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- Large increase in honey imports
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U.S. Honey Imports, Exports and Net Imports (Millions of Pounds), 1980-2013
Ch 1. U.S. Honey Import Demand Under Trade Restrictions

Share of U.S. Honey Import by Source, 1995-2013

Share of U.S. Honey Import by Source

- **Canada**
- **Mexico**
- **China**
- **Argentina**
- **Rest of Asia**
- **Vietnam**
- **Rest of S. Amr.**
- **Rest of World**

Graph showing the share of U.S. honey imports by source from 1995 to 2013.
1. U.S. Honey Import Demand Under Trade Restrictions

**Trade Restrictions**

- 1995 agreement between the United States and China (5 years)
  - a restriction on annual honey shipments to the United States to approximately 44 million pounds
  - a self-imposed price floor, requiring China to price its imports at no less than 92 percent of import prices to the United States from all other countries.

- 2001-2006: Anti-dumping duties on China (26 to 184 percent) and Argentina (27 to 55 percent).


- 2013-present:
  - Anti-dumping duties for Argentina are revoked;
  - Continuing anti-dumping duties order for China.
Motivation

- Honey imports into the United States provide a case study of the demand patterns of agricultural products within a background of trade friction. Like many other trade restrictions, the antidumping policies raise interesting economic problems and issues.

- Because the effects on domestic consumers and producers depend on the substitutability in demand between imports from restricted sources and imports from non-restricted sources, trade policy evaluation requires reliable estimates of import demand.
Data

- Monthly data (1995-2013) from the USDA Foreign Agricultural Service; import value and quantities are available.
- Import prices are calculated as average revenues by dividing the sales value of the commodity by the quantity.
- 14 import source countries (and aggregates):
  - Argentina, China, Taiwan, Vietnam, France, Germany, Canada, Mexico, Australia, New Zealand
  - RoSA (rest of South America), RoA (rest of Asia), RoE (rest of Europe) and RoW (rest of the world)
- The RoSA, RoA, RoE and RoW categories are aggregated from other countries whose roles in international honey trade are minor.
Source differentiation is assumed and honey imported from different sources are treated as differentiated goods.

Liner Approximate Almost Ideal Demand System (LA/AIDS):

$$\Delta w_{it} = a_i + b_i \left[ \Delta \log x_t - \sum_j w_{jt} \Delta \log p_{jt} \right] + \sum_j c_{ij} \Delta \log p_{jt} + u_{it}$$

- \( w_{it} \): the expenditure share of country \( i \) in month \( t \)
- \( x_t \): total U.S. expenditure on imported honey
- \( p_{jt} \): the import price
- \( a_i, b_i \) and \( c_{ij} \): parameters are to be estimated
Choke Prices

- Choke prices: prices at which imports are zero.
- Estimation (Muhammad 2013):
  
The estimation starts from a general expression of own-price elasticity:

\[
\frac{q_i - \bar{q}_i}{\bar{q}_i} = \eta_{ii} \frac{p_i - \bar{p}_i}{\bar{p}_i}
\]  

(2)

- \( \bar{q}_i \) and \( \bar{p}_i \): average quantity and price over time
- \( \eta_{ii} \): uncompensated own-price elasticity

Choke prices exist when \( q_i = 0 \), and therefore,

\[
p_i = \left[ \frac{\eta_{ii} - 1}{\eta_{ii}} \right] \bar{p}_i
\]  

(3)

Then equation (3) is the basis for the method used to estimate choke prices.
### Example

**Table:** Choke Prices Estimation for Argentina and Vietnam

<table>
<thead>
<tr>
<th>Iteration</th>
<th>$\eta_{ij}$</th>
<th>Chk Prc</th>
<th>$\eta_{ij}$</th>
<th>Chk Prc</th>
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<tr>
<td>1</td>
<td>-1.47272</td>
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<td>4</td>
<td>-1.4212</td>
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<td>5</td>
<td>-1.42062</td>
<td>80.3947775</td>
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<tr>
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<td>-1.15495</td>
<td>153.9550766</td>
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</table>
## Results

### Table: Own-price and Expenditure Elasticities

<table>
<thead>
<tr>
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</thead>
<tbody>
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<td>Argentina</td>
<td>-1.42076</td>
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<td>Rest of SA</td>
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<td>New Zealand</td>
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<td>Rest of the World</td>
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<td>0.4546</td>
<td>0.635097</td>
<td>0.5734</td>
</tr>
</tbody>
</table>
Future Work

- Include U.S. domestic honey consumption
- Consider inverse demand system
Policy Context

Trade restrictions mentioned above:

- 1995-2000: Agreement between China and United States;
- 2001-2006: Anti-dumping duty for Argentina and China;
- 2007-2012: Anti-dumping duty for Argentina and China;
It was argued that some countries (e.g., Vietnam) increased honey exports to the United States partly because of the transshipment of honey from China.

In particular, it is suspected that honey from China has been transshipped through third countries to the United States to avoid trade taxes mentioned above.
Related investigations were carried out:

For example, a recent investigation found that since October 2014, 448,156 pounds (valued at $2.45 million) of illicit honey has been seized and the containers’ shipping documents indicated the bulk honey had originated in Latvia.

Question to be studied:

Does the possible re-routing of honey through other countries have significant impacts on U.S. consumers and producers?
Objectives

The main objective of this chapter is to study the welfare effects of transshipment associated with trade restrictions using honey trade data.

1. Developing a conceptual model of transshipment;
2. Examining the existence of transshipment and estimate the size of it;
Plan

- Detecting transshipment: from data
  - Domestic honey production and consumption of potential transshippers
  - Forecasting share of honey imported from potential transshippers based on pre-restriction data

- Welfare analysis
  - Changes in welfare of domestic producer and consumer
  - Change in national income measured at world prices
Previous Literature

- Cheung (1973)
  - Well functioning markets for pollination services were observed.
  - The blackboard economics about farmers and beekeepers not transacting because of “reciprocal externalities” is fictional.

- Rucker et al. (2012)
  - Extended and updated Cheung’s analysis by developing a conceptual model of the market for pollination services and analyzing the determinants of pollination fees.
  - Understanding the internalization of externalities provided by pollination markets and market-supporting institutions.
Questions

- The United States has a well developed and liquid market for pollination services. How about China?
- Questions to be studied:
  1. Does a pollination services market (well developed or not) exist in China? Are there transactions between farmers and beekeepers similar to what we see in the United States?
  2. What have been the consequences of increasing labor costs in recent years? Has it induced substitution between humans and bees?
  3. (For the two questions above) why or why not? What is the institutional background of the observed facts?
What do we know?

- Bee-hive-renting pollination is rare in China; human pollination by hand is still important.
- Important background: huge increase in labor cost.
- Three interesting cases: Hainan, Sichuan and Hebei.
In China, pollination service transactions are “news.”

Pengcheng Agricultural Co-operative spent 750,000 Yuan and rented 2500 hives of honey bees from Shanyuan bee keeper’s Co-operative, at the price of 300 Yuan per hive in 2014.

Pengcheng planned to use these hives at the beginning of 2014 for the pollination of black-skin winter melon. The area was about 1647 acres.

Pengcheng anticipated saving more than 1,000,000 Yuan in total.
All apples were pollinated by laborers in 2000.

As the price of labor rose to over $12/day during the decade from 2000, apples were being replaced by less pollinator-dependent crops during 2000-2011 and the apples that remain still were being pollinated by humans.

Economic substitutions induced by the wage increase are away from one crop toward other crops, but not away from human pollinators to bees.
Hebei Province

- Field research was carried out by the author in summer 2014 in Zanhuang, Hebei province.
- Local jujube growers and beekeepers confirmed the recent increase in labor cost but substitution was not mentioned.
- There are bee-hive-renting pollination services, but rare. Prices may vary.
Objectives

1. The general issue of human and bee pollination; the institutional details of the market for pollination services in China.
2. Qualitative and quantitative understanding of the transaction costs involved in contractions for pollination services in China.
3. The elasticity of substitution between human and bee pollination for specific crops, and elasticities of substitution between pollinator-dependent and less-pollinator-dependent crops in farmer’s land allocation problem.
Plan

- Literature review.
- Data and information collecting: *Apiculture of China*.
- Field research.
- Survey on beekeeping and pollination.