7
Cultural Influences on International Economic Analysis (II)

A man from the state of Chu was crossing a river. When the ferry got to the middle of the river, his sword fell into the water. Immediately he took out a knife from his pocket and made a mark on the boat. ‘This is where my sword fell off,’ he murmured and stepped aside, much relieved. The ferry sailed on and soon got to the dock on the opposite bank. As soon as the boat anchored, the man jumped into the water to look for his sword at the place where he had marked the boat. The boat had moved but the sword had not. Is this not a very foolish way to look for a sword?

(Lü Buwei, (?)–235 BC)

7.1 Framework for empirical analysis

As noted in Chapter 6, a number of quantitative studies have been made on the role that cultural factors play in international trade. These studies minimize the importance of cultural variables, treating linguistics as a dummy variable and omitting altogether the possible inference of religion.

Religion can have a deep impact not only on attitudes but also on values that affect economic matters. As stated in Chapter 5, religion could play a more important role in economic affairs than language. However, studies using different data have produced different results. For example, after examining a large cross-section of conflicts, Fox (1997) finds that in only a small minority do religious issues play more than a marginal role. Similarly, Alesina et al. (2002) find that religious fractionalization does not significantly predict the rent-seeking policy distortions usually associated with other types of ethnic fractionalization.

Among the quantitative studies of international trade and economic cooperation, the gravity model is the tool most commonly used by economists. The classic extensive early application of the model was by Linnemann (1966), who continued work first reported in Tinbergen (1962) and then in Pöyhönen (1963). The most recent work on the application of
the gravity model was by Frankel et al. (1997), Deardorff (1998), Rauch (1999) and Rose (2004), among others. Generally, a gravity model assumes that the size of bilateral economic activities between any two countries depends on both the product of the economic sizes of the countries and the distance between them. In addition, income level and whether or not a country-pair shares a common land border have also been considered as standard covariates in the gravity model of international economic trade.

In order to test the effects of the various cultural variables on international trade, we control other political and social variables. Instead, we introduce a set of cultural similarity variables – represented by SIMILARITY. Although the components of culture have been variously defined, we have focused on only two elements – language and religion. Of course, our discussion of these cultural elements is not definitive and perhaps would not satisfy anthropologists. Nevertheless, our consideration is due to the concerns that ‘language’ is an effective tool of communication and that ‘religion’ can provide insights into the characteristics of culture. To control for the countries’ propensity to foreign economic activities, we use some dummies for the selected countries. Let us first consider a basic form of gravity model:

\[
\ln(\text{TRADE}_{ij} + 1) = \alpha_0 + \alpha_1 \ln(\text{GNP}_i \times \text{GNP}_j) + \alpha_2 \ln(\text{GNPPC}_i \times \text{GNPPC}_j) + \\
\alpha_3 \ln(\text{DISTANCE}_{ij}) + \alpha_4 \text{BORDER}_{ij} + \alpha_5 \text{SIMILARITY}_{ij} + \\
\sum \alpha_6 + k \text{COUNTRY}_k
\]  

(7.1)

In Equation (7.1), \(\ln\) represents natural logarithm; \(\text{TRADE}_{ij}\) denotes nominal bilateral trade between countries (regions) \(i\) and \(j\) (in thousand US dollars). In order to make the natural logarithm of \(\text{TRADE}\) become mathematically meaningful when \(\text{TRADE} = 0\), we use \(\ln(\text{TRADE} + 1)\) to approximately denote \(\ln(\text{TRADE})\). This seems to be reasonable since the size of \(\text{TRADE}\) (in thousand US dollars) is, if not zero, always far larger than 1.5 \(\text{GNP}_i \times \text{GNP}_j\) is the product of nominal GNPs of the \(i\)th and \(j\)th countries (regions) (all in thousand US dollars). GNPPC\(_i\)GNPPC\(_j\) is the product of nominal per capita GNPs of the \(i\)th and \(j\)th countries (regions) (all in US dollars). DISTANCE\(_{ij}\) represents the distance between the geographical centres of the \(i\)th and \(j\)th countries (regions) (in kilometres); and BORDER\(_{ij}\) is a dummy variable, which takes the value of 1 for countries (regions) \(i\) and \(j\) to have a common border and 0 otherwise. According to past studies, we expect the estimated coefficients on the above variables to follow: \(\alpha_1 > 0\), \(\alpha_3 < 0\), and \(\alpha_4 > 0\). COUNTRY\(_k\) denotes the dummy of the \(k\)th country.

Calculation of the distance between trade partners requires some elaboration. Most existing studies use the distance between two major cities to denote the proximity of two trade partners. The cities are either the capitals or economic centres.6 Another method is to use the geographical centres to measure the distance between the trade partners. According to Boisso and