DISCLAIMER

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Presentation Outline

- The Problem
- The Context
- NAFTA borders:
  - U.S.-Canada
  - U.S.-Mexico
- Security after 9/11
- Evidence of border delay costs
- Modeling institutional and security border frictions
Practical Effects of Non-Tariff Barriers
Bilateral Trade
U.S.-Mexico

Billions of US Dollars

- US Exports to Mexico
- US Imports from Mexico
- Total Bilateral Trade
Surface Exports to Mexico 2007-2009 (Shipment Value in U.S. $ Millions)

Source: U.S. Bureau of Transportation Statistics, U.S. Department of Transportation
NAFTA Border Crossing
Current Situation
Trusted Traveler Shipper Programs

- Customs-Trade Partnership Against Terrorism (C-TPAT)
- FAST
- Global Entry
The U.S.-Canada Border

- Share language, cultural heritage, legal and political systems, economic development
- Trade agreements existed before NAFTA
- Before 9-11 events the U.S-Canada border was a good example of seamless BC
- Shipper cover by a bond or insurance
- After 9-11, evidence of border delays from 30 min to 4 h and 1-3 percent extra costs, Grady (2009) concluded the costs have been underestimated, as high as 26.8 for the high tech and 14.9 for the transport sectors.
The Context U.S. - Mexican Border
Current Situation Southbound
Laredo, Texas
World Trade Bridge
Current Situation Northbound

Source: Figure and Table by Haralambides, Londoño-Kent

Diagram showing crossing costs and times between Mexico and the U.S., highlighting the processes and congestion at the border.
Institutions that Benefit from Border Crossing Inefficiencies

- Mexican brokers
- The Laredo - Nuevo Laredo drayage industry
- U.S. banks that finance the construction of warehouses
- State and municipal governments on both sides who receive toll payments
- The Mexican states that receive a share of Customs tax collections
- The entire regional economy that provides jobs, goods and services
Geographic Distance vs. Economic Distance

- What drives economic distance?
  - Geographic distance (~$1.33/mile)
  - Payments at the border ($300—$650 per truckload)
  - Delays at the border (2—5 days)

- Result: border frictions add thousands of miles of economic distance
Modeling Border Frictions

- Frictions induced by Mexican brokerage system
  - Time lost from overly-complicated system
  - Additional fees and costs

- Frictions induced by heightened security (both borders)
  - Time lost waiting to cross
  - Increased unpredictability → increased warehousing, move from just-in-time to just-in case.
Estimating the Costs of Border Security and Delays

- Walkenhorst and Dihel (2006)
  - Additional security measures treated as frictional costs reducing productivity of traded goods (but not services) by 1 percent on average (country/sector incidence varies between 0.5-1.6% across scenarios).
  - Global trade contracts by about 0.9 percent, annual welfare declines by $75-77 billion.
Border Security and Delays between Canada and the United States

- Nguyen and Wigle (2011):
  - Canada-only regional model (SOE)
  - Costs imposed by increasing requirements for transportation and storage services
  - Scenarios:
    - 1 percent cost goods and services
    - 2 percent cost goods, 1 percent services
  - Delays cost Canada 1.0-1.8% of welfare, reduce international trade by 3.6-6.8%
Macroeconomic Effect of Border Crossing Inefficiencies

- GTAP model appropriate framework for analysis. Version 9 pre-release database is used for 2011 baseline.
- Micro effect of Laredo border inefficiencies apparently minimal: 1-2 percent money to brokers.
- Time is a more important factor: Hummels and Schaur (2013) estimate that each day saved in shipping is worth 0.6-2% ad valorem, with substantial variation across end-use group. We use an estimate of 0.8% per day.
Measuring the Mexican broker effect

- Time lost at the border is a deadweight loss
- Costs of Mexican brokers treated as a tariff (tms) or export tax (txs) on Mexican trade
- Policy applied to sectors where trucking dominates

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Southbound</th>
<th>Northbound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lost time</td>
<td>$\Delta \text{ams}(T, \text{US}, \text{Mex}) = +3%$</td>
<td>$\Delta \text{ams}(T, \text{Mex}, \text{US}) = +0.25%$</td>
</tr>
<tr>
<td>Brokerage frictions</td>
<td>$\Delta \text{tms}(T, \text{US}, \text{Mex}) = -2%$</td>
<td>$\Delta \text{txs}(T, \text{Mex}, \text{US}) = -0.75%$</td>
</tr>
</tbody>
</table>

*T* is the set of goods shipped predominantly by truck: pdr, wht, gro, v_f, osd, c_b, pfb, ocr, ctl, oap, rmk, wol, frs, fsh, cmt, omt, vol, mil, pcr, sgr, ofd, b_t, tex, wap, lea, lum, ppp, crp, fmp, mvh, otn, ele, ome, omf

Excluded goods: coa, oil, gas, omn, p_c, nmm, i_s, nfm
Measuring the security effect

- **Baseline security cost**
  - Following Falkenhorst and Dihel (2006) and Nguyen and Wigle (2011), security costs represent a 1 percent ad valorem cost.
  - Applied to most goods and services trade among all NAFTA partners, excluding coal, oil, gas, electricity, and gas distribution (coa, oil, gas, ely, gdt).

- **High security cost**
  - Non-fossil-fuel goods barrier increased to 2 percent.

- Simulations measure the *removal* of these costs, consistent with an integrated North American security framework.
## Welfare (million $2011)

<table>
<thead>
<tr>
<th>Sim</th>
<th>Description</th>
<th>USA</th>
<th>Mexico</th>
<th>Canada</th>
<th>Non-NAFTA</th>
<th>World</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Broker effect, no security</td>
<td>2,764</td>
<td>4,513</td>
<td>-272</td>
<td>-2,310</td>
<td>4,695</td>
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<tr>
<td>2</td>
<td>Broker effect, baseline security</td>
<td>8,066</td>
<td>7,956</td>
<td>4,177</td>
<td>-5,663</td>
<td>14,537</td>
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<tr>
<td>3</td>
<td>Broker effect, high security</td>
<td>12,999</td>
<td>11,312</td>
<td>8,251</td>
<td>-8,837</td>
<td>23,725</td>
</tr>
</tbody>
</table>

## Change in imports (percent)

<table>
<thead>
<tr>
<th>Sim</th>
<th>Description</th>
<th>USA</th>
<th>Mexico</th>
<th>Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Broker effect, no security</td>
<td>0.2</td>
<td>0.6</td>
<td>-0.1</td>
</tr>
<tr>
<td>2</td>
<td>Broker effect, baseline security</td>
<td>0.5</td>
<td>1.6</td>
<td>1.0</td>
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<tr>
<td>3</td>
<td>Broker effect, high security</td>
<td>0.8</td>
<td>2.6</td>
<td>2.0</td>
</tr>
</tbody>
</table>
Results and Conclusions

- Mexican brokers cost Mexico $4.5 billion, US $2.8 billion (2011 dollars). 2003 study found $1.8 billion and $1.3 billion, respectively (1997 dollars).

- Security frictions can be costly. We estimate NAFTA-wide cost $13 billion - $25 billion per year, excluding direct security costs.

- Reducing border frictions promotes leaner inventory management, better utilization of transport equipment, savings in capital investment, infrastructure, maintenance, and reductions in border pollution.