would remain an important challenge going forward.

**16. Coverage of the pension system.** The reform is unlikely by itself to significantly raise the poor coverage in the system, which is a function of low formal labor market participation. At the same time, the new options that allow individuals with less than 25 full years of contributions to receive stable pension income and public health care services, could incentivize better coverage of the pension system. There is however a risk that the proportion of such individuals would be small as evidence suggests that such “low-density” contributors favor the option of lump-sum withdrawal of their pension account balances. And while the option of anticipated withdrawal of pension account balances for current consumption may increase the attractiveness of the individual account-based system, it would defeat the overarching purpose of incentivizing saving over consumption.

**17. Overall, the reform the DC pension system is a step that on balance improves fiscal sustainability in the context of projected population aging.** A key risk from past decisions to top up benefits was that the DC system was becoming untenable, because (i) the system already was a financing strain on the budget and (ii) future pension levels under pure DC rules were looking to be

too low to be politically acceptable. The reform lessened these risks by addressing funding bottlenecks and most of the extra costs imposed by the ad-hoc decisions to grandfather the early DC cohorts. In parallel, the system includes several measures that would help increase the attractiveness of future benefits under the DC system, though these effects will likely be modest. The large bipartisan support for the reform suggests that the DC system's viability has been reinforced, at least for now. The emergence of additional long-term fiscal liabilities is of some concern, but these appear to be relatively contained and backloaded.

## D. Avenues for Further Improvement

**18. While the 2017 reform is a good step, some key issues remain to be tangibly addressed.** This regards potential surprises in longevity benefits, problematic pension levels, low benefit coverage and inequality, and insufficient certainty of provision of pension benefits. There is thus scope to pursue deeper reforms to further strengthen the fiscal sustainability and broader confidence in the system. These could focus on:

- **Increasing the retirement age.** The retirement age has been unchanged for over 2 decades and is among the lowest in the region. A modest increase in it (by a maximum of 1 year) is considered only in 2022, with further envisioned increases capped at 1 year for each future 5-year period. More ambitious and frontloaded increases could help improve future replacement rates in the DC system, as well as limit fiscal contingent liabilities arising from the SGA operations due to longevity benefits.
- **Improving benefits coverage for the poor and vulnerable.** As discussed above, the changes to the law could improve coverage only among contributors to the system, and would not help the most vulnerable segments of society that are not affiliated in the system. More broadly, the DC-based model of a pension system can make only very limited progress in tackling the inequality of pension benefits, as it does not entail significant mechanisms for re-distribution. Better distributional outcomes and old age security among the vulnerable could be enhanced via gradually expanding the non-contributory basic pension, which is relatively modest (\$50 per month, a quarter of the contributory minimum pension). The total cost of this pension to all individuals over 70 is estimated at around 0.8 percent of GDP annually, but coverage could be expanded gradually starting from the lowest income categories at a much more modest cost.
- **Enhancing cost-efficiency.** Pension fund fees are still too high and should be reduced given the low risk profile of their investments (mainly government bonds). At the same time, anticipated withdrawal of balances for current consumption should be closely monitored and re-considered should it represent significant administrative and other costs to the system.
- **Effective backstopping from the budget.** The solvency and liquidity of the pension system ultimately hinges on the budget. The envisioned budget allocation (of about ½ percent of GDP annually) alone would be insufficient to cover pension obligations in most years, while the broader fiscal guarantee mechanism is yet to be fully clarified. To ensure credibility and

trust, and to minimize any potential costs arising from disputed claims and associated uncertainty, the pension system accounts should be transparently integrated in fiscal decisions, with full costing of their implications. The actuarial and risk committees and requirements for actuarial reviews created by the recent reform offer a promising basis for better transparency and decision-making along those lines, but progress would hinge on the efficiency of those institutions and processes.

**19. Cross-country experience suggests that there is no scope for procrastination in the pension-related reform agenda.** Sustainable solutions to pension system's problems (e.g., parametric reforms such as raising the retirement age) are best to be implemented early as they take time to receive political and social backing and yet much longer (a decade or more) to yield macro-relevant effects. In this regard, potential risks from underestimating fiscal costs from new longer-term liabilities from government guarantees and longevity benefits need to be monitored closely, with a view to promptly roll-out measures to effectively deal with the remaining sustainability risks.

Table 2. El Salvador: Pension System Structure (after September 2017)

	Sources of funds	Qualifying conditions	Benefits	Coverage	Administrative
<b>0 pillar</b>	Budget, program cost is less than 0.1 percent of GDP.	70+ years of age, residing in municipalities with extreme poverty and not receiving any type of pension benefit.	\$50 per month, or about a quarter of the minimum contributory pension.	8 percent of population of 70+—a small fraction of total population.	Administered in municipalities (with means-testing against a social assistance package).
<b>1 pillar (being phased out)</b>	Initially mostly from the budget, since 2006 mandatory borrowing from pension funds. Ultimately the budget is responsible for backstopping. Compulsory contributions of 15 percent of payroll play only a small supplementary role.	Born before (April 15) 1962, 25 full years of contributions; age at least 55 for women and 60 for men (excludes those born between 1943 (men) / 1948 (women) and 1962 and who opted for a private system, see below).	Benefits a proportion of the last 10 years of a “basic regulatory wage.” Replacement rate estimated at about 65–70 percent (recently reduced to 55 percent of “basic regulatory wage”).	The number of active contributors is very small (less than 10,000). About 100,000 pensioners amount to less than 2 percent of the total population.	A special institution (FOP) oversees financing, together with ISSS and INPEP, which manage administrative issues.
<b>2 pillar (core pension system)</b>	Compulsory contributions (15 percent, of which 1.9 percentage points are fees and 5 percentage points diverted to finance SGA) and returns on pension fund assets (accumulated contributions and recognition bonds).  Since 2018 defined benefits of those born between 1943 (men) / 1948 (women) and 1962 and the minimum pension are financed by the SGA.	Born after (April 15) 1962, 25 full years of contributions; age at least 55 for women and 60 for men; early retirement possible if accumulated contributions are sufficient to finance a pension 60 percent above a minimum pension. Also includes most individuals born between 1943 (1948 for women) and 1962 who opted for the private (2 pillar) system.	Pension is equal to a portion of assets for the first 20 years supplemented by longevity benefits thereafter. Minimum pension, is currently \$207.6 per month. Replacement rates expected to fall to 40 percent or below after the system is phased in. The older cohort receives defined benefits (recently reduced to 55 percent of “basic regulatory wage”).	A quarter of affiliated individuals are paying contributions and yet fewer are expected to get pension benefits. Those who contribute less than 25 years get a lump sum payment (equal to cumulative contributions plus interest).	Two private pension funds compete for contributors and administer individual accounts. Restrictions on asset allocation are important (floor for investing in government bonds; ceiling for investing in different instruments, including abroad). Actuarial and risk committees are in the process to be created.
<b>3 pillar</b>	Voluntary contributions.	Mostly work as top-ups to pillar 2.	Pension benefits are equal to an income stream from assets (tax incentives apply).	Negligible.	Pension funds.

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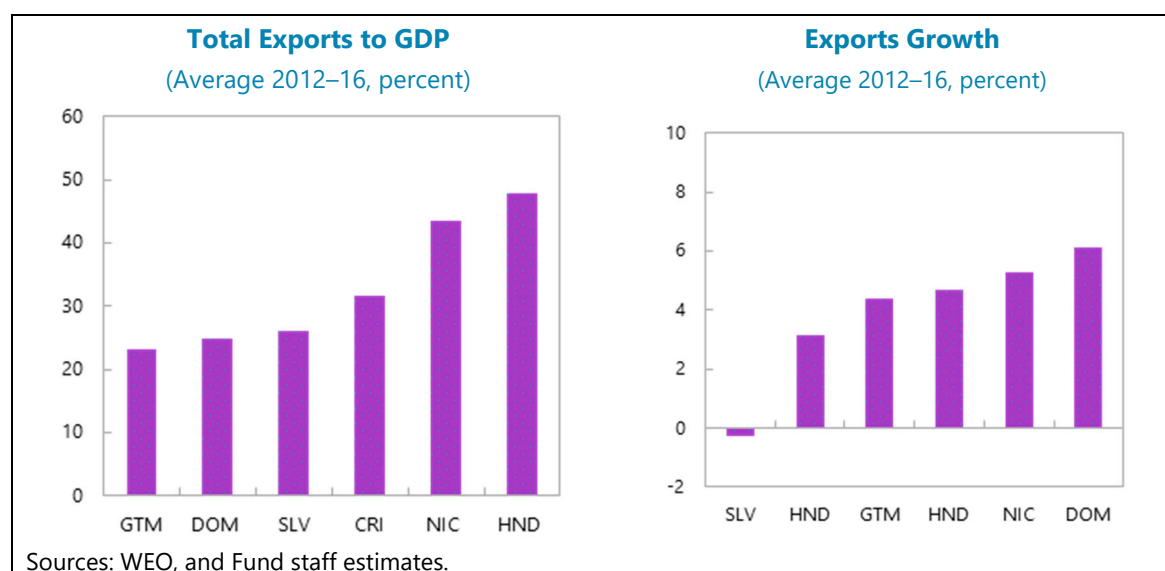
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# THE COMPETITIVE LANDSCAPE FOR EL SALVADOR'S EXPORTS<sup>1</sup>

We analyze the exports of El Salvador with a focus on the degree of competition it faces in its major export products from the major competitors. Using a value and a count based index of competition, we characterize the intensity of competition with respect to major competitors, across major export products, and over time. While competition with the traditional large exporters – U.S., Germany, and Japan – has declined, competition with China has increased rapidly. Textile exports not only face stiff competition from some of the big players like China, India and Bangladesh, but also from emerging smaller Asian countries like Vietnam and Cambodia. To catalyze export growth El Salvador needs to undertake important structural reforms aimed at creating an entrepreneur enabling environment, with the twin objectives of increasing competitiveness of exporting firms and diversifying the export base.

## A. Overview

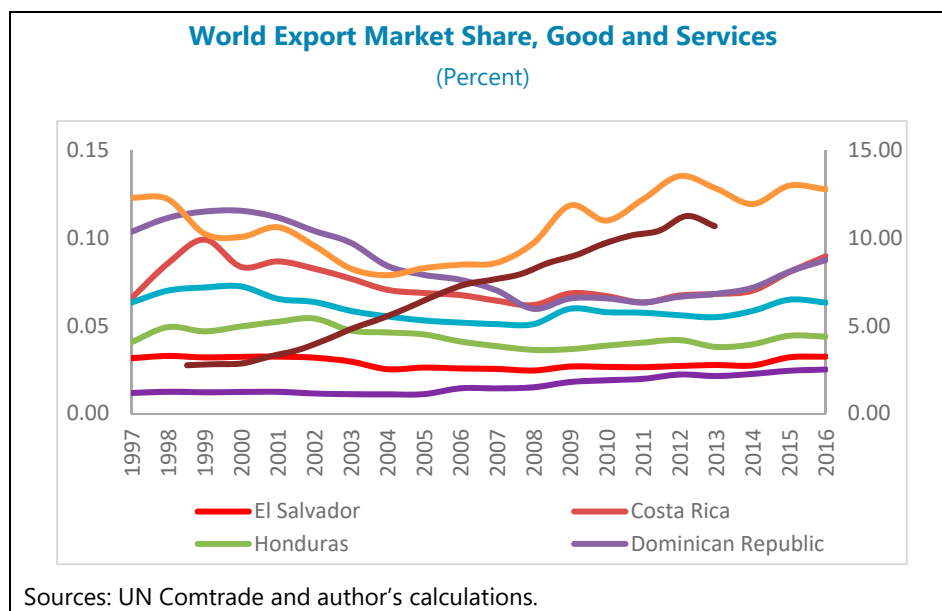
**1. El Salvador's exports have been stagnant over the last few years.** El Salvador's exports are sizeable relative to GDP though not the highest when compared to other countries in the region. A worrying sign is that the exports have been stagnating. Unlike other countries of the region El Salvador has not seen growth in its exports over the last few years (since 2011).<sup>2</sup> Looking at El Salvador's share in world exports over the longer run, we find that its share has been roughly constant over the last 15 years, whereas Dominican Republic and Costa Rica have seen rapid increase in their shares after 2010.



<sup>1</sup> Prepared by Nitya Aasaavari and Rahul Giri.

<sup>2</sup> 2017 has seen a resurgence in exports.





**2. El Salvador's merchandise exports are highly concentrated geographically and to a lesser extent across products.** Geographically, El Salvador's merchandise exports are highly concentrated. In 2016, 48 percent of El Salvador merchandise exports went to the U.S. and 39 percent went to Central America. Concentration of exports across products is also high, with textiles accounting for about 46 percent of merchandise exports in 2015.<sup>3</sup>

## B. Index of Competition

**3. Focusing on merchandise exports we analyze the degree of competition faced by El Salvador from its major competitors across its dominant export products by constructing the value and the count based index of competition proposed by Mattoo, Mishra and Subramanian (2016).<sup>4</sup>** For the main competitors and the dominant products, we also analyze the variation in competition indices across destination markets and over time.

**4. The value-based index (VBI) of competition captures the competition faced by El Salvador for a certain product in a destination country, where exposure to competition is captured by the dominance of a competing country in that product's market in the destination country.** More formally, the competition faced by El Salvador (SLV) with respect to a competitor,  $c$ , in an importing country,  $j$ , for product,  $g$ , can be measured as:

<sup>3</sup> On the import side, U.S. accounts for 37 percent of all merchandise imports of El Salvador, whereas Central American countries account for 21 percent.

<sup>4</sup> Mattoo Aditya, Prachi Mishra and Arvind Subramanian, 2016, "Beggar-thy-Neighbor Effects of Exchange Rates? A Study of the Renminbi," *American Economic Journal: Economic Policy*, forthcoming.

$$I_g^{SLV,j} = \sum_{g'=1}^G \left( \frac{V_{g'}^{SLV,j}}{V_g^{SLV,j}} \right) s_{g'}^{c,j} ,$$

where  $g$  is a HS-4 digit product,  $g'$  is a HS-6 digit product and  $G$  is the total number of HS-4 digit products.<sup>5</sup> The first term (in parenthesis) on the right-hand side captures the relative importance of  $g'$  in the exports of El Salvador. This is measured as the value of HS-6 digit product  $g'$  exported by El Salvador to importing country,  $j$ , divided by the value of the corresponding HS-4 digit product  $g$  exported by El Salvador to importing country,  $j$ . The second term,  $s_{g'}^{c,j}$ , captures the relative importance of a particular competitor,  $c$ , as a source of imports of HS-6 digit product,  $g'$ , in importing country  $j$ . It is measured as the value of HS-6 digit product,  $g'$ , exported by the competitor to importing country,  $j$ , divided by the total imports of HS-6 digit product,  $g'$ , by importing country,  $j$ . The product of the first and the second term obtained at the HS-6 level is then aggregated to obtain the VBI at the level of HS-4-digit product,  $g$ , and a competitor,  $c$ .

**5. While the VBI captures the intensive margin of competition since it is conditioned on a competitor exporting the products exported by El Salvador, a count based index of competition (CBI) captures the extensive margin of competition** – numbers of products exported by a competitor that are also exported by El Salvador. The CBI is given by

$$\bar{I}_g^{SLVj,c} = \frac{N_g^{SLVj,c}}{N_g^{SLVj}} .$$

It measures the number of HS-6 digit products, within a HS-4 digit product code  $g$ , that are exported by El Salvador and also by competitor  $c$  to destination  $i$  as a proportion of the total number of HS-6 digit products, within the same HS-4 digit product code  $g$ , exported by El Salvador to destination  $i$ .

## C. Data

**6. To construct the VBI and CBI, we use the bilateral merchandise trade data at HS-6-digit level of product disaggregation from the BACI World Trade Database, provided by CEPII.**<sup>6</sup> The original data behind BACI are the UN COMTRADE data. We restrict ourselves to the period from 2000 to 2014.

<sup>5</sup> HS is the harmonized system of product classification used in trade data. Each HS-6-digit product can be mapped to its parent HS-4-digit product.

<sup>6</sup> The data used to construct the index of competition is available at: [http://www.cepii.fr/CEPII/en/bdd\\_modele/bdd\\_modele.asp](http://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp)

**7. To identify the set of important competitors for El Salvador, we first identified products, at the HS-4 digit level, whose share in El Salvador's total exports in 2014 was greater than 1 percent.**<sup>7</sup> This yielded 22 products, which together accounted for more than 60 percent of El Salvador exports.<sup>8</sup> Then for each product, a set of competing exporters was determined. An exporting country was classified as a competitor for El Salvador if its share in world exports of a given product was greater than 1 percent and it was among the top fifteen exporters of that product. This yielded many advanced economies (AEs) such the U.S., Germany and Japan, and also some large developing economies like China and India. An additional criterion to be classified as a competitor was if the country's share of world exports of that product was between 0.4 percent to 1 percent, and it was an emerging market (EM) or a low-income developing country (LIDC), for example Brazil, Guatemala. This is done to proxy for quality. Given that we cannot measure quality of products, the level of development (income) of a competitor can be a proxy for the quality of its product for each HS6 product line. It is reasonable to expect that El Salvador's product quality is closer to that of EMs/LIDCs than to that of AEs. In other words, given the same VBI across two different competitors for a certain product, it is more likely that El Salvador faces more competition from the country with the lower level of development. Lastly, other countries in Central America that did not meet these two criteria were also included. In all, 46 competitors were identified.<sup>9</sup>

## D. Analysis

### Main Competitors

**8. While China is top competitor of El Salvador among the emerging economies and low-income countries (EM/LIDCs), the United States (US) takes the top spot among the advanced economies (AEs).** To compute the VBI at the level of a competitor we pool the data for all years and then for each competitor, we average the VBI across all products and destinations markets. This yields an estimate of average VBI for El Salvador with respect to each competitor over the entire sample period. The same procedure is followed for the CBI. The competitors are divided into AEs and EMs/LIDCs. For value-based competition, among the AEs U.S. is by far the most dominant competitor, followed by Germany, Italy and Japan. Among the EMs/LIDCs China comes in with the highest VBI followed by Mexico, Guatemala, Brazil and Costa Rica. The picture remains quite stable for the AEs when we look at the count-based index, with Japan dropping considerably as a competitor compared to its VBI ranking. A similar drop is observed for Guatemala among the EM/LIDCs group. Furthermore, among the EM/LIDCs, Thailand, Indonesia, Poland and Hungary are tougher competitors based on count compared to value. CAPDR members are tougher competitors based on value compared to count. This is suggestive of greater specialization among countries within the CAPDR region.<sup>10</sup>

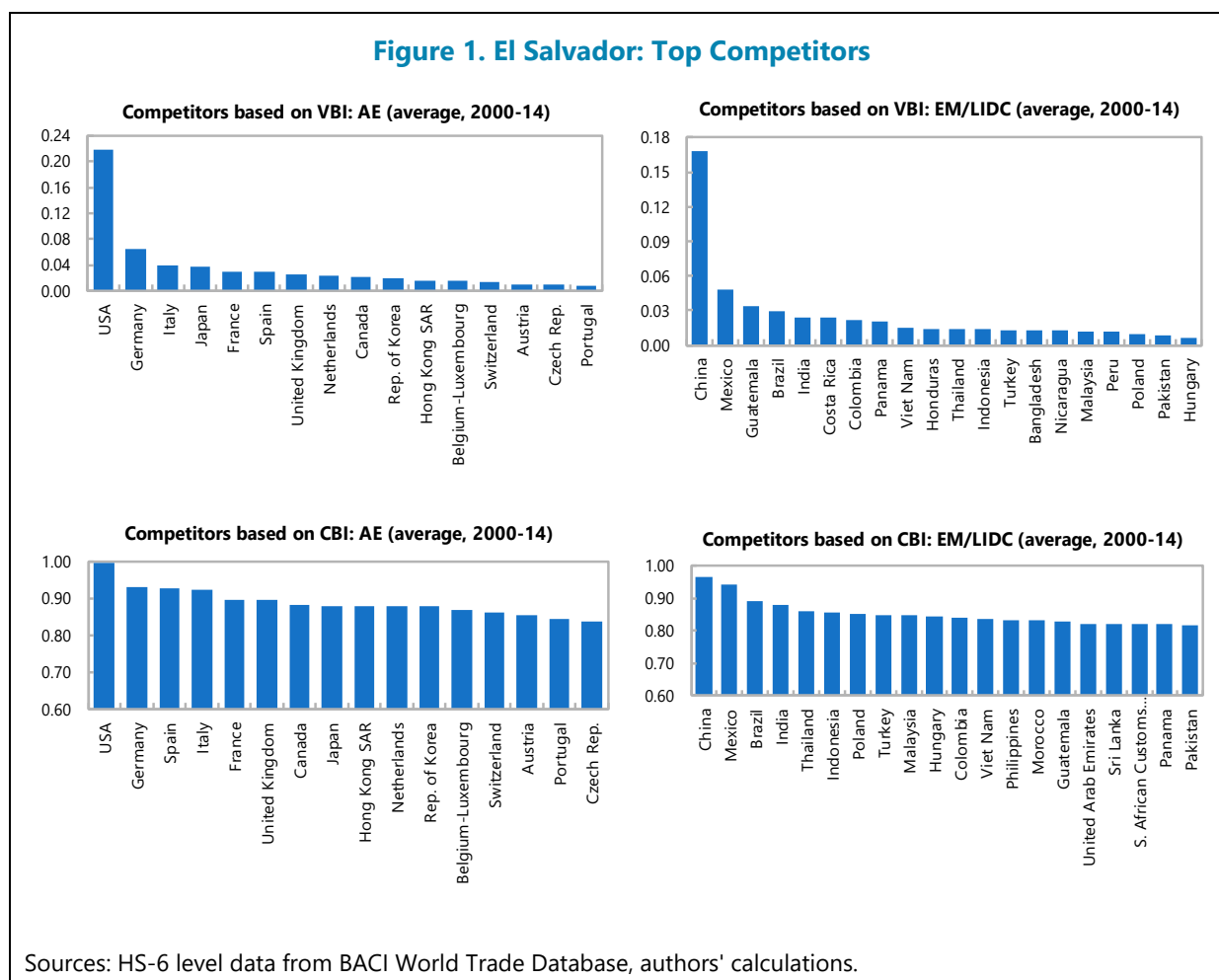
<sup>7</sup> The data used to identify competitors is available at: <http://atlas.media.mit.edu/en/profile/country/slv/>

<sup>8</sup> Please see Table A1 for a list of the 22 products.

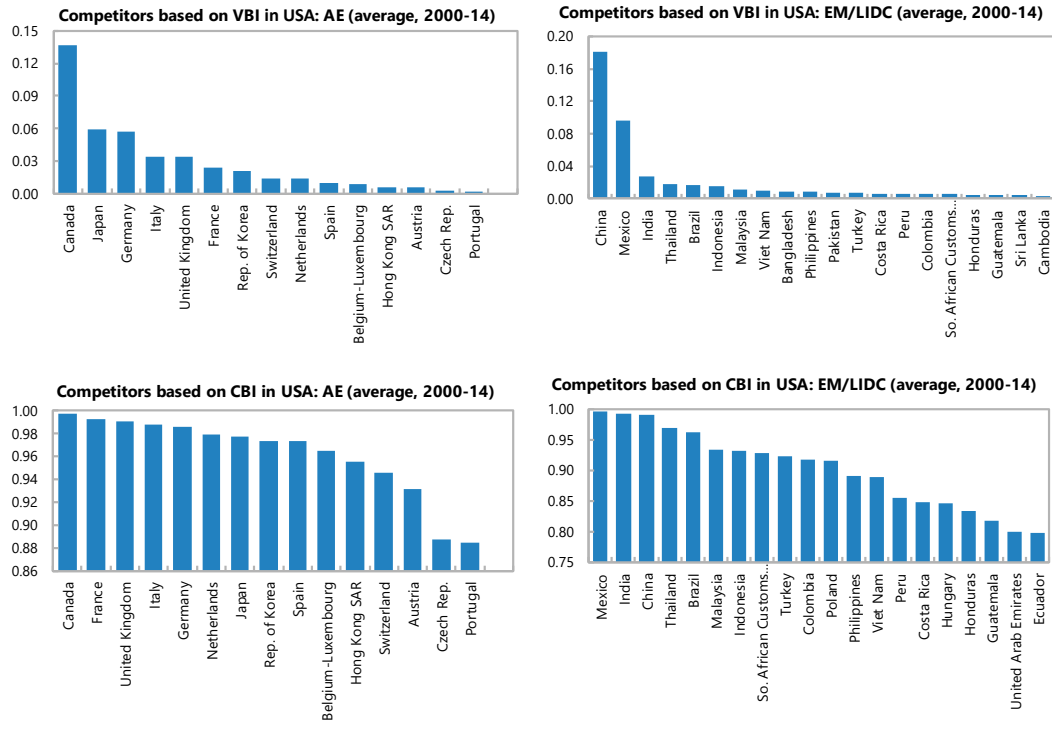
<sup>9</sup> Please see Table A2 for a list of the 46 competitors

<sup>10</sup> CAPDR refers to Central America, Panama and Dominican Republic.

**9. The set of top competitors of El Salvador in its two main destination markets – U.S. and CAPDR – is influenced by free trade agreements.** In the U.S., from the AEs Canada is the top competitor based on count as well as value. In the EM/LIDC group Mexico and India eclipse China as the big competitors in terms of count, even though China continues to be the top competitor in terms of value. Guatemala, on the other hand, drop significantly as a competitor in the U.S. compared to its global ranking. Compared to the U.S., in the CAPDR region as a destination, the CAPDR countries tend to be much tougher competitors. Also, among the AE competitors in the CAPDR region, the distribution of VBI is more skewed compared to that in world market, with the U.S.'s dominance in CAPDR being significantly larger.

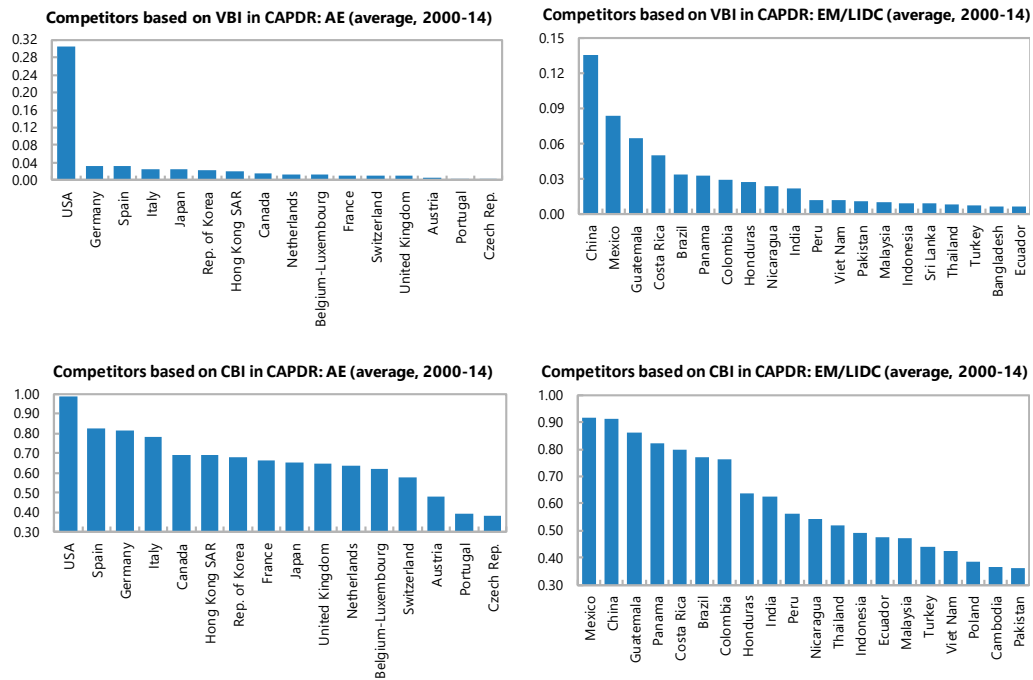


**Figure 2. El Salvador: Top Competitors in the U.S.**



Sources: HS-6 level data from BACI World Trade Database, authors' calculations.

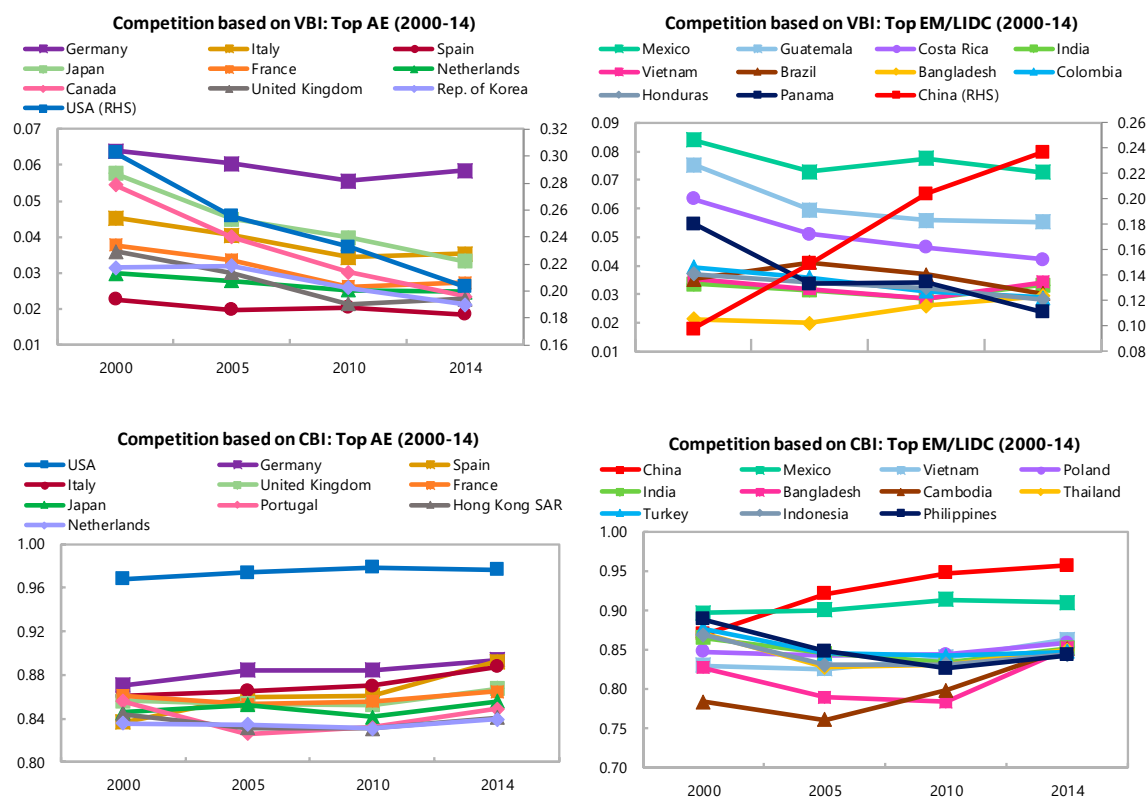
**Figure 3. El Salvador: Top Competitors in CAPDR**



Sources: HS-6 level data from BACI World Trade Database, authors' calculations.

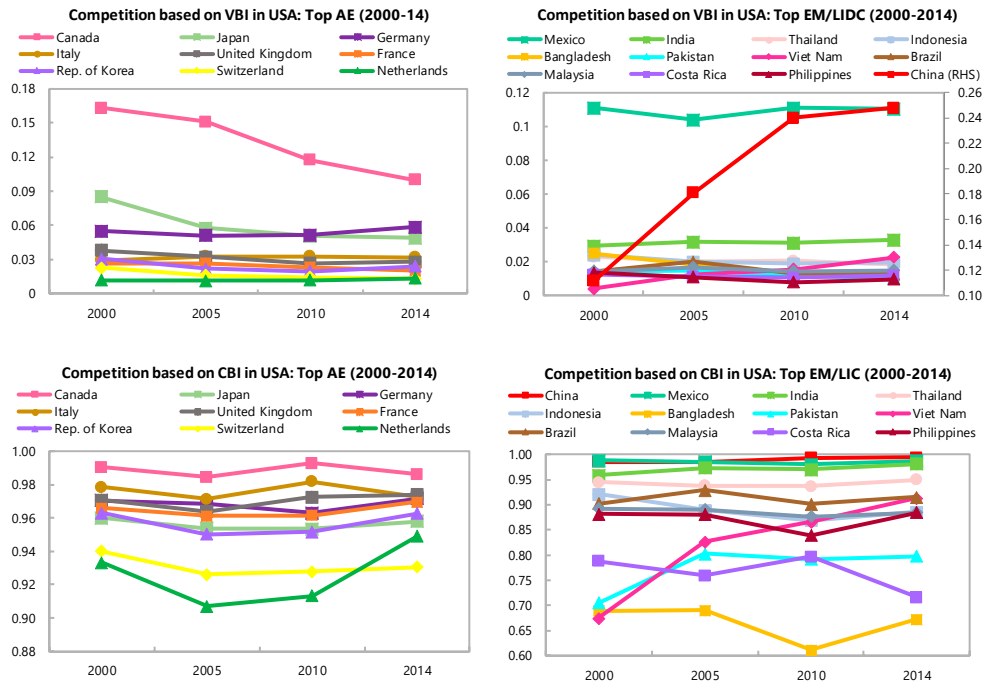
**10. Over time the competition from advanced economies has declined, but that from EM/LIDCs has increased, both from larger economies like China and smaller economies like Vietnam and Cambodia.** How has the degree of competition faced by El Salvador with respect to its major competitors changed over time? To answer this, we plot, over time, the two indices of El Salvador with respect to each of its top competitors after averaging across products and importers for each year. Due to space constraints, and for ease of viewing, we only show the evolution over time for the top 10 competitors for AEs and EM/LIDCs separately. For the AEs count based competition remained stable but value based competition declined, driven largely by the decline in VBI for U.S., Canada and Japan. Among the EM/LIDCs, competition from China increased, especially in terms of value (more than two-fold increase). For the U.S. and the CAPDR markets, the trend for AEs remain like those observed for the world. Among the EM/LIDCs, competition from China increased considerably in both markets, largely due to the increase in VBI (two-fold increase in the U.S. and more than three-fold increase in CAPDR) and to some extent due to the increase in CBI in CAPDR. In the U.S., Vietnam is fast becoming an important competitor by rapidly increasing the number of product lines overlapping with El Salvador. However, in the CAPDR market its VBI declined. In CAPDR, El Salvador has also seen an increase in competition from Mexico (due to VBI), India and Guatemala (due to CBI), but a decrease in competition from Costa Rica (due to VBI) and Sri Lanka (due to both, VBI and CBI).

**Figure 4. El Salvador: Competition Over Time**



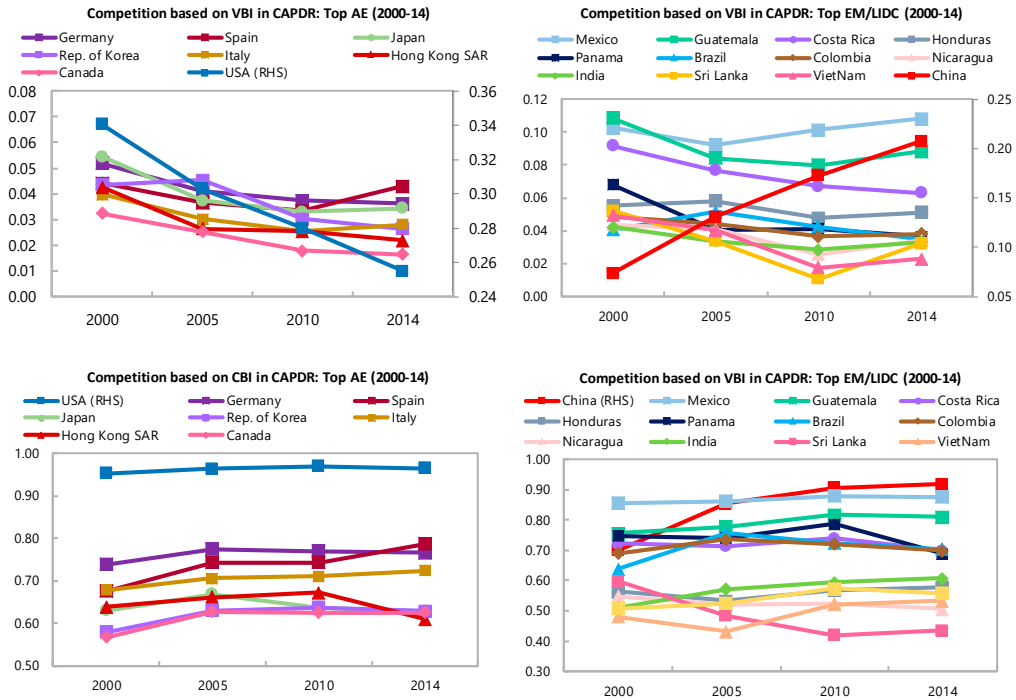
Sources: HS-6 level data from BACI World Trade Database, authors' calculations.

**Figure 5. El Salvador: Competition Over Time in the U.S.**



Sources: HS-6 level data from BACI World Trade Database, authors' calculations.

**Figure 6. El Salvador: Competition Over Time in CAPDR**



Sources: HS-6 level data from BACI World Trade Database, authors' calculations.

## Competition in the Product Space

**11. Among the main export products, garments tend to have higher CBI than VBI, signaling that even though these product lines are highly contested varieties exported by El Salvador may be a of higher quality.** To arrive at a product level VBI and CBI for El Salvador we pool the data over all years and then average across all importers and competitors for each HS4 product line. We restrict the analysis to the major export products of El Salvador, which, as explained earlier, are picked based on their export shares. Given that these products are the major exports of El Salvador, these are likely to be the products in which El Salvador has comparative advantage (or has had comparative advantage).<sup>11</sup> The graph below shows the VBI and CBI for the top 10 products (by export share), in a decreasing order of export share as we go from left to right. Together these products account for 45 percent of merchandise exports in 2014. Cane/beet sugar, and Electrical capacitors, face the highest levels of value based competition, followed by Underpants of men's/boys, and Coffee. Out of the four product lines, Cane/beet sugar and Coffee also exhibit high level of count based competition. T-shirts and vests, and Jerseys and pullovers (combined share in exports value is around 20 percent) are the other product lines that exhibit high CBI. However, their VBI is among the lowest. Medicaments exhibits a pattern similar to that observed for Electrical capacitors.

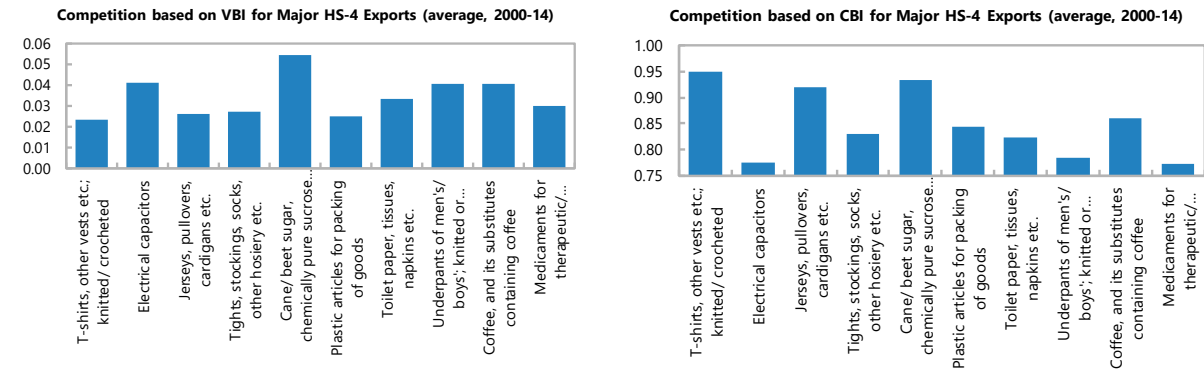
**12. The set of top products exported by El Salvador is different across its two-main destination market —U.S. and CAPDR —, with the U.S. market dominated by textile exports.** In the U.S. the composition of top products is heavily skewed towards apparel, but different from that in the world market, and relative to the world market the competition is higher in terms of count. On the other hand, the world market sees higher levels of VBI competition than in the U.S. for top products that overlap. In the CAPDR market, the composition of top products does not have much apparel, and in comparable products competition is lower for both count and value compared to the world market. Based on the top products, there is a greater level of diversification observed in the export basket of El Salvador to CAPDR compared to its export basket to the US, but the level of competition is much higher in the US especially, based on count.

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<sup>11</sup> We also looked at products with the highest degree of competition, but these are likely to be products in which El Salvador does not have comparative advantage. Quite of a few of the products are resource based such as metals and primary agricultural products. Our methodology may also miss products in which El Salvador has latent comparative advantage.

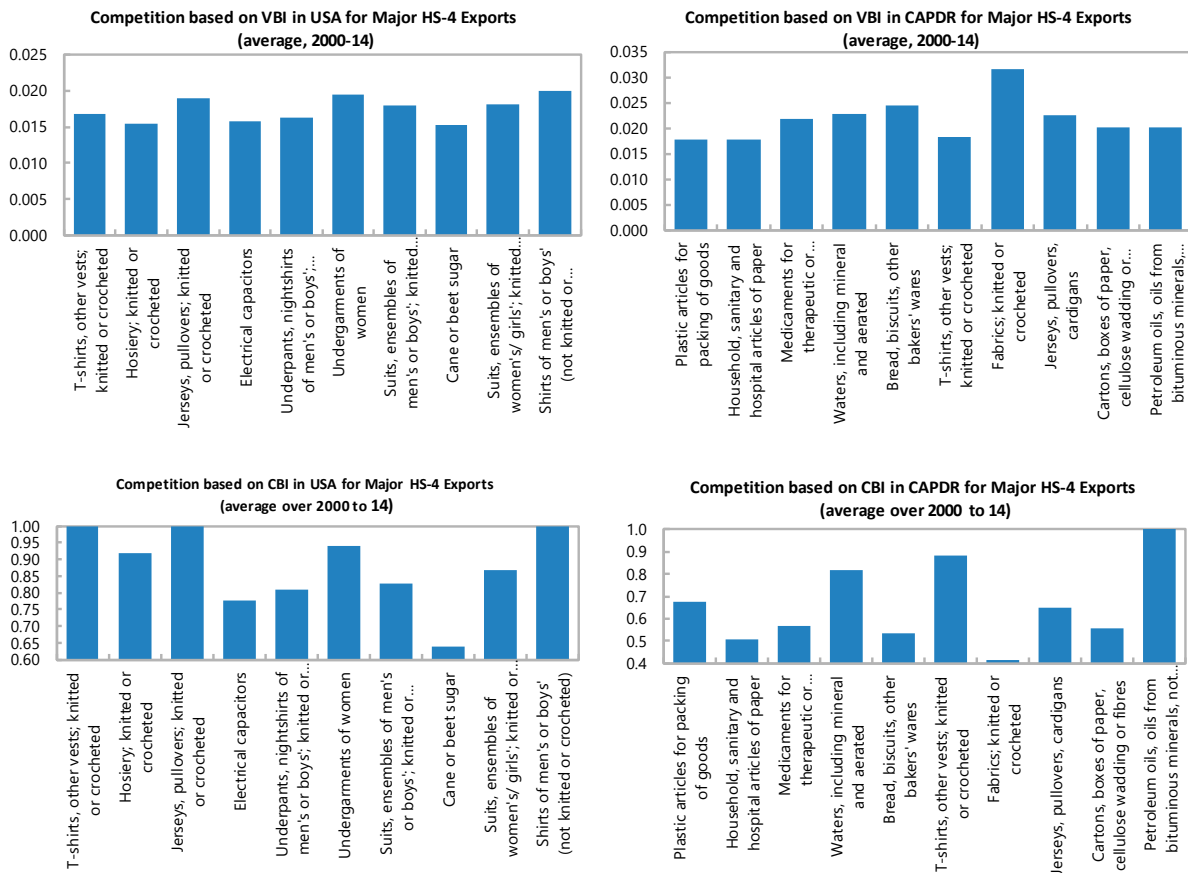


**Figure 7. El Salvador: Competition in Main Product Lines**



Sources: HS-6 level data from BACI World Trade Database, authors' calculations.

**Figure 8. El Salvador: Competition in Main Product Lines in the U.S. and CAPDR**



Sources: HS-6 level data from BACI World Trade Database, authors' calculations.

Figure 9. El Salvador: Competition in Main Product Lines Over Time

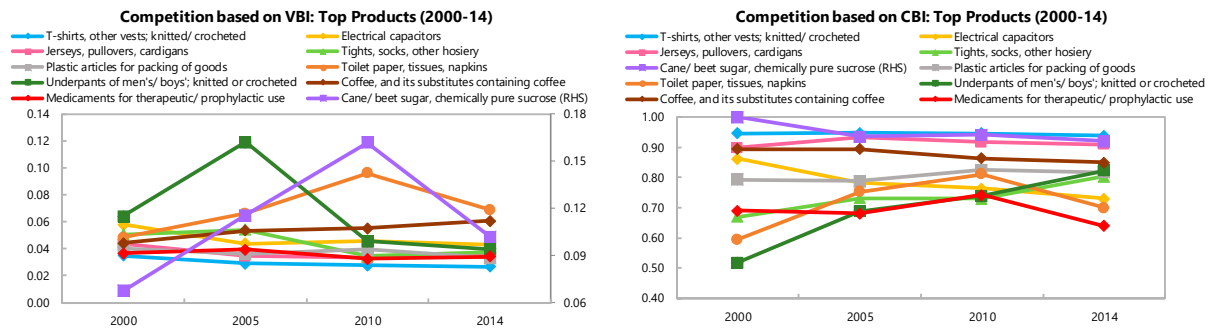
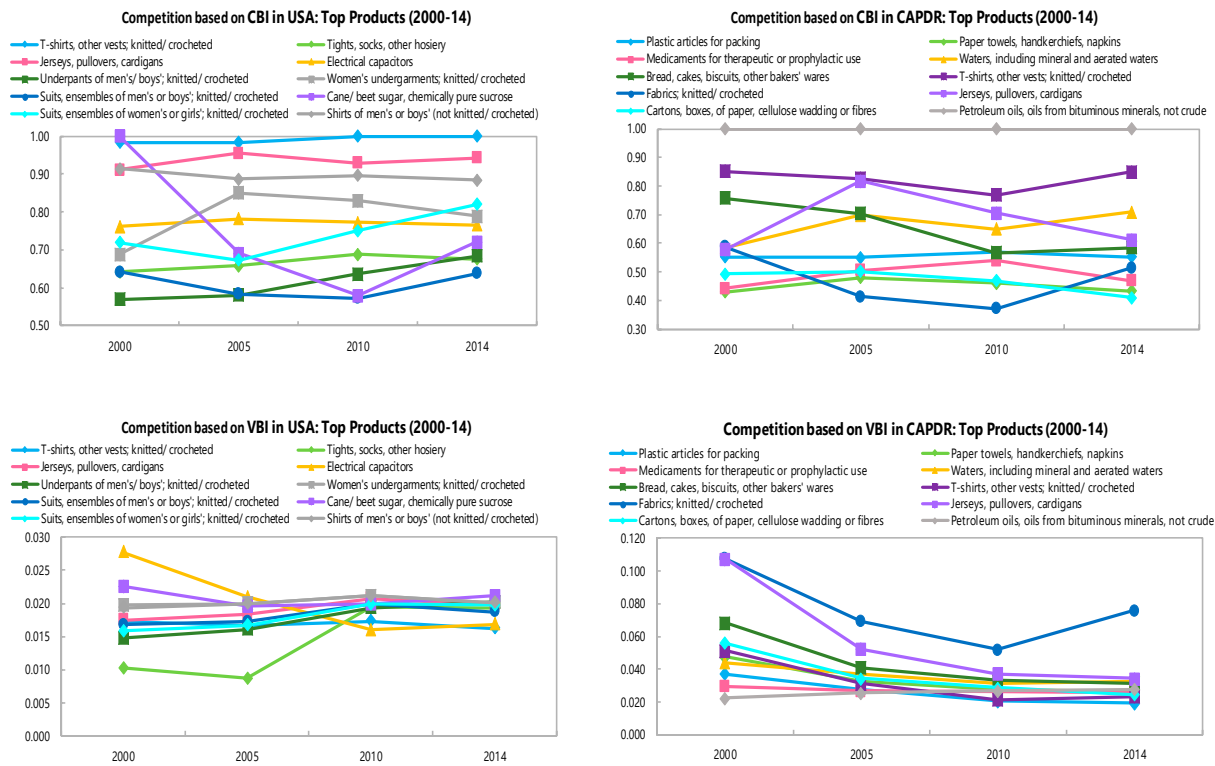
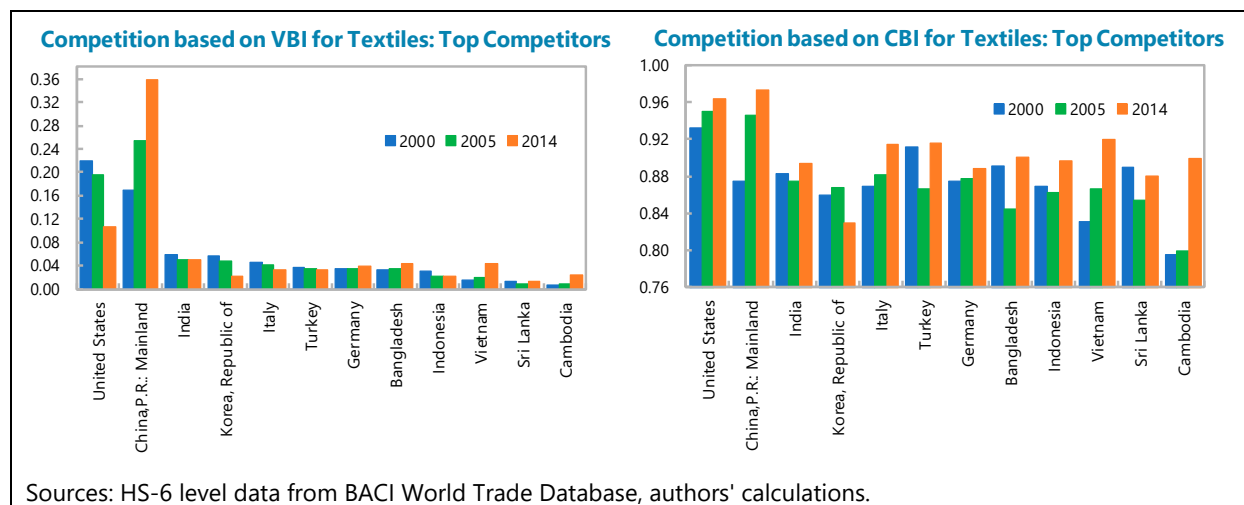


Figure 10. El Salvador: Competition in Main Product Lines Over Time in the U.S. and CAPDR



**13. Lastly, we analyze evolution of the two indices of competition for the top products over time.** For the world, for CBI, we observe a decline for Electrical capacitors and an increase for Toilet paper, tissues and napkins, Tights, socks and other hosiery, and Underpants of men's/boys, knitted or crocheted. VBI remained mostly stable, except for a significant increase for Underpants of men's/boys, knitted/crocheted in 2005 followed by a comparable decline by 2010, and a large

increase for Toilet paper, tissues and napkins and Cane/beet sugar. In the U.S. market, Underpants of men's/boys and suits, and Ensembles of women/girls experienced a substantial increase in count based competition, while Cane/beet sugar saw a big drop. In terms of value, most products saw an increase in competition, with Tights, socks and hosiery leading the pack, but Electrical capacitors saw sharp reduction. In the CAPDR region, there has been a noticeable increase in count based competition for Water, and Medicaments, but a decline in Bread, cakes, biscuits, and Fabrics knitted/crocheted. For value based competition, we observe a decline in for most products, with the sharpest decline for Jerseys, pullovers, cardigans.



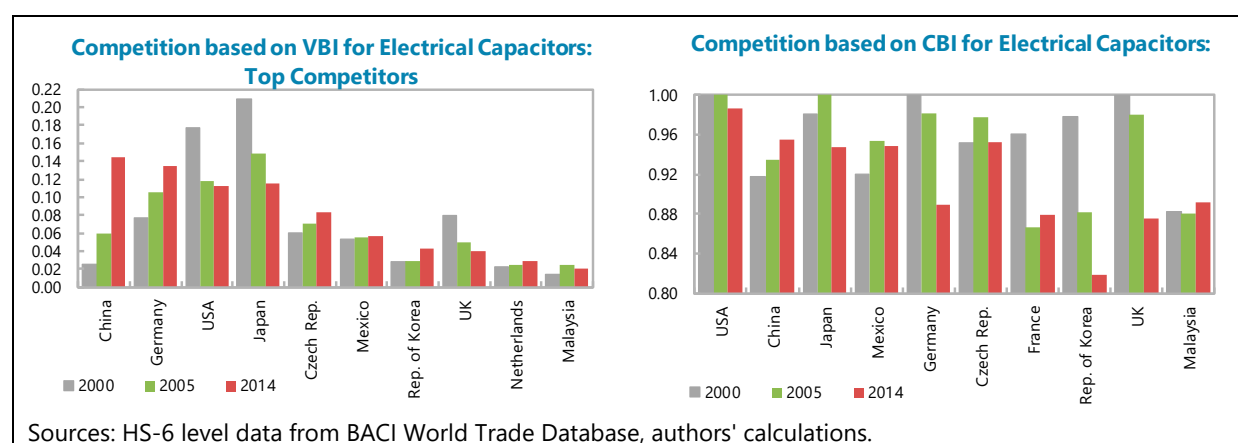
## Textiles

**14. Given the large share of textiles in the exports of El Salvador (about 46 percent), we take a closer look at the textile industry, and find that while China is the top competitor smaller countries like Vietnam and Cambodia are the new emerging competitors.**<sup>12</sup> We observe a regional concentration in competition in the textile industry, with Asian countries emerging as the top competitors. This dominance has increased over time as El Salvador's VBIs with respect to China, Bangladesh, Vietnam and Cambodia have increased substantially. China's VBI doubled over the 14-year period, that of Vietnam tripled, and that of Cambodia increased by almost a factor of 4. The U.S. on the other hand has seen its VBI halve over the sample period, but it is still the most dominant competitor after China. South Korea has seen an even bigger decline – its VBI in 2014 was about one-third of the 2000 level. Changes in CBI show much less heterogeneity. Almost all top competitors exhibit an increase in CBI, with the most notable increase for Cambodia (by a factor of 3), followed by China and Vietnam. In terms of the level of competition China and U.S. remain the top competitors, with both countries competing with El Salvador in more than 96 percent of El Salvador's export products within the textile industry.

<sup>12</sup> Textiles is defined as HS2 chapters from 50 to 63.

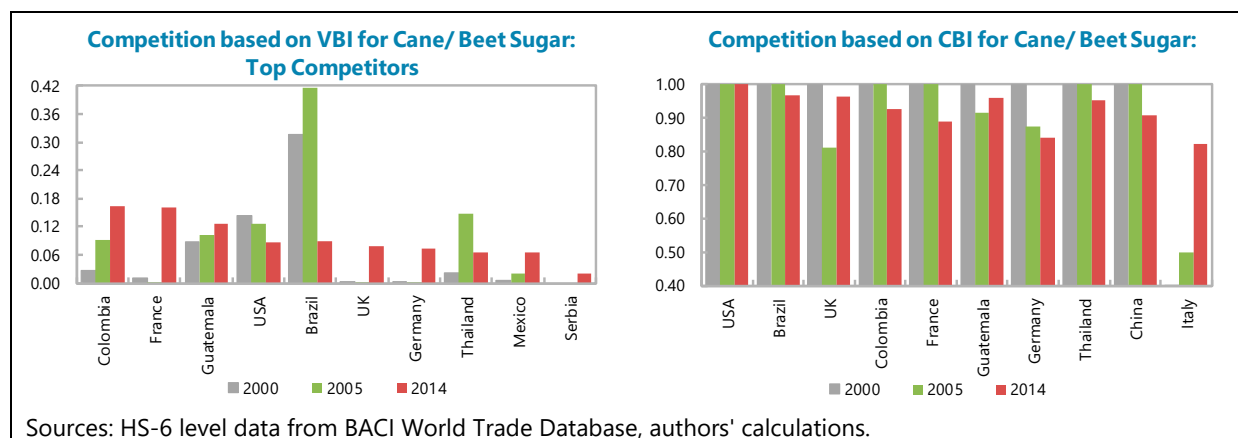
## Electrical Capacitors

**15. In 2014, Electrical Capacitors accounted for about 5 percent of total merchandise exports.** Analysis of the VBI of the competitors reveals that while Japan and U.S. used to be the top competitors in 2000, China and Germany have taken their positions in 2014. Again, China has increased the level of competition very sharply compared to other major competitors. Besides China, Czech Republic, South Korea and Malaysia have also seen a big increase in their VBIs. Shifting the focus towards CBI, during the period 2000-2014, U.S. and Japan have seen a modest decline in their CBIs. But, other developed countries like France, UK, South Korea and Germany experienced much bigger drops in their CBIs. On the other hand, China and Mexico have seen a significant rise in their CBIs, while CBI for Malaysia remained steady. Based on CBI, U.S., China, Japan, Mexico and Czech Republic were the most dominant competitors in 2014.



## Cane/Beet Sugar

**16. Though sugar has much lower value added and technological sophistication compared to textiles and electric capacitors, it accounts for 3.3 percent of total exports.** Among the dominant players in the export market for sugar, Brazil has seen the largest decline in its VBI, followed by the U.S. All other major competitors have experienced an increase in their VBIs, with Colombia and France leading the pack, followed by U.K. and Germany. From the central American region, El Salvador has seen an increase in degree of competition from Guatemala. Based on the VBI, between 2000 and 2014 Brazil was replaced by Colombia as the most dominant competitor. Count based competition levels are high for most top competitors, with the U.S. and Brazil being the top competitors. Between 2000 and 2014 most top competitors exhibit a decline in count based competition, except Italy.



**Policy Priorities**

**17. The analysis shows that competition from large exporters of 2000s – U.S, Germany and Japan - has gone down, and by 2014 the place of these dominant exporters was largely taken by China.** In textiles, the largest export industry, El Salvador now faces stiff competition from even smaller Asian economies like Vietnam and Cambodia. The table below shows that China, which has the largest market share, saw its share in peak in 2010 and since then it has seen a small decline. This may, in part, be due to an increase in cost of labor in China. During the period 2000-10 China’s share increased most rapidly, and many top competitors saw their market shares decline. Between 2010 and 2014, the shares of most developed economies declined but those of the developing economies increased, but El Salvador was not one of them. El Salvador has seen its market share decline between 2000 and 2010, and remain stagnant between 2010 and 2014. The space created by a decline in China’s share has been filled by countries like Vietnam and Cambodia. Interestingly, competition from Vietnam increased in the U.S. market, while that from Cambodia increased in the CAPDR market (mostly due to increase in CBI).<sup>13</sup>

**Table 1. Share in World Exports of Textiles**  
(In percent)

Share in World Textiles Export (in %)	El Salvador		China,P.R.:		Korea,			Germany	Bangladesh	Indonesia	Vietnam	Sri Lanka	Cambodia
	Salvador	United States	Mainland	India	Republic of	Italy	Turkey						
2000	0.5	5.4	18.6	3.0	4.5	6.0	2.7	4.5	1.4	2.2	0.6	0.8	0.3
2005	0.4	4.3	26.8	3.7	2.6	6.0	4.0	4.3	1.8	1.9	1.1	0.7	0.6
2010	0.3	3.5	34.6	5.0	2.1	4.7	3.9	3.9	3.1	2.1	2.4	0.7	0.7
2014	0.3	3.2	33.3	5.0	2.0	4.6	4.2	3.6	4.4	2.2	3.8	0.8	1.3

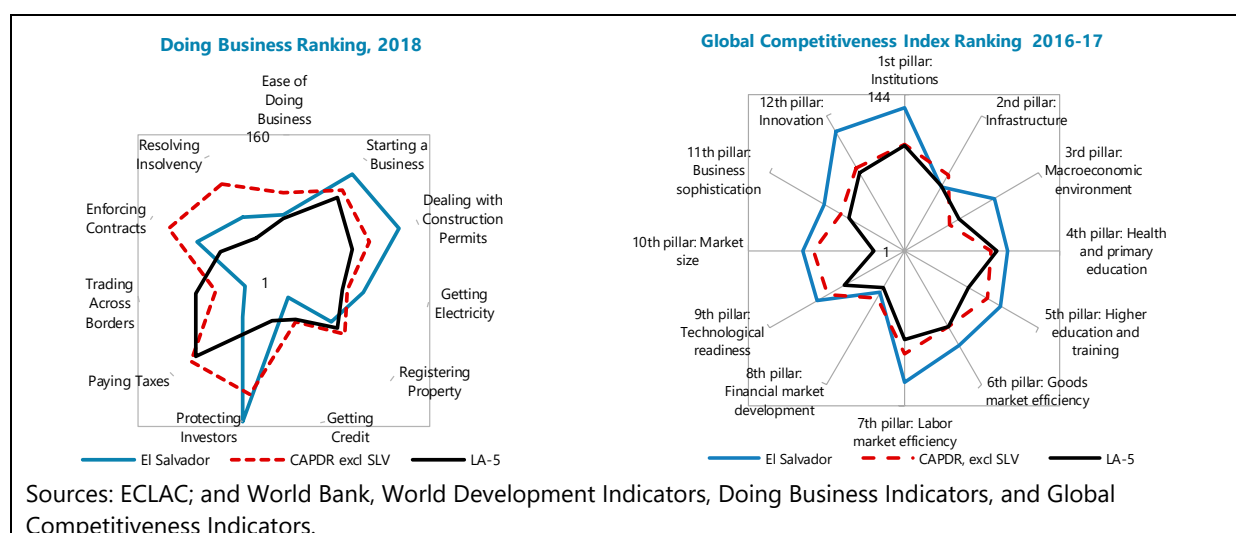
Sources: BACI World Trade Database and authors' calculations.

<sup>13</sup> Between 2003 and 2016, the correlation between export growth and nominal and real effective exchange rate changes is very small, suggesting that the more recent slowdown in exports is not due to an appreciation of the dollar. But, this issue needs to be investigated more.

**18. From the point of view of export growth, two issues need to be addressed: (a) improving competitiveness of exporting firms, and (b) diversifying the export base.<sup>14</sup>**

Besides entrepreneurial ability, firms, in order to be competitive and to become successful exporters must (i) have access to a well-trained workforce (exports tend to be of higher quality); (ii) have access to finance (exporting involves high fixed/sunk costs); (iii) be able to invest in research, technology, and innovation (to improve competitiveness and product quality over time); and (iv) have access to strong infrastructure and an entrepreneur enabling regulatory environment.

**19. El Salvador ranks poorly relative to other countries in Central and Latin America in starting a business, dealing with construction permits, access to electricity, and protection of investors (World Bank Doing Business).** The Global Competitiveness rankings show that El Salvador lags in almost every dimension compared to CAPDR and LA-5, and for institutions, human capital, innovation and labor market efficiency this gap is the widest. Though El Salvador's ranking jumped 22 notches in the 2018 Doing Business Index produced by the World Bank, from 95 to 73, there is still substantial room for further work in reducing the difficulties in starting a business and getting construction permits. El Salvador ranks 140 in terms of regulations on starting a business. It has a very low new business entry density compared to the LA-5 and other CAPDR economies.



**20. Both, competitiveness and diversification will be positively affected by policies targeting – improving access to education and training to upgrade skills and to keep up with technological change;** improving infrastructure and the institutional environment to support private investment and reduce internal trade costs; (iii) improving financial inclusion, and greater

<sup>14</sup> For El Salvador, the high level of informality makes the task of improving competitiveness and diversification more challenging.

gender equality to support greater entrepreneurial activity and activity in more sectors; and (v) investment in research, technology, and innovation to improve product quality.<sup>15</sup>

**21. An issue that comes up often in the context of diversification is the use of industrial policy. The conventional view on this is that the use of industrial policy should be avoided because of high informational demand, poor implementation, and potential capture due to rent-seeking.** However, more recently there has been a push for use of such policies under certain conditions.<sup>16</sup> Such conditions include, policies steering clear of picking winners; instead, they should be implemented at the level of sectors, and should support sectors that have large positive spillovers only insofar as these are competitive, with the support being spread across many firms and not being detrimental to entry of new firms.

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<sup>15</sup> On diversification see IMF 2014, "Sustaining Long-Run Growth and Macroeconomic Stability in Low-Income Countries—The Role of Structural Transformation and Diversification."

<sup>16</sup> See Aghion, P. et al, 2015, "Industrial Policy and Competition," *American Economic Journal: Macroeconomics*, 7(4):1–32; and Stiglitz, J. E. et al., 2014, *Creating a Learning Society: A New Approach to Growth, Development, and Social Progress*, Columbia University Press.

## Annex I. Products and Competitor Countries Included in Analysis

<b>Table AI.1. Top Exports of El Salvador</b> (To determine competitors)	
<b>HS-4 Digit Product</b>	<b>Share in SLV Exports, Percent</b>
Knit T-Shirts	13.0
Knit Sweaters	6.5
Knit Socks Hosiery	4.4
Knit Men's Undergarments	3.6
Light Rubberized Knitted Fabric	2.0
Women's Undergarments	1.6
Knit Men's Suits	1.6
Knit Women's Suits	1.5
Non-Knit Women's Suits	1.0
Non-Knit Men's Shirts	1.0
Raw Sugar	3.3
Flavored Water	2.0
Baked Goods	1.6
Processed Fish	1.4
Electrical Capacitors	4.9
Insulated Wire	1.3
Plastic Lids	3.2
Toilet Paper	2.2
Paper Containers	1.3
Coffee	2.6
Packaged Medicaments	2.1
Refined Petroleum	1.6

Sources: BACI World Trade Database and authors' calculations



<b>Table A1.2. Competitors for El Salvador Exports</b>		
<b>Criterion</b>	<b>Competitor</b>	
<i>Share in world exports of a given product &gt; 1%, AND among the top 15 exporters of that product</i>	Austria Bangladesh Belgium-Luxembourg Cambodia Canada China Hong Kong SAR Croatia Czech Republic France Germany Honduras India Indonesia Italy Japan	Malaysia Mexico Morocco Netherlands Pakistan Philippines Poland Republic of Korea Spain Sri Lanka Switzerland Thailand Turkey United Kingdom USA Vietnam
<i>Share in world exports of a given product 0.4% to 1% AND EM or LIC</i>	Brazil Colombia Costa Rica Ecuador Guatemala Hungary	Nicaragua Peru Portugal Serbia South African Customs Union United Arab Emirates
<i>Other Central American Countries</i>	Belize	Panama
Sources: BACI World Trade Database and authors' calculations		

# IMPACT OF EMIGRATION<sup>1</sup>

*Emigration in search of better economic opportunities has been a widespread phenomenon in many developing economies. The reduction in labor supply, especially those of skilled workers, is a cost that source countries incur, while remittances are a benefit. This note examines the costs and benefits of emigration using a simple demand-supply model. The analysis uses a sample comprising 31 countries in Central America, South America and the Caribbean.*

## A. Methodology

**1. Emigration rate.** The emigration rate<sup>2</sup> in country  $i$  at time  $t$  by level of education  $e$  can be defined as –

$$m_{e,t}^i = \frac{M_{e,t}^i}{M_{e,t}^i + R_{e,t}^i}$$

where  $M_{e,t}^i$  is the stock of emigrants and  $R_{e,t}^i$  are the residents in source country of emigrants.

**2. Theoretical framework.** The theoretical framework for this exercise is based on Mishra (2007a). Based on a simple model of labor demand and supply, countries tend to experience emigration loss. This can be understood as the *net* effect of a rise in wage rate in the source country due to reduction in labor supply, which entails a gain for the workers who stay behind, and a loss to the owners of other factors.

**3. Emigration loss.** This emigration loss can be expressed as –

$$EL = \frac{1}{2} S_L e m^2 \tag{1}$$

where  $e$  is the magnitude of elasticity of factor price of labor (i.e., the percentage change in wage resulting from a 1 percent change in the size of the labor force),  $m$  is the overall emigration rate, and  $S_L$  is the share of labor in GDP.

**4. High-skilled emigration loss.** Emigration loss when only high-skilled labor moves is expressed as –

$$EL_S = \frac{1}{2} S_S e_S m_S^2 \tag{2}$$

<sup>1</sup> Prepared by Nitya Aasaavari.

<sup>2</sup> Emigration rate has been taken from Brücker, Capuano, and Marfouk (2013). They use data from 20 OECD member states on the immigrant population aged 25 years and older by gender, educational level and detailed country of birth from 1980 to 2010 (at 5-year intervals).

where  $S_S$  is the skilled labors' share in national income,  $e_S$  is the elasticity of factor price of skilled labor (i.e. the percentage change in wage of skilled labor resulting from a 1 percent change in the size of the labor force), and  $m_S$  is the emigration rate for skilled labor force.

**5. Emigration of high-skilled labor.** Emigration of high-skilled labor (educational attainment higher than high-school leaving certificate or equivalent) is associated with a decrease in the productivity of the workers who have stayed behind, thereby giving rise to a negative externality and augmenting the loss.

**6. Augmented emigration loss.** Augmented emigration loss is expressed as –

$$AEL_S = \frac{1}{2} S_S e_S m_S^2 + \frac{\gamma S_S m_S (1 - S_S m_S)}{(1 - \gamma)} + \frac{\gamma S_U m_S (1 - S_U m_S)}{(1 - \gamma)} \quad (3)$$

where  $S_U$  is unskilled labors' share in national income, and  $\gamma$  is percentage change in marginal product of skilled and unskilled labor due to a 1 percent change in the stock of skilled labor.

**7. Negative externality from emigration of high-skilled labor.** The 2<sup>nd</sup> and 3<sup>rd</sup> terms in the above equation, respectively, capture this negative externality - the effect on the marginal product of skilled and unskilled labor who have stayed behind in the source country, arising from emigration of high-skilled labor.

**8. Education expenditure.** The expenditure incurred by government on the primary, secondary, and tertiary education especially of high-skilled emigrants represents an additional loss to the non-migrants. It likely manifests itself in lower provision of public goods or higher tax rates.

**9. Education expenditure for high-skilled emigrants.** Annual expenditure on education of high-skilled migrants (as a ratio of GDP), is given by –

$$E^m = c_S * M_S \quad (4)$$

where  $c_S$  is the cost of educating each migrant, and  $M_S$  is number of such migrants<sup>3</sup>.

**10. Measuring education expenditure.**  $c_S$  can be measured by dividing the government expenditure (percent of GDP) on primary, secondary, and tertiary education, by the enrollment in public institutions at the respective level.<sup>4</sup> Now, for a high-skilled person who emigrated in 2000, the government would have financed their primary, secondary, and tertiary education roughly in 1990, 1995, and 2000 respectively. But this data on public expenditure is not available for each year for

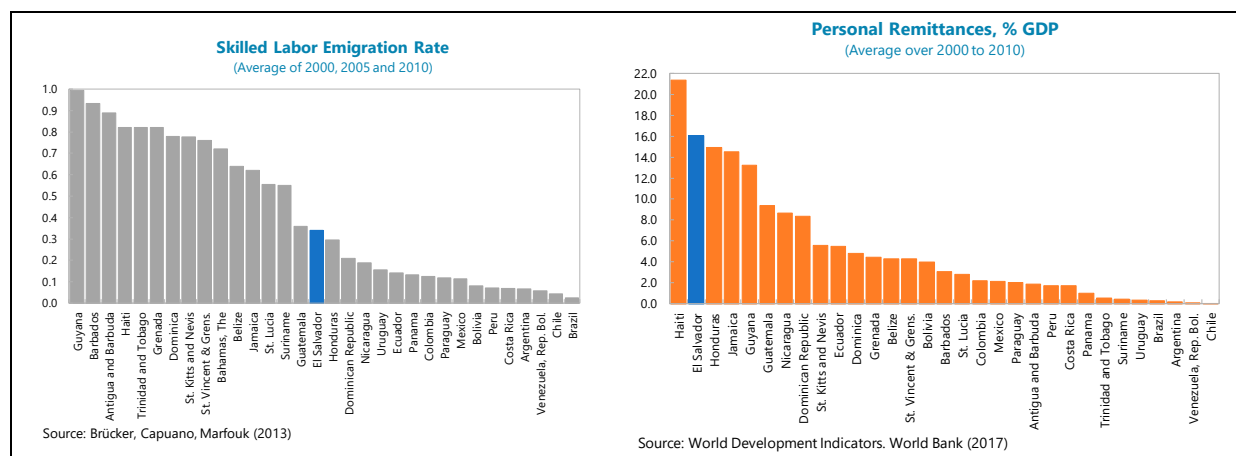
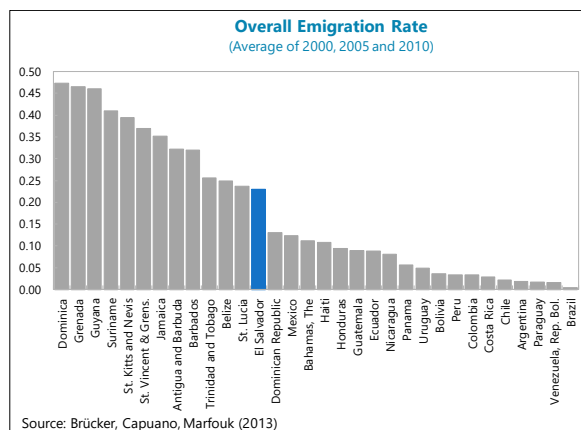
<sup>3</sup> Number of migrants has also been taken from Brücker, Capuano, and Marfouk (2013).

<sup>4</sup> The data can be found from the UNESCO Institute for Statistics - <http://uis.unesco.org/>.

any country in the sample. As an approximation, expenditure on primary, secondary and tertiary education has been averaged over 1990 to 2005, 1995 to 2005 and 2000 to 2010, respectively, to capture the cost of educating the average number of migrants over 2000 to 2010.<sup>5</sup> Even after relying on the above simplification, public education expenditure can be found for only 19 countries.<sup>6</sup>

## B. Data and Assumptions

**11. Country-wise emigration and remittances.** For some countries, notably those in the Caribbean, overall emigration rate is around 40 percent and emigration rate of high—skilled labor is around 80 percent. El Salvador exhibits higher emigration rates compared to most of its Central American neighbors.<sup>7</sup> The personal remittances<sup>8</sup> (percent GDP) it receives are among the highest in the region.



<sup>5</sup> Since the relevant data for many countries starts from 2000, primary education expenditure has been averaged over 1990 to 2005 instead of 1990 to 2000, but secondary and tertiary education expenditure over the respective ten-year period.

<sup>6</sup> Another way to measure  $c_s$  is by using government expenditure (percent of GDP) per student enrolled in primary, secondary, and tertiary levels - found at <http://uis.unesco.org/>. But this series is available for fewer countries in the sample; for the ones for which it is available, the magnitude of public education expenditure turns out to be similar.

<sup>7</sup> Emigration rate based on simple average is reported here; population weighted emigration rate would be likely higher, driven in part by the rise in emigration rate itself over time.

<sup>8</sup> Personal remittance data from the World Development Indicators (WDI) of the World Bank comprises personal transfers and compensation of employees.

**12. Values of parameters to compute loss.** The variation in emigration loss across countries arises from variation in the emigration rate; the values of all other parameters are held fixed. The following have been used to arrive at alternative sets of values for the emigration loss –

- The elasticity of factor price of labor  $e$  as 0.3 or 0.4, based on Mishra (2007b);<sup>9</sup>
- The elasticity of factor price of skilled labor  $e_s$  as 0.3 or 0.4, assuming the same value as above;
- The elasticity of marginal product of skilled and unskilled labor  $\gamma$  as 0.05 or 0.1, based on Mishra (2007a);
- The share of labor in national income  $S_L$  as 0.69,<sup>10</sup> based on Guerriero (2012);
- The share of skilled labor in national income  $S_s$  as 0.39,<sup>11</sup> assuming skilled labor constitutes the top 20 percent earners in the income distribution.

## C. Results

**13. Emigration loss.** Table 1 shows the simple emigration loss using equation (1); Dominica and Grenada show the highest loss. For 29 out of 31 countries, remittances exceed the loss.

**14. High-skilled emigration loss.** Table 2 shows that when only high-skilled emigration is considered using equation (2). The emigration loss is higher than the one reported in Table 1, owing to higher emigration rate of skilled labor compared to overall emigration. Guyana and Barbados show the highest loss. Remittances exceed the loss in 26 countries when wages for skilled labor are less elastic ( $e_s = 0.3$ ), and in 24 countries when wages for skilled labor are more elastic ( $e_s = 0.4$ ). For El Salvador, the loss is higher than that for Nicaragua, Dominican Republic and Honduras but lower than that for Guatemala.

<sup>9</sup> Using census data from Mexico and USA, Mishra (2007b) finds that a 10 percent decrease in the number of Mexican workers due to emigration in a skill group (defined by schooling and experience), increases the average wage in that skill group by about 4 percent.

<sup>10</sup> This is the simple average of labor shares in 17 countries reported in Guerriero (2012), calculated as compensation of employees for the self-employed divided by value-added. Karabarbounis et al. (2014) compute labor share as compensation of employees divided by GDP; 12 countries from the sample used here are available in their database which yields 0.32 as the average labor share. Given the informality in the labor markets of most countries in the sample, 0.32 perhaps appears to be an underestimate.

<sup>11</sup> Share of skilled labor = income share of top 20 percent earners \* share of labor in national income; income share of top 20 percent earners is 0.56, an average across 12 LAC countries taken from WDI.

**Table 1. El Salvador: Emigration Loss vs. Remittances**

(In percent of GDP)

Country	Loss, with elasticity of factor	Loss, with elasticity of	Remittances, Average
	price for labor = 0.3	factor price for labor = 0.4	2000-10
Antigua and Barbuda	1.07	1.43	1.89
Argentina	0.00	0.00	0.17
Barbados	1.05	1.41	3.04
Belize	0.64	0.86	4.32
Bolivia	0.01	0.02	3.96
Brazil	0.00	0.00	0.28
Chile	0.00	0.01	0.01
Colombia	0.01	0.02	2.20
Costa Rica	0.01	0.01	1.73
Dominica	2.32	3.09	4.82
Dominican Republic	0.18	0.23	8.37
Ecuador	0.08	0.11	5.45
El Salvador	0.55	0.73	16.04
Grenada	2.24	2.99	4.43
Guatemala	0.08	0.11	9.38
Guyana	2.19	2.92	13.25
Haiti	0.12	0.16	21.38
Honduras	0.09	0.12	14.95
Jamaica	1.28	1.70	14.53
Mexico	0.16	0.21	2.16
Nicaragua	0.07	0.09	8.67
Panama	0.03	0.04	1.02
Paraguay	0.00	0.00	2.04
Peru	0.01	0.02	1.74
St. Kitts and Nevis	1.61	2.14	5.58
St. Lucia	0.58	0.77	2.79
St. Vincent & Grens.	1.41	1.88	4.30
Suriname	1.73	2.31	0.43
Trinidad and Tobago	0.68	0.90	0.56
Uruguay	0.03	0.03	0.36
Venezuela, Rep. Bol.	0.00	0.00	0.07
Average	0.59	0.79	5.16

Sources: World Bank and author's calculations.

Notes:

1. Emigration loss here is calculated using equation (1);
2. Bahamas has been excluded as data on remittances is missing.

**Table 2. El Salvador: High-Skilled Emigration Loss vs. Remittances**  
(In percent of GDP)

Country	Loss, with elasticity of factor price for skilled labor = 0.3	Loss, with elasticity of factor price for skilled labor = 0.4	Remittances, Average 2000-10
Antigua and Barbuda	4.62	6.16	1.89
Argentina	0.03	0.03	0.17
Barbados	5.10	6.80	3.04
Belize	2.38	3.18	4.32
Bolivia	0.04	0.05	3.96
Brazil	0.00	0.00	0.28
Chile	0.01	0.01	0.01
Colombia	0.09	0.12	2.20
Costa Rica	0.03	0.04	1.73
Dominica	3.56	4.74	4.82
Dominican Republic	0.26	0.34	8.37
Ecuador	0.12	0.15	5.45
El Salvador	0.68	0.90	16.04
Grenada	3.94	5.25	4.43
Guatemala	0.75	1.00	9.38
Guyana	5.78	7.71	13.25
Haiti	3.96	5.27	21.38
Honduras	0.51	0.68	14.95
Jamaica	2.25	3.00	14.53
Mexico	0.08	0.10	2.16
Nicaragua	0.21	0.28	8.67
Panama	0.10	0.13	1.02
Paraguay	0.08	0.11	2.04
Peru	0.03	0.04	1.74
St. Kitts and Nevis	3.53	4.71	5.58
St. Lucia	1.81	2.41	2.79
St. Vincent & Grens.	3.39	4.52	4.30
Suriname	1.77	2.36	0.43
Trinidad and Tobago	3.95	5.27	0.56
Uruguay	0.14	0.19	0.36
Venezuela, Rep. Bol.	0.02	0.03	0.07
Average	1.59	2.12	5.16

Sources: World Bank and author's calculations.

Notes:

1. Emigration loss here is calculated using equation (2);
2. Bahamas has been excluded as data on remittances is missing.

**15. Augmented emigration loss.** Table 3 illustrates the emigration loss augmented for “external effects”, using equation (3). For only 16 to 17 countries (depending on the value of  $\gamma$ ), the remittances exceed the augmented emigration loss. The drivers of net gain or loss vary across countries. In Antigua & Barbuda, Barbados, Dominica, and Trinidad & Tobago - the loss is driven by very high rates (80 percent or more) of emigration of skilled labor, and low remittances. For other countries with comparable emigration rates such as Guyana and Haiti, the remittances are substantially large (13 to 21 percent of GDP) to act as an offset. For El Salvador, Guatemala and Honduras which exhibit similar loss (lower than the Caribbean countries), remittances (8 to 16 percent of GDP) act as an offset. For Colombia, Costa Rica, Mexico, Paraguay and Peru (similar loss) with lower emigration rates, remittances are only marginally higher than the loss.

**16. Augmented emigration loss and education expenditure.** The sunk cost arising from public expenditure on education of high-skilled migrants has also been included in Table 3. For the 19 countries for which education expenditure is available, remittances exceed the sum of augmented loss and education expenditure in 11 to 12 countries (depending on the value of  $\gamma$ ). Countries in the Caribbean such as Antigua and Barbuda, Barbados, Guyana and Jamaica spend a high proportion on education especially at the tertiary level (more than 5 percent of GDP). While the remittances received by the latter two tend to offset this spending, that is not the case for the former two. For the 12 countries with missing data on education expenditure, remittances exceed the augmented loss by a magnitude (6 percent of GDP or more) in Dominican Republic, Haiti and Honduras which would likely not be offset even if the education expenditure were to be included in the loss. For El Salvador - remittances (among the highest) outweigh the sum of emigration loss (moderate high-skilled emigration) and education expenditure (lower than the sample average) by the widest margin. Other countries for which remittances outweigh the loss include Nicaragua, Guatemala, Ecuador, and Bolivia.

**17. Other recent work on emigration and remittances in Latin America and the Caribbean.** The above results are broadly in line with Beaton et al. (2017) who find that the joint effect of emigration and remittances on growth has likely been negative for the Caribbean and South America - the former characterized by very high emigration, but small and possibly positive for Central America which receives much higher remittances.

## D. Conclusion and Caveats

**18. Remittances outweigh the sum of augmented emigration loss and education expenditure for nearly half of the 31 countries in this sample.** Most of these countries are from Central America. The countries for which remittances are not able to outweigh the above sum are mostly the Caribbean ones.



**Table 3. El Salvador: Augmented Emigration Loss vs. Remittances**  
(In percent of GDP)

Country	Education	Loss, with elasticity of		Remittances, Average 2000-10
	Expenditure*, Average 2000 - 2010	marginal product of skilled and unskilled labor	marginal product of skilled and unskilled labor	
Antigua and Barbuda	3.10	8.65	11.43	1.89
Argentina	0.08	0.37	0.75	0.17
Barbados	3.80	9.31	12.10	3.04
Belize	-	5.41	7.90	4.32
Bolivia	0.19	0.45	0.90	3.96
Brazil	0.05	0.13	0.27	0.28
Chile	0.25	0.23	0.47	0.01
Colombia	0.21	0.73	1.41	2.20
Costa Rica	0.22	0.38	0.77	1.73
Dominica	-	7.17	9.87	4.82
Dominican Republic	-	1.32	2.41	8.37
Ecuador	0.19	0.84	1.60	5.45
El Salvador	0.52	2.37	4.01	16.04
Grenada	-	7.71	10.45	4.43
Guatemala	0.15	2.53	4.23	9.38
Guyana	3.81	10.22	13.00	13.25
Haiti	-	7.74	10.47	21.38
Honduras	-	2.00	3.46	14.95
Jamaica	4.31	5.21	7.66	14.53
Mexico	0.29	0.66	1.29	2.16
Nicaragua	0.56	1.18	2.18	8.67
Panama	0.41	0.78	1.49	1.02
Paraguay	0.08	0.69	1.33	2.04
Peru	0.12	0.40	0.79	1.74
St. Kitts and Nevis	-	7.13	9.82	5.58
St. Lucia	0.95	4.48	6.78	2.79
St. Vincent & Grens.	-	6.92	9.60	4.30
Suriname	-	4.42	6.71	0.43
Trinidad and Tobago	-	7.73	10.47	0.56
Uruguay	-	0.94	1.78	0.36
Venezuela, Rep. Bol.	-	0.32	0.64	0.07
Average	1.01	3.50	5.03	5.16

Sources: World Bank and author's calculations.

Notes:

1. Emigration loss here is calculated using equation (3);

2. \* Education expenditure per high-skilled migrants (% GDP) is the average of -  
% GDP/ enrollment in primary public institutions) 1990-2005

(secondary education expenditure, % GDP/ enrollment in secondary public institutions) 1995-2005  
(tertiary education expenditure, % GDP/ enrollment in tertiary public institutions) 2000-2010.

**19. Caveats.** Of course, these results need to be qualified by the fact that there are other costs and benefits of emigration which have not been included in this framework, for e.g. the impact on trade, investment and marginal productivity of capital, and some others which are harder to measure. Other characteristics like demography, civil unrest, and natural disasters have also not been captured. The value of elasticity of factor price of skilled labor may be different from that of overall labor. Estimating country-level elasticities would better capture country characteristics, but is subject to the availability of detailed survey data.

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## CREDIT IN EL SALVADOR: OPPORTUNITIES AND RISKS<sup>1</sup>

*This note assesses the adequacy of the current level of credit in El Salvador using stylized facts and econometric analysis. We find that total credit growth to the private sector in percentage of GDP has returned to pre-crisis levels, but the recovery has been uneven across productive sectors. Measuring the evolution of credit to GDP by sector, we show that credit to agriculture, construction, tourism and commerce may continue to be somewhat constrained in the aftermath of the global financial crisis. In addition, we estimate the credit gap, defined as the difference between the credit-to-GDP ratio and its long-term trend. This is currently positive, but declining and below the critical 2 percent threshold recommended by Basel III micro-prudential guidelines. We conclude that there is still scope for financial deepening without excessive risks for financial stability.*

### A. Does Credit Contribute to Economic Growth in El Salvador?

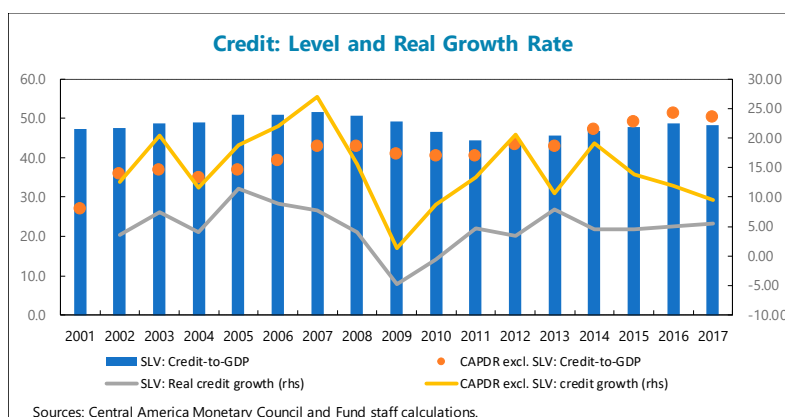
1. **Credit in emerging market economies accelerated during the last fifteen years.** Private sector credit growth both to households and nonfinancial corporations was above historical trends during the last decade driven by macroeconomic stability, more sophisticated credit markets, and higher macroeconomic stability. Several countries such as Turkey, Russia, Indonesia, and Brazil have experienced double digit real credit growth during the first decade of the century.
2. **The level of financial development, often measured by the share of credit-to-GDP, was empirically found to contribute to economic performance.** Despite the possibility of simultaneity bias, a relevant strand of the economic literature shows that sustainable credit growth can contribute to the development of an emerging market economy under three different dimensions: long-term growth, a reduction of poverty, and stabilization of economic cycles. First, if credit helps to allocate capital efficiently it can promote long run sustainable growth through productivity improvements. Second, empirical evidence suggests that measures of financial developments could mitigate income inequality by positively affecting the bottom quintile of the income distribution. Moreover, adequate credit could be beneficial to smooth the economic cycle. Satisfactory lending to productive sectors can play a crucial role in mitigating the negative impact of economic uncertainty on productivity growth. As in Aghion et al. (2014), firms that cannot borrow need to generate internal cash flow through short-term investment to self-insure against liquidity shocks, choosing a suboptimal level of long-term and productivity-enhancing investments.

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<sup>1</sup> This note was prepared by Fabio Di Vittorio.

## B. Credit to the Private Sector: Was Anyone Left Behind?

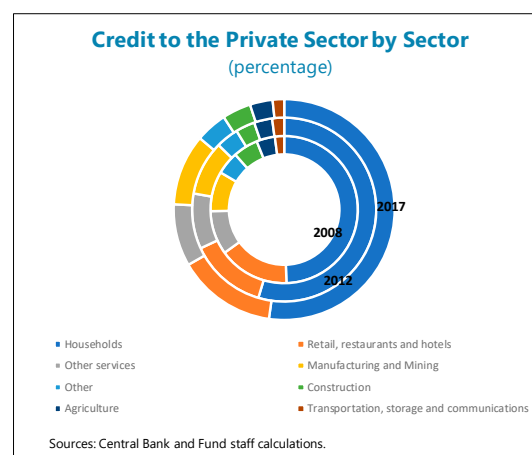
**3. Credit to the private sector in El Salvador has recovered after a temporary decline following the global financial crisis, but it continues to be among the lowest in the region.** Real credit grew at an average of 5 percent over the last 5 years pushing credit to GDP back to its pre-crisis level (45 percent of GDP).



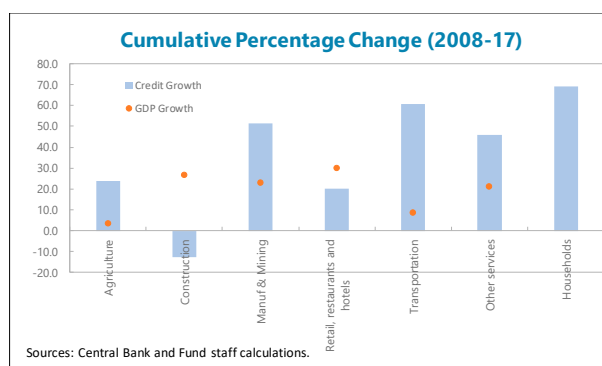
Nevertheless, the credit-to-GDP ratio in El Salvador dropped below regional peers after the global financial crisis.

**4. The recovery of credit to the private sector in the aftermath of the global financial crisis was driven by household lending.** Household lending (mortgages and consumer loans) grew very rapidly over the last decade. Most of the growth in credit occurring after the global financial crisis was caused by an expansion of household credit, which expanded since 2008 at an average rate of 4.4 percent y-o-y, raising from 48 to 56 percent of total private sector credit in 2017.

On the contrary, the growth rate of lending to productive sectors declined until 2011, although a tepid recovery started in 2012. Credit to productive sectors, as percentage of GDP, remained flat in recent years, but a substantial reallocation took place across economic sectors, helping to support a credit uptick in manufacturing, transportation, electricity and agriculture. Other sectors, such as financial services and mining, recovered only partially, while credit to construction continues to fall.



**5. Some sectors did not recover in the level of credit to sectoral GDP.** The fall in credit, measured as the ratio of credit to sectoral GDP, affected all economic sectors since 2003, but it accelerated during the financial crisis. The evolution of sectoral credit during the last fifteen years was characterized by a significant degree of dispersion. Credit to agriculture started to gradually decline since 2004, while a sharp contraction of credit affected commerce and



tourism during the financial crisis. In both sectors, a recovery took place since 2012, but the size was too modest to revert the new level of credit-to-sectoral GDP to the pre-crisis level. On the contrary, credit to manufacturing contracted during the financial crisis, but it has fully recovered and continues to expand. Similarly, the credit ratio for transport and communication has been very volatile, but it has fully recovered. It is possible to notice an uptick in credit growth for all productive sectors starting since 2012, but the magnitude has been different across sectors. Credit to construction declined steadily since the early 2000s, but is the sector experienced the major contraction in credit to GDP (almost 40 percent). Since credit allocation reacts to sectoral performance expectations, it is very difficult to assess a normative level for the credit to GDP ratio at sectoral level, but, the analysis based on the sector contribution to total GDP shows that agriculture, construction, tourism and commerce may have fallen behind in the allocation of credit.

### C. Credit Growth: Is There Still Room for Credit Growth?

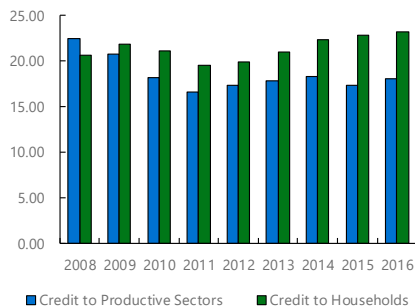
**6. Credit contributes to growth, but excessive credit growth could threaten financial stability and has been proven to be among the most robust predictors of banking crises** (Gourinchas and Obstfeld (2012)). Rising interest rates affect the capacity to repay variable interest rate loans and increase the cost of rolling over fixed-term debt, generating substantial risks for financial institutions with maturity mismatches.

**7. The Basel Committee requires that each country regulator assesses the credit gap.** A key tool introduced by Basel III is the activation of countercyclical capital buffers during credit booms. Such buffers, measured as percentage of risk-weighted assets (RWA) and covered by high quality capital (Tier 1 or core Tier 1) could range between 0 and 2.5 percent. The Basel Committee proposes regulatory authorities to publish an estimate of the “credit gap”, which is defined as the difference between the current private credit to GDP ratio and its trend value estimated using the HP filter. Regulators are free to use other methods to assess the long-term trend of variables, including asset prices indexes which may better reflect current credit conditions. During periods of credit contraction, capital buffers could be released to contain the procyclicality of lending.

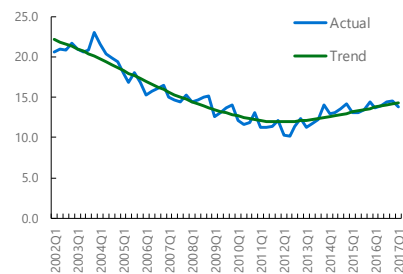
**8. The Basel Committee recommends banks to activate capital buffers when the credit gap exceeds 2 percent.** The countercyclical buffer requirements would be set equal to its maximum by the supervisor (2.5 percent of RWA) for a credit gap higher than 10 percent. When the bank has cross-border exposure, the requirement set by the foreign jurisdiction would apply, on the contrary for cross-border banking groups, the capital buffer would be applied both on individual and consolidated basis. Since the simple HP filter technique may not provide robust estimates of credit growth, the Committee gives regulators some discretion in the choice of the methodology for the activation of countercyclical capital buffers. Moreover, the calculation of the credit gap should be complemented with other tools, such as the loan-to-collateral and the loan-to-income ratio.

**Figure 1. El Salvador: Credit to GDP by Economic Sector**

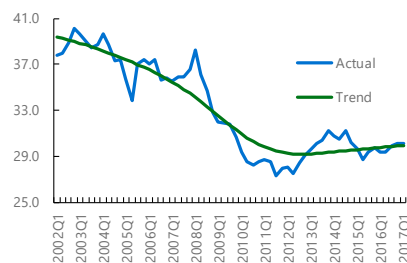
**Credit to the Private Sector**  
(Percentage of GDP)



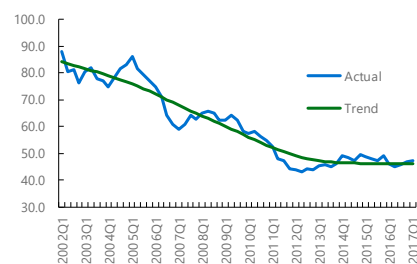
**Credit to Agriculture as a Share of Agriculture GDP**  
(Percentage)



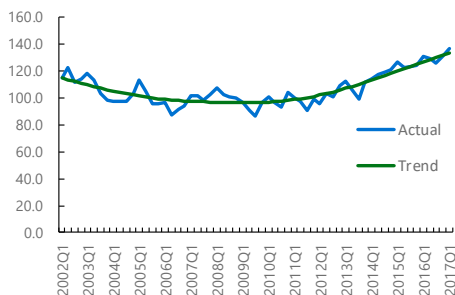
**Credit to Commercial, Restaurants, and Hotels as Share of Commercial, Restaurant, Hotel GDP**  
(Percentage)



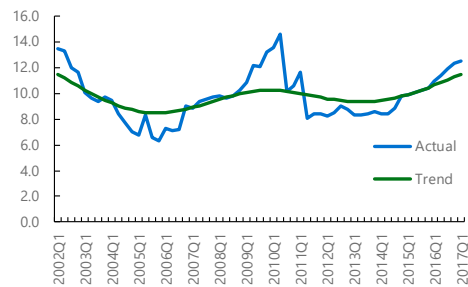
**Credit to Construction as Share of Construction GDP**  
(Percentage)



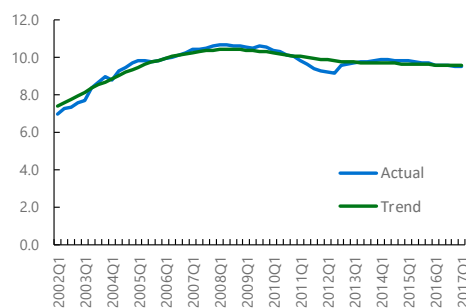
**Credit to Manufacturing as Share of Manufacturing GDP**  
(Percentage)



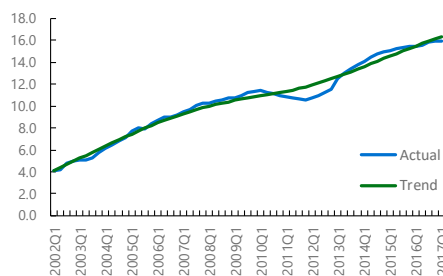
**Credit to Transport, Communication as Share of Transport and Communication GDP**  
(Percentage)



**Mortgages to GDP**

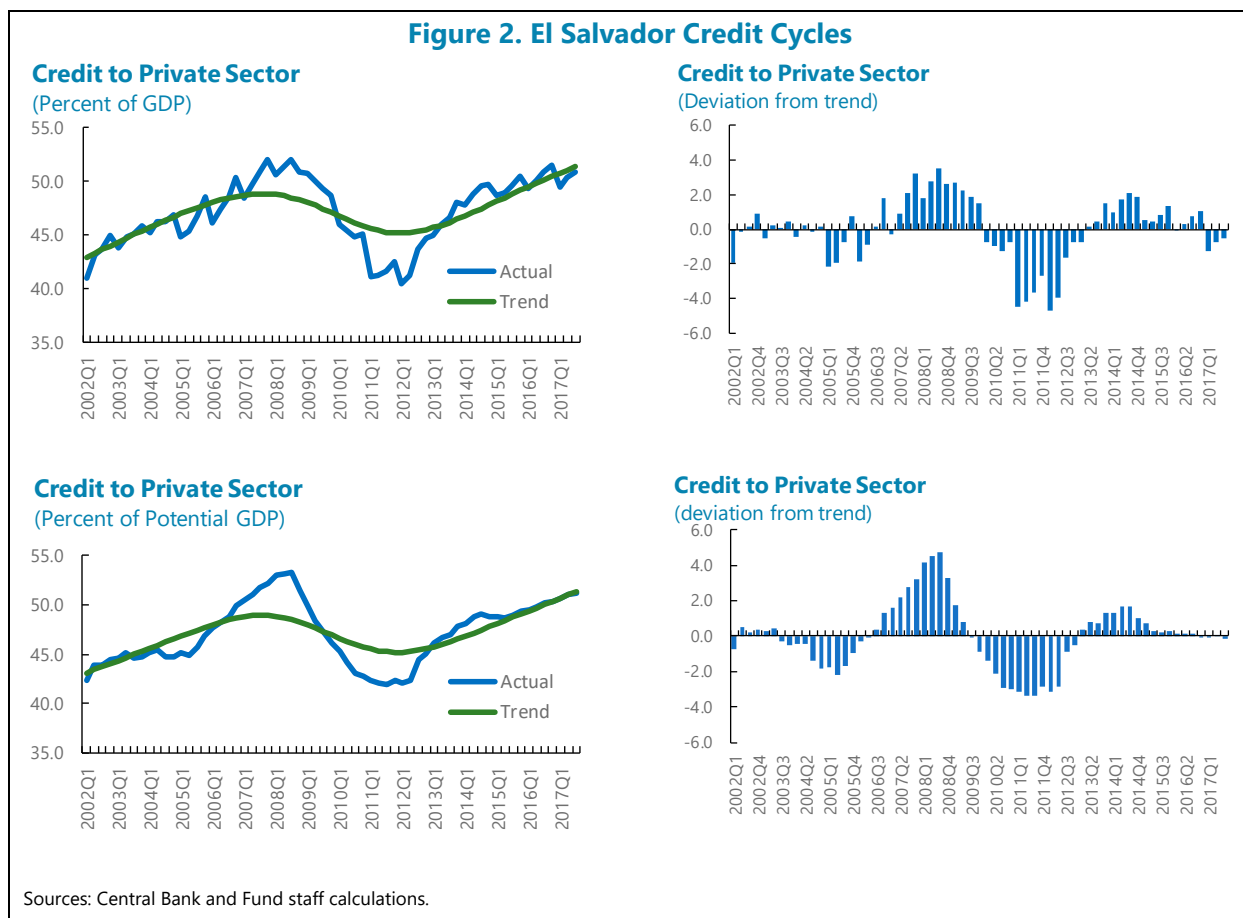


**Consumer Lending to GDP**  
(Percentage)



Sources: Central Bank and Fund staff calculations.

**9. An econometric assessment shows that the recent credit growth is not excessive and is aligned to fundamentals.** Following the literature on credit cycles, we analyze deviations of credit-to-GDP from its long-term trend to assess whether the current level of credit is excessive or moderate. We estimate the long term-trend of the credit-to-GDP ratio by using an HP filter. Following the literature on credit cycles, the deviation of the actual GDP from its calculated trend is compared to a threshold which is set equal to 1.5 standard errors of the deviation level covering 90 percent of the episodes of credit cycle expansion. A credit boom occurs whenever the “deviation” is above that threshold. In the case of El Salvador, the estimated threshold is equal to 1.43 percent, lower than the 2 percent Basel III micro-prudential rule which triggers counter-cyclical capital buffers. In addition, we determine the long-term trend of credit-to-potential GDP. Under both specifications, the deviations from trend are well below the threshold and hence we can conclude that recent credit growth is moderate and reflects financial deepening in line with macroeconomic fundamentals.



**10. The results of the application of the HP filter methodology in the estimation of credit gaps should be interpreted with caution.** The economic literature recommends using the HP filter when time series are sufficiently long. As noted by Seidler and Gersl (2012), the estimated trend could depend on the starting point of the time series. Drehmann and Tsatsaronis (2014) show that this problem worsens as the length of available time series shrinks. Borio and Lowe (2002) suggest that the methodology would not be advisable for time series of length shorter than 10 years. Moreover, the methodology could fail to account a positive credit expansion due to financial deepening. However, a sustained period of high growth in credit-to-GDP ratio translates into a faster trend growth estimate which could undermine the adoption of micro-prudential measures such as countercyclical capital buffers.



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# REAPING THE DEMOGRAPHIC DIVIDEND IN EL SALVADOR<sup>1</sup>

*El Salvador is in the middle of its demographic transition from high fertility and mortality rates to low fertility and mortality rates, when the share of the working-age population increases. During an early stage, the number of children rises rapidly as mortality falls; later, fertility begins to decline, reducing the number of children, and the share of the working-age population increases. This demographic transition is a window of opportunity to earn a demographic dividend, if good policies are in place. For El Salvador to harness its demographic dividend, it should invest in human and physical capital and adopt policies to improve the business climate and foster job creation.*

The Selected Issues Paper is organized as follows: Section I presents demographic trends in El Salvador and defines the demographic dividend; Sections II and III present the state of play of the doing business climate and makes recommendations on policies needed to reap the benefits from the demographic dividend; Sections IV and V present the state of play of human capital and migration and provides recommendations on how to foster human capital and reverse migration; and Section VI presents likely causes of informality and potential solutions.

## A. Demographic Trends and Dividend

**1. A first dividend occurs when fertility rates fall and the labor force temporarily grows more rapidly than the population dependent on it.** Other things being equal, per capita income grows more rapidly too. A measure for a first dividend is the period when the dependency ratio starts declining (but is still above two-thirds), while the most favorable period is when the dependency ratio falls below two-thirds (2 people in the dependent-age group for every 3 people in the working-age group) and continues decreasing thereafter. This dividend period can last five decades or more, but eventually lower fertility reduces the growth rate of the labor force, while continuing improvements in old-age mortality speed growth of the elderly population. Now, other things being equal, per capita income grows more slowly and the first dividend turns negative. But a second dividend is also possible when a population concentrated at older working ages and facing an extended period of retirement accumulates assets and invests them.

**2. In El Salvador, fertility rates<sup>2</sup> were falling steeply until the 2000s, which could explain the steady increase in the working-age population (Figure 1).<sup>3</sup>** Fertility rates were falling 30 percent by the 80s from the 60s and by another 50 percent by the 2000s, reaching 2.2 percent by the 2010-15. Lower fertility rates led to a steady decline in the dependency ratio<sup>4</sup> (from 1 to 0.72 by 2005). In the late 2000s and early 2010s, the dependency ratio fell below two-thirds and is projected

<sup>1</sup> Prepared by Iulia Ruxandra Teodoru.

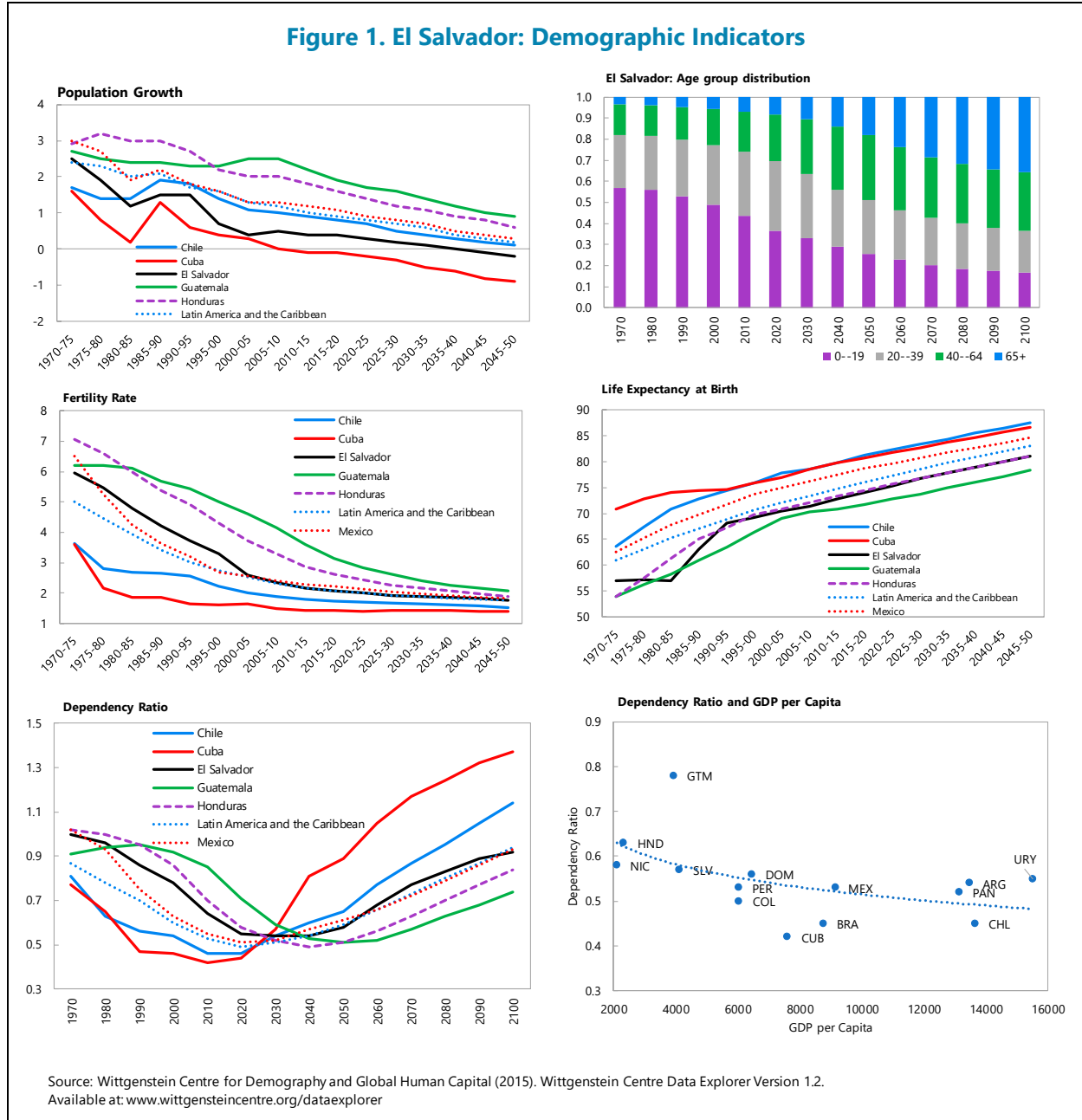
<sup>2</sup> The average number of children born in a period to the women of reproductive age (15-49).

<sup>3</sup> Working-age population is defined as those in the age group 20-64.

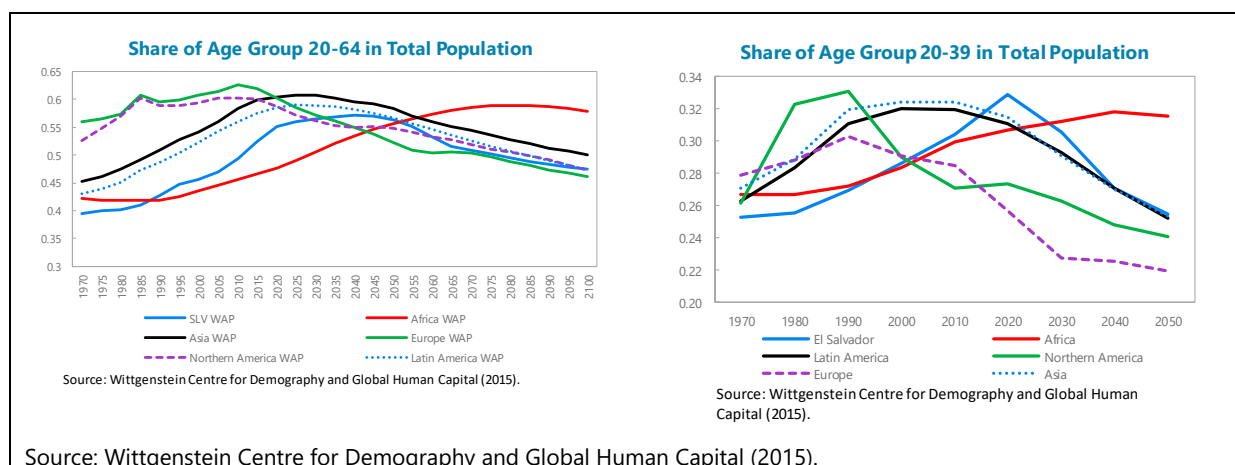
<sup>4</sup> Dependency ratio is defined as the ratio of the youth (0-14) and elderly (65+) population over the working age (15-64) population.

to remain below this level until the 60s, even though it is projected to increase slowly starting in 2045. The share of the youth population (ages 0-19) is very large at 44 percent of the total population and has been falling more rapidly since the 1990s, and that of the young cohort of 20-39 is 30 percent of the total population and growing. The share of the 40-64 population at about 20 percent of the total population is also growing.

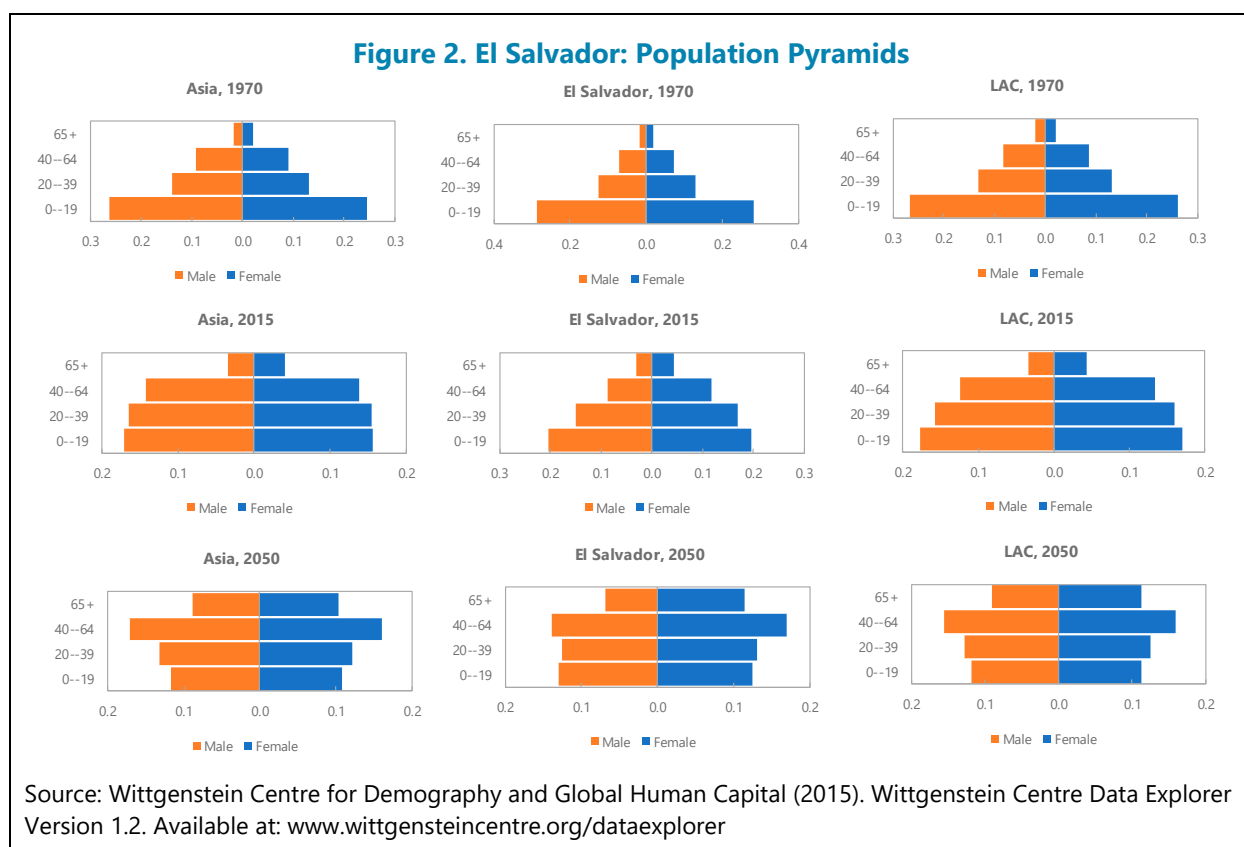
**Figure 1. El Salvador: Demographic Indicators**



**3. The share of the working-age population (20-64) is much lower in El Salvador compared to other Latin American countries and Asia (charts on Shares of Distinct Age Groups).** However, while El Salvador has a lower share of the young cohort (20-39) compared to Asia, the gap is about to close, and the share will be highest around 2020 before falling. In El Salvador, the share of the working-age population is expected to reach its peak (57 percent) in 2040 compared to 2025 in Latin America, 2030 in Asia, and 2080 in Africa, while it already reached its peak for Northern America (in 2005) and Europe (in 2010). And is expected to fall to about 47 percent in El Salvador at the end of the century.



**4. Latin America's onset of the demographic dividend occurred in the mid-60s following the decline in fertility.** Between 1950 and the mid-1960s, the dependency ratio in Latin America increased, reaching a maximum of 100 per 100 people of working age. In the mid-1960s, the dependency ratio started falling but was still at a high level. Some countries in Central America such as Costa Rica, followed by Panama and the Dominican Republic, benefited from demographic dividends faster given that the dependency ratio had fallen below two-thirds faster (by the mid-2000s) and the working-age population share was increasing at a rapid pace during this time (Figure 1). Cuba and Chile are in the most advanced phase of the demographic dividend (when the dependency ratio begins to rise, but is still below two-thirds), while in El Salvador or Honduras, the dependency ratio was steadily declining, but was still above two-thirds in the early to late 2000s (Figure 1). In Guatemala, the dependency ratio is expected to remain above two-thirds until about 2020, and fall only thereafter (Figure 1). Compared to Asia, or even to Latin America, which reached a dependency ratio of below two-thirds by 1985, and 1995 respectively, El Salvador seems to be a laggard (Figure 2).



**5. El Salvador can harness this demographic dividend with appropriate policies on cross-border capital flows, human capital and migration, and trade.** Cross-country regression analysis suggests that a country with a working-age population growing 3 percent per year, and 1.5 percent faster than its overall population, will see its growth boosted by 0.5 percent a year if its economy is closed, but by 1.5 percent a year if its economy is open (Bloom, Canning, Evans, et al. 1999; Inter-American Development Bank, 2000; Bloom and Canning, 2001; Bloom, Canning, and Sevilla, 2003). In the initial stages of the demographic transition, countries with relatively high dependency ratios and lower working-age population shares tend to have excess demand for investment relative to savings, increasing current account deficits. In countries at more advanced stages of the demographic transition, higher life expectancy increases savings for retirement, while shrinking labor forces reduce investment demand, encouraging net capital outflows.

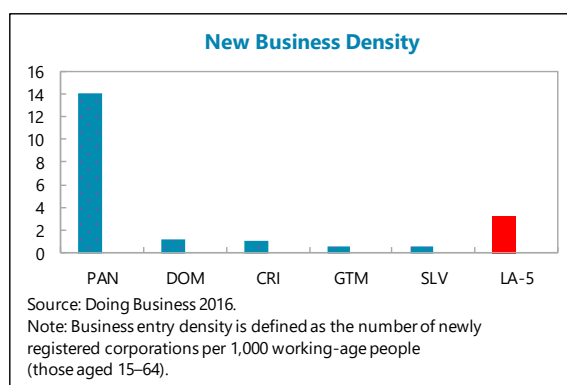
**6. Asia's more favorable outcomes from its demographic transition have been attributed to a stronger focus on human and physical capital.** An initial emphasis on labor-intensive export-led growth created employment opportunities and supported the transition into sectors with higher total factor productivity. Increased employment opportunities and higher labor participation rates, including for women, allowed Asia to maximize the benefits from the increase in labor force.

## B. State of Play of Business Climate

**7. A large number of Salvadorans enter the working-age population each year, but only 14 percent of them have a formal job.** According to think tank Fusades, of a total of 91,300 Salvadorans who enter the working-age population each year on average, only 54,500 are economically active,<sup>5</sup> of which 12,400 work in the formal sector (Figure 3). Each year, there are on average 42,100 Salvadorans who cannot find a formal job (Figure 3). However, the Salvadoran economy gained 8,443 formal jobs (7,448 in the private sector and 995 in the public sector) between August 2016 and August 2017.

**8. El Salvador improved 22 notches in the World Bank's Doing Business ranking,<sup>6</sup> but scope for further progress remains substantial.**

Reforms impacting positively the ranking covered four categories: dealing with construction permits, getting electricity, paying taxes, and trading across borders. However, El Salvador is still far from the frontier/best performers in the following areas: protecting minority investors, resolving insolvency, enforcing contracts, pointing to weaknesses in the judicial system. It also has a very low new business



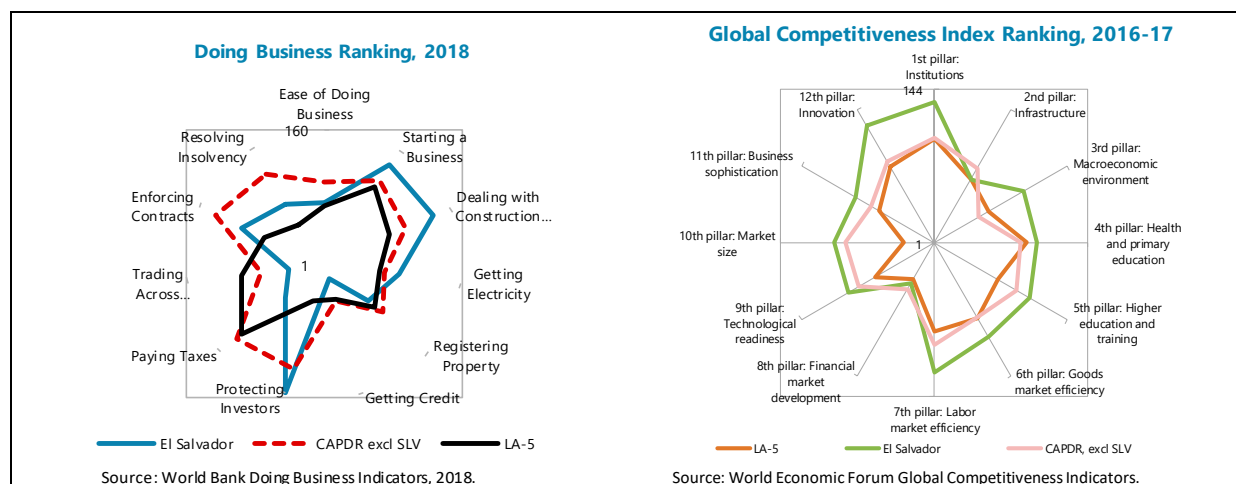
entry density compared to the LA-5 and other CAPDR economies (chart on New Business Density). According to the WEF,<sup>7</sup> the most problematic factors for doing business are crime, corruption, inefficient government bureaucracy, policy instability, and tax rates. In terms of competitiveness and productivity, El Salvador lags behind other CAPDR and LA-5 countries with respect to the institutional and macro environment, labor and goods market efficiency, higher education, and innovation.

**9. Obtaining permits is time-consuming and costly and bureaucracy is burdensome.** Basic principles are not upheld and an environment possibly breeding corruption is being created. Businesses are at the discretion of the public administration and they are facing burdensome procedures which delay indefinitely (2 years) or often deny approval of permits.

<sup>5</sup> Economically Active Population (PEA: *Población Económicamente Activa*) includes all employed, whether formal or informal, plus the unemployed.

<sup>6</sup> Survey-based indicators reflect investors' perceptions on the business environment.

<sup>7</sup> The World Economic Forum's Global Competitiveness Index combines both official data and survey responses from business executives on several dimensions of competitiveness.



**10. In the customs, time to import and export is long and customs laws and procedures do not meet the dual objective of enforcement and trade facilitation and lack regulatory coherence.** It takes 3-4 days to transport goods by land in the region (4-6 days to Panama). Criteria and documentation requirements are burdensome and there is a lack of transparency. While some efforts have been made to streamline processes, changes are slow. Intermediary customs officers (middle management) has not increased as it is limited by law. The CIFACIL (Trade Facilitation Commission) has been working for 3 years on 19 procedures and reform of the law on simplification of customs, and of administrative simplification noted above. The private sector mentioned that there is an inconsistent application of laws and regulation in customs which are also inconsistent with some regional treaties that leads to arbitrary decisions and imposition of excessive fines. Empathy with customs officials is also needed as they are facing a choice between national versus regional norms compliance, and they can be observed by the Court of Accounts.

**11. Representation on the Board of the regulatory body SIGET has been undermined.** Easier access to electricity and reliability of supply, and a good regulatory framework, can be considered as one of the biggest achievements since 2009. However, the private sector's representation on the Board of the regulatory body SIGET (which regulates electricity and telecom) has been hindered by the government and because the auction of frequency in the telecom sector has to be renewed very soon, the government believes that frequency must belong to the people and not under private ownership. The private sector was looking to appeal the election of the president of SIGET. The local newspaper *El Diario de Hoy* found that only 1 of the 60 newly created business associations that voted for the new president had a physical office. The rest, only existed in paper, but nobody in the corresponding towns had heard about them and there was no physical location where to find them.

**12. Increases in the minimum wages appear to have affected some economic sectors.** Some jobs appear to have been lost since passage of minimum wage increases of December 2016, and some sectors such as agriculture and maquila have been more affected. A survey by FUSADES indicated that 43 percent of the firms surveyed were negatively affected by the increase in the minimum wage. Of them, 19 percent reduced their personnel.

**13. Barriers to business entry hamper competition, trade and investment.** In the airline sector, incumbent airlines can prevent new entry at the “public consultation” phase in the approval process for air traffic rights. In the electricity sector, conditions for third party access to the transmission grid are not regulated. With respect to professional services, lawyers are not allowed to offer their services through public and private limited liability companies. Registration of food companies is bureaucratic and lengthy, and there is still no digital registration of products to shorten and streamline the process. There are restrictions to foreign firm participation in the road transport sector (e.g. only vehicles registered by companies with at least 51 percent of local capital are allowed to operate). Entry of new rice importers is limited by predetermined quotas while a new importer needs to have a record of four years before obtaining higher quotas. Industrial associations can limit the entry, fix prices or quantities produced, as well as quotas for imports in markets such as rice, sugar, maize, beans, and coffee. Industrial associations are frequently exclusive importers of certain products at a lower cost, and can sell at high prices in the domestic market, a practice which can hurt consumers and limit entry. They are also deciding on access to import quotas for new members.

**14. The judicial system suffers from a lack of capacity and corruption has plugged some of its institutions.** The Anti-Corruption Unit recently created within the Prosecutor General (“Fiscalia”) lacks personnel capacity and technical expertise to properly perform its duties and relies mostly on other institutions and areas of the Prosecutor General office. At the same time, the Prosecutor General distributes corruption cases to the Anti-Corruption Unit in a discretionary way without taking into account the Unit’s mandate. Prosecution and sanctioning of many cases received is being delayed indefinitely. Also, there is a backlog of pending antitrust cases that the Competition Authority has revealed, but the Prosecutor General delays their review or starts their review from scratch, pointing to inefficiencies and redundancies. The Court of Accounts (“Corte de Cuentas”), responsible for auditing the government, lacks autonomy and independence and has no effective control over public funds. It has also suffered from internal corruption (several of its employees are investigated by the Prosecutor General, including for letting cases expire and for unnecessary spending on goods and services).

## C. Policy Recommendations

**15. Permits and registration processes should follow clear procedures and responses be expedited.** Ministry of Health, Ministry of Agriculture, Ministry of the Environment, and water and sewage authorities need to work on best practices to give legal certainty in granting permits. To facilitate doing business, the private sector considers it essential to pass the laws for administrative procedures, which will be a foundation for regulatory simplification and simplification in customs procedures. The already existing Regulatory Agency (OMR) is taking its time to review and prioritize simplification of procedures, while for the private sector it is a high cost to wait indefinitely for a much-needed streamlining of procedures. One step forward in this process is the likely approval of the legislation on administrative procedures which is in discussion in Congress.

**16. El Salvador should move forward with reforms required for the creation of the customs union with Guatemala and Honduras.** It would be important to harmonize the legal



framework and VAT refunds systems and have a plan to reduce import duties to allow more competition in the sugar and agricultural products.

**17. Any government meddling in tripartite representation at the key Commissions and boards of regulatory agencies should be avoided.** The institutionality of election of Board members of the regulatory body SIGET should be strengthened. Auctions should not be manipulated and concession should be granted to the best offer.

**18. To maintain competitiveness, also given that El Salvador is a dollarized economy, no further increases in the minimum wages should be passed.** More predictability in decisions on minimum wages is needed on the side of the Ministry of Labor as well as representation of the private sector at the National Council on the Minimum Wage.

**19. Strengthening the judicial system and dedicating more resources to the Prosecutor's General Office is critical to improve the investment climate.** Achieving better coordination between agencies fighting corruption (Prosecutor, Court of Accounts, and Ethics Tribunal), as well as giving an opportunity to the civil society to be consulted on corruption cases would be important. In July 2018, election of four members of the Constitutional Court is due and it would be important that the election process is transparent. The Anti-Corruption Unit recently created within the Prosecutor General ("Fiscalia") should be strengthened through higher personnel capacity and technical expertise. It should receive adequate funds to ensure its proper functioning and guarantee its stability. Prosecution and sanctioning of many cases by the Prosecutor should be swift, and thus, a mechanism to prioritize review of cases of corruption should be introduced. Recommendations to strengthen the Court of Accounts ("Corte de Cuentas") include: i) the election of independent judges by a qualified majority (now they are elected with a simple majority); ii) revising the regulatory framework to strengthen the functioning of the institution creating 2 separate entities: one with audit functions and another with jurisdictional functions, and by introducing job requirements to attest for competence, honesty and independence; and iii) producing and publishing comprehensive annual reports.

**20. The Prosecutor General should resolve the backlog of pending antitrust court cases.** If the Competition Authority has already found evidence of anti-competitive behavior, their analysis should be followed and internalized by the Prosecutor rather than challenged and reviewed again from scratch. The process of ruling and sanctioning on the strong evidence should in this case not take too long.

## D. State of Play of Human Capital and Migration

### 21. El Salvador lags behind Latin America in human capital on various indicators (i.e. mean years of schooling, tests).

Mean years of schooling are 7 years in El Salvador versus 8.4 years in Latin America, and its educational attainment distribution is skewed towards primary and lower secondary education for both women and men. Attainment of upper secondary education appears to be similar for women and men, while post-secondary education attainment is higher for women than for men (chart on Education Attainment).

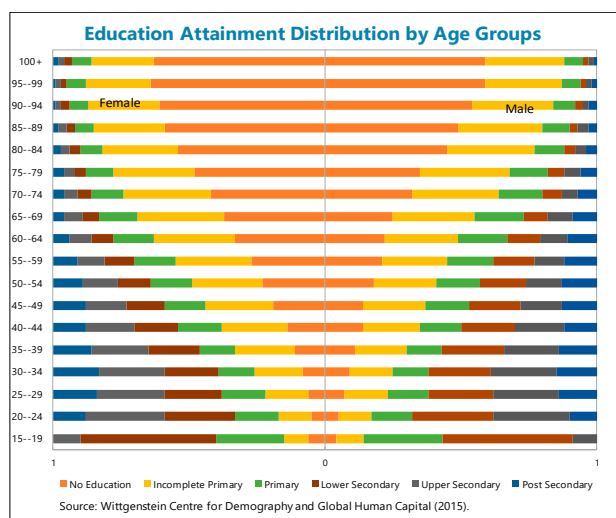
Acquired skills levels are poor, due to the low quality of primary and secondary education,

given that wage increases are unrelated with teachers' productivity or performance evaluations.

El Salvador ranked among the worst in math/science tests (49 out of 53 countries in the 2007 TIMS).

The bulk of spending in education is at the primary level in El Salvador, and there is a sizeable coverage gap in secondary and tertiary education.

Pupil-teacher ratios in secondary education are much higher compared to regional peers.



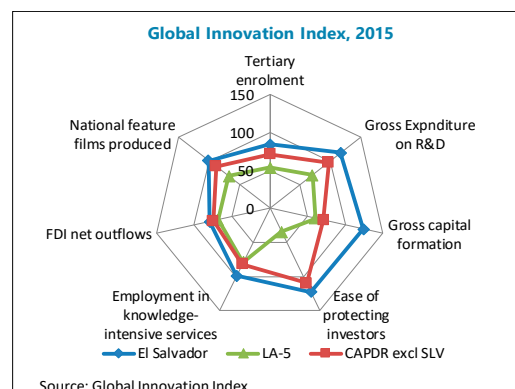
### 22. El Salvador ranks poorly in various facets of innovation.

These include spending on R&D, tertiary enrollment rates, number of patent applications, FDI inflows, ease of protecting investors, knowledge-intensive employment, and creative services exports (chart on Global Innovation Index<sup>8</sup>).

### 23. El Salvador is unable to seize its demographic dividend due to high migration of its young productive population.

The number of unaccompanied children and families fleeing gang violence and poverty in

El Salvador has risen dramatically in recent years. The country suffers from weak political and socioeconomic conditions, including some of the world's highest homicide rates and widespread gang violence, which drive ongoing migration. Approximately 1.4 million immigrants from El Salvador resided in the United States in 2015—the highest share of population of the country of origin. The age-sex pyramid of the foreign-born population from El Salvador has a diamond shape, with the largest number of immigrants in the economically active ages of 20 to 54 and a relatively small number of immigrants under age 20 and over age 54 (chart on Age and Sex Distribution of

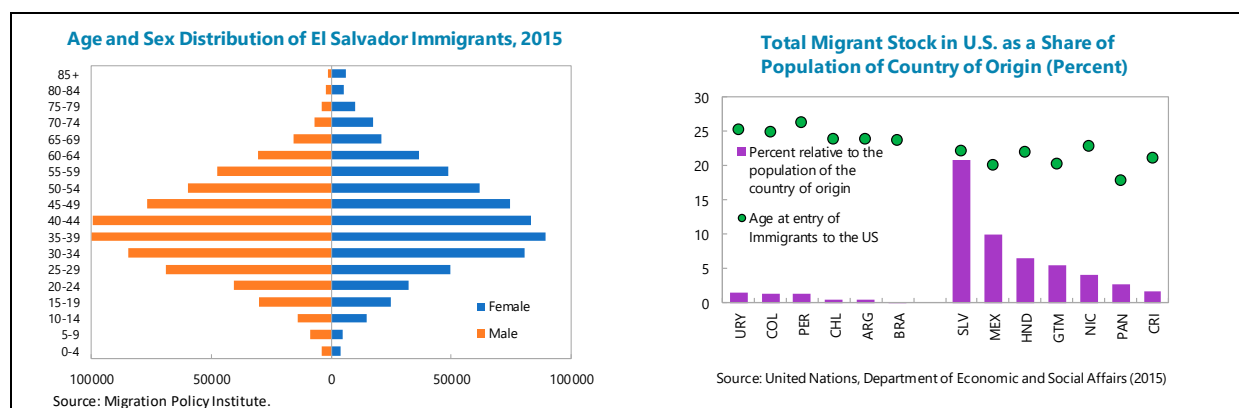


<sup>8</sup> The Global Innovation Index gathers data from more than 30 international public and private sources, covering a large spectrum of innovation drivers and results, and privileging hard data over qualitative assessments (57 are hard data, 19 composite indicators, and 5 survey questions).

Immigrants). Unlike the population pyramid of the total immigrant population, the middle part of the diamond (i.e. the economically active population) is stretched out, while the top and the bottom (i.e. children and elderly population) are small. Similar to the Mexican but unlike the Filipino immigrant populations, the foreign-born population from El Salvador has more men overall than women. In addition, there is certain anecdotal evidence indicating that those who migrate are highly skilled.

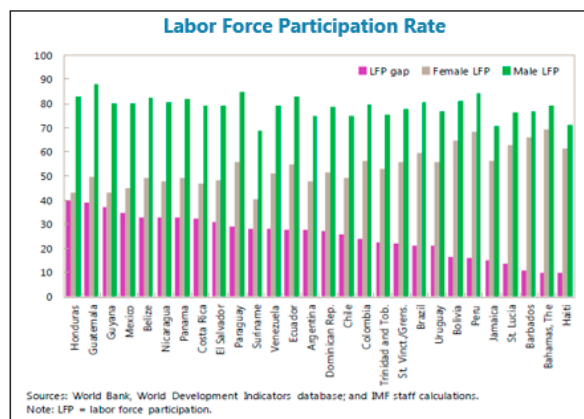
U.S. Immigrant Population by Country of Birth, 2000-Present ('000)												
	2000	2007	2008	2009	2010	2011	2012	2013	2014	2015	2000-07	2008-15
<b>Americas</b>	16,916	21,248	20,977	21,278	22,031	22,040	22,120	22,320	22,703	22,950	3.3	1.0
<b>Latin America</b>	16,087	20,410	20,150	20,456	21,224	21,245	21,311	21,473	21,890	22,111	3.5	1.0
<b>Caribbean</b>	2,953	3,387	3,408	3,466	3,731	3,777	3,873	3,954	4,000	4,165	2.0	2.6
<b>Central America</b>	11,204	14,450	14,175	14,394	14,764	14,758	14,711	14,751	15,035	15,028	3.7	0.5
El Salvador	817	1,104	1,095	1,150	1,214	1,265	1,272	1,252	1,315	1,352	4.4	2.6
<b>South America</b>	1,930	2,572	2,567	2,596	2,730	2,711	2,727	2,768	2,856	2,918	4.2	1.6
<b>Northern America</b>	829	839	827	822	807	795	808	847	813	838	0.2	0.0

Source: Migration Policy Institute tabulation of data from the U.S. Census Bureau's 2006 to 2013 American Community Survey and 2000 Decennial Census.



Source: United Nations, Department of Economic and Social Affairs (2015)

**24. Women labor participation rates are particularly low (chart on Labor Force Participation).** While total labor force participation rates are already high, El Salvador's gender gap—the difference between male and female labor force participation—remains large. At around 30 percent, it is more than double the U.S. gender gap. Interestingly, this reflects primarily large male participation, which, in turn, can be attributed to a relatively young population. Nearly four-fifths of men in the region participate in the labor force, versus about two-thirds in advanced economies.



Source: World Bank, World Development Indicators database; and IMF staff calculations. Note: LFP = labor force participation.

## E. Policy Recommendations

**25. Important advances in human capital are key to improve productivity of young adults and foster innovation.** The wage bill represents 68 percent of the education budget and is 82 percent higher in 2014 compared to 2007, stressing the need to focus on compensation in a fiscal consolidation effort. Any additional spending in the future to account for the aging of the population should be focused on higher levels of education, rather than primary levels. To account for a gradual ageing of the population, the number of primary teachers should decline in favor of those in secondary education. With respect to improving the quality of education and of teachers, it is critical to define teaching standards that guide the stages of teacher development and articulate continuous training with a strategy for teacher professionalization, establish more demanding criteria to select and retain the most talented teachers, and review the salary structure and establish incentives for professional development. Enhancing R&D/technological diffusion will require strengthening institutions, human capital and research, and achieving higher business and market sophistication, and competition in product and labor markets.

**26. Policies to foster higher women labor force participation rates and to absorb returning migrants productively into the labor force would raise employment growth.** Potential gains from higher female participation could be sizeable. Illustrative calculations show that if Latin American countries were to raise their female labor force participation to the average of the Nordic countries (which is 61 percent), their GDP per capita could be up to 10 percent higher, depending on the country and the existing level of female participation. Incentives for women to work, including free or subsidized childcare programs or increased children's hours in school, providing additional time available for mothers to work, would boost female participation. Implementing the "El Salvador Seguro" plan and supplementing it with adequate resources and grant funding would be important to reduce crime and reverse migration.

## F. Likely Causes of Informality and Potential Solutions

**27. High informality, associated with low productivity, has undermined the potential benefits from a young population and full exploitation of the demographic dividend.** While unemployment (7 percent in 2016) is only slightly above some Central America countries and the LAC average, El Salvador ranks among the top LAC countries with the largest share of employment in the informal economy—68.2 percent (ILO, 2014). It is among the 15 countries in the world where informal employment represents at least two thirds of total non-agricultural employment. Based on IDB System of Information on Labor Markets and Social Security, informality is 72 percent (Figure 3). Formal employment has been stagnant since 2000, compared to other countries in Latin America where it has risen over the same period (Figure 3). Based on household surveys (2016), informal employment in urban areas<sup>1</sup> is 42.6 percent, not much different compared to 2006 when it was 48.7 percent (Figure 3). It is higher for women than for men and is more prevalent in commerce followed by manufacturing. 64 percent of poor are part of the informal

<sup>1</sup> Informal employment in urban areas is defined as salaried or own-account workers in firms with less than 4 workers or employers with less than 4 workers. Economically active population in urban areas represents 66 percent of total.

sector. The share of employees not covered by social security and considered part of the informal economy is as high as 60 percent. Those not covered by social security/pensions are more prevalent in rural areas and among men, and are own-account workers to a large extent. Since 2008, those unremunerated family workers and domestic workers have grown the most, as well as those workers in large and micro enterprises (Figure 3). About 44 percent of the economically active population is not covered by the minimum wage legislation, and there are more people earning below the minimum wage since 2008, not only those not covered by the minimum wage legislation, but also those who are covered (Figure 3). As the legal minimum wage is being raised, while productivity has not improved, more people will fall below minimum wage.

**28. A lower efficiency of economic institutions may be a determinant of informality in El Salvador.** Informality may reflect weaknesses in economic institutions, such as regulations (on both firms and workers), enforcement policies, and tax policies, including tax rates, penalties, and fines. Workers can choose to exit or not enter into formal arrangements following a cost-benefit analysis about the quality of government services and benefits, and firms employ informal workers which costs less based on the extent of institutional enforcement (Perry et al, 2010). Because an informal worker costs less to a firm, employers choose informality when the chances of detection are low.

**29. Reducing informality requires greater efficiency of institutions, including regulations, penalties, and enforcement.** Increasing the cost of avoiding regulations, including through penalties for tax evasion within formal firms, and a penalty for informal activity, and strengthening enforcement to detect informal workers/firms, would discourage informal output and employment. It would also be important to create incentives for firms to become formal, including policies to reduce tax, financial, and regulatory constraints, including enhancing access to credit at a reasonable cost and reducing costs of registration (e.g. permits cost more than bribes). A corporate tax rate of 35 percent appears too high given low investment and high informality, and should be reduced significantly, while limiting incentives and loopholes to broaden the tax base.

**30. Reducing barriers to formal employment requires revamping benefits and improving the quality of education.** Revamping the benefits of belonging to the formal workforce and creating more flexible social security schemes for segments of the workforce (with lower contribution rates but also lower benefits) could increase incentives to formal labor agreements. Enhancing the coverage and quality of education to reduce mismatches between university-level graduates and the needs of the marketplace would help gain better access to formal employment.

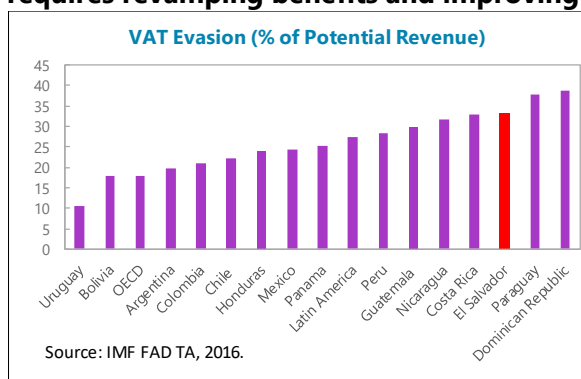
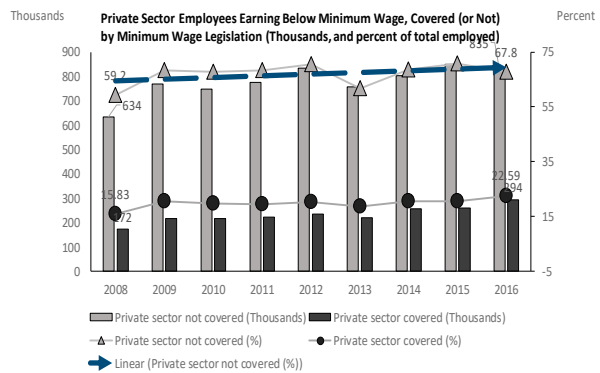
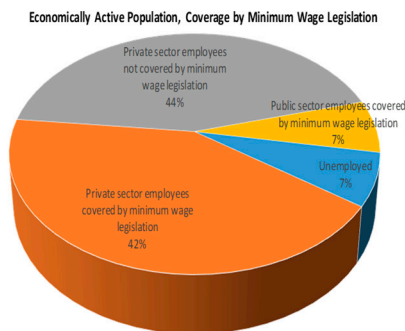
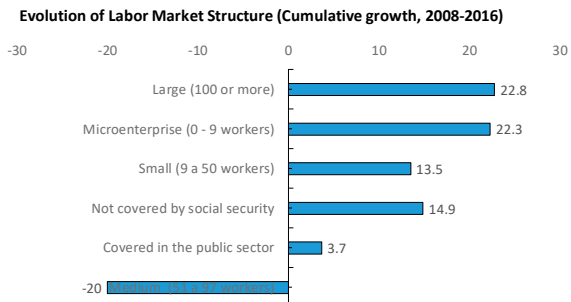
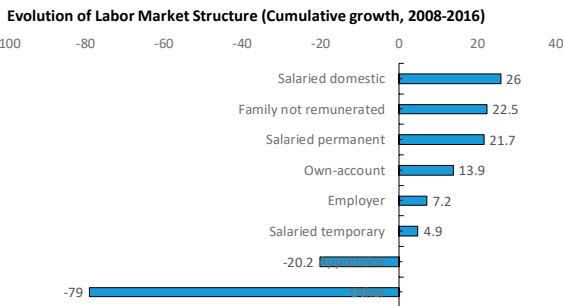
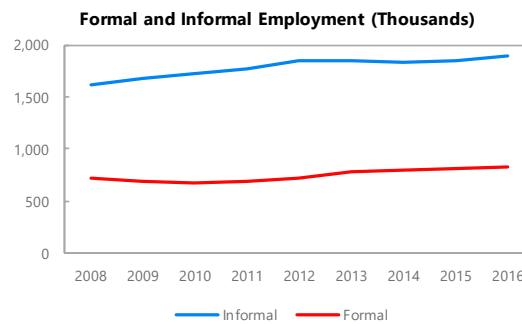
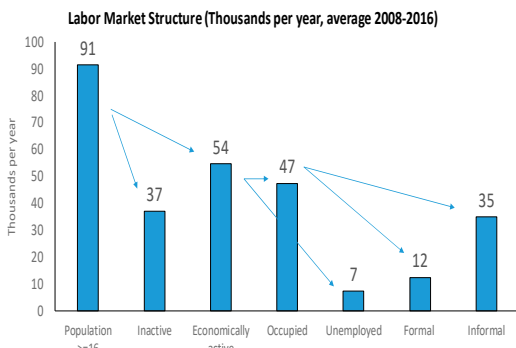
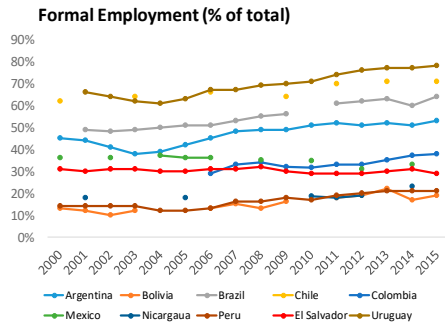
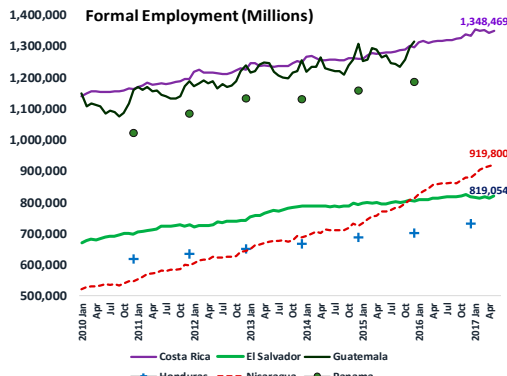


Figure 3. El Salvador: Labor Market Indicators



Sources: Fusades, 2017, Household Survey, 2016, Instituto Salvadoreño del Seguro Social, and IDB Information on Labor Markets and Social Security Systems.

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