

**Finishing Standard Trade Model, The Gravity Model**  
**Lecture 10**  
**Economics/EEP C181**  
**International Trade**

**I. Review of Standard Trade Model and Terms of Trade (TOT for short)**

**II. Motivation for gravity model**

Figure 2.1 from textbook (attached):

- Biggest trading partners in 2006
- Biggest is Canada, followed by China, then Mexico.
- This suggests that proximity (lack of distance) really matters
- Other factor that matters: size of country. We trade more with bigger countries.

See this better in Figure 2.2 from textbook (attached)

- We trade more with big economies

**III. Framework**

The gravity model takes the insights from the two figures discussed above and fits them into the following equation:

$$(1) \quad T_{ij} = A \times Y_i \times Y_j / D_{ij}$$

$Y_i$  = country i's GDP

$Y_j$  = country j's GDP

$D$  = distance between country i and j

$T_{ij}$  = volume of trade between country i and j

T rises as product of two country's GDPs rises

T falls as distance between two countries rises

More general form:

$$(2) \quad T_{ij} = A \times (Y_i^a) \times (Y_j^b) / D_{ij}^c$$

If we take logs of (2) we get the following:

$$(3) \quad \log(T_{ij}) = \log A + a \log(Y_i) + b \log(Y_j) - c \log(D_{ij})$$

We can rewrite (3) as the following, which is how it is typically estimated:

$$(4) \quad \log(T_{ij}) = \log A + a \log(Y_i Y_j) - c \log(D_{ij})$$

**III. Applications (if time permits): Andrew Rose and impact of Euro on trade**