Chapter 7
An Overview

7.1 Introduction

The paradigms treated in the previous chapters make up a consistent doctrine in which from certain basic premises various theorems are deduced, concerning both positive and normative economics. This is the doctrinal body with which the "traditional" theory of international trade is nowadays identified.

Leaving aside the assumptions specific to each model, the fundamental assumptions of this theory are:

(i) Perfect competition obtains;
(ii) The commodities which are internationally traded are homogeneous, and identical in the various countries. This means that the homogeneous commodity *A* produced in country 1 is identical to the homogeneous commodity *A* produced in any other country, and so on for all commodities.

However, even a casual observation of reality shows that:

1. Market forms different from perfect competition (such as monopolistic competition and oligopoly) are the norm rather than the exception;
2. Product differentiation is much more frequent than product homogeneity.

Although these aspects had already been examined in isolated pioneering contributions, it was only in the late 1970s and in the 1980s that they received due attention and were tackled with an analytical apparatus (partly drawn from industrial economics) comparable to that used in the traditional theory. Thus, the models of the 'new' theories of international trade (also called the *industrial organisation approach* to international trade) were born. We use the plural, because—unlike the traditional theory—there is not *one* new theory but several, with different assumptions and results. Although the adjective 'new', quite appropriate at the time, may now—after over three decades—appear incongruous, we shall continue using it for convenience's sake.

Box 7.1 Measuring International Specialization and IIT

The concept of *revealed comparative advantage* (RCA) is widely used in practice to determine a country's weak and strong sectors. The most frequently used index in this respect is called the Balassa index (Balassa, 1965). This measure captures to what extent a country exports more of a product than the average country. Given a group of reference countries the Balassa index basically compares the share of the product category in that country's exports to the share of that product category in the reference group (for example the overall world exports). In particular, if X_j^i is country i's export value of industry j, X_j^{ref} is industry j's export value for the reference countries, X^i are the total exports of country j, and X^{ref} the total exports of the group of reference countries, then country i's Balassa index of RCA for industry j, BI_j^i can be written as follows:

$$BI_j^i = \frac{X_j^i / X^i}{X_j^{ref} / X^{ref}}.$$

A value of $BI_j^i > 1$ (< 1) suggests that country i has a comparative advantage (disadvantage) in industry j. The larger the BI value, the higher the degree of comparative advantage.

However, BI turns out to produce values which are asymmetric around 1, because the index ranges from 0 to 1 (if a country is said not to be specialized in a given sector), while it ranges from 1 to infinity (if a country is said to be specialized in that sector). To obtain symmetric values an adjusted (or normalized) index is calculated as

$$(BI - 1)/(BI + 1),$$

that ranges from -1 to $+1$. Similar to the export pattern, the structure of a country's imports may likewise contain useful information about a country's comparative-disadvantage situation. Therefore it can be calculated a similar index for a country's import side, the *revealed comparative disadvantage* (RCDA).

The *degree of intra-industry trade* (IIT) is commonly measured by Grubel and Lloyd's index. Grubel and Lloyd (1975) defined IIT as the value of exports in an industry which is exactly matched by imports in the same industry. Its value is measured by:

$$G_i = (X_i + M_i) - |X_i - M_i|,$$

where G_i is the value of intra-industry trade and X_i and M_i are the values of exports and imports of industry i, or a given country for a given period. To perform easy comparisons across countries and industries, the values of the index can be expressed as a percentage of each industry's (or country's) combined exports and imports:

$$G_i = \frac{(X_i + M_i) - |X_i - M_i|}{X_i + M_i} \times 100.$$

This measure ranges from 0 to 100, with higher values representing higher levels of IIT.

The common feature of these theories is that they drop the assumption of perfect competition and/or of product homogeneity.

Two additional features are often stressed as peculiar to the new trade theories: the explanation of intra-industry trade and the use of increasing returns to scale.

The first amounts to saying that the new theories can explain *intra-industry* trade while the traditional theory cannot. *Intra-industry* trade (also called *horizontal trade*, *two-way trade*, *cross-hauling*) is defined as the simultaneous import and export of commodities belonging to the same industry. For example, country 1 simultaneously exports and imports commodity *A* or, more precisely, similar goods belonging to the same category defined as *A* (see Sect. 8.5). Now, so the conventional opinion continues, the kind of international trade considered by the traditional theory can only be of the *inter-industry* type, i.e., exchange of products of different industries. In our 2×2 setting, this means that country 1 imports one commodity, say commodity *A,* and exports the other (commodity *B*), while country 2 imports *B* and exports *A*.

In fact, according to the traditional theory, a country cannot export and import the same good at the same time (see Sect. 3.2.3, Eq. 3.17). Therefore, this theory cannot explain international trade of the intra-industry type, which is a huge limitation because intra-industry trade is a an important part of international trade (the greater part at the European level).

This opinion, however, does not seem to be acceptable. We already know the case of transport costs as determinants of intra-industry trade (see Sect. 6.3). Other explanations of intra-industry trade can be given in the context of the traditional theory (see below, Sect. 8.5), and it has even been claimed (Davis, 1995, and Sect. 8.5) that by putting together the Ricardo and Heckscher-Ohlin approaches it is possible to give a general explanation of intra-industry trade in the context of the traditional theory.

As regards the second feature, it is claimed that the new theories can accommodate increasing returns to scale while the traditional theory cannot. This is certainly not true if we consider increasing returns to scale due to external economies, which are perfectly compatible with the traditional theory (see Sect. 3.5). Only increasing returns to scale due to internal economies are incompatible with perfect competition and hence with the traditional theory. Besides, the identification between increasing returns to scale and the new theories is wrong for an additional reason: as we shall see, there are new trade theories that take production as occurring under constant returns to scale.

Be it as it may, these points do not touch the main innovation of the new trade theories, which is their focus on differentiated products and/or imperfectly competitive markets (these theories can of course also explain intra-industry trade, as we shall see in Chap. 9).

It is important to point out, to conclude this introduction, that the new trade theories have significant consequences on all aspects of our discipline. These are briefly summarized below, before going on to a detailed treatment in Chap. 9.

Table 7.1 Traditional theory and the new theories of international trade

	Markets		
Products	Perfect competition	Monopolistic competition	Oligopoly
Homogeneous	Traditional theory	—	Brander (1981)
Vertically differentiated	Neo Heckscher-Ohlin theories (Falvey, 1981)	—	Shaked and Sutton (1984)
Horizontally differentiated	—	Demand for variety (Krugman, 1979, 1980); Demand for characteristics (Lancaster, 1980)	Eaton and Kierzkowski (1984)

7.2 Theory

We have stressed that there is not *one* new theory but several, with different assumptions and results. Table 7.1 gives an overview of the field.

In this table—taking the traditional theory as the reference point—we have classified all the new theories according to two main elements: the type of good and the market form. The names of the authors are merely exemplificative, given the host of contributions now existing (many of which are collected in Grossman Ed., 1992).

About the market form it is sufficient to remark that in the "oligopoly" heading we include not only duopoly but also, as a limiting case, monopoly. About the differentiation of the product, it is instead as well to clarify the terminology.

Vertical differentiation refers to products that differ only in the *quality*. For example, woollen suits that are identical except for the quality of the wool.

Horizontal differentiation refers to products of the same quality that differ in their (real or presumed) characteristics. For example, woollen suits made of the same quality of wool but of different cut and colour.

In the case of vertical differentiation, it is incontrovertible that all consumers prefer higher-quality to lower-quality goods. This, of course, presupposes the existence of universally accepted criteria for evaluating the quality. Hence, in the absence of budget constraints, all consumers would demand the highest-quality good (the assumption is that the price of a commodity increases as its quality increases). It follows that the demand for different commodities, i.e. commodities of different quality, is related to different income levels of consumers.

In the case of horizontal differentiation, the various characteristics are valued differently by different consumers (there are those who prefer a colour and those who prefer another; those who prefer a cut and those who prefer another, etc.). In any case, consumers generally love *variety* (even the person who prefers a certain colour will usually own suits of different colours rather than all of the same colour). It follows that the demand for different commodities, i.e. commodities having different characteristics, is related to love for variety and/or to different

subjective evaluations of the characteristics, as we shall show in Sect 9.2. Actually, most commodities can differ in both quality and characteristics, but for analytical convenience we keep the two cases distinct.

Given the greater realism of the assumptions underlying the new theories, shouldn't we drop the traditional theory as irrelevant? The answer is given by Paul Krugman, one of the founders of the new theories. If one were asked to give an actual example of the new theory of international trade with respect to the traditional theory, one could say that "conventional theory views world trade as taking place entirely in goods like wheat; new trade theory sees it as being largely in goods like aircraft. Since a good part of world trade *is* in goods like wheat, and since even trade in aircraft is subject to some of the same influences that bear on trade in wheat, traditional theory has by no means been disposed of completely. Yet the new theory introduces a whole range of possibilities and concerns" (Krugman, 1990, pp. 1–2).

We have mentioned above the existence of precursors. These authors, though not giving a rigorous analytical treatment of the problems, set forth the basic ideas. Ideas that were later taken up, explicitly or implicitly, by most models classified in Table 7.1. We shall first examine these pioneering contributions (see Chap. 8), and then treat the models of the table.

7.3   Policy

The policy consequences of the new explanations of international trade will be examined in Sect. 10.8. See also Baldwin (1992), Guerrieri and Padoan (1996), Haberler (1990), Markusen and Venables (1988), Markusen et al. (1995), Pomfret (1992), Puga and Venables (1997).

7.4   Growth

Growth in the basic neoclassical model is exogenous (see Chap. 15). On the contrary, the new growth theory (for a general treatment see Aghion and Howitt (1998), Barro and Sala-i-Martin (2004), Long and Wong (1998), Romer (1994), and Solow (1992)) stresses the *endogenous* determination of technical progress, which actually means an endogenous determination of the main source of growth (hence the name of endogenous growth theory). The basic ideas were already present in the traditional neoclassical growth theory, but in endogenous growth theory they are at the centre of the stage.

Another point emphasized by endogenous growth theory is the absence of decreasing returns to capital. Hence from the point of view of the interrelations with international trade, endogenous growth is often associated with the new trade theories, that usually take increasing returns and imperfect competition as their points of departure. This topic will be examined in Sect. 15.3.

7.5   Location Theory and Trade

We shall deal with the relations between location theory and trade in the context of the traditional theory in Sect. 16.2. By adding economies of scale to the picture, a richer 'story' of geographical concentration and core-periphery relations can be proposed (Krugman, 1991). This topic will be examined in Sect. 16.3.

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