

MEASURING THE ECONOMIC EFFECTS OF BORDER DELAYS

USMexPAT I-O Approach

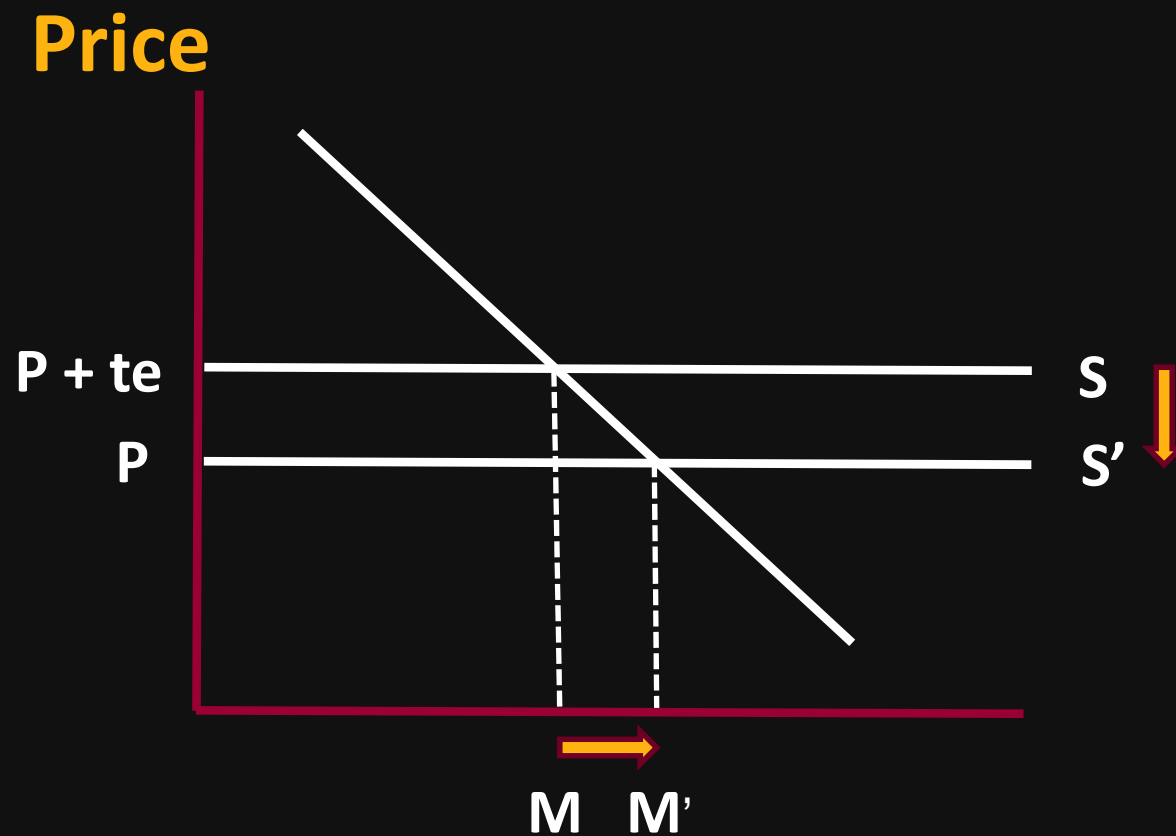


Brief Overview of Methodology

- Delays at the border are comparable to a tax on imports as they add to the costs of crossing the border
 - We translate delays into “tariff-equivalents”
- Next, we compute the amount by which U.S. imports from Mexico (i.e, Mexican exports) would expand if the “tariff-equivalent” fell to zero
 - Equivalent to estimating the trade effects of moving to free trade
- Trade flow changes are translated into production and employment changes for U.S. and Mexico industries



Capturing Direct Trade Effect



Imports from Mexico



Probable Mexican Products Impacted

RITA Commodity Code	
85	Electrical machinery, equipment, parts
84	Machinery and mechanical appliances
87	Motor vehicles and parts
90	Precision instruments and measuring devices
94	Furniture and mattresses
7 and 8	Fruits and vegetables



Beyond the Simple Description

- It is important to take into account whether the imported product is a final or intermediate good.
- If it is an intermediate good, we must measure benefits to downstream users of a lower priced input.
- It is also important to determine whether the imported product faces competition from domestic and imported goods?



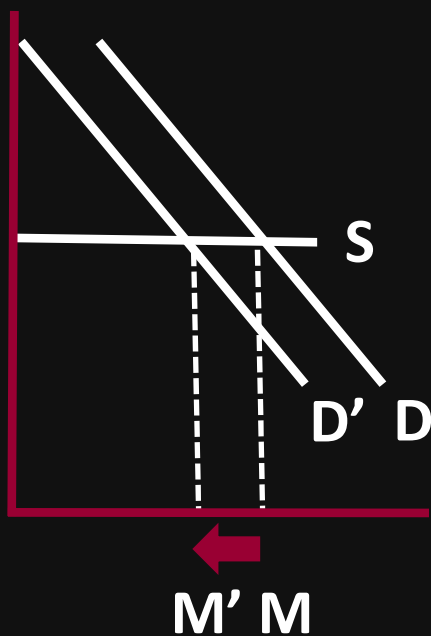
Suppose it's a Final Good

- If it is a final good, then we would need to check if the imported Mexican product has substitutes. *If it does not*, then the analysis-diagram presented earlier is complete
- If it is a final good AND faces domestic competition, then we would also need to calculate the sales lost to domestic competitors



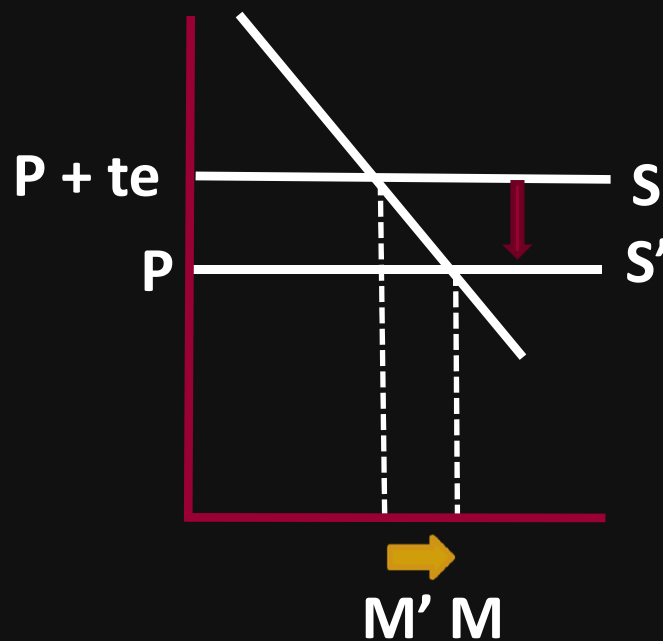
Effect on U.S. Competitors

Price



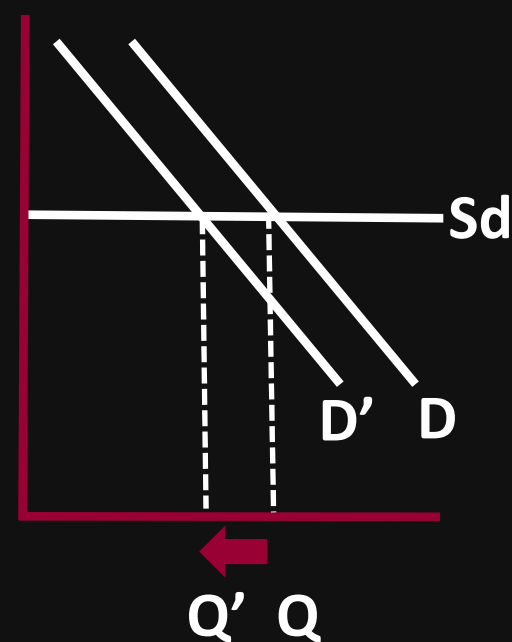
Imports from Others

Price



Imports from Others

Price



Domestic Production

Suppose it's an Intermediate Good

- If it is an intermediate good, this has implications for downstream users
- The reduction in the cost of the intermediate good (as t_e falls) translates into a benefit for the downstream user. *The lower price allows them to be more competitive and this stimulates sales domestically*
- We plan to calculate the resulting increase in sales and employment of downstream industries using the IMPLAN or input/output model of the U.S. economy



Application Issues

- Conceptually, the exercise appears straightforward, but we have run across a number of issues in the application

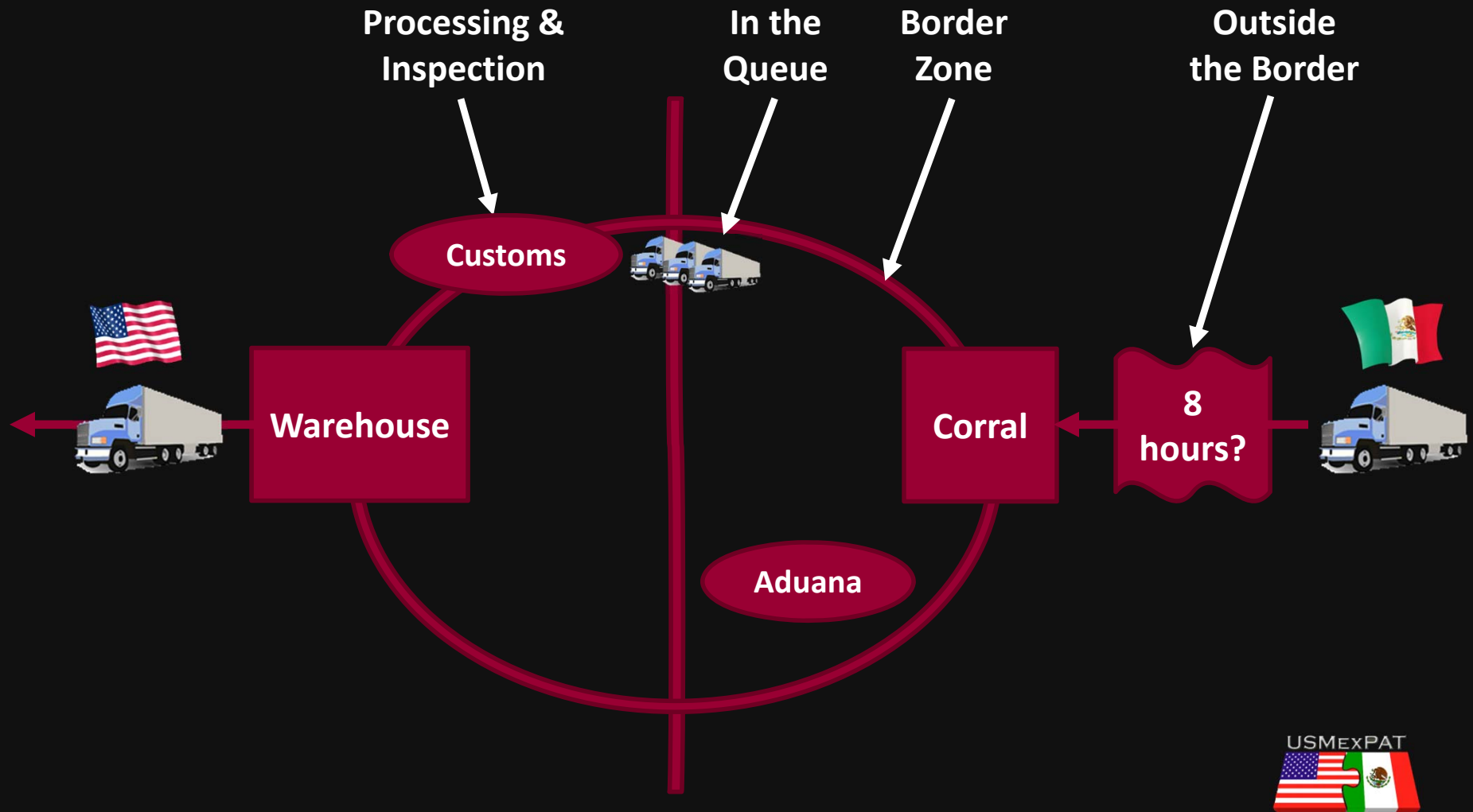


Wait Time Issues

- Defining the wait time
- Determining wait time statistic
- Finding recent data on wait times



Which Wait Time?



Which Time Period for Wait Time?

- Month? - Heaviest traffic months or all months?
- Day of the Week? - Heaviest traffic day or entire week?
- Time of Day? - All hours of the day or peak time?



El Paso Port of Entry

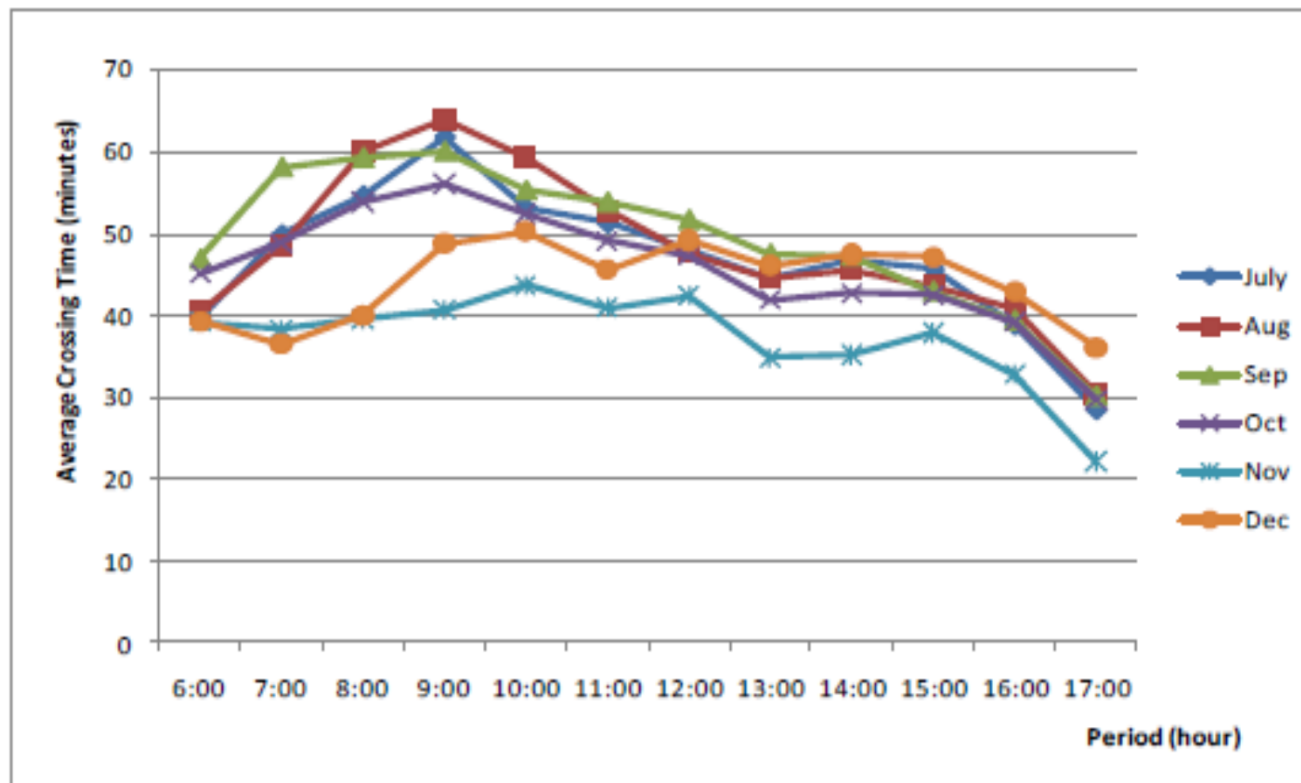
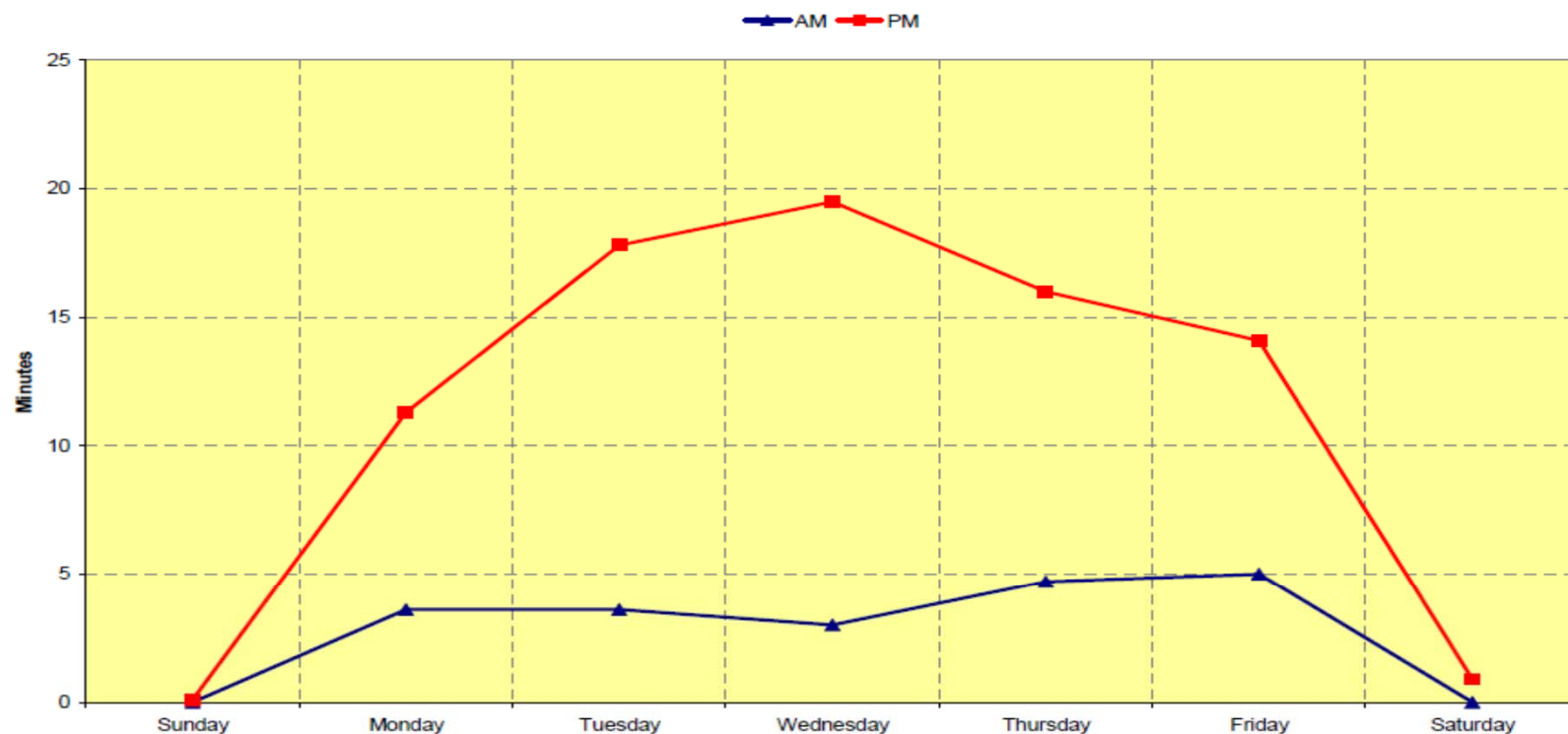


Figure V-6. Hourly Average of Crossing Times: Comparison by Month (2009)

Source: University of Arizona and CIITR, Border Delays (July 2009)



Figure 3: Average Commercial Vehicle Wait Times for Primary Inspection at Calexico East, Northbound Traffic (September 15, 2001 – June 12, 2002)



Source: Texas Transportation Institute, "Truck Transportation through Border Ports of Entry: Analysis of Coordination Systems," November 2002.

Which Trucks to Focus On?

- FAST or Non-FAST users?
- Empty or loaded trucks?

Which Statistic?

- Average?
- Median?
- 90th Percentile?



Average Wait Times (min) for Trucks, Otay Mesa, CA on Weekdays

FAST	Peak, FAST - Line to Arrival Times	1.09
	Peak, FAST - Arrival to Exit Times	89.89
	Additive Total	90.98
	Non-Peak, FAST - Line to Arrival Times	0.32
	Non-Peak, FAST - Arrival to Exit Times	106.36
	Additive Total	106.68
EMPTY	Peak, Empty - Line to Arrival Times	1.71
	Peak, Empty - Arrival to Exit Times	120.46
	Additive Total	122.17
	Non-Peak, Empty - Line to Arrival Times	7.23
	Non-Peak, Empty - Arrival to Exit Times	100.31
	Additive Total	107.54
LOADED	Peak, Loaded - Line to Arrival Times	1.25
	Peak, Loaded - Arrival to Exit Times	136.57
	Additive Total	137.82
	Non-Peak, Loaded - Line to Arrival Times	0.49
	Non-Peak, Loaded - Arrival to Exit Times	124.93
	Additive Total	125.42

Source: HDR Decision Economics 2007

El Paso Port of Entry

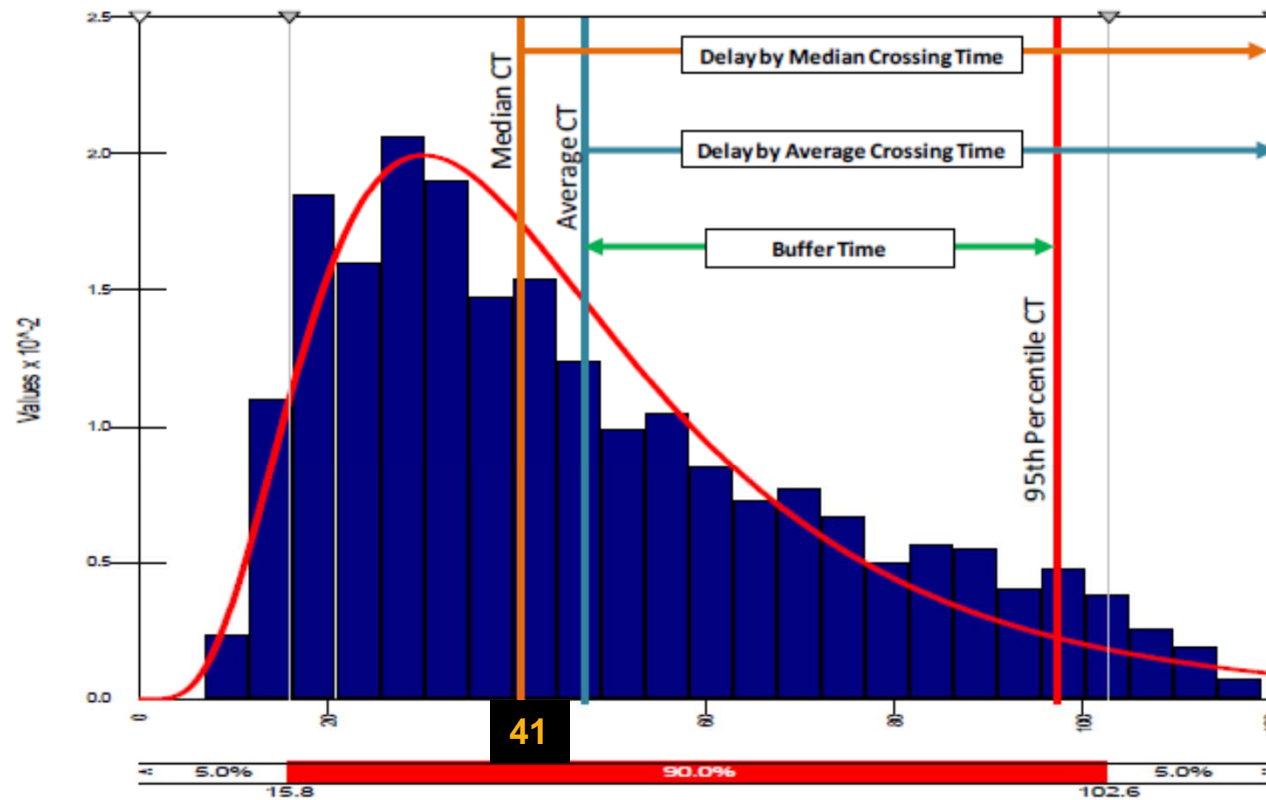


Figure V-10. Crossing Time Distribution (BOTA) and Performance Measures/Statistics (July-September 2009 BOTA)

Source: University of Arizona and CIITR, Border Delays (July 2009)

Calculating the Tariff-Equivalent

- If we resolve issue of measuring wait times, how do we set a value on this cost?
- Tariff-Equivalent = $\frac{\text{Cost of wait times}}{\text{Value of shipment}}$
- Literature uses 3 approaches:
 - Compute labor cost of waiting and interest cost of shipment
 - Compute above AND the impact on just-in-time inventory methods (Waiting causes uncertainty, disrupting just-in-time methods)
 - Use demand side and compute the value consignees place on reducing wait times



Next Steps

- Replicate the analysis for Southbound trade from the U.S.
- Contact shipping companies (e.g. Swift) to obtain additional information on the value of truck shipments broken down by type of goods shipped
 - Tariff-equivalent should vary by the value of the shipment
- Search for more complete wait time data that captures the time delays outside the border

