STUDIES

Assessing the effect of gender-related legal reforms on female labour participation and GDP per capita in the Central American region*

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Women's participation in the labour market in Central America, Panama, and the Dominican Republic (CAPADOM) is low by international standards. Increasing their participation is a goal of many policymakers who want to improve women's access to quality employment. This study uses data from CAPADOM to assess whether gender equality in the law increases women's participation in the labour force and, if that is the case, the extent to which this boosts GDP per capita. To do so, the authors use a panel VAR model. The results show that CAPADOM could increase female labour participation rate by 6 percentage points (pp) and GDP per capita by 1 pp by introducing gender-related legal changes such as equal pay for equal work, paid parental leave, and allowing women to do all the same jobs as men.

* The opinions expressed in this article are the authors' own and do not necessarily reflect the view of the Inter-American Development Bank (IDB).

Introduction

The average adult female labour participation rates[1] in the region comprising Central America, Panama, and the Dominican Republic (CAPADOM) are below those of Latin America and the Caribbean (LAC) and the Organisation for Economic Co-operation and Development (OECD) (62%, 68%, and 74%, respectively), and well below the participation rate of men (94.5%).

Several studies have suggested an association between gender equality in the labour market and higher levels of development. For example, Duflo (2012) presents a survey of economic literature that summarises the relationship between economic development and female empowerment, while Cuberes–Teignier (2014) document the literature on gender inequality and economic growth. Stotsky (2006) claims that reducing gender inequality in the labour market contributes to higher economic growth and macroeconomic stability. Elborgh-Woytek et al. (2013) discuss various macroeconomic benefits of gender equality in the labour market, such as higher levels of gross domestic product (GDP) and GDP growth rates and greater productivity, thanks to higher levels of female education and more significant access inputs. For the LAC region, Bustelo et al. (2019) propose specific public policies to promote women's participation in the labour force and estimate that these would increase GDP per capita in the largest LAC economies. For CAPADOM, Cuberes–Teignier (2016) estimate that gender gaps in the labour market represent income losses of 16%.

United Nations (UN) Secretary-General Antonio Guterres has stated that improving the gender balance dramatically would benefit not only women but also the economy as a whole, and cites evidence showing that women's participation enhances economic results and prompts more investment in social protection, among other benefits (United Nations 2021). He stresses the need to 'fix our systems' to ensure an equal future for all. These systems are based on laws that do not always apply equally to women and men.

In this spirit, and given the lag in female labour participation in the CAPADOM region, we evaluate the contribution of laws aimed at creating a more conducive environment to the inclusion of women in the region's labour force. Specifically, we study the difference in the treatment of men and women before the law and its effect on female labour participation and GDP per capita. Differences in how laws apply to different genders – especially, laws that affect women's working lives – generate distortions or change incentives to engage in economic activities. For our analysis, we use the Women, Business and the Law (WBL) index, which aims to identify differences in the treatment of the genders that create obstacles to women's involvement in economic activity. Specifically, it measures the gender inequality in law, predominantly derived from the barriers women often face in their working lives

[1] Employed female population as a percentage of active female population aged 25–54 years old (ILOSTAT [2020] for 2019 [most recent observation available for comparison across regions]).

with regard to mobility, salaries, maternity leave, retirement pensions, and others. The index is on a scale of 0 to 100, where 100 is a perfect score (i.e. there is no legal gender discrimination) and 0 is the worst. In 2019, El Salvador had the highest index score in CAPADOM (89), and Guatemala had the lowest (71).[2] The CAPADOM region lags behind in the WBL sub-indexes of *Pay* (56/100 on average) and *Parenthood* (55/100 on average). The sub-index *Pay* focuses on gender equality in the workplace and encompasses regulations on wages, general working conditions, and night shifts. The sub-index *Parenthood* includes regulations that can potentially limit women's career paths after birth. For example, we find that some countries of the region do not provide at least 14 weeks of paid maternity leave as guaranteed by the International Labour Organization (ILO), and none of the countries provides paid parental leave.

In a recent study, Hyland et al. (2020) have found a positive correlation between more equal laws affecting women in the workforce – measured by the WBL index – and more equal labour market outcomes, such as higher female labour force participation and a smaller gender wage gap.

We use a panel-VAR model to assess whether more equal laws increase female participation in the labour market and contribute to economic development (proxied by GDP per capita) in CAPADOM.

This study contributes to the literature on the consequences of gender inequality in law in the following ways:

i) It shows that gender-related legal reforms not only benefit women by increasing their participation in the labour force, but also result in social gains by raising the overall GDP per capita.
ii) It identifies specific laws that could promote the participation of women in the labour force in CAPADOM – a region where their participation is particularly low by international standards.

Moreover, we take the WBL's correlation analysis of Hyland et al. (2020) a step forward by using a panel-VAR model that incorporates numerous control variables and time variations, and captures interdependencies between variables to obtain the aggregate effect of changes on gender-related laws. In addition to analysing its relationship with female labour participation, we also evaluate the effect on GDP per capita.

Our main findings indicate that CAPADOM could increase female labour participation rate by 6 percentage points (pp) and GDP per capita by 1 pp by introducing gender policies such as equal pay for equal work, paid parental leave, and allowing women to do all the same jobs as men.

The remainder of this paper is organised as follows: literature review, the WBL index and discusses policies with room for improvement in the countries of the

[2] The metrics of the index are grouped into the following sub-indexes: Mobility, Workplace, Pay, Marriage, Parenthood, Entrepreneurship, Assets, and Pension.

region, the data used in the study and the econometric methodology, the estimation results and scenarios vis-à-vis the impact of the WBL index on female labour participation and GDP per capita, conclusions.

Literature review

Duflo (2012) examines the economic literature on the relationship between economic development and female empowerment, and identifies two different ways in which female labour participation and economic development interact. First, the literature shows that the rate of female participation in the labour market is associated with the state of development of a country and takes the form of an inverted U; up to a certain point, female labour force participation increases as the level of income increases (Marchionni et al. 2018, Gasparini–Marchionni, 2015). The literature also suggests that the services sector expands as economies become more developed and that development has been beneficial to the participation of women in the labour market (Buera–Kaboski 2012, Ngai–Petrongolo 2017). Second, greater female participation in the labour force generates gains that result in higher income. For example, Cuberes–Teignier (2016) claim that gender disparities cause costly distortions in human capital and talent allocation in various economic activities. Dabla-Norris–Kochhar (2019) suggest that a more efficient distribution between men and women across economic sectors and within organisations can generate productivity gains. Several studies have suggested that gender gaps in education and employment considerably reduce economic growth (Klasen 2002, Abu-Ghaida–Klasen 2004, Klasen–Lamanna 2009, Thévenon et al. 2012). Bertrand–Duflo (2017) document arbitrary gender-based discrimination in the labour market. Ostry et al. (2018) study the case of Latin American women to show how barriers to joining the labour market represent inefficiencies equivalent to an income tax of 25%. Novta–Wong (2017) estimate that LAC's GDP would increase by an average of 4% and 14% if the region were able to reach the average female participation rate of Nordic countries and an equal labour participation rate between women and men within each country, respectively.

Irrespective of these discussions, the strong relationship between female labour participation and level of development (proxied by income per capita) is undeniable. Given the endogeneity problems, disentangling their mutual impact is a challenge. Bertay et al. (2020) discuss this issue in detail and propose a channel of causal inference, that is, the allocation of female labour to its more productive use. They explore this channel by analysing the effect of gender inequality on industry growth and test whether sectors that typically employ more women grow relatively faster in countries with ex-ante lower gender inequality. They conclude that gender inequality affects real economic outcomes. In this study, we do not comment on the direction

of the relationship between these two variables.[3] However, we introduce a new variable (how equal laws are in terms of gender) that should be positively related to female labour participation, and evaluate the effect of that variable on both female labour participation rate and GDP per capita. More gender-equal laws can favour female labour participation because specific regulations (i) de facto exclude women from jobs considered risky, (ii) reduce gender-differentiated costs for firms (e.g. those arising from women-only parental leave or earlier retirement age for women), and (iii) mitigate gender-discriminatory behaviours. Both endogenous and exogenous factors can influence changes in legislation. Policymakers' decisions to adopt more gender-equal laws are influenced by not only domestic factors, such as political compromises and macroeconomic performance, but also external factors, such as proposals from academics or international organisations.

It is worth noting that the evidence confirms that changes in laws to include a gender perspective are beneficial to women's labour participation and empowerment. Albagli–Rau (2018) provide an example of a change in the law in Chile to increase paid maternity leave, resulting in an increase in women's employment after maternity leave. Miller (2008) shows how suffrage rights for American women led to sudden increases in local public health spending that benefited women and children.

The WBL index in CAPADOM

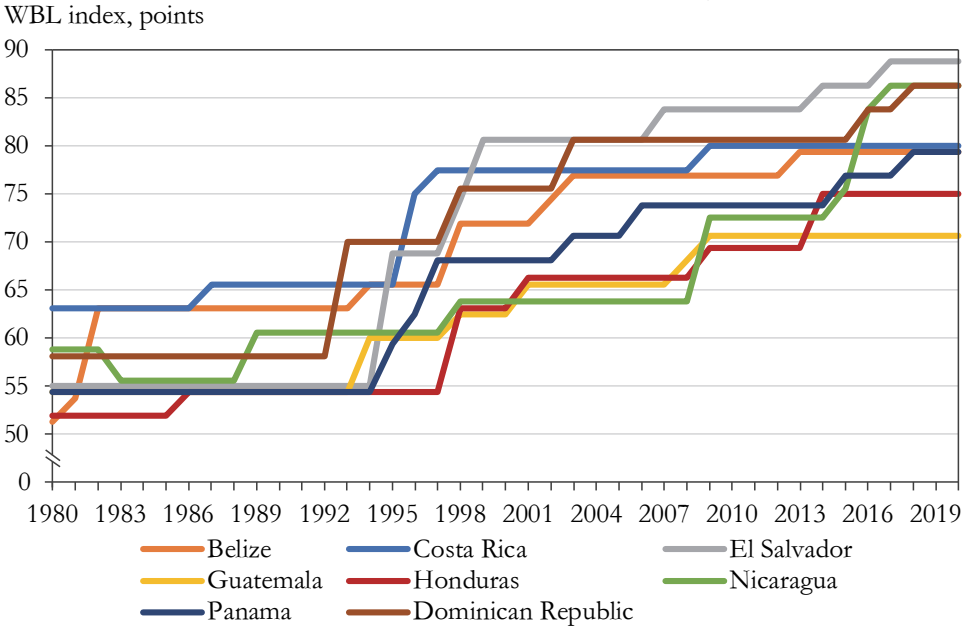
The WBL index seeks to identify differences in the treatment of the genders that create obstacles to the participation of women in economic activity. It measures gender inequality in the law, which is predominantly the result of the barriers women often face in their working lives in terms of mobility, salary, maternity leave, and retirement pension, among other factors. The highest possible score on the index is 100, and the lowest is zero.

Over the last 40 years, the countries of the CAPADOM region have implemented numerous reforms in their legislation aimed at promoting gender equality. As a result, the associated WBL index gradually increased from 56 to 81 points between 1980 and 2020, albeit with considerable heterogeneity among the countries of the region (see Figure 1). In 2020, El Salvador had the highest index score in CAPADOM (89), and Guatemala had the lowest (71). Peru was the highest-ranking country in LAC (95). The average index score in CAPADOM was 81, which was similar to LAC's score of 79.

[3] The relationship between female labour participation and GDP per capita is data driven in our model. We control for each and their potential common determinants through the panel VAR.

Figure 1

Historical WBL index in the CAPADOM region



Source: World Bank (2020).

As mentioned previously, the CAPADOM region lags behind in the WBL sub-indexes of *Pay* (56/100 on average) and *Parenthood* (55/100 on average), the latter being a possible indication of the limitations on women's career paths in the years following childbirth. In the former, we find a lack of gender equality in the components related to remuneration, night shifts, and jobs deemed dangerous. In the latter, we find a lack of availability to women of at least 14 weeks paid maternity leave, an absence of paid parental leave, and the government not being responsible for administering 100% of the maternity leave benefits, as well as other factors affecting equality.

As for the legal rights of women and men, it follows that despite the extraordinary progress made in the CAPADOM region in terms of legislation to ensure the economic inclusion of women, the extent of protection this provides remains limited. First, it applies primarily to women in the formal sector and leaves women (employed or self-employed) in the informal sector unprotected. Two out of every three jobs in the region are in the informal sector (i.e. employees who pay no social security contributions). Second, a legal framework to promote equal rights is still lacking. For example, no country offers paid parental leave, and there are no mandates legally guaranteeing equal pay for men and women for work of equal value. The following table shows the WBL index indicators that are not satisfied by at least one CAPADOM country (see Table 1).

Table 1

WBL indicators not satisfied by at least one country in the CAPADOM region

Country	A woman can apply for a passport in the same way as a man	The law prohibits discrimination in employment based on gender	There is legislation on sexual harassment in employment	There are criminal penalties or civil remedies for sexual harassment in employment	The law mandates equal remuneration for work of equal value	Women can work the same night hours as men	Women can work in jobs deemed dangerous in the same way as men	Women can work in the same industries as men	A woman can obtain a judgment of divorce in the same way as a man
Belize	X	X	.	.	X	.	.	X	.
Costa Rica	.	.	.	.	X	X	X	.	.
Dominican Republic	.	.	.	.	X	.	.	.	X
Guatemala	.	X	X	X	X	.	X	.	X
Honduras	.	.	.	.	X	.	X	.	.
Nicaragua	.	.	.	.	X	.	.	.	.
Panama	.	.	.	.	X	.	X	.	.
El Salvador	.	.	.	.	X	.	.	.	.
	A woman has the same rights to remarry as a man	Paid leave of at least 14 weeks is available to mothers	The government administers 100% of maternity leave benefits	Paid leave is available to fathers	There is paid parental leave	The law prohibits discrimination in access to credit based on gender	The ages at which men and women can retire with full pension benefits are equal	The ages at which men and women can retire with partial pension benefits are equal	Periods of absence from work due to child care are taken into account in pension benefits
Belize	.	.	.	X	X	X	.	.	.
Costa Rica	.	.	X	X	X	X	.	.	.
Dominican Republic	.	.	X	.	X	.	.	.	X
Guatemala	.	X	.	.	X	X	.	.	X
Honduras	X	X	X	X	X	.	X	.	X
Nicaragua	.	X	X	.	X	.	.	.	X
Panama	X	.	.	.	X	X	X	X	.
El Salvador	X	.	.	.	X	.	X	.	.

Note: x indicates noncompliance.

Data and econometric methodology

The data for this analysis comes from the official World Bank and Consejo Monetario Centroamericano (Central American Monetary Council – SECMCA) databases and consist of information on the following CAPADOM countries: Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and Panama. Our panel data are unbalanced because of differences in data availability and span the period from 1990 to 2019.[4]

In this study, we consider deflated macroeconomic variables. In particular, we work with net remittances rather than inflows in general to obtain a clearer picture of the country's exposure to these types of inflows.[5] Table 2 shows the variables used in the analysis, while Table A1 of the Appendix summarises the descriptive panel statistics of the between and within components. We include some control economic variables that can have regional effects. For example, Ubarevičienė et al. (2021) discuss the effect of regional factors on adolescent fertility rates in Lithuania.

Table 2

Economic variables considered in the study

Variable	Definition	Unit
GDPc[a)]	GDP per capita	Constant prices (2010 USD)
Prices[a)]	Consumer prices	Index
Remittances[a)]	Net remittances	Constant prices (2010 USD)
FemPart	Female participation in the labour market	Percentage
MalPart	Male participation in the labour market	Percentage
WBL	Women, Business and the Law	World Bank index
FerRat	Fertility rate (births per woman)	Average
RoL	Rule of law	World Bank index
Openness	Economic openness (Exports + Imports of goods and services as % of GDP)	Percentage

a) The variable is taken in first differences.

In this section, we discuss the econometric methodology used to assess whether certain improvements in gender policies increase the WBL index score and, therefore, positively impact the female labour participation rate and GDP per capita of the countries in the CAPADOM region.

We use Panel Vector Autoregression (PVAR) models to investigate the dynamic impact of gender policies in the short run. Canova–Ciccarelli (2013) suggest that PVARs are preferable to other models because they can capture both static and dynamic interdependencies between the variables studied, incorporate time variations, and account for cross-sectional dynamic heterogeneities. Furthermore, it

[4] The unbalance is not severe; the measures for our panel data as defined in Ahrens–Pincus (1981) are γ=0.90 and ν=0.92.

[5] GDP per capita, prices, and remittances are considered in first differences to guarantee stationarity. All the remaining variables are stationary. The unit-root tests are available upon request.

is well established in the literature on dynamic panel models with fixed effects that Ordinary Least Squares (OLS)-based regressions cannot be applied because the Nickell (1981) bias does not vanish asymptotically, even with $N \to \infty$ and T fixed. In this respect, Hansen (1982) proposes a way to deal with such biases by means of the generalised method of moments (GMM), which has been used many times to study dynamic panel data models (see, for example, Arellano–Bond [1991], Arellano–Bover [1995], and Blundell–Bond [1998]).

Introduced originally by Holtz-Eakin et al. (1988), PVARs have the same structure as standard VARs, but with additional cross-sectional dimensions. In this sense, all variables are treated as endogenous and interdependent in panels with vector autoregressive structures. However, this model can also be used with exogenous variables.

A panel VAR model for $\mathrm{i} = 1 \ldots \mathrm{N}, \mathrm{t} = 1 \ldots \mathrm{T}$ is written as follows:

$$\mathrm{Y_{i,t}} = \alpha_{1\mathrm{i}0} + \sum_{\mathrm{l}=1}^{\mathrm{m}} \alpha_{1\mathrm{i,l}} \mathrm{Y_{i,t-l}} + \sum_{\mathrm{l}=1}^{\mathrm{m}} \delta_{1\mathrm{i,l}} \mathrm{X_{i,t-l}} + u_{1\mathrm{i,t}},$$

$$\mathrm{X_{i,t}} = \alpha_{2\mathrm{i}0} + \sum_{\mathrm{l}=1}^{\mathrm{m}} \alpha_{2\mathrm{i,l}} \mathrm{X_{i,t-l}} + \sum_{\mathrm{l}=1}^{\mathrm{m}} \delta_{2\mathrm{i,l}} \mathrm{Y_{i,t-l}} + u_{2\mathrm{i,t}},$$

where α and δ are the coefficients of the linear projection of Y (X) onto the past values of Y (X) and X (Y), respectively, m is the maximum number of lag terms of each variable (often determined by information criteria), i indicates the country as a distinctive unit, and u is an idiosyncratic term.

The specification has three main features: First, the model shows dynamic interdependencies because endogenous variable lags enter the model for each cross-sectional unit *i*. Second, the model generates static interdependencies because u_{it} is generally correlated across units. Third, the intercept, slope, and variance of the shocks can be unit-specific (i.e. the model considers cross-sectional heterogeneity).

Abrigo–Love (2016) provide a STATA routine with the first-generation GMM estimators originally suggested by Anderson–Hsiao (1982) to deal with the Nickell bias. Furthermore, Sigmund–Ferstl (2019) provide an extended STATA code based on the first-difference GMM estimators of Arellano–Bond (1991), and Holtz-Eakin et al. (1988) develop a routine on this software for panel VAR models based on the GMM systems of Blundell–Bond (1998).

Estimations and analysis

We consider the following stationary panel VAR model with fixed effects:

$$\mathbf{y}_{i,t} = \mu_i + \mathbf{A}\mathbf{y}_{i,t-l} + \mathbf{B}\mathbf{x}_{i,t} + \epsilon_{i,t} \quad (1)$$

where $\mathbf{y}_{i,t}$ is a 3×1 vector of endogenous variables (GDPc, FemPart, and MalPart) for the i-th country at time t;, $\mathbf{x}_{i,t}$ is a $k \times 1$ vector of strictly exogenous variables (remittances, WBL, prices, RoL, FerRat, and Openness),[6] and $\epsilon_{i,t}$ is independently and identically distributed for all i and t with zero mean and a positive semi-definite covariance matrix. The roots of the characteristic associated inverse function fall outside the unit circle, because the model is stationary. We use the STATA package provided by Abrigo–Love (2016) to estimate the model. See Love–Zicchino (2006) and Abrigo–Love (2016) for the moment conditions and GMM estimation procedure. Table 3 shows the estimation results.

Table 3

Estimations of the PVAR model (1)

Denomination	Model 1	Model 2	Model 3	Model 4	Model 5
Equation for GDP per capita					
$GDPc_{t-1}$	–0.243***	–0.281***	–0.125**	–0.237***	–0.546***
	(0.061)	(0.074)	(0.051)	(0.068)	(0.071)
$\log(FemPart)_{t-1}$	0.231***	0.240***	0.254***	0.177***	0.143***
	(0.030)	(0.037)	(0.033)	(0.029)	(0.026)
$\log(MalPart)_{t-1}$	0.303*	0.367***	0.358***	0.261*	0.299***
	(0.120)	(0.138)	(0.104)	(0.103)	(0.107)
$Remittances_t$	0.001*	0.001*	0.001***	0.001***	0.001***
	<(0.000)	<(0.000)	<(0.000)	<(0.000)	<(0.000)
$\log(WBL)_t$	–0.313***	–0.329***	–0.231***	–0.255***	–0.468***
	(0.061)	(0.072)	(0.062)	(0.047)	(0.065)
$Prices_t$		–0.001	–0.001		
		(0.001)	(0.001)		
$Openness_t$			0.001*		
			<(0.000)		
RoL_t				0.015	–0.027*
				(0.018)	(0.016)
$FerRat_t$					–0.027***
					(0.007)

(Table continues on the next page.)

[6] We also include public expenditure, exchange rate, pre-primary school enrolment, and percentage of seats held by women in a unicameral legislature or lower chamber of a bicameral legislature; however, some of these variables resulted in a significant increase in the degree of imbalance. Therefore, we discarded them to preserve enough information to estimate the model.

(Continued.)

Denomination	Model 1	Model 2	Model 3	Model 4	Model 5
Equation for female participation in labour markets					
$GDPc_{t-1}$	–0.649***	–0.709***	–0.598***	–0.571***	–0.467***
	(0.105)	(0.137)	(0.117)	(0.119)	(0.091)
$\log(FemPart)_{t-1}$	0.645***	0.679***	0.691***	0.682***	0.743***
	(0.064)	(0.073)	(0.072)	(0.055)	(0.043)
$\log(MalPart)_{t-1}$	–0.8***	–0.912***	–0.845***	–0.814***	–0.452*
	(0.212)	(0.269)	(0.210)	(0.204)	(0.202)
$Remittances_t$	0.001*	0.001	0.001	0.001*	<0.001
	<(0.000)	<(0.000)	<(0.000)	<(0.000)	<(0.000)
$\log(WBL)_t$	0.148*	0.079	0.090	0.190***	0.259***
	(0.087)	(0.095)	(0.088)	(0.067)	(0.100)
$Prices_t$		0.001	–0.001		
		(0.000)	(0.001)		
$Openness_t$			–0.001		
			(0.001)		
RoL_t				0.064***	0.076***
				(0.024)	(0.023)
$FerRat_t$					0.016*
					(0.007)
Equation for male participation in labour markets					
$GDPc_{t-1}$	–0.057*	–0.069*	–0.038	–0.039	–0.240***
	(0.025)	(0.030)	(0.033)	(0.037)	(0.044)
$\log(FemPart)_{t-1}$	0.036***	0.038***	0.055***	0.062***	0.100***
	(0.012)	(0.012)	(0.016)	(0.016)	(0.018)
$\log(MalPart)_{t-1}$	0.865***	0.857***	0.866***	0.801***	0.917***
	(0.059)	(0.069)	(0.071)	(0.067)	(0.084)
$Remittances_{t-1}$	0.001***	0.001***	0.001***	0.001***	0.001*
	<(0.000)	<(0.000)	<(0.000)	<(0.000)	<(0.000)
$\log(WBL)_t$	–0.023	–0.029	–0.045	–0.018	–0.207***
	(0.023)	(0.027)	(0.029)	(0.025)	(0.047)
$Prices_t$		–0.001	–0.001		
		<(0.000)	<(0.000)		
$Openness_t$			–0.001		
			(0.001)		
RoL_t				0.055***	0.038***
				(0.010)	(0.011)
$FerRat_t$					–0.015***
					(0.003)
No. of obs	104	104	104	104	104
No. of panels	7	7	7	7	7
Ave. no. of T	14.85	14.85	14.85	14.85	14.85

Note: *p<0.1; **p<0.05; ***p<0.01. White-corrected robust standard errors in parentheses.

We focus on Model 5 in the following analysis because the specification is the most complete, controlling for many factors. Note that the specification does not include prices and openness, as they are insignificant in most equations.[7]

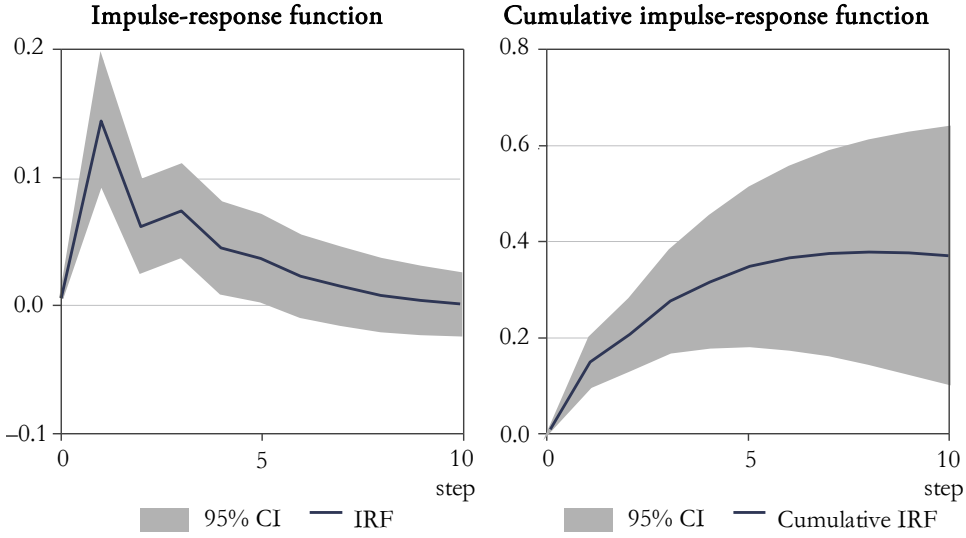
The results from Model 5 show that improvements in gender policies (measured by the WBL index) positively affect female participation in the labour market, thus helping boost GDP per capita. The parameters are significant and display the correct signs. Nevertheless, to measure the impact of WBL on FemPart and GDPc correctly, we compute the impulse-response function (IRF) and dynamic-multiplier function (DMF). In VAR modelling, the IRF measures the effect of a shock to an endogenous variable on itself or another endogenous variable. The DMF, or transfer function, measures the impact of a unit increase in an exogenous variable on the endogenous variables over time. Figure 2 shows the IRF and cumulative IRF of female participation in the labour market to GDP per capita, and shows a positive response of GDP per capita to female labour participation. Figure 3 shows the dynamic multipliers in the WBL index with respect to female participation and GDP per capita. The effect of the WBL score on GDP per capita is negative in period 0 and positive in period 1. The initial negative effect is the result of the negative coefficient of the WBL score in the GDP per capita equation. This seems to happen because improvements in WBL-related policies have concurred with years of poor economic performance. This is consistent with the results found in the literature. For example, Dias de Silva et al. (2018) show that structural reform implementation is more likely during deep recessions and when unemployment rates are high. For example, in the decade when the WBL scores increased the most in the region, between 1993 and 2003, it increased from 59.2 to 72.1 and the GDP per capita grew below its historical average (1.8% vs. 2.4% annually between 1993 and 2019); in 2009, the WBL score increased by 2.4 pp while the GDP per capita contracted by 2.3%. However, once the WBL score begins increasing female labour participation, its effect on GDP per capita goes from negative in period 0 to positive in period 1 (one year after), as Figure 3 shows. This suggests that the benefits of improving the WBL index require at least one period (year) to materialise in our exercise by increasing the female labour participation rate.

The positive impact of the WBL index on GDP per capita can be seen in Table A2 in the Appendix, which shows the impact of two standard deviations in the WBL index on GDP per capita.

[7] It is worth noting that openness is significant and has the expected positive sign in the GDP per capita equation, but it is not significant in the female and male labour participation equations. This suggests that while openness is favourable for GDP per capita, the reason for this does not seem to be the increase in labour participation.

Figure 2

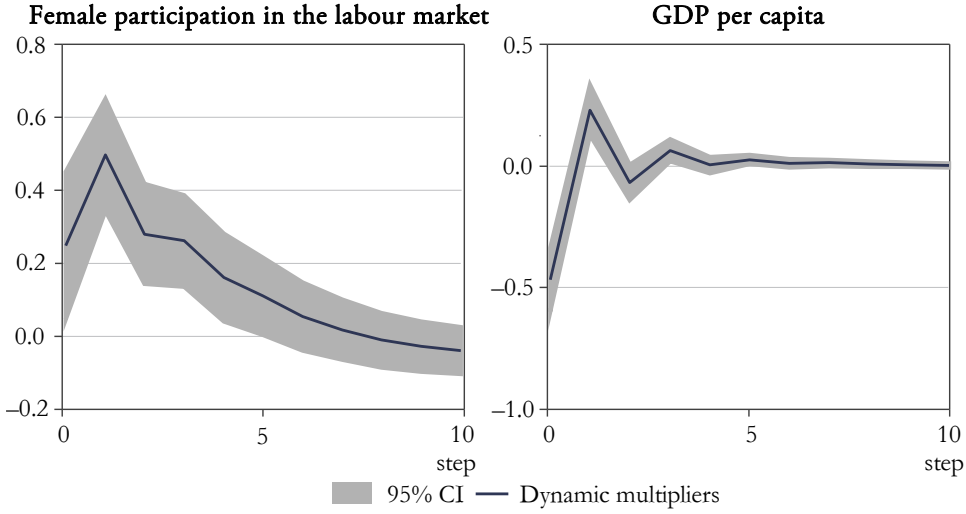
Impulse-response function and cumulative impulse-response function of female participation in the labour market to GDP per capita



Note: Confidence bands are estimated using Gaussian approximation based on 500 Monte Carlo draws from the fitted PVAR model (Model 5) in Table 3.

Figure 3

Dynamic multipliers. The impulse response of the exogenous variable Women, Business and the Law index on the endogenous variables female participation in the labour market and GDP per capita



Note: Confidence bands are estimated using Gaussian approximation based on 500 Monte Carlo draws from the fitted PVAR model (Model 5) in Table 3.

The IRF and DMF are calculated in terms of standard deviations. We need these standard deviations to express the magnitudes of improvements in the WBL index and their effect on the female participation rate and GDP per capita, as implied by the IRF and DMF. Table 4 reports the standard deviations of the WBL index, female participation in labour markets, and the growth rate of GDP per capita for each country and the entire region. Table 5 shows the levels of WBL and FemPart when we assume an increase of one and two standard deviations in their most recent scores.

Table 4

Standard deviations

Country	WBL	FemPart	GDPc (rate), %
Costa Rica	1.268	3.614	1.790
Dominican Republic	3.043	5.363	2.669
Guatemala	3.454	1.361	1.120
Honduras	3.860	2.981	2.012
Nicaragua	3.668	2.900	2.555
Panama	2.346	2.874	2.382
Salvador	4.553	1.403	1.214
Region	3.170	2.928	1.963

Table 5

Most recent WBL score and female participation in labour markets plus one and two standard deviations

Country	Women, Business and the Law			Female participation		
	WBL (2019)	$+1\sigma$	$+2\sigma$	FemPart (2019)	$+1\sigma$	$+2\sigma$
Costa Rica	80.00	81.27	82.54	52.21	55.82	59.43
Dominican Republic	86.30	89.34	92.39	55.26	60.63	65.99
Guatemala	70.60	74.05	77.51	43.08	44.44	45.80
Honduras	75.00	78.86	82.72	49.39	52.37	55.35
Nicaragua	86.30	89.97	93.64	54.27	57.17	60.07
Panama	79.40	81.75	84.09	57.56	60.44	63.31
Salvador	88.80	93.35	97.91	50.31	51.71	53.12
Region	80.91	84.08	87.25	51.72	54.65	57.58

For example, consider the case of Honduras, whose most recent score on the WBL index was 75 (in 2018). Let us suppose that specific gender policies increase two standard deviations in the country's WBL score – from 75 to 82.72 (fourth line of Table 5). Table 6 shows the effect of a two standard deviation increase in the WBL index on the female labour participation rate in Honduras, which increases by 6.26 pp in two years (from 49.39 to 55.65).

Table 6

Impact of a two standard deviation increase in the WBL index on female participation in labour markets (according to Model 5 in Table 3)

Country	FemPart (2019)	Impact of two standard deviations of WBL on female participation				
		year 1	year 2	year 3	year 4	year 5
Costa Rica	52.21	57.70	59.79	61.75	62.99	63.88
Dominican Republic	55.26	63.42	66.53	69.43	71.27	72.58
Guatemala	43.08	45.15	45.94	46.67	47.14	47.47
Honduras	49.39	53.93	55.65	57.26	58.29	59.02
Nicaragua	54.27	58.68	60.36	61.93	62.93	63.63
Panama	57.56	61.93	63.60	65.15	66.14	66.84
Salvador	50.31	52.45	53.26	54.02	54.50	54.84
Region	51.72	56.17	57.87	59.45	60.46	61.17

When we look at the relationship between female labour participation and GDP per capita, we find that policy changes that bring about a rise in the female participation rate from 49.39 to 55.35% (a level in line with the improvement in the WBL score to 55.65, as calculated above) will cause Honduras' GDP per capita to increase by 0.573% in the first year and 1.382 in five years. Table 7 shows the impact of a two standard deviation increase in the female participation rate on the GDP per capita of each country and the region in general.

Table 7

Impact of a two standard deviation increase in female participation in labour markets on GDP per capita (according to Model 5 in Table 3)

(%)

Country	GDPc growth 2015–2019	Impact of two standard deviations of FemPart on GDPc				
		year 1	year 2	year 3	year 4	year 5
Costa Rica	2.22	0.510	0.717	0.969	1.114	1.229
Dominican Republic	4.79	0.760	1.069	1.444	1.662	1.833
Guatemala	1.69	0.319	0.449	0.606	0.697	0.769
Honduras	2.02	0.573	0.806	1.089	1.253	1.382
Nicaragua	–0.13	0.728	1.024	1.383	1.591	1.755
Panama	2.79	0.679	0.954	1.289	1.483	1.636
Salvador	1.88	0.346	0.486	0.657	0.756	0.834
Region	2.18	0.559	0.786	1.062	1.222	1.348

Consider, for example, a simulation of the effect of a two standard deviation increase in the WBL score on FemPart in the region. In this case, we assume that specific gender policies increase the area's WBL score from 80.91 to 87.25 (line eight in Table 5). An increase of two standard deviations in the WBL score would cause female participation to increase from 51.72 to 57.87 (6.15 pp) after two years (line

eight in Table 6). The increase of two standard deviations in female participation would increase GDP per capita in the region by around 0.559 pp in the first year, 0.786 pp in the second year, and 1.348 pp after five years.

It is worth remembering that the WBL index is formed by eight sub-indexes – Mobility, Workplace, Pay, Marriage, Parenthood, Entrepreneurship, Assets, and Pension – and its point is the simple average of these sub-indexes. In general, each sub-index is constructed by four questions (with the exception of the sub-indexes of Marriage, Parenthood, and Assets, which have five questions) indicating the existence or absence of a specific norm in the country. If the norm exists, 25 points are assigned to that question (20 when the sub-index has five questions) and 0 otherwise. The value of each sub-index is the sum of the points of its questions and ranges from 0 to 100. One can recalculate a counterfactual WBL index by assuming a certain law is enacted and adding the respective 25 points to its sub-index (20 when the sub-index has five questions). The improvement in specific norms could also be reflected in other gender policy outcomes in the labour markets, for example, in an increase in female salaries.

According to the WBL index criteria, no country in the region has laws that mandate equal pay for work of equal value. Moreover, none of these countries provides paid parental leave (i.e. both parents are legally entitled to some form of full-time parental leave, either shared between mother and father or as an individual entitlement). If these measures were implemented in the region, the average WBL score would have increased from 80.9 to 86.5 by 2020 (+5.6 pp). Furthermore, if all the countries in the area allowed women to work in the same way as men in dangerous jobs, the index would increase by 1.8 pp to reach a level of 88.3 (+7.4 pp). This level of 88 is very close to the increase of two standard deviations in the WBL index (87.25) used in the simulation performed above. Therefore, if such measures were as effective as others in the index, their implementation could increase female labour participation by around 6 pp and GDP per capita by 1 pp.

Conclusions

The WBL index is a rich database that helps identify the laws and regulations that limit women's participation in economic activity. In this study, we use the WBL database to analyse its relationship to the female labour participation rate in CAPADOM – a region that lags behind Latin American and international standards according to this metric. The results show that an improvement in the WBL index would help increase the region's female labour force participation rate. The latter is associated with an improvement in GDP per capita. Moreover, we identify some measures that would increase the level of WBL score in the region and help increase female labour participation by around 6 pp.

In sum, changes in labour-related laws would improve the living conditions of women by expanding their participation in the labour market and increasing GDP per capita. Recognising this fact and working to improve laws to ensure equal treatment for women and men would be a valuable addition to the region's development agenda.

The analysis presented here has some limitations, in particular, the identification of other channels through which gender-related laws affect GDP per capita. Further research is necessary to identify the effect of changes in these laws on productivity, and male and female salaries, for example. This research requires the measurement of gender statistics, which is at a developmental stage. Akbash et al. (2018) discuss this issue by comparing different methodological approaches for the calculation of gender indexes of demographic and social statistics. Additionally, it is important to recognise that changing of laws is not an automatic process. It can become a complex process depending on the political system, distribution of power among political parties, and fiscal space, among others.

Appendix

Table A1

Means, standard deviations, and minimum and maximum values of the panel data used in the study

Variable		Mean	Std. dev.	Min	Max
GDPc	overall	0.023	0.021	–0.047	0.090
	between		0.011	0.015	0.043
	within		0.019	–0.041	0.070
Inflation	overall	–0.288	5.214	–31.114	29.339
	between		0.126	–0.454	–0.103
	within		5.213	–31.245	29.208
Remittances	overall	195.605	272.479	–400.700	1220.600
	between		167.808	–31.628	440.448
	within		223.710	–645.543	975.757
log(FemPart)	overall	3.853	0.093	3.696	4.053
	between		0.077	3.763	3.994
	within		0.066	3.673	4.033
log(MalPart)	overall	4.422	0.037	4.339	4.491
	between		0.033	4.368	4.465
	within		0.016	4.383	4.456
log(WBL)	overall	4.316	0.097	4.094	4.486
	between		0.092	4.181	4.413
	within		0.045	4.135	4.419
RoL	overall	–0.523	0.533	–1.140	0.706
	between		0.551	–1.029	0.529
	within		0.106	–0.750	–0.244
FerRat	overall	2.737	0.687	1.740	4.895
	between		0.549	1.929	3.712
	within		0.395	1.728	3.920
Openness	overall	78.66	25.63	41.55	162.48
	between		25.13	57.41	119.07
	within		13.24	46.11	123.62

Table A2

Impact of a two standard deviation increase in the WBL index on GDP per capita (according to Model 5 in Table 3)

(%)

Country	GDP	Impact of two standard deviations of WBL on GDPc				
	2015–2019	year 1	year 2	year 3	year 4	year 5
Costa Rica	2.22	0.25	0.01	0.23	0.24	0.34
Dominican Republic	4.79	2.65	2.28	2.62	2.63	2.77
Guatemala	1.69	1.68	1.53	1.67	1.68	1.73
Honduras	2.02	0.02	–0.26	0.00	0.01	0.11
Nicaragua	–0.13	1.74	1.39	1.71	1.73	1.86
Panama	2.79	0.18	–0.15	0.15	0.17	0.29
Salvador	1.88	1.27	1.10	1.25	1.26	1.32
Region	2.18	1.11	0.84	1.09	1.10	1.20

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