

The Channel of Female Employment in the Transmission of Monetary Policy in the Dominican Republic

Luis Rene Caceres¹

¹ Independent Researcher, El Salvador

Correspondence: Luis Rene Cáceres, 5456 Paseo General Escalón, San Salvador, El Salvador.

Received: May 26, 2023

Accepted: July 7, 2023

Online Published: July 15, 2023

doi:10.5539/ijef.v15n8p80

URL: <https://doi.org/10.5539/ijef.v15n8p80>

Abstract

The objective of this article is to analyze, in the Dominican Republic, the impact of monetary policy on labor market variables disaggregated by gender. The results indicate that the expansion of credit and money favor the growth of female employment and female participation to a greater degree than male, which leads to an increase in the ratio of female to male employment and leads to an increase in domestic savings. and economic growth. It is shown that the female-to-male employment ratio reduces external vulnerability and inflation, homicide and suicide rates, and is a mechanism for the transmission of monetary policies.

Keywords: labor market, gender, household savings, economic growth

JEL Classification: J08, J16, E62, E52, E31, D14.

1. Introduction

The transmission of monetary policy examines the responses of different variables, particularly economic growth, to changes in monetary variables, such as money and the interest rate.

The seminal model developed by Bernanke and Blinder (1988) showed that a restrictive monetary policy decreased bank resources, which consequently reduced their lending, and thus the economy's growth rate decreased. This approach has been called the bank loan transmission channel. A later approach, developed by Bernanke, Gertler, and Gilchrist (1996), emphasizes the borrowers' balance sheet channel, in which expansionary monetary policy leads to an increase in people's assets and, consequently, individuals increase their purchases. of goods and services, leading to an increase in aggregate demand.

Recent models have analyzed the role of international banking in the global arena, which has given rise to a literature on transmission through the international banking lending channel (Grab & Zochowski, 2017; Loeffler et al., 2017; Buch et al., 2018), standing out the analysis of Alberizo et. al. (2019) of the effects of changes in the monetary policies of developed countries on global bank loans. Other notable approaches have analyzed the transmission through the bank deposits channel (Drechsler & Schnabl, 2017) and through the working capital channel (Dao & Liu, 2017).

In this paper, it is demonstrated for the case of the Dominican Republic that the ratio of female to male employment constitutes another channel for the transmission of monetary policy. The key analysis of this model rests on the effect of credit and the money supply on said ratio. There is evidence that the increase in this ratio leads to an increase in the domestic savings rate (Seguino & Floro, 2003; Caceres, 2020); therefore, if the expansion of credit results in an increase in said ratio, it follows that the domestic savings rate would increase and, therefore, so would investment rate and the rate of economic growth.

In recent years, several studies have analyzed the differential effects of US monetary policy on female and male employment and unemployment, as well as on different ethnic groups. These studies have presented evidence that monetary policy has different impacts on women and men, and on whites and people of color.

This kind of study has not been carried out in Latin American countries, where the differences in job performance between women and men are well documented: the former have higher unemployment rates and are more susceptible to being laid off than men when economic recession events occur, (CEPAL, 2021), while female unemployment reacts with inertia to increases in economic growth (Zidong, Bluedorn, & Ciminelli, 2021), and the Afro-Latin and Indigenous population show high rates of unemployment and underemployment

compared to the white population (ECLAC, 2001, 2017).

Monetary policy has repercussions on the labor market: credit is the main source of working capital for companies, so it can be assumed that in the short term, it will stimulate the demand for employment (Dao & Liu, 2017). In view of its role in increasing nominal GDP and lowering the interest rate, the expansion of money would also lead to increases in the demand for labor. The inflation rate, which is related to the money market, has been recognized as a determining variable in the operation of the labor market (Loboguerrero & Panizza, 2005). Likewise, the real value of the exchange rate, which is associated with the inflation rate, has repercussions on employment, especially in open economies (Frenkel & Ros, 2006).

The issue is the degree to which monetary variables have different effects on female and male workers. It is valid to consider that there are differentiated repercussions by sex: discrimination in the labor market against women has been widely documented (Bareiro, 2017). In addition, women are more likely than men to be laid off, and to not get their jobs back after a recession. It must be added that women have restrictions to participate in the labor market, since they must take care of housework, either as a wife, a single mother, or in the care of the elderly.

If monetary expansion leads to a greater increase in female employment than male employment, it is suggested that the domestic savings rate and, thus, economic growth, acquire dynamism. The following section provides a brief review of selected literature on the role of monetary policy on gender-differentiated labor market variables and presents the data and their statistical properties. Next, the results of the estimation of equations that express the female to male employment ratio in terms of monetary variables are discussed, and thus the implications of the results on domestic savings, investment and economic growth are analyzed. In other sections, the role of the employment ratio on economic vulnerability, inflation, violence, and suicide in the Dominican Republic are analyzed. The paper ends with a series of conclusions.

2. Selected Literature Review

This section presents a brief review of relevant papers on the gender-differentiated repercussions of monetary policy. It should be noted that these studies refer to the USA.

Abell (1991) estimated Var models to determine the impacts of the growth rate of the monetary aggregate M2 and of the fiscal deficit on unemployment rates disaggregated by ethnic group and gender, using data from the period January 1974 to April 1980, and from January 1981 to April 1987. Results for the first period showed that the unemployment rate for white men showed the steepest decline, followed by African-American men, white women, and African-American women, in that order. The responses to the increase in the fiscal deficit were not significant.

In the second period, the results showed that the unemployment rates of white men and Afro-American women had the most pronounced falls due to the increase in M2, while the falls of white women's and Afro-American men's unemployment rates were small. White men's unemployment responses to increases in the fiscal deficit were negative, and larger than those of other groups. African-American women showed drops in their unemployment rate, but the unemployment rates for African-American men and white women increased.

Williams (2004) used data from the period December-1968 to December-2002 to estimate VAR models and determine the responses of unemployment rates in different sectors and occupations to increases in the Federal Reserve rate. The impulse responses showed that the highest increases in unemployment rates were found in the manufacturing and construction sectors, whose increases were respectively 3 and 2 times the increase in unemployment in the services sector, which showed the lowest response. The results also showed that the increase in the interest rate caused the largest increases in the unemployment rate of people working in operator and machine repair positions,

Rodgers (2008) analyzed the duration of unemployment events for the white and African-American populations in response to the increase in the Federal Reserve's interest rate, using monthly data from the period 1979-2006. The results indicated that 63,000 white people experienced unemployment lasting more than 15 weeks, while the corresponding number for African-American people was 90,000. The author concluded that the Afro-American population suffers more from the economic contractions induced by monetary policy,

Carpenter and Rodgers (2004) estimated Var models with monthly data for the period 1973 and 2002 to determine the impact of the increase in the Federal Reserve reference rate on the employment-to-population ratio, finding that this measure led to a fall in said ratio, and an increase in unemployment, with no change in the participation rate. The data on the employment to population ratio and the unemployment and participation rates were disaggregated by ethnic groups and by age, and the estimation of the VAR models indicated that the increase in the interest rate led to a reduction in the employment to population ratio of ethnic minorities, as a

result of the increase in unemployment rates and without affecting participation rates.

In another estimate, the authors introduced into the Var the difference between the employment-to-population ratios and between the unemployment rates, of the African-American and white groups, with results showing that the difference between the employment-to-population ratios was negative and significant, indicating that the ratio for the African American population was more susceptible than the ratio for white people. In the case of differences between unemployment rates, the response was positive, that is, unemployment affected African-Americans more markedly. In the case of young people who had dropped out of high school, the results indicated that this group of people was more susceptible to monetary contraction than other people.

The authors estimated a model with employment data disaggregated by sectors, finding that the responses of employment in the construction sector showed the most pronounced drop in the face of the increase in the interest rate, followed by employment in the manufacturing sector.

Reference must be made to the work of Dao and Liu (2017) on the role of credit as working capital in increasing employment by companies. The authors used data from 130 countries from the period 2006 to 2013 taken from the World Bank Enterprise Survey. The results showed that the effect of credit in increasing employment growth was more pronounced in small firms and in labor-intensive production firms.

Other studies on gender-differentiated effects from monetary policy are Braunstein and Heintz (2006), Heintz and Seguino (2011), Elson (2007), Tachtamano and Sierminska (2009), and Papadavid and Pettinotti (2021).

3. Data

The data source for the period 1991-2018 is the World Development Indicators, of the World Bank. The analysis is similar to the works reviewed in the previous section that estimated equations to determine the impact of monetary and fiscal variables, such as money and credit, on the labor market. In this work, the behavior of the female to male employment and unemployment ratios is determined, as well as the female to male participation ratios, both of the total population, as well as that of the group between 18 and 24 years, in the face of increases in monetary variables. .

The mean values and standard deviations of the variables can be obtained from the author.

Unit root tests for the series showed that all the variables were integrated of order one, except the exchange rate and the difference between imports and exports, which were stationary at the 10 percent level, while domestic savings and the ratio of female to male youth unemployment turned out to be stationary at 5 percent levels. Since the equations to be estimated include integrated and stationary series, the estimates were carried out using the "Fully Modified Least Squares" method, developed by Phillips and Hansen (1990).

4. Results

This section presents the results of the estimation of equations that explain the female-to-male employment ratio and other labor market variables, in terms of monetary variables.

In equation 1 of Table 1, the dependent variable is the ratio of female to male employment (Note 1); it is observed that the expansion of money, (M2), as a percentage of GDP leads to an increase in this ratio, which implies that expansive monetary policy is favorable to female employment. In addition, the increase in the interest rate on loans leads to a fall in this ratio, that is, men are less affected by the resulting unemployment than women. The same deduction is made in relation to the effect of the real exchange rate, whose increase, that is, a devaluation, leads to a reduction in the female-to-male employment ratio. This last result shows that, given an increase in foreign demand as a result of the devaluation, national production destined for exports is prone to employ more men than women. The same result is observed in the case of an increase in exports.

Equation 2 shows that the female-to-male youth employment ratio behaves in a similar way as the total employment ratio (equation 1), since increases in the interest rate and in exports as a percentage of GDP have negative signs, as those in equation 1. Credit expansion favors female employment more than male employment, as does money in equation 1. The inflation rate has a positive and significant coefficient, that is, the increase in the price index favors female employment, possibly due to the fact that young women earn lower salaries than men, and their hiring can be seen as a means to safeguard the profit margins of companies.

Equation 3 presents the estimate corresponding to the female-to-male unemployment ratio. The money coefficient has a negative sign, contrary to what was shown in equation 1, that is, the monetary contraction gives rise to greater increases in female unemployment than male unemployment. From the positive coefficient of exports it can be deduced that the increase in exports fuels female unemployment to a greater degree than male unemployment. Interest rates, inflation, and the exchange rate have insignificant coefficients.

It should be noted that in the estimated equations remittances did not have significant coefficients; this can be associated with the evidence that remittances reduce female labor participation, as has been reported for the case of El Salvador and Haiti by Acosta (2006) and Jadote (2000) respectively.

Table 1. Results for the Dominican Republic

	Female employment/ male employment (1)	Young female employment/ Young male emp. (2)	Female unemployment/ male unemployment (3)
Constant	0.8349 (9.41)	0.5603 (8.90)	1.2383 (2.58)
Money	0.0036 (4.15)		-0.0225 (4.77)
Interest	-0.0048 (2.81)	-0.0018 (1.34)	-0.0045 (0.50)
Exports	-0.0033 (1.83)	-0.0042 (0.38)	0.0377 (1.85)
Exchange Rate	-0.0023 (3.21)	0.0002 (0.38)	0.0065 (0.89)
Inflation	-0.0004 (0.50)	0.0011 (2.22)	-0.0035 (0.89)
Credit		0.5603 (8.31)	
R2	0.89	0.70	0.80

Equation 4 in Table 2 presents the case of the female to male youth unemployment ratio. As in the case of the total unemployment ratio, money has a negative coefficient, and the coefficients for exports and the real exchange rate are positive; the increase in the inflation rate favors the drop in female youth unemployment to a greater degree than male youth unemployment.

Equation 5 for total labor participation shows that the coefficients for exports, the real exchange rate, and the interest rate have negative signs, which show that their increases reduce female participation; on the contrary, the coefficients of credit and of the inflation rate are positive, that is, their increases favor female participation.

In equation 6 the dependent variable is the ratio of female youth participation to male youth participation; it is observed that exports and the exchange rate, both lagged one year, and the interest rate, have negative coefficients, that is, these variables do not favor female youth participation; money shows a positive coefficient which implies that monetary expansion favors the participation of female youth. The same is deduced in relation to the rate of inflation.

Table 2. Results for the Dominican Republic

	female Youth unemployment/ male unemployment (4)	<u>female unempl/</u> Youth male unempl (5)	Part young female/ Part young male (6)
Constant	1.4063 (2.47)	0.9378 (13.08)	0.6212 (12.91)
Money	-0.0189 (2.89)		0.0027 (6.13)
Exchange rate (-1)	0.0076 (1.42)	-0.0034 (5.68)	
Exports-1)	0.0245 (3.21)	-0.0035 (2.76)	
Inflation (-1)	-0.0087 (1.68)		0.00058 (2.48)
Credit		0.0038 (3.35)	

Interest		-0.0057 (3.35)	-0.0018 (2.90)
Inflation		0.0121 (2.38)	
Exports(-2)		0.0121 (2.38)	-0.0028 (4.03)
Exchange rate (-2)			-0.0005 (1.20)
R2	0.55	0.89	0.81

The results in tables 1 and 2 show that the expansion of credit and money lead to an increase in the ratio of female to male employment; the opposite results from the increase in the interest rate, from exports, and from the devaluation of the national currency. This has implications regarding the effect of monetary policy on savings and economic growth.

4.1 Female Employment Mechanism for the Transmission of Monetary Policy

Based on the results obtained in the previous section, a monetary policy transmission model through the employment ratio is developed below, which is shown in Figure 1.

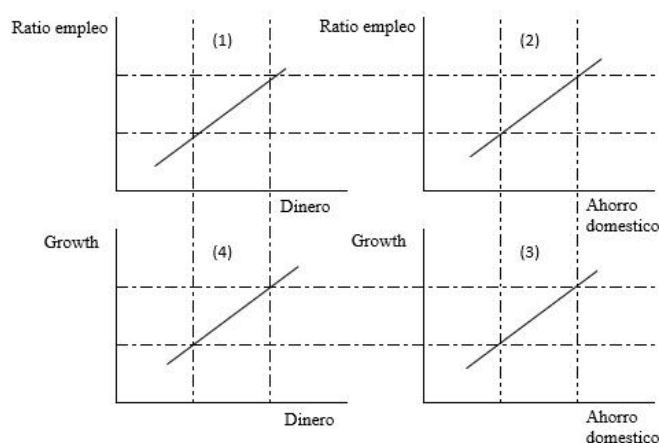


Figure 1. The female employment channel of transmission of monetary policy.

It must be emphasized that this mechanism rests on the positive role of the female-to-male employment ratio on the domestic savings rate.

The work of Seguíno and Floro (2003) showed that the ratio of female to male employment was a determinant of the domestic savings rate, by virtue of the commitment of women to safeguard the well-being of the home in the face of fluctuations in the national economy. A similar result was reported by Cáceres (2020) with 2017 data from a cross-section of 18 Latin American countries. Cáceres (2021a, 2021b) has presented results for Honduras and Guatemala, showing that female-to-male employment ratios exert positive impacts on domestic savings, while the female-to-male unemployment ratio has negative effects.

Quadrant (1) presents the positive relationship between Money, (Dinero), and the ratio of female to male employment, (Ratioempleo), which was shown in equation (1) of Table 1.

Quadrant (2) shows the positive association between this ratio and the domestic savings rate (Ahorro domestico). This relationship is presented in equation (1) of Table 3, where the employment ratio coefficient is positive and significant. This equation includes the qualitative variable Cualib which represents the boom years of economic growth, when its rate exceeded eight percent.

In view of the evidence of a positive relationship between savings and economic growth (Alguacil, Cuadros, & Orts, 2004; Abu Al-Foul, 2010; Misztal, 2011), quadrant (3) presents the positive association between rates of savings and economic growth (Growth). This relationship is expressed in equation (2) of table 3.

Table 3. Determinants of domestic savings and economic growth

	Dependent variables:		
	Savings (1)	Economic Growth rate (2)	Economic Growth rate (3)
Constant	-48.4451 (3.80)	-5.6981 (1.65)	-33.6850 (3.64)
Qualib	2.313 (1.66)	4.2386 (3.27)	1.7581 (1.84)
Ratio	111.0351 (5.19)		
Savings		0.6229 (3.65)	
Money(-1)			1.1682 (4.19)
R squared	0.83	0.73	0.61

In quadrant (4) the positive relationship between money and the economic growth rate is obtained. The corresponding equation is equation (3) in table 3.

In this model, economic growth is the result of the transmission of monetary expansion through the channel of the female-to-male employment ratio.

4.2 Domestic Savings, Female Employment and Economic Growth

To further validate the previous model, the role of the female to male employment ratio on economic growth is analyzed below.

Given the identity:

$$M-X = I-S$$

where M=imports, X=exports, I=investment and S=domestic saving.

The savings rate can be expressed as: $S = a(\text{Female to male employment ratio})$,

and given that $I = kg$, where k is the capital product ratio and g is the economic growth rate, the previous expression can be written as:

$$M - X = kg - aRatio$$

Solving for g:

$$g = (M-X) + aRatio / k$$

The following equation shows the economic growth rate of the Dominican Republic in terms of the female-to-male employment ratio, the trade account deficit, and the qualitative variables Cualicrisis and Cualib that represent, respectively, the economic contraction and boom years:

$$\text{Growth} = -4.9481\text{Cualicrisis} + 4.8567\text{Cualib} - 0.0187(M - X) + 9.4523\text{Employment ratio}$$

(3.58)

(5.65)

(0.13)

(6.30)

R squared = 0.63

Given that money has a positive effect on the ratio of female to male employment, as observed in equation (1) of table 1, an equation for economic growth in terms of the ratio of money to GDP was estimated:

$$\text{Growth} = -5.7361 + 4.8153\text{Qualib} + 0.1358(M-X) + 0.0883\text{Money}$$

(3.31)

(4.42)

(1.08)

(2.03)

R squared = 0.55

This equation shows the impact of monetary expansion on economic growth, which can legitimately be interpreted as the result of the transmission of monetary policy through the female employment channel; In other words, there is a monetary policy transmission channel that resides in the sex of the people who are part of the labor force, specifically in the increase in female employment.

4.3 Female to Male Employment Ratio and Economic Vulnerability

The expression $M - X = I - a\text{Ratio}$ indicates that as the employment ratio increases, the trade deficit will tend to fall, which is investigated by estimating the following equation for the Dominican Republic:

$$M - X = 1.7132 + 0.7414\text{Investment} - 17.5774 \text{ Employment ratio}$$

(0.46)

(4.07)

(1.88)

R squared = 0.40

This equation shows that if the employment ratio increased by 0.10, the trade deficit as a percentage of GDP would fall by 1.7 points; that is, this ratio has an effect similar to that expected from a devaluation, without causing the recessive impacts that devaluation produces, and without increasing consumer prices. In other words, female employment is an instrument for stabilizing the trade account.

The role of the female to male employment ratio in reducing a country's external economic vulnerability is described in Figure 2 below.

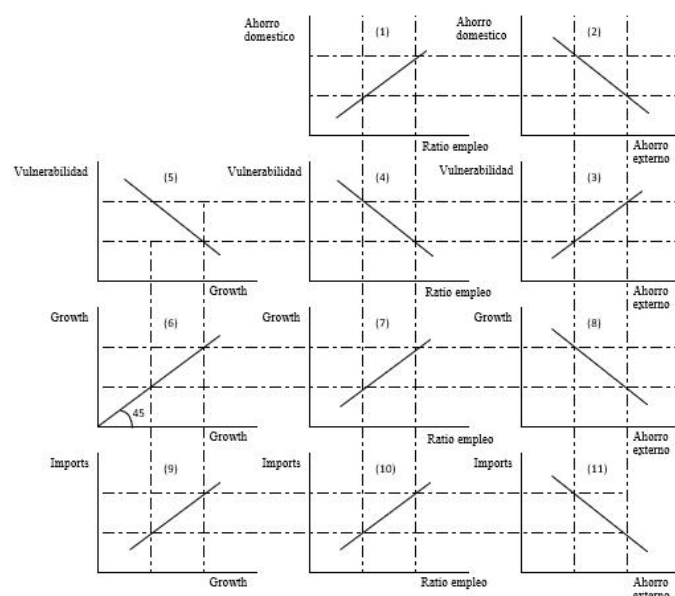


Figure 2. Role of the female to male employment ratio in reducing vulnerability

Quadrant (1) shows the positive relationship between the employment ratio and the savings rate, which was observed in equation (1) of Table 3. Quadrant (2) presents the negative relationship between domestic savings and external savings rates, the latter represented by the deficit in the trade account, which was shown in the equations shown above.

Foreign savings are a trigger for banking and financial crises (Kaminsky, Elizondo, & Reinhart, 1996); thus, quadrant (3) presents the positive relationship between external savings and an indicator of external vulnerability. The fall in international reserves has been identified by Sachs, Tornell, and Velasco (1996) as a trigger for balance of payments crises, while Kaminsky, Elizondo, and Reinhart (1996) reported that the reduction of reserves was an early indicator of a financial crisis. Therefore, as an indicator of vulnerability, the amount of reserves per capita will be used.

Quadrant (4) shows the inverse relationship between the employment ratio and external vulnerability, which implies that the higher the female employment, the lower the vulnerability. This result positions the female to male employment ratio as a true instrument of macroeconomic prudence.

Reducing external vulnerability contributes to increasing the rate of economic growth, as shown in quadrant (5). Using the 45 degree line in quadrant (6), the positive relationship between the employment ratio and the economic growth rate is obtained in quadrant (7). Quadrant (8) presents the negative relationship between the rates of external savings and economic growth.

Assuming that the country in question is a member of an economic integration scheme, it can be seen in quadrant (9) that the increase in the economic growth rate gives rise to an increase in its imports, Imports, from the other

member countries of the integration program. Thus, it is obtained in quadrant (10) that the increase in the female employment ratio stimulates the growth of imports from the other partner countries of the program, that is, the increase in the employment ratio imparts dynamism to the trade flows of the regional integration program.

Quadrant (11) shows that foreign savings undermine the dynamism of trade flows among member countries. Stiglitz (2000) showed that developing countries that undertook trade liberalization policies have experienced uncommon trade deficits. Openness generates perverse repercussions, reducing trade flows (quadrant (11)), undermining economic growth, (quadrant (8)), and increasing external vulnerability, (quadrant (3)).

Vulnerability is assumed to fall as reserves per capita increase. Figure 3 shows the close positive relationship between the female to male employment ratio and reserves per capita:

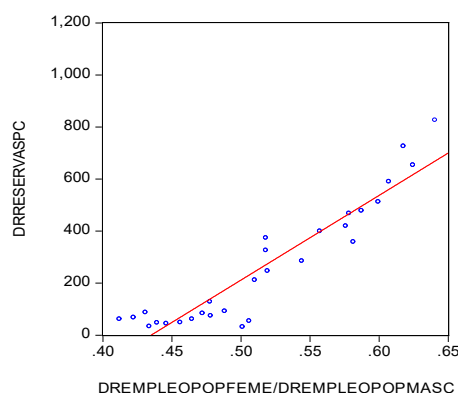


Figure 3. Ratio of female to male employment and reserves per capita in the Dominican Republic

This Figure shows that the female to male employment ratio constitutes a protection barrier for the national economy against the downturns of the international economy.

Likewise, given that reserves per capita and economic growth are determined by the ratio of female to male employment, economic growth will be determined by reserves per capita, as shown in the following equation:

$$\text{Economic growth} = 3.1469 - 4.2792\text{Cualicrisis} + 4.5171\text{Cualib} + 0.0046\text{Reservespc}$$

(4.13) (3.69) (4.72) (2.61)

R squared = 0.78

4.4 Money, Employment Ratio and Productivity

The ratio of female to male employment gives rise to another channel of monetary transmission through the increase in labor productivity. This model is shown in Figure 4.

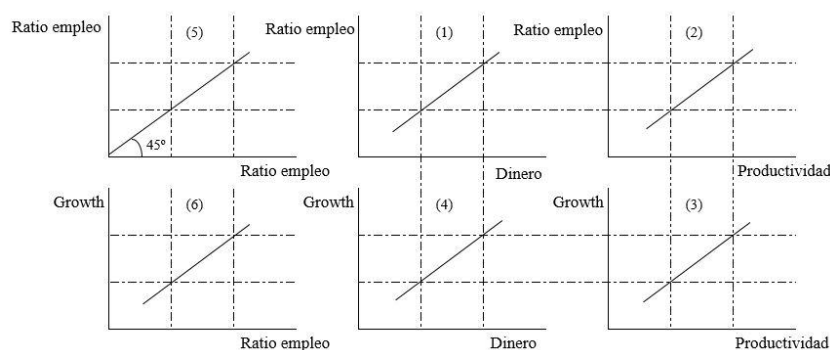


Figure 4. Monetary policy transmission channel through productivity

The first quadrant shows the positive relationship between money and the employment ratio, as observed in equation 1 of table 1.

Quadrant (2) presents the positive relationship between the employment ratio and labor productivity, (productividad), which is shown in Figure 5.

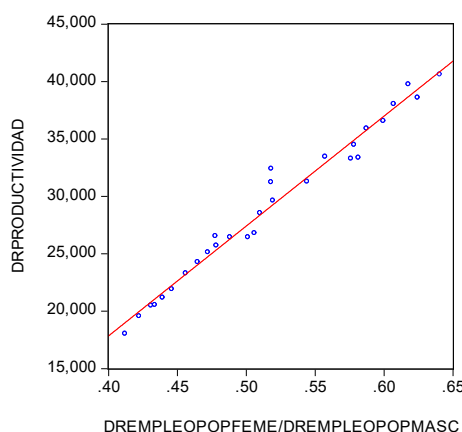


Figure 5. Female to male employment ratio and labor productivity in the Dominican Republic

This positive relationship is explained by the role of the employment ratio in increasing savings and investment and thus increasing labor productivity, since productivity is determined, in part, by investment (Caceres, 2018a, 2018b, 2018c).

Quadrant (3) shows the relationship between labor productivity and the rate of economic growth; with that base, the positive relationship between money and the growth rate is built in quadrant (4). Using the 45-degree line in quadrant (5), the positive relationship between the female-to-male employment ratio and the economic growth rate is obtained in quadrant (6). This is another way in which the gender channel of monetary policy transmission operates.

4.5 Female to Male Employment Ratio and Inflation

The employment ratio has implications for the prevailing price level in the country. Figure 6 shows the aggregate supply and demand lines. Initially, the supply line is given by $S1(\text{Ratio}1)$, which corresponds to a female-to-male employment ratio equal to $\text{Ratio}1$; the demand line is given by $D1D1$. The intersection of these two lines determines GDP equal to $Y1$, and a price level equal to $P1$.

Assuming that the employment ratio increases to a value equal to $\text{Ratio}2$, the supply line shifts to $S2(\text{Ratio}2)$, due to the increase in savings and labor productivity, and the demand line shifts to $D2D2$, in response to the increase in aggregate demand due to the increase in the labor force. These new lines intersect at a point corresponding to the price level $P2$ at a value of GDP equal to $Y2$.

The increase in the female-to-male employment ratio has led to an increase in GDP and a fall in prices, both as a result of the increase in savings and labor productivity. In other words, female employment has a special role in counteracting inflationary pressures and economic recession.

It should be noted that the increase in the female-to-male employment ratio leads to an increase in economic growth and a fall in inflation, a result that contradicts the Phillips curve.

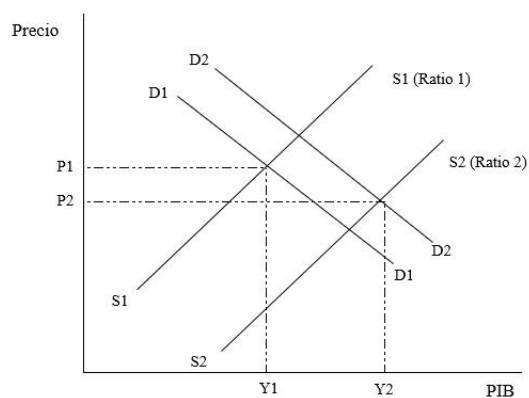


Figure 6. Female employment and inflationary pressures

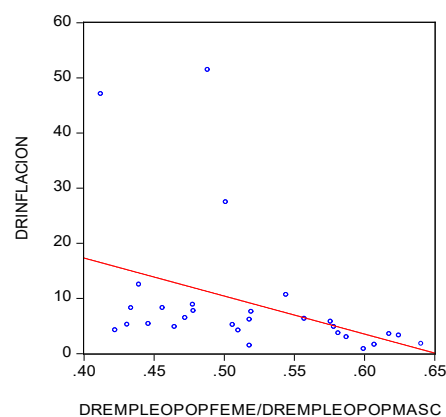


Figure 7. Female to male employment ratio, and annual inflation rate

Figure 7 shows the negative relationship between the female to male employment ratio and the annual rate of inflation in the Dominican Republic:

The inflation rate is given by the following equation:

$$\text{Inflation} = 55.4162 - 2.0001\text{Growth} - 68.6466\text{EmploymentRatio}$$

(3.47) (3.010) (2.27)

R squared = 0.37

On the other hand, since the employment ratio is positively influenced by the money-to-GDP ratio, it is valid to postulate that the expansion of the money-to-output ratio exerts anti-inflationary pressures. This is what can be seen in Figure 8.

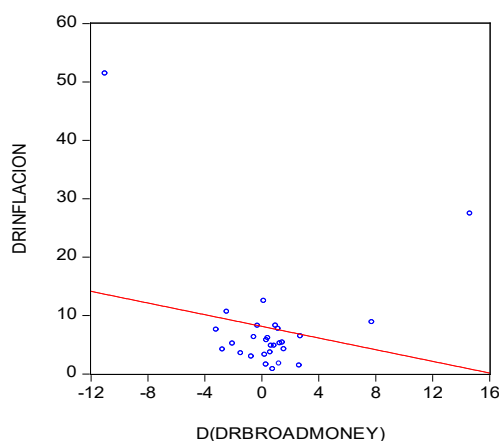


Figure 8. Annual increase in the money to GDP ratio and the inflation rate

Due to its role in reducing inflationary pressures, the female to male employment ratio increases the value of liquid assets, which represents monetary gains for individuals and companies. This effect is another way that investments that lead to increased female employment, such as preschool education, child care services, and increasing the quality of education, pay for themselves (Note 2).

4.6 Female Employment and Violence

To underscore the importance of the female to male employment ratio, this section analyzes its association with violence. Equation (1) in table 4 shows that the number of annual homicides per 100,000 inhabitants has a negative association with the ratio of female to male employment. This equation indicates that the higher the ratio of female to male employment, the lower the levels of violence. This can be explained by the role of this ratio in increasing the rate of economic growth, which results in the drop in unemployment and thus in the reduction of the homicide rate; In fact, there is evidence for the region that unemployment is a determinant of violence in Latin America (Choda, 2017). Given that this ratio increases with the increase in money and credit, as shown in the equations in Table 1, it follows that female employment is a means of reducing violence, the increase of which reduces the serious problem of violence experienced by Latin American countries; therefore, plans designed to combat violence must take into account the important role played by female employment.

In works on the repercussions of self-employment in Latin American countries, Caceres (2018a, 2018b, 2018c) reported that the rate of female and male self-employment had positive relationship with the homicide rate. This relationship is shown for the Dominican Republic in equation (2), where the qualitative variable Cualiautofeme represents the high values of female self-employment in 1993 and 1994.

For its part, female self-employment has a negative relationship with credit, as shown in equation (3).

Given that female self-employment has a positive effect on the homicide rate, it follows that credit will have a negative effect on this rate, which is shown in equation (4).

This indicates that, due to its role in reducing the underground sector of the economy, credit expansion contributes to reducing violence. On the contrary, the restriction of credit resulting from an adjustment program would intensify violence, which could inhibit economic recovery.

Table 4. Homicide rate, self-employment, and credit

equation number			
(1) Homicides = 100.9560 – 143.3612 Female to male employment ratio	(8.44)	(6.87)	
R squared = 0.81			
(2) Homicides = -84.7275 + 7.0388Cualiautofeme + 3.1948 Female self employment	(2.52)	(2.57)	(3.04)
R squared = 0.24			
(3) Female self employment = 34.7167 - 0.1300 Credit	(26.75)	(2.51)	
R squared = 0.51			
(4) Homicides = 33.4048 + 11.8218 Cualicrisis – 0.6153 Credit	(4.38)	(2.42)	(1.98)
R squared = 0.26			

4.7 Monetary Policy and the Suicide Rate

This section briefly deals with the female and male suicide rates in the Dominican Republic, based on annual suicide data per 100,000 inhabitants, for the period 2000-2018. This is not a digression, since there are close relationships between suicide rates and monetary variables in this country.

It should be noted that the female suicide rate falls with the increase in the ratio of female to male employment in the services sector, as can be seen in Figure 9:

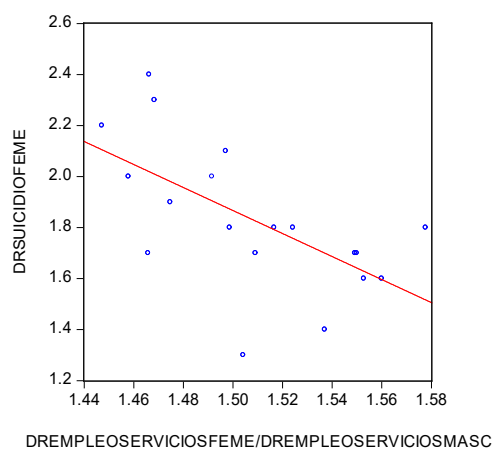


Figure 9. Employment ratio in the service sector and female suicide rate

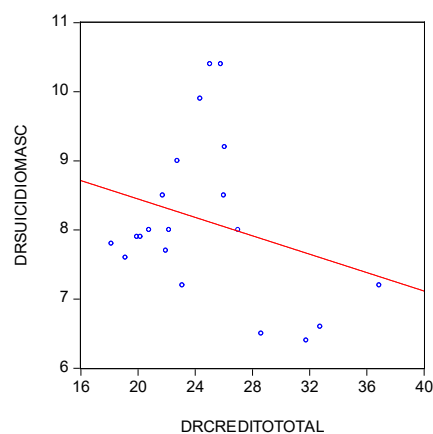


Figure 10. Number of annual male suicides per 100,000 people

Given that the female to male employment ratio increases with credit expansion, as observed in equation (2) of Table 1, the existence of an association between credit and the suicide rate can be deduced.

Figure 10 shows the negative relationship between the annual number of male suicides per 100,000 inhabitants and the ratio of total annual credit to the private sector as a percentage of GDP, which shows that credit expansion contributes to the drop in the number of annual suicides.

Extensive literature has presented evidence that unemployment is an important determinant of suicide, as documented by Antonakakis and Collins (2015) and others; therefore, the economic events that are related to the increase in unemployment in the Dominican Republic would influence the suicide rate.

Figure 11 presents the negative relationship between the participation of the manufacturing industry in GDP and the female youth unemployment rate. This Figure shows that the decline in industrialization has led to an increase in female youth unemployment.

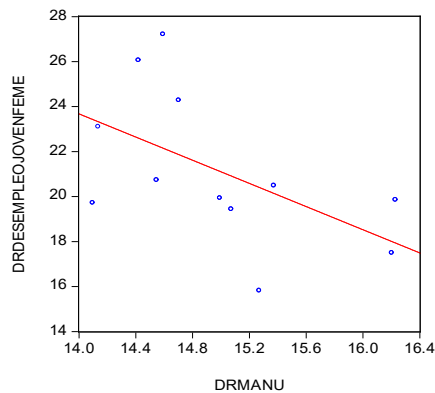


Figure 11. Industrialization and youth unemployment rate

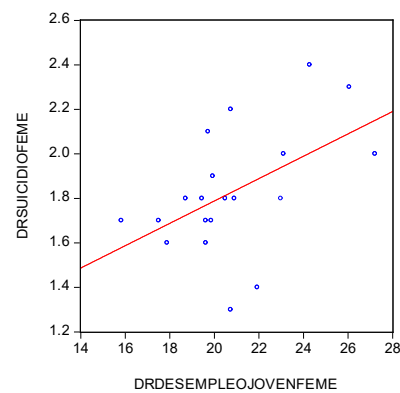


Figure 12. Female youth unemployment rate and number of female suicides per 100,000 inhabitants

The increase in the female youth unemployment rate is related to the increase in the female suicide rate, which is shown in Figure 12.

From the above Figures it can be deduced that there is a negative association between the degree of industrialization, represented by the percentage participation of the manufacturing sector in GDP, DRManu, and the suicide rate. Figure 13 shows the case of male suicide.

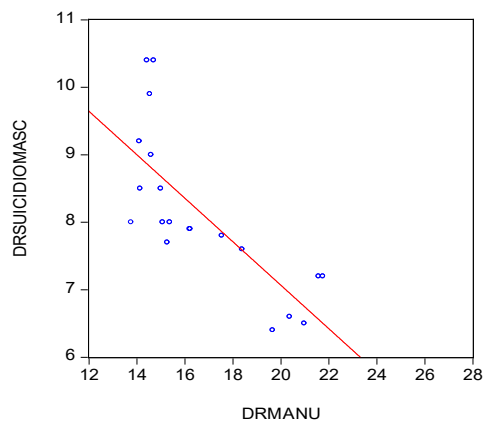


Figure 13. Participation of the manufacturing sector in GDP and male suicide rate

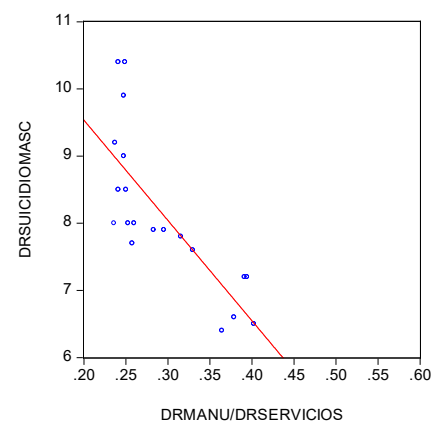


Figure 14. Ratio of the participation of the manufacturing sector and the service sector in GDP and male suicide rate

Likewise, male suicide rates increase due to the decrease in the manufacturing sector in relation to the service sector, which is a measure of relative deindustrialization (Figure 14).

Given that one of the main determinants of deindustrialization is the reduction of import tariffs (Caceres, 2021a, 2021b), it can be seen in Figure 15 that as tariffs fell, the female suicide rate increased.

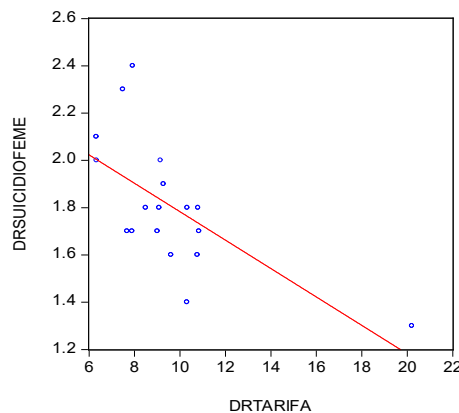


Figure 15. Tariff on imports and female suicide rate

Given the role of economic dynamism in reducing the suicide rate, it is valid to postulate the existence of an “Okun’s Law” applicable to suicide. This expression is the following:

$$D(DR_{suicidefeme}) = 0.1495 - 0.0223DR_{Growth}$$

(2.37) (2.04)

R squared = 0.13

It is observed that the coefficient of the economic growth rate is negative and significant, which shows that the increase in economic growth leads to a drop in suicides.

5. Conclusions

This work has provided evidence that the expansive monetary policy of the Dominican Republic contributes to increasing the female-to-male employment ratios, those of the total employment aggregate, and youth employment. In addition, monetary expansion leads to a fall in the ratios of female unemployment to male unemployment, total and youth. These results are like those obtained in the USA.

Other results showed that the increase in the female to male employment ratio contributes to the increase in the domestic savings rate and, therefore, in the rate of economic growth.

Since the expansion of money leads to an increase in the female-to-male employment ratio, it is through this channel that monetary policy affects economic growth.

Related to this issue is the negative association between the female-to-male employment ratio and the number of homicides per 100,000 inhabitants. This relationship can be interpreted as the result of said ratio in boosting economic growth and reducing unemployment. Another important result is the positive relationship between the employment ratio and reserves per capita.

The results of this work show that monetary policy has roles far beyond “price stabilization”, since, due to its role in reducing the homicide rate and the suicide rate, it is an important instrument to influence the social field and the well-being of the population.

This shows that the potential of monetary policy has not been fully recognized; restricting its role to inflation targeting and exchange rate stability means wasting its great potential in the social area.

From the results found, it can be deduced that female employment is a variable that promotes economic growth and external solvency and in addition to promoting growth, it is a variable of financial macro prudence. Likewise, its role in promoting trade flows between the member countries of an integration program implies that the sustainability of regional integration demands progress toward gender parity.

Therefore, gender economics is a valuable component of development economics, of economic stabilization, and of economic integration. Not categorically promoting gender equality goals is undermining economic development.

In other words, gender discrimination constitutes a true “dead weight” that hinders economic and social development. Given the insistence that prices must be “right”, which has been in vogue in recent decades, more emphasis must be placed on gender equality being “right”.

It must be considered that gender discrimination, and particularly discrimination against women in access to good jobs, represents costs for the whole of society, in terms of loss of economic growth and external solvency and low inflation rate.

It is therefore necessary to make great efforts to remove obstacles to female labor participation. Ostry et al (2018) have reported that the increase in economic growth that developing countries could achieve by removing barriers to female labor participation is between 8 and 20 percent annually.

There are two issues that constitute important elements to increase female labor participation; one is early childhood development, whose evaluations have shown that they result in reducing the dropout rate from primary and secondary schools, and in increasing the quality of education (Schuetz, 2009), which would lead to increases in female labor participation.

Another is the reduction in the high fertility rate among adolescents observed in several countries in the region, which causes young women to withdraw from school or the labor market to dedicate themselves to housework. This indicates that the high fertility of adolescents represents a cost to society derived from the fall in the ratio of female to male employment, and the resulting declines in domestic savings, external solvency and economic growth. It should be noted that de Hoyos, Rogers, and Popova (2015) found that in Latin America 87.4 percent of young women who neither study nor work were not looking for a job.

This indicates the importance of establishing in the countries of the region national daycare networks, which facilitate the entry of single mothers into the labor market and that they continue their studies. Thus, day-care centers have positive repercussions on economic growth (are day-care centers a transmission channel for monetary policy? Yes, insofar as they promote female employment), so that their creation can pay for themselves.

It should be noted that the implementation of national childcare and early childhood education systems would have clear deflationary impacts, since mothers could continue their studies, thus increasing the skills of the labor force, and the supply curve would shift to the right, increasing GDP and reducing prices.

Likewise, it is imperative to expand the offer of psychological services to the population so that they are in a better position to face experiences of unemployment and not resort to suicide.

The monetary expansion can also have deflationary repercussions since an increase in the female-to-male employment ratio would increase economic dynamism, which would lead to a reduction in school dropouts and thus generate a labor force with a higher degree of skills and higher productivity. .

In various countries, monetary programming exercises are framed within the inflation targeting scheme, which can leave a large segment of the population unemployed. A more appropriate methodology would be to target the female to male employment ratio by virtue of its role in increasing economic growth and reducing inflationary pressures. In other words, the achievement of increases in female employment would allow increasing the expansion of money without incurring in inflationary pressures, thus benefiting employment and economic growth. The policy of limiting the growth of the money supply to avoid inflationary pressures does not take into account that monetary expansion increases female employment and thus expands the aggregate supply and mitigates inflationary pressures.

It is valid to argue that, in a country with a low rate of female labor participation, the inflation rate will tend to be higher than expected, and therefore, achieving the inflation target would imply limiting monetary expansion to low values of money growth, with the consequent relatively high unemployment rate. In other words, low female participation can make the monetary contraction more pronounced. This is the case where the workforce is a mass of “innocent bystanders”. The big problem is that from “bystanders” unemployed people can turn to suicide and violence. This is a cost of the “culture” that hinders female employment.

It should be emphasized that the ravages of the Covid pandemic have affected women more than men in terms of unemployment. ECLAC (2021) has reported that, in the second quarter of 2020, the female unemployment rate in the region was 22.2 percent, an increase of 12.6 percentage points compared to 2019, and higher than the corresponding rate for males of 15.1 percent points. This high female unemployment rate translated into 118 million women living in poverty and a reduction in their labor participation rate to the value of 10 years ago.

It should be added that Fabrizio, Gomes, Meyimdjui, and Tavares (2021) reported that pandemics have an effect on increasing school dropouts. These authors analyzed the repercussions of 623 episodes of pandemics in the period 1970-2019, finding that the epidemics led to a reduction in the completion rate of primary and secondary school by 2.6 and 2.1 percentage points respectively and that girls were more affected than boys. Therefore, the economic recovery of the region requires establishing school compensation measures so that girls and boys can remedy the levels of education lost due to the pandemic.

It is valid to maintain that the practice of economic “stabilization” can be viewed as a sad example of the covert racism that pervades mainstream economics (Komlos, 2021).

Of particular importance is the result that credit growth restriction induces suicidal tendencies. Since the adjustment programs include restrictive credit measures or interest rate increases that induce suicidal tendencies, these programs must take into account the repercussions of such measures on people’s lives. It is necessary to accept that there is a clear dimension of ethics in the conduct of monetary and fiscal policies. In other words, it is necessary to establish institutional mechanisms to prevent the economy from exercising a potential criminal role. Instead of the fashionable tales of granting independence to the central bank, measures must be established so that the central bank, or the economic administration, is free from measures that can cause the death of citizens.

In this sense, it will be beneficial for citizens to have an opinion and participation in the economic measures of governments, put them to a referendum, for example, and not leave them at risk of being captured by interest groups, which can happen even with independence from the central bank. Another measure could be the establishment of a group of people with distinguished trajectories in human rights and ethics, who have the capacity to veto necrophilia measures of the central bank, and guard citizens and their families from greed, and maintain a climate where voracity shows “great moderation”.

To combat suicide, it is necessary to establish unemployment insurance programs, as well as emergency employment, and promote reindustrialization and the protection of national production.

In the same sense, the practice that it is the workers who receive the hardest blows from the macroeconomic adjustment must be questioned and overcome, when ethics dictate that there must be a framework of shared responsibility involving pain and benefits from adjustment. The prevalence of ethics and morality in the practice of the economy means fully valuing life, family, childhood, youth, the elderly, people whose sexual preference is different from that of most of the population, refugees, and disabled people.

It is valid to argue that as female employment increases, economic dynamism will increase and inflationary pressures will weaken, which could make it unnecessary to carry out draconian macroeconomic adjustment measures, and thus save lives and families. In other words, female employment is an automatic stabilizer that allows for rational, ethical, and humane macroeconomic management. The world needs more of it.

Give me life O Lord, according to your word.

Give me life according to your promise.

Give me life according to your justice.

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Notes

Note 1. In this and other tables, the “t” statistics are shown below the corresponding coefficients.

Note 2. An analysis of the costs and benefits of preschool programs in the US states of Georgia and Oklahoma computed the present value of the former at \$3,946 per student, while the present value of additional income from individuals who had participated in such a program were \$33,684 (Cascio, 2013). It should be noted that there is evidence that in the US, for every dollar invested in preschool education, benefits of 7 dollars are obtained only for the reduction of crime (EEOI, undated).

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