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NORTH AMERICAN TRADE INTEGRATION AT RISK: EMPLOYMENT IMPACTS FROM TARIFF DISRUPTION IN THE UNITED STATES

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ABOUT THIS SERIES

This report is part of a three-part series analyzing the labor market consequences of proposed U.S. tariffs on North American trade. Each report focuses on one member of the USMCA region, the United States, Mexico, and Canada, and assesses how disruptions to deeply integrated cross-border supply chains could affect employment across key sectors.

The series applies a common analytical frame, trade-linked employment exposure modeling, to evaluate the number of jobs in manufacturing, agriculture, and mining that depend on North American trade flows. While each national report is tailored to the available data and sectoral structures of its economy, all share the objective of providing actionable insights for policymakers, business leaders, and labor market institutions navigating the risks of tariff escalation and regional fragmentation.

This first volume focuses on the United States, examining how its diverse industrial base and complex trade relationships within North America influence employment vulnerabilities to trade policy shifts. Subsequent volumes centered on Mexico and Canada will complete the trilateral view of North America's economic interdependence and shared exposure.

EXECUTIVE SUMMARY

The recent announcement of sweeping tariffs on Mexican and Canadian imports, 25% on most goods and 10% on Canadian energy resources, poses unprecedented challenges to North American economic integration. Our analysis of the fifteen most exposed states, including major manufacturing hubs, agricultural centers, and coastal economic powers, reveals that over 4.3 million jobs could face exposure to potential trade disruptions, with manufacturing bearing the largest potential impact. These states, from Texas and Michigan to California and Illinois, represent the highest levels of North American trade integration based on both absolute employment numbers and trade dependency shares.

Key Findings:

Employment Exposure:

- The manufacturing sector shows the highest vulnerability, with about 3.7 million jobs potentially exposed across the fifteen states.
- Agriculture and mining sectors face exposure of over 633,000 jobs.
- The total combined exposure across both sectors reaches approximately 4.3 million jobs.

Regional Variations:

- Texas shows the highest absolute exposure, with workforce exposure of over 805,000 across both sectors
- The Great Lakes manufacturing belt demonstrates particularly high vulnerability:
  - Michigan: Over 670,000 jobs exposed with both sectors showing >70% trade dependency
  - Ohio: More than 420,000 jobs exposed with 70.5% agricultural trade share
  - Indiana: Nearly 250,000 jobs exposed with high cross-sector integration
- Even states with lower trade dependency face significant impacts due to large workforces:
  - California: Over 400,000 jobs at risk despite lower trade shares
  - Pennsylvania and North Carolina: Each over 200,000 jobs at risk
- Agricultural heartland states show extremely high trade dependency:
  - Minnesota: 87.8% agricultural trade share
  - Illinois: 81.5% agricultural trade share
  - Iowa: Both sectors above 45% trade share

Scenario Analysis: Under moderate disruption scenarios (25% reduction in trade):

- Manufacturing: 920,479 jobs potentially affected.
- Agriculture/Mining: 158,251 jobs at risk.
- The combined impact could affect over 1.08 million jobs across analyzed states.

Economic Context:

These potential impacts emerge against a backdrop of deep regional integration, with North American trade representing:

- 30% of global GDP
- $1.8 trillion in annual intra-regional trade
- $3.5 million in cross-border commerce every minute

This analysis provides data-driven insights into the scope and scale of possible disruptions. The findings suggest that while all analyzed states face significant exposure, the impact varies considerably by region and sector, reflecting the complex nature of North American economic integration.

BACKGROUND

The Current Situation

The United States has announced unprecedented tariffs on approximately $900 billion in Mexican and Canadian imports, marking a significant departure from three decades of regional economic integration. While most imports face a 25% tariff, Canadian energy resources are subject to a lower 10% rate, a distinction that acknowledges North American interdependence even as it threatens broader economic ties.

North America as an Economic Powerhouse

The USMCA region has emerged as a remarkable economic force, representing 30% of global GDP and serving a market of 501 million consumers. The scale of integration is evident in the region's $1.8 trillion in annual intra-regional trade, translating to an astounding $3.5 million crossing our borders every minute. This level of economic integration positions North America as a leader in the global economy.

NAFTA's original vision, conceived three decades ago, went beyond simple regional integration; it aimed to reduce North America's dependence on external markets, particularly China, by creating a competitive trading bloc that could rival other global powers. The architects of NAFTA recognized that by combining U.S. innovation and capital, Canadian resources, and Mexican manufacturing capabilities, North America could decrease its reliance on distant supply chains while building a more resilient regional economy.

The success of this strategy is evident in the tremendous growth of intra-regional trade. Since NAFTA's inception in 1994, U.S.-Mexico trade has grown eightfold, from $100 billion to near $840 billion annually, while U.S.-Canada trade has more than tripled, from $242 billion to nearly $800 billion. This growth reflects the careful cultivation of complementary advantages: geographic proximity that reduces transportation costs and supply chain vulnerabilities, the development of specialized industrial clusters, and the strategic integration of production processes across borders.

The power of North American integration becomes even more apparent when compared to other major trading blocs. While the European Union serves 450 million consumers with 13.4% of global GDP and ASEAN reaches 693 million consumers with 7.2% of global GDP, North America has achieved greater economic impact with its market of 501 million consumers. The CPTPP, despite encompassing 523 million consumers, accounts for just 9.8% of global GDP, while Mercosur serves 300 million consumers with 2% of global GDP. These comparisons underscore how effectively North American integration has translated market size into economic power.

Bloc	Consumers (Millions)	Global GDP Share
North America (USMCA)	**501**	**30.0%**
European Union	450	13.4%
ASEAN	693	7.2%
CPTPP	523	9.8%
Mercosur	300	2.0%

Purpose and Methodology

This analysis provides a detailed assessment of how the proposed tariffs could affect employment across the fifteen states that are deeply integrated into North American trade networks and are most exposed. We examine states representing diverse geographic regions and economic profiles: traditional border powerhouses (Texas), manufacturing hubs (Michigan, Ohio, Indiana), agricultural centers (Iowa, Minnesota), and diversified economic powers (California, Illinois). These states span from the Southern border through the Great Lakes manufacturing belt to the coastal regions, sharing deep connections to cross-border commerce. By combining detailed trade flow data with current employment figures, we create a comprehensive picture of potential workforce impacts in both the immediate and longer term.

Our analytical approach operates on two levels. First, we calculate current employment linked to North American trade by examining the proportion of each state's global trade that involves Mexico and Canada. This allows us to estimate how many jobs in each sector depend on the established cross-border trading relationships that have developed over three decades of integration. The analysis considers both direct employment in trade-related activities and jobs in supporting industries that have grown around these trade corridors.

Second, we model potential job disruptions under various scenarios, recognizing that trade relationships don't simply disappear but rather adjust and evolve in response to policy changes. This scenario-based approach helps understand the range of possible outcomes, from mild disruptions that might be quickly absorbed to more severe impacts that could reshape regional economies.

The states in our analysis were chosen because they exemplify the deep integration of North American commerce. Each has developed substantial manufacturing capabilities that rely on cross-border supply chains, with factories and assembly plants that depend on components and materials flowing freely across borders. They all maintain significant agriculture or mining sectors that have grown to serve continental markets. These states consistently rank among the nation's leaders in both export and import volumes, reflecting their role as crucial nodes in North American trade networks. Perhaps most importantly, they have developed specialized workforces adapted to the unique demands of cross-border commerce, from logistics expertise to technical skills in integrated manufacturing processes.

ANALYSIS 1: EMPLOYMENT EXPOSURE TO NORTH AMERICAN TRADE

The Trade-Linked Employment Exposure Model

We base our approach on a method commonly used in global labor and trade research: the trade-linked employment exposure model. This model estimates how many jobs in a given sector rely on exports to a specific region or set of countries. Versions of this model have been used by the World Bank (2020), the National Bureau of Economic Research (NBER) (2025), and the Institute for Research on Public Policy (IRPP) (2023) to assess exposure to trade shocks, particularly in manufacturing and agriculture-heavy economies.

Methodology

Our first analysis employs a "trade-dependence" method to understand how deeply each state's workforce is integrated with North American commerce. This approach recognizes that jobs in the manufacturing and agriculture/mining sectors often depend on complex cross-border supply chains developed over decades of regional integration.

The analysis begins by examining the full scope of each state's trade with Mexico and Canada. We aggregate all northbound and southbound trade flows—combining exports to and imports from both countries—to capture the complete picture of cross-border commerce. This comprehensive measure of USMCA trade (Exports to Mexico + Imports from Mexico + Exports to Canada + Imports from Canada) recognizes that modern supply chains often involve components and materials crossing borders multiple times during production.

We then place this North American trade in context by calculating each state's total global trade volume (Global State Exports + Global State Imports). This step reveals how dependent each state's economy has become on regional integration versus broader global commerce.

By comparing North American trade to total global trade, we calculate a "North American trade share" for each sector within each state, expressed as:

NA Trade Share = (Trade with Mexico + Canada) / (Total Global Trade)

This percentage tells us how much of a sector's total international trade involves Mexico and Canada. For example, a manufacturing sector conducting 40% of its international trade with North American partners suggests significant dependence on regional integration.

Finally, we estimate potential jobs at risk by applying this trade share to current employment figures in each sector:

Jobs at Risk = Sector Employment × NA Trade Share

This calculation provides a reasonable approximation of workforce exposure to changes in North American trade patterns. For instance, if 40% of a sector's trade is with Mexico and Canada, we consider 40% of that sector's jobs to be potentially exposed to disruption from tariffs or other trade barriers.

Throughout this analysis, we use both 'jobs at risk' and 'employment exposure' to indicate positions that depend significantly on North American trade flows. These terms measure potential vulnerability to trade disruptions rather than predicted job losses. In practice, changes in trade patterns could manifest as fewer new hires, shorter work hours, or partial restructuring rather than outright job losses. Our figures, therefore, represent an upper-bound measure of workforce exposure to changes in cross-border commerce.

It's important to note that these "at risk" numbers should be interpreted as measures of exposure rather than predictions of job losses. They indicate the number of workers who operate in sectors that depend significantly on North American trade, making them potentially vulnerable to significant disruptions in cross-border commerce. These figures help understand the scope of potential impact and identify which regions and sectors might need targeted support or transition assistance.

The analysis classifies states into three exposure categories based on quantifiable measures of trade vulnerability. High Exposure states meet at least one of these criteria: over 400,000 total jobs at risk, both manufacturing and agricultural/mining trade shares above 50%, or any sector with a trade share above 70%. Moderate Exposure states show either more than 200,000 total jobs at risk or trade shares above 40% in either the manufacturing or agricultural/mining sectors. Lower Exposure states fall below these thresholds in terms of both total jobs and trade shares. This classification captures both the absolute scale of potential impact through total jobs and the relative vulnerability through trade dependency percentages.

Data Sources

The data collected for this analysis originates from public government sources:

- This report's trade data is drawn from the U.S. Census Economic Indicators Division for 2024, capturing the most up-to-date cross-border flows.
- Employment figures come from the U.S. Census American Community Survey (ACS) 2023.
- These datasets allow us to pair recent trade patterns with current labor force characteristics, providing a snapshot of each state's existing integration with North American markets.

Citations

- World Bank (2020). Leveraging Trade for More and Better Jobs.
- NBER Working Paper No. 33481 (2025). Firm Trade Exposure, Labor Market Competition, and the Worker.
- Institute for Research on Public Policy (2023). Measuring Community Workforce Exposure to U.S. Exports.

STATE TRADE EXPOSURE ANALYSIS

HIGH EXPOSURE

Texas:

Item	Agriculture, Farm & Mining	Manufacturing
Sector Employment	339,671	1,292,264
Exports to Mexico	$39,885,872,325	$51,222,149,803
Imports from Mexico	$21,380,431,585	$105,176,029,836
Exports to Canada	$13,254,867,084	$11,258,961,995
Imports from Canada	$10,172,452,847	$20,368,536,711
Sum of MX+CA Trade	$84.69 B	$188.03 B
Global State Exports	$233,760,864,148	$121,061,602,448
Global State Imports	$62,319,261,737	$222,161,728,301
Sum of Global Trade	$296.08 B	$343.22 B
NA Trade Share	84.69 / 296.08 ≈ 28.6%	187.03 / 343.22 ≈ 54.8%
Jobs at Risk	339,671 × 28.6% ≈ 97,200	1,292,264 × 54.8% ≈ 708,000

Analysis

- Manufacturing represents the largest exposure, with 708,000 jobs at risk due to the state's deep integration with Mexican supply chains (54.8% NA trade share)
- Agriculture and Mining show significant vulnerability (97,200 jobs) despite a lower trade share (28.6%), reflecting the sector's large absolute size.
- Combined exposure of over 805,000 jobs demonstrates Texas's position as a crucial hub in North American trade networks.

STATE TRADE EXPOSURE ANALYSIS

HIGH EXPOSURE

Michigan:

Item	Agriculture, Farm & Mining	Manufacturing
Sector Employment	56,733	876,837
Exports to Mexico	580,034,461	10,978,737,204
Imports from Mexico	670,071,726	68,894,104,361
Exports to Canada	2,378,535,128	16,599,301,005
Imports from Canada	6,784,006,922	27,068,421,590
Sum of MX+CA Trade	$10.41 B	$123.54 B
Global State Exports	3,890,252,863	38,947,551,490
Global State Imports	10,083,358,933	133,124,977,289
Sum of Global Trade	$13.97 B	$172.07 B
NA Trade Share	10.41 / 13.97 ≈ 74.5%	123.54 / 172.07 ≈ 71.8%
Jobs at Risk	56,733 × 74.5% ≈ 42,275	876,837 × 71.8% ≈ 629,531

Analysis

- Manufacturing represents massive exposure (629,531 jobs at risk) with the state's deep integration into automotive supply chains (71.8% NA trade share)
- Agriculture and Mining show significant vulnerability (42,275 jobs) with very high trade share (74.5%)
- Combined exposure of nearly 672,000 jobs demonstrates Michigan's position as a crucial hub in North American automotive and manufacturing networks.

STATE TRADE EXPOSURE ANALYSIS

HIGH EXPOSURE

Ohio:

Item	Agriculture, Farm & Mining	Manufacturing
Sector Employment	55,465	836,154
Exports to Mexico	$258,099,034	$5,259,993,599
Imports from Mexico	$309,820,876	$7,359,132,221
Exports to Canada	$1,685,825,783	$9,850,996,290
Imports from Canada	$5,829,708,817	$4,926,960,478
Sum of MX+CA Trade	$8.08 B	$27.40 B
Global State Exports	$3,918,113,030	$27,782,124,690
Global State Imports	$7,539,899,883	$32,370,468,769
Sum of Global Trade	$11.46 B	$60.15 B
NA Trade Share	8.08 / 11.46 ≈ 70.5%	27.40 / 60.15 ≈ 45.5%
Jobs at Risk	55,465 × 70.5% ≈ 39,100	836,154 × 45.5% ≈ 381,000

Analysis

- The manufacturing sector faces significant exposure, with 381,000 jobs at risk (a 45.5% trade share), driven by automotive and machinery trade.
- Agricultural/Mining shows the highest proportional exposure among analyzed states (70.5% trade share), affecting 39,100 jobs.
- The combined exposure of over 420,000 jobs reflects the state's heavy reliance on North American trade relationships.

STATE TRADE EXPOSURE ANALYSIS

HIGH EXPOSURE

Missouri:

Item	Agriculture, Farm & Mining	Manufacturing
Sector Employment	52,619	340,125
Exports to Mexico	$980,947,242	$1,668,564,019
Imports from Mexico	$86,477,864	$3,639,214,023
Exports to Canada	$884,230,876	$3,945,399,157
Imports from Canada	$853,183,559	$1,342,971,893
Sum of MX+CA Trade	$2.8 B	$10.6 B
Global State Exports	$3,684,177,509	$7,804,180,195
Global State Imports	$1,637,248,968	$10,609,712,631
Sum of Global Trade	$5.32 B	$18.41 B
NA Trade Share	2.8 / 5.32 ≈ 52.7%	10.6 / 18.41 ≈ 57.5%
Jobs at Risk	52,619 × 52.7% ≈ 27,700	340,125 × 57.5% ≈ 195,700

Analysis

- Manufacturing exposure affects almost 196,000 jobs (57.5% trade share), a significant number due to its large trade dependency.
- The agricultural/Mining sector also shows exposure, with 27,700 jobs at risk, reflecting its 52.7% of trade share.
- The total exposure of 223,000 jobs demonstrates significant vulnerability even with more diversified global trade patterns.

STATE TRADE EXPOSURE ANALYSIS

MODERATE EXPOSURE

Indiana:

Item	Agriculture, Farm & Mining	Manufacturing
Sector Employment	40,221	599,898
Exports to Mexico	$317,746,154	$5,020,116,884
Imports from Mexico	$42,857,760	$3,610,424,951
Exports to Canada	$994,111,425	$8,457,546,988
Imports from Canada	$1,971,625,059	$2,291,427,307
Sum of MX+CA Trade	$3.33 B	$19.38 B
Global State Exports	$3,074,174,753	$22,517,355,509
Global State Imports	$2,937,501,356	$29,267,846,640
Sum of Global Trade	$6.01 B	$51.78 B
NA Trade Share	3.33 / 6.01 ≈ 55.3%	19.38 / 51.78 ≈ 37.4%
Jobs at Risk	40,221 × 55.3% ≈ 22,250	599,898 × 37.4% ≈ 224,500

Analysis

- Manufacturing shows substantial exposure (224,500 jobs at risk) with 37.4% NA trade share, driven by automotive and machinery supply chains.
- While smaller in absolute terms, agriculture and mining are highly vulnerable. 55.3% of trade is tied to North American partners, putting 22,250 jobs at risk.
- The state's total exposure of nearly 250,000 jobs reflects its deep integration into continental supply chains.

STATE TRADE EXPOSURE ANALYSIS

MODERATE EXPOSURE

North Carolina:

Item	Agriculture, Farm & Mining	Manufacturing
Sector Employment	50,505	614,073
Exports to Mexico	$527,624,979	$2,135,746,154
Imports from Mexico	$74,497,032	$8,965,821,727
Exports to Canada	$552,577,494	$3,712,592,585
Imports from Canada	$706,339,944	$1,147,289,000
Sum of MX+CA Trade	$1.86 B	$15.96 B
Global State Exports	$3,105,282,956	$11,661,198,308
Global State Imports	$2,034,042,883	$33,700,936,712
Sum of Global Trade	$5.14 B	$45.36 B
NA Trade Share	1.86 / 5.14 ≈ 36.2%	15.96 / 45.36 ≈ 35.2%
Jobs at Risk	50,505 × 36.2% ≈ 18,300	614,073 × 35.2% ≈ 216,000

Analysis

- Manufacturing employment exposure reaches 216,000 jobs (35.2% trade share) due to textile and electronics component trade.
- The agricultural sector shows moderate exposure, with 18,300 jobs at risk (36.2% trade share), affecting tobacco, livestock, and poultry industries.
- The total exposure of 234,400 jobs indicates significant vulnerability despite more diversified global trade patterns.

STATE TRADE EXPOSURE ANALYSIS

MODERATE EXPOSURE

Pennsylvania:

Item	Agriculture, Farm & Mining	Manufacturing
Sector Employment	78,726	728,522
Exports to Mexico	$396,734,562	$1,715,273,574
Imports from Mexico	$793,926,496	$3,945,845,567
Exports to Canada	$2,556,701,866	$5,542,200,906
Imports from Canada	$4,744,205,278	$2,006,928,950
Sum of MX+CA Trade	$8.49 B	$13.21 B
Global State Exports	$9,649,364,299	$15,006,773,492
Global State Imports	$16,686,278,547	$39,500,928,558
Sum of Global Trade	$26.34 B	$54.51 B
NA Trade Share	8.49 / 26.34 ≈ 32.2%	13.21 / 54.51 ≈ 24.2%
Jobs at Risk	78,726 × 32.2% ≈ 25,400	728,522 × 24.2% ≈ 176,500

Analysis

- Manufacturing exposure affects 176,500 jobs (a 24.2% trade share), which is significant in absolute terms despite lower trade dependency.
- The agricultural/Mining sector shows moderate exposure, with 25,400 jobs at risk (32.2% trade share)
- The total exposure of nearly 202,000 jobs demonstrates significant vulnerability even with more diversified global trade patterns.

STATE TRADE EXPOSURE ANALYSIS

MODERATE EXPOSURE

Wisconsin:

Item	Agriculture, Farm & Mining	Manufacturing
Sector Employment	59,945	555,120
Exports to Mexico	432,416,318	2,248,265,101
Imports from Mexico	168,925,497	3,897,956,818
Exports to Canada	866,944,248	3,285,392,988
Imports from Canada	1,516,308,253	1,280,731,260
Sum of MX+CA Trade	$2.98 B	$10.71 B
Global State Exports	2,924,679,052	13,655,379,022
Global State Imports	2,152,744,913	16,251,217,926
Sum of Global Trade	$5.08 B	$29.91 B
NA Trade Share	2.98 / 5.08 ≈ 58.8%	10.71 / 29.91 ≈ 35.8%
Jobs at Risk	59,945 × 58.8% ≈ 35,237	555,120 × 35.8% ≈ 198,840

Analysis

- Manufacturing exposure reaches 198,840 jobs with moderate trade share (35.8%)
- Agriculture/Mining shows high exposure with 35,237 jobs at risk (58.8% trade share)
- Total exposure of 234,077 jobs reflects balanced vulnerability across both sectors.

STATE TRADE EXPOSURE ANALYSIS

MODERATE EXPOSURE

Minnesota:

Item	Agriculture, Farm & Mining	Manufacturing
Sector Employment	64,627	411,437
Exports to Mexico	893,235,192	1,889,917,866
Imports from Mexico	209,003,664	1,398,582,063
Exports to Canada	3,605,874,251	1,997,537,180
Imports from Canada	10,938,320,408	1,289,335,766
Sum of MX+CA Trade	$15.65 B	$6.58 B
Global State Exports	5,828,779,140	10,060,910,333
Global State Imports	11,987,602,318	9,601,076,834
Sum of Global Trade	$17.82 B	$19.66 B
NA Trade Share	15.65 / 17.82 ≈ 87.8%	6.58 / 19.66 ≈ 33.4%
Jobs at Risk	64,627 × 87.8% ≈ 56,756	411,437 × 33.4% ≈ 137,593

Analysis

- Manufacturing represents significant exposure (137,593 jobs) with moderate trade share
- Agriculture/Mining shows extremely high trade dependency (87.8%) affecting 56,756 jobs
- Combined exposure of 194,349 jobs demonstrates Minnesota's crucial role in agricultural trade.

STATE TRADE EXPOSURE ANALYSIS

MODERATE EXPOSURE

Illinois:

Item	Agriculture, Farm & Mining	Manufacturing
Sector Employment	67,625	737,266
Exports to Mexico	2,715,016,288	4,680,638,864
Imports from Mexico	1,051,568,012	7,040,499,685
Exports to Canada	3,937,519,421	8,300,802,741
Imports from Canada	50,981,932,791	2,322,900,502
Sum of MX+CA Trade	$58.69 B	$22.34 B
Global State Exports	13,716,552,234	33,161,204,319
Global State Imports	58,325,331,070	80,098,268,798
Sum of Global Trade	$72.04 B	$113.26 B
NA Trade Share	58.69 / 72.04 ≈ 81.5%	22.34 / 113.26 ≈ 19.7%
Jobs at Risk	67,625 × 81.5% ≈ 55,088	737,266 × 19.7% ≈ 145,454

Analysis

- Manufacturing exposure affects 145,454 jobs despite lower trade share (19.7%)
- Agriculture/Mining shows very high trade dependency (81.5%) affecting 55,088 jobs
- Combined exposure of 200,542 jobs reflects Illinois's significant role in regional trade.

STATE TRADE EXPOSURE ANALYSIS

MODERATE EXPOSURE

Iowa:

Item	Agriculture, Farm & Mining	Manufacturing
Sector Employment	60,194	245,542
Exports to Mexico	$1,627,771,809	$383,641,626
Imports from Mexico	$30,520,023	$1,841,099,890
Exports to Canada	$1,287,036,222	$2,096,963,092
Imports from Canada	$1,184,837,779	$878,228,729
Sum of MX+CA Trade	$4.13 B	$5.20 B
Global State Exports	$6,088,785,352	$5,367,807,064
Global State Imports	$1,529,782,046	$6,069,390,903
Sum of Global Trade	$7.62 B	$11.44
NA Trade Share	4.13 / 7.62 ≈ 54.2%	5.20 / 11.44 ≈ 45.5%
Jobs at Risk	60,194 × 54.2% ≈ 33,000	245,542 × 45.5% ≈ 112,000

Analysis

- Manufacturing exposure reaches 112,000 jobs (45.5% trade share)
- Agricultural/Mining shows high exposure with 33,000 jobs at risk (54.2% trade share)
- The total exposure of 144,000 jobs reflects a moderate trade dependency but still represents significant workforce vulnerability

STATE TRADE EXPOSURE ANALYSIS

MODERATE EXPOSURE

California:

Item	Agriculture, Farm & Mining	Manufacturing
Sector Employment	379,601	1,684,528
Exports to Mexico	4,285,052,815	15,437,991,663
Imports from Mexico	10,801,968,370	35,821,261,037
Exports to Canada	4,494,994,781	8,255,115,825
Imports from Canada	7,298,536,336	2,589,741,509
Sum of MX+CA Trade	$26.88 B	$62.10 B
Global State Exports	32,821,538,668	81,311,738,636
Global State Imports	70,989,172,634	258,358,867,051
Sum of Global Trade	$103.81 B	$339.67 B
NA Trade Share	26.88 / 103.81 ≈ 25.9%	62.10 / 339.67 ≈ 18.3%
Jobs at Risk	379,601 × 25.9% ≈ 98,293	1,684,528 × 18.3% ≈ 307,993

Analysis

- Manufacturing shows massive absolute exposure (307,993 jobs at risk) despite lower trade share (18.3%)
- Agriculture/Mining represents significant absolute exposure (98,293 jobs) even with lower trade share (25.9%)
- Combined exposure of over 406,000 jobs highlights California's importance in North American trade despite more globally diversified trade patterns

STATE TRADE EXPOSURE ANALYSIS

MODERATE EXPOSURE

Oklahoma:

Item	Agriculture, Farm & Mining	Manufacturing
Sector Employment	66,101	169,014
Exports to Mexico	$121,286,705	$235,420,552
Imports from Mexico	$21,366,107	$680,455,315
Exports to Canada	$268,988,690	$1,031,048,365
Imports from Canada	$7,335,602,043	$922,280,721
Sum of MX+CA Trade	$7.75 B	$2.87 B
Global State Exports	$652,876,420	$5,066,095,289
Global State Imports	$7,622,924,781	$4,388,423,346
Sum of Global Trade	$8.28 B	$9.45 B
NA Trade Share	7.75 / 8.28 ≈ 93.6%	2.87 / 9.45 ≈ 30.3%
Jobs at Risk	66,101 × 93.6% ≈ 61,879	169,014 × 30.3% ≈ 51,291

Analysis

- Manufacturing shows moderate exposure (51,291 jobs) with 30.3% trade share
- Agriculture/Mining/Energy shows extremely high trade dependency (93.6%) affecting 61,879 jobs
- Combined exposure of 113,170 jobs demonstrates Oklahoma's crucial role in energy trade

STATE TRADE EXPOSURE ANALYSIS

LOWER EXPOSURE

Tennessee:

Item	Agriculture, Farm & Mining	Manufacturing
Sector Employment	31,831	426,971
Exports to Mexico	$158,780,111	$3,765,495,101
Imports from Mexico	$39,798,125	$12,545,291,472
Exports to Canada	$378,571,228	$5,017,729,732
Imports from Canada	$703,312,286	$1,107,623,885
Sum of MX+CA Trade	$1.28 B	$22.44 B
Global State Exports	$1,947,212,725	$16,614,682,664
Global State Imports	$1,274,031,260	$60,894,152,214
Sum of Global Trade	$3.22 B	$77.51 B
NA Trade Share	1.28 / 3.22 ≈ 39.8%	22.44 / 77.51 ≈ 28.9%
Jobs at Risk	31,831 × 39.8% ≈ 12,653	426,971 × 28.9% ≈ 123,593

Analysis

- Manufacturing shows significant absolute exposure (123,593 jobs at risk) despite moderate trade share (28.9%)
- Agriculture/Mining demonstrates moderate exposure (12,653 jobs) with 39.8% trade share.
- Combined exposure of 136,246 jobs reflects significant workforce vulnerability despite lower trade dependency.

STATE TRADE EXPOSURE ANALYSIS

LOWER EXPOSURE

Kentucky:

Item	Agriculture, Farm & Mining	Manufacturing
Sector Employment	35,895	293,122
Exports to Mexico	$88,088,669	$2,542,755,464
Imports from Mexico	$54,418,302	$6,818,928,502
Exports to Canada	$314,993,540	$6,496,678,224
Imports from Canada	$356,302,867	$1,984,260,633
Sum of MX+CA Trade	$0.81 B	$17.84 B
Global State Exports	$2,393,529,055	$32,919,267,011
Global State Imports	$1,152,934,963	$37,411,715,026
Sum of Global Trade	$3.55 B	$70.33 B
NA Trade Share	0.81 / 3.55 ≈ 22.9%	17.84 / 70.33 ≈ 25.4%
Jobs at Risk	35,895 × 22.9% ≈ 8,237	293,122 × 25.4% ≈ 74,364

Analysis

- Manufacturing exposure affects 74,364 jobs with moderate trade share (25.4%)
- Agriculture/Mining shows limited exposure (8,237 jobs) with 22.9% trade share.
- The combined exposure of 82,600 jobs indicates moderate vulnerability to trade disruptions.

ANALYSIS 2: SCENARIO-BASED IMPACT ASSESSMENT

After examining the baseline exposure of jobs to North American trade, we now turn to understanding how different levels of trade disruption might affect employment across states. While our first analysis identified the total number of jobs connected to cross-border trade, this second analysis recognizes that trade adjustments happen gradually and with varying degrees of intensity. By modeling multiple scenarios, we can better understand the range of potential workforce impacts as businesses adapt to new trade conditions.

Methodology

Our second analysis takes a forward-looking approach by developing scenarios that reflect different levels of potential trade disruption. This methodology recognizes that trade patterns adjust gradually rather than stopping abruptly, with impacts varying based on the severity and duration of trade barriers. By modeling multiple scenarios, we can help policymakers understand the range of possible workforce impacts and plan appropriate responses.

The analysis begins with the exposure numbers calculated in our first analysis—the jobs we identified as being connected to North American trade based on trade shares. However, we recognize that even significant trade barriers rarely result in a complete cessation of trade. Instead, businesses adapt through various strategies: absorbing higher costs, finding alternative suppliers, adjusting prices, or gradually shifting production locations.

To capture this reality, we developed three scenarios based on historical patterns from previous trade disputes and economic research on business adaptation to trade barriers. Each scenario considers both direct tariff impacts and broader ripple effects through supply chains:

Scenario A (Mild Impact) examines a 10% reduction in cross-border trade. This represents a short-term disruption where businesses mainly absorb costs or find temporary workarounds. For example, if a state has 100,000 jobs linked to North American trade, this scenario would affect 10,000 jobs through reduced hours, hiring freezes, or similar adjustments.

Jobs Affected = (Jobs at Risk from Analysis 1) × 10%

Scenario B (Moderate Impact) models a 25% reduction in trade flows, reflecting medium-term adjustments where some businesses begin shifting supply chains while others maintain existing relationships despite higher costs. This level of disruption might emerge if tariffs persist for several months, forcing more substantial business adaptations.

Jobs Affected = (Jobs at Risk from Analysis 1) × 25%

Scenario C (Severe Impact) examines a 40% reduction in cross-border commerce, representing long-term structural changes in trading patterns. At this level, we would expect to see significant supply chain reorganization, with some companies permanently shifting production or seeking alternative suppliers outside North America.

Jobs Affected = (Jobs at Risk from Analysis 1) × 40%

Each percentage represents potential reductions in trade volume and associated employment effects. For instance, in a state where 50,000 manufacturing jobs are linked to North American trade, the scenarios would suggest:

- Mild Impact: 5,000 jobs affected (10% of 50,000)
- Moderate Impact: 12,500 jobs affected (25% of 50,000)
- Severe Impact: 20,000 jobs affected (40% of 50,000)

It's crucial to understand that these scenarios represent different points along a spectrum of possible outcomes. They help anticipate potential workforce impacts and develop appropriately scaled responses. The actual impact in any given state or sector will depend on multiple factors, including the specific industries involved, alternative market availability, and the ability of businesses to adapt their operations.

Accounting for Elasticity and Adaptation

The scenario reductions (10%, 25%, and 40%) reflect varying degrees of trade disruption, but real-world impacts also depend on factors such as price elasticity, business cost-absorption strategies, and alternative sourcing options. Some companies might absorb tariff costs rather than pass them fully to consumers, while others might swiftly relocate supply chains. Consequently, the scenario results should be interpreted as potential ranges rather than definitive predictions of how many jobs would be affected.

SCENARIO-BASED IMPACT ASSESSMENT

TEXAS

Sector	NA Trade Share	Scenario A (10% drop)	Scenario B (25% drop)	Scenario C (40% drop)
Agriculture, Farm & Mining	28.6%	9,716 jobs	24,291 jobs	38,865 jobs
Manufacturing	54.8%	70,793 jobs	176,983 jobs	283,173 jobs

Interpretation: Under a 10% disruption, over 80,000 jobs could be affected, with the potential impact surpassing 320,000 jobs in a severe scenario, highlighting the state's particular vulnerability to trade disruptions.

MICHIGAN

Sector	NA Trade Share	Scenario A (10% drop)	Scenario B (25% drop)	Scenario C (40% drop)
Agriculture, Farm & Mining	74.5%	4,228 jobs	10,569 jobs	16,910 jobs
Manufacturing	71.8%	62,953 jobs	157,383 jobs	251,812 jobs

Interpretation: The state could face impacts ranging from 67,181 jobs under mild disruption to potentially over 268,722 jobs in severe scenarios, highlighting particularly high vulnerability in manufacturing.

OHIO

Sector	NA Trade Share	Scenario A (10% drop)	Scenario B (25% drop)	Scenario C (40% drop)
Agriculture, Farm & Mining	70.6%	3,916 jobs	9,782 jobs	15,652 jobs
Manufacturing	45.5%	38,083 jobs	95,209 jobs	152,334 jobs

Interpretation The state could see 42,000 jobs affected under mild disruption, potentially reaching 167,000 in severe scenarios, with both sectors showing significant vulnerability.

SCENARIO-BASED IMPACT ASSESSMENT

INDIANA

Sector	NA Trade Share	Scenario A (10% drop)	Scenario B (25% drop)	Scenario C (40% drop)
Agriculture, Farm & Mining	55.3%	2,225 jobs	5,564 jobs	8,900 jobs
Manufacturing	37.4%	22,450 jobs	56,125 jobs	89,984 jobs

Interpretation: Even mild disruption could affect nearly 25,000 jobs, while severe disruption could impact almost 100,000 jobs, with manufacturing bearing most of the impact.

MISSOURI

Sector	NA Trade Share	Scenario A (10% drop)	Scenario B (25% drop)	Scenario C (40% drop)
Agriculture, Farm & Mining	52.7%	2,773 jobs	6,934 jobs	11,094 jobs
Manufacturing	57.5%	19,572 jobs	48,931 jobs	78,289 jobs

Interpretation The state could see 22,296 jobs affected under mild disruption, potentially reaching 89,185 in severe scenarios, with both sectors showing a high vulnerability.

NORTH CAROLINA

Sector	NA Trade Share	Scenario A (10% drop)	Scenario B (25% drop)	Scenario C (40% drop)
Agriculture, Farm & Mining	36.2%	1,829 jobs	4,572 jobs	7,315 jobs
Manufacturing	35.2%	21,607 jobs	54,018 jobs	86,429 jobs

Interpretation: Scenarios show potential impacts ranging from 23,500 jobs under mild disruption to 94,000 jobs under severe conditions, primarily affecting manufacturing workers.

SCENARIO-BASED IMPACT ASSESSMENT

PENNSYLVANIA

Sector	NA Trade Share	Scenario A (10% drop)	Scenario B (25% drop)	Scenario C (40% drop)
Agriculture, Farm & Mining	32.2%	2,534 jobs	6,346 jobs	10,154 jobs
Manufacturing	24.2%	17,656 jobs	44,140 jobs	70,625 jobs

Interpretation: Impact ranges from 20,000 jobs under mild disruption to 80,000 under severe conditions, with manufacturing accounting for most affected positions despite lower trade share.

WISCONSIN

Sector	NA Trade Share	Scenario A (10% drop)	Scenario B (25% drop)	Scenario C (40% drop)
Agriculture, Farm & Mining	58.8%	3,524 jobs	8,809 jobs	14,095 jobs
Manufacturing	35.8%	19,884 jobs	49,710 jobs	79,536 jobs

Interpretation: Balanced exposure could result in impacts ranging from 23,408 to 93,631 jobs, with both sectors showing significant vulnerability.

MINNESOTA

Sector	NA Trade Share	Scenario A (10% drop)	Scenario B (25% drop)	Scenario C (40% drop)
Agriculture, Farm & Mining	87.8%	5,676 jobs	14,189 jobs	22,702 jobs
Manufacturing	33.4%	13,759 jobs	34,398 jobs	55,037 jobs

Interpretation: High agricultural trade dependency creates exposure ranging from 19,435 to 77,739 jobs across scenarios.

SCENARIO-BASED IMPACT ASSESSMENT

ILLINOIS

Sector	NA Trade Share	Scenario A (10% drop)	Scenario B (25% drop)	Scenario C (40% drop)
Agriculture, Farm & Mining	81.5%	5,509 jobs	13,772 jobs	22,035 jobs
Manufacturing	19.7%	14,545 jobs	36,364 jobs	58,182 jobs

Interpretation: Impacts could range from 20,054 to 80,217 jobs, with particularly high vulnerability in agriculture despite lower manufacturing exposure.

IOWA

Sector	NA Trade Share	Scenario A (10% drop)	Scenario B (25% drop)	Scenario C (40% drop)
Agriculture, Farm & Mining	54.2%	3,263 jobs	8,158 jobs	13,053 jobs
Manufacturing	45.5%	11,164 jobs	27,909 jobs	44,654 jobs

Interpretation: Impact ranges from 14,500 jobs under mild disruption to 58,089 under severe conditions, with manufacturing accounting for most affected positions.

CALIFORNIA

Sector	NA Trade Share	Scenario A (10% drop)	Scenario B (25% drop)	Scenario C (40% drop)
Agriculture, Farm & Mining	25.9%	9,829 jobs	24,573 jobs	39,317 jobs
Manufacturing	18.3%	30,799 jobs	76,998 jobs	123,197 jobs

Interpretation: Even with lower trade shares, the sheer size of California's workforce means disruptions could affect 40,628 to 162,514 jobs across scenarios.

SCENARIO-BASED IMPACT ASSESSMENT

TENNESSEE

Sector	NA Trade Share	Scenario A (10% drop)	Scenario B (25% drop)	Scenario C (40% drop)
Agriculture, Farm & Mining	39.8%	1,265 jobs	3,163 jobs	5,061 jobs
Manufacturing	28.9%	12,359 jobs	30,898 jobs	49,437 jobs

Interpretation: The state could see impacts ranging from 13,624 jobs under mild disruption to 54,498 jobs in severe scenarios, primarily affecting manufacturing workers.

OKLAHOMA

Sector	NA Trade Share	Scenario A (10% drop)	Scenario B (25% drop)	Scenario C (40% drop)
Agriculture, Farm & Mining	93.6%	6,188 jobs	15,470 jobs	24,752 jobs
Manufacturing	30.3%	5,129 jobs	12,823 jobs	20,517 jobs

Interpretation: The state could see impacts ranging from 11,317 jobs under mild disruption to 45,269 jobs in severe scenarios, with particularly high vulnerability in the energy sector.

KENTUCKY

Sector	NA Trade Share	Scenario A (10% drop)	Scenario B (25% drop)	Scenario C (40% drop)
Agriculture, Farm & Mining	22.9%	824 jobs	2,059 jobs	3,295 jobs
Manufacturing	25.4%	7,436 jobs	18,591 jobs	29,745 jobs

Interpretation: Potential impacts range from 8,260 jobs under mild disruption to 33,040 jobs in severe scenarios, with manufacturing accounting for most of the exposure.

THE CASCADING EFFECTS OF TRADE DISRUPTION AND POLICY IMPLICATIONS

Our analysis reveals the deep and complex integration of North American trade into state economies, with implications that extend far beyond simple import-export calculations. Over 4.3 million jobs across these fifteen states show exposure to potential trade disruptions, with manufacturing bearing the most significant impact at 3.68 million jobs and agriculture/mining accounting for 633,000 jobs. These states, ranging from Texas's massive exposure of 805,000 jobs to Michigan's 671,800 jobs, represent the highest levels of North American trade integration based on absolute employment numbers and trade dependency shares.

The geographical scope stretches from border states to the Upper Midwest, revealing how North American trade integration significantly affects both border and inland states. The Midwest's deep integration—illustrated by Ohio's 71% agricultural trade dependence on North American partners—shows how inland states have become equally reliant on continental market access.

Even states with relatively lower trade shares face significant absolute exposure due to their large workforces. Pennsylvania and North Carolina, despite more diversified global trade portfolios, each face potential disruption to over 200,000 jobs. This pattern suggests that no major manufacturing or agricultural state stands isolated from North American trade dynamics.

The agricultural heartland states of Iowa, Missouri, and South Dakota demonstrate particularly deep integration with North American trade networks, with agricultural trade shares all exceeding 52%.

The scenario analysis further illuminates how initial trade disruptions could cascade through state economies. Even a modest 10% reduction in trade flows could affect tens of thousands of workers across multiple states. More severe disruptions, potentially affecting up to 40% of cross-border trade, could trigger structural changes in regional economies that have spent decades optimizing around integrated North American supply chains.

While Scenarios A (10%), B (25%), and C (40%) provide a spectrum of possible disruptions, they do not assign specific timelines. A mild, short-term disruption might be absorbed through temporary cost measures and slight supply-chain adjustments; by contrast, a prolonged or severe disruption (30–40% or more) could trigger long-term, structural changes—such as permanent relocation of production facilities, new trade alliances, or reconfiguration of major logistics corridors. Policymakers and businesses should consider both immediate and long-range responses accordingly.

Our findings demonstrate how thoroughly North American economic integration has transformed state economies three decades after NAFTA's inception. The intricate network of supply chains, specialized workforce development, and complementary production processes that have developed represent more than just trade statistics; they reflect the evolution of a continental market that has enhanced the competitive position of all three nations.

These deep linkages suggest that any significant disruption to North American trade patterns would require careful consideration of national-level impacts and the specific vulnerabilities and adaptation challenges faced by individual states and sectors. The data presents a clear picture: the economic ties binding North American partners together have grown too complex and vital to be easily undone without substantial consequences for workers, businesses, and communities across multiple states.

Future Considerations

Several additional factors could influence the ultimate impact of trade disruptions on state economies. Macroeconomic conditions, including fluctuations in global demand, exchange rates, and broader economic cycles, may either moderate or intensify the effects of tariffs beyond our current estimates.

While comprehensive, the state-level analysis necessarily aggregates impacts that could vary significantly at more local levels. Within each state, certain counties or specific industrial sectors may face disproportionate effects due to their particular trade dependencies and economic structures. More granular county-level data could help refine these estimates and identify local areas requiring particular attention.