Impact of COVID-19 on remittances and its countercyclical effects on regional economies in Mexico

Impacto de la COVID-19 en las remesas y sus efectos contracíclicos en las economías regionales en México

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Abstract

This article analyzes the impact of COVID-19 on México´s regional remittances in 2020. Relying on macro-regional simulations and the use of quadrants, the paper concludes that remittances will be again one of the few countercyclical mechanisms operating for the Mexican economy to face an economic crisis. Nevertheless, the counterbalanced effect of remittances will be regionally heterogeneous and, in some states, will not be enough to compensate for the loss of employment and household income. The countercyclical effect of remittances will be stronger in the regions of traditional migration.

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Resumen

Este artículo analiza las implicaciones de la COVID-19 en la recepción de remesas de los estados y sus efectos en el crecimiento económico durante 2020. Con una metodología basada en simulaciones de un modelo macro regional y el uso de cuadrantes, como instrumento para la construcción de un semáforo de alertas, se concluye que nuevamente las remesas serán de los pocos mecanismos contracíclicos con los que contará la economía mexicana para afrontar una crisis económica. Sin embargo, el efecto de amortiguamiento de las remesas sobre la actividad económica de los estados será heterogéneo y, en algunos estados, no suficiente para contrarrestar la pérdida de ingreso y empleo que experimentará el país. La región tradicional de migración será una de las más beneficiadas del efecto contracíclico de las remesas.

Introduction

Due to the current health emergency in Mexico, households and family businesses throughout the country will be severely affected by the drop in economic activity caused by the coronavirus pandemic. In this context, remittances sent by Mexican migrants to their communities of origin will continue to be an important palliative because they will allow them to mitigate the drop in their income.

The U.S. shutdown due to COVID-19 will generate one of the strongest economic contractions in the world. Initially, it was expected that the increase in unemployment in the U.S. would significantly affect Mexico's remittances (Valdivia et al., 2020). However, the country's countercyclical unemployment support policy has helped migrants maintain their income and remittances.[1] This study estimates that the remittances arriving in Mexico increased 2.4% over 2019, which means the country will receive close to 36,922 million dollars in 2020.

With an expected average exchange rate of 23 pesos per dollar and inflation of 4% for the Mexican economy, remittances will exhibit growth in real terms of 16.7% in 2020. This increase is substantial and even contrasts with Mexico's GDP growth expectation of -8.7% for 2020. This scenario is not unprecedented, as, during the global financial crisis and the H1N1 virus infection in 2009, remittances declined by one percentage point, but GDP fell by -5.3% in 2009.

The literature on the relationship between remittances and economic growth argues that the flow of remittances has become a mechanism for generating economic growth in countries (Barajas et al., 2009; Chami et al., 2005; Giulano & Ruiz Arraz, 2006; Ziesemer, 2006; Pradhan et al., 2008; and Acosta et al.,

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[1]There is not yet an in-depth analysis of what has happened to migrant workers in the United States, but several hypotheses have been formulated to the effect that remittances were sustained due to the reactivation of employment in some U.S. states and the fact that there are more workers with citizenship, which allowed them to receive part of the monetary transfers used by the U.S. government to reactivate the economy.

2008) where structural economic restrictions and falls in foreign direct investment or oil exports predominate (Mendoza, 2021). For the Mexican case this has been found at the region level (Mendoza & Calderón, 2006; Valdivia & Lozano, 2010; and Mendoza & Valdivia, 2016). Part of the discussion of the effect of remittances on economic growth focuses on whether it is positive or negative and whether regional dependence on remittances (i.e., remittances/GDP) is a conditioning factor for economic growth (Ramírez & Sharma, 2008; Ahortor & Adenutsi, 2009; Fayissa & Nsiah, 2010; and Garcia-Fuentes & Kennedy, 2009).

This study establishes that one of the reasons the elasticity of economic growth in relation to remittances tends to be small is that during periods of economic contraction, the flow of remittances usually decreases less than economic growth and even increases, as was the case in 2009. Therefore, this mechanism will continue to operate during the 2020 crisis caused by the coronavirus. This leads to the conclusion that remittances will be one of the few countercyclical mechanisms available to the Mexican economy to cushion the loss of income and employment that the country will experience due to the COVID-19 epidemic. However, the countercyclical effects of remittances will be heterogeneous across states due to differences in the economic structure and the composition of global and local networks in each of Mexico's states.

In addition to this introduction, this article includes a section that discusses the analytical and empirical aspects of remittances and regional growth. Another section details the econometric methodology implemented and the use of quadrants as an instrument for constructing a warning light system based on the countercyclical mechanism of the relationship between remittances and regional growth. Subsequently, there is a general overview of remittances and an analysis of the economic crisis scenarios for 2009 and the outlook for 2020. Finally, there is a section of conclusions.

Analytical and empirical aspects of remittances and economic growth

Barajas et al. (2009) summarize the analytical justification of how remittances affect economic growth, establishing three sources of long-term economic growth. The first hypothesis is that remittances directly affect a family's capital accumulation and increase the availability of resources in the financial system that can be used to produce goods and services in the form of credit. The second hypothesis postulates that remittances can negatively influence the growth rate of the labor force and thus, the production of goods and services. The third hypothesis is that remittances increase the efficiency of domestic investment and the size of productive sectors that generate positive externalities.

This study includes the analysis of the impact of remittances as part of the discussion on the sources of growth and regional convergence and divergence processes, analyzed through neoclassical

growth models à la Barro (1992). From this perspective, Chami et al. (2005) use a panel model of one hundred and thirteen countries. They relate economic growth with investment and the growth of remittances as a proportion of GDP to measure the dynamics of transfers. They find that the growth of remittances has a negative effect on the growth of the countries. Giulano and Ruiz Arraz (2006) use a specification similar to that of Chami et al. (2005), with remittances as a share of GDP at the level and other explanatory variables for 100 countries. They find that remittances positively affect growth in developed countries. In the same vein, Ziesemer (2006) and Pradhan et al. (2008) conclude that remittances positively affect economic growth. Acosta et al. (2008) find that remittances have a positive but small impact on economic growth, between 0.05 and 0.013, so they would have to grow a lot to be the main source of long-term growth. Ramirez and Sharma (2008) analyze the impact of remittances on long-term economic growth and indicate that they positively affect economic growth in Latin American countries. Ahortor and Adenutsi (2009), Fayissa and Nsiah (2010), and Garcia-Fuentes and Kennedy (2009) also establish, although with different mechanisms, that remittances have positive effects on Latin American economies.

Regarding the impact of remittances on long-term regional economic growth, Mendoza and Calderón (2006) jointly analyze the effects of trade openness and remittances on regional economic growth in Mexico. Their results indicate that trade openness positively affected and remittances negatively affected regional economic growth in Mexico during the 1995-2003 period. In contrast, Valdivia and Lozano (2010) analyze the effect of remittances on regional economic growth for the period 1995-2006 with a spatial approach. They find that remittances as a proportion of GDP present a polarization toward regions with low and medium per capita income, with lower economic growth, but where many of the states are not part of the traditional migration region since they are located in the south of the country. The work of Mendoza and Valdivia (2016) presents a methodological strategy that incorporates spatial heterogeneity. Their general results indicate that remittances can positively affect the dynamics of regional convergence with heterogeneity and spatial dependence but with a strong dynamic of regional polarization that can create convergence clubs.

Methodology for the analysis of the effects of remittances on regional growth

Macro-regional econometric models

The LabREG-UNAM (https://labregional-unam.blogspot.com) developed a set of econometric models for territorial prediction. This study used these models to conduct simulations to analyze the potential impacts

of the coronavirus in Mexico. It was necessary to construct a dynamic panel model to predict regional remittances for the analysis of the impacts of remittances and regional growth in Mexico (Valdivia et al., 2020), as well as to use a previously constructed spatial panel model to simulate the impacts of remittances on regional growth (Mendoza & Valdivia, 2016).

The simulations of the growth of remittances in constant pesos by state ($trem_{i,t}$) were carried out using the dynamic panel model explained by the growth of economic activity ($tpibusa_t$), the unemployment rate ($tdesusa_t$) in the United States, the absolute index of migration intensity ($iaim_{i,t}$), and the ratio of emigration to the total population ($remi_{i,t}$) by state; see Equation 1. The estimation method used was the cointegrated panel method with individual parameters for each exploratory variable.

$$trem_{i,t} = \alpha_0 + \alpha_{1,i}trem_{i,t-1} + \alpha_{2,i}(iaim_{i,t} * tpibusa_t) + \alpha_{3,i}(remi_{i,t} * tdesusa_t) + u_{1,i,t}$$

(1)

In the case of the simulations for GDP growth by state ($tpibmex_{i,t}$), the study used a spatial panel model with fixed effects estimated with the maximum likelihood method where the growth of remittances simulated by the first equation affects regional GDP growth given the ratio of remittances to GDP (rem/gdp), GDP per capita (pibhab), and a set of additional explanatory variables (Z), all defined in the immediate prior time (t-1).

$$tpib_{i,t} = \rho(I_T \otimes W_n)tpib_{i,t-1} + \theta_1 trem_{i,t} + \theta_2 (rem/pib)_{i,t-1} + \theta_3 pibhab_{i,t-1} + \theta_4 Z_{i,t-1} + u_{2,i,t}$$

(2)

where I_T is the identity matrix of size T; $\otimes$ is the Kronecker product and W_n is the Queen-type spatial weights matrix.

Equations (1) and (2) were included as part of the macroeconomic models developed by the LabREG-UNAM, with which a simultaneously solved macro-regional system was compiled and used to simulate the prediction scenarios. The procedure to create the simulations consists of using the predictions of the macroeconomic model for the U.S. economy and the macro-regional model for Mexico and solving equations 1 and 2 to simulate the behavior of remittances and regional economic growth in Mexico. The model for the United States predicts GDP growth, unemployment rate, inflation, and interest rate. The model for Mexico predicts its GDP growth, demand and supply side, unemployment rate, employment, inflation, and interest rate. This study used such models to create a scenario that expects the U.S. economy to reduce GDP growth by -6.1% and employment rate to reach an average of 9.0% in 2020. The expectation is for Mexico to suffer a drop in GDP of -8.7%, the unemployment rate to be 7.2%, and inflation to be at 4% at the end of 2020.

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Use of quadrants for the construction of the warning lights

The study used a quadrant diagram to define a warning light system for the results analysis of the simulations between remittances and regional economies. Figure 1 presents how each of the proposed scenarios is examined. The study is based on a graphical idea of a "Warning Light" that is a function of the annual growth dynamics of remittances and state GDP. The warning light includes four areas based on the association between the increase in remittances compared to the previous year (vertical axis) and the annual increase in GDP (horizontal axis). The four areas are divided by the national growth of remittances ($\bar{y}$) and the national growth of GDP ($\bar{x}$).

Quadrant I (green light) in Figure 1 contains all those states with a growth in remittances and GDP equal to or above the corresponding behavior at the national level. This is the best possible performance and means that these flows strengthen the states' GDP growth, especially for those dependent on remittances.

Quadrant II (red light) presents all those states with remittance growth above or equal to the respective national performance and GDP growth below national GDP growth. In this case, growing remittances cannot stop the decline in GDP, and for the states dependent on remittances, it translates into a worst-case scenario.

Quadrant III (orange light) contains states with remittances and GDP growth below the respective national performance. The orange color gives an alarm signal and means, especially for remittance-dependent states, that higher remittance receipts would have potentially halted or slowed the decline in GDP.

Quadrant IV (yellow light) groups those states with remittance growth below the national performance and with GDP growth equal to or above the national GDP performance. These are states without GDP growth problems, but which could have been more dynamic, especially for those states dependent on remittances, if these flows had grown more. The yellow color indicates these states in a preventive manner.
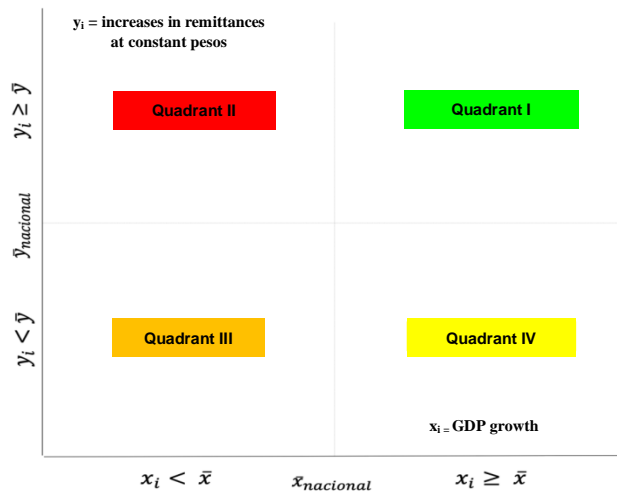
Figure 1. Warning lights in the states based on remittances and GDP growth
Source: created by LabREG-UNAM

Overview of remittances

Data and construction of indicators

Remittance data in dollars at the national level and by state were obtained from the economic information system of Banco de México (Banxico). With the exchange rate to settle debts (Banxico) and the GDP deflators by state set by INEGI, remittance series at constant prices were constructed, which were used together with GDP by state (INEGI) to calculate the remittances to GDP ratios for the period 2003-2019. The GDP and unemployment rate for the United States were obtained from the Federal Reserve. The absolute index of migration intensity as the ratio of emigration to the total population was created by CONAPO. GDP per capita was constructed as the GDP (INEGI) to total population by state ratio (CONAPO).

Remittances in the world and Mexico

Mexico ranked third in the world among countries receiving remittances in 2019, with an amount greater than 36 billion dollars, only behind India and China, which received 82 and 72 billion dollars, respectively (World Bank). To put this data in perspective, it suffices to point out that remittances were 1.06 times

higher than the foreign direct investment received by the country and equivalent to the federal government's budget revenues derived from the oil in 2019.

Remittances grew at an average annual rate of 4.1% during 2003-2019, while GDP grew by 2.3%; in other words, the rate of remittances is twice as fast as that of the national economy. Given the COVID-19 pandemic, remittances will grow significantly in constant prices, thus continuing their spectacular growth trend during the last two decades. It is worth noting that during the 2008-2009 global financial crisis, remittances in Mexico fell by -1% in 2009, but GDP declined by -5.3%.

Some of the predictions made between March and April 2020 were of a drop in dollar remittances between -7% and -20% (Orozco, 2020; Valdivia et al., 2020). However, the updated information for the first half of 2020 surprisingly presented a growth in remittances of 10.6% at an annual rate. This study estimates a change in trend in the second half of the year, which implies an annual increase in remittances in dollars of 2.4% and a growth in constant pesos of 16.7% during 2020.[2] With this expectation, remittance revenues will be higher than oil budget revenues, foreign direct investment, and the federal government's planned spending on social programs in 2020, and several times the credit that SOFOMES will offer to S.M.E.s to address their liquidity problems in the face of the COVID-19 crisis.[3]

Remittance-dependent states

The effects of remittances on regional economies are significantly conditioned by the level of dependence of the states on these flows. One indicator that approximates this is the ratio of remittances to state GDP. Figure 2 visually displays the ratio of remittances to GDP (without oil) for 2019. It can be seen that the states of Michoacán (10.8%), Oaxaca (10.8%), Guerrero (10.5%), and Zacatecas (10.2%) are those that would be most affected by a drastic drop in remittances, given their greater dependence on them. Lower dependency percentages are found in a group of states, headed by Nayarit (6.7%), Guanajuato (6.2%), Durango (5.6%), San Luis Potosí (5.2%), Morelos (5.1%), and Chiapas (5.1%), whose shares are above 5%. There are also other states that, while maintaining lower percentages than the states mentioned above, have a higher proportion of remittances relative to GDP than the national figure, such as Aguascalientes (3%), Tlaxcala (3.4%), Colima (3.9%), Puebla (4.4%), Jalisco (4.5%), and Hidalgo (4.9%). It is important to generate scenarios based on the growth of remittances and regional GDP during an economic crisis to

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[2]The exchange rate considered is the one estimated by the Federal Government in the "Pre-Criteria 2021" (22.9 pesos per dollar) and the expected year-end inflation of 4% for 2020.
[3]On April 5 of this year, President Andrés Manuel López Obrador announced an economic package to combat the COVID-19 crisis, which included advances for senior citizens, credits to small businesspeople, budget for rural roads, schools, and the countryside, and additional support for the health sector, housing, and the Mexican oil company PEMEX. Together, these economic resources do not exceed 400 billion pesos.

evaluate whether remittance-dependent states will develop a countercyclical capacity or be vulnerable during the coronavirus crisis. These scenarios are discussed in the next section.

Figure 2. States by the ratio of remittances to GDP (without oil) in 2019; ratios in percentages
Source: created by LabREG-UNAM based on information from Banco de México and INEGI

Remittance impact scenarios for Mexico's regional economy

This study considered the association between the annual growth of remittances, the growth of the states' GDP, and the level of dependence by the ratio of remittances to GDP (Rem/GDP) as a percentage to analyze the impact that remittances will have on the growth of the states' economies in 2020. The observations during the 2009 economic crisis were analyzed using the same methodology for comparative purposes.

It is important to mention that remittances tend to develop an important countercyclical effect at the aggregate and regional levels; however, it is likely to be regionally heterogeneous. This aspect is vital to evaluate any type of prediction, especially in periods of economic crisis, such as the current one, where resources for public spending are scarce or tightly controlled. Therefore, it is essential to identify the regional heterogeneity of the effect of remittances, evaluating in which states countercyclical possible impact will prevail, in which the effect will be diminished, and in which it will even disappear during the COVID-19 crisis.

This study defines the conditions observed during the 2009 economic crisis (Scenario 1: historical 2009) and those assumed for the 2020 economic crisis (Scenario 2: 2020 simulation) to analyze the effects of remittances. These conditions and assumptions are as follows:

Scenario 1: historical 2009. The temporal reference of this study is the year 2009, during the global financial crisis that severely affected the Mexican economy. In 2009, GDP decreased by more than 5%, while remittances decreased by only -1%. The main condition analyzed is that the economic downturn, as measured by the GDP growth rate, was much greater than the drop in remittances.

Scenario 2: 2020 simulation. The assumptions analyzed are those of an economy in deep crisis but with strong growth in remittances. There is no reference in the country's immediate past to this scenario. However, it is highly probable based on estimates of the expected behavior of the GDP growth rate and regional remittances for 2020.

Scenario results by state

The study constructed a scatter diagram using quadrants between remittances and GDP growth by state, whose values are equal to or higher than the respective data at the national level. The size of the circle presents the ratio of remittances / GDP (without oil), so that the larger the circle of the state, the greater the dependence on remittances, and vice versa.

Scenario 1: historical 2009

Figure 3 presents the warning light map for all states in Scenario 1. The figure indicates that the states bordering the United States were the most vulnerable (in red), in addition to the states of Nayarit, Puebla, and, in the extreme southeast of the country, Quintana Roo. On the other hand, the states that reacted countercyclically to remittances (states in green) were those located in the central-western region. Many of these states belong to the traditional migration region, those located in the southern Pacific region, including Oaxaca and Guerrero, and those located in the central region, except for Puebla and Hidalgo, in addition to the state of Baja California Sur. The central conclusion is that in Scenario 1, which replicates the conditions of the 2009 financial crisis, economies oriented toward the U.S. economy were the most vulnerable.
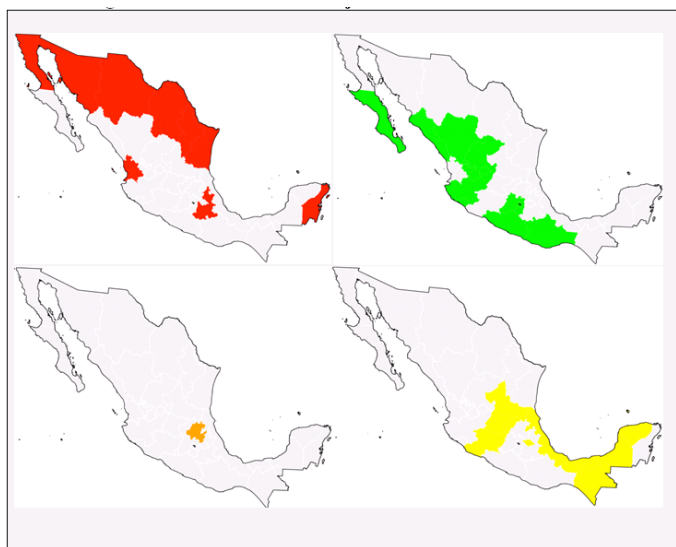
Figure 3. Warning lights in Scenario 1: historic 2009
Source: LabREG-UNAM

Figure 4 presents the scatter diagram corresponding to Figure 3; however, it displays only the states whose remittances to GDP ratio (excluding oil) in 2009 is equal to or higher than the respective national figure (2.8). The states of Puebla and Nayarit (in red) were the most vulnerable, given their heavy dependence on remittances; meanwhile, the states of Sinaloa, Colima, Guerrero, Morelos, Durango, Oaxaca, and Zacatecas stood out countercyclically. On the other hand, the states of Guanajuato and Tlaxcala have a preventive signal since, despite a drop in remittances, these states' economic performance is above the national performance. The states close to the national GDP growth performance (Jalisco, Aguascalientes, Michoacán, and San Luis Potosí) have been marked in black since remittances did not clearly impact the performance of GDP growth. Thus, in Scenario 1, several states in the traditional migration region and states of recent migration (such as Oaxaca, Morelos, and Guerrero) stand out for their countercyclical capacity during the 2009 economic crisis.
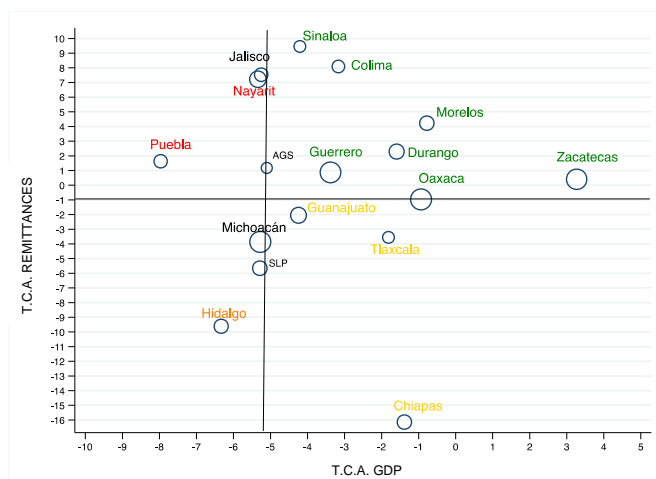
Figure 4. Scatter diagram of the warning lights. Scenario 1: historical 2009
Source: created by LabREG-UNAM
Note: Only those states whose ratio of remittances to GDP in 2009 is higher than the national figure
(2.8%) are considered

Scenario 2: 2020 simulation

Figure 5 presents the warning light map for all states in Scenario 2 with the 2020 economic crisis simulation. For this scenario, the study established an annual real GDP growth of -8.7%, remittances growth in constant pesos of 16.7%, and the ratio of remittances to national GDP of 3.9%. It is important to compare the map in Figure 5 with Figure 3 because it reflects how GDP and remittances growth behaves in the two economic crisis scenarios. Figures 5 and 3 present similar regional patterns; however, there are some important variations. The country's northern region is less vulnerable in the 2020 scenario, the state of Nuevo Leon is now in a situation of alarm, Sonora is countercyclical, and the state of Nayarit is a repeated red hotspot. Likewise, there is different behavior in 2020 since the west-central region of the country (which includes the traditional region of migration to the United States) will have a countercyclical capacity—see the states in green—, while the states of the central and southern region are less strengthened in this mechanism if contrasted with 2009. These regional trends suggest that the traditional migration region will benefit from the countercyclical effect of remittances. The northern and central regions of the country will see a significant increase in remittance receipts; however, their economic structures are less dependent on remittances due to their link to the external sector, industrial centers, and services in more urbanized areas. Finally, the southern region will be the big loser of the

countercyclical effect of remittances since some of its states are now in yellow (Oaxaca and Guerrero), as opposed to what happened in 2009.
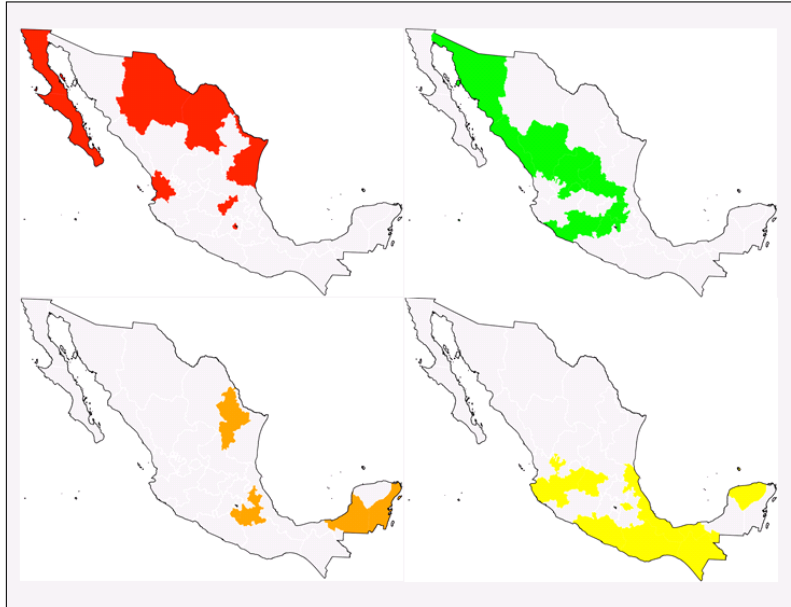

Figure 5. Warning lights in Scenario 2: 2020 Simulation
Source: LabREG-UNAM

Figure 6 replicates the exercise of Figure 4 with the scatter plot comparing remittances growth and GDP and the ratio of remittances to GDP, but now considering Scenario 2 of economic crisis 2020. The state of Nayarit stands out as a red hotspot, and Morelos and Puebla as being in a situation of alarm (orange). The states that clearly stand out as countercyclical are those considered to be in the traditional migration region: Aguascalientes, Colima, Durango, Hidalgo, Michoacán, San Luis Potosí, and Sinaloa. In a preventive situation are three of the states with the lowest per capita income, Oaxaca, Chiapas, and Guerrero, as well as the economies of Guanajuato and Jalisco, which are of national importance. Of the latter, it is important to highlight the cases of Guanajuato and Jalisco because they are projected to have the greatest economic decrease of all Quadrant IV, although still above national trends. In particular, Jalisco's growth in remittances is comparable to that expected for the southern region of the same quadrant.

Figure 6. Scatter diagram of the warning lights. Scenario 2: 2020 simulation
Source: created by LabREG-UNAM
Note: Only those states whose ratio of remittances to GDP in 2020 will be higher than the national
figure (3.9%) are considered

Comparison between the economic crises of 2009 and 2020

Table 1 summarizes the results of the two economic crisis scenarios. First, it should be noted that the states of Nayarit, Morelos, and Puebla are observed as the most vulnerable to the current economic crisis caused by COVID-19 (red and orange quadrants). The state of Nayarit is the only one that repeats its vulnerability across the two scenarios. Even though the expectation is for it to have a high level of remittances, it will not be able to counteract the strong economic contraction linked to its high dependence on tourism in 2020.

Regarding the countercyclical states, it is important to note that most will be in the region considered that of traditional migration, which have remained in this group during the COVID-19 crisis, and those observed during the 2009 economic crisis: Aguascalientes, Colima, Durango, Sinaloa, and Zacatecas. On the other hand, there is a loss of the countercyclical effect in the states associated with the southern region--see the arrows in the table that indicate a shift from green to preventive and critical (yellow and orange) in the states of Oaxaca, Chiapas, and Guerrero in this southern region when moving from Scenario 1 to 2.

The states of Hidalgo, Michoacán, and San Luis Potosí are likely to join the group with a countercyclical effect by improving their resilience (from orange to green).

Concerning the preventive or yellow states, it is important to reiterate that among them will be Chiapas and Guanajuato, which were in this group both during the economic crisis of 2009 and the one expected for 2020. Finally, as mentioned above, it is important to reiterate the loss of countercyclical capacity of the states of Guerrero, Oaxaca, and Jalisco in the face of the COVID-19 pandemic.

Table 1
Summary of regional scenarios of the impact of coronavirus in states with the highest dependence on remittances

	RED	ORANGE	YELLOW	GREEN
Scenario 1: historical 2009	Puebla	Hidalgo	Chiapas	AGS
Economic crisis	Nayarit	Michoacán	Guanajuato	Colima
		S.L.P	Tlaxcala	Durango
Remittances decline less than GDP				Guerrero
				Jalisco
				Morelos
				Oaxaca
				Sinaloa
				Zacatecas
Scenario 2: 2020 simulation	Nayarit	Morelos	Chiapas	AGS
Economic crisis		Puebla	Guanajuato	Colima
Remittances grow while GDP declines			Guerrero	Durango
			Jalisco	Hidalgo
			Oaxaca	Michoacán
				Sinaloa
				S.L.P
				Zacatecas

Source: created by LabREG-UNAM

Conclusions

The unexpected flow of remittances that Mexico will experience in 2020 will become one of the few countercyclical mechanisms that the Mexican economy will have to cushion the loss of income and

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employment that the country will experience due to the coronavirus pandemic. However, not all states in the country will benefit equally from the increase in remittances; rather, this will be influenced by the level of dependence that the states' economies have on these external flows. However, even in those states with a high ratio of remittances to GDP, the countercyclical effect will be heterogeneous. In some states, it will not be sufficient to reduce the impact of the economic crisis.

In particular, the most important effects to expect from the greater flow of remittances in the most dependent states are the following: the states that will have a greater capacity to soften the fall in employment and revenues during the pandemic will be Aguascalientes, Colima, Durango, Hidalgo, Michoacán, Sinaloa, San Luis Potosí, and Zacatecas, and the state of Guanajuato will likely join them. Nayarit is estimated to be a red hotspot, where remittances will not be able to counteract the negative effects of the economic crisis, and the states of Morelos and Puebla are also considered problematic since the flow of remittances is estimated to be below the national level. The states considered to lose countercyclical capacity during the COVID-19 pandemic will be Guerrero, Jalisco, Morelos, Oaxaca, and Chiapas.

This study found that the states belonging to the traditional migration region will be the major beneficiaries of the countercyclical effect of remittances during the economic crisis of 2020. The "losers" will be the country's southern states (with more recent international migration), which unfortunately seem to have lost their countercyclical capacity to face the current crisis, compared to what happened in 2009. A probable explanation for this new pattern is that migrants from the traditional region in Mexico, due to their deeper roots in the U.S., are those who benefit the most from the countercyclical programs implemented in that country. In contrast, migrants from the southern states of Mexico are less prone to such benefits due to their more recent migratory status. The only good news for these southern states (Oaxaca, Guerrero, and Chiapas) is that the expected drop in GDP will not be as sharp as in the rest of the states.

The above regional estimates have important implications in terms of public policy. It would be advisable for federal and state governments to deploy countercyclical mechanisms more forcefully to cushion the fall in income and employment, especially in the remittance-dependent states identified as red hotspots and those that have lost their countercyclical capacity.

Funding

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