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How Would Ending NAFTA Impact the North Carolina Economy?

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Abstract: If efforts to rewrite the North American Free Trade Agreement (NAFTA) fail, there is a possibility the trade pact will be ended. If NAFTA is terminated, what would be the likely impacts on economic production and employment in North Carolina?

This report attempts to answer those questions by applying the methodology of a new economic model that addressed the same questions for the national economy. Importantly the model takes account of supply chain effects that could be altered by the end of NAFTA. These effects are important because sources of input supplies established during NAFTA will be disrupted by the trade pact's discontinuance. After NAFTA new supply chains would be established that could affect countries and individual states through several channels.

The empirical analysis shows an end of NAFTA and a return to higher tariffs between the U.S., Mexico, and Canada will affect North Carolina in measureable, but relatively minor, ways. State economic sectors gaining include electronc equipment, chemicals/rubber/plastics, machinery, and other manufacturing sectors. The major state economic sectors losing production would be services, both meat and non-meat food products, livestock, and motor vehicle parts. The net impact on aggregate economic impact is a permanent annual reduction of state GDP of 0.1%, or $457 million (2017$). Almost 5600 total jobs in the state would also be permanently lost.

These are short-run impacts – that is, impacts resulting from the existing configuation of production facilities around the world remaining unchanged. A long-run analysis, which allows for the relocation of production facilities, is not addressed in this paper.

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Background on International Trade

The North Amercian Free Trade Agreement (NAFTA) became effective in 1994. It significantly reduced tariffs and other trade barriers between the United States, Mexico, and Canada. One reason for agreements promoting trade between countries is to benefit from the "comparative advantages" of countries. Countries typically have different endowments of both physical and human resources. Allowing countries to have unimpeded trade lets each specialize in using their most productive resources. Doing so results in each country making their products in the least costly way among all countries.[2]

For example, consider country A and country B. There are two products, lemons and computer chips. Each country can make both lemons and computer chips. But if A can make lemons cheaper than B, and B can make computer chips cheaper than A, then both countries can benefit by specializing (A in lemons and B in computer chips) and then trading. That is, the standard of living can be higher in both A and B if each concentrates on what it does best and then trades.

There is a downside to trade agreements. It is the loss of jobs for workers who – before the trade deal – worked making products that – after the trade deal – are now made in other countries. Continuing with the example of countries A and B, workers in A making computer chips and workers in B producing lemons both lose from the open trade between the countries. Conceptually, the losing workers could find jobs making the products whose output has now expanded after trade (lemons in A and computer chips in B), or they could receive financial support from the workers who have gained. But there is no assurance the number of jobs gained from trade in a country will at least equal the number of jobs lost from trade. Also, educational and training requirements may not be the same for the different jobs. Lastly, compensation from gainers to losers is not always politically feasible.[3]

Regarding NAFTA, most of the discussion has focused on the relative merits of expanded trade between the U.S. and Mexico. The comparative advantage of the U.S. is in capital equipment (machinery, technology) and high-skilled, yet more costly, labor. The comparative advantage of NAFTA partner Mexico (as well as Asian countries that have also entered into other trade agreements with the U.S.) has traditionally been a large supply of relatively low-skilled and low-cost labor. Hence, it would be expected NAFTA would benefit high capital-intensive and low labor-intensive industries in the U.S., but the treaty would disadvantage relatively low capital-intensive and relatively high labor-intnesive industries. Thus, production and jobs in the U.S. would rise in the high capital-intensive/low labor intensive industries but fall in the low capital-intensive/high labor-intensive industries.

[2] "Product" refers to any output of a business, so it includes both physical products as well as services.

[3] The main public program for assisting workers displaced by international trade is the Trade Adjustment Assistance Program. For an analysis of its inadequacies, see Howard Rosen, *Strengthening Trade Adjustment Assistance*, Washington DC: Peterson Institute for International Economics, January 2008.

Table 1. North Carolina Economic Sectors Classified by Labor and Capital Intensity in 1990 and 2015.

Sector	1990 Labor Intensity[a]	1990 Capital Intensity[b]	2015 Labor Intensity[a]	2015 Capital Intensity[b]
Crops	7.4	4.2	7.8	5.6
Livestock	5.5	5.3	5.8	7.0
Extraction	12.3	1.2	4.9	2.8
Meat Products	18.9	1.2	23.6	1.1
Other Food Products	12.2	2.1	15.8	1.2
Textiles	21.6	1.1	15.4	1.5
Apparel	31.8	1.0	24.3	1.3
Chemicals/Rubber/Plastics	6.7	2.1	2.7	4.4
Metals	12.2	1.4	5.4	3.2
Electronic Equipment	15.2	1.0	3.6	2.7
Machinery	13.8	1.0	6.9	2.1
Motor Vehicle Parts	13.0	1.1	6.9	2.2
Other Manufacturing	9.4	2.0	5.5	3.9
Services	15.6	1.5	11.1	1.7

[a] Workers per $2017 million of output; [b] Output per worker/compensation per worker

Table 1 gives measures of both labor intensity and capital intensity for North Carolina industries in 1990 - prior to both the NAFTA deal and the later World Trade Organization trade treaty - as well as in 2015[4]. In 1990 North Carolina had very high labor intensity and relatively low capital intensity in apparel, so this sector would be expected to be vulnerble to contraction as a result of NAFTA. Other sectors with similar characteristics in 1990 included textiles, meat products, food products, extraction, electronic equipment, machinery, and services.

In contrast, economic sectors in 1990 with relatively low labor intensity and high capital intensity included livestock, chemicals/rubber/plastics, and other manufacturing. These sectors might be expected to gain production as a result of trade treaties.

Of course, many other factors impact the decision of where a firm locates its operations when sites in alternative countries are available. For example, labor regulations are more stringent in the U.S. than in Mexico, and such regulations add to labor costs. Also, some industries require more compact supply chains, meaning they are less likely to have operations spread over several countries. A good example is the meat industry. Because the quality and quality of fresh meat is usually adversely affected by the length of transport, it is preferable to locate meat processing plants close to farms raising the animals. Finally, ultimately what is

[4] 2015 is the last year of available data at the time of this report.

important is the comparison of a sector's labor and capital intensities between countries. So while the North Carolina service sector has high labor intensity and low capital intensity compared to many other state economic sectors, it's labor intensity may be relatively low and its capital intensity may be relatively high compared to levels in other countries. Indeed, the U.S. perrennially has a trade surplus in the international trade of services, which suggests a relatively high rate of productivity and competitiveness.

Short-Run Economic Impacts of a NAFTA Reversal on North Carolina's Economy

Walmsley and Minor of ImpactECON recently released a study of the national economic consequences of terminating NAFTA.[5] Importantly, their study only calibrates the short-run impacts of NAFTA's end. Walmsley and Minor (hereafter referred to as WM) assumes that following the termination of NAFTA, the three countries increase tariffs to those allowed under the World Trade Organization. In the face of now higher costs of trade, changes will occur in each of the countries to both the production and sales of final products to consumers as well as the production and sales of inputs used in that final production.

An example illustrates these impacts. Since NAFTA, auto production has become integrated between the three partner countries. Using its captital intensive production, the U.S. has focused on producing vehicle parts, while Mexico has specialized in utilizing its relatively low-cost labor to assemble those parts into finished vehicles. In the case of North Carolina - which has a significant vehicle parts industry but no auto assembly factories – higher tariffs would reduce exports of vehicle parts to Mexico without a guarantee that vehicle assembly plants in Mexico would relocate to the U.S. Furthermore, since the reinstitution of tariffs after NAFTA's termination would eliminate the low-cost production system created by NAFTA, the trade treaty's end would increase the final price of vehicles and so reduce vehicle sales to consumers in the U.S.

WM estimate the impacts of NAFTA's termination and the return to pre-NAFTA tariffs for key economic sectors in the U.S. economy. Importantly, WM's estimates are *short-run impacts*. This means the impacts capture the shifts in production and employment at *existing* factories and production facilties. There is no accounting for the long-run impacts on production and employment from shifts in capital investments in factories and similar facilities among the countries.

WM's results are applied to the same economic sectors in North Carolina and the results are presented in Table 2. While the impacts on individual sectors will be similar for North Carolina and the nation, the aggregate effects will be different because the relative importance of each sector varies between North Carolina and the nation.

[5] Walmsley, Terrie and Peter Minor. *Reversing NAFTA: A Supply Chain Approach*, Boulder, CO: ImpactECON, Working Paper 007, revision 2, October 2017.

Table 2. Estimated Short-Run Impacts on North Carolina Economic Sectors of NAFTA's Termination (losses in italics)

Sector	Annual Change in GDP[a]	Change in Jobs[b]
Crops	$0.7 million	13.2
Livestock	*-$46.8 million*	*-501.2*
Extraction	$0.9 million	13.9
Meat Products	*-$32.2 million*	*-507.3*
Other Food Products	*-$259.1 million*	*-383.8*
Textiles	*-$16.0 million*	*-254.1*
Apparel and Leather	$1.8 million	55.3
Chemicals/Rubber/Plastics	$66.2 million	185.7
Metals	$14.9 million	160.2
Electronic Equipment	$155.3 million	569.3
Machinery	$28.7 million	205.5
Motor Vehicles Parts	*-$46.5 million*	*-321.3*
Other Manufacturing	$33.2 million	340.6
Services	*-$358.2 million*	*-5131.7*
Total	***-$457.1 million***	***-5555.7***

[a] 2017 dollars; [b] permanent job losses

There are several notable results from the analysis. First, the impacts are relatively small. The annual loss in Gross Domestic Product (GDP) of $457 million is only 0.1% of the state's aggregate GDP, and the permanent loss of 5556 jobs is 0.13% of total state non-farm employment in 2017. However, the relative size of North Carolina's losses are slightly higher than the estimated national losses calculated by WM of 0.07% of aggregate national GDP and 0.08% of total national non-farm employment.

Second, there are sectors losing from NAFTA's termination as well as gaining from the treaty's end. The sectors with the largest losses are services, other (non-meat) food products, livestock, motor vehicle parts, and meat products. Services output falls mainly due to a reduction of U.S. services sales to both Mexico and Canada as a result of higher tariffs imposed by those countries. Non-meat manufactured food also experiences lower sales to the NAFTA partners for the same reason. The livestock losses are primarily from reduced direct sales of these products to Mexico and Canada, with a secondary reason being reduced sales to domestic meat processing plants, which also experience less buying of processed meat products from the two countries. The losses in output in vehicle parts are from lower sales to the vehicle assembly plants mainly located in Mexico.

While not a big loser, it may seem curious that North Carolina's textile industry would actually contract as a result of the demise of NAFTA. The reason is due to a supply chain that has been developed with North Carolina textile output being shipped to Mexico as inputs into the

manufacturing of apparel products.[6] Higher Mexican tariffs would make this supply chain less lucrative.

In contrast, electronic equipment, chemicals/rubber/plastics, machinery, and other manufacturing would be the four biggest winners from NAFTA's termination. The main reason is the increased tariffs levied by all three NAFTA countries would hurt the competitiveness of Mexican and Canadian producers in the four sectors more than U.S. producers are hurt. The result is a rise in both domestic and international sales of the four North Carolina sectors, with electronic equipment, chemicals/rubber/plastics, and machinery gaining from increased direct sales to final business and consumer buyers, while other manufactured products improve due to greater sales as inputs into other final products. North Carolina apparel and leather output would gain, but the improvement would be very minor.

Conclusion

Terminating the NAFTA would impose short-run economic losses on North Carolina, both in terms of aggregate production and aggregate employment. However, the losses would be relatively minor, with total annual GDP falling only 0.1% and 5556 jobs being permanently eliminated. There would be a mix of economic sectors gaining and losing from the dismantling of NAFTA.

Short-run changes would create almost immediate impacts, but they don't account for the possibility of companies moving production facilities among the NAFTA as well as other countries. The change in such capital investments takes considerable time and would be the subject of a complementary long-run analysis.

[6] Indeed, in recent years (2010-2014) North Carolina textile exports to Mexico increased by over 50% (Economic Development Partnership of North Carolina, *2014 North Carolina International Trade Report*, June 2015).