BUSN3056 International Trade
Tutorial 1

i. Ireland and Belgium have very similar trading patterns. Both trade considerably more with the United States than with European Union, even though they are EU members and are closer to the EU common market than the US. Explain this anomaly using the Gravity Model.

ii. The following equation,

$$T_{ij} = \frac{A \times Y_i \times Y_j}{D_{ij}},$$

says that trade between any two countries is proportional to that product of their GDPs. Does this mean that if the GDP of every country in the world dopubled, world trade would quadruple?

Suggested Answers

i. According to the gravity model, with other things being equal, the value of trade between any two countries is proportional to the product of the two countries' GDPs and diminishes with the distance between the two countries. In the given situation, Ireland's trade with the United States lies in the cultural affinities because the same language is spoken and there are a large number of Irish immigrants in the United States. Ireland also hosts many US-based corporations. Traditionally, Belgium has been the point of entry to much of northwestern Europe's trade with the United States; also Antwerp in Belgium ranks as the second most important port in Europe, as measured by the tonnage handled. Thus, the large trade suggests that transport costs and geography are important factors in explaining Belgium's volume of trade with the United States.

ii. No, if every country's GDP were to double, world trade would not quadruple. Consider a simple example with only two countries: A and B. Let country A have a GDP of \$6 trillion and B have a GDP of \$4 trillion. Furthermore, the share of world spending on each country's production is proportional to each country's share of world GDP (stated differently, the exponents on GDP in

$$T_{ij} = \frac{A \times Y_i^a \times Y_j^b}{D_{ij}^c},$$

a and b, are both equal to 1). Thus, our example is characterized by the table below:

Coumtry	GDP	Share of the World Spending
A	\$6	60%
B	\$4	40%

Now let us compute world trade flows in this example. Country A has an income of \$6 trillion and spends 40% of that income on country B's production. Thus, exports from country B to country A are equal to $\$6 \times 40\% = \$2.4$ trillion. Country B has an income of \$4 trillion and spends 60% of this on country A's production. Thus, exports from country A to country B are equal to $\$4 \times 60\% = \$2.4$ trillion. Total world trade in this simple model is $\$2.4 + \$2.4 = \$4.8$ trillion.

What happens if we double GDP in both countries? Now GDP in country A is \$12 trillion, and GDP in country B is \$8 trillion. However, the share of world income (and spending) in each country has not changed. Thus, country A will still spend 40% of its income on country B products, and country B will still spend 60% of its income on country A products. Exports from country B to country A are equal to $\$12 \times 40\% = \$4.8$ trillion. Exports from country A to country B are $\$8 \times 60\% = \$4.8$ trillion. Total trade is now equal to $\$4.8 + \$4.8 = \$9.6$ trillion. Looking at trade before and after the doubling of GDP, we see that total trade actually doubled, not quadrupled.