



Alternative Future Scenarios of U.S.-Mexico Migration Interdependence: Measuring Economic Impacts of Deportations, Legalizations, and Remittances

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1. Executive Summary

The United States presidential election presented starkly different possible future scenarios for immigration policy, which would generate dramatic differences in economic outcomes for both the United States and Mexico. Policy proposal discussed ranged from mass deportations of unauthorized immigrants residing in the U.S. to offering immigration reform and an earned pathway to citizenship. While immigration and the economy consistently appear as the most important issues to voters, there was surprisingly little information provided by the political campaigns or the media covering the election regarding the actual economic impact that their highly divergent immigration policy proposals would have on the United States and Mexico.

This paper is part of an on-going multiyear collaboration since 2019 on modeling alternative scenarios of trade, migration, remittance policies in the context of complex U.S.-Mexico independence carried out by researchers at the UCLA North American Integration and Development (NAID) Center, the Peterson Institute for International Economics (PIIE), the Mexican Instituto Nacional de Estadística y Geografía (INEGI), and Financiera para el Bienestar.

This paper utilizes CGE (computable general equilibrium) modeling of both the US and Mexican economies and shows that these divergent policy scenarios of deportation and pathways to citizenship have huge economic implications for the economy on both sides of the border, as well as an impact on future border crossings as a result. While several recent studies have examined proposed trade tariffs or deportation policies on the US economy, this is the first paper to comprehensively look at the impacts of both alternative immigration policy approaches to both the U.S. and Mexican economies, which are highly interdependent through dense migration, remittance, and trade relations. We find that even a fraction of what the Republican campaign has proposed would have deeply negative economic effects in the U.S. and much worse impacts for Mexico, generating an even greater border crisis. Alternatively, we also analyze a policy scenario that provides an earned pathway to citizenship with future legal migration and finds that this would have highly positive effects on future economic outcomes for both the US and Mexican economies, reducing the need for cross border migrations. The general results of our study include:

Economic contributions of migration and remittances, including mixed status family households in the U.S. as well as detailed state level contributions in Mexico.

- There are 50.01 million foreign-born people living in United States, of which 39.01 million are authorized and 11 million are unauthorized. There are 31.6 million

foreign-born workers in the United States, including 8.32 million unauthorized foreign-born workers.

- In 2022 foreign-born workers contributed \$3.83 trillion to the GDP and produced \$7.32 trillion in total economic output. Authorized foreign-born workers accounted for \$2.56 trillion in GDP and \$4.89 trillion in output, while unauthorized foreign-born workers accounted for \$1.28 trillion in GDP and \$2.44 trillion in output.
- We estimate that there are 10.3 million mixed status households in the US with at least one non-naturalized authorized or a un-authorized immigrant. The total labor income of those living in mixed status households is \$1.08 trillion and the total GDP contribution is \$2.07 trillion. Unauthorized workers make up \$624 billion of the labor income figure and \$1.28 trillion of the GDP figure. Foreign-born non-naturalized workers accounted for \$217 billion of labor income and \$377 billion of GDP. Other workers in mixed status households accounted for \$234 billion of labor income and \$409 billion of GDP.
- Mexico received \$58.87 billion in remittances in 2022, which represents 4.2% of Mexican national GDP. There are 17,673,681 Mexicans residing in remittance receiving households. The states of Chiapas, Guerrero, Michoacán, and Oaxaca all receive an amount in remittances that is equivalent to over 12% of state GDP while no other state is above 9%.
- The remittance share of income is as high as 82.4% in the municipalities most dependent on remittances.

Mass deportation scenario Impacts on the U.S. economy, including unauthorized and other workers in mixed status households

- A 1.3 million workers deported scenario would lead the real GDP to drop by .3%, real exports to drop by 0.3%, and real imports to drop by 0.1%.
- An 8.3 million workers deported scenario would lead the real GDP to drop by 4.0%, real exports to drop by 4.7%, and real imports to drop by 1.1%.
- At an estimated cost of \$45,000ⁱ per apprehension, deporting all 11 million unauthorized foreign-born would cost \$495 billion.

Mass deportation scenario Impacts and associated reduced exports and remittances on Mexican economy at the national and state levels

- A 1.3 million workers deported scenario would produce a 2.6% decrease in Mexico's GDP by 2028, with .4% of the decrease deriving from a reduction in remittances and 2.3% from a reduction in exports.
- An 8.3 million workers deported scenario would produce a 16.3% decrease in Mexico's GDP by 2028, with 2.5% of the decrease deriving from a reduction in remittances and 13.9% from a reduction in exports.

- The states of Baja California, Campeche, Coahuila, and Chihuahua see the largest export driven decrease in GDP, while Chiapas, Guerrero, Michoacan, and Oaxaca see the largest remittance driven reduction in GDP.
- There are 394 Mexican municipalities with a remittance share of aggregate household income over 10%.

Immigration reform scenario impacts on the U.S. economy including pathway to citizenship and increases in legal migration.

- Legalization for all of the 8.32 million unauthorized workers would lead to a 0.6% increase in real GDP, as well as a 0.7% increase in real exports and a 0.2% increase in real imports.
- Over the following ten years, the U.S. can expect an annual average of 1.1 million new immigrants, 60% of which are workers. The ten-year cumulative GDP contribution of these new authorized foreign-born workers would be \$5.94 trillion.

Immigration reform scenario impacts on the Mexican economy including increased exports to the U.S. and more effective use of increased remittances

- Legalization and future legal migration would also have positive economic impacts in Mexico. Exports would increase by 13.1% and remittances would increase by 65.7% over the following ten years.
- In turn, Mexican GDP would increase by 5.2%. These effects are most strongly felt in the states of Baja California, Campeche, Chihuahua, Coahuila, Chiapas, Chihuahua, Guerrero, and Michoacan.
- The states of Baja California, Campeche, Coahuila, and Chihuahua see the largest export driven increase in GDP, and Chiapas, Guerrero, Michoacan, and Oaxaca see the largest remittance driven increase in GDP.

2. INTRODUCTION

The United States presidential election campaigns presented starkly different possible future scenarios for immigration policy that generate dramatic differences in economic outcomes for both the United States and Mexico. Policy proposal discussed ranged from mass deportations of unauthorized immigrants residing in the U.S. to offering immigration reform and an earned pathway to citizenship. Immigration and the economy consistently appear as the most important issues to voters. Yet, there has been surprisingly little information provided by the political campaigns or the media covering the election regarding the actual economic impact that their highly divergent immigration policy proposals would have on the United States and Mexico

In this paper we analyze the comparative economic impacts of both alternative policy scenarios of mass deportation versus legalized migration, reporting the impacts on both the United States as well as Mexico with the use of an international computable general equilibrium (CGE) model.⁸ This paper is part of an on-going multiyear collaboration since 2019 on modeling alternative scenarios of trade, migration, remittance policies in the context of complex U.S.-Mexico interdependence carried out by researchers at the UCLA North American Integration and Development (NAID) Center, the Peterson Institute for International Economics (PIIE), the Mexican Instituto Nacional de Estadística y Geografía (INEGI), and Financiera para el Bienestar. While several recent studies have examined policies, including its high cost and its economic impact in comparison with tariffs, this is the first paper to comprehensively look at impacts of both alternative policy approaches on both the U.S. and Mexican economies, which are highly interdependent through dense migration, remittance and trade relations. Our U.S.-Mexico database and modeling work includes:

We use our CGE model to analyze the impacts on GDP, employment, wages, and trade balances, and remittance flows of alternative mass deportation scenarios removing 1.3 million and 8.3 million foreign-born workers as well as the associated end of \$60 billion in remittance flows to Mexico. We find that even a fraction of what the campaign has proposed would have serious economic effects in both the U.S. and Mexico. Alternatively, our model analyzes the scenario providing a path to earned citizenship with future legal migration and finds that this would have positive effects on future economic outcomes of both countries through increased financial inclusion, productivity, and migration flows.

In addition to modeling the impact that these alternative policies would have on the U.S. economy, this paper measures the impact that these scenarios will have on the

⁸ This modeling will build on previous work done by Hinojosa, Robinson, and Thierfelder (2021) in *The Trump Paradox: Migration, Trade, and Racial Politics in U.S.-Mexico* and in Mckibbin, Hogan, and Noland (2024) *Trump's Deportation Plans Would Cause Lower U.S. Employment and GDP Than Otherwise*.

Mexican economy in close collaboration Mexican researchers. By combining databases and modeling efforts on both sides of the borders, we provide a comprehensive analysis of the impacts that negative or positive migration scenarios can have directly and indirectly on both economies, as well as including impacts of reduction or increases in remittances. This database is organized as national aggregates as well as by detailed sectors which are representative of the full multisectoral data based used to estimate the CGE modeling results (See data appendix).

Both deportation and legal pathways policy approaches would be well served to begin by acknowledging the vast economic contributions of migration and remittances. There are 50.01 million foreign-born people living in United States and they contributed \$3.83 trillion to the GDP, more than the total GDP of the United Kingdom. Their GDP contribution comes in just behind India's, a country of \$1.4 billion people, and if the foreign-born population in the U.S. were its own country, it would have the sixth largest GDP. Unauthorized foreign-born workers in the U.S. accounted for \$1.28 trillion in GDP, more than Saudi Arabia, and mixed-status family households contributed \$2.07 trillion, more than Mexico and all Central America and Caribbean countries combined.

Remittances to Mexico and other migrant sending countries are larger than all Direct Global Investment, foreign aid and multilateral lending combined, with the \$65 billion going to Mexico in 2024, playing a critical role in stabilizing south to north migrations. The states of Chiapas, Guerrero, Michoacán, and Oaxaca all receive an amount in remittances that is equivalent to over 12% of state GDP, and there are 394 Mexican municipalities with a remittance share of aggregate household income over 10%. The remittance share of income is as high as 82.4% in the municipalities most dependent on remittances.

The goal of the largest mass deportation operation in U.S. history would lead to major economic losses in both the U.S. and Mexico. If a future administration deported all 8.3 million unauthorized foreign-born workers in the U.S., our results suggest that real GDP would drop by 4.0%, real exports would drop by 4.7%, and real imports would drop by 1.1%. In addition, at an estimated cost of \$45,000 per apprehension, deporting all 11 million unauthorized foreign-born would cost \$495 billion. In Mexico, 8.3 million deported workers from the U.S. would produce a 16.3% decrease in Mexico's GDP by 2028, with 2.5% of the decrease deriving from a reduction in remittances and 13.9% from a reduction in exports. The states of Baja California, Campeche, Coahuila, and Chihuahua see the largest export driven decrease in GDP, while Chiapas, Guerrero, Michoacan, and Oaxaca see the largest remittance driven reduction in GDP.

Alternatively, if a future administration were to provide a pathway to citizenship for the unauthorized foreign-born workers in the U.S., it would have beneficial economic impacts in the United States and Mexico. Our results suggest that legalization for all of the 8.32 million unauthorized workers would lead to a 0.6% increase in real GDP, as well as a 0.7%

increase in real exports and a 0.2% increase in real imports. Additionally, with reformed legal immigration pathways, over the following ten years, the U.S. can expect an annual average of 1.1 million new immigrants, 60% of which are workers. The ten-year cumulative GDP contribution of these new authorized foreign-born workers would be \$5.94 trillion. In Mexico, legalization would lead to exports increasing by 13.1% and remittances increasing by 65.7% over the following ten years. In turn, Mexican GDP would increase by 5.2%. These effects are most strongly felt in the states of Baja California, Campeche, Chihuahua, Coahuila, Chiapas, Chihuahua, Guerrero, and Michoacan. The states of Baja California, Campeche, Coahuila, and Chihuahua see the largest export driven increase in GDP, and Chiapas, Guerrero, Michoacan, and Oaxaca see the largest remittance driven increase in GDP.

The paper will proceed in the following order. First, we present the basic statistical facts of the economic contributions of migrant populations on both sides of the border. Starting with the U.S., we present the size and economic contribution of the foreign-born workforce, including authorized and unauthorized workers and the size and contribution of the mixed status working families, including the direct and indirect employment contributions of foreign-born and unauthorized workers for the U.S. economy.

Second, we present the economic contribution of Mexican immigration to the U.S. for the Mexican economy, with detailed information by Mexican migrant-sending states. We present the share of each Mexican state workforce working in the U.S., the remittance inflow by state, as well as the contribution of remittances as a share of Mexican state GDP, and the total number of households and family population by state interdependent with migrants in U.S.

We then will present the CGE modeling results of alternative immigration scenarios, starting with two mass deportation scenarios (1.3 million workers and 8.3 million workers). For the U.S., we present the negative impacts on GDP and employment, including direct and indirect employment effects at the aggregate and sectoral level and households. We then present the impacts that mass deportations will have on the Mexican economy, including the GDP effects remittance reductions and the potential wage mass unemployment effect in Mexican migrant dependent states.

We will then present the model results of the alternative scenarios of immigration reform whereby the unauthorized workforce is granted path to citizenship as well as establish pathways for needed U.S. legal migration. We find that this scenario would have positive effects on future economic outcomes including direct and indirect employment and income to all households, through increased productivity, and migration flows of needed new migration flows. financial inclusion.

Finally, we discuss our findings in comparison to other modeling exercises, the impacts of previous immigration reform proposals, and a Congressional Budget Office (CBO) project analyzing the impact of future immigration flows.

1. United States Data

The following tables present the database used in our CGE model to calculate the scenarios of alternative immigration policies and associated remittance and trade flows, as well as tables showing our findings. Table 1 shows the totals and percentages for total foreign-born and foreign-born workers in the United States, broken down by authorization. There are 50.01 million foreign-born people living in United States, of which 39.01 million are authorized and 11 million are unauthorized. There are 31.6 million foreign-born workers in the United States, including 8.32 million unauthorized foreign-born workers.

Table 1: Proportion of Immigrants and Foreign-Born Workers in the United States (in millions)

	Total	Proportions	Workers	Proportions
Total population	328.70	100%	164.47	100%
Authorized foreign-born	39.01	12%	23.24	14%
Unauthorized foreign-born	11.00	3%	8.32	5%
Total foreign-born	50.01	15%	31.55	19%

Source: Unauthorized population figures estimated by Pew Research Center

Authorized population figures estimated by IPUMS calculation: <https://www.ipums.org/projects/ipums-usa/d010.v10.0>

Table 2 shows the skill levels of authorized and unauthorized foreign-born workers. Significantly, foreign born unauthorized workers are 2% of the total skilled workers and 3% of the total unskilled workers in the US.

Table 2: Estimated Proportions of Skilled and Unskilled Labor Among the Foreign-Born and Native-Born populations

	Skilled Employment in thousands of workers	Skilled Employment by labor type as a percentage of total	Unskilled Employment in thousands of workers	Unskilled Employment by labor type as a percentage of total
Foreign-born, authorized	11,138	7%	12,098	7%
Foreign-born, unauthorized	3,088	2%	5,229	3%
Native	67,385	41%	65,534	40%

Source: Unauthorized population figures estimated by Pew Research Center,

Authorized population figures estimated by IPUMS calculation: <https://www.ipums.org/projects/ipums-usa/d010.v10.0>

Table 3 provides data on the demographics of the 10.02 million mixed-status households in the United States of Type 1, which consists of households that include at least one foreign-born non-naturalized worker. The 5 million Type 2 mixed status households specifically include at least one unauthorized worker. Methodology for calculating Type 1 and Type 2 mixed status households and data on Type 2 households can be found in the appendix.

Table 3: Demographic Data of Mixed-Status Households iStates (In Millions)

	Total	Type 1	Type 2
Number of households	127.4	10.0	5.0
Population	328.2	36.1	18.1
Total U.S. citizens	205.0	16.6	4.9
U.S.-born citizens	276.0	13.7	--
Naturalized U.S. Citizens	22.6	2.7	1.2
Civilian workers who are U.S. citizens	142.4	5.1	1.0
Children who are U.S. Citizens	71.7	9.4	3.7
Total foreign-born nonnaturalized persons	23.5	19.5	13.2
Foreign-born nonnaturalized civilian workers	14.2	14.2	1.4
Foreign-born nonnaturalized children	2.1	1.7	0.2
Foreign-born nonnaturalized persons (authorized)	12.9	8.9	2.6
Foreign-born nonnaturalized workers (authorized)	6.4	6.4	--
Unauthorized Persons	10.6	10.6	10.6
Unauthorized Workers	7.8	7.8	7.8
Unauthorized children	1.0	1.0	1.0

Source: Unauthorized population figures estimated by Pew Research Center

Total workers, Unauthorized workers, and Total foreign-born workers estimates based on IPUMS calculation:

<https://www.ipums.org/projects/ipums-usa/d010.v10.0>

Table 4 shows metrics of economic contribution of authorized and unauthorized foreign-born workers. In 2022 foreign-born workers contributed \$3.83 trillion to the GDP and produced \$7.32 trillion in total economic output. Authorized foreign-born workers accounted for \$2.56 trillion in GDP and \$4.89 trillion in output, while unauthorized foreign-born workers accounted for \$1.28 trillion in GDP and \$2.44 trillion in output.

Table: 4 Estimated Economic Contributions of Immigrants in the United States

	Employment (million)	Percent of total labor force by immigration status	GDP (billion)	Output (Billion)	Labor income (billion)	Other income (billion)
Total workers	164.47	100%	25,460	48,629	14,588	9,726
Authorized foreign-born workers	23.24	14%	2,555	4,880	1,465	976
Unauthorized foreign-born workers	8.32	5%	1,279	2,443	624	416
Total foreign- born workers	31.55	19%	3,834	7,324	2,087	1,392

Source: Estimates based on IMPLAN data for GDP, output, labor income, and other income. Total workers, Unauthorized workers, and Total foreign-born workers estimates based on IPUMS calculation:

<https://www.ipums.org/projects/ipums-usa/d010.v10.0>

and unauthorized population figures estimated by Pew Research Center.

Table 5 shows the Labor income and GDP contributions for households that are mixed with both the authorized and the unauthorized. The total labor income of those living in mixed status households is \$1.08 trillion and the total GDP contribution is \$2.07 trillion. Unauthorized workers make up \$624 billion of the labor income figure and \$1.28 trillion of the GDP figure. Foreign-born non-naturalized workers accounted for \$217 billion of labor income and \$377 billion of GDP. Other workers in mixed status households accounted for \$234 billion of labor income and \$409 billion of GDP.

Table 5: Estimated Economic Contribution of Mixed-Status Households in the United States (in billions)

	Labor income	GDP
Unauthorized workers	\$624	\$1,279
Foreign-born nonnaturalized workers in mixed-status households	\$217	\$377
Other workers in mixed-status households	\$234	\$409
Total	\$1,075	\$2,066

Source: Estimates based on IMPLAN data for GDP, output, labor income, and other income. Total workers, Unauthorized workers, and Total foreign-born workers estimates based on IPUMS calculation:

<https://www.ipums.org/projects/ipums-usa/d010.v10.0>

and unauthorized population figures estimated by Pew Research Center.

Note: “Foreign-born nonnaturalized workers” are legal nonnaturalized workers. “Other workers” refers to U.S.-born workers living in mixed-status households.

In addition to contributions to GDP, we calculated the amount of job growth supported by immigrants through direct and indirect employment channels. Table 6 provides data for the direct, indirect, induced, and total employment-supporting effects of foreign-born workers in the United States. These findings reflect the consumer and entrepreneurial impact of foreign-born workers who support jobs for the economy.

Table 6: Estimated Impacts in Employment Supported by Immigrant Workers in the United States

	Employment (thousand)	Percent of total labor force by immigration status	Indirect employment impact (thousand)	Induced employment impact (thousand)	Total employment impact (thousand)
Total workers	164,470	100%			
Authorized workers	23,240	14%	15.79	20.78	60.39
Unauthorized workers	8,320	5%	5.67	7.00	20.98
Total foreign-born workers	31,550	19%	21.51	27.71	80.85

Source: Estimates based on IMPLAN data for GDP, output, labor income, and other income. Total workers, Unauthorized workers, and Total foreign-born workers estimates based on IPUMS calculation:

<https://www.ipums.org/projects/ipums-usa/d010.v10.0>

and unauthorized population figures estimated by Pew Research Center.

2. Mexico Data

Table 7 shows the state level flow of remittances from the U.S. to Mexico as a total and a percentage share of state GDP. It also shows the state level population of those in remittance receiving households and what the number of migrants in the U.S. is as a percentage of a state's workforce in Mexico.

Table 7: State by State Remittance and Migrant Make-up

	Remittance inflow by state (Million 2022 U.S.D)	Remittance by share of Mexican State GDP	Population in Remittance Receiving Households	Migrant Percentage of State Workforce
Country total	58,867.83	4.2%	17,673,681	21.4%
Aguascalientes	860.16	4.8%	282,458	18.4%
Baja California	1,390.79	2.6%	631,523	10.3%
Baja California Sur	204.18	2.0%	49,073	1.3%
Campeche	160.52	0.7%	52,211	3.8%
Coahuila	1,061.19	2.0%	348,102	14.9%
Colima	467.83	5.3%	140,310	21.4%
Chiapas	3,190.71	14.4%	374,294	8.2%
Chihuahua	1,625.93	3.1%	569,670	28.5%
Ciudad de México	3,184.20	1.6%	506,420	16.5%
Durango	1,361.77	7.4%	515,544	44.0%
Estado de México	3,554.60	2.8%	1,038,053	7.4%
Guanajuato	5,053.89	7.9%	1,479,690	37.8%
Guerrero	2,990.07	16.2%	1,076,865	66.8%
Hidalgo	1,692.52	6.9%	514,888	22.5%
Jalisco	5,389.01	5.2%	1,555,574	25.5%
Michoacán	5,340.89	13.5%	1,615,284	60.9%
Morelos	1,111.14	7.4%	383,757	28.5%
Nayarit	868.45	8.9%	393,452	30.3%
Nuevo León	1,454.55	1.3%	349,434	9.1%
Oaxaca	2,937.94	12.0%	871,591	37.9%
Puebla	2,773.77	5.7%	914,741	22.9%
Querétaro	1,203.48	3.6%	270,208	13.0%
Quintana Roo	391.79	2.0%	94,902	0.9%
San Luis Potosí	2,002.20	6.2%	604,257	37.2%
Sinaloa	1,216.99	3.9%	516,874	18.5%
Sonora	910.54	1.9%	331,931	9.8%
Tabasco	432.00	1.2%	119,448	4.0%
Tamaulipas	1,140.62	2.7%	439,635	24.9%
Tlaxcala	387.86	4.6%	110,629	10.8%
Veracruz	2,367.44	3.9%	789,216	15.9%
Yucatán	396.64	1.8%	137,004	2.9%
Zacatecas	1,744.12	13.3%	596,642	69.0%

Source: authors' estimates based on: *Instituto Nacional de Estadísticas y Geografía (2020). "Ingreso Corriente para los Municipios de México (ICMM) 2020.* <https://www.inegi.org.mx/investigacion/icmm/2020/> and Banco de México (2024). "Ingreso por remesas, distribución por municipio – (CE166)". <https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=1&accion=consultarCuadro&idCuadro=CE166&locale=es>. Our own calculation based on the Multi-State Supply and Use Tables of México, INEGI.

Tables 8 and 9 show the states and municipalities that are most dependent on remittance, as described by the remittance share of aggregate household income. The remittance share of income is as high as 82.4% in the municipalities most dependent on remittances. There are 394 Mexican municipalities with a remittance share of aggregate household income over 10%.

Tables 8 and 9: Remittance as Share of Income for Mexican States and Municipalities

State	Remittances as share of income in State	Number of municipalities above the State	Range of share in municipalities above State's share	
			Minimum	Maximum
Michoacán de Ocampo	14.6%	59	15.2%	66.5%
Guerrero	13.7%	32	14.5%	73.0%
Zacatecas	13.0%	21	13.1%	74.4%
Oaxaca	10.1%	77	10.2%	81.5%
Guanajuato	9.6%	34	10.4%	51.6%
San Luis Potosí	8.5%	29	8.6%	71.3%
Durango	8.3%	22	9.3%	47.0%
Nayarit	7.6%	11	8.0%	26.3%
Jalisco	6.9%	98	7.3%	82.4%
Morelos	6.8%	11	7.2%	48.3%
Other	3.6%	414	4.2%	28.2%

State	High (10%+)		Mid (5%-10%)		Low (0%-5%)	
	Number of municipalities	Remittance as share of income	Number of municipalities	Remittance as share of income	Number of municipalities	Remittance as share of income
Michoacán de Ocampo	69	23.0%	20	7.5%	24	2.1%
Guerrero	40	26.3%	15	6.8%	26	2.6%
Zacatecas	26	23.9%	9	8.0%	23	2.6%
Oaxaca	77	25.2%	23	6.9%	470	1.6%
Guanajuato	34	20.6%	7	6.3%	5	3.5%
San Luis Potosí	26	25.1%	7	6.9%	25	3.5%
Durango	20	27.2%	6	6.1%	13	3.2%
Nayarit	8	13.6%	8	6.5%	4	3.3%
Jalisco	84	20.9%	17	8.4%	24	2.9%
Morelos	7	17.3%	12	6.6%	14	3.9%
Other	159	12.1%	184	6.5%	972	2.3%

Source: authors' estimates based on: *Instituto Nacional de Estadísticas y Geografía (2020)*. "Ingreso Corriente para los Municipios de México (ICMM) 2020. <https://www.inegi.org.mx/investigacion/icmm/2020/> and *Banco de México (2024)*. "Ingreso por remesas, distribución por municipio – (CE166)". <https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=1&accion=consultarCuadro&idCuadro=CE166&locale=es>

3. CGE Modeling Approach and Scenarios

This paper utilizes economy-wide simulation models that are based on data from social accounting matrices (SAM) of the United States and Mexico and integrate the national income and product accounts with multisector data that captures intermediate input flows as well as macro aggregations. These simulation models include SAM multiplier models, used in this report, and computable general equilibrium (CGE) models. CGE and SAM multiplier models are appropriate and useful tools for analysis of both short- and long-term economic macro shocks and of subsequent potential recovery paths, where markets clear by quantity adjustments. The model is designed to trace direct and indirect employment and economywide effects across linked industries, sectoral employment, and feedback to household incomes. This analysis provides insight into which sectors will be affected and the nature of the direct and indirect impacts that might be expected. Direct impacts on specific industries will have knock-on effects that spread across other industries and households and through the entire economy. Reduced or increased activity in one sector has consequences both for suppliers of intermediate inputs to that sector, who face lower demand, and for the users of the output of the sector, who face supply disruptions.

To explore the economic impacts of alternative policy options in U.S.-Mexico trade and migration, we utilize the GLOBE mode, a multi-country, multisector computable general equilibrium (CGE) model of global trade that includes greater specifications for the U.S. and the Mexican economies. For the Mexico side calculations, we use the INEGI Multi-regional Input Output Model for Mexico. We use a U.S. model specified for immigrant labor markets as well as a Mexico model with complementary labor categories. There are 35 industries in the models, two major skill/education categories and 5 household groups (defined by quintiles of the overall income distribution), which differ by sources of income and expenditure patterns, providing an empirical framework for analysis of further restricting or liberalizing regional trade and labor migration.

The underlying approach to multi-region modeling is the construction of a series of single-country CGE models that are linked through their trading relationships.⁹ This modeling assumes that aggregate imports and domestic goods are imperfect substitutes in consumption, modeled using a constant elasticity of substitution (CES) function; it assumes that exports and domestic goods are imperfect substitutes, modeled using a constant elasticity of transformation (CET) function. To better represent trade dependencies among regions, we extend the trade nest: aggregate imports are a CES function over aggregate regions: NAFTA, Europe, East and Southeast Asia, and the Rest of

⁹ See Thierfelder (2021) and McDonald et al. (2007) for descriptions of the GLOBE model. The model is a member of a family of CGE models that model trade relationships using principles described in the 1-2-3 model (de Melo and Robinson 1989; Devarajan et al. 1990; and standard multi-sectoral versions for developing countries [Dervis et al. 1982]). Aguiar et al. (2023) describe the GTAP dataset that underpins most global CGE models.

the World. Imports by aggregate regions are modeled as a CES function over imports from the region's members. For example, the aggregate region NAFTA is comprised of the U.S., Canada, and Mexico. Within the three inter-connected regional economies, there is low trade substitution among members for intermediate goods – this reflects the integrated nature of trade in each region – production is highly specialized, and intermediate goods are shipped multiple times across borders in the region – imports of intermediate goods by different countries in the region are poor substitutes.

As is common in CGE models, the focus is on relative, rather than absolute, price changes. Consequently, each region in the model has its own numeraire price, the consumer price index (CPI); the model requires a global numeraire, which is an aggregate exchange rate index, a trade-weighted average of the nominal exchange rates for high-income countries.

The model's production structure has a nested formulation that allows for substitution among labor types, taking into account the complementarities between foreign born and native workers. Value added is a CES aggregate of land, natural resources, capital, and aggregate labor. Aggregate labor is a CES aggregate of skilled and unskilled labor. Skilled labor is a CES aggregate of native- and foreign-born workers. Finally, foreign-born workers are a CES aggregate of authorized and unauthorized workers. A similar pattern holds for the unskilled labor nest. It is assumed that authorized and unauthorized workers are highly substitutable; native- and foreign-born workers are assumed to be complements.

The macro model closure defines macroeconomic behavior. The external current account balance is assumed to be fixed. Changes in economic activity will not lead to a change in foreign borrowing. Instead, the exchange rate will adjust in each region. A fixed current account closure also ensures that income changes in the economy will uniformly affect all components of total absorption (aggregate domestic final demand, a measure of welfare). In this formulation, households, the government, and investment spending adjust with constant expenditure shares.

The internal balance is held constant, and any change in tax revenue collected is redistributed to households as a lump-sum change in income taxes. Labor and capital are fully employed and fully mobile across all activities in all regions. In each region, the current account balance is valued using the global numeraire exchange rate (a weighted average of exchange rates of high-income countries).

4. Impacts on the United States economy using the GLOBE CGE Model

Table 10 shows our models results for GDP and trade impacts of various alternative migration scenarios. We found that mass deportation would create a significant shock to the U.S. economy. A 1.3 million workers deported scenario would lead the real GDP to drop by 0.3%, real exports to drop by 0.3%, and real imports to drop by 0.1%. An 8.3 million workers deported scenario would lead the real GDP to drop by 4.0%, real exports to drop by 4.7%, and real imports to drop by 1.1%. These findings are in line with previous research about the effects of deportation.

Table 10: Economic Impacts of Alternative Migration Scenarios in the United States

Percent Change	1.3 million deported	8.32 million deported	8.32 million legalized	Labor supply increase of 6.6 million new authorized foreign-born workers
Real GDP	-0.3	-4.0	0.6	3.6
Real Exports	-0.3	-4.7	0.7	3.8
Real Imports	-0.1	-1.1	0.2	0.8

Tables 11 and 12 show the model components for the deportation scenarios. These metrics inform the results in table 10.

Table 11: Percent Change in Supply and Wages for Model Components, 1.3 million deported

	Supply	Wages
Land	0.0	-0.3
Skilled unauthorized	-13.0	6.8
Skilled authorized	0.0	1.7
Skilled native	0.0	-0.3
Unskilled unauthorized	-13.0	9.6
Unskilled authorized	0.0	4.4
Unskilled native	0.0	-0.9
Capital	0.0	-0.2
Natural Resources	0.0	-0.7

Table 12: Percent Change in Supply and Wages for Model Components, 8.3 million deported

	Supply	Wages
Land	0.0	-4.5
Skilled unauthorized	-80.0	125.0
Skilled authorized	-15.0	35.6
Skilled native	0.0	-5.1
Unskilled unauthorized	-80.0	195.1
Unskilled authorized	-15.0	78.6
Unskilled native	0.0	-12.0
Capital	0.0	-2.6
Natural Resources	0.0	-10.1

Tables 13 and 14 show the model components for the legalization scenarios. These metrics inform the results in table 10.

Table 13: Percent Change in Supply and Wages for Model Components, 8.3 million legalized

	Supply	Wages
Land	0.0	0.6
Skilled unauthorized	-80.0	14.3
Skilled authorized	-15.0	-3.6
Skilled native	0.0	0.7
Unskilled unauthorized	-80.0	8.3
Unskilled authorized	-15.0	-8.6
Unskilled native	0.0	1.8
Capital	0.0	0.4
Natural Resources	0.0	1.5

Table 14: Percent Change in Supply and Wages for Model Components, 6.6 million new authorized foreign-born workers

	Supply	Wages
Land	4.0	-0.6
Skilled unauthorized	3.4	-0.2
Skilled authorized	3.4	-0.2
Skilled native	3.4	-0.2
Unskilled unauthorized	3.4	-0.3
Unskilled authorized	3.4	-0.3
Unskilled native	3.4	-0.2
Capital	4.0	-0.6
Natural Resources	0.0	7.0

5. Impacts on the Mexican Economy using the INEGI Multi-regional Input Output Model for Mexico.

There are three immediate impacts for the Mexican economy as a result of the deportation policy: A sudden increase in the labor force, a reduction in remittances received by households, and a reduction in exports as a result of the decline in GDP of the United States. The first impact is out of the scope of this report, but the latter two impacts are estimated below for the 1.3 million and 8.3 million deportations scenarios. We evaluate these impacts using a multiplier model, based on Multi-State Supply and Use Tables for Mexico, which captures the impacts to the private consumption and exports and incorporates the effects of interstate trade in the supply chains.

We assume a reduction in remittances received by Mexican households that is equivalent to the reduction in unauthorized workers in the United States. For the first scenario, this implies a reduction of 11.7 % remittances, and 74.5 % for the second. This will affect the Mexican economy through a reduction of households' consumption, which we assume will be proportional to the reduction in disposable income of each state. We applied this shock using the weight of remittances in GDP, also considering that households' disposable income amounts to 75.2% of GDP at the national level. As a result, the national impact on consumption is 0.6 % and 4.2 % for each scenario, but this figure varies for each Mexican state.

For the impacts in Mexican exports, we assume the reduction will follow a similar relation to U.S. GDP as during the 2009 global financial crisis. During that year, the U.S. economy fell 2.6 %, while Mexican exports fell 21.2 percent, resulting in a 6.3 % GDP reduction. Following the deportation results from McKibbin et al., that is 1.2 % GDP reduction for the deportation of 1.3 million migrants and 7.4 % for the 8.3 million scenarios, we assume a reduction in all exports of 9.9 and 60.8 percent in each case.

The following table presents the summary of GDP results at the national and state level. Each scenario is shown decomposing the remittance and exports impacts. For each scenario, we assume that government spending and investment remains constant. Table 15 shows the country and state level effects to GDP derived from remittance and export impacts in our deportation scenarios, as a percentage. A 1.3 million workers deported scenario would produce a 2.6% decrease in Mexico's GDP by 2028, with .4% of the decrease deriving from a reduction in remittances and 2.3% from a reduction in exports. An 8.3 million workers deported scenario would produce a 16.3% decrease in Mexico's GDP by 2028, with 2.5% of the decrease deriving from a reduction in remittances and 13.9% from a reduction in exports. The states of Baja California, Campeche, Coahuila, and Chihuahua see the largest export driven decrease in GDP, while Chiapas, Guerrero, Michoacan, and Oaxaca see the largest remittance driven reduction in GDP. Table 16

shows the country and state level impacts to GDP in our deportation scenarios, as total cumulative dollar changes after 3 years.

Table 15: GDP Changes for Mexico at Country and State Level. Percent Deviation from Baseline in 2028.

	1.3 million deported			8.3 million deported		
	Remittance Impact	Exports Impact	Both Impacts	Remittance Impact	Exports Impact	Both Impacts
Country total	-0.4	-2.3	-2.6	-2.5	-13.9	-16.3
Aguascalientes	-0.4	-2.9	-3.2	-2.3	-17.7	-20.0
Baja California	-0.2	-4.8	-5.0	-1.0	-29.7	-30.8
Baja California Sur	-0.3	-0.9	-1.2	-1.8	-5.8	-7.6
Campeche	-0.2	-5.0	-5.2	-1.3	-30.8	-32.1
Coahuila	-0.2	-4.6	-4.7	-1.1	-28.1	-29.2
Colima	-0.5	-1.4	-1.8	-2.9	-8.6	-11.5
Chiapas	-1.1	-0.7	-1.8	-7.0	-4.6	-11.6
Chihuahua	-0.1	-6.3	-6.4	-0.8	-38.6	-39.3
Mexico City	-0.4	-0.9	-1.3	-2.4	-5.4	-7.8
Durango	-0.5	-1.7	-2.2	-3.0	-10.7	-13.7
Guanajuato	-0.5	-2.6	-3.1	-3.1	-16.0	-19.1
Guerrero	-1.1	-0.7	-1.8	-6.9	-4.3	-11.2
Hidalgo	-0.5	-1.1	-1.6	-3.1	-6.6	-9.7
Jalisco	-0.5	-1.6	-2.1	-3.1	-9.9	-13.0
Mexico State	-0.4	-1.3	-1.7	-2.2	-8.1	-10.3
Michoacan	-0.9	-1.8	-2.7	-5.5	-11.2	-16.7
Morelos	-0.5	-1.7	-2.2	-3.2	-10.8	-13.9
Nayarit	-0.7	-0.8	-1.5	-4.4	-4.8	-9.2
Nuevo Leon	-0.2	-3.0	-3.2	-1.4	-18.6	-20.0
Oaxaca	-0.8	-0.7	-1.5	-5.2	-4.3	-9.5
Puebla	-0.4	-2.1	-2.6	-2.7	-13.2	-15.9
Queretaro	-0.4	-2.4	-2.7	-2.4	-14.6	-17.0
Quintana Roo	-0.3	-0.6	-0.9	-2.1	-3.8	-5.9
San Luis Potosi	-0.4	-2.9	-3.3	-2.4	-18.0	-20.3
Sinaloa	-0.4	-1.6	-2.0	-2.3	-9.8	-12.2
Sonora	-0.2	-3.4	-3.6	-1.3	-21.1	-22.4
Tabasco	-0.3	-2.8	-3.1	-1.9	-17.1	-19.0
Tamaulipas	-0.2	-4.0	-4.2	-1.5	-24.5	-26.0
Tlaxcala	-0.4	-1.5	-1.9	-2.8	-9.2	-12.0
Veracruz	-0.4	-1.4	-1.8	-2.6	-8.7	-11.3
Yucatan	-0.3	-0.9	-1.2	-1.7	-5.6	-7.3
Zacatecas	-0.6	-1.6	-2.2	-4.0	-9.9	-14.0

Source: Author own calculation based on the Multi-State Supply and Use Tables of México, INEGI

Table 16: Estimated Cumulative Changes in GDP for Mexico at Country and State level; Billions of 2022 U.S. dollars, 2025-2028.

	1.3 million deported	8.3 million deported
Country Total	-\$ 101.6	-\$ 635.2
Aguascalientes	-\$ 1.6	-\$ 9.9
Baja California	-\$ 7.1	-\$ 44.2
Baja California Sur	-\$ 0.4	-\$ 2.2
Campeche	-\$ 3.3	-\$ 20.5
Coahuila	-\$ 6.8	-\$ 42.2
Colima	-\$ 0.5	-\$ 2.9
Chiapas	-\$ 1.3	-\$ 8.2
Chihuahua	-\$ 8.9	-\$ 55.5
Mexico City	-\$ 7.3	-\$ 45.9
Durango	-\$ 1.1	-\$ 7.1
Guanajuato	-\$ 5.4	-\$ 33.9
Guerrero	-\$ 1.0	-\$ 6.6
Hidalgo	-\$ 1.1	-\$ 7.0
Jalisco	-\$ 6.2	-\$ 38.8
Mexico State	-\$ 5.9	-\$ 36.9
Michoacan	-\$ 3.1	-\$ 19.3
Morelos	-\$ 0.9	-\$ 5.9
Nayarit	-\$ 0.4	-\$ 2.7
Nuevo Leon	-\$ 9.5	-\$ 59.6
Oaxaca	-\$ 1.2	-\$ 7.3
Puebla	-\$ 3.5	-\$ 21.6
Queretaro	-\$ 2.5	-\$ 15.8
Quintana Roo	-\$ 0.6	-\$ 3.5
San Luis Potosi	-\$ 2.9	-\$ 18.0
Sinaloa	-\$ 1.7	-\$ 10.8
Sonora	-\$ 4.6	-\$ 28.7
Tabasco	-\$ 2.9	-\$ 18.3
Tamaulipas	-\$ 4.8	-\$ 29.8
Tlaxcala	-\$ 0.5	-\$ 2.9
Veracruz	-\$ 3.1	-\$ 19.4
Yucatan	-\$ 0.7	-\$ 4.6
Zacatecas	-\$ 0.8	-\$ 5.3

Source: Author own calculation based on the Multi-State Supply and Use Tables of México, INEGI

For the Immigration Reform scenario's impacts on Mexico, we consider the pathway to citizenship in the U.S., which results in a 4 percent increase in U.S. GDP. Over the last 30 years, Mexico's exports presented an elasticity of 3.28 to U.S. GDP¹⁰, so for this scenario we assume a 13.1 % increase in Mexican exports. For remittance growth, we assume the trend over the past 10 years will continue over the next 10 years, following the US Congressional Budget Office (CBO) time frame as a reference. Over this period, we expect a 65.7 in remittances received in Mexico.

Table 17 shows the country and state level effects to GDP derived from remittance and export impacts in our legalization scenarios, as a percentage. Legalization for all of the 8.32 million unauthorized workers would lead to a 0.6% increase in real GDP, as well as a 0.7% increase in real exports and a 0.2% increase in real imports. Legalization and future legal migration would also have positive economic impacts in Mexico. Exports would increase by 13.1% and remittances would increase by 65.7% over the following ten years. In turn, Mexican GDP would increase by 5.2%. These effects are most strongly felt in the states of Baja California, Campeche, Chihuahua, Coahuila, Chiapas, Chihuahua, Guerrero, and Michoacan. The states of Baja California, Campeche, Coahuila, and Chihuahua see the largest export driven increase in GDP, and Chiapas, Guerrero, Michoacan, and Oaxaca see the largest remittance driven increase in GDP.

¹⁰ Data for the years 2009-2010 and 2020-2021 were dropped from this estimation, as they show events of crisis and rebound. The resulting estimation results in a R^2 of 0.97.

Table 17: GDP Changes for Mexico at Country and State level for the Pathway to Citizenship Scenario.

	Mexico GDP percent growth			Billion U.S. Dollars, based on 2022 levels
	Remittance Impact	Exports Impact	Both Impacts	
Country total	2.2	3.0	5.2	\$72.3
Aguascalientes	2.0	3.8	5.8	\$1.1
Baja California	0.9	6.4	7.3	\$3.9
Baja California Sur	1.6	1.2	2.8	\$0.3
Campeche	1.1	6.6	7.8	\$1.8
Coahuila	1.0	6.1	7.0	\$3.8
Colima	2.6	1.9	4.4	\$0.4
Chiapas	6.2	1.0	7.2	\$1.6
Chihuahua	0.7	8.3	9.0	\$4.8
Mexico City	2.2	1.2	3.3	\$6.7
Durango	2.6	2.3	4.9	\$0.9
Guanajuato	2.8	3.4	6.2	\$4.0
Guerrero	6.1	0.9	7.0	\$1.3
Hidalgo	2.7	1.4	4.2	\$1.0
Jalisco	2.8	2.1	4.9	\$5.1
Mexico State	2.0	1.7	3.7	\$4.7
Michoacan	4.9	2.4	7.3	\$2.9
Morelos	2.8	2.3	5.1	\$0.8
Nayarit	3.8	1.0	4.9	\$0.5
Nuevo Leon	1.3	4.0	5.3	\$5.8
Oaxaca	4.6	0.9	5.5	\$1.4
Puebla	2.4	2.9	5.2	\$2.5
Queretaro	2.1	3.1	5.3	\$1.8
Quintana Roo	1.9	0.8	2.7	\$0.5
San Luis Potosi	2.1	3.9	6.0	\$1.9
Sinaloa	2.1	2.1	4.2	\$1.3
Sonora	1.1	4.6	5.7	\$2.7
Tabasco	1.7	3.7	5.4	\$1.9
Tamaulipas	1.3	5.3	6.6	\$2.8
Tlaxcala	2.4	2.0	4.4	\$0.4
Veracruz	2.3	1.9	4.2	\$2.5
Yucatan	1.5	1.2	2.7	\$0.6
Zacatecas	3.6	2.1	5.7	\$0.8

Source: Our own calculation based on the Multi-State Supply and Use Tables of México, INEGI

Source: authors' estimates based on: Instituto Nacional de Estadísticas y Geografía (2020). "Ingreso Corriente para los Municipios de México (ICMM) 2020. <https://www.inegi.org.mx/investigacion/icmm/2020/> and Banco de México (2024). "Ingreso por remesas, distribución por municipio – (CE166)". <https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=1&accion=consultarCuadro&idCuadro=CE166&locale=es>

6. Discussion of Findings and Comparative Literature Review

We find that mass deportation would create a significant shock to the U.S. economy. A 1.3 million workers deported scenario would lead the real GDP to drop by 0.3%, real exports to drop by 0.3%, and real imports to drop by 0.1%. An 8.3 million workers deported scenario would lead the real GDP to drop by 4.0%, real exports to drop by 4.7%, and real imports to drop by 1.1%. These findings are in line with previous research about the effects of deportation.

Mckibben, Noland, and Hogan of The Peterson Institute for International Economics, have published extensive analysis of trade and immigration scenarios presented by Trump and Harris. Their September 2024 working paper *The International Economic Implications of a Second Presidency* also examined the effects of 1.3 million and 8.3 million workers deported, though with a different form of model. They found that in an 8.3 million workers deported scenario, over three years real GDP would decrease by 7.4% and employment in hours worked would decrease by 6.7%, and inflation would increase by 9.6%. In a 1.3 million workers deported scenario, they estimate that over three years real GDP would decrease by 2.1% and employment in hours worked would decrease by 1.1%, inflation would increase slightly in the following years but return to baseline by 2030ⁱⁱ

Our findings also follow Hinojosa, Robinson, and Thierfelder's 2017 work, *Trump Paradox: Before and After NAFTA*, in which it was calculated that over ten years a 1/6th reduction in migration would lead to a 0.97% decrease in GDP, and 1.15% decrease in exports, a 0.92% decrease in imports, and the loss of 1.47 million jobs. We measured the effects of a 100% collapse of migration as well and found that it would lead to a 5.93% decrease in GDP, and 7.04% decrease in exports, a 5.65% decrease in imports, and the loss of 8.79 million jobs.ⁱⁱⁱ

Mass deportation would be so devastating and legalization so beneficial because the economic contributions of foreign-born workers in the U.S. —both authorized and unauthorized—are enormous. There are 50.01 million foreign-born people living in United States, of which 39.01 million are authorized and 11 million are unauthorized. There are 31.6 million foreign-born workers in the United States, including 8.32 million unauthorized foreign-born workers. In 2022 foreign-born workers contributed \$3.83 trillion to the GDP and produced \$7.32 trillion in total economic output. Authorized foreign-born workers accounted for \$2.56 trillion in GDP and \$4.89 trillion in output, while unauthorized foreign-born workers accounted for \$1.28 trillion in GDP and \$2.44 trillion in output. The total labor income of those living in mixed status households is \$1.08 trillion and the total GDP contribution is \$2.07 trillion. Unauthorized workers make up \$624 billion of the labor income figure and \$1.28 trillion of the GDP figure. Foreign-born non-naturalized workers accounted for \$217 billion of labor income and \$377 billion of GDP. Other workers in mixed status households accounted for \$234 billion of labor income and \$409 billion of GDP.

We find that legalization would have substantial positive impacts. As unauthorized workers gain citizenship, they become more productive leading to a 0.6% increase in real GDP. Legalization also leads to a 0.7% increase in real exports and a 0.2% increase in real imports. We have also calculated the GDP impact of new, authorized migration flows due through an extrapolation of past CBO analyses. The CBO's analysis of the economic impacts of the recent migration surge estimates that it will produce a GDP increase of \$1.3 trillion in year ten and a cumulative ten-year total of \$8.9 trillion from 8.7 million new immigrants. The CBO describes their how they arrived at this figure as follows, "CBO constructed a counterfactual scenario in which that increase does not occur; instead, from 2021 to 2034, the net immigration of people in the other-foreign-national category totals 200,000 people per year (which, from 2027 on, is the same as in the baseline projections). The agency then created economic and budget projections for that counterfactual scenario and compared those outcomes with its economic forecast and baseline budget projections. The differences between outcomes under the two scenarios represent CBO's estimates of the effects of the surge in immigration." The CBO's demographic outlook report^{iv} projects that there will be an average of 1.1 million new immigrants to the U.S. annually from 2023 through 2053 to meet labor demand. They describe their analysis as follows, "for the first two decades of the projection period (from 2023 to 2043), CBO's estimates of net immigration are based on the agency's economic projections and assessment of recent trends. For each year of the third decade (2044 to 2053), net immigration is projected to grow at roughly the same rate as overall population growth in the previous year—0.2 percent per year, on average." In Hinojosa and Pleitez's 2024 paper *U.S. Economic Vitality Depends on Immigration*^v, we also calculated a supply stream of 1.1 million new immigrants annually, of which 60% are workers, based on our examination of the 2022 Current Population Survey's figures on foreign-born workers. Our analysis shows that in year one the GDP growth generated by these new workers would be \$98.62 billion, with \$1.33 trillion in year ten, and a cumulative ten-year total of \$5.94 trillion. This also follows Hinojosa, Robinson, and Thierfelder's 2017 work, *Trump Paradox: Before and After NAFTA*, in which we found that the impacts of comprehensive immigration reform and found that it would lead to a 2.38% increase in GDP that equates to \$1.5 trillion, and 1.21% increase in exports, and a 2.01% increase in imports.

Past examinations of the economic contributions of foreign-born workers in the U.S. have arrived at similar findings and are discussed below. The last time that there was a significant push for comprehensive immigration reform in the United States was in 2013 in the form of Senate Bill 744, The Border Security, Economic Opportunity, and Immigration Modernization Act. A CBO analysis, *The Economic Impact of S. 744, the Border Security, Economic Opportunity, and Immigration Modernization Act* found that legalization would grow the economy. They measured a 3.3% increase in real GDP by 2023 and a 5.4% increase by 2033. Their analysis also showed long term overall wage increases as well as improved productivity of labor and capital.^{vi} A 2020 study by the North American Integration and Development Center, *Essential but Disposable: Unauthorized Workers and Their Mixed-Status Families*, which examined the economic contributions of immigrant essential workers showed that in 2018 they contributed \$1.03 trillion to GDP and had an economic

output of \$1.975 trillion. ^{vii} A June 2024 study from the CBO, *Effects of the Immigration Surge on the Federal Budget and the Economy* analyzed the effects of the recent surge in immigration at the southern border and revealed that it will result in an additional \$1.2 trillion in federal revenues over the 2024-2034 period, as well as an increase in nominal GDP of \$8.9 trillion over the same period. ^{viii} The White House released a report in 2021, *The Economic Benefits of Extending Permanent Legal Status to Unauthorized Immigrants*, which also showed that legalization would boost economic growth due to improved employment opportunities, great skill acquisition and improved physical and mental health, which lead to increased worker productivity. They also found that any increases in federal government expenditure brought about by more enrollment in social benefit programs would be offset by higher tax contributions. ^{ix}

On the Mexican side, we find that a 1.3 million workers deported scenario would produce a 2.6% decrease in Mexico's GDP by 2028, with .4% of the decrease deriving from a reduction in remittances and 2.3% from a reduction in exports. An 8.3 million workers deported scenario would produce a 16.3% decrease in Mexico's GDP by 2028, with 2.5% of the decrease deriving from a reduction in remittances and 13.9% from a reduction in exports. The states of Baja California, Campeche, Coahuila, Chihuahua, and Tamaulipas are the states hardest hit in both scenarios. Legalization and future legal migration would also have positive economic impacts in Mexico. Exports would increase by 13.1% and remittances would increase by 65.7% over the following ten years. In turn, Mexican GDP would increase by 5.2%, equivalent to \$72.3 billion in 2022 dollars. These effects are most strongly felt in the states of Baja California, Campeche, Chihuahua, Coahuila, Chiapas, Chihuahua, Guerrero, and Michoacan.

Within Mexico, some states and municipalities are disproportionately dependent on remittances. We have analyzed Banco de Mexico remittance data alongside INEGI data on household income by municipality and found that there are ten Mexican states in which over 6.8% of aggregate household income is derived from remittances. Within each of those states, there are municipalities in which over 47% of household income is derived from remittances, and there are a total of 394 municipalities that have remittance share of income higher than the average for the state, and there are 391 municipalities in which the remittance share of income in the state is over 10%. Within Michoacán de Ocampo alone, there are 69 municipalities in which the remittance share of income in the state is over 10%. In Oaxaca and Jalisco, there are municipalities in which the remittance share of income is over 80%. Guerrero, Zacatecas, and San Luis Potosi all contain municipalities in which the remittance share of income is over 70%. A mass deportation scenario would be particularly devastating in these areas.

7. METHODOLOGICAL APPENDIX

U.S.

The underlying approach to multi-region modeling is the construction of a series of single-country CGE models that are linked through their trading relationships¹¹. This modeling assumes that aggregate imports and domestic goods are imperfect substitutes in consumption, modeled using a constant elasticity of substitution (CES) function; it assumes that exports and domestic goods are imperfect substitutes, modeled using a constant elasticity of transformation (CET) function. To better represent trade dependencies among regions, we extend the trade nest: aggregate imports are a CES function over aggregate regions: NAFTA, Europe, East and Southeast Asia, and the Rest of the World. Imports by aggregate regions are modeled as a CES function over imports from the region's members. For example, the aggregate region NAFTA is comprised of the U.S., Canada, and Mexico. Within the three inter-connected regional economies, there is low trade substitution among members for intermediate goods – this reflects the integrated nature of trade in each region – production is highly specialized, and intermediate goods are shipped multiple times across borders in the region – imports of intermediate goods by different countries in the region are poor substitutes.

As is common in CGE models, the focus is on relative, rather than absolute, price changes. Consequently, each region in the model has its own numeraire price, the consumer price index (CPI); the model requires a global numeraire, which is an aggregate exchange rate index, a trade-weighted average of the nominal exchange rates for high-income countries.

The model's production structure has a nested formulation that allows for substitution among labor types, taking into account the complementarities between foreign born and native workers. Value added is a CES aggregate of land, natural resources, capital, and aggregate labor. Aggregate labor is a CES aggregate of skilled and unskilled labor. Skilled labor is a CES aggregate of native- and foreign-born workers. Finally, foreign-born workers are a CES aggregate of authorized and unauthorized workers. A similar pattern holds for the unskilled labor nest. It is assumed that authorized and unauthorized workers are highly substitutable; native- and foreign-born workers are assumed to be complements.

The macro model closure defines macroeconomic behavior. The external current account balance is assumed to be fixed. Changes in economic activity will not lead to a change in foreign borrowing. Instead, the exchange rate will adjust in each region. A fixed current account closure also ensures that income changes in the economy will uniformly

¹¹ See Thierfelder (2021) and McDonald et al. (2007) for descriptions of the GLOBE model. The model is a member of a family of CGE models that model trade relationships using principles described in the 1-2-3 model (de Melo and Robinson 1989; Devarajan et al. 1990; and standard multi-sectoral versions for developing countries [Dervis et al. 1982]). Aguiar et al. (2023) describe the GTAP dataset that underpins most global CGE models.

affect all components of total absorption (aggregate domestic final demand, a measure of welfare). In this formulation, households, the government, and investment spending adjust with constant expenditure shares.

The internal balance is held constant, and any change in tax revenue collected is redistributed to households as a lump-sum change in income taxes. Labor and capital are fully employed and fully mobile across all activities in all regions. In each region, the current account balance is valued using the global numeraire exchange rate (a weighted average of exchange rates of high-income countries).

MEXICO

There are three immediate impacts for the Mexican economy as a result of the deportation policy: A sudden increase in the labor force, a reduction in remittances received by households, and a reduction in exports as a result of the slowdown in the GDP of the United States. The first impact is out of the scope of this report, but the latter two impacts are estimated below for the 1.3 million and 8.3 million deportations scenarios. We evaluate these impacts using a multiplier model, based on Multi-State Supply and Use Tables for Mexico, which captures the impacts to the private consumption and exports and incorporates the effects of interstate trade in the supply chains.

We assume a reduction in remittances received by Mexican households that is equivalent to the reduction in unauthorized workers in the United States. For the first scenario, this implies a reduction of 11.7 % remittances, and 74.5 % for the second. This will affect the Mexican economy through a reduction of households' consumption, which we assume will be proportional to the reduction in disposable income of each state. We applied this shock using the weight of remittances in GDP from table #, also considering that households' disposable income amounts to 75.2% of GDP at the national level. As a result, the national impact on consumption is 0.6 % and 4.2 % for each scenario, but this figure varies for each Mexican state.

For the impacts in Mexican exports, we assume the reduction will follow a similar relation to U.S. GDP as during the 2009 global financial crisis. During that year, the U.S. economy fell 2.6 %, while Mexican exports fell 21.2 percent, resulting in a 6.3 % GDP reduction. Following the deportation results from McKibbin et al., that is 1.2 % GDP reduction for the deportation of 1.3 million migrants and 7.4 % for the 8.3 million scenarios, we assume a reduction in all exports of 9.9 and 60.8 percent in each case.

The following table presents the summary of GDP results at the national and state level. Each scenario is shown decomposing the remittance and exports impacts. For each scenario, we assume that government spending and investment remains constant.

For the third scenario, we consider the path to citizenship in the U.S., which results in a 4 percent increase in GDP for the U.S.. Over the last 30 years, Mexico's exports presented an elasticity of 3.28 to U.S. GDP, so for this scenario we assume a 13.1 % increase in Mexican exports. For the remittance growth, we assume the trend over the past 10 years will continue over the next 10 years, following the CBE time frame as a reference. Over this period, we expect a 65.7 in remittances received in Mexico

8. DATABASE APPENDIX

Methodology: Type 1 and 2 Mixed-Status Households and Undocumented Employment Calculations

We obtained employment data for foreign-born nonnaturalized civilian workers by industry from IPUMS CPS, ASEC 2022 at the national, state, and county level. We also obtained data from IPUMS CPS, ASEC 2022 for households at the national level. Our estimates are based on 2022 IPUMS and CPS ASEC; Census Bureau (<https://cps.ipums.org/cps/index.shtml>).

We first created a bridge between the Pew Research Center's industry classification and IPUMS's industry classification and aggregated up the employment of foreign-born nonnaturalized civilian workers to Pew's industries. We then assumed a total of 8.3 million undocumented civilian workers and distributed them into our 184-industry SAM database using Pew Research Center's data showing share of unauthorized workers by industries. We then calculated the ratio of undocumented civilian workers to foreign-born nonnaturalized civilian workers based on Pew's industry structure and used the ratio and the bridge mentioned above to estimate the number of undocumented civilian workers in 184 sectors.

Table A.1 provides data on two types of mixed-status households across the United States, California, and Los Angeles County. The first consists of households that include at least 18 one foreign-born non-naturalized worker, while the second specifically includes at least one unauthorized worker (using estimation techniques based on U.S. Census data, as explained in appendix A). We estimate that, in the United States, there are 5 million unauthorized or mixed-status households with at least one unauthorized worker, comprising 4.9 million U.S.-born citizens, 1.2 million naturalized U.S. citizens, and 10.6 million unauthorized immigrants.

Table A.1. Demographic Data of Mixed-Status Households in the United States (In Millions)

	Total	Type 1	Type 2
Number of households	127.4	10.0	5.0
Population	328.2	36.1	18.1
Total U.S. citizens	205.0	16.6	4.9
U.S.-born citizens	276.0	13.7	--
Naturalized U.S. citizens	22.6	2.7	1.2
Civilian workers who are U.S. citizens	142.4	5.1	1.0

Children who are U.S. citizens	71.7	9.4	3.7
Total foreign-born nonnaturalized persons	23.5	19.5	13.2
Foreign-born nonnaturalized civilian workers	14.2	14.2	1.4
Foreign-born nonnaturalized children	2.1	1.7	0.2
Foreign-born nonnaturalized persons (authorized)	12.9	8.9	2.6
Foreign-born nonnaturalized workers (authorized)	6.4	6.4	--
Unauthorized persons	10.6	10.6	10.6
Unauthorized workers	7.8	7.8	7.8
Unauthorized children	1.0	1.0	1.0

Source Type 1: Population of all households with at least one foreign-born nonnaturalized civilian worker, based on data reported in IPUMS and CPS ASEC.

Type 2: Population of all households with at least one undocumented worker, based on estimates from: a) MPI, <https://www.migrationpolicy.org/content/mixed-status-families-ineligiblepandemicstimuluschecks#:~:text=Mixed%2DStatus%20Families%20Ineligible%20for%20CARES%20Act%20Federal%20Pandemic%20Stimulus%20Checks,-As%20part%20of&text=The%20CARES%20Act%20also%20makes,the%20entire%20family%20is%20ineligible> b) CAP, <https://cdn.americanprogress.org/content/uploads/2017/03/15112450/KeepFamiliesTogether-brief.pdf>; and c) Pew, <https://www.pewresearch.org/fact-tank/2019/06/12/5-facts-about-illegalimmigration-in-the-u-s/>

Table A.2 Employment by Sector and Labor Type, in Thousands of Workers, 2022

	Skilled Labor			Unskilled Labor			Total
	Foreign-born, unauthorized	Foreign-born, authorized	Native	Foreign-born, unauthorized	Foreign-born, authorized	Native	
Fruits and vegetables	7	7	122	73	73	249	530
Grains	2	2	27	16	16	55	118
Other crops	7	7	122	73	73	249	530
Livestock	12	12	249	49	49	539	909
Forestry and Fishing	2	2	52	6	6	137	205
Mining	10	26	203	8	20	226	493
Processed meat	5	13	69	69	165	250	571
Processed food	34	80	386	98	233	683	1,513
Beverages and tobacco	6	15	173	11	26	183	414
Textiles and Clothing	15	36	158	34	82	250	575
Metal and metal products	26	63	483	51	122	936	1,681
Leather and wood products	34	91	751	79	190	1,104	2,250
Motor vehicles and other trans	60	143	1,062	67	159	1,202	2,693
Cement	3	8	144	39	94	275	564
Other Manufacturing	161	383	2,476	164	389	1,971	5,544
Utilities	13	56	668	10	43	612	1,403
Construction	321	333	2,428	1,450	1,504	6,155	12,191
Wholesale and retail trade	324	970	5,278	474	1,370	10,536	18,952
Accommodation and food services	38	114	806	125	379	2,224	3,686
Transport	50	216	793	88	380	1,876	3,402
Business services	1,019	2,721	14,701	1,413	3,157	15,844	38,856
Recreation services	330	932	6,198	547	1,448	6,053	15,508
Health services	240	2,047	10,486	114	968	5,499	19,354
Other services	370	2,863	19,551	170	1,151	8,425	32,530
Total	3,088	11,138	67,385	5,229	12,098	65,534	164,471

Source: PIIE calculations based on 2022 Current Population Survey data

Table A.3 Employment by Labor Type as a Percentage of Total, by Sectors, 2022

	Skilled Labor			Unskilled Labor			Total
	Foreign-born, unauthorized	Foreign-born, authorized	Native	Foreign-born, unauthorized	Foreign-born, authorized	Native	
Fruits and vegetables	1	1	23	14	14	47	100
Grains	1	1	23	14	14	47	100
Other crops	1	1	23	14	14	47	100
Livestock	1	1	27	5	5	59	100
Forestry and Fishing	1	1	25	3	3	67	100
Mining	2	5	41	2	4	46	100
Processed meat	1	2	12	12	29	44	100
Processed food	2	5	25	6	15	45	100
Beverages and tobacco	2	4	42	3	6	44	100
Textiles and Clothing	3	6	28	6	14	43	100
Metal and metal products	2	4	29	3	7	56	100
Leather and wood products	2	4	33	4	8	49	100
Motor vehicles and other trans	2	5	39	2	6	45	100
Cement	1	1	25	7	17	49	100
Other Manufacturing	3	7	45	3	7	36	100
Utilities	1	4	48	1	3	44	100
Construction	3	3	20	12	12	50	100
Wholesale and retail trade	2	5	28	3	7	56	100
Accommodation and food services	1	3	22	3	10	60	100
Transport	1	6	23	3	11	55	100
Business services	3	7	38	4	8	41	100
Recreation services	2	6	40	4	9	39	100
Health services	1	11	54	1	5	28	100
Other services	1	9	60	1	4	26	100
Total	2	7	41	3	7	40	100

Source: PIIIE calculations based on 2022 Current Population Survey data

Table A.4: Employment by Sector as a Percentage of Total, by Labor Type

	Skilled Labor			Unskilled Labor			Total
	Foreign-born, unauthorized	Foreign-born, authorized	Native	Foreign-born, unauthorized	Foreign-born, authorized	Native	
Fruits and vegetables	0	0	0	1	1	0	0
Grains	0	0	0	0	0	0	0
Other crops	0	0	0	1	1	0	0
Livestock	0	0	0	1	0	1	1
Forestry and Fishing	0	0	0	0	0	0	0
Mining	0	0	0	0	0	0	0
Processed meat	0	0	0	1	1	0	0
Processed food	1	1	1	2	2	1	1
Beverages and tobacco	0	0	0	0	0	0	0
Textiles and Clothing	0	0	0	1	1	0	0
Metal and metal products	1	1	1	1	1	1	1
Leather and wood products	1	1	1	2	2	2	1
Motor vehicles and other trans	2	1	2	1	1	2	2
Cement	0	0	0	1	1	0	0
Other Manufacturing	5	3	4	3	3	3	3
Utilities	0	1	1	0	0	1	1
Construction	10	3	4	28	12	9	7
Wholesale and retail trade	10	9	8	9	11	16	12
Accommodation and food services	1	1	1	2	3	3	2
Transport	2	2	1	2	3	3	2
Business services	33	24	22	27	26	24	24
Recreation services	11	8	9	10	12	9	9
Health services	8	18	16	2	8	8	12
Other services	12	26	29	3	10	13	20
Total	100	100	100	100	100	100	100

Source: PIIE calculations based on 2022 Current Population Survey data

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