

EFFECTS OF FREIGHT BORDER-CROSSING PROCESS IN THE COMPETITIVENESS OF U.S.-MEXICO BORDER TRADE

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INTRODUCTION

The North American Free Trade Agreement (NAFTA) was implemented on January 1, 1994 and since then trade and transportation in North America initiated an era of change. Trade during NAFTA could be characterized in three very distinctive phases (Figure 1). The initial phase that started in 1994 with the inception of the treaty through 2000 was distinguished by a substantial growth in trilateral trade. In this first phase of the treaty, the value of United States (U.S.) goods trade with Canada and Mexico by surface modes went from \$312 billion in 1994 to \$576 billion in 2000, representing an average annual growth of 10.76%¹ (Surface modes include truck, rail and pipeline, excluding air and vessel). In the second phase of the treaty between the year 2000 and 2005, the average annual growth rate of U.S. goods traded with Canada and Mexico by surface modes fell to less than 3.92%. The third phase of NAFTA is the one we are starting to witness with great uncertainty. Security and safety concerns in the U.S. have added another layer of complexity to North American trade movements. In addition, China's development as an

export power will undoubtedly bring changes in the way trade and transportation is handled in the North American continent. Supply chain characteristics will need to adapt to the new environment, requiring shippers and carriers to modify current international transportation processes to remain competitive.

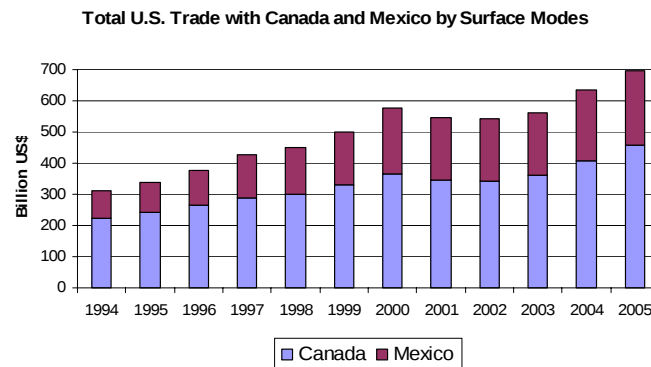


Figure 1. Total U.S. Trade with Canada and Mexico by all Surface Modes 1994-2005

Land border crossing processes, which is a meaningful part of the North American trade, is evolving; however the number of stakeholders that intervene in the process, many times with different goals and objectives, makes the transformation difficult and slow. The concentration of trade in very few land ports of entry makes the North American land trade system very vulnerable. With over 75 land ports of entry along the U.S.-Canadian border and 25 along the U.S.-Mexican border, forty percent of international land freight transportation in North America is concentrated in three ports of entry: Detroit, Michigan; Laredo, Texas; and Port Huron, Michigan².

Heightened security measures implemented by U.S Bureau of Customs and Border Protection (CBP) at the U.S. – Mexican land borders make the transport of goods between Mexico and the U.S. strenuous, increasing logistics costs to Mexican manufacturers. These evolving security measures implemented after 9/11 combined

with unresolved commercial vehicle operation disputes are affecting the competitiveness of trade between Mexico and the U.S.

This paper examines the effects on bilateral trade of commercial border crossing at the U.S.-Mexico border by first describing the truck and rail crossing processes, followed by a brief description of the operation of security programs that are being implemented at this border. These two sections set the framework for the following part which consists of an account of the effects that the current operations and security programs have on the international land trade at the U.S. Southern border. Finally the paper presents conclusions and recommendations on alternatives to improving land transportation and trade facilitation at this important international gateway.

U.S. – MEXICO CROSS-BORDER TRUCK AND RAIL OPERATIONS

Truck

A large portion of NAFTA trade moves over the U.S. northern and southern borders by truck. Commercial vehicle movement between Mexico and the U.S differs from the one from Canada into the U.S. because Mexican tractors are restricted to circulate within a commercial zone that extends between 3-20 miles from the border line. The commercial border crossing process between Mexico and the U.S. is complicated due to filing requirements with Mexican and U.S. agencies, preparation of paper forms that are carried with the shipment, and the involvement of a large number of public and private stakeholders. Shipments originating in central Mexico are usually moved by a Mexican long-haul carrier that delivers the trailer to a border drayage tractor that hauls the shipment to the international port. Once the shipment with the authorized driver and truck are at the international port, the process follows three main physical areas: Mexican Export Lot, U.S. Federal Compound, and State Safety Inspection Station. The main activities that take place in the northbound border crossing process at each of three areas is presented in the following sections and illustrated in Figure 2.

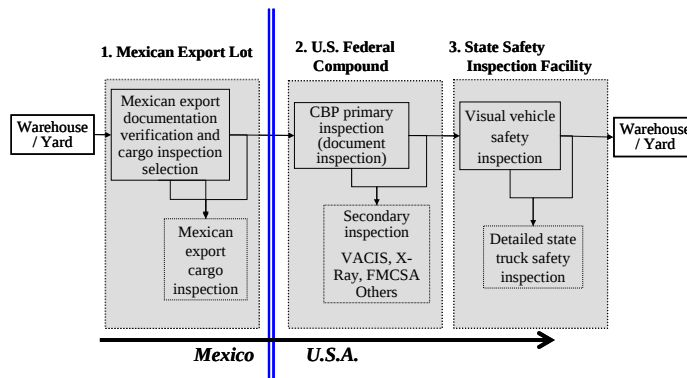


FIGURE 2 Mexico to U.S. Commercial Border Crossing Process

Mexican Export Lot

The drayage driver with the required documentation proceeds into the Mexican export customs compound. Mexican Customs conducts inspections consisting of a physical review of the cargo of randomly selected outbound freight prior to its export for audit and interdiction purposes. Those shipments that are not selected proceed to the exit gate, cross the border, and continue on to the U.S. port of entry (POE).

U.S. Federal Compound

At the primary inspection booth, the driver of the truck presents identification (proof of citizenship or a valid visa or laser card), a copy of the Inward Cargo Manifest, and the commercial invoice to the processing agent. The CBP inspector at the primary inspection booth uses a computer terminal to cross-check the basic information about the driver, vehicle, and load with data sent previously by the U.S. customs broker. The inspector then makes a decision to refer the truck, driver, or load for a more detailed secondary inspection of any or all of these elements, or releases the truck to the exit gate.

A secondary inspection includes any inspection that the driver, freight, or conveyance undergoes between the primary inspection and the exit gate of the U.S. federal compound. Personnel

from CBP usually conduct these inspections, which can be done by physically inspecting the conveyance and the cargo, or by using nonintrusive inspection equipment (such as x-ray). Within the compound, the U.S. Department of Transportation (USDOT) Federal Motor Carrier Safety Administration (FMCSA), and the Food and Drug Administration (FDA) have personnel and facilities to perform inspections when required.

State Safety Inspection Facility

In the majority of the POEs, the state safety inspections stations are located adjacent to the federal compounds. State police personnel interview drivers and inspect conveyances to determine whether they are in compliance with U.S. safety standards and regulations. When the initial visual inspection finds any violation, the truck proceeds to a more detailed inspection at a special facility.

After leaving the state inspection facility, the driver typically drives to the freight forwarder or customs broker yard to drop off the trailer for later pickup by a long-haul tractor bound for the final destination.

The time required for a shipment to make the complete trip from the yard or the manufacturing plant located in the border region in Mexico to the exit of the state inspection facility is dependent on the number of secondary inspections required, as well as the number of inspection booths in service and traffic volume at that specific time of day.

Rail

North America rail cross border traffic has increased substantially in recent years due to efficiencies gained after rail privatization in Mexico and new North American marketing and operation alliances that have resulted in the integration of the railroad system. Mexico's rail privatization program has been very successful. The Mexican railroad system (Ferrocarriles Nacionales de Mexico-FNM) was divided into several franchises that were auctioned off as a 50-year concession (renewable for another 50 years) for the right to operate and maintain the specified trackage. In the initial auction, foreign

ownership on the concessionaires was limited to 49% so U.S. Class I railroads partnered with Mexican companies.

The northeast concession operated by Kansas City Southern Railroad–Mexico (KCS-M, formerly Transportación Ferroviaria Mexicana or TFM) is now fully owned by the Kansas City Southern Railroad. Ferrocarril Mexicano or Ferromex operates the northwestern concession and has a 26% participation of the Union Pacific Railroad. These two concessionaires connect central Mexico, the Pacific Coast and The Gulf of Mexico to the U.S – Mexico border. As with truck movements, North American international rail crossing are also concentrated in few ports of entry. Over 50% of the value of U.S.-NAFTA rail trade crosses through just two ports – Laredo Texas, and Port Huron, Michigan.

Rail border crossing process, especially intermodal shipments at the U.S. Mexico border has been streamlined and it has proved to be very efficient, diverting some freight from truck to rail. As U.S.-Mexico in-bond rail movements are not required to stop at the border for inspection, final customs inspection could be performed at in-land terminals where customs officials and brokers perform the importing processes.

SECURITY PROGRAMS

Among the most recent initiatives from the U.S. government to increase security and facilitate legitimate trade at commercial ports of entry (POE) is the Free and Secure Trade (FAST) program implemented by CBP. The objective of FAST is to incentivize supply chain security by offering expedited clearance to carriers and importers enrolled in the Customs-Trade Partnership Against Terrorism (C-TPAT). As FAST commercial vehicles approach a FAST lane at a crossing, a wireless radio frequency identification (RFID) reader recognizes the unique identification number encoded into both the truck's windshield sticker tag and the driver's identity card. The transponder codes are associated with import, carrier and driver information already submitted to the system electronically. At the inspection booth the inspector can confirm that fees have been paid, and the customs computer system displays a digital image of the

driver along with biographical information for inspector confirmation.

Non-FAST enrolled commercial vehicles require paper documentation that takes longer to process and could lead to errors. Further, non-FAST shipments are more likely to experience secondary inspections that sometimes require unloading the truck for detailed inspection.

EFFECTS ON COMPETITIVENESS

The current northbound truck international border crossing process at the U.S.-Mexico border creates congestion and restricts the movement of goods across the border. A comprehensive bi-national research study along the U.S.-Mexico border³ identified drayage as a practice that creates and/or contributes to congestion at land ports of entry, adding cost, time and unreliability to cross-border trade. The research study also identified that each border crossing has unique operational characteristics that affect the border crossing process at that port of entry.

Two types of drayage operations were identified in the analysis. The first one occurs when long-haul truck brings trailers from the Mexican interior to Mexican border region, dropping the trailer to return to the interior of Mexico with a southbound load. The northbound trailer that is dropped at a yard in the Mexican side of the border is hauled through the border crossing process by a Mexican drayage truck to a yard or distribution center in the U.S border region. At this point, the load is picked up by a U.S. long-haul tractor that will move to the U.S. interior. In this particular case, three trucks handle the same trailer creating a drayage situation that would not happen if the Mexican truck could seamlessly take the trailer to the U.S. interior.

The second type of drayage occurs when the origin of the shipment is located within the Mexican border region. In this case a Mexican drayage truck moves the trailer across the border to a yard or distribution center in the U.S. border region. The load is picked up by a U.S. long-haul tractor to be transported to the U.S. interior. This process results in two tractors handling the same trailer, magnifying

the truck volumes at ports of entry and thus contributing even further to congestion and the cost of moving goods between the two countries.

The lack of resolution regarding the opening of the border for Mexican-domiciled trucks to circulate beyond the border commercial zone makes the drayage problem even greater. With the current regulations in place, all of the more than four million northbound crossings that occur at the U.S.-Mexico border are drayage transfers with a significant proportion being empty truck or bobtail (tractor only) movements. Current drayage costs at the Nuevo Laredo-Laredo border crossing averages \$100 per one-way trip. The drayage movements add close to \$500 million per year to the cost of shipping by truck from Mexico to the U.S., without considering other logistics costs like inventory carrying costs and administrative costs.

Unreliability caused by multiple inspections is another factor that adds to the overall cost of shipping by truck between Mexico and the U.S. Shipments are subject to a detailed inspection at the Mexican Export Lot by Mexican customs authorities, at the U.S. Federal Compound by CBP and other U.S. federal agencies, and at the Safety Inspection Station by State police. Just-in-time manufacturing practices do not allow for delays caused by a potential detailed inspection at these three steps of the process. Additional inventory required to support potential disruptions in the supply chain caused by lengthy unexpected inspections add to the overall cross-border logistics cost.

The United Nations Conference on Trade and Development (UNCTAD) estimates that the potential medium-term revenue gains from trade and transportation facilitation are estimated to be 2 to 3 percent of the total value of traded goods, and that one of the main obstacles to transport and trade is insufficient use information and communications technologies⁴. Coordination between U.S. agencies, and U.S. and Mexican agencies and private sector stakeholders operating in the truck border crossing process could bring more reliability to the process, reducing logistics costs. The use of RFID technology, intelligent transportation systems (ITS) and information sharing systems throughout the process could improve coordination.

C-TPAT/FAST processing capabilities have been implemented at major commercial ports of entry along the U.S.-Mexico border; however some of the commercial gateways that provide these services do not offer a dedicated FAST lane throughout the process due to space constraints, lack of international bridge capacity and roadway infrastructure in Mexican facilities. This lack of infrastructure does not support adequate FAST operations, resulting in the mixing of certified and non-certified shipments approaching border facilities. The queuing of FAST movements behind non-certified loads through the border-crossing process diminishes one of the advantages of the FAST program, which is eliminating congestion before, within, and immediately after a port of entry for certified shipments.

Certification in the C-TPAT and FAST programs requires substantial investments in security programs that small shippers and carriers can not afford. Small drayage carriers are leery on investing in certification especially when the benefits of the program are not evident, and those who decide to invest usually do not pass the costs to the consumer. This extra cost is an externality that adds to the overall cross-border logistics cost.

Awkward truck border crossing procedures have made shippers divert from truck into rail intermodal. In the spring of 2005, Kansas City signed an agreement with the Pacific Mexican port cities of Manzanillo and Lazaro Cardenas aimed to give Kansas City a share of the Asian trade through Mexico. KCS-M serves the port of Lazaro Cardenas with a direct connection to Laredo and Brownsville, Texas. Manzanillo and Lazaro Cardenas could become an alternative for Asian cargo to the congested U.S. West Coast ports. Kansas City agreement with the Mexican ports would provide a direct rail connection from the Mexican ports overland to Kansas City, where an in-land terminal is being planned. This movement would also eliminate congestion at the U.S.-Mexico border if the Kansas City in-land terminal operates as planned with U.S. Customs officials inspecting import cargo and Mexican Customs officials inspecting U.S. exports in Kansas City⁵.

CONCLUSIONS AND RECOMMENDATIONS

Cross border transportation has grown substantially since the implementation of NAFTA in 2004. Transportation infrastructure has not kept pace with this growth and creates congestion and delays at international truck border crossings.

Drayage operation at the U.S-Mexico border crossing, created mostly by the lack of resolution regarding the opening of the border for Mexican-domiciled trucks adds substantial costs to cross-border truck trade. In addition, the lack of reliability in crossing time adds inventory carrying costs that reduce the competitiveness of Mexican shippers exporting to the U.S.

Coordination among public and private stakeholders in the U.S. and Mexico is needed to resolve the opening of the border to Mexican-domiciled trucks that would eventually reduce the number of truck circulating through congested U.S.-Mexico commercial border crossings.

Investment in infrastructure and technology is needed to fully implement the security programs at the commercial border crossings. The implementation of a coordinated, secure and safe program throughout the process would bring substantial benefits to shippers with a more time-reliable system. By reducing commingling and congestion, FAST users would benefit from an expedited crossing, making the overall process more attractive for those shippers/carriers not currently enrolled in the security programs.

Under the Security and Prosperity Partnership (SPP)⁶ the U.S., Canada and Mexico have agreed to review transportation and border facility needs and develop a plan to prioritize future POE-related infrastructure investments. All three countries are considering programs to reduce transit times and border congestion by expanding trusted traveler programs to additional ports of entry and partnering with public and private sector stakeholders to establish “low-risk” ports of entry. The SPP could be a vehicle to establishing coordination mechanisms and promoting the required investments in infrastructure and technology.

The North American rail system is becoming a more integrated system that brings an alternative to the predominant mode of moving cargo in the continent. The successful Mexican rail privatization, recent ownership changes and innovative operation schemes, like the in-land terminal concept will result in a more comprehensive transportation system that would divert freight traffic from truck to rail. These changes will reduce truck cross-border congestion bringing benefits to shippers, receivers and the border region by reducing logistics costs and pollution at congested ports of entry.

REFERENCES

¹ U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Transborder Freight Data.

² U.S. Department of Transportation, Bureau of Transportation Statistics, America's Freight Transportation Gateways, Washington DC 2004.

³ M. Ojah, J. Villa, W. Stockton, D. Luskin, R. Harrison. Truck Transportation Through Border Ports of Entry - Analysis of Coordination Systems. Research Report 50-1XXA3038. Texas Transportation Institute, College Station, TX. 2002.

⁴ United Nations Conference on Trade and Development, Transport Newsletter No. 29, Third Quarter 2005.

⁵ Gulf Shipper, Vol. 16, Issue 14, April 14, 2005.

⁶ Security and Prosperity Partnership of North America, Prosperity Agenda, Published by the White House Office of the Press Secretary, March 23, 2005. Available at <http://www.spp.gov/links.asp>