

Potential Economic Impacts in Florida of Increased Imports of Mexican Fruits and Vegetables

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Introduction

Since the passage of the North American Free Trade Agreement (NAFTA) in 1994, United States (U.S.) fruit and vegetable growers have faced a number of challenges including increased competition from Mexico, a changing domestic landscape in terms of production and regulations, and a number of weather-related events including major hurricanes. These factors have contributed to significant increases in U.S. imports of fresh fruits and vegetables from Mexico (Figure 1). In more recent years, between 2010 and 2018, imports of tomatoes, strawberries, blueberries, and bell peppers increased from 1.75 to 2.32 million metric tons, representing a 33% overall increase, including 23% for tomatoes, 56% for bell peppers, 79% for strawberries, and a 34-fold increase for blueberries. In value terms, imports of these commodities from Mexico increased from \$2.16 to \$3.76 billion, a 74% increase (not adjusted for inflation), including 38% for tomatoes, 91% for bell peppers, 169% for strawberries, and a 48-fold increase for blueberries (Figure 2). Imports of fresh tomatoes from Mexico in 2018 exceeded \$2 billion, while imports of bell peppers were over \$700 million, and imports of strawberries exceeded \$600 million.

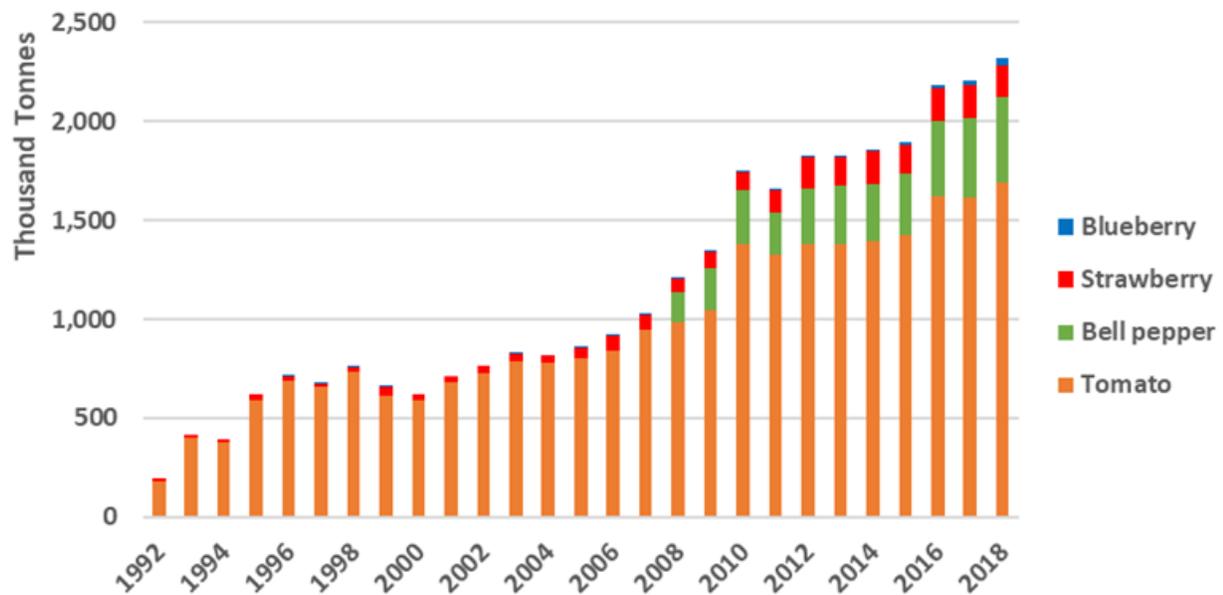
Although NAFTA eliminated trade barriers and encouraged year-round imports from Mexico, similarities in climate and growing seasons result in increased imports from Mexico during the same winter season market window as fruit and vegetable production in Florida and other Southeast states, with imports peaking during the December-March period (Figure 3). Concurrent with the increased Mexican imports, production of some fresh fruits and vegetables in Florida has declined. Between 2010 and 2018, production value of tomatoes, strawberries and bell peppers decreased by 58%, 22%, and 27%, respectively (Figure 4). In addition, in 2018 the volume of vegetables in Florida that were not sold, presumably due to poor market conditions, nearly doubled from the previous year to over 90 million pounds, representing 2.7% of all vegetables produced (USDA-NASS).

These trends are not expected to change unless something in the trade relationship changes. Similar to NAFTA, the current version of the proposed United States-Mexico-Canada Agreement (USMCA) does not provide protections for U.S. growers, particularly those that produce for the winter season market, from seasonal losses. .

Mexico appears to be continuing to invest in infrastructure related to fruit and vegetable production. The production area of protected agriculture increased from 790 hectares in 2000 to 40,862 hectares in 2016, much of which is used to produce fruits and vegetables (Wu et al, 2018).

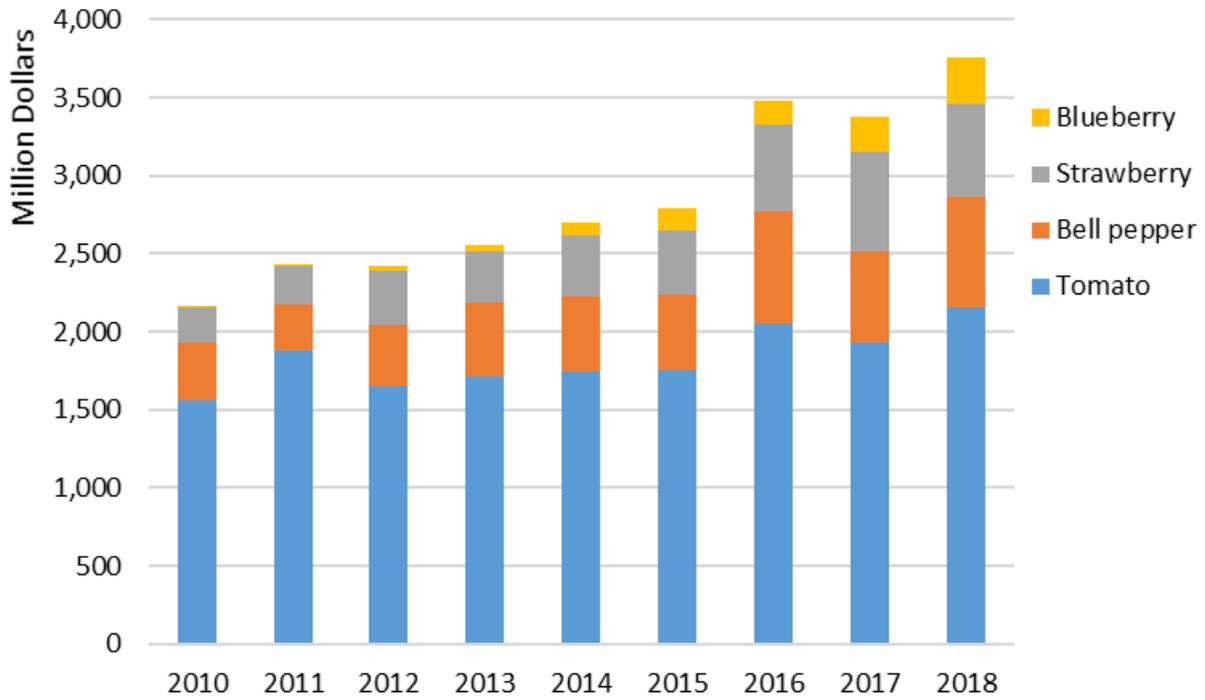
The continuation of these trends will likely result in continued losses for the fruit and vegetable industry (and overall economy) in Florida. This report focuses on increased imports from Mexico in three selected fruit and vegetable commodities, namely tomatoes, strawberries, and bell peppers to evaluate the potential economic impacts that might result for Florida growers and the economy from continued increases in Mexican fresh produce imports to the U.S.

Figure 1. Trend in import quantity of selected fruits and vegetables from Mexico to the United States, 1992-2018



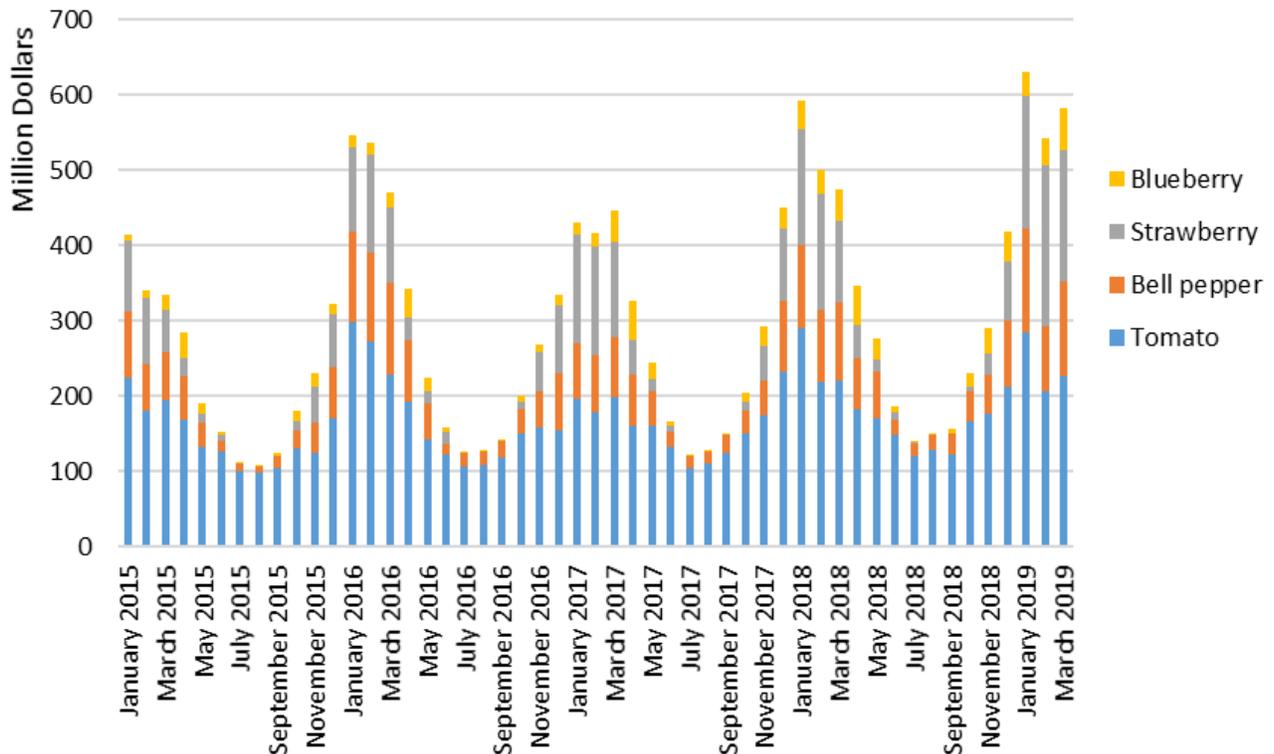
Source: U.S. Department of Commerce, Census Bureau, USA Trade Online database.

Figure 2. Trend in import value of selected fruits and vegetables from Mexico to the United States, 2010-2018



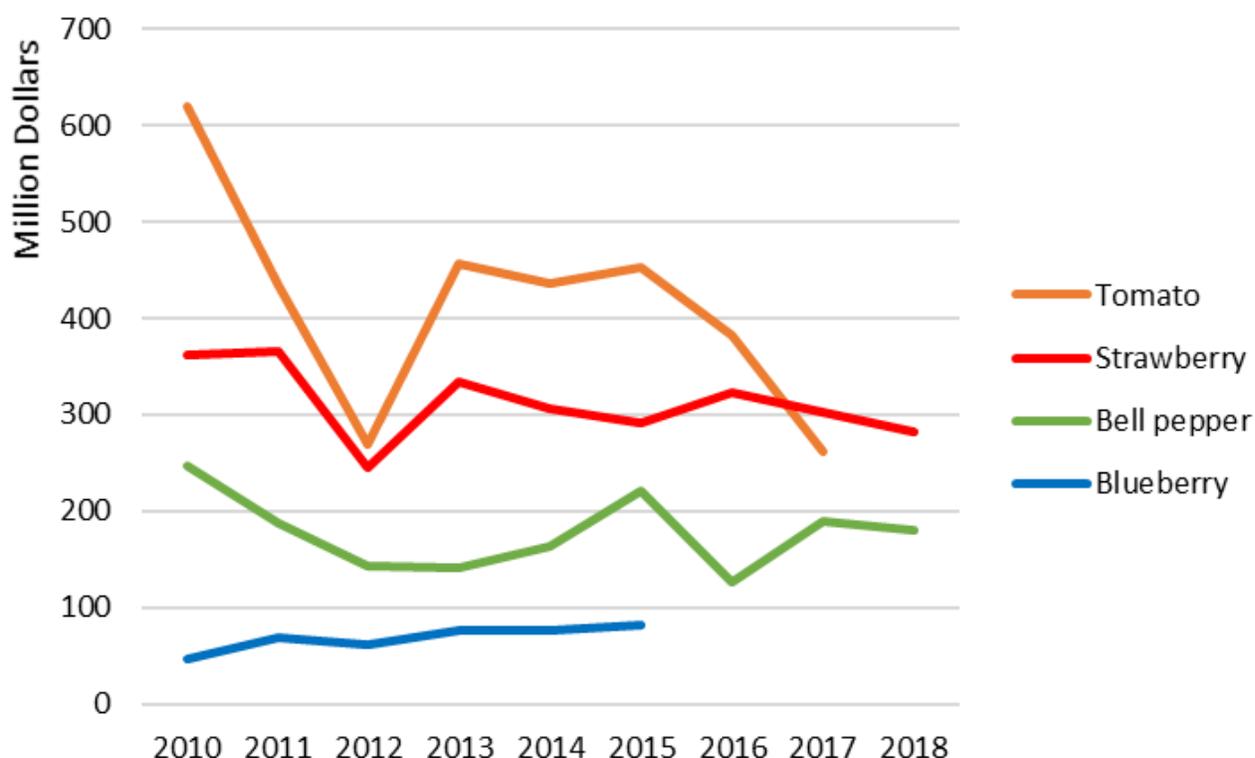
Source: U.S. Department of Commerce, Census Bureau, USA Trade Online database.

Figure 3. Monthly import value of selected fruits and vegetables from Mexico to the United States, 2015-2019



Source: U.S. Department of Commerce, Census Bureau, USA Trade Online database.

Figure 4. Trend in production value of selected fruits and vegetables in Florida, 2010-2018



Source: U.S. Department of Agriculture, National Agricultural Statistics Service (USDA-NASS), Quickstats database.

Methods

Economic impacts to tomato, strawberry, and bell pepper growers and the resulting impacts to the broader economy of potential increases in Mexican fruit and vegetable imports to the U.S. over the next five years were assessed for three scenarios representing hypothetical increases of 25%, 50%, and 75%. These levels are consistent with the growth in imports observed between 2010 and 2018 (see Figures 1-2). Weekly data on imports and domestic shipments of tomatoes and bell peppers during the 2013/14 through 2017/18 seasons were used to estimate the response in prices received by Florida producers. The price response for strawberries was estimated using similar data for 2010-14 from Suh et al (2017). Comparable information was not available for blueberries, so this commodity was not analyzed. The price changes were used to simulate the change in aggregate supply value from the baseline of average values during the last five years that would be due to decreased prices and unharvested crops attributable to Mexican import competition. The methodology is similar to that published by Suh et al (2017). The threshold prices at which growers stop harvesting were assumed to be \$1.03 per pound for strawberries and \$0.159 per pound for tomatoes in five years. The amount of unharvested bell peppers was not analyzed due to the lack of reliable harvest and postharvest cost data.

To estimate the broader impacts of these grower losses to the Florida economy, a regional economic model was developed with the IMPLAN[®] economic impact analysis and social accounting system (Implan Group, LLC) that accounts for direct, indirect, and induced multiplier effects of industry supply chain spending and employee

household spending. Data from IMPLAN[®] represent the economic structure of the Florida economy in 2017. The model was constructed with social accounts for households internalized and employs the gravity-model based Tradeflows specification of interregional trade. Changes in grower revenues were entered into the model sectors for fruit farming (strawberries) and vegetable farming (tomatoes, bell peppers).

Results

The estimated changes in select Florida grower revenues due to Mexican import competition are summarized in Table 1. Under the 25% import growth scenario, total losses by Florida growers for the three selected crops would be \$88 million, including \$52 million for tomatoes, \$23 million for strawberries, and \$13 million for bell peppers, which represent 15%, 7%, and 8%, respectively, of the average production values over the last five years. These losses are attributable entirely to depressed prices. Under the 50% import growth scenario, losses by Florida growers would total \$266 million, with \$104 million for tomatoes, \$137 million for strawberries, and \$25 million for bell peppers, or 29%, 40%, and 15%, of baseline production values. Under this scenario, losses are attributable to both depressed prices and abandonment of unharvested crops due to low market prices. For example, it was projected that strawberries would be abandoned during the last five weeks of the season. Under the 75% import growth scenario, losses by Florida growers would reach \$389 million, including \$171 million for tomatoes, \$180 million for strawberries, and \$38 million for bell peppers, or 48%, 53%, and 22%, of baseline values. Again, these losses reflect both depressed prices and abandonment of unharvested crops due to low market prices. Strawberries would be abandoned during the last six weeks of the season in this scenario.

Table 1. Summary of change in value of Florida grower shipments of selected fruits and vegetables due to Mexican import competition

Import competition scenario (percent import growth)	Commodity	Losses due to depressed prices (million \$)	Losses of unharvested crops (million \$)	Total losses (million \$)	Average production value last 5 years (million \$)	Percentage of losses
25%	Tomato	51.99	0.00	51.99	356.7	14.6%
	Strawberry	23.09	0.00	23.09	340.0	6.8%
	Bell Pepper	12.76	0.00	12.76	170.7	7.5%
	Total	<u>87.84</u>	<u>0.00</u>	<u>87.84</u>		
50%	Tomato	103.97	0.00	103.97	356.7	29.2%
	Strawberry	46.18	90.53	136.71	340.0	40.2%
	Bell Pepper	25.52	0.00	25.52	170.7	15.0%
	Total	<u>175.67</u>	<u>90.53</u>	<u>266.20</u>		
75%	Tomato	155.96	15.15	171.11	356.7	48.0%
	Strawberry	69.28	110.52	179.80	340.0	52.9%
	Bell Pepper	38.27	0.00	38.27	170.7	22.4%
	Total	<u>263.51</u>	<u>125.67</u>	<u>389.18</u>		

The broad statewide economic impact results are summarized in Table 2 and charted for impact measures for employment (Figures 5) and output (Figure 6). Although economic impact results are presented as positive values, they should be interpreted as losses. Under the 25% import growth scenario, estimated economic impacts for the loss in production of the three crops were estimated at 1,556 fulltime and part-time jobs, \$59 million in labor income (employee compensation, benefits and proprietor income), \$105 million in value added contribution to Gross Regional Product, and \$170 million in industry output or business revenues. Under the 50% import growth scenario, economic impacts were 5,566 jobs, \$187 million in labor income, \$323 million in value added, and \$522 million in industry output. Under the 75% import growth scenario, economic impacts were 7,882 jobs, \$271 million in labor income, \$471 million in value added, and \$761 million in industry output.

Employment and value added impacts are summarized by major industry groups in Table 3. Approximately 70% of the total impacts were in the agricultural sector, however, significant impacts also occurred in retail trade, health/social services, and accommodation/food services, and about 40 percent of the total impacts were due to indirect and induced multiplier effects in other sectors of the Florida economy.

State-local and federal government tax impacts are summarized in Table 4. Total state-local tax impacts were estimated at \$2.9 million for the 25% scenario, \$7.6 million for the 50% scenario, and \$11.5 million for the 75% scenario. These impacts include large values for sales taxes and property taxes. Total federal tax impacts were \$12.8 million, \$40.1 million, and \$58.2 million, respectively, under the three scenarios, and included large values for employee and employer social insurance (Social Security payroll taxes) and personal and corporate income taxes.

Table 2. Summary of economic impacts (losses) in Florida due to increased Mexican imports to the U.S.

Import competition growth scenario	Commodity	Employment (Jobs)	Labor income (M\$)	Value added (M\$)	Output (M\$)
25%	Strawberry	626	17.4	28.6	46.4
	Tomato	746	33.6	61.7	99.2
	Bell Pepper	183	8.2	15.1	24.4
	Total	<u>1,556</u>	<u>59.3</u>	<u>105.5</u>	<u>169.9</u>
50%	Strawberry	3,708	103.0	169.5	274.5
	Tomato	1,492	67.2	123.4	198.4
	Bell Pepper	366	16.5	30.3	48.7
	Total	<u>5,566</u>	<u>186.7</u>	<u>323.2</u>	<u>521.7</u>
75%	Strawberry	4,877	135.5	222.9	361.1
	Tomato	2,456	110.6	203.1	326.6
	Bell Pepper	549	24.7	45.4	73.0
	Total	<u>7,882</u>	<u>270.8</u>	<u>471.4</u>	<u>760.6</u>

Values in 2019 dollars. Employment represents fulltime and part-time jobs. Note that labor income, value added, and output are independent measures, not to be added together.

Source: IMPLAN® TradeFlows model for the State of Florida, 2017 (Implan Group, LLC).

Figure 5. Employment impacts in Florida due to increased Mexican fruit and vegetable imports to the U.S.

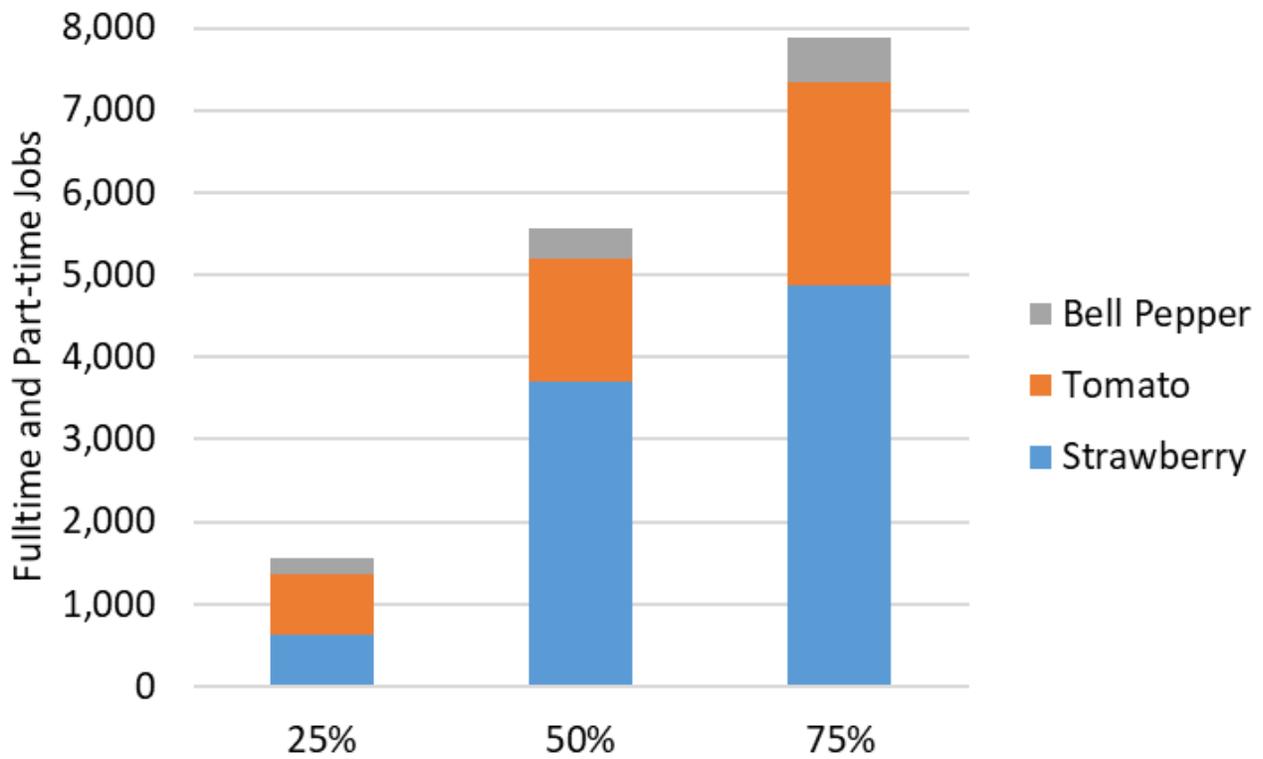


Figure 6. Output impacts in Florida due to increased Mexican fruit and vegetable imports to the U.S.

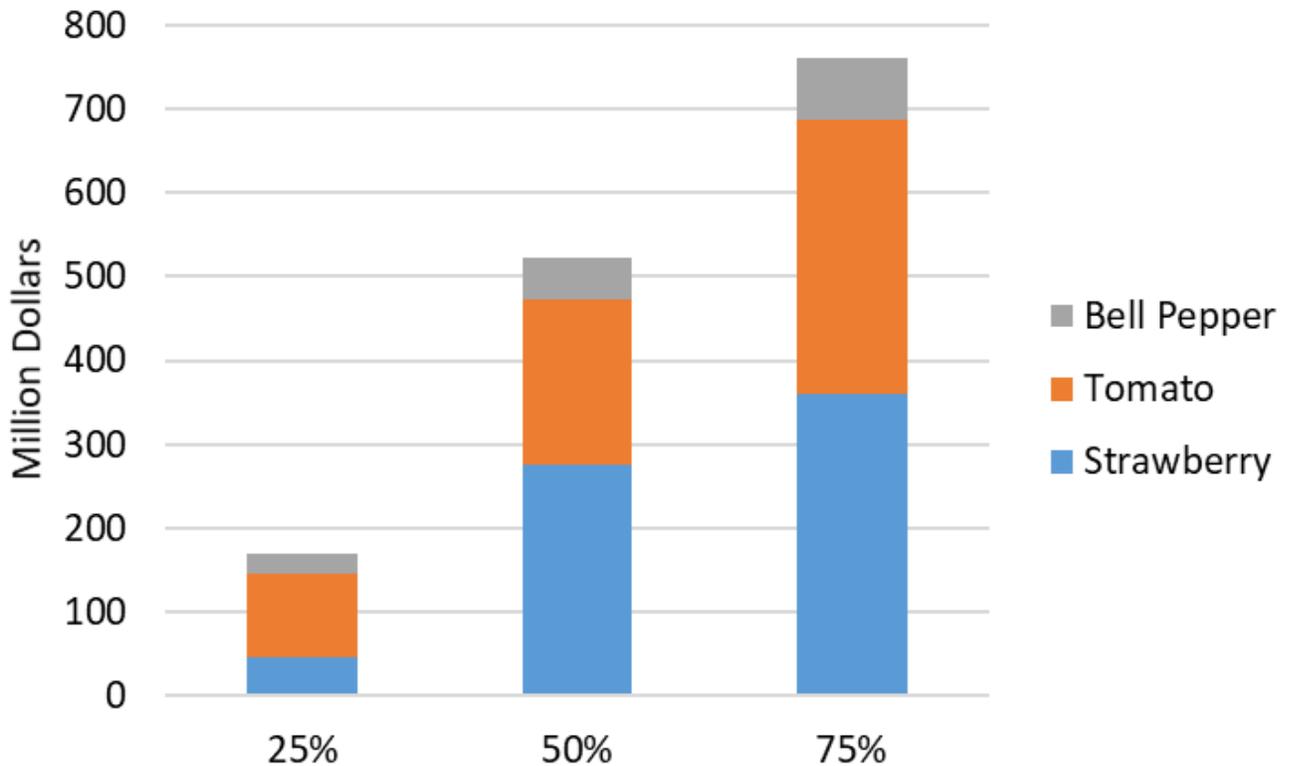


Table 3. Employment and value added impacts in Florida by major industry group due to increased Mexican fruit and vegetable imports

NAICS Industry	Employment (Jobs)			Value added (Million \$)		
	25%	50%	75%	25%	50%	75%
11 Agriculture, Forestry, Fishing & Hunting	1,092	4,134	5,796	65.2	198.8	290.3
21 Mining	1	4	6	0.1	0.3	0.5
22 Utilities	3	8	12	1.2	3.8	5.5
23 Construction	13	39	57	1.0	3.0	4.4
31-33 Manufacturing	10	31	45	1.4	4.1	6.1
42 Wholesale Trade	23	68	100	3.6	10.6	15.6
44-45 Retail trade	60	186	271	3.3	10.3	15.0
48-49 Transportation & Warehousing	22	68	100	1.5	4.4	6.5
51 Information	6	20	29	1.4	4.4	6.4
52 Finance & insurance	38	125	180	3.8	12.7	18.3
53 Real estate & rental	39	115	168	8.8	26.9	39.2
54 Professional, scientific & tech services	30	92	133	2.6	7.9	11.5
55 Management of companies	5	16	23	0.7	2.0	3.0
56 Administrative & waste services	38	114	167	1.6	4.8	7.0
61 Educational services	11	33	48	0.4	1.3	1.9
62 Health & social services	66	208	302	4.4	13.6	19.8
71 Arts, entertainment & recreation	11	35	51	0.6	1.7	2.5
72 Accommodation & food services	52	162	236	2.0	6.4	9.2
81 Other services	32	99	143	1.4	4.5	6.5
92 Government	3	9	14	0.5	1.6	2.3
93 Non NAICs	0	0	0	0.0	0.0	0.0
Total	<u>1,556</u>	<u>5,566</u>	<u>7,881</u>	<u>105.5</u>	<u>323.2</u>	<u>471.4</u>

Values in 2019 dollars. Estimates include regional multiplier effects.

Source: IMPLAN® Tradeflows model for the State of Florida, 2017 (Implan Group, LLC).

Table 4. State-local and federal tax impacts in Florida due to increased Mexican imports of fruits and vegetables

Tax Item	25%	50%	75%
	- - - - Thousand Dollars - - - -		
<u>State-Local Taxes</u>			
Dividends	43	129	190
Social Ins Tax- Employee Contribution	0	0	0
Social Ins Tax- Employer Contribution	0	0	0
TOPI: Sales Tax	1,131	2,807	4,290
TOPI: Property Tax	758	1,880	2,874
TOPI: Motor Vehicle Lic	16	39	60
TOPI: Severance Tax	1	2	4
TOPI: Other Taxes	143	354	541
TOPI: S/L NonTaxes	80	198	303
Corporate Profits Tax	267	794	1,165
Personal Tax: Income Tax	0	0	0
Personal Tax: NonTaxes (Fines- Fees)	377	1,186	1,721
Personal Tax: Motor Vehicle License	50	157	227
Personal Tax: Property Taxes	24	75	109
Personal Tax: Other Tax (Fish/Hunt)	3	8	12
Total State and Local Tax	<u>2,892</u>	<u>7,629</u>	<u>11,495</u>
<u>Federal Taxes</u>			
Social Ins Tax- Employee Contribution	3,368	10,698	15,492
Social Ins Tax- Employer Contribution	2,586	8,372	12,079
TOPI: Excise Taxes	156	386	591
TOPI: Custom Duty	65	160	245
TOPI: Fed Non-Taxes	10	25	38
Corporate Profits Tax	1,565	4,659	6,837
Personal Tax: Income Tax	5,015	15,772	22,885
Total Federal Tax	<u>12,764</u>	<u>40,073</u>	<u>58,168</u>

Values in 2019 dollars. Estimates include regional multiplier effects.

Source: IMPLAN[®] Tradeflows model for the State of Florida, 2017 (Implan Group, LLC).

Conclusions

Florida's fruit and vegetable growers continue to face a number of challenges to remain competitive in a changing global market. Lower costs of production and government support (Wu et al, 2018) in Mexico have made Mexican fruit and vegetables more competitive in the global market. The resulting increases in U.S. imports from Mexico coupled with domestic changes such as labor shortages and the phase-out of methyl bromide have significantly affected U.S. growers. The results of this analysis suggest that further increases in U.S. imports of fresh fruits and vegetables from Mexico will negatively impact tomato, strawberry, and bell pepper growers, which will result in broader economic impacts across the state.

This study only investigated the potential economic impacts of Mexican imports on three crops in Florida. Many other crops grown in the state such as blueberries and cucumbers face similar challenges; accounting for changes for other fruit and vegetable crops would likely increase the negative economic impacts to the fruit and vegetable production sector. It is plausible that the proposed USMCA will result in positive impacts for other farm and

nonfarm sectors both within and outside of production agriculture in the Florida economy. However, positive results in other sectors don't change the potential impacts of the continuation of trends on the tomato, strawberry, and bell pepper (fresh fruit and vegetable) industry in Florida. Also, this study did not assess impacts of Mexican imports that might compete with other domestic industry sectors in the Florida economy or consumer welfare effects in the U.S. due to lower prices for fruit and vegetable commodities.

Literature and Information Sources

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