



Economic Outlook Report



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Introduction

The Texas A&M International University (TAMIU), A.R. Sanchez School of Business, Texas Center for Border Economic and Enterprise Development (TCBEED), presents the Vision 2022 edition of the Economic Outlook Report. This report presents the TCBEED's visual data analysis of local socioeconomic indicators. Its different sections give a detailed analysis of the impacts of logistechs and an overview of indicators on international trade, local demographics, and Port Laredo's international bridges.

LOGISTECHS: Port Laredo's key to continued and sustainable growth.

by Daniel Covarrubias, Ph.D., Director, Texas Center for Border Economic and Enterprise Development, A.R. Sanchez Jr., School of Business, Texas A&M International University

The Port Laredo is the number one inland commercial port of entry at the United States and Mexico border. According to data compiled by the Texas A&M International University (TAMIU), A.R. Sanchez School of Business, Texas Center for Border Economic and Enterprise Development (TCBEED), every year, more than 4.5 million trucks, representing nearly 250 billion dollars in trade, are skillfully managed through this border crossing. Port Laredo operates 30% of the total U.S. world trade that transits through ports of entry in Texas and approximately 40% of total trade between the United States and Mexico.

(Continued on page 2)



LaredoChamber
of Commerce

Data from the United States Census establishes that the ranking for the top three ports of entry into the United States, whether they are sea, land, or airports, are almost always interchangeable between the ports of Los Angeles, Chicago, and Laredo. About 50 to 60 billion trade dollars are the variations between these top three ports. When we filter by categories for land ports of entry, Port Laredo is in a league of its own. With the port of Ysleta (El Paso, Tx) coming in a distant second with 64 billion dollars of world trade and Pharr International Bridge coming in third with 41 billion dollars of trade. The top three major ports of entry have all seen exponential increases over the last ten years, with Port Laredo seeing a 60% increase in commercial traffic.

Port Laredo has been recognized as the predominant inland port on the United States and Mexico border for over half a century. Its privileged geographic location at the center of the USMCA corridor (connecting Mexico, the United States, and Canada) has contributed significantly to the success of this border region. While Port Laredo's strategic location has been critical to its success, the organic logistics clusters created in this cross-border region represent another essential component. These clusters include over 500 custom broker firms, more than 500 transportation companies, and at least 300 logistics warehouses and storage facilities, employing more than 30,000 employees on both sides of the border. This critical mass of knowledge, experience, and human capital contributes immeasurably to the success of this region.

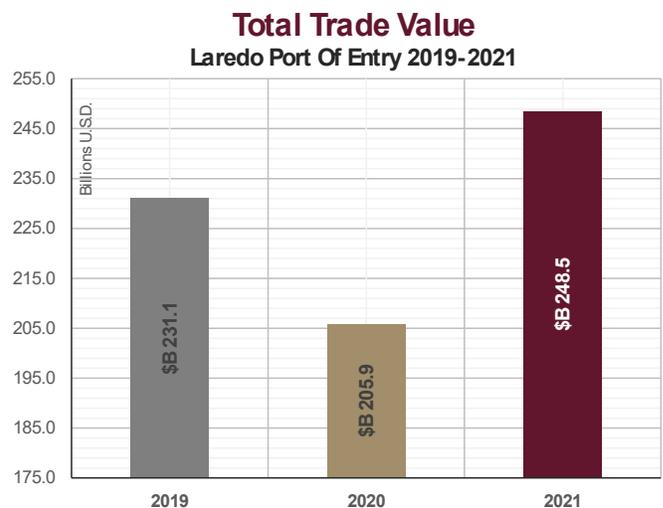
The years 2020 and 2021 have been prime examples of what we define in innovation research as a VUCA environment. We live in an environment full of Volatility, Uncertainty, Complexity, and Ambiguity. Managing these fluctuations is more critical today than ever. The Covid19 pandemic has been the highlight of a series of shocks that have exacerbated the complexity and uncertainty of global supply chains.

A report on supply chain disruptions produced by the White House indicates that other elements that have aggravated supply chains include increased online shopping, which has had massive increments in the number of products shipped

to the United States, worldwide truck operators' shortages, aging infrastructure, and geopolitical aggravations. These scenarios continue to strain supply chains in global markets.

According to the World Economic Forum data, average container shipping rates saw increases of up to 8 times their price during the pandemic, international transit times were lengthened by 25% or more, and overall product deficits were encountered at every level in the supply chain. The American Trucking Association (ATA) estimates a current shortage of 80,000 drivers and projects that figure to rise to 160,000 in less than ten years. The ATA also quantifies that traffic congestion and poor infrastructure greatly restrict transport productivity. It estimates that up to 1.2 billion hours are lost annually because of this, equaling 425,533 commercial truck drivers sitting idle for an entire year, representing 74 billion dollars in additional operational costs.

An analysis by the TCBEED shows that supply chains transiting through the Port of Laredo demonstrated surprising resiliency. Figure 1 shows that in 2019, pre-COVID levels of total world trade through this port of entry totaled 231 billion dollars. In 2020, total world trade decreased by 11% to 206 billion dollars during the peak of the COVID pandemic. Last year, total world trade levels recovered exponentially, totaling 249 billion dollars, an 8% increase over pre-covid levels or a 21% increase over the previous year.



Source: U.S. Census Bureau: Economic Indicators Division.
Analysis by: Texas Center for Border Economic and Enterprise Development

Figure 1

Our analysis further explores the resiliency of the supply chains crossing through Port Laredo by examining its top five traded commodities. In Figure 2, we observe that automobiles and automobile parts, machinery, electric machinery and parts, plastics, and furniture, are the sectors that account for over 60% of our total trade. These commodities displayed a comparable amount of resilience through the covid pandemic.

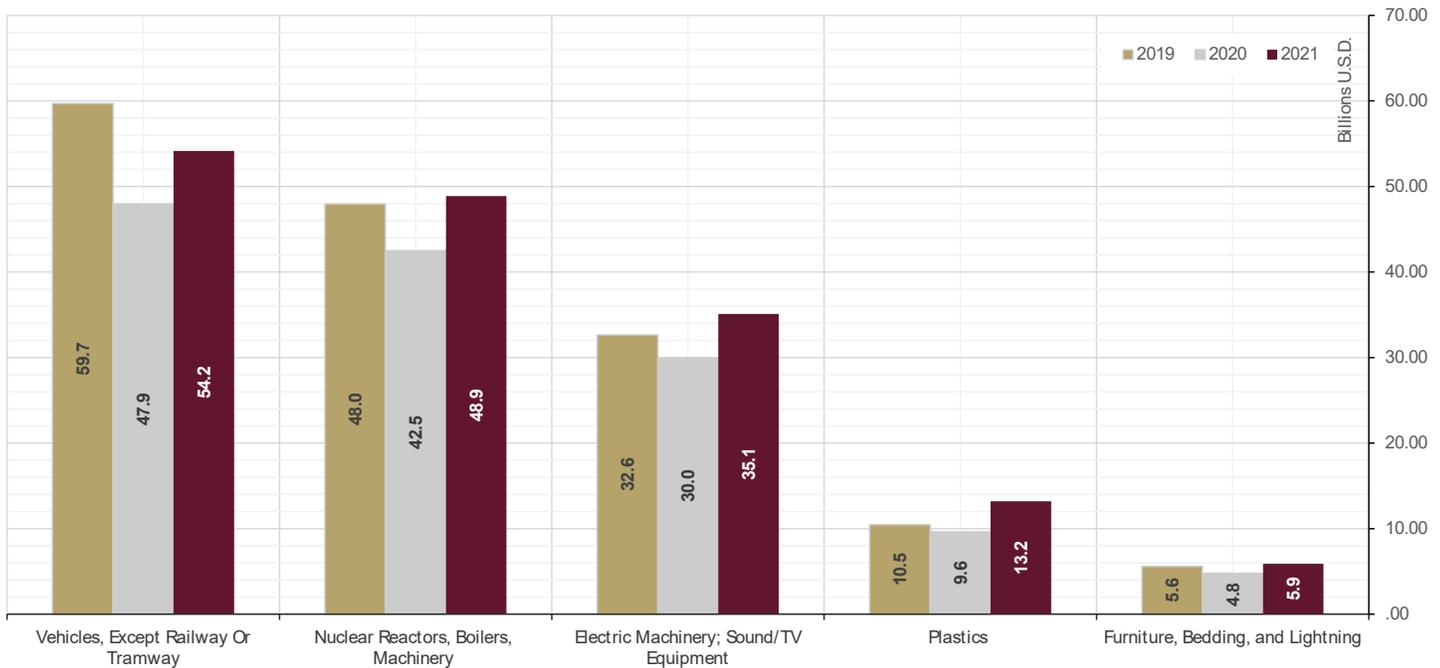
As a result, this land port of entry has predictable growth in the foreseeable future. A Texas Department of Transportation study of the Texas-Mexico Border Transportation Master Plan forecasts north and south-bound commercial truck crossings to grow by 65% from 17,300 total average crossings in 2020 to 28,600 average crossings by 2035.

to ports of entry identified by McKinsey & Company and Deloitte.

In view of our challenges, the technologies powering this port will be the key to its continued success and sustainable growth. Smart infrastructure, innovation, and technological development will shape the future of Port Laredo. Digitalization, automation, advances in technology, cybersecurity, data access, and environmental awareness will all help the port continue to securely and efficiently move cargo.

The Fourth Industrial Revolution, also known as Industry 4.0, is changing how businesses operate and transforming the sectors in which they participate and compete. This industrial revolution highlights the use of exponential techno-

Top 5 Traded Commodities Through Laredo POE 2019-2021



Source: U.S. Census Bureau: Economic Indicators Division.
Analysis by: Texas Center for Border Economic and Enterprise Development

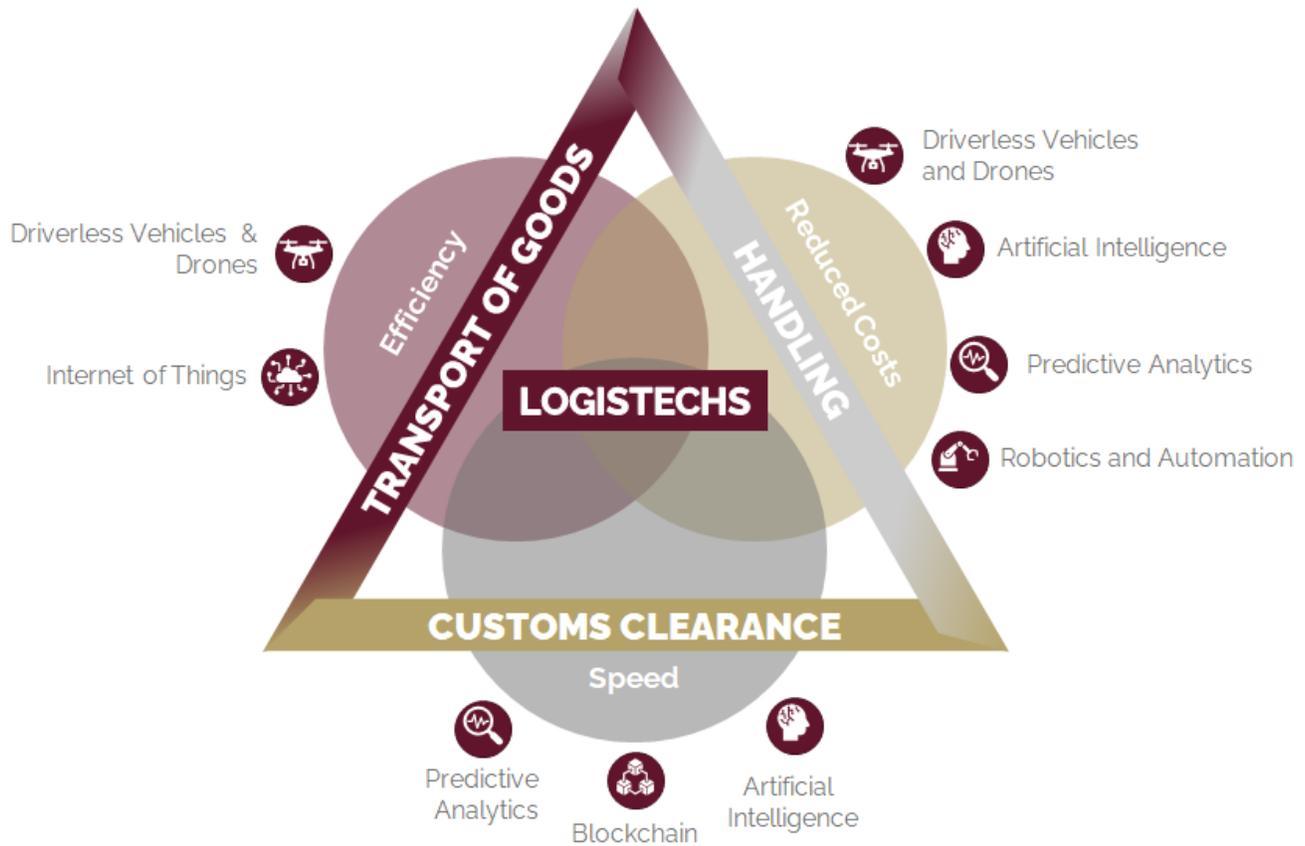
Figure 2

Regrettably, this exponential growth does not always correlate with being up to date on the latest technologies. The increasing complexity of port management, and operations, increased pressure on more security and faster processing, slower adoption of automation against comparable sectors, and transformation into environmentally cleaner and more efficient facilities are all examples of ongoing challenges posed

logies such as blockchain, cybersecurity, data analytics, artificial intelligence (AI), augmented and virtual reality, and the Internet of Things (IoT). Industry 4.0 advances the convergence and integration of these cloud-based technologies by designing new industrial and supply chain models capable of competitive flexibility and cost.

Logistechs can be defined as the impact that exponential technologies have on logistics. Logistechs can be classified as the exponential technologies that support the transport of goods, those that improve their handling, and the technologies that expedite their customs clearance. This concept emerged from Industry 4.0 and refers to new advancements in the sector where exponential technologies play a crucial role. Speed, competitiveness, productivity, and timing have always been essential in logistics. Today,

This Logistechs framework permits us to analyze the impact exponential technologies will have on contributing to Port Laredo's continued and sustainable growth. Some examples of how these technologies can impact transportation, handling, and customs clearance are as follows. Two leading exponential technologies can produce significant efficiencies concerning transportation: autonomous (driverless) vehicles and the Internet of Things (IoT).



Logistechs Framework
Figure 3

as supply chains become increasingly complex with more participants, there are endless documents to verify and lengthy processes to follow. Exponential technologies are vital in handling, analyzing information, and managing physical processes. These advances translate into continuous improvement of the supply chain. Logistechs optimizes the processes involved across the supply chain, from demand forecasting to route planning. As Figure 3 illustrates, the goal of Logistechs is to achieve greater efficiency, reliability, and reduced costs effectiveness in the transport and handling of goods. While simultaneously increasing speed in customs clearance.

Autonomous vehicles have fewer adverse environmental impacts and raise safety standards. They increase transport efficiency by having better capacity utilization and autonomously moving goods within land port facilities and across international borders -- allowing for a complete security screening process. IoT sensors permit transportation and traffic pattern data for people, passenger and commercial vehicles, and railroad cars to be gathered. This data can then be analyzed, helping produce higher efficiency, speed, throughput, and quality in border crossings. ResearchandMarkets.com forecasts the IoT market in logistics to grow at a 13.2% com-

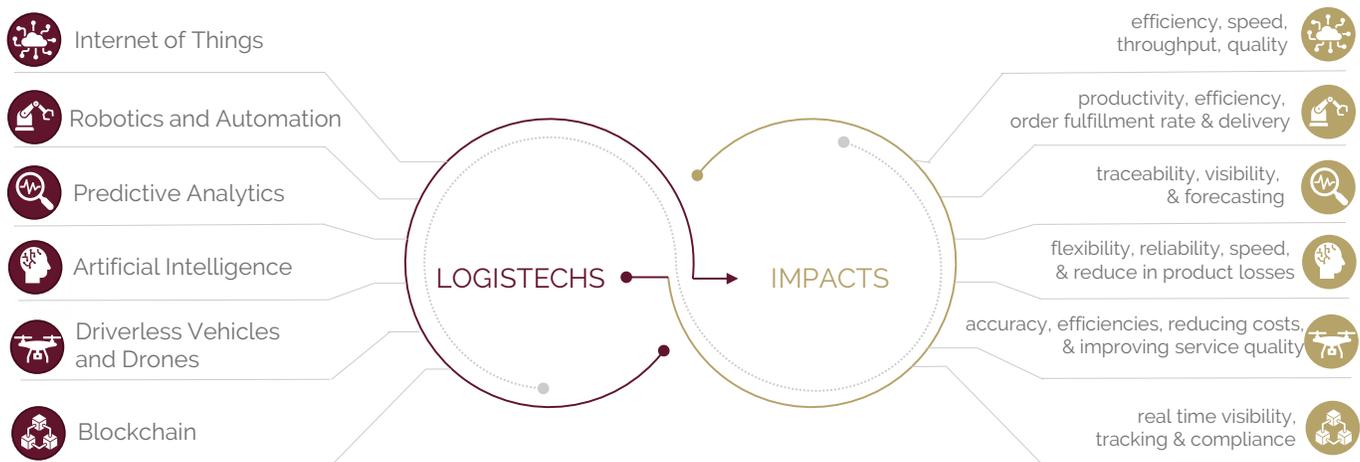
pound annual growth rate (CAGR) between 2020 and 2030. They estimated its growth to go from 35 million dollars in 2019 to 101 million dollars by 2030.

Exponential technologies can also impact the handling of goods at ports of entry. Technologies such as artificial intelligence (AI), predictive analytics, robotics, and automation reduce the costs of handling and inspecting goods. Optimization models can be generated using predictive analytics and AI to minimize border crossing wait times, simultaneously increasing the screening and security capabilities. Automation and AI permit security agencies to evaluate travelers and cargo using intelligent sensors that integrate technological advancements in traveler, and cargo processing. The use of biometric screening and non-intrusive inspection devices aid agencies in detecting security hazards. Machine learning algorithms can better anticipate threats and program resources as needed. In a study published in *The Economist*, McKinsey and Company estimate that the potential economic value-creation for AI in the next 20 years for the supply chain sector to be 1.3 trillion dollars.

Finally, blockchain, together with AI, big data, and predictive analytics, can reshape customs clearance processes at ports of entry. Blockchain increases the traceability of materials within supply chains, improves visibility and compliance,

and reduces paperwork and administrative costs by reducing physical inspections. It allows businesses and port authorities global shipment visibility, generating total linkage between manifests and invoices. This allows for the supervision of the entire logistics process and data-sharing across multiple customs organizations and users. This exponential technology enhances collaboration between government agencies and corporate entities, expanding opportunities to work jointly to address new security and efficiency challenges. Gartner, a leading research company, estimates that the business value added by blockchain will grow to surpass 3.1 trillion dollars by 2030.

Logistechs is transforming the supply chain operation from beginning to end, changing how goods are transported, handled, and cleared. Logistics companies, customs brokers, trucking companies, and port authorities all stand to benefit greatly. Port Laredo is rapidly on the move, and Logistechs will facilitate its continued and sustainable growth. Logistechs will enable Port Laredo to move toward a more data-driven service and convert the operations of its collaborative organic clusters into more visibly integrated technologically enhanced network structures.



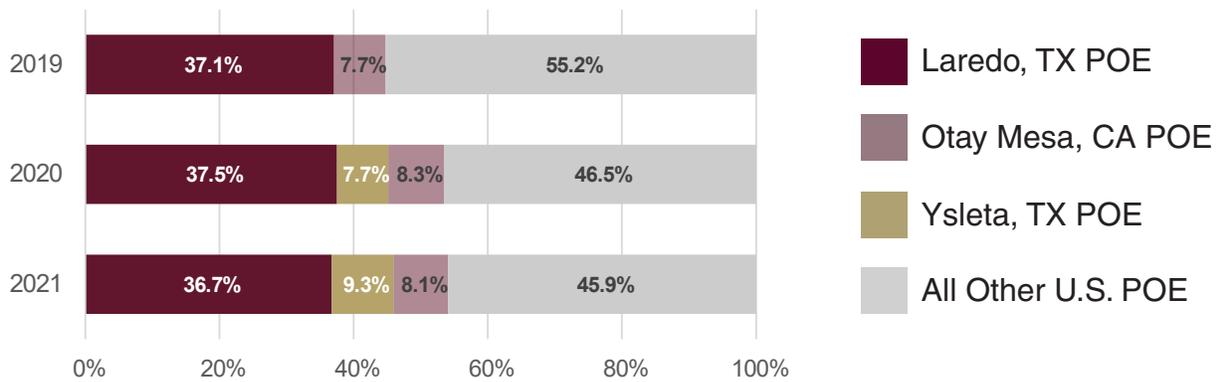
Logistechs Impacts
Figure 4

Laredo Trade Outlook

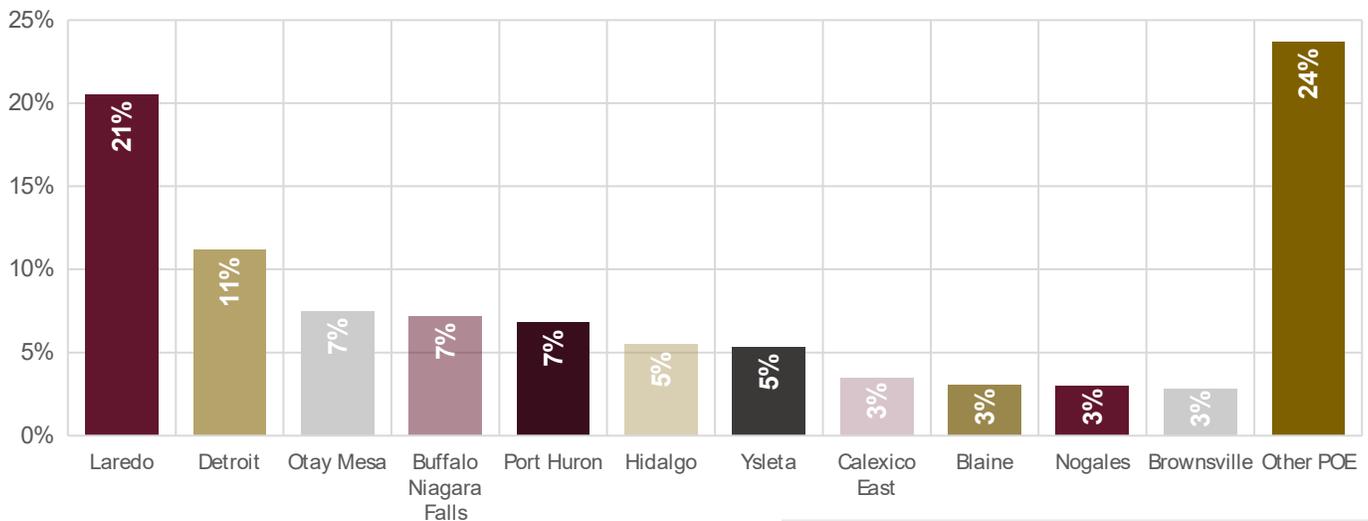
2021 Top 5 U.S. Ports of Entry by Total Import/Export Trade Value



Share of Total U.S.-Mexico Trade



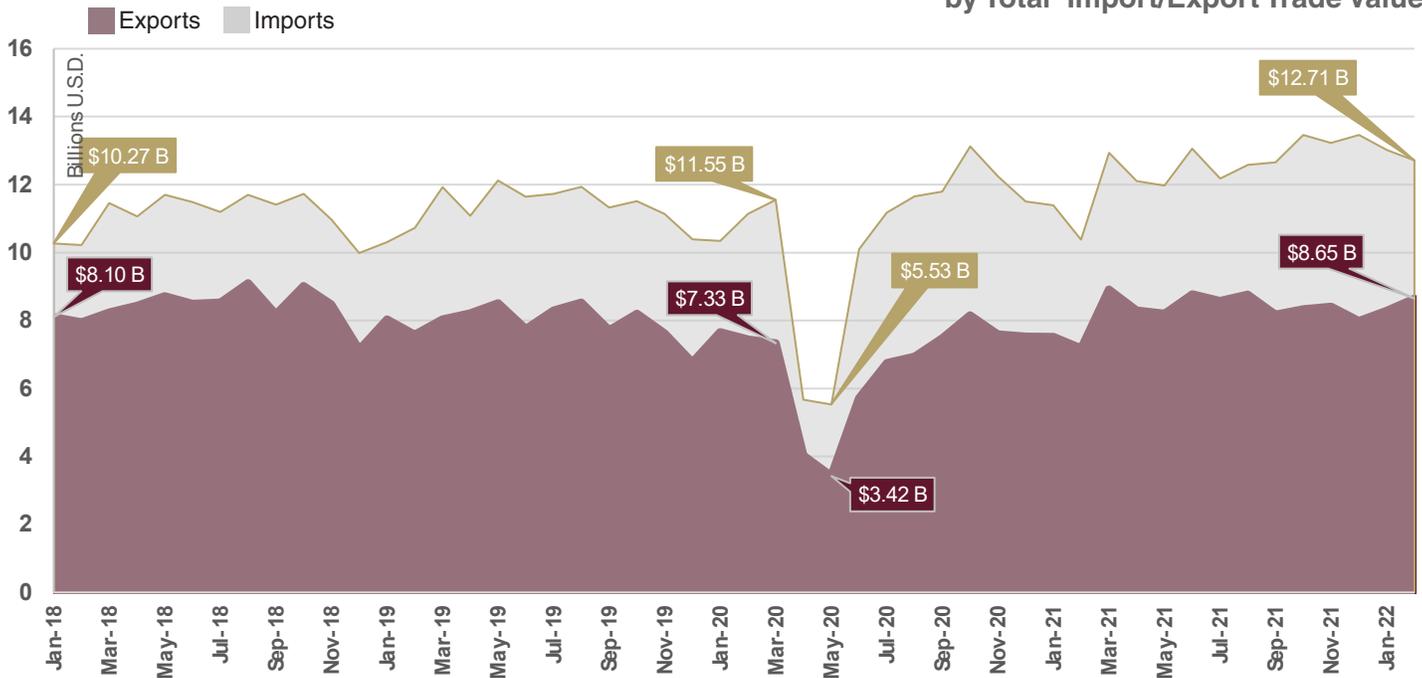
Share of Truck Crossings Into U.S. by POE



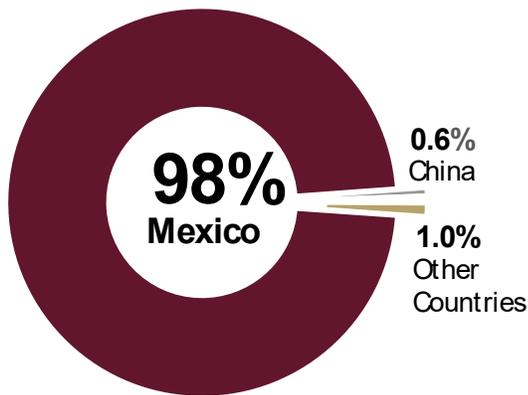
Source: U.S. Census Bureau Economic Indicators Division

Laredo Trade Outlook

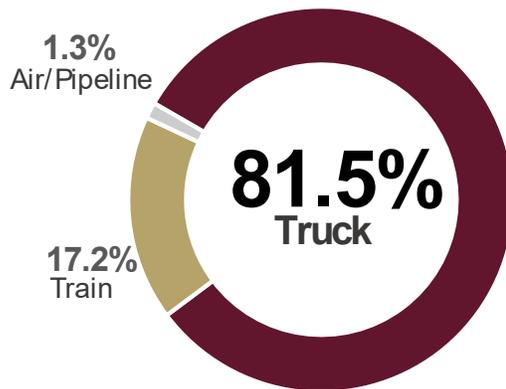
Port of Laredo Trade Trend by Total Import/Export Trade Value



2021 Laredo Port of Entry Top Trading Countries



2021 Laredo Port of Entry Main Mode of Transportation



2021 Laredo POE Top Exports

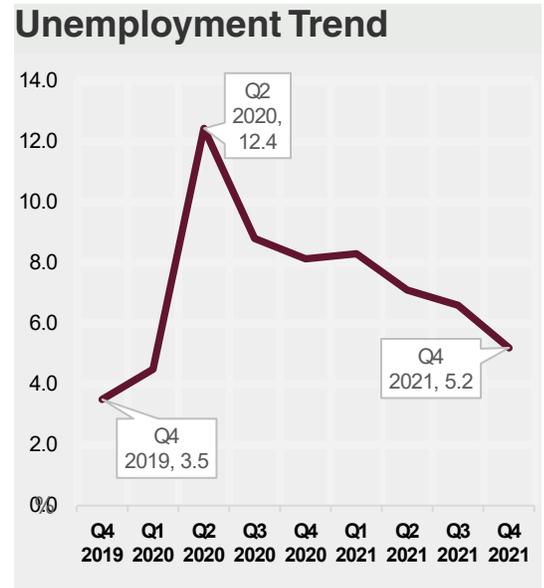
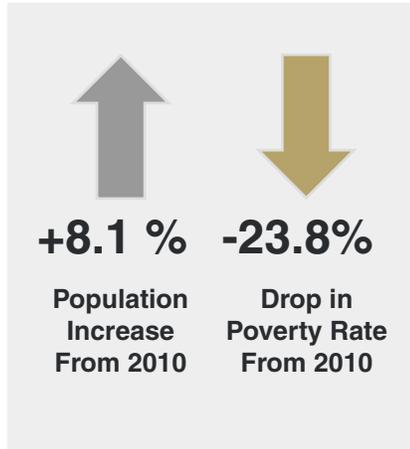
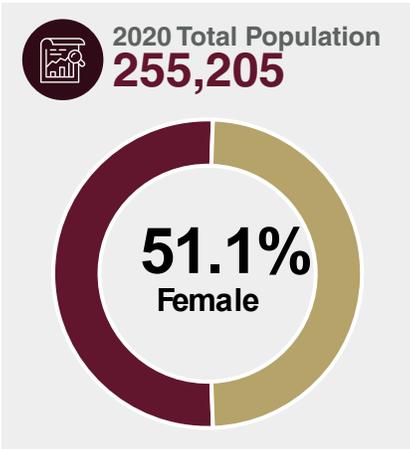
Int. Combustion Engines \$ 4.4 B	Crude Oil / Biodiesel \$ 2.6 B
Motor Vehicle Parts \$ 2.3 B	Motor Vehicle Gear Boxes \$ 1.9 B

2021 Laredo POE Top Imports

Tractors \$ 7.0 B	Base Stations \$ 5.1 B
Passenger Vehicles \$ 4.8 B	Digital Machinery \$ 4.5 B

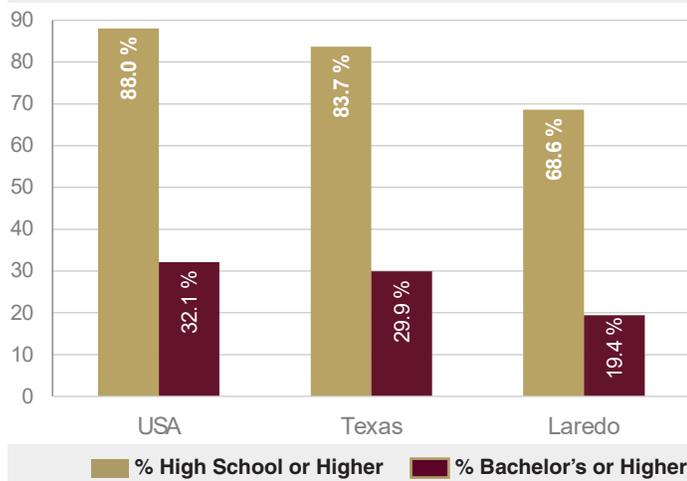
Source: U.S. Census Bureau Economic Indicators Division

Laredo Demographic Outlook



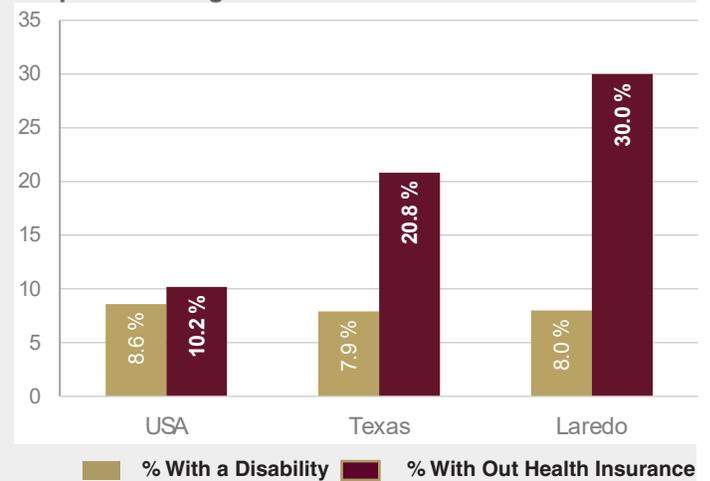
Education

2015-2019



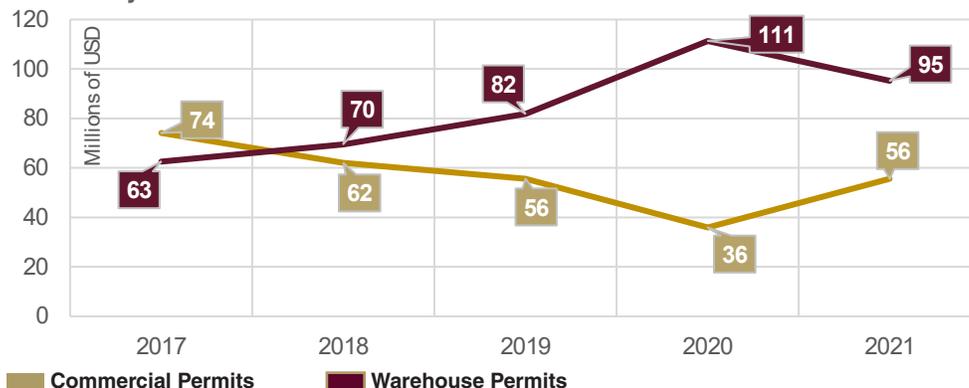
Health

People Under Age 65 2015-2019



Warehouse & Commercial Building Permits

Permits by Dollar Value



Warehouse Permits
↓ **14 %**
2021 vs 2020

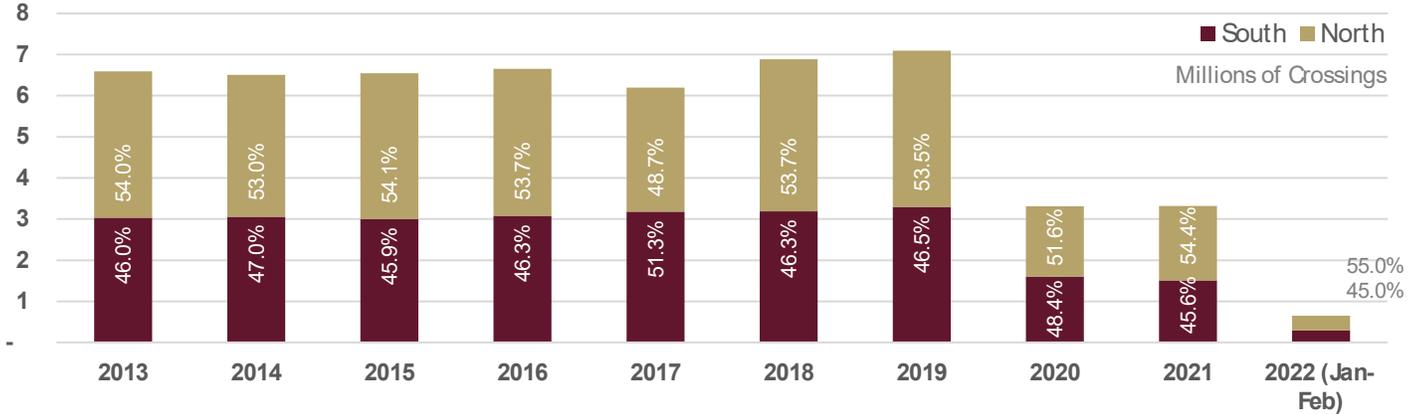
Comercial Permits
↑ **55 %**
2021 vs 2020

Source: U.S. Census Bureau, City of Laredo, Laredo EDC, Texas LMII

Laredo International Bridge Outlook

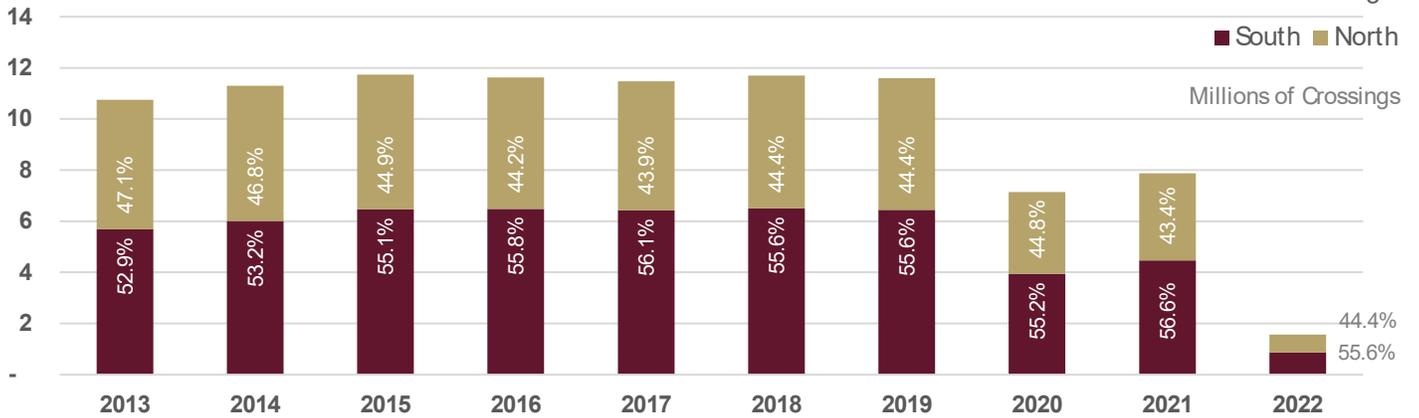
Pedestrian Crossings

All Laredo International Bridges



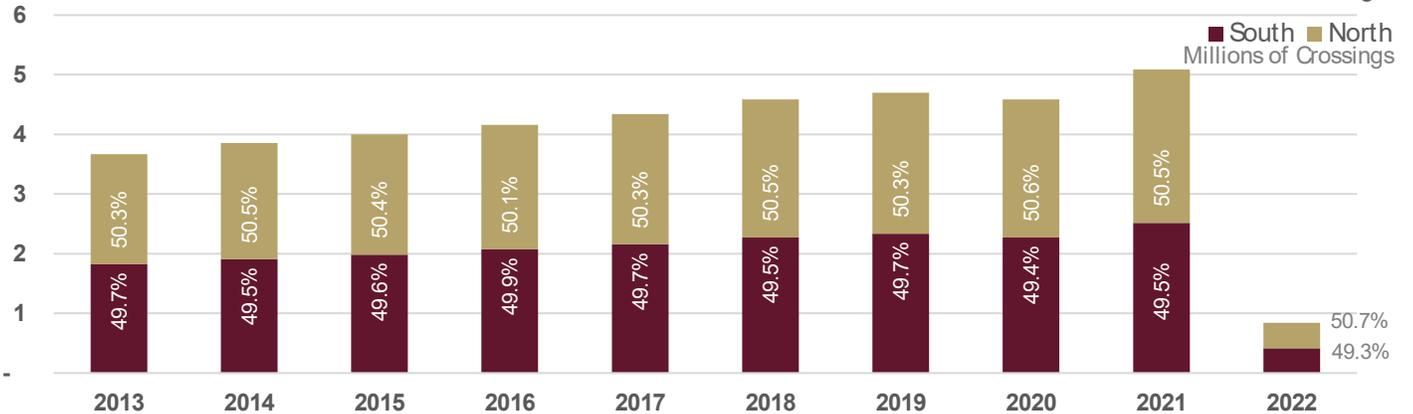
Passenger Vehicle Crossings

All Laredo International Bridges



Commercial Truck Crossings

All Laredo International Bridges



2021 North Bound Rail Crossings

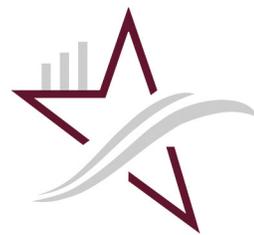
Train Crossings
4,330

Loaded Box Containers
246,516

Unloaded Box Containers
261,676

All Container Crossings
↑ 7%

Source: Bureau of Transportation Statistics. Laredo Bridge System

TEXAS CENTER

FOR BORDER ECONOMIC & ENTERPRISE DEVELOPMENT

TEXAS A&M INTERNATIONAL UNIVERSITY



Background

Since 1989 the Texas Center for Border Economic and Enterprise Development of Texas A&M International University, provides leadership and support to Texas border communities in their socio-economic development efforts, including activities in the areas of business, education, health care, public administration and the environment.

About

MISSION

Provide support to private and public entities with research, knowledge, information, assistance and expertise in border and binational socio-economic development efforts.

VISION

The TCBEED will contribute to the socio-economic development of the greater Laredo area with research and data analysis that allows a better understanding of the U.S.-Mexico border.

Contact

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Director

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SERVICES

Data

We maintain a U.S.-Mexico border database (statistical, text and bibliographic) on development issues and trends, including social/demographic, business, economic, public finance, health, education, and the environment. We provide on-line access to the database via the Texas Center home page.



Research

We work closely with university colleges and departments to involve faculty and students in specific community based activities designed to foster economic development and improved standards of living in the border region. We support interdisciplinary border development related research and planning activities focused on meeting specific community needs and concerns. We publish and disseminate research results through special reports.



Economic Development



Business Competitiveness



International Trade



Logistechs



Energy

Meet the Team



Brenda Pena

LaredoChamber
VISION 20
22



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