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Competitive Border Communities: Mapping and Developing U.S.-Mexico Transborder Industries

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Background

- Bilateral trade is growing.
- Uneven growth in U.S.-Mexico border communities.
- Border communities thought of as pass-through/transit point communities.
- The U.S.-Mexico High-Level Economic Dialogue
- Mexico-U.S. Entrepreneurship and Innovation Council (MUSEIC) + iCluster Subcommittee
- National cluster mapping initiatives in U.S. and Mexico
- Local cluster mapping initiatives in CaliBaja MegaRegion, Saltillo-Monterrey-San Antonio corridor

U.S.-Mexico Border Industry Mapping and Stakeholder Engagement Project, Apr.-Sept. 2015

- **Project partners:** NARP + Mexico Institute/WWICS.
- Project looks at **quantitative** and **qualitative** issues that affect border industries that are **concentrated**, **dynamic** and **binational**.
- Area of analysis = **border counties** and ***municipios*.**
- **Binational focus groups** in San Diego, Tucson, El Paso, Laredo and Brownsville.
- Designed to **support the crossborder economic development work** of bilateral (HLED), federal, state and local entities.

Clusters vs. Industries

What is a Cluster?

"Clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g., universities, standards agencies, trade associations) in a particular field that compete but also cooperate." Michael Porter*

**Location, Competition, and Economic Development: Local Clusters in a Global Economy," Economic Development Quarterly, 2000, 14, 15.*

Where do Cluster-Based Strategies Fit in to Overall Economic Development?

Picking Winners

-Firm Specific

-Weakens Competition and thus incentives to improve

-Politically driven

-Inconsistent across administrations

Examples: Subsidies, Tariff Barriers, Negotiated tax incentives

Cluster-Based Strategies

-Data reveals existing industrial clusters with roots (not politically driven)

-Industry/Cluster specific

-Pro-competition (seeks diversity and numerous firms competing within sector)

Examples: Specialized Education Programs, Industry Worker Training Programs, Specialized Infrastructure (port, pre-inspection), Business-Regulator Dialogue, Joint Marketing

Macro and Overall Business Environment Improvements (Cross-Cluster Strategies)

-Subregion, Region or Nation specific

-Pro-competition (robust business environment fosters competition)

Examples: Education, Responsible Fiscal and Monetary Policy, Trade Liberalization, Cutting Red-Tape, Simplifying Tax Code, General Infrastructure (overall highway network, broadband, etc.), Broad tax incentives

Binational Industry Mapping Methodology

- **Concentration: Location Quotient** compares local concentration of jobs in an industry to national/binational employment.
- **Dynamic: Competitiveness Index of Shift-Share Analysis** identifies industries growing faster locally than in the broader economy.
- **Binational: Bilateral Export Intensity**, exports/GDP at the state-level.
- **Principal Data Sources:** INEGI Economic Census, US Census Bureau County Business Patterns Series

Table 1. Arizona – Sonora Subregion 20 Most Concentrated (LQ) Industries, 2013

Description and NAICS Code	Employees	LQ
Metal Ore Mining (2122)	5,933	14.1
Audio and Video Equipment Manufacturing (3343)	3,050	13.6
Aerospace Product and Parts Manufacturing (3364)	17,813	10.9
Hardware Manufacturing (3325)	1,,493	9.5
Other Furniture Related Product Manufacturing (3379)	1663	9.0
Rooming and Boarding Houses (7213)	762	8.6
Semiconductor and Other Electronic Component Manufacturing (3344)	12,724	8.1
Other Electrical Equipment and Component Manufacturing (3359)	5,403	7.7
Medical Equipment and Supplies Manufacturing (3391)	11,863	7.6
Seafood Product Preparation and Packaging (3117)	1,219	7.1
RV (Recreational Vehicle) Parks and Recreational Camps (7212)	751	4.6
Fishing (1141)	2,627	4.1
Technical and Trade Schools (6115)	1,767	3.5
Other Support Activities for Transportation (4889)	236	3.3
Business Support Services (5614)	11,823	3.2
Gambling Industries (7132)	2,469	3.1
Support Activities for Crop Production (1151)	710	2.7
Other Investment Pools and Funds (5259)	60	2.6
Retail trade of used goods/ Used Merchandise Stores (4664 + 4533)	2,216	2.5
Apparel Accessories and Other Apparel Manufacturing (3159)	126	2.4

Authors' own elaboration. See Appendices A, B, and C for information on methodology and data sources.

Figure 1. Employment for the 20 Most Concentrated Industries (LQ), Arizona - Sonora Subregion, 2013

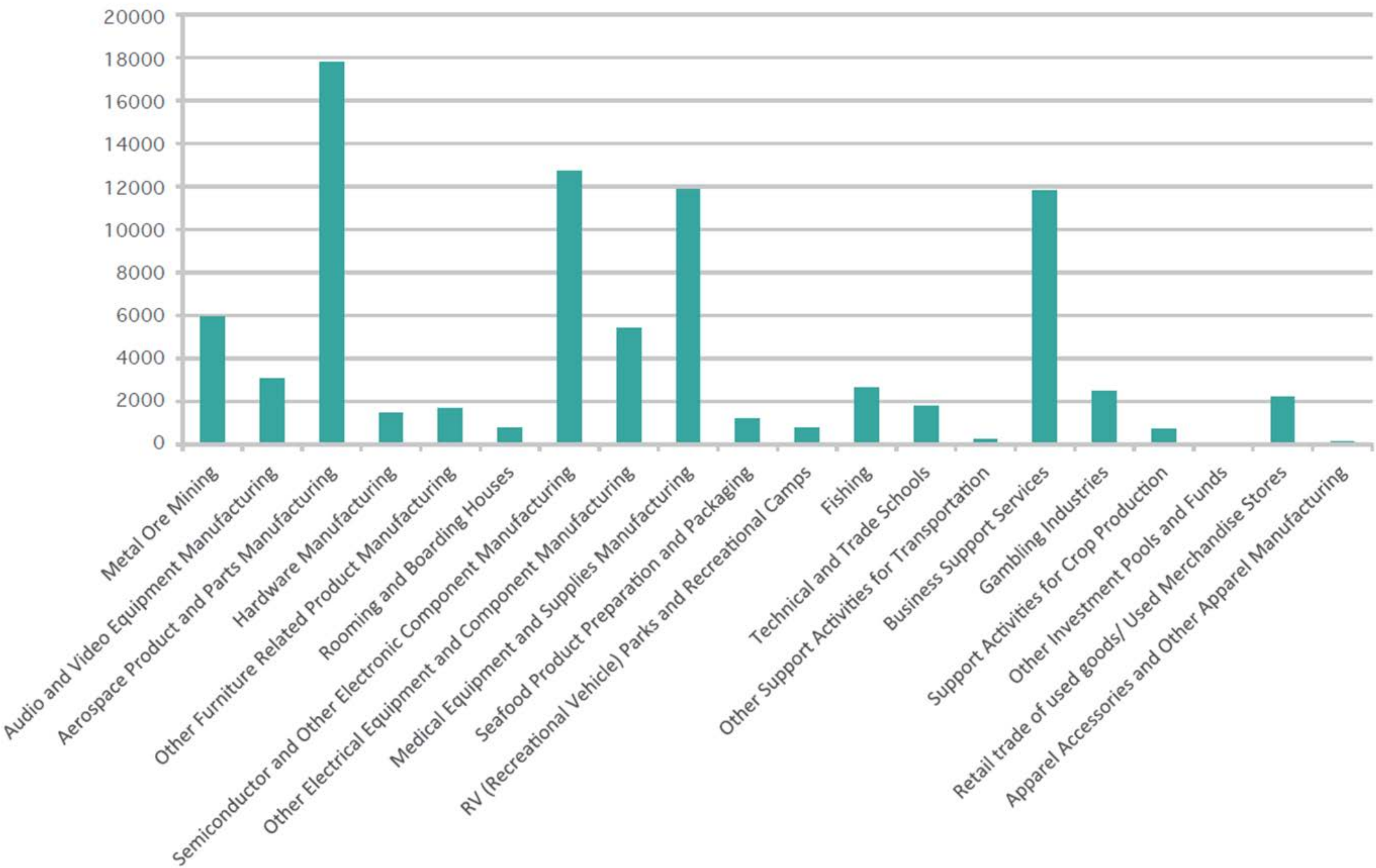

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Table 2. California – Baja Border Subregion, Most Dynamic Industries (Shift – Share Analysis, 2009 – 2013)

Description and NAICS Code	Competitiveness Index	Change # Jobs 2009-2013	Employment Growth 2009 - 2013
Fiber, Yarn, and Thread Mills (3131)	31.5	317	3170%
Alumina and Aluminum Production and Processing (3313)	29.0	495	2912%
Footwear Manufacturing (3162)	19.1	307	1919%
Seafood Product Preparation and Packaging (3117)	9.3	158	929%
Other Chemical Product and Preparation Manufacturing (3259)	5.3	3,852	531%
Iron and Steel Mills and Ferroalloy Manufacturing (3311)	4.9	50	500%
Textile Furnishings Mills (3141)	4.1	402	394%
Other Pipeline Transportation (4869)	2.8	50	250%
Paint, Coating, and Adhesive Manufacturing (3255)	2.1	401	206%
Cable and Other Subscription Programming (5152)	2.0	43	253%
Boiler, Tank, and Shipping Container Manufacturing (3324)	2.0	282	206%
Nonferrous Metal (except Aluminum) Production and Processing (3314)	1.9	115	192%
Electronic and Precision Equipment Repair and Maintenance (8112)	1.6	8,137	157%
Other General Purpose Machinery Manufacturing (3339)	1.5	3,221	156%
Grain and Oilseed Milling (3112)	1.3	518	136%
Aquaculture (1125)	1.2	84	118%
Support Activities for Rail Transportation (4882)	1.2	31	155%
Fabric Mills (3132)	1.1	14	93%
Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing (3334)	1.0	1,121	105%
Agriculture, Construction, and Mining Machinery Manufacturing (3331)	1.0	406	107%

Authors' own elaboration. See Appendices A, B, and C for information on methodology and data sources.

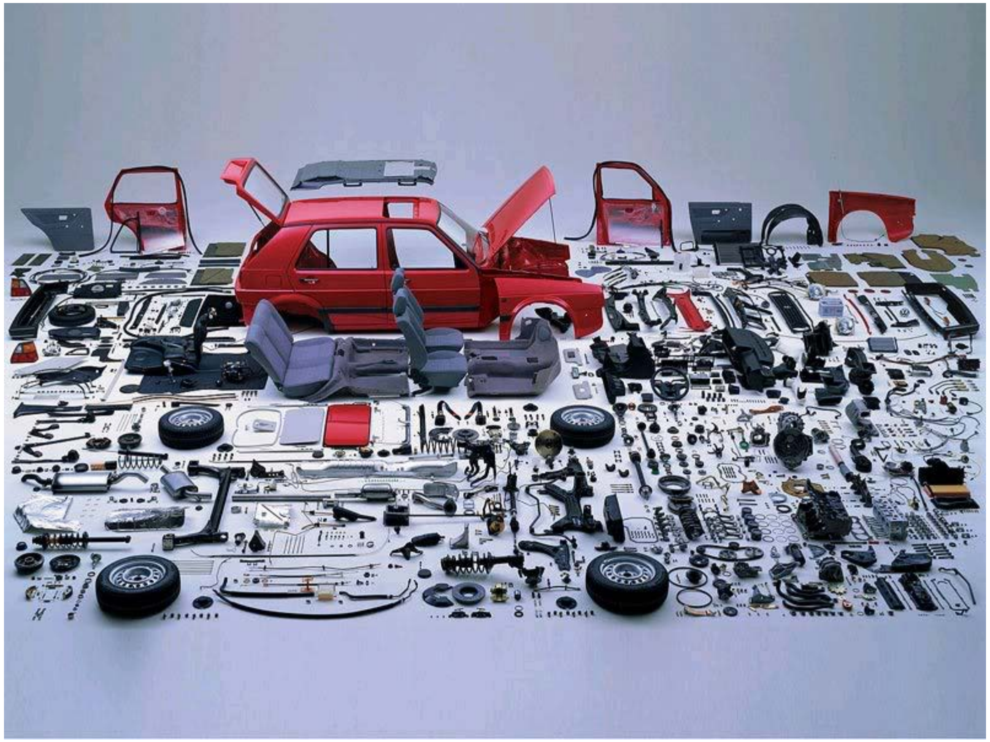
Table 4. Texas GDP and Exports to Mexico by Subsector (3-digit NAICS), 2013

Subsector	Subsector Contribution to Texas GDP (Million USD)	% of Total TX GDP	Exports Texas to Mexico (Million USD)	% of Total State Exports to MX	Exports to MX/ GDP (%)
Oil and gas extraction (211)	176,895	11.36%	2,429	2.43%	1.37%
Mining, except oil and gas (212)	3,280	0.21%	149	0.15%	4.55%
Wood products manufacturing (321)	1,425	0.09%	153	0.15%	10.73%
Nonmetallic mineral products manufacturing (327)	4,062	0.26%	401	0.40%	9.87%
Furniture and related products manufacturing (337)	1,254	0.08%	289	0.29%	23.05%
Miscellaneous manufacturing (339)	3,111	0.20%	1,666	1.67%	53.54%
Farms	9,775	0.63%	1,251	1.25%	12.79%
Forestry, fishing, and related activities	1,757	0.11%	30	0.03%	1.70%
Food and beverage and tobacco products manufacturing (311 - 312)	11,438	0.73%	3,214	3.21%	28.10%
Textile mills and textile product mills (313 - 314)	450	0.03%	1,651	1.65%	366.89%
Apparel and leather and allied products manufacturing (315 - 316)	470	0.03%	476	0.48%	101.19%
Paper Manufacturing, Printing and related support activities (322 - 323)	3,840	0.25%	1,726	1.73%	44.96%
Petroleum and Coal Products Manufacturing, Plastics and rubber products manufacturing (324-326)	117,195	7.53%	28,282	28.27%	24.13%
Primary metals manufacturing, fabricated metal products (331 - 332)	19,043	1.22%	7,739	7.74%	40.64%
Machinery Manufacturing, Computer and Electronic Product Manufacturing, Electrical Equipment, Appliance, and Component Manufacturing and Motor vehicles, bodies and trailers, and parts manufacturing (333 - 336)	56,140	3.61%	50,575	50.56%	90.09%
State GDP, Subsector Exports	**1,557,193**		**100,030**		

Table 4. Tamaulipas GDP and Exports to the U.S. by Subsector (3-digit NAICS), 2013

Subsector	Subsector Contribution to Tamaulipas GDP (Million USD)	% of Total Tamaulipas GDP	Exports Tamaulipas to the US (Million USD)	% of Total State Exports to U.S.	Exports to U.S./ GDP (%)
Oil and gas extraction (211)	3,092	8.67%	337	1.86%	10.89%
Mining, except oil and gas (212)	13	0.04%	0	0.00%	0.00%
Wood products manufacturing (321)	9	0.03%	3	0.02%	34.32%
Nonmetallic mineral products manufacturing (327)	154	0.43%	164	0.91%	106.37%
Furniture and related products manufacturing (337)	58	0.16%	400	2.21%	688.23%
Miscellaneous manufacturing (339)	191	0.54%	1,006	5.57%	526.93%
Food and beverage and tobacco products manufacturing (311 - 312)	686	1.92%	200	1.11%	25.18%
Textile mills and textile product mills (313 - 314)	42	0.12%	27	0.15%	65.48%
Apparel and leather and allied products manufacturing (315 - 316)	58	0.16%	34	0.19%	59.51%
Paper Manufacturing, Printing and related support activities (322 - 323)	103	0.29%	186	1.03%	179.95%
Petroleum, plastic and chemical product manufacturing (324 - 326)	2,297	6.44%	3,134	17.34%	136.43%
Primary metals manufacturing, fabricated metal products (331 - 332)	179	0.50%	746	4.13%	417.14%
Machinery Manufacturing, Computer and Electronic Product Manufacturing, Electrical Equipment, Appliance, and Component Manufacturing and Motor vehicles, bodies and trailers, and parts manufacturing (333 - 336)	2,180	6.11%	11,841	65.50%	543.22%
State GDP, Subsector Exports	**35,682**		**18,079**		

Automotive Sector

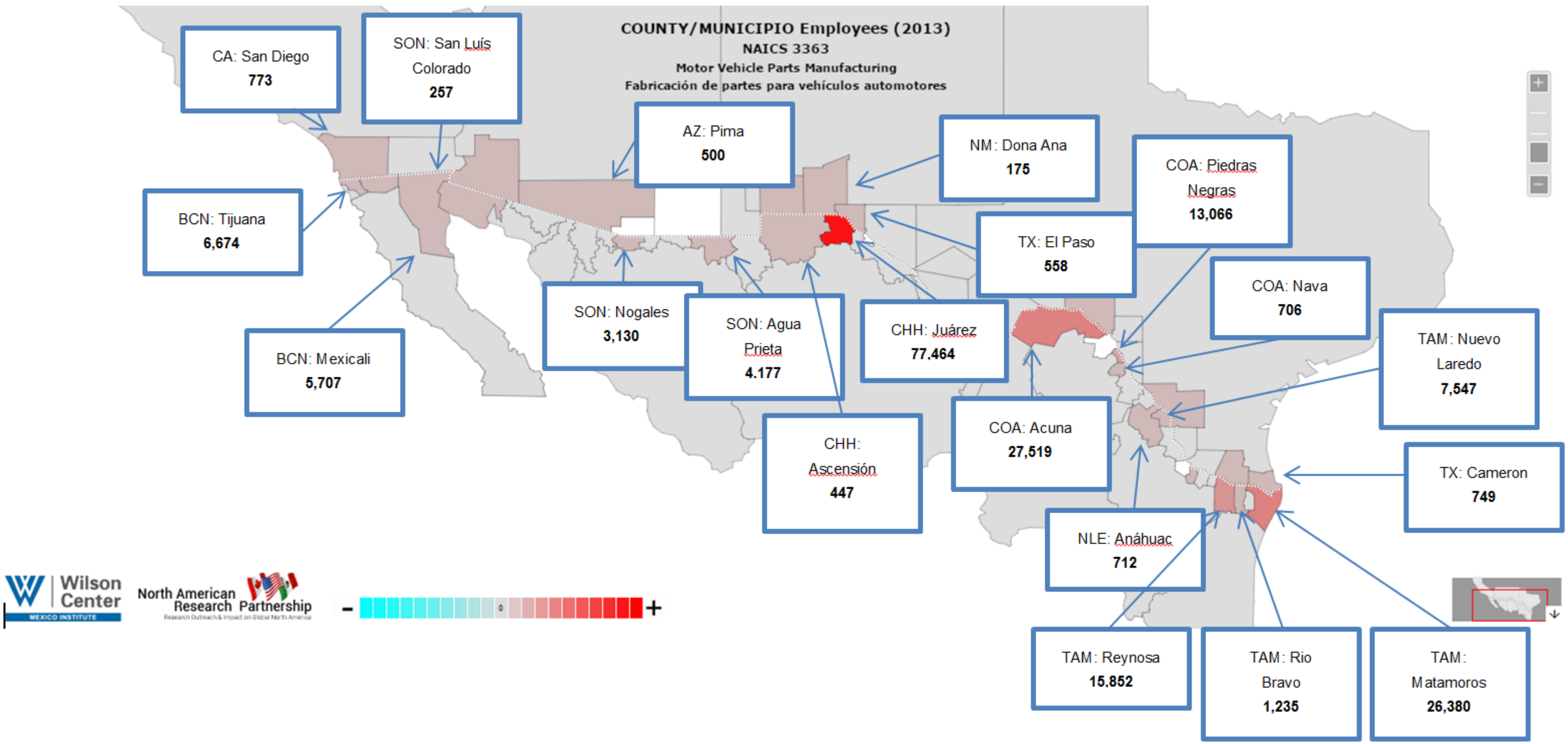


Automotive Sector

Auto-Sector Employment (approx.) in the U.S.-Mexico Border Region, 2013	
California-Baja California Border Subregion	17,000
Arizona-Sonora Border Subregion	8,500
Paso Del Norte Subregion	80,000
Coahuila-Nuevo León-Tamaulipas-Texas Border Subregion	50,000
Lower Rio Grande Valley-Tamaulipas Subregion	47,000

Includes: 3362- Motor Vehicle Body and Trailer Manufacturing; 3363-Motor Vehicle Parts Manufacturing; and 3369-Other Transportation Equipment Manufacturing; and is supported by industries such as 3321- Forging and Stamping.

Parts Manufacturing Employment

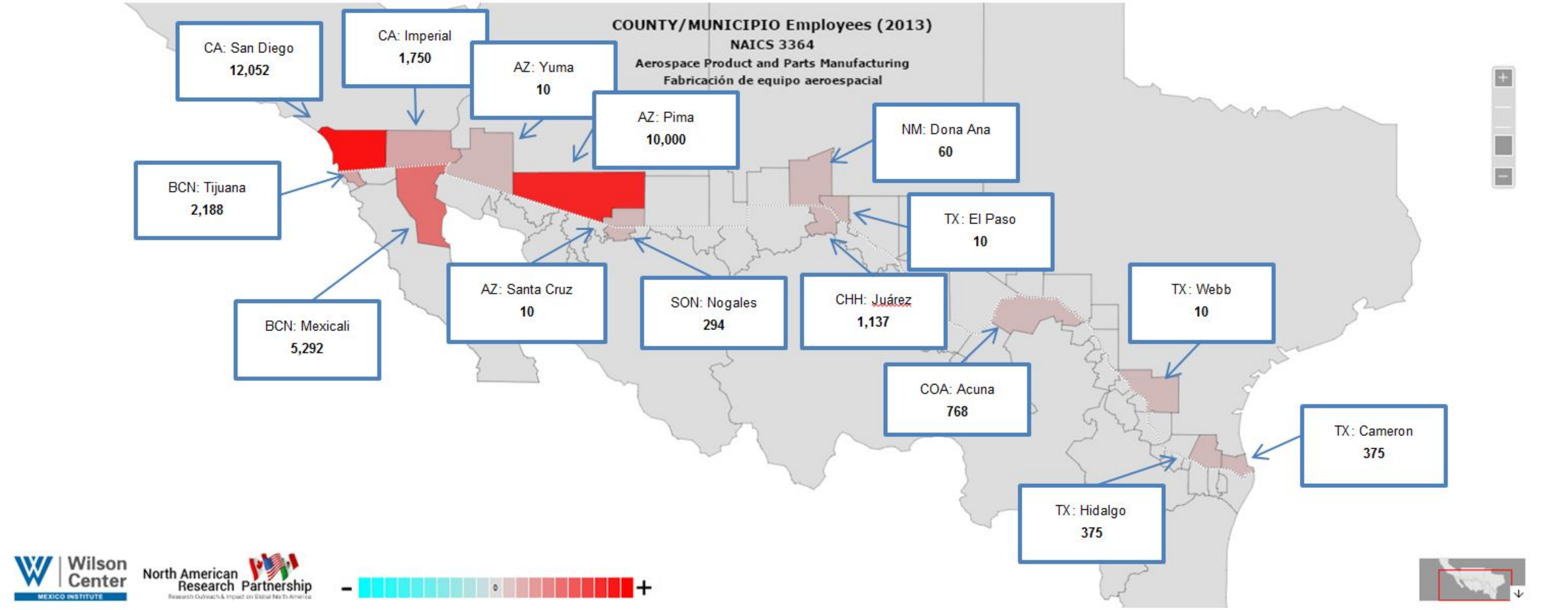


Some Leaders in the Sector

- Hyundai
- Toyota
- Fujikura Automotive
- Hendrickson Spring
- Lear Corporation
- Arneses y Accesorios de México- Alcoa
- Johnson Controls
- Delphi

Aerospace Industry

Aerospace Industry



Strengths and Opportunities

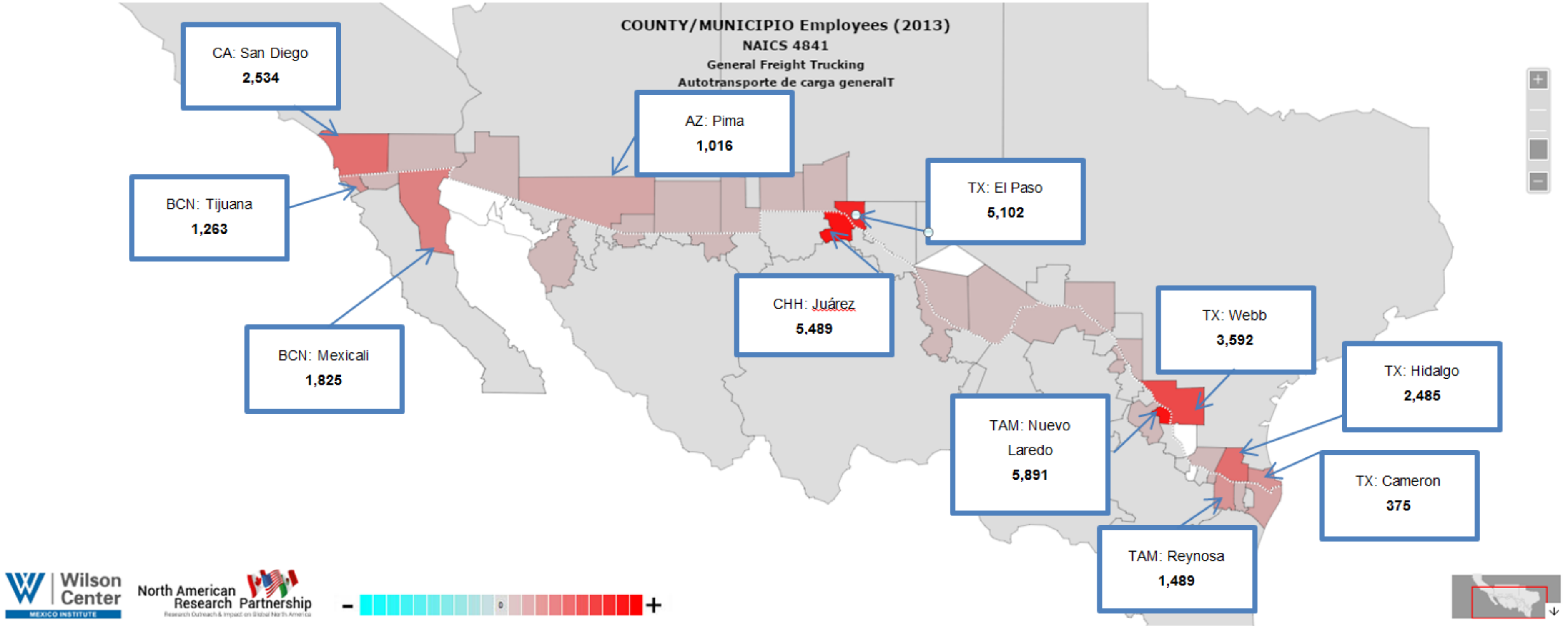
- Bilateral Aviation Safety Agreement facilitates bi-national manufacturing activities.
- Complimentary activities on both sides of the border
  - In Tijuana there are 31 firms working in the industry. Most of the development is in fuselage systems and power plants.
  - San Diego County performs 60% of technology development in unmanned systems.
  - Arizona has a long history in the aerospace and defense sector
  - Sonora is developing its strength in the manufacturing of turbine and engine components.
  - Chihuahua has experience in high-tech manufacturing
  - Along the border in Texas, support activities for air transportation are important.
  - Tamaulipas is trying to attract FDI in the parts manufacturing for the aerospace sector

Some Companies Located in the Region

- Tier 1s surrounded by Tier2s and Tier3, as well as support-oriented firms
  - Zodiac Equipment Mexico (Cabin & Structures)
  - Eaton Aerospace (Electrical Sensing & Controls, Hydraulics)
  - Honeywell (R&D, Life Safety,...)
  - Pencom (CNC manufacturing)
  - Daher (Composite aerostructures)
  - Boeing (Engineering, support)
  - Embraer (Service and repair)
  - Safran Labinal (electrical wiring)
  - Cessna (Machining)

Transportation, Logistics, and Trade

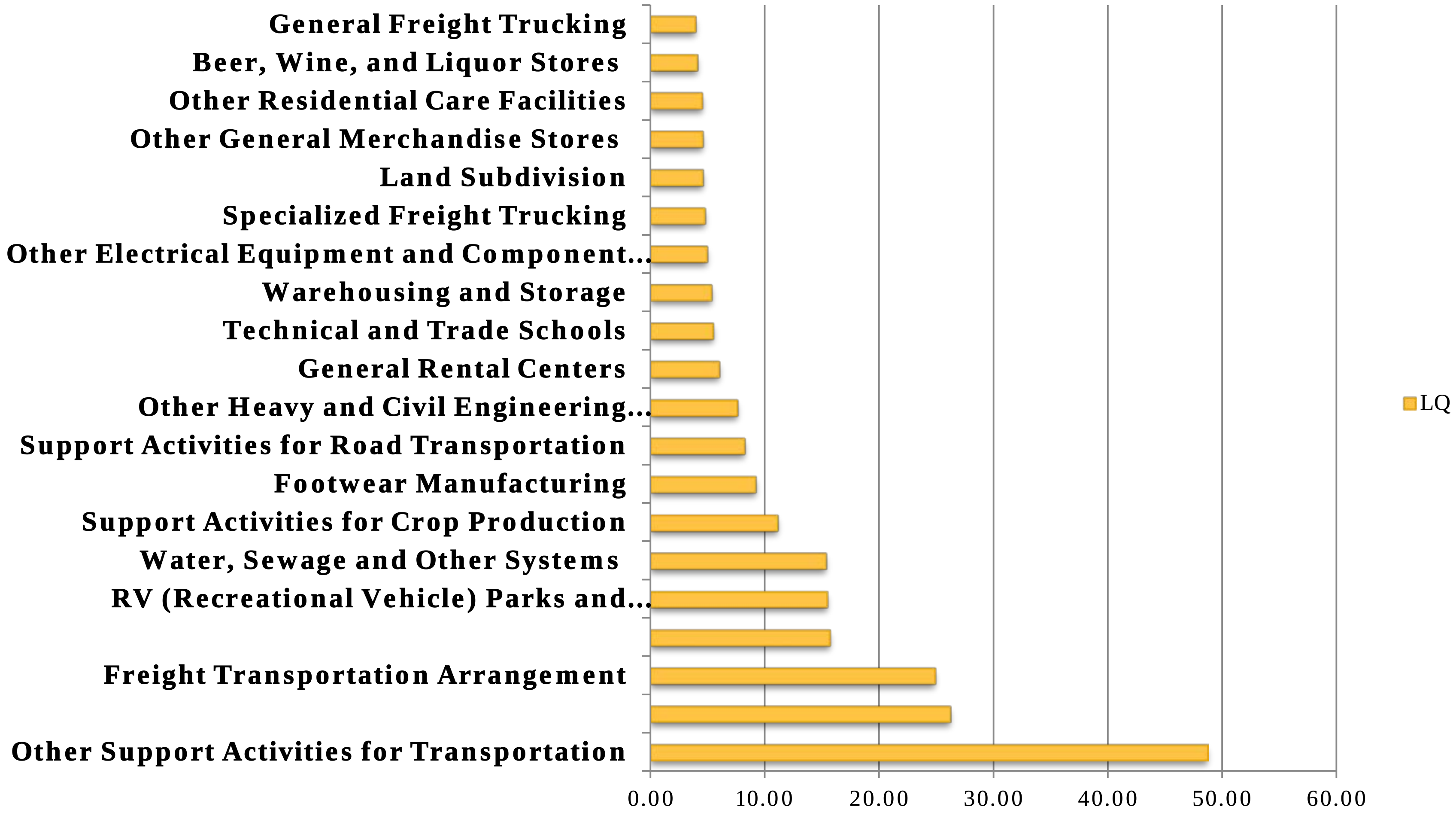
Logistics Sector: General Freight Trucking Employment



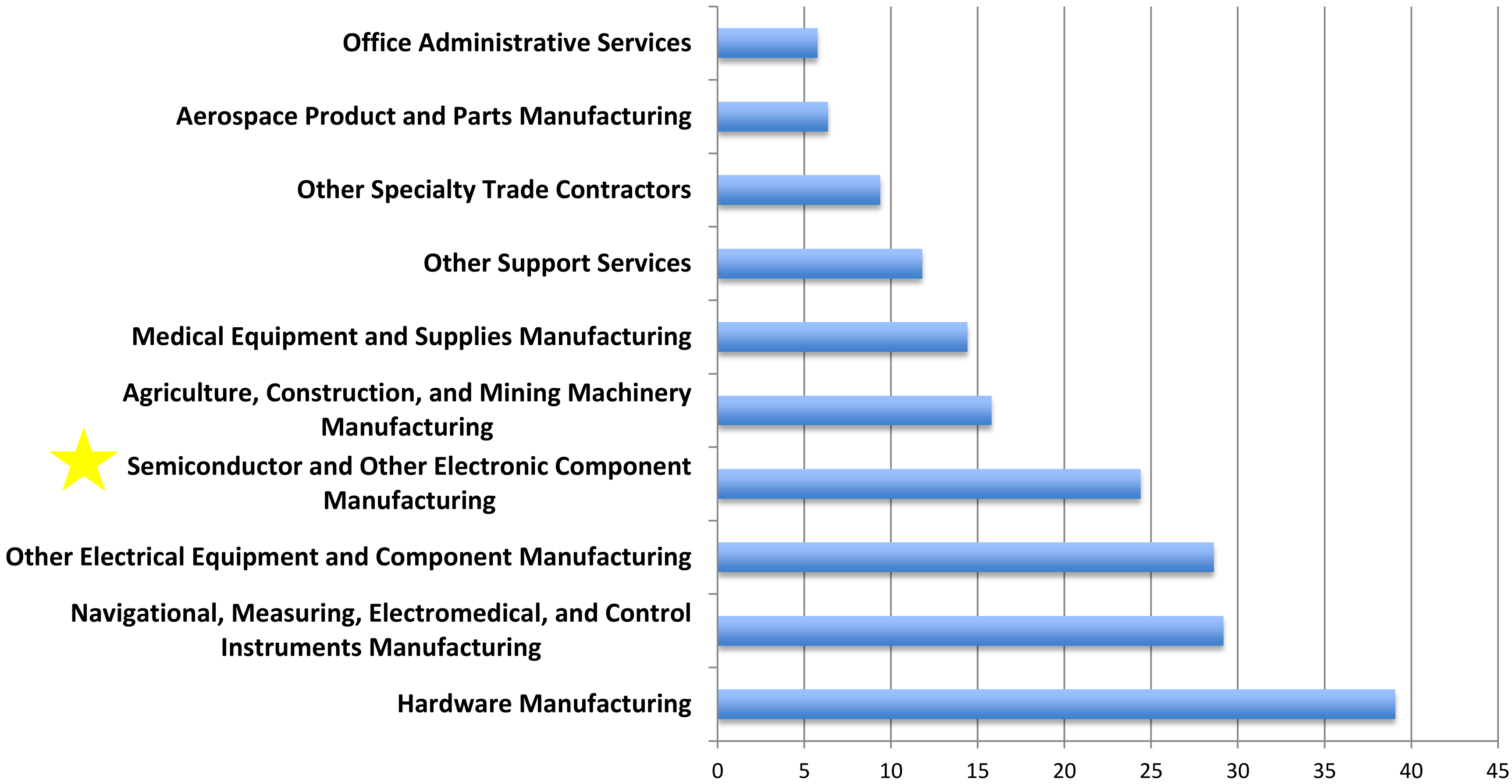
Border-Wide Findings

- Highly specialized manufacturing industries on the Mexican side of the border.
- Strong logistics industries on the U.S. side
- Fewer signs of deep supply chain connections or non-logistics service provision by U.S. firms along the border to Mexican border industries than we had expected.
- Highly uneven nature of cluster organization and crossborder economic development efforts throughout the border region.
- The predominance of border security over trade has affected the overall business environment at the border.
- Highly uneven distribution of manufacturing operations poses a challenge for the cultivation of binational clusters.
- Crossborder mobility and human capital development continues to be a challenge in the region.

Santa Cruz County
Most Concentrated Industries 2013



Nogales, Sonora –
Most Concentrated Industries 2013



Recommendations

1. The United States and Mexican federal governments must play an especially important role in cross-border economic development efforts.

2. Border communities should actively utilize cluster-based economic development, with its focus on collaboration among government, industry and educational institutions, as an opportunity to engage federal officials managing the border as partners in a joint effort.

Recommendations (cont.)

3. Link up economic development organizations along the border through a variety of formal and informal mechanisms.

4. Minimize crossborder travel restrictions for university faculty, staff and students.

5. The two federal governments need to further harmonize (and localize) data collection across the border.

Recommendations (cont.)

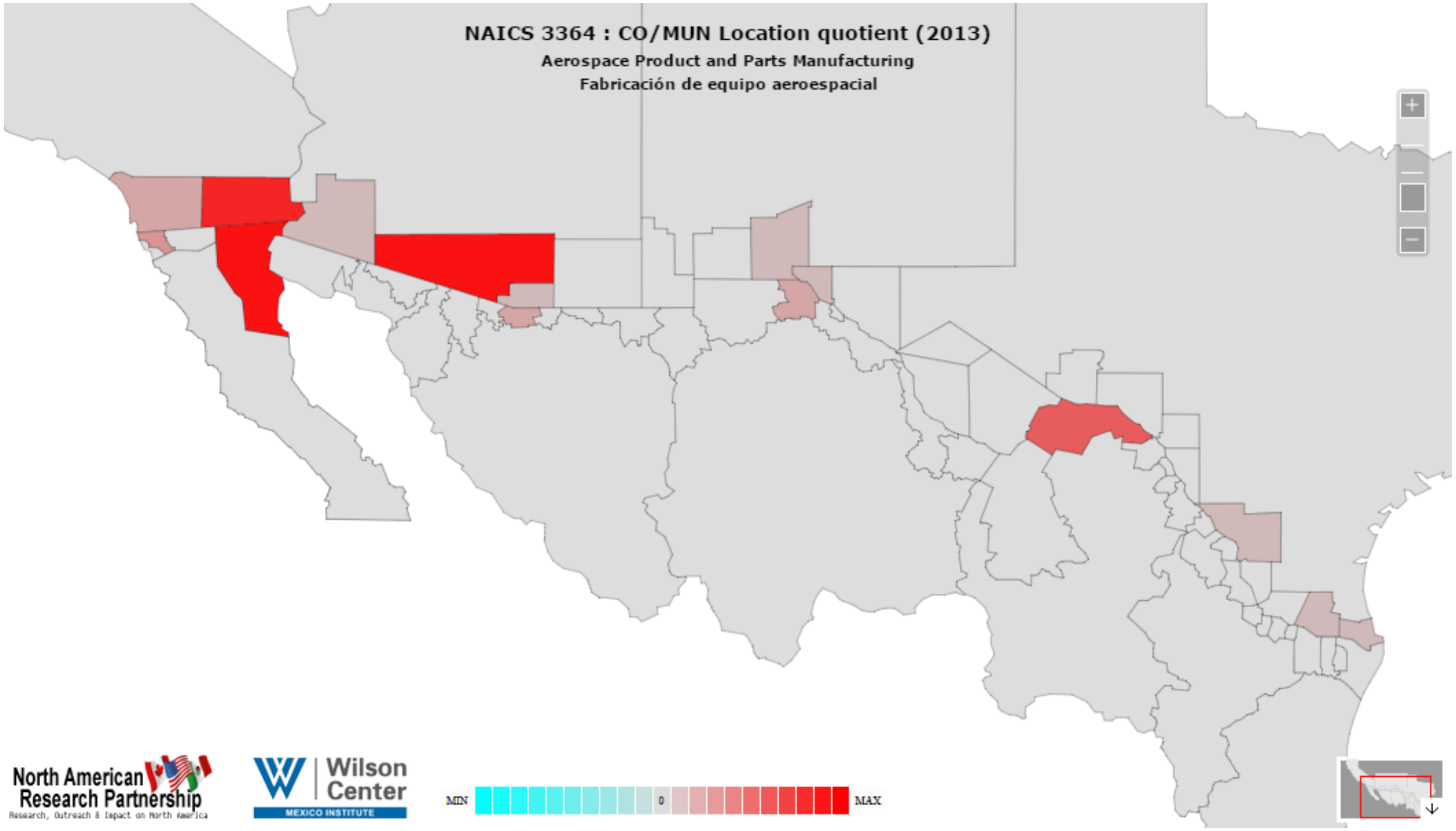
6. Update and streamline specialist, worker and student internship NAFTA visas to foster mobility.

7. Create binational cluster councils with public, private and education sectors all at the table.

8. Mega regions should monitor the growth of emerging binational industries that could be good candidates for cluster-based economic development.

Thank you

- naresearchpartnership.org/projects/binationalindustries/map
- wilsoncenter.org/specialinitiatives/binationalindustries



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