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Theory, Methodology and descriptive Statistics on Services and Services

and deregulation of service markets have caused trade in services to become increasingly feasible and important. Since internationalization of services has become a topical matter in today's economic reality, international liberalisation of services has also moved to the front of attention in multilateral trade negotiations. Interested by these developments, trade theorists have recently begun to study the determinants of service trade.

This thesis tries to give a first impulse to empirical research on the determinants of service trade by mapping the patterns in international trade. The investigations have been firmly embedded in an analytical framework on the nature and characteristics of services. Moreover, it is concerned with the framework to assess the effects of liberalisation and protection of service trade on specialisation patterns.

Preface

The subject of the thesis you are about to read, a description of the patterns of international trade in services, is testimony of the rising interest in the role and position of services in the present era of economic internationalisation, or globalisation. International competition in trade and production is becoming more important for economic life of workers and entrepreneurs. The recent rise of Information and Communications Technology (ICT) opens up increased possibilities for international trade in services, formerly widely believed to be non-tradeable. This implies that international trade may become a more important factor in the internationalisation of service sectors, leading to a catch-up with respect to manufacturing and agriculture. Hence the relevance of the subject chosen.

This thesis has been initiated as part of an apprenticeship at the Netherlands Bureau for Economic Policy Analysis (CPB) in The Hague. The period I have spent at the department of International Economic Analysis (IEA), from February 2000 up to and including August 2000, has been a fruitful experience for me. Not only did I enjoy the privilege to spend more than half a year within a dynamic and resourceful department, I have also learned a great deal about my own strengths and weaknesses. The process of setting up a research and writing a thesis requires an efficient working method, even apart from a lot of determination. Anyone who is about to start such a project himself, I would like to recommend to prepare him- or herself well before starting a research. As a suggestion, I refer to the book "Hoe schrijf ik een scriptie", by Umberto Eco, which is also pleasant and motivating reading, and to the manual written on the subject by A.W.A. Scheepers et al., entitled "Handleiding voor het schrijven van een scriptie".

Speaking for myself, I have been very fortunate to have been guided by Professor Van Schaik, my supervisor, and by Dr. Arjan Lejour, who has supported my apprenticeship at CPB. Arjan has taught me a lot to improve my working method. Furthermore, he has shown great patience in dealing with my efforts. Professor Van Schaik has shown very willing to co-ordinate my ongoing efforts long after I left The Hague. Both have shown great enthusiasm and flexibility and offered inspiration and priceless insights during the process, from which the end-product has benefited greatly. In this place, I would like to thank them dearly for this. The examination committee would not have been complete without Dr. Van Tuijl, who was also present from the start of my doctoral phase in 1995 as supervisor of my efforts to give instruction lectures to 'freshmen'. At the conclusion of my study, he has been found willing to read the manuscript and help mark it. In this place, I gladly seize the opportunity to express my gratitude for his help.

Furthermore, I would like to thank all my temporary 'colleagues' at the department of IEA for the pleasant stay and the inputs they have given to my work. A special reference should be made to Nico van Leeuwen, who helped me to process the data. The same holds for Gerard Verweij, my roommate who also repeatedly helped me with the data. My other roommate, Henri de Groot, was willing to read my work, from the earliest drafts, and provided many

useful comments both on content and working method. The shared interests we have might prove to bring future benefits even from this research.

Others at CPB also deserve mention. Alex Hoen provided me with helpful suggestions and has greatly influenced my approach in Chapter 3. Henk Kox provided encouragement as he showed that the subject was taken seriously in other CPB research too. Furthermore, Albert de Vaal from Nijmegen University deserves a word of gratitude, as he provided useful comments on several chapters of the thesis. He was also willing to act as discussant when I first presented some of the results of the thesis at CPB.

Last but not least I would like to thank my friends in Tilburg and Limburg, my girlfriend Karin and my family who provided moral support and distraction, allowing me to see matters in a healthy perspective (again).

Gert-Jan Linders
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Introduction

A lot has been written on the *growing importance of services in economic structure*. Most contributions, however, focus on the structural changes in domestic output and employment, without paying attention to the influence of international competition. Another hotly debated issue in economics is the topic of *economic globalisation*: the increasing interdependence of national economies, following from more dominant international competition (i.e. *internationalisation*) in product and factor markets.

The debate on globalisation, also labelled international integration, which is an alternative terminology for the same structural economic phenomenon, seems to focus, both theoretically and empirically on trade in goods and international factor movements. There seems to be a missing link considering international competition in services. International trade in services has received little attention and foreign investment in services has not been addressed separately. The special distinction between goods and services justifies a more fundamental treatment of the issues concerning internationalisation in service sectors, in light of this globalisation debate. The demand for such an exploration of service trade and foreign investment has become prominent as services have become a separate negotiation item in multilateral trade negotiations. Since the early 80s this has stirred attention for international transactions in services, but the existing literature has remained peripheral and has not resulted yet in a satisfactory theoretical and empirical treatment of services in international competition.

This thesis will try to analyse the recent developments in the internationalisation of service markets. Against the background of the increasing importance of services in national production and employment, both in developing and developed countries, the process of internationalisation in services may have profound influence on national development and related policy options.

The *problem of investigation* is to assess the possible causes, extent and possible consequences of growth in international transactions of services. The argument will focus on direct international transactions in non-factor services, in other words, on *international trade* in services. However, the relations between international trade and international factor movements will receive attention when necessary in the context of trade and specialisation.

To understand the internationalistion of service markets, we first have to specify precisely the nature of services and the differences between services and goods, regarding their role and tradeability. Chapter 1 is dedicated to these issues.

In Chapter 2 we discuss the statistics used and provide a first overview of the evidence on services trade. The emphasis lies on the revealed evidence of openness and internationalisation.

Chapter 3 discusses the consequences of internationalisation in terms of the developments in- and current situation of specialisation patterns in services for both industrialised (DCs) and less developed countries (LDCs).

Finally, Chapter 4 deals with services liberalisation, which has been initiated under pressure of rising opportunities for international competition and can be an auxiliary cause for

further internationalisation. The main insights of the thesis are summarised in the last chapter, together with some concluding remarks on possible future research.

In each chapter, some research questions are provided in the introduction to structure the analysis. The questions may be either theoretical, methodological or empirical in nature. Questions of theory intend to yield understanding on the nature of services or the reasons and modes of internationalisation. Methodological questions try to facilitate the translation from the phenomena we try to analyse towards the method of gathering evidence. Empirical questions, at last, purport to help portray the extent of internationalisation through international service trade, in the descriptive way we are able to do so.

Chapter 1   The Nature of Services and the Causes of Internationalisation

Introduction

As I have indicated in the Introduction to the thesis, the topic for the present research is to illustrate the position of service activities in this 'era of globalisation'. To understand the development of internationalisation in services and its possible consequences, we need a clear understanding of the nature of services, what roles services can play in the economic system and in which ways services are at play in investment and trade. I propose the following research questions to fulfil the need for a clear analytical framework against which to analyse international transactions in services:

1 *What is the nature of services?*
2 *How can services best be defined?*
3 *How can we categorise service activities?*
4 *Which are the consequences of the nature of services for international competition?*
5 *Which have been the causes of increased exposure of services to international competition?*

The questions 1 and 2 will be prominent in Section 1.1; for the third item a separate section is reserved, Section 1.2. The final questions, 4 and 5, serve to illuminate the special trade characteristics of services. They are the topic of Section 1.3. The last section discusses the conclusions of the analysis in this first core-chapter.

Section 1.1   On the essence of services

Introduction

The subject matter of economics is to study the functioning of the social relations of production and distribution of wealth. This definition (cf. Sweezy; 1970), just one of many possible, may seem to fall out of thin air here. Yet, I think it is a good starting point for a discussion on goods and services. Does this definition provide a reason to expect that we need to distinguish between goods and services?

For a start, we may say that economics studies the rationale behind wealth creation and does not discriminate between goods and services. So, both goods and services *can*, at least, be valid objects of enquiry in economics. Whether both goods and services represent wealth depends on the definition of wealth assumed. Wealth is usually identified with value or claims on value, in economics, and can have a stock (capital goods or financial capital) or a flow character (output). I will argue in favour of the position that both goods and services represent wealth and are part of the central subject matter of economics.

But this does not imply that we need not distinguish between two categories (or more) of wealth. In the case of the distinction between goods and services, the reason for a separate categorisation is obvious at first sight. Services and goods are clearly different, from an intuitive point of view: while goods are material objects, services are intangible products. As noted by Stibora and De Vaal people can distinguish goods from services rather well on this intuitive basis. Thus, nobody will deny that 'houses, cars, books, compact discs and potatoes' (Stibora and De Vaal, 1995; page 13) are goods, nor that attending a theatrical performance, having your tooth extracted, the transportation of goods or persons and the management of your asset portfolio represent services (idem, and Hill, 1977; pages 317, 318).

As follows, *intangibility* seems to be a clear separating criterion to categorise goods and services. However, things are not that simple when we stick to such a rule-of-thumb. It doesn't tell us what a service *is* and, related, it leaves us confused when thinking about where exactly to demarcate goods from services. To speak with Sampson and Snape (1985; page 173):

> "The demarcation of 'goods' from 'services' along a spectrum including books, floppy disks full of retrievable data, drawings of the plans of a bridge and data transmitted telegraphically is not at all clear. Are disks full of data and construction plans 'goods' or 'services' ?"

The tendency of confusion and lack of clarity to arise as soon as one thinks a bit further about the signification of the concept of a service has given impetus to those economists arguing that the distinction between goods and services is irrelevant. Note, in this respect, the implicit message of doubt that emanates from the strictly unnecessary quotation-marks around the words 'goods' and 'services' in the cited passage given above: as if "somebody decided that goods and services differ in a relevant way, but don't ask why..". As Hill (1977) correctly explains, both goods and services are transactable products, which means that social relations are potentially present in the process of production and allocation of these products. Moreover, the production process of services requires the expenditure of labour, the use of capital and intermediates, just like that of goods. This implies that they are both relevant within the field of economics as defined earlier and represent economic value. For many economists this has invalidated the claim that services deserve separate analytical attention. They state that services are simply *intangible goods*. Implicitly, this kind of reasoning is deeply embedded in the profession. Economic models mostly don't deal with services separately, or even talk only of goods. Consequently, services often seem to be reduced to a special kind of goods for practical purposes. This approach fails to address the deeply felt intuition that distinguishes goods from services. No wonder that a lack of clarity remains.

An alternative approach, which is certainly more satisfactory for scientific purposes, would try to deal with the underlying cause for confusion: a lack of an analytical framework to analyse services (see Mc Culloch, 1988; page 369). If we read more carefully, we will see that Hill meant precisely this when he said that both goods and services are transactable, but are differently so! A deeper consideration of the nature of services, yielding a rather satisfactory

definition of services, shows that services are not merely intangible goods. Services prove to be conceptually different from goods as I will try to illustrate in the rest of this section.

The difference in transaction characteristics between goods and services, following from their nature, has direct consequences for international tradeability of services. Given the increasing importance of the roles of important categories of services in the economic system (as we will see in Section 1.2), it is very significant to realise the consequences that the nature of services dictates for market structure and competition on the national and international level (see Sections 1.2 and 1.3). We will now take a closer look at the nature of services, further answering the first research question, *"What is the nature of services?"*. This will neatlessly lead to answering the second question, *"How can services best be defined?"*.

Sub-Section 1.1.1   The Definition of Services

Classical economists characterised services as products of labour that perish at the moment it has been performed, giving them an air of intangibility and transitoriness. Both of these apparent characteristics have loomed from the background ever since, and have caused great confusion later on when neo-classical economists, forced for reasons of internal consistency of their theories, saw themselves faced with the issue of how to interpret services. Although in popular opinion services were different from goods, most neo-classical economists agreed with the analytical view of Marshall, that services can be considered simply as intangible products (see Hill, 1977; page 315). This position implies that services do not need further *conceptual* attention. Rather, a more pragmatic approach is advocated. In particular cases that services are the subject of analysis, we only have to address the effects of intangibility and transitoriness. However, such pragmatism is not satisfactory from an analytical point of view (see Stibora, De Vaal, 1995; page 13). First, the characteristics of services that are relevant for economic analysis are basically chosen in an ad-hoc way. This means that in any particular case we cannot be sure that we are dealing with a service and which characteristics are relevant. Moreover, from a more practical outlook, there cannot even be a consistent attempt to classify service industries separately from goods sectors. Such classification is invaluable to analyse the emerging service economy or even to identify the cases in which services are involved.

An effort of conceptual analysis is the only satisfactory solution to transcend pragmatism. A definition that illuminates the nature or essence of a service will succeed in both unifying activities under the heading of services and offering an analytical framework from which to *derive* the relevant characteristics of services[1]. Far from saying that services need a new sort of economics, I would argue that to apply the principles of economics to services and investigate the many interesting and important topics that directly relate to the position of services in the economic system, economists need a clear understanding of what defines a product to be a service[2]. The definition that will be adhered to in this thesis was proposed in

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[1] The flavour of this argument can be well tasted in Stibora and De Vaal (1995), Chapter 2, and in the seminal contribution to the issue of services by Hill (1977).

[2] In this line of thinking, I cite Shapiro and Varian (1999) who say on pages 1/2: "Technology changes. Economic laws do not.", when discussing how to deal with the 'new economy', or, as they more justly claim, the

1977 by Hill in his paper 'On Goods and Services' to which we have already referred before. This definition is probably the best available now, although several authors have tried to amend it and the economics profession has not agreed on a definite choice of how to define services[3]. For reasons that will become clear further on, I have chosen to adjust Hill's idea slightly in order to clarify an element already embedded in his definition. We state the following:

A service is defined as *"..a change in the condition of* [an economic unit, whether] *a person* [or an organisation]*, or of a good belonging to* [such an] *economic unit, which* [can be] *brought about as the result of the activity of some other economic unit, with the prior agreement of the former person or* [organisation]*"* {Hill (1977; page 318); adjustments between rectangular brackets}.

In this definition we can find the nature of services, spelled out explicitly and clearly. A service is a transactable change in the condition, either physical, organisational or mental, of an economic unit (i.e. a person, firm, concern, family, agency: in short, all the players in the societal arena that act in the economic sphere). The changes I have introduced in comparison to the formulation of Hill himself intend to bring out two aspects of services more clearly: the fact that a service must be transactable but need not be provided via the market[4] and the fact that not only persons and goods, but also organisational collectives (a firm, agency, etcetera) may be the object of a service. The first aspect figures prominently and clearly in Hill's analysis, but cannot be found clearly in the definition of services he provides us with. In this respect it is crucial to inform that he does not draw special textual attention to his definition in the way I have done in the lay-out of my text. In the original source, the definition is embedded in a paragraph on the nature and correct interpretation of a service, in which the argument centers on actual market provision. Earlier, however, on page 317, Hill explicitly clarifies the importance of transactability rather than actual transaction, the latter of which he defines as 'an inter-change, or inter-action, *between two* economic unit*s*..'(page 316; italics added). The second aspect is more implicit in nature. Any economic unit is either constructed around a group of people or is a person itself. Yet, many producer service activities that are important in the structure of production are, on closer scrutiny, more directly involved in changing the *organisational* condition of firms rather than changing the physical or mental condition of *individual* persons. Hence, I considered it a gain to the clarity of the definition to include these changes affected to organisations explicitly in the category of services.

'network economy'. We don't need a new economics, we simply need a clear analysis of new relevant concepts to be able to apply the same general principles of economics to understand a new technological environment, or for our purpose, to understand the process of internationalisation of services. Mind you, a new technological paradigm may, over time, change the institutional patterns of human interaction and thus change the social relations that form the economic system. The network economy might do just that, as the industrial revolution did earlier. But that would not invalidate the applicability of the economic principles of institutional change.

[3] See Stibora, De Vaal (1995;page 18) for relevant references and Hoekman and Stern (1991;page 238) on the lack of agreement on defining services.

[4] The same holds for goods, as noted by Hill (1977). Any product is subject to social relations of production and distribution. If one extends the concept of a transaction a bit, different products produced within a single organisation are transacted *within* this economic unit between an *internal* producer and an *internal* consumer.

In the remainder of this section the definition of services will be the starting point to discuss the difference between goods and services. The framework set up in this section will enable us to derive the different sorts of services and the trade characteristics of services in Sections 1.2 and 1.3.

Sub-Section 1.1.2   Goods Defined

A successful interpretation of the definition of services should at least illuminate the differences between goods and services. For that we first need to know what defines a good. One option is to say that everything that is transactable and not a service should be a good. Then, however, the situation would simply be upside down from the initial starting point. Goods would not be defined properly, as we do not know what a good is, only what it is not. Paradoxically this proves that the confusion that haunts economics is not just about services. Although goods seem more easy to understand analytically, such a suitable definition cannot easily be found explicitly. The conventional use of 'good', as we saw, often includes services and refers more generally to products of use. When goods need to be distinguished from services, economists usually do not refer to an analytically precise definition of goods, but rely on the intuition described in the beginning of this section. If goods and services didn't differ in ways that are relevant for economic analysis, we could pragmatically decide that the debate about goods and services were trivial and stick to the common denominator of 'products' to capture both. However, I have argued that a clear distinction between goods and services is useful, both because goods and services *are* intrinsically different (as we will see) and because this difference is relevant for economic analysis. The difference is important not in the least because of the relevance of services in the observed developments in actual economies. We have chosen to analyse internationalisation, specifically in services, and we need a clear framework for that, including a good understanding of the nature of goods.

In his 1977 paper, Hill also refers to the problem of finding a contemporary definition of goods. He re-appreciates the definition of goods that was used by classical economists and suggests the following particular definition:

> "A good may be defined as an [..] [independent] *object* which is appropriable and, therefore, *transferable* between economic units" (Hill, 1977; page 317. Italics added; changes between rectangular brackets).

Compared to the original definition I have decided to omit the adjective 'physical', before 'object'. In this way the formulation stresses the transferability of goods rather than the tangibility, which, if mostly relevant, can only be a derived characteristic. Most objects are tangible, but the words 'independent object' essentially refer only to the separate existence of an entity from its environment. In order to be appropriated, the ownership of an independent object has to be transferred effectively from producer to consumer.. If ownership of the object can be transferred, this means that the object can be exchanged. Since exchange is a specific form of a transaction, this means that the object satisfies the requirement of transactability that makes it part of economic relations. Therefore, the object classifies within the category of

products called 'goods'. So far we can conclude that both goods and services are products that feature in economic relations. Moreover, both concepts have ample logical content, in that they clearly set requirements to meet in order to classify something within either set.

Now that we have chosen a well-defined concept for services as well as for goods, we can proceed with the interpretation of the nature of products in order to understand and apply the concept 'service' as distinct from 'goods'. Ultimately, the framework offered will enable us to categorise services and to analyse more successfully the issues with respect to services. The framework is, in other words, the basis for our inquiry into the last three research questions spelled out at the start of this chapter.

Sub-Section 1.1.3   A framework to interpret the essence of services and goods

After reading up to this point, we have only mastered the abstract theory of how to define goods and services. In order to understand the above on a more operational level, we have to interpret the definitions of goods and services and apply them to practical cases. To do this and set the distinction between services and goods as sharply as possible, I first introduce the following set of concepts, which are related to each other:
* production process
* absorption process
* consumption
* utility or use-value

Let us use the above concepts to decompose the content of the definition of services. Eventually this will lead to an integrated theory to interpret the nature of products. A service entails a condition change imparted on a particular object (here used to denote the person, organisation or good whose condition is changed). Both Hill and Stibora and De Vaal point to the ability of this typification to clarify much hidden confusion amongst people about what a service is.

Particularly for services, the actual output (i.e. the service) and **the process of production** are often thought to be the same thing. Therefore, the first thing to do is to clearly distinguish the production process from the output or product that ensues. The words that Hill applied to address the issue are worth repeating for this purpose:

> "The process of producing a service is the activity which affects the person or goods belonging to some economic unit, whereas the output itself is the change in the condition of person or good affected" (page 318).

So, as De Vaal notes (Stibora and De Vaal, 1995; page 17) for the example of a cultural service (the performance of an opera singer for a live audience):

> "..only after the performance is completed, one gets to know the total change in condition and thus the output of the production process".

Why is the process of production often confused with the service itself? The reason is the strong temporal connection between the production process and the **process of absorption**. The essence of a service being a condition change is the fact that such a change is not transactable *in the same way* as a good is. The change has to be brought about by the producer directly to the object of the service (i.e. either the customer-economic unit or his goods that

are affected). During the process of producing a condition change, the 'consumer' has to absorb it simultaneously, since a change can only exist relative to the object that is being changed. On the contrary, a good is an object resulting from production that can exist independently of its consumer. Such an object can be transacted by way of an *exchange* of ownership. But such an exchange that involves the transferring of control over the product from producer to consumer is not possible for services. The production and absorption of the change in condition constitute in themselves a transaction, which I propose to labelas *joint-'production'*. Although the production of the service is done by the producer, the object of the service is indispensible for production. Absorption and production are perfectly complementary for a service to arise. Hence, the term joint-production. The flow character and *simultaneity* of the transaction have led to the misinterpretation that this joint-production transaction *is* the transaction of the service, hence confusing the production process with the output: interpreting a service as a flow, while it is a static end product, just like a good.

Other related and well known mistakes are: confusing the absorption process with consumption and even with the derivation of benefits or utility. All the possible mistakes deserve further elucidation.

A good guideline to structure your thoughts about services and goods is to start from the notion that both are transactable. Hence it follows that to grasp the product in question, we need to determine exactly what is transacted and how (i.e. exchanged or provided), in any specific product-transaction. For goods, the product transacted is an object and the transaction takes the form of an exchange of ownership; for services, the product-transaction entails the provision of the eventual condition change. Ownership is not exchanged, it is created automatically as the object has absorbed the total condition change.

A service and its production: two separate concepts

Difficulty in distinguishing the production process and the output arises because of two reasons: the characteristic of joint-production and the influence of a common notion of the meaning of **consumption** that is too wide. The conventional broadly defined concept of consumption includes the absorption process of service creation as well as the use of goods and the benefits that flow from services and goods. As goods logically exist as independent objects, the production of goods does not relate directly to the demand side of the market. Thus, for goods the process of production will not be confused with the result of it.For services, joint-production is an <u>inter-action</u> of producer and 'consumer' (to be consistent with our terminology the object is preferably called *absorber* here) that makes independence of the output from its object impossible. Joint-production connects the demand side to the process of creating the service. Absorption of the flow of change, however, is often confused with consumption of the service itself. As a result, the production of the change in condition is regarded as the service end-product[5]. Essentially the argument can be summarised as follows:

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[5] The frequent difficulty to measure the output of services quantitatively (see Hill, page 324) has aggravated the confusion of output and production process. Often service output is measured in terms of the production process. For example, the number of pupil-hours of instruction as a measure for the output of education services. The actual output is the amount of knowledge imparted in pupils, but this is hard to measure explicitly.

as the object is engaged in the process of absorbing the condition change, often falsely labelled the consumption of the service, the activities that are spent simultaneously by the producer in the process of production are easily mistaken for the eventual service. Only a consistent interpretation of the definition of a service allows us to distinguish the transaction of joint-production from the eventual inter-change of the final result of joint-production: the provision and consumption of the service. Consistently applying the definition of a service as the total condition change imparted, logically leads to the adoption of a narrow definition for the consumption of a product. The appropriation of a service, that occurs necessarily at the moment of completion of production and absorption of the condition change, is called *consumption* of the service. Consumption is the product-transaction that concludes the social relations of (market) allocation of goods and services. It does not refer to the benefits of products and the derivation of utility that ensues, as is often implied by the wider definition of the term 'consumption'.

The permanence of services

The transitoriness of services that was claimed by classical economists and noted in the beginning of sub-section 1.1.1 is a common misunderstanding that also follows from an unsuited interpretation of the concept of consumption. When theorists state that '..consumption.. must take place simultaneously with.. production' in case of services (e.g. Hill; page 320) they confuse consumption with absorption. One is easily tempted to conclude from this that services must be perishable, as 'consumption' ceases at the moment that production has ended: services cannot be stored. Such a mis-interpretative confusion is prevented equally easily if we realise that consumption is not related to the durability of either goods or condition changes, brought about by the activity of a producer (i.e. services), in any way. Consumption simply points to the act of appropriation of a product. It is a transaction, which may take little time, for sure, but that is of no importance here. The fact that services cannot be stored is true, but follows from the *uniqueness* of the service in relation to its object, hence from the necessarily simultaneous process of production and absorption[6]. Non-storability has nothing to do with the permanence of services!

Services and benefits: a preliminary

A related issue that is often the implicit cause of a lot of confusion when debating services is the relation between a service and the benefits that ensue from the changed condition. Because the distinction between absorption and consumption has not been introduced explicitly before, we have noted that many authors have been tempted to say that production and consumption of a service take place simultaneously. Combined with a popular

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[6] Although he also fails to identify the concept of absorption, as distinct from consumption, Hill is correct in his emphasis that the durability of services is not conceptually different from the durability (or lack of it) of goods. For an example on the permanence of services, see his telling example of the Statue of Liberty, once transported from Paris to New York (page 319). The introduction of a narrowly defined consumption-concept together with the concept of an absorption process provides an analytical basis for the interpretation of the characteristics of services and the judgement of debated issues. This theory will be specifically presented further on. It adapts and builds from the insights offered by Hill and other theorisrs that analysed the nature of services,

understanding that consumption is the extraction of benefits from a product and that these benefits are services flowing from consumption in case the product consumed is a good, we have a recipe for confusion. If benefits are services, then service products should have to be benefits directly conferred from the producer to the consumer. Wrong! I will try to take away the lack of clarity by introducing an integrated theory to interpret the nature of products below, which builds on the concepts introduced in the beginning of the present sub-section. However, I suggest to take a look at the consistency of earlier efforts to elucidate the difference between a service and its benefits first.

Sub-Section 1.1.4 On services, consumption and benefits: the received view

Although both Hill (page 316) and De Vaal (Stibora and De Vaal, 1995; page 18) recognise the logical difference between a service and the benefits, and ultimately the **utility or use-value,** that follow from it, they continuously run the risk of being subject to misinterpretation, because they do not *explicitly* interpret the difference between production, absorption, consumption and use-value. The solutions they make use of to separate services from their benefits are essentially ad-hoc and violate the definition of services that they adhere to. The following statements illustrate that their explanations are essentially on the right track, but leave room for unclarity. First I present the argument of both authors to stress the conceptual difference between a service and its benefits. Then I will try to show the source of remaining confusion in their analysis: the lack of a clear interpretation of consumption.

When Hill illustrates the importance of focusing on product-transactions to identify the essence of goods and services, he emphasises that both goods and services must be observable and quantifiable in 'physical' terms (units). This means that a product must also be distinguished from the benefits and eventual utility that the consumer derives from it. He poses the following:

> "Although these benefits are important in explaining the behaviour of consumers, it is a matter of simple logic that the good or service itself is not the same as the benefits derived from that good or service. Unfortunately, the two are often confused in the case of many services" (Hill, page 316).

De Vaal is also very clear about the conceptual separation of a product from its utility, as is obvious when he argues:

> "The key issue here is that one must make a clear distinction between the actual purchase of a product, either a good or a service, and the utility one derives from it. The change in condition that is central in Hill's definition points at the act of consumption of a service and not to the change in utility of the person consuming the service" (Stibora and De Vaal, page 18).

Apparently De Vaal seems to adhere, like Hill, to the idea that a service is an observable change that can be measured as both the quantitative and qualitative extent of change in the condition of its object, which is a different concept than the benefits that flow from this condition change. Still, the *interpretation of consumption* that both authors implicitly use in their analysis conforms difficultly with that view, as will be illustrated below.

On the meaning of consumption, Hill states that:

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like De Vaal.

" The consumption of the service is the change which the producer effects in the condition of the consumer's good so that the production and consumption of the service obviously cannot be separated from each other" (page 320; although he is referring to services that change the condition of goods, he later states that the similar argument holds for all kinds of services).

The problem with his interpretation is that it *essentially equates a service to its consumption*, since both are identified as a condition change. Moreover, one can conclude, although Hill doesn't mean so, that the production is essentially the same condition change as the consumption and hence as the service. That is clearly in contradiction with the definition of a service as the end-result of the process of production. This conception of a service and its consumption is presumably caused by a tendency to think of a service as a *flow*, or, in other words, to see a change as a flow. We already noted earlier that a service is just as static an end-product as a good. The definition that Hill introduced also stresses the 'comparative statics' of services. In the words of De Vaal: '..a service is taken as the end result of a production process that has been initiated to alter the condition of either a good or a person' (page 16). The fact that the arguments of both Hill and De Vaal balance between services as a flow and services as a product, causes a duality in their logic that makes a consistent interpretation of goods and services, consumption and benefits difficult. Given the clarity of their intention to define a service as an output, a static ultimate change, the paradox in their statements at other places has to be the consequence of a problem with the meaning of consumption. For example, De Vaal argues, in contradiction to his earlier statement presented a few lines above:

"..the flow character of a service (a change) implies that production and consumption of a service must take place simultaneously as there can be no stockpiling" (Stibora and De Vaal; page 17).

As does Hill:

"Services cannot be put into stock because a stock of changes [i.e. he means: a stock of flows] is a contradiction in terms" (page 319; my comment between rectangular brackets).

Again, there is no doubt that both Hill and De Vaal in essence adhere to Hill's definition of a service as the static *end result* of a production process (clearly, Hill proposed this definition and both argue at lenght to correctly distinguish a service from its production process). The process of producing a service is a flow, just as the production process of a good is a flow. True, the production of a service implies that the condition of its object is being changed. But the service itself is a change in (comparatively) static terms.

The difficulty arises because the concept 'consumption' is not clearly defined. Hill talks about *consumption as a process*, a flow, which is evident from his definition given above. However, when he refers to the consumption of a good we can find the not explicitly related descriptions 'process of consumption', 'exchange transaction' and 'acquisition'. In De Vaal we can also find both references. He is more consistent in applying a definition of "the act of consumption" as "the actual purchase" to products in general, either goods or services. However, he also makes use of the alternative interpretation of consumption as a flow, or a process. If both interpretations exist besides each other, this can only be explained by the

implicit assumption, which violates the definition of a service, that consumption is somehow the *process* needed to <u>acquire</u> *'the service-flow'*. Such an interpretation runs the serious risk of joining forces with the conception mentioned before, that consumption were the *use* of products to <u>extract</u> *benefits* from them. The faulty implication that may result is that the benefits equal the condition change and thus the service. Even theorists that understand the nature of services very well may in practical cases be lured into the pitfalls they exposed in advance. An example of this can be found, for example, in De Vaal, page 20. When discussing the content of services that other authors have 'put forward..as examples of services to which Hill's definition would not apply' he correctly states that security services are fully compatible with the definition of services. But in his argument he confuses the benefits of the service with the alleged condition change. He argues:

> "If, for instance, your house is being guarded, it no doubt changes *your* condition in the sense that you *feel relieved* that if something goes wrong there will be someone that looks after your property" (Stibora and De Vaal, page 20; italics added).

In my opinion, the service provided is a change in the condition of the consumer's house, namely that it has been put under supervision for a certain period of time. The owner of the house, who is the eventual appropriator of the condition change to his asset, will eventually reap the benefits of this condition change. He will feel relieved as De Vaal notes. This relieve, a characteristic that flows from the condition change, can then be seen as translating into utility, because the consumer has a preference for this characteristic[7]. The confusion of benefits with the actual condition change becomes more clear if we take notice of something De Vaal said in a footnote that refers to the quotation given above. He discusses the purchase of a good and says:

> "The change in condition you experience then becomes equal in nature to the benefits you reap from the consumption of any good" (Stibora and De Vaal, page 20, footnote 12).

The above argument explicitly says that benefits are equal in nature to a condition change. This implies that services, which are condition changes, are simply benefits that can be provided in a transaction. Paradoxically, this is precisely the popular confusion indicated earlier that De Vaal has forcefully vitiated elsewhere.

The same holds for Hill, when he discusses the category of entertainment services (theatres, cinemas, football games, etcetera). He correctly interprets these services as a change in the mental condition of the audience, but then fails to see the straightforwardness of these changes. In fact he mistakes the benefits of the services for the services themselves.

> ".. it is perhaps for the psychologist to describe the nature of the change. .. Presumably, these kinds of services consist of changes which are only transitory, but it is debatable whether even they vanish in the instance of their performance" (Hill, page 324).

The mysterious help of psychologists isn't really needed at all. The service is simply the

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[7] The distinction between a product and its characteristics (benefits) that are valued by the consumer has been introduced by Lancaster (1966), see James and Stewart 'New products: a discussion of the welfare effects of the introduction of new products in developing countries', Oxford Economic Papers, 33, 1 March 1981.

change in the mental condition of a given spectator, that he has seen an entire show being performed. It is this comparative change that is both provided and consumed as subject of the product transaction. Moreover, this change is permanent. Once you have visited a concert by the Counting Crows in Tilburg, this will always remain so: it is irreversible. However, for the benefits that you derive from such a concert, the story told by Hill holds perfectly. Indeed, the nature of these ultimate, 'consumptive' benefits and the preferences for them belong to the realm of the marketing researcher or psychologist, not to that of the economist. Also, the benefits may be, and for the largest part certainly are, only transitory. It is obvious that Hill has mixed services up with their benefits. Nonetheless, he was well aware of the distinction between both categories. He illustrated this understanding by correctly interpreting health services as the physical or mental condition change that results directly from a medical treatment, while the benefits that flow from such services are the improvements in expected health conditions that follow when you and your body make use of the service.

It should be obvious that a lack of a completely defined conceptual framework underlies the unintended inconsistency in the interpretation of services that emerges from what I have called 'the received view'. The duality present in that approach causes it to be an ad-hoc, partly unsatisfying interpretation of the nature of products. The theory of goods and services remains unfinished because of the internal contradiction in its interpretation of the consumption of a service. Below, I will explain an alternative model to interpret the nature of products.

Sub-Section 1.1.5 On the interpretation of the nature of products: an extension to the received view

We already saw the frame of this model earlier at the beginning of sub-section1.1.3, when I introduced it as a set of interrelated concepts, which we have since applied. The conceptual adaptations that follow from the model can fully realise the intentions of the received view. The model is based on the concepts: transactions, production process, absorption process, consumption and benefits (which lead to utility or use-value). They serve as a framework to interpret the nature of products and to categorise them as goods or services. The starting point for constructing this model was the central condition proposed by Hill to identify products: they must be transactable. The reason is that transactions are essential in the social relations of creating and distributing wealth. Differences between categories of products should reflect themselves in the way they are transacted. This approach proved a useful starting point to analyse services. The model will be built around a keen understanding of the concept of a transaction. The second pillar on which our model has been based is the concept of the creation of wealth: production. From production to benefits, products can be categorised using the concepts of our model. A first step can be made towards an answer on the third research question: '*How can we categorise service activities?*': the application of our model and definitions to generate classification of products as either goods or services. Below I will explicitly summarise the interpretation of the 'augmented' received view regarding the essence of goods and services, that has evolved in the previous discussion on how 'to

decompose the content of the definition of services'.

Since a *service* exists uniquely to its object and cannot exist independently, its production already requires an inter-action between the supply and demand side of the eventual product. From the supply side, the production process implies the activity of the provider that affects the condition of the object. From the demand side, the absorption process refers to the object of the service undergoing the change in condition being produced. Both the productive activity and the absorption of the effects of this activity are needed for a service to be produced. The processes take place simultaneously. Both have to do with the *creation* of a service. Therefore, the production of a service is actually a process of joint-production. Whether the object is a person, a good or an organisation, the service can only be defined against the availability of the object to be changed. Since the service itself is the end-result of joint-production, *consumption* of a service, like consumption in general, means the *appropriation of the product* by the consumer. In the case of services the condition change is appropriated by the object of the service in the first place. The object can always be traced back to persons, either being a (group of) person(s) or as their property. Consequently, acquisition of the service finally takes place by a person or a collective of persons. The final acquisitor is called the *consumer*. A problem with the consumption or appropriation of a service emerges if we try to visualise the transaction. We have seen that services cannot be *exchanged*, like goods. A service transaction is not a physical product transaction, it is a *logical* one. The physical transaction in service agreements enacted on the market lies in the inter-action of joint-production, or, stated differently, in the creation of a service (see Hill, page 320). However, the essential transaction, for which the consumer and producer reach an agreement about payment, is the inter-change of the product: the provision and consumption of a specified service. This is not different *in concept* from the inter-change of a good. Note that actual payment doesn't make the transaction physical. Payment is done either before the service is even produced or after the condition change has been realised and the actual provision and appropriation have taken place.

Appropriation implies ownership. Like Hill correctly remarked, ownership need not represent capitalist property rights. I suggest that the *best general method to determine exactly what product has been produced and transacted* interprets the consumption, or appropriation, of a product as primarily the acquisition of the *usus fructus* of the product (see Kunneke, in Verbon, Mol (ed.), 1997; page 20 for a statement of the different aspects of property). Property rights can be widely defined, as Kunneke did, as all regulations that structure economic activity and ownership in particular. For our purpose, the usus fructus is essential: it refers to the right to property of the benefits that follow from the product. In a product-transaction, the appropriated product is the product whose benefits are for the consumer to extract; therefore, the appropriated product is labelled as *utility base* or, more generally, *benefit base*. Although the intentions of the argument above may seem rather mysterious, it will be important to distinguish goods from services in more complicated examples. Finally, benefits of a service have been defined as the desirable characteristics of the condition change. Benefits may refer to increased pecuniary receipts, in case the service in question is appropriated for productive rather than 'consumptive purposes'. Utility is based on the

amount of and preference for desired characteristics that result from the service. The term 'use value', that is also associated with utility is less appropriate for services, as the benefits often flow automatically from the condition change. In any case, a service can never be *used* as it is a condition change, not an independent transferable object. Many services, however, do not yield direct benefits from consumption, but need to be *made use of* to generate benefits!

A *good* exists independently from the eventual consumer. Hence, the creation of a good does not require joint-production. Interaction between the supply and demand side of the market during the genesis of the product is not required. Still, goods cannot be generically distinguished from services on the basis of the production technology. We already noted the fact that both goods and services are produced using labour, natural resources, physical capital and other, intermediate, inputs. Consequently, the procedures or techniques used in production may be very similar: compare the repair of a bicycle (a service) with bicycle assembly (goods production)[8] or a "digi-doctor" consult (service) with a customised electronic news- 'paper' (good). The aspect of interaction in joint-production, however, *does* decisively alter the characteristics of service production. As we will see in Section 1.2, the characteristics of service production have a definite impact on the structure of markets and the extent of differentiation of services. All differences in production technique and production characteristics that generally arise between goods and services in practice, can be reduced to the fundamental difference in nature between the products in question. Goods are independent, transferrable objects. The mode of transaction serves as an accurate indication to identify a good: a good is transacted by an *exchange, or transferring, of ownership*. The transaction assigns the usus fructus of the good to the consumer. This means that he acquires the right to property of the benefits that follow from the use as well as re-selling of the good: he appropriates, or *consumes*, the good. Hence, this product is the benefit base and the subject of the product-transaction. Recall that consumption does not refer to the actual experience or derivation of benefits, only to the appropriation of the product that is the actual subject of the transaction.

All in all, the best way to identify a good or service is to check what product is transacted in any product transaction. Since a service is unique to its object, it can neither be stored, as we already noted before, nor be re-sold. *Non-resaleability* is an important additional feature that allows us to distinguish goods from services. The first criterion to assess whether a good or a service is the ultimate subject of any specific product-transaction, however, remains the careful application of the definitions introduced before, trying to answer to the question: *"What exactly is transacted: a condition change or an object?"* To answer this question you can subsequently fall back upon the differences in product-transactions between goods and services:

- a transaction of a good implies the exchange and acquisition of the ownership of an independent object
- a transaction of a service contains the provision and appropriation of a condition change, which automatically implies the creation of ownership of the condition change

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[8] The example is drawn from Hill.

for the consumer
- consumption or appropriation of a product is interpreted as the acquisition of the usus fructus of the product: for services this implies the acquisition of the right to property of the benefits that are either *directly experienced* as a consequence of the change in condition or flow from *making use of* the condition change
- for goods, the usus fructus contains the right to property of the benefits that flow from either the *use* of the good or the *re-sale* of the good

In case of goods, we have yet to look more closely at how the consumer draws benefits from the product, after having appropriated it. When a good serves as *benefit base* its owner can either reap indirect benefits by re-sale of the good or use it for direct benefits. The use of a good should be explained further. Perhaps surprising, the line of argument that we adopted for services can be followed to a large extent. Utility can be related to certain desired characteristics (= benefits) that follow from a condition change. Now, however, the condition change is not essentially a service, but first and foremost an *extractive condition change* that is imparted and absorbed by the user through the process of using the good. So: the use of a good means the extraction and absorption of a condition change that allows the benefits that are "embodied" in the good to be realised. Note that the benefit base is the good transacted, the use of which yields the benefits. The extractive condition change only serves to realise the benefits of the good and does not necessarily belong to the logical category of services. The key to see the difference between services on the one hand and extractive condition changes on the other lies in the concept of a product. A service is a product, since it is transactable. Extractive condition changes are changes in the condition of a person using a good that may well be non-transactable, thus not necessarily products. Some extractive condition changes are *also* services, since they can be transacted, i.e. bought on or provided through the market. For example, the condition change extracted by using a car can also be bought as a transport service 'on the market' or provided to others by transporting them. Hence, conceptually, the use of goods can contain the production of services for own use. Above all, however, the use of an appropriated good implies that this good is the benefit base. Any condition change extracted realises the benefits embodied in the good and qualifies as an extractive condition change in the first place.

A few examples may serve to further clarify the argument. Suppose you bought a sweater, which is obviously a good. Using the sweater normally implies you wear it, thus changing your physical condition: you are covered by a sweater. The change in condition that occurs has beneficial characteristics such as a feeling of warmth and an esthetic image. It may be obvious now, too, that *this* extractive change in condition is not transactable, hence not a service. You cannot directly buy to be covered by a sweater; you either buy the sweater or, perhaps, rent it (which is a distinct service in itself: more on that below) in order to be able to extract the relevant condition change of being covered. A further example may illustrate the use of a good in order to produce some other product: productive use instead of directly

consumptive[9] use. A computer, complemented with appropriate software (both goods) *allows* you to *put* your memoirs *on paper* (= extractive condition change to the user of the computer) which is beneficial since it increases your productive efficiency (= benefits) in producing memoirs which gives you direct utility from the conveniently composed memoirs or yields money from the sale of your memoirs (the good you produced).

Hopefully the theory has given a graspable framework to interpret and distinguish goods from services. The final sub-section gives some examples of applying the framework to actual cases. After that we move on to Section 1.2, which deals with the analysis of services in economic structure and shows how we can apply the understanding of the difference between goods and services to assess the different sorts of services and the roles these services play.

Sub-Section 1.1.6 The framework applied: exploring the spectrum of services and goods

We have already seen some examples of services (e.g. insurance services and entertainment services) that can be interpreted quite well on the basis of the definition of services. A few additional examples may give an indication of the versatility of the framework introduced above. Financial services, rental or leasing services, and commerce suffice to show the ability of our framework to categorise products as either goods or services. Finally, the borders between goods and services are investigated when we assess the nature of information and, related, knowledge-based services and information goods.

Financial services

In their book on money and financial institutions, Klant and Van Ewijk (1988, page30) explain the benefits of financial services for borrowers (also denoted as *investers*) and savers (also called *investors*) of financial capital. For us it is important to acknowledge the condition change behind these benefits. A financial service is foremost an intermediation service that offers an investor an outlet for his financial capital. This is a change in the mental condition of the saver in that he is informed and advised on the relevant investment opportunities for his financial assets. Furthermore, the physical condition of his financial wealth is changed by the actual management of his capital. An intermediation service provided to a firm that seeks financial capital to engage in an investment project, changes the firm's organisational condition. The search-and-match of finance is co-ordinated by the provider of the intermediation service.

Rental and leasing services

In the previous sub-section I already indicated that the rental of a sweater was an alternative for buying it. A sweater-rental is not the most realistic example of a rental service, but that example was primarily introduced for a different purpose. Let us consider the rental of a car as a typical example. The rental of a car is a service, because the product transacted is

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[9] I have to admit that the use of "consumptive" here has not been based on a coherent application of the concept of consumption that is introduced in these pages, as the appropriation of a product. Rather, I fall back in the conventional habit of identifying consumption explicitly with final use of products for the derivation of direct utility. This will occur more often in circumstances where I do not need the exact, rigid and narrow interpretation of consumption for the purpose of strict methodological analysis of goods and services.

a change in the physical condition of the consumer. Suppose you rent a car for a day. This implies that the condition change transacted is: the right to use the specified car for a period of one day.

This product satisfies the characteristics of a service. The product-transaction can be argued to take the form of the provision and appropriation of a condition change: the usus fructus has been acquired of the rental service, not of the *subject* of that service, the car. For, the consumer is not allowed to either sell or re-rent the car in order to draw benefits from it. The change in condition that is rendered, therefore, should be identified as the benefit base, the product transacted[10]. The creation of the service is consistent with the characteristic of joint-production that follows from the nature of the service. The provider has to engage in productive activity to maintain a stock of physical capital, in the form of cars, and co-ordinate the logistics of renting out the cars. The absorber, on the other hand, has to help creating the actual condition change, by absorbing the use of the car. The condition change that is *extracted* from the use of the car is now the consequence of (i.e. making use of) the service rendered by the car-rental company: the right to use the car. The service is created in *joint*-production during the process of absorption and productive input by the rental company, which continues to own the car.

Yet, the requirement of a process of joint-production does not imply simultaneity of all labour activity and absorption in the creation of a service. Like Hirsch (1989, page 47) explains, an essential element of services is that service creation requires some form of interaction between producer and absorber. The occurrence of interaction does not imply simultaneity of all aspects of productive activity and absorption. Large parts of productive activity may occur in isolation and before absorption takes place (Hirsch, 1989; pp. 47-49). For car-rental services, the organisation and maintenance of the car park occurs in isolation, at least not in some form of interaction with the clients. The interaction of joint-production contains the perfect complementarity of the subject of the service (the car), which is a capital good in the production of the service (the use of the car for a pre-specified period), to the process of absorption by the eventual consumer of the service. The separation of certain stages of production from the interactive fase of joint-production is common to a lot of services, amongst others in the example of services that we will analyse next.

Commerce

The services of retail and wholesale trade are taken together and labelled "commerce" in

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[10] De Vaal (Stibora and De Vaal, 1995; page 21) argues that a car-rental is not a service. He states that a car-rental is a special kind of transaction of a good, hence not a product itself. I fully agree with the opinion that a transaction is not a product. The general definition of a transaction has been given earlier. For the specific case of product-transactions, the following holds: a product-transaction consists either of the provision and consumption of a service or of the exchange and acquisition of ownership of a good. Hence, such a transaction has as its subject a product, and thus cannot be a product itself. If one accepts that a car-rental is a form of a transaction of a car, it cannot be a product supplied in a product-transaction. However, I have explicitly defined the meaning of the concept "consumption" (also acquisition of ownership) that features in the definition of a product-transaction. As I have argued in the main text, this allows us to identify the benefit base, or actual product transacted, in any product-transaction, using the concept of usus fructus. Consistent application of the framework I propose leads to the identification of a car-rental as the actual condition change transacted. Hence, a car-rental turns out to be a service, not the transaction of a good.

this thesis, to avoid the use of "trade" other than in the context of international trade. The product offered by commerce-firms is a change in the mental condition of the consumer. He is provided the choice from a conveniently assembled and presented assortment of consumer goods. This eventual change in condition translates into distinct benefits and utility for the consumer. Again, like in some other services such as rental services, fitness studio services and library services, we need to distinguish between the product provided and produced by the firm: the informed choice, and a subject of the service: the consumer goods. In contrast to e.g. the case of a car-rental, the consumer may eventually also appropriate some of the service's subject. This transaction of such a consumer good should be seen separately from the transaction of the service. The good purchased is a separate benefit base, besides its entering as subject, or physical capital, in the joint-production fase of the service.

Similarly to rental services, large parts of productive activity occur isolated from interaction with the consumer. Besides organisational overhead activity (such as setting up a balanced assortment), the transportation of the consumer goods and the storage and pricing occur in isolation. Only the advice given by personnel present, processing of fresh food and the efficient provision of payment opportunity occur in interaction. Furthermore, the interaction of joint-production again contains the perfect complementarity of the subject of the service (the consumer goods) and the other fixed capital facilities in production (such as the storage space) to the process of absorption, that helps creating the condition change.

The provision of commerce provides an illustration of an interesting aspect that is present in more services, such as leasing, entertainment services and, to a certain extent, transport services. The *cost* incurred by the provider in isolation are to a considerable extent *unrelated* to the level of *output*. For transport (e.g airline services) and entertainment (e.g. cinema services, fun-fairs), the story even holds for the cost occurred during interaction (see Hill, 1977; page 332). The marginal cost of additional services are near zero, up to a certain capacity, which points to the scale economies of services like library service, commerce and entertainment.

The negligible marginal cost of these services has an important consequence. The service is eventually created during the fase of joint-production (although the cost incurred in isolation are necessary for the production of the service). In fact, the creation of an additional service depends for a large part on the availability of an additional consumer absorbing the change in condition. Hence, within the boudaries of capacity, the absorption of any consumer is non-rival to that of others. In *non-rival service provision*, the marginal absorbing consumer co-operates in the creation of an additional service that is unique to him, but which does not require additional production cost. Some services moreover are characterised by non-excludable provision. These are called collective services (see Hill, page 332). Think of national defence, fire-brigade and police protection. Here we can see that the concept of a service sheds new light on products that have elsewhere been characterised as public goods. The interpretation of such products as public goods implies that all consumers are said to be non-rival in the joint-consumption of a given supply of public goods. The distinction between goods and services clarifies that many public 'goods' are not actually goods but clearly services. This holds for defence, public administration and fire-brigades, amongst others. For

collective products such as infrastructure and lighthouse services our concept of consumption clarifies that the 'public' good is merely the subject of a collectively provided service, of which the production cost are largely unrelated to the level of output. The individual consumer does not acquire the usus fructus of the good, rather all consumers acquire the usus fructus of the service that is uniquely provided to each of them separately. All take part separately in the absorption of changes in their condition that are produced by one and the same productive activity.[11]

Though commerce is an example of non-rival service provision, the services provided can be individually charged to a considerable degree. Hence, commerce is a form of excludable service provision. Strictly speaking, the service provided is not priced separately. Only when a consumer fills in his choice in such a way that he decides to buy consumer goods, the firm can "privatise" the service. Still, charging entry fees at the entrance of a supermarket would not be a wise strategy. There are multiple reasons for that. Although the commerce service and the subjected consumer goods are separate benefit bases, the flow of benefits of the combined transactions are strongly related. The service provides benefits to the consumer practically only if he decides to buy merchandise: if you walk in and out of a wall-mart without buying anything you have consumed a service without paying, but the condition change is of little value to you. Moreover, entry fees to charge for each and any service provided might deter customers and would not be a credible strategy in light of competition and marginal cost[12]. Free entry incites people to watch, choose and buy. As the service can subsequently be privatised, commerce is effectively excludable in supply and does not match the nature of collective services.

Information, goods and services

The distinction between information goods and information intensive knowledge based services proves particularly difficult. Remember the quotation from Sampson and Snape (1985), which stated that it was not clear where the border between goods and services was located. Disks full of data, construction plans and transmitted data are part of a grey shaded area between goods and services of which even books and scientific journals are part.

Any attempt to solve the problem of this grey area should start by considering the nature of the common factor in the problem: information. Two authors have influenced the interpretation that I will propose below, Hirsch (1989) and Bhagwati (1984). Hirsch made an effort by recognising that tangible goods and services are not the only possible products; information should be seen as an *intangible good*, since it can be stored like tangible goods. The provision of information, according to Hirsch (1989, pp. 46-47), has the characteristics of

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[11] Public choice economics applies the interpretation of collective services as public goods. While this is based on a logically inconsistent interpretation of what is transacted, the approach has in practice been unfolded to a far more useful and dependable model. The correct interpretation of the category as collective services evokes problems, because the exact level of output cannot be determined (because of non-excludability) and marginal benefits can no longer be theoretically related to marginal cost as covenient as in the theory of public goods.

[12] As an illustration, consider internet stores. They could easily install pay per view, but given the low cost and deterring consequences, each single view is normally not priced.

a service: absorption and provision occur simultaneously. Bhagwati argues that codified information, such as books and CDs, have to be seen as "goods that splinter-off from services" (Stibora and De Vaal, 1995; page 23, footnote 19). These goods replace the original service provided, or in other words, the service has been disembodied from its original supplier. According to Bhagwati then, books, CDs and the like are (information) goods that cause disembodiment of services provision.

How can we combine these views to arrive at an interpretation of the nature of information that is consistent with our model of the transaction and production characteristics of products? I suggest the following: the production of information can be performed entirely in isolation, which conforms with goods. The transmission of information, however, requires absorption rather than use, which is typical for services. Thus, information cannot be used; it is the *content* of a condition change that can be absorbed and made use of. Yet, information as content can be codified on a tangible carrier: an information good that can be used, such as a book or floppy-disk.

This clarifies that we should make a distinction between information and information goods. A book can be used (it is a good), which yields an extractive condition change: the information codified on it, now imparted in the user. The information good (the book) is the benefit base, or the product transacted. So, as De Vaal said, Bhagwati does not imply that disembodiment of the service from its supplier means that using an information good implies that you are making use of a service. You are extracting a condition change from a good. The interesting feature about information goods is the fact that the content of the condition change extracted is the information that was codified on it. Information itself, as a consequence, is a disembodied 'service': it is the *content* of a condition change, that can exist independently from its provider. Information thus is a medium to communicate a change in condition. The *eventual* condition change for the consumer is the imparted and absorbed information; the condition change again is unique to its object.

If the change is the subject of a product-transaction, it becomes essentially a service that has to be considered as the benefit base. On the other hand, if the change is extracted by using a good that was the subject of the transaction, it becomes essentially an extractive condition change. The information good on which the information has been codified is the benefit base and the subject of the product-transaction. Take the example of educational services versus a study-book. On the nature of education services, Hill (1977, page 323) says:

> "An educational service is, therefore, the additional skill or knowledge imparted in a pupil directly as a result of the instruction provided by a teacher."

Only after the information has been absorbed and grasped, the condition change has been produced and appropriated: a service has been created and the information served as the content of the change, a medium to communicate the change *during the process of production*. Therefore, information is not a service but a sort of intermediate in the production of a service: it is a disembodied 'service', that serves as the maximum attainable content of a service that is unique to its object. On the other hand, if you have appropriated a study-book, the benefits that will occur from the condition change that you can extract by using it, are clearly based on the appropriation of an information good.

The discussion led to the introduction of a separate category to understand the nature of information. Information can exist independently from its consumer, so it does not logically qualify as a service. Yet, it is the content of a condition change that must be absorbed in order to create the change. Hence, it can not be used only absorbed and be made use of after it has been realised as a final condition change. So, information does not qualify as good either. I adopt the separate category introduced by Bhagwati (1984) to refer to information only: *disembodied 'service'*.

Generally, information serves as an 'intermediate' in the provision of a condition change. It is the content of a condition change, a disembodied 'service'. Information that has been codified on an information good has been disembodied from its original supplier, like Bhagwati said. The condition change that follows from extracting the information becomes essentially an extractive condition change that is based on the use of an appropriated good.

How should we judge whether information serves as an intermediate in the direct transaction of a service, or serves as content[13] for an information good that is to be transacted. The line between information-intensive services and information goods is narrow. In fact, it is ultimately a matter of intention. For knowledge- or information-based services, information is needed to enable interaction in the production of a service. A change in the mental condition of persons is created, using information to communicate the content of the change during the process of joint-production of the service. The product transacted, the benefit base, is the ultimate condition change, which can be made use of to generate benefits. When information is simply codified as content of an information good, the intention is to produce and transact an information good, not a change in the condition of a consumer. Information enables disembodied communication, through the use of the information good transacted. There is no interaction involved, no joint-production: the information good has been produced entirely in isolation of the final consumer, and has come to serve as the benefit base for the final consumer.

In the area of information-intensive products, and nowhere more so, the question as for what exactly has been the subject of a product-transaction is decisive. When transferring of information is part of the production process, something else is (as logically follows) the result of the production process: a condition change. In knowledge-based services, information is always needed to *interact* in terms of communicating a change in condition directly from original provider to final consumer. Hirsch (1989) takes the characteristic of interaction as central in his analysis of service transactions, either as independent transactions or as necessary complement to merchandise transactions (e.g. commerce and transport). He states that interaction requires communication (as particularly in knowledge-based services) which may take place real time (face-to-face, telephone, web-cam) or indirectly, through written communication (letter, report, telex, e-mail). All these forms of interaction clearly require information, which in itself is a disembodied 'service'. Even if the information made use of in

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[13] Recall that information also constitutes the content of the eventual change in mental condition that is absorbed by the receiver of the information. Here, rather, the codification of information on an information carrier (an information good) is meant when I say that the information serves as the content of the information good.

a process of interaction is codified on paper or data-files, the product transacted is a service. The information good only serves to help convey a change in condition to the consumer, which absorbs and appropriates the condition change. Instead of direct person-to-person interaction, joint-production of the service now employs indirect interaction, which consists of the more complex chain: person-codified disembodied 'service'-person[14]. Some practical examples of information-intensive products may illustrate the nuances at play.

Licensing Services

Consider, for example, licensing services. The purpose of licensing transactions is to create and transact a change in the organisational condition of the recipient firm. The firm is granted the right to make use of a specific technology that may have been created in isolation, but is conveyed in a process of joint-production. The technological knowledge is "instructed" by the provider and absorbed by the licensee. The consumer acquires the right to property of the benefits that flow from the total condition change. Suppose that an extensive manual, complete with blueprints of a new technology, serves as intermediate in communicating the content of this condition change to the consuming firm. This does not imply that licensing, or for that matter engineering and research and development, are activities that lead to the final production of information goods. The property rights of any information-carrier used in the process of production remain at the original provider[15]. A licensee-firm is not allowed to use blueprints for any other purpose than to extract information from it to absorb the content of the change in condition that is created. Blueprints (better: their informational content) are classified and may not be re-sold or directly used productively. Instead, the condition change is the benefit base that may be made use of productively. The condition change, moreover, is usually only temporary. Although the imparted knowledge is essentially permanent, the property right of the *content* of this condition change has only been granted temporarily. Given the fact that the right-to-make use aspect is a part of the total condition change transacted (a part that is similar to rental services), the total condition change becomes transitory.

Royalties: the Service of Content Provision

We already took notice of the fact that information not only forms the content of the eventual change in condition extracted or consumed by the eventual consumer of information goods or knowledge-based services. In case information is codified on an information good, it also forms the content provided for the info-carrier. If the information good is the eventual product that is transacted as benefit base, the chain "person-information good" becomes relevant as a product itself (instead of a part in the joint-production of a final service, as

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[14] Equivalently, the chain can be denoted as: person-codified information-person or person-information good-person.

[15] An alternative example of this phenomenon is the ownership of accountancy or consulting reports. These information carriers only serve to communicate the content of the change in condition to be created. As a disembodied 'service' this content, and consequently the information good that carries it, remain property of the service provider. Such reports always remain strictly classified, which is testimony of the fact that a service is transacted, unique to its object.

described above for licensing services and other knowledge-based services). Content provision becomes a product, because it is an intermediate input in the production of an information good that stands on itself as a final product. Content provision is an intermediate change in the condition of the firm producing information goods, hence an organisation-changing service, rather than an intermediate *good* in the production of the information good. Information now again serves as the content of this service: the content of the service of "content provision". This may sound strange, but recall that the information is not transacted. The product transacted is the eventual condition change provided to the producer of information carriers: that he is exclusively allowed to let a specified edition of information goods codify (re-embody) the information (the disembodied content of the content provision-service) for the once-only sale of the information goods.

Note once more that content provision implies a different sort of transaction than knowledge-based services: the information goods that codify the information are now allowed to be transacted. The service provided allows for de-classifying of the information. The information is no longer the content of a process of knowledge creation that is unique to the absorber, but the content of a uniquely granted content provision. Therefore I choose to introduce[16] the term "information-based service" to denote services such as intellectual content provision (by writers, musicians and other artists) and contrast them with knowledge-based services (such as licensing, consultancy, professional services)[17]. The provider of content is granted *royalties[18]* for the information-based service he provides.

Because the provision of content is unique to the consumer of the service, the information, though no longer classified, remains copy-righted. As disembodied content of the service of content provision, the *information* is part of the *production technology* of the economic unit producing information-based services and as such his intellectual property. Consider for example the nature of content provision for library services: each time a book or CD is rented out, an information good is productively employed in the creation of a rental service. Since the information has been codified on the info-carrier for its once-only sale[19], repeated rental of the book or CD implies that content has to be provided again each time the information good is applied for the creation of a new rental service. Content provision becomes an intermediate service in the creation of rental services concerning books, CDs and other information goods.

Like any other trade-marked product technology (e.g. the composition of Coca-Cola

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[16] McCulloch (1988) already intuitively applied the same distinction and introduced the terminology that I have adopted here.

[17] We must be careful not to confuse any of these aggregate categories with another category of services, *information services*, that comprises all sorts of data-processing and data-base services that offer co-ordination of the informational and material flows generated in their clients' productive activities. These services thus process information generated by their clients to shape order and insight, rather than convey new information or knowledge as primary part of the production technology of the service produced (as is the case with knowledge- and infor-mation-based services).

[18] Only recently in the latest revision of the IMF Balance of Payments classification of international product and income transactions (IMF, 1993) have royalty payments been recognised as reflecting product-transactions rather than transactions of non-financial property income. Value added classifications do not include royalties (content provision) and licensing as value-added generating activities.

[19] The information has not been transacted in the creation of a book or CD. The usus fructus of the information, as the content of condition changes to be produced, remains for the provider of information-based

softdrink) or patented technology, imitation or copying of the content of information-based services is prohibited. This introduces us to investigation of the next sort of information-intensive products:

Patents

In the case of knowledge-based services and information-based services, the disembodied service (information) involved in the communication of the condition change is part of the process of joint-production. The disembodied service itself is not the product transacted. However, we can very well imagine transactions that contain the transferring of ownership of information. The usus fructus of information is acquired by its consumer who may subsequently apply this information productively or dispose of it freely: the information becomes the benefit base. In fact, this type of transactions implies the sale of *protected production technology* between independent production-units for productive purposes. The sale of patents is a prominent example of such transactions. Since information has been characterised as distinct from both goods and services, as the content of a service (a disembodied 'service'), the sale of information (like in the case of patents) is the *transaction of a disembodied service*.

A transaction of information has characteristics of both goods- and service transactions. The transaction takes the form of an exchange of ownership, which conforms to the transaction of a good. Productive application of information can take two forms: either information is absorbed and made use of in the production of knowledge-based services or it is used passively for the production of information-based content provision.

In the first case, the acquisition of the information's usus fructus resembles that of a service: the information first has to be absorbed before it can be productively employed. So far, the only difference compared to licensing transactions is the permanence of the condition change that characterises such an information transaction in comparison to the transitoriness of licensing. The difference results from the fact that the information, the technology, itself has been appropriated by the consumer.

When information is appropriated for the purpose of content provision, the acquisition of usus fructus is essentially the same as for goods. The information is not absorbed and imparted as condition change within the purchasing production-unit, but retains its independent existence as a disembodied 'service'. The productive use only requires the passive transferring of information as content of content provision services. An example of this type of information transactions is the acquisition of the ownership rights of music or novels from a specific artist or writer by a rights-management company. The company does not purchase an information-based service (content provision) from the original provider of the information, but the information itself. This implies that the company is now able to produce content provision services himself.

Whatever the goal of the transaction of information, information is the benefit base, the product transacted. The appropriation of patents, copy-rights or other proprietary information implies the appropriation of a piece of production- or product technology. Although

(or knowledge-based) services.

information may come very close to a good in some of the transactions (as explained above), it ultimately remains the content of a condition change appropriated or extracted as a result of disembodied communication between the original provider of the information and the final absorber of the information. Hence, information can still be qualified as a disembodied service. Below we will discuss a category of information-intensive products that further differentiates the nature of information.

Software

As Professor Hill already anticipated,

"..the classification of computer programming raises interesting problems.." (Hill, 1977; page 330).

How should we interpret the information encoded in software programs? A software package is an information good, so much is obvious. In a sense, a software program is an independent object that can be *used* to process additional information. A significant part of the programmed information involved is not designed for being the object of extraction and absorption in order to realise an extractive condition change. Rather, this information forms a set of commands to the computer, a set of regulations of power pulses that defines the reaction of the computer to external stimuli (such as inserting new data-files or typing on a keyboard). The information itself forms a system, because the content of the system entirely defines the system. Therefore, we should see the integrated information itself as the content system, the software package that can be used, like all goods. In this situation, the separation of information and information good introduced before does not hold, because the information is not directed towards direct absorption but forms a content system to be *used in the production of absorbable information*.

Consider for example the information embodied in a word processing program and the text you can produce by using the program. The word processing program is a good, the use of which changes your condition in that you are able to produce a storable text. The information that the text is composed of is directed towards absorption. This information is a disembodied service. The information, however, that composes the software package is for the most part hidden from the user of the program. The programmed information forms the software system and constitutes a good in itself.

All in all, we have been shown that, in particular circumstances, information is closer in nature to goods than to the content of a condition change. Therefore, computer programming provides an extension to the possible appearances of information.

Sub-Section 1.1.7 Epilogue

The previous sub-section has given ample illustration of the application of the framework developed. Obviously, some of the examples are part of a grey area between goods, services and possibly other kinds of products. Others raise questions on whether some activities are productive in themselves (i.e. whether they lead to the creation of a product), most notably in

the case of rental services[20].

The statement by Sampson and Snape that we saw in the introduction to Section 1.1 may remain compelling to some. Nonetheless, while the professional opinions differ on important details, I hope to have provided a coherent interpretation of the nature of goods and services. The ultimate goal has been to contribute to a framework that delivers the tools for unambiguous choices in categorising products. As we have paid sufficient attention to the distinction between goods, services and information, we can proceed with the categorisation of services into groups according to their roles in the economic system. This will be the intention of Section 1.2, which concludes the enquiry into research question number 3:

"How can we categorise service activities?"

Furthermore, the framework will be applied to explicitly derive the characteristics of services that are relevant to analysis. The set of characteristics constitutes the background for the analysis of service trade in Section 1.3 and Chapter 3.

Section 1.2   On the evolving roles of services

Introduction

After we have studied the rationale to distinguish goods from services, it is important to consider what the functions of services are in trade and, more generally, in the structure of production. In the present section we will emphasise the different roles of services in the economic system. The different roles, or functions, that different categories of services play in the economy is the basis for a functional classification of services, that complements the typological categorisation that followed from the definition of services. Hence, the upcoming analysis intends to answer the third research question posed in the beginning of Chapter 1: *"How can we categorise service activities?"*   An inquiry into the roles of services is important for our ultimate goal to study the internationalisation of services, because qualitative changes in the economic system interact with the internationalisation of specific service sectors. Moreover, different roles may dictate different welfare effects of internationalisation.

Sub-Section 1.2.1   A functional classification of services

In the previous section we argued that classifying products as well as economic production activities starts with a distinction into product- or output categories. An output is either a service or a good, each of which is conceptually different from the other. For services, Hill's adapted definition enabled the distinction between three categories of services: goods-changing services, person-changing services and services that are a change in the organisational condition of a collective of persons. This sort of typology could in principle underlie a statistical system of national accounts and other classifications to trace the origin of value added and the allocation of employment. The fact that we have introduced a typological

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[20] The implications of identifying rental activities as non-productive, however, carry as far as licensing, content provision (royalties) and capital services!

definition, on the basis of the nature of products as *type* of benefit base, implies an improvement compared to the approach commonly used in statistical systems. They mostly apply a residual approach, which classifies services as anything that is not agricultural nor a manufacture (see also Ascher and Whichard, 1991; page 205). To give insight into the structure of the economic system we would like a classification to be based on a functional categorisation of economic activity. This is exactly what underlies most statistical systems on the production of value added. First we have to ask ourselves which functions are relevant for services.

Although a typological classification yields some insight in the role of services, more result can be reached if the analysis starts with a different question. Not the question 'who or what is the object of the service' is most relevant, but 'why is the service being demanded'[21]. A service would be acquired to serve any of the following goals (as presented by Hirsch, 1989, page 46):

* instant benefits (e.g. travel, entertainment, haircuts)
* enhancement of the user's consumption benefit capacity by reducing the cost-benefit ratio per product transaction (transport, communication, medical services, education, financial services and insurance)
* enhancement of the user's productive capacity by reducing the cost-benefit ratio per unit of output (transport, maintenance, training, education, medical services, financial services and insurance, business services, communication)

The same arguments apply for the demand for goods. Food and clothing satisfy instant benefits, while cars, consumer electronics and machinery are examples of primarily human capital augmenting products, enhancing the benefit-extracting capacities in the use and absorption of goods and services respectively as well as in production. Many human capital augmenting services (i.e. the latter two categories of services) are related to the transaction cost, both mental and physical, that flow from production and use of other goods and services. In this, human capital augmenting services distinguish themselves from alike goods. On the need of services as "oil in the machinery" of production and allocation, Hirsch (1989) introduces the idea of the *service-intensity* of sets of transactions. The groups of services outlined above also provide a separation between what are usually denoted as *consumer*

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[21] Hill (1977; pp. 328-329) and Van Nunen (1988; pp. 99-103) have a somewhat different approach. They base the classification primarily on the object of the service and thus distinguish between goods-changing services, which they see as closely related in nature to goods production and person-changing services, which they see as clearly different from goods production, in nature. In fact, this approach yields inconsistency, as some person-changing services (especially those I labelled organisation-changing) are very different from traditional, independent person-changing services, such as haircuts. Intuitively, both Hill and Van Nunen move towards an interpretation on the basis of roles. Van Nunen, who adopts a classical interpretation of services, comes very close to the categorisation introduced here in the main text. Yet, he does not specify an explicit definition of services and in fact only classifies some traditional, independent person-changing services as services (which he calls, in the tradition of Adam Smith, unproductive). Hill relies on the concept of producer services vs. consumer services. This approach of 'who buys the service' as criterion for classification is unsatisfactory, however, since it does not provide an ultimate distinguishing criterion for the functional type of product. It may be a proxy for categorising on the basis of functional differences between services, but not an exact method. As we will see below in the main text, classifying on the basis of the different roles that services can play in economic structure is a direct, exact method to distinguish different services on a purely functional basis.

services and *producer services*. Services that are demanded for instant, independent benefits are naturally part of final consumer demand. Obviously then, they are part of consumer services. Within the category of human capital augmenting services, the services that are demanded by consumers for purposes of either consumption benefit capacity or productive capacity are part of consumer demand, hence part of consumer services. Services that are demanded by firms to enhance the productive capacity of their capital stock and workers are part of intermediate demand. These services are labelled producer services. Immediately one can see that services such as transportation, communication and finance can either be producer or consumer services, depending on which type of economic agent purchases them. Education, however, is definitely a consumer service in our terminology, although it can be related to productive purposes. Specific job-related training can be part of intermediate producer demand, which makes it a producer service.

In the remainder of this section, I will combine the different possible categorisations introduced above into an alternative view. The categorisation that best serves our purposes would allow us to focus on the causes and consequences of the internationalisation of services. The following choice for a classification framework will prove to be well suited for our intentions.

*	independent services:	consists of both person- and goods changing consumer services that serve instant benefits; also includes goods changing producer services, such as maintenance and repair.
*	transaction services:	both consumer and producer services, either person- or goods changing, that are human capital augmenting and are *directly complementary to transactions* between economic agents; the services included can be either person- or goods changing; most prominent representatives of this category are transport, communication and commerce services.
*	co-ordination services:	includes producer services that are complementary to production, essential to *organise* or control production; these services are organisation changing; also included are person- or goods changing consumer services that co-ordinate the consumptive and productive capacity of consumers; amongst co-ordination services are business services, finance and insurance and education.

The categorisation presented here answers the research question quoted in the introduction to this section. It is well equipped to analyse the growing importance of services in modern economic structures. We will focus *primarily* on the roles played by producer services within the categories of transaction- and co-ordination services, because they are of vital importance in *production* chains, as we will see. The following sub-section will illustrate the evolving roles of services.

Sub-Section 1.2.2   Services in modern technology

Many descriptive as well as empirical studies have affirmed the increasing importance of services in output and employment. Several authors refer to the concomitant rise in technological complexity of the economy to explain the rise in services. As noted in Van de Ven (1998, page 3), economic growth has roughly evolved from labour-driven to capital-driven and finally, since the twentieth century, to innovation-driven. A related argument can be drawn from Giarini (1987), who declares the modern economic structure to be based on increasingly complex technology.

Stibora and De Vaal (1995) provide an overview of the rise of services in nominal and real output and employment. They report the growing importance of producer services in intermediate demand as testimony of the "increased interdependence of industries" (page 6). Francois and Reinert (1995) show the increasing intensity of embodied producer services in the structure of production and trade. Some studies assign most of the rise in services to growth in the share of final expenditure on health, public administration and housing (e.g. McCulloch, 1988). This view is related to the exogenous supply- and demand explanations that have been constructed around the idea of unbalanced productivity growth (e.g. Baumol [1967] and Baumol, Blackman, Wolff [1985]) and demand-bias (e.g. Gundlach [1994]). Yet, the literature amply shows that at least a considerable part of the increasing dominance of services is related rather to structural and organisational changes in the economic structure of production. Giarini gives a clear impression of the idea of a structural change in production when he says: "Modern technologies, however, require the input of an increasing number of services in order to be of any use" (Giarini, 1987, page vi). He also relates this structural change to the rise of intentional research and development and states that the variety of services that are now essential inputs to production represents a quantitative and qualitative leap from previous industrial revolutions.

In short, the 'service economy' may for a large part be a structurally different economic system from the previous era of mass industrial production. It is crucial to note once again that the structural changes do not necessarily imply that services become more important in final consumption. Rather, services become ever more crucial to co-ordinate production processes: to create and absorb new innovations and to increase the benefit-extracting capacity in production and consumption. In terms of the classification of services given in the previous sub-section, co-ordination services and transaction services have gained ever more importance. An interesting theory that is advocated in Francois (1990; cit. in Sapir and Winter, 1994) argues why the need for producer services grows when technology progresses[22]. These services are required for the co-ordination and control of production processes of differentiated consumer products that are subject to economies of scale. Increased expenditure on producer services enhances the efficiency of production by allowing a higher level of specialisation in production. Given the overhead nature of this type of producer services, a larger market triggers more intermediate demand for services, because

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[22] Sapir and Winter (1994; pp. 287-288) discuss the analysis of Francois in light of the welfare effects of trade.

higher specialisation has become more profitable. Such a larger market may result from technological progress. Besides the profitability incentive, larger markets also provide a competitiveness incentive, which also prompts additional investment in producer services to increase efficiency. Hence, there is a possible causal relation between economic growth and producer service growth[23].

Given the fact that services have become increasingly crucial in modern production systems, our conceptual analysis of services that resulted in an explicit characterisation of the nature of services and a classification of service activities has been worth the effort. We can derive a set of characteristics for services that are important when analysing services and service trade. These characteristics have been conveniently presented by Stibora and De Vaal (1995, page 33) as follows:

  a) the importance of imperfectly competitive market structures in services
  b) the heterogeneity of services
  c) the high flexibility of production in services
  d) the non-storability of services

Each of the features of services follows from the nature of services and several of them are causally related. The market structure in any given industry is simultaneously determined by the demand and supply conditions. The nature of services can have consequences both for cost and demand characteristics.

The most prominent feature that immediately follows from the nature of services is the simultaneity of production and absorption, hence the intensive interaction of joint-production. Because a service is absorbed as it is produced, the product is intangible, unique to its object and consequently *non-storable*. As argued by Stibora and De Vaal (1995, Chapter 1 and section 2.4), the importance of interaction results in a *high flexibility* in production. This refers to the fact that services can be differentiated or even customised to consumer needs at relatively low cost, compared to goods. Consumer preference for variety can be easily met; in fact, because of joint-production services can be regarded as *heterogeneous products* almost by definition, as noted by De Vaal (Stibora and De Vaal; 1995, page 32). The flexibility might be the key to why co-ordination services have achieved such a crucial position in modern technology. Stibora and De Vaal (1995, page 6) typify the changes underlying modern production structure as follows (also see idem, pp. 3-4, for similar statements):

> " One of the most important manifestations of this structural change is the increased interdependence of industries, accentuated by an increasing supply of producer services, notably finance, insurance, and business services. To keep abreast in national and international competition, firms increasingly delegate labor-intensive producer services to outside services providers in order to achieve efficiency gains."

Several theorists, amongst whom are Giarini (see above), Porter* (1990), Reich* (1991) and Lehner (1999), identify modern technology with flexibility and customisation. The

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[23]Stibora (Stibora and De Vaal, 1995; Chapter 6) deduces a similar relation between producer services and economic development.

* Cit. in Van de Klundert (1997), section 9.5.

development of a network economy, in which the interdependence within and between industries increases, enables producers to meet consumer preference for variety and customisation more fully. In the words of Lehner (1999):

" [This] trend drives the long-standing development of a service economy in a new direction and redefines the practical role of customer sovereignty."

Service economy capitalism may become the age of differentiation and customisation, while industrial capitalism was traditionally the age of standardisation. The rise of both independent services, transaction services and co-ordination services follows naturally from the rise of a customised network economy, in which communication, productivity enhancement and benefit extraction are increasingly optimised. Moreover, services have a competitive edge in flexibility. Therefore, competition in services is characterised by a bias to variety, in which quality plays a crucial role. Since services cannot be stored and produced in bulks using, for example, 'just-in-time' management techniques to optimise variety and scale in the process of production, service production occurs on a relatively small output scale. Competitiveness is assured by differentiation and flexibility to meet consumers' specifications. Stibora and De Vaal show that service industries typically offer more varieties of a product in fewer companies at higher prices. Indirectly, the use of sophisticated management techniques in goods sectors increases the intermediate demand for co-ordination and communication, hence for producer services, in order to enable the concomitant specialisation in production stages and rising scale and differentiation in production of goods. The rising market for these services has stimulated the 'bias to variety' and fostered differentiation and specialisation in service production, even diversification (as in finance, insurance and commerce).

Above we have seen the demand side characteristics of, particularly, producer service markets as well as the product characteristics of services. By the nature of their provision, services are heterogeneous products that are flexible in production. Moreover, the extent of the market for (producer) services has grown considerably. The stylised market configurations that can serve to describe service markets are then limited to the range of *imperfect competition*, which covers monopolistic competition, oligopoly and monopoly (cf. Stibora and De Vaal, page 34). To determine the actual market structure in a service sector, the cost structure of service firms has to be analysed. The optimal size of a firm depends on the position and shape of its cost function. Economies of scale (internal increasing returns) or - scope are important factors at play. Besides sectors like telecommunication and railroads, the existence and importance of scale- or scope economies in service sectors is a controversial subject[24].

Perhaps technically induced economies of scale and scope (ie. related to the technical process of production) are relatively unimportant in most services, except for transport, telecommunication and commerce (all transaction services) and some independent services such as entertainment and rental services. The *nature of services* dictates joint-production. In many cases, such as knowledge based, co-ordination services, this implies a flexible labour

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[24] For a concise overview of the evidence and arguments, also see Stibora and De Vaal, section 2.4.

intensive process of intensive interaction and service production in small teams. Hardly conducive to large scale plants and automated production processes! Yet, there are several reasons to suggest that scale economies are important in such services too. In line with McCulloch (1988, page 376), knowledge based services may experience strong economies of scale in production on a company level, related to large overhead costs rather than technical features of actual service production on plant or firm level. Examples of these costs are expenditure on office buildings, research and development and large pre-production investment in human capital (managerial or technical skills) which can then be extended at low marginal cost to additional clients in the provision of services. Also, especially in financial services, scale is beneficial because of internal and external (for clients) risk diversification. Because of the sunk cost nature of the overhead cost referred to above, they contain an effective entry barrier.

Another factor is of importance in determining the size and number of firms and the contestability of services markets. Again, this factor is related to the nature of services and the demand side of the market. The intangibility of services, as they are produced and absorbed simultaneously, makes information a major issue for service provision[25]. The quality of a service cannot be judged beforehand by a consumer, as the product does not exist independently and before the process of joint-production has been engaged in. Hence, service markets are characterised by *asymmetric information*: the producer has an informational advantage over consumers with respect to the quality of his product and that of his competitors. Imperfect information causes problems for the market mechanism because of the tendency for moral hazard, in which the quality of services changes over time, and adverse selection, in which low quality services drive out high quality services. Producers of high-quality services face a twofold incentive to signal their quality. A good *reputation* attracts customers, while validating the high quality over time creates loyalty and gives service providers a certain degree of market power over rivals, whose quality can only be assessed by consumers through actual experience or brand-credibility. In services, the market relations therefore often adopt a specific client-provider relation: producers engage in client-specific investment that creates asset specificity[26] in the relations of joint-production. In this way, opportunistic behaviour from either side of the market will be retaliated and make either party worse of. The customer will have to face transaction or contracting cost in finding a new partner, the service producer will loose its specific investments. As long as the inherent threat for both parties is credible, such sunk investments signal quality and create further product differentiation in service sectors.

All in all, we should be convinced by now to accept the conclusion reached by Stibora (Stibora and De Vaal, 1995; page 36) on the controversial issue of the contestability[27] of co-

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[25]Both Stibora and De Vaal (1995, sections 2.3 and 2.4) and Sapir, Winter (1994, pp 276,277) addressed the issues that are presented in the following paragraphs.

[26] The term "asset specificity" stems from the transaction cost approach of economic institutions. See for example Van Helden (1997) for an introduction. Important contributors to the genesis of the transaction cost approach, though each has his own variety on the theme, are Ronald Coase, Oliver E. Williamson and Douglas North.

[27] See Viscusi et. al. (1995, pp. 158-164) for a clear digression on entry barriers and contestable markets

ordination services markets. He stated:

> "..given that services are differentiated products par excellence, we tend to argue that in particular information-based and human capital intensive services industries are not contestable, as they rely for a great deal on experience, reputation, and learning by doing."

Learning by doing, firm-specific human capital investment and reputation all comprise significant sunk cost. Entry and exit strategy therefore requires significant barriers to be conquered, which strengthens the reality of imperfect competition and market power for incumbent service producers. Service markets are more often than not non-contestable for potential new entrants and in any case subject to at least monopolistic competition.

The prominence of imperfect competition and reputation has serious consequences for international competition in services. As we will see in Chapter 3, trade and investment in services will have to be motivated against the background of the so-called new trade theories, dealing with imperfect competition. In the next section we will see that the labour intensive flexible production of services opens up distinct modes of international trade in services, apart from traditional long-distance trade, which is the only viable mode of trade in merchandise. Because of the relevance of imperfect information and imperfect competition, service markets are presumably the most regulated markets in the economy. Liberalisation, both domestic and international, will have to balance viable, sensible regulation (e.g. because of externalities) with the impetus for competition. We will discuss issues of competition and liberalisation more fully in the next section and particularly in Chapter 4.

Section 1.3   Tradeability and the contemporary internationalisation of services

Introduction

Given the main research subject of the thesis, the previous sections have served to develop a framework to answer question 3 and 4 of the first chapter. We want to acquire insight in the tradeability of services and the main factors behind the internationalisation of service markets.

In her paper on international competition in services, McCulloch (1988) characterised international trade in goods as "the *indirect* exchange of productive inputs embodied in the goods traded, that is, as a substitute for the direct movement of inputs across national boundaries" (page 377). The only amendment that differentiates such an international transaction from national exchange of merchandise is the recognition that the economic units that are engaged in international trade reside in different countries (see De Vaal, page 23). We have argued at length that services are different from goods and are differently transacted on the market. Consequently international trade in services should be characterised differently from international trade in goods. Still, the only difference from a service transaction on the national market is the fact that international trade implies a transaction between a resident and a non-resident economic unit. A service product-transaction has to be preceded by a process of joint-production in which the condition change is produced and absorbed simultaneously.

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theory.

In many services, the interaction of joint-production requires frequent communication between provider and consumer. The simultaneity of service production and absorption and the concomitant intangibility of services causes their non-storability. Hence, transactions in services are fundamentally different from merchandise transactions. In general, interaction often requires physical proximity of producer and object of the service. A commonly applied characterisation of international trade in services, proposed by Sampson and Snape (1985), classifies service trade according to the extent of physical proximity required to achieve 'international' joint-production. The first sub-section illustrates the classification of Sampson and Snape and provides a clear characterisation of trade in services. In that way, we have given a preliminary answer on the fourth research question: *"Which are the consequences of the nature of services for international competition?"* . The second sub-section discusses some other issues of (international) competition in services and finally suggests some reasons for the internationalisation in service markets. The fifth and last question of research, *"Which have been the causes of increased exposure of services to international competition?"*, is dealt with there.

Sub-Section 1.3.1   The characteristics of services and the modes of international trade

Sampson and Snape realised that the key for classifying service transactions was located in the means of accomplishing joint-production. All services require joint-production, but the mode of interaction can differ widely. In short, some services require physical proximity to achieve joint-production (i.e. transport, construction, surgery, haircuts etc.) while others do not require physical presence for joint-production (i.e. telecommunication services; consultancy, data management services[28], financial services and other co-ordination services). Like Hirsch (1989, pp. 48-49) said, person-to-person interaction requires communication, but this need not be face-to-face, or even direct-, communication. Of course, in many cases some part of the process of joint-production will require physical presence, while part of the required communication can take place without locational meeting of the provider and the object of the service. International service transactions can be classified on the basis of the constraints on the physical location of producer and consumer in realising the transactions. The following classification, a variation on the original Sampson and Snape categorisation, was proposed in the survey article on services trade by Sapir and Winter (1994, page 275):

1   Service transactions without movement of both the receiver and the producer of the service. These service transactions are similar to goods trade, in that the product is traded via cross-border supply: trade in the goods-like sense implies that the product itself moves[29] across national boundaries, while the consumer and producer remain

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[28] To be consistent, data management services *do* imply that the object of the service (the information to be managed) moves across boundaries. However, as the type of service belongs within the group of co-ordination services, the object could also be identified as the collective organisation of workers (the firm). None of them moves across the border and the information flows could be seen as mediating device to achieve communication and, consequently, to 'communicate' the organisational condition change, rather than as independent objects of the service.

[29] To avoid confusion, we should remember that services do not move as independent products across boundaries, like goods. They are non-storable, intangible products, unique to their object. Rather the process of joint-production moves across boundaries, through information flows. Of course, telecommunication networks

    immobile. This mode of international service transactions is feasible in information-intensive service activities and knowledge-based services (e.g. licensing, research and development, data management, consultancy, finance and other co-ordination services, as well as telecommunications and electronic commerce). Often the goods-like mode of service trade is denoted as *separated service trade* or *long-distance trade in services* as well as *cross-border trade.*

2   Service transactions for which the consumer travels across borders to the immobile provider. This channel of international service trade occurs most frequently in tourism, education, health care, repair services and airport services.

3   Service transactions that are accomplished by the temporary movement of factors of production across national borders while the receiver of the service does not move. Services that do not demand frequent interaction, but benefit from a specified period of face-to-face communication make use of this trade mechanism. Examples are : certain business services that send out consultancy teams, construction. Also, transport services are a prominent example of this type of transactions.

4   Service transactions by means of permanent local establishment via a foreign affiliate of a firm originating from a different country. This is still the dominant mode of international competition in service markets, such as banking, consultancy and other co-ordination services and commerce.

The classification scheme illustrates the difference between service trade and goods trade. Our characterisation of trade in merchandise stated that trade was a "substitute for the direct movement of inputs across national boundaries". In service trade this only holds for type 1 of international transactions. Yet, all mechanisms of international transactions except for the last one should classify as international trade in services, because the provider and receiver of the service have different countries of residence. The fact that factors of production or consumers sometimes have to move temporarily for the service to be provided follows directly from the specific characteristics of service transactions. Some authors have equated type 3 transactions with international trade in factor services (e.g. Sapir, Winter;1994, page 276 and further). However, they ignore the fact that factor movement in service production can be part of joint-production. As long as the moving resident factors are part of the resident providing economic unit and do not offer their *factor* services independently to a non-resident economic unit, the factor services are truly embodied in the product traded. It is the service end-product that is traded internationally, or in other words, subject of the product-transaction! So, types 1 to 3 of international service transactions classify as *international product- or commodity trade in services* and should be seen similarly to merchandise trade as "the *indirect* exchange of productive inputs embodied in the products traded". Factor service trade should be registered separately (as income flows on the income account of international trade statistics) to clearly distinguish this type of international relations from commodity trade. The relations between factor trade, permanent local presence and commodity trade are relatively close in service

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are important in cross-border transmission, but correspondence might take place by letter too. Both direct (simultaneous) interaction and indirect interaction qualify as joint-production (see Hirsch, 1989).

markets, as we will argue in Chapter 3[30].

The classification of Sampson and Snape has been accepted as the international standard on trade in services. Balance of payments statistics usually include international transactions of types 1 to 3 in *direct*, or commodity-, *trade* in services. However, the distinction between factor services trade and product service trade had not been consistently applied in trade statistics until recently. Chapter 2 will illustrate the efforts to improve data collection on service trade and present a descriptive overview of available statistics on international trade in services. The next sub-section will introduce internationalisation in services by discussing the tradeability of services and the relative importance of trade and permanent local presence through FDI (foreign direct investment) as well as the causes behind increasing international competition in services.

Sub-Section 1.3.2   On the causes of internationalisation in services

Commodity trade in services has grown to an average share of about 20 % of global trade in 1990, from about 17 % in 1980 and has consolidated this share since then (see Hoekman, 1997; page 1). Although this implies that service trade has kept up with the rapid growth in merchandise trade (which has outpaced growth in world output over the past decades [see IMF, 1999]), the share of services in international transactions lags behind the evident rise of services in the structure of production and employment. Because of the constraints on international transactions caused by the feature of joint-production, trade in services is generally relatively costly. Many services can still be considered non-tradeable, because the transaction costs to realise international joint-production remain prohibitive (see e.g. Stibora and De Vaal, 1995; page 24, footnote 20). Therefore, local sales through foreign affiliates is the pre-eminent source of international transactions. Especially in knowledge or information-based co-ordination services and telecommunications, FDI is a dynamic source of international competition (e.g McCulloch, 1988; page 368). For a tentative comparison of the relative importance of the respective modes of international transactions[31], I refer to Hoekman (1995; page 330) who states that available data on the USA show that trade and affiliate sales are of roughly the same importance. Directly comparing affiliate sales with cross-border trade (trade in services similar to goods trade), the World Bank (06-06-2000, internet) concluded that sales abroad by foreign affiliates is about 3.5 times greater than U.S. cross-border service exports. Testimony of the rise in international supply of services is the fact that the share of service investments in the annual flow of (inward) FDI has been over 60 % in recent years. Consequently the importance of service activities in the stock of FDI has risen over the past decades to a global share of 50 % (Hoekman, 1995; also see De Vaal, 1997 for evidence on the Netherlands). It is noted that the relative importance and growth of service trade is most likely underestimated, among others because of the difficulty of tracing services trade in the

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[30] See Tang and Wood (1999) for a specific analysis on the effects of factor movements, factor trade and intra-firm service trade on relative factor income and efficiency across countries.

[31] The measurement and description of trade statistics is the subject of Chapter 2, in which developments in service trade will be illustrated extensively. Analysis of the consequences of service internationalisation for specialisation across countries will be performed in Chapter 3. Here I only want to convey the picture of international transactions in services to discuss tradeability.

context of intra-firm trade in transnational corporations. Moreover the most dynamic component of service trade, separate service trade using telecommunication networks, is not being covered appropriately in trade statistics (see Hoekman, 1997; page 1).

All in all, the service sector is opening up to international competition. What have been the causes for this development? The increasing importance of services, especially producer services, in modern production structures together with the efforts of governments to deregulate domestic services markets emerge as *proximate causes* for the *international-isation* of service markets. Rising demand and institutional improvement in international market access (often through unilateral liberalisation of foreign access on domestic markets[32]) have led to an expansion of the market for co-ordination and transaction services. Domestic market conditions justified an impetus towards liberalisation (as in telecommunications and transport) and outsourcing of service activities. As a result the economic structure is changing towards further specialisation and differentiation of service activity in outside[33] producer service provision. The *ultimate causes* of the structural changes outlined above, and the relation to internationalisation of services are twofold and interdependent: technological progress in goods production but most of all, the technological advances in ICT (information and communication technology)[34]. While technological progress in goods production raised complexity and enabled income and scale to rise, thereby raising demand for co-ordination services (see Section 1.2: the theory advocated by Francois, 1990), the rise of *telematics* spurred structural changes and internationalisation in services further. The term telematics can be useful to distinguish the recent developments in ICT from earlier revolutions in information and communication technologies (see Nijkamp et al., 2000 pp. 35-36). In fact, ICT has existed ever since people started purposeful communication. The major innovations of the past decennia have succeeded in bringing about the integration of computer technologies, information technologies and telecommunication techniques to process and analyse information and enhance communication. This integrated technology is called telematics (WRR, cit. in Nijkamp, 2000) and qualifies as a GPT[35] (general purpose technology) because of the horizontal character of this technology: it is used by producers and consumers alike and leads to innovations in product, process and organisation in practically all sectors within the economy (SER, cit. in Nijkamp, 2000). Telematics has enabled technological progress in production methods. Computers and information systems can

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[32] For example, see UNCTAD and WB (1994, page 26) and Hoekman (1997) on the role of deregulation and liberalisation in internationalisation of services.

[33] The process of outsourcing services is sometimes contrasted to the changes in economic structure, on the basis of the argument that outsourcing is merely a change in the way of organising production. Still, given the importance of reputation, sufficient scale of output is a necessary condition for incentives towards outsourcing to arise. The scale advantage of market provision has to be large enough to outweigh the sunk cost disadvantage of market- versus internal provision. So, the tendency towards increased outsourcing depends on rising demand for these services. We can see now that outsourcing and rising demand are two sides of the same coin: that of the in-creasing complexity of modern technology. Hence, the opinion that outsourcing reflects a fundamentally dif-ferent development than the rising demand for producer services is doubtful (Francois and Reinert, 1995). We should recognise, though, that outsourcing causes an overstated measurement of the actual growth in output and demand for producer services (see De Groot, 1998; page 214 and Hill, 1977; page 320).

[34] See Hoekman (1997) for an elaboration of the role of ICT and Stibora and De Vaal (1995; page 24) on the role of telecommunications in advancing service trade.

increasingly be applied to automate precision work and improve quality. Moreover, telematics accomodated the breakthrough of co-ordination services by providing communication-links and network capacity. Transaction services and co-ordination services now provide the communication, co-ordination and transportation links between production processes, which underlies the network economy and the process of internationalisation of economic activities (see Jones and Kierzkowski (1990), cit. in Hoekman, 1997; page 4, and Hoekman, Sauvé, 1994; page 73). In this way, producer services constitute the basis for productivity growth, specialisation, and globalisation in goods markets (also see De Vaal, 1997). With respect to the internationalisation of producer services themselves, the effects can be represented as follows: progress in telematics networks has resulted in a drastic fall of both the cost of *data transmission* and of *computing* (data processing). Because of that, and in combination with long standing declines in transport cost (see Krugman, 1999; page 33), the transaction cost of trade in services is declining. In other words: *tradeability* of services is rising! Together with the rising demand for producer services and cost developments which have made growth and differentiation (e.g. new service products based on telematics[36]) of supply and competition possible in these service markets, the fall in trading cost implies a comprehensive move toward *effective* international competition in services. As the extent of service markets has grown, scale economies further incite producers to utilise the possibilities of reputation building profitably on international markets, both by FDI as, increasingly, through direct international trade. Also, the technological advances have directly lowered the cost of transaction services, such as telecommunication and international transportation, which significantly enhances the *possibilities* for real trade in these sectors themselves.

Main Insights and Concluding Remarks

To understand the rise of services in the structure of production and employment, as well as the pressure towards internationalisation of services markets, we had to gain insight in, and appreciation of the nature of services. Often, economists fail to explicitly distinguish services from goods in their analyses. Mostly this neglect is defended by the thesis that the difference between goods and services is irrelevant. A more plausible explanation, however, is that these economists have never conceptually analysed the difference between goods and services. They have not gone further than a first glance, that usually makes them aware of uncomfortable problems, such as the question how service output and productivity should be measured. Better not burn your hands as long as one does not need to. Thus, explicit research to explain the features of services has been scarce. As far as international trade is concerned, they fail to reconcile the common vision of services as non-tradeable products with the occurrence of large scale service trade. Neither do they have a reference framework to categorise services, derive and motivate their characteristics and explain the developments in services. In the present era of the ascent of a service-dominated economy, the understanding

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[35] See e.g. Aghion and Howitt (1998), page 244 for the term "GPT".

[36] E.g. electronic commerce, distance education, telemedicine, financial derivatives etc. See Hoekman 1997, page 4.

of the relevant characteristics of services has become strategically important for economic analysis to help explain and grasp the developments in international economic structure.

This chapter has attempted to follow the approach taken by the peripheral but growing literature on services that purports to tackle these issues. Departing from the understanding that services and goods have to be explicitly defined to arrive at a scientifically sound method of research, we have chosen the definition of services as developed by Hill (1977). The definition exposes the essence of a service that logically marks it off from a good. While a good is an *object* that can exist independently from its producer and consumer, a service is a *change* in the condition of a good, person or organisation, that results from a process of joint-production between the provider and the object of the service. The change is logically defined against its object, so a service is intangible and cannot exist independently. In this way we have deduced and consistently explained the first relevant characteristic of services: *non-storability*.

Because conveying the change in condition, absorbing it and the eventual result are so closely related in the creation of a service, the identification of a service and the measurement of service output is difficult (see Hirsch, 1989; page 47). A service has to be specified precisely in the nature of the product to even be able to discern the actual output produced. This explains the multiple misunderstandings that exist in the interpretation of services. Only if we make use of an explicit and accurate definition of services, we can succeed in clearly marking off services from their production process and benefits. Even for the most complex goods, production, output and benfits are easy to distinguish because goods are tangible and independent. As a result, economists have not paid much attention to develop a framework that clearly exposes the social relations the constitute the chain between production and utility-derivation. Instead, we have developed an extensive framework to interpret and apply the definition of services in order to identify and categorise services and other products. The framework is successful in delivering the tools for unambiguous choices in categorising products. Even the grey area between goods and services involving the interpretation and classification of information and information-intensive products can be illuminated significantly.

The identification of a product starts with the question what exactly has been transacted and in what way. Goods are transacted by way of the exchange of ownership. Services are transacted by way of the provision and appropriation of a condition change. The ownership is created automatically since the service only exists from the moment that the absorption- and production process have been completed. So the second relevant characteristic of services is their *non-exchangeability*, or put differently, their non-transferrability. The simultaneity of production and absorption of a service being created is captured by the introduction of the term joint-production. This leads to the recognition of a third feature that characterises services: the *flexibility* of the process of production. Services are almost by definition heterogeneous products. The characteristics are useful to analyse services and service trade.

Non-storability further enlarges a bias to variety in service markets, since service producers cannot compete on the basis of the scale advantages of "just-in-time" stock-management techniques. Hence, differentiation and customisation are the competitive

weapons in services markets. This already indicates the importance of imperfectly competitive market structures in services.

The non-storability and specificity of services furthermore makes information a major issue for service provision. Services are credence- or reputation products. Producers enjoy an informational advantage over consumers about the quality of the final product. High-quality producers have an incentive to signal their quality, by investing in reputation. These investments transform into sunk-cost, once made. As a result successful incumbent producers enjoy the economic rents of reputation-induced market power, while the contestability of service markets is significantly reduced.

Economies of scope and scale are also prevalent in services for various reasons, ranging from production technology, through the non-rival nature of some service provision to human capital intensity of knowledge-based services. All in all, the prevalence of imperfect competition on service markets has been explained.

The definition of services has allowed us to categorise services according to their role in the structure of production. We have identified three categories of services: independent services, transaction services and co-ordination services. The rise of both independent services, transaction services and co-ordination services follows naturally from the rise of a customised network economy, in which communication, productivity enhancement and benefit extraction are increasingly optimised. Flexibility and the competitive edge of services therein may be the key for the increasing importance of services. Co-ordination- and transaction services are the "oil" in the productive machinery of modern technology. Especially the demand for these so-called producer services has risen sharply during the ascent of modern, complex technology.

A crucial factor behind the rising interdependence between industries has been the rise of telematics. The movement towards a network economy could be ignited by the enhancements in ICT. This development has also vastly lowered the transaction cost of trade in several information- and knowledge-based services. The growing importance of these services in economic structure is increasingly accomodated by progress of tradeability and institutional efforts to improve foreign market access. Hence, the size of markets for service producers continues to rise as a comprehensive move toward effective international competition is taking place.

Thus, differentiation and specialisation in services can be expected to rise over the next decades as possibilities for international specialisation will follow in the footsteps of increased national specialisation and importance. All the more important to continue research to improve understanding of the nature and characteristics of services.

Chapter 2.   *Data Overview of International Trade in Services*

Introduction

Now that we have seen some theoretical considerations about services and services trade, the natural step to take is to analyse the data on international trade. Besides considering data methodology, Chapter 2 offers a 'helicopter perspective' overview of international trade in services, dealing with developments over time and patterns across countries.

In the first section we will focus on issues concerning the data methodology of service trade. Section 2.2 will introduce the research questions to be addressed in subsequent sections of this chapter. The plan of investigation in order to answer those questions is set out and motivated. After addressing our questions of interest in Sections 2.3 through 2.5, we conclude the analysis in Section 2.6. This section concludes the digressions of this chapter.

Section 2.1   On the statistics of international trade in services

First I briefly present the data sources that are important for our purposes. Then I discuss data problems with respect to service trade. Thirdly, I give an overview of the sectoral classification that will be used, following the conventions of international data supplying institutes.

Sub-Section 2.1.1   Data sources

The Balance of Payments is the primary source of information when investigating trade patterns. I have used the recent joint publication by the Organisation for Economic Co-operation and Development (OECD) and the Statistical Office of the European Communities (Eurostat): 'Services: Statistics on International Transactions' (1998). Data availability both in time and in extent of sectoral coverage varies considerably across countries. This makes data on trade in services weak in comparison to data on goods trade. The OECD/Eurostat data only apply to the group of OECD countries. To extend our dataset to non-OECD countries, as well as include longer time series in our sample, data from the International Bank for Reconstruction and Development (generally known as the World Bank) proved to be useful. The concession made to allow for more countries and longer time series lies in the level of sectoral breakdown of service trade. The classifications used in the respective sources of data will be illustrated further on.

For data analysis, Balance of Payments data alone do not suffice. Data on value-added in service sectors are needed. From OECD's International Sectoral Database (ISDB1998), data can be extracted for relevant sectors. The question of concordance between different sources will be dealt with in the sub section "*Classifications and concordance*".

Although data on service trade are available we meet many problems. We next proceed with a concise discussion of some of these problems that are encountered when conducting an empirical investigation into international trade in services.

Sub-Section 2.1.2   Data problems

As discussed in for example Hoekman (1995, page 331) and Stibora and De Vaal (1995 pages 25/26), the practice of data collection for international trade in services leaves us with much less detail and a lack of consistence compared to merchandise (*goods*) data. Several factors that mutually reinforce each other underlie this. First, services tended to be regarded only as stagnant, non-tradeable 'intangible goods'. Hence, international trade theory largely neglected trade in services as being not only a peripheral activity, but one that was of no importance for the dynamics of the world economy.

This was complemented with the notorious difficulty of measuring international trade in services. As was clearly captured by Hill's definition (see Chapter 1), services are intangible products that are produced and absorbed simultaneously. Consequently, trade flows are hard to capture in Balance of Payments statistics as no physical objects pass customs. Procedures of statistical offices that were appointed with the task of collecting data on service trade were insufficiently adapted to this difficulty, perhaps because of the low priority given to finetuning measurement of trade in services.

Also, despite a considerable (though peripheral) literature on services and trade, there was no universal international standard as to what sectors should be classified as services. Even further complicating the issue, there was no general agreement regarding the question what should be counted as the actual *transaction* of a service. As a consequence, trade in services was often collected on a net basis (missing the gross flows of exports and imports), included in rest categories or aggregated into an inconsistent classification. Until recently, the lack of professional agreement on a definition of services led to the adoption of a wide definition of services. A major problem that characterised data was the mixture of factor service trade with commodity trade in services. This illustrates the inconsistency *of* systems of classification for trade in services until recently (also see Ascher and Whichard, 1991 and Section 1.3). In sub-section 2.1.3 we return to the recent efforts to improve the consistency and disaggregation in the classification of service trade[37].

Hoekman (1995) lists the data problems within any specific classification system on trade in services, that are most prominent and serious for present purposes, as follows:

- Aggregation, consistency and coverage
- Real trade data
- Comparability across time
- Concordance with value-added and employment data

Below I will briefly discuss each item of this list (see Hoekman, 1995 p.331 for more detail and further reference).

- <u>Aggregation, consistency and coverage</u>
One cannot be sure that stated classifications are consistently applied across countries;

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[37] As additional source for information on formerly applied classifications of service trade and recent modifications, I refer to UNCTAD and WB (1994, Box 1.4).

moreover the coverage differs widely between countries, especially at the more disaggregated levels of classifications. These weaknesses of the data have profound implications for the ability to analyse the data and for the interpretation of observed patterns. Finally, the level of disaggregation available in data on service trade is tiny in comparison with merchandise data (compare the present services classification of the OECD and Eurostat -see below- with merchandise trade classifications like the SITC).

- Real trade data

In contrast to many categories of merchandise trade, data for services are only available on a nominal value basis. This renders the task of interpreting growth of trade into an arduous one. Perhaps even more so than for goods, quality improvements in service products are a crucial element in technological improvement over time. Complementing the lack of volume data, quality adjustments are also not available.

Section 2.3 will discuss more extensively the problem of acquiring real trade data.

- Comparability across time

A problem that is related to the interpretation of growth in trade referred to above, is the fact that both classification methodologies and sectoral coverage vary over time and between countries. Now that professional interest in service trade has been stirred, the classification has been changed once more in the hope to improve consistency, coverage and disaggregation. However, there still has to be done a lot to introduce the new methodology to its full extent. As a consequence, sectoral coverage will continue to increase. This is in itself a positive development. However, it complicates the interpretation of trade patterns over time.

- Concordance with value-added and employment data

Finally and related to several other issues discussed above, the classification of service trade cannot be easily compared with that of domestic value-added and employment. Lack of consistence between countries in applying trade classifications and the high level of aggregation in service trade are some of the causes of this problem. Since the emergence of new classification efforts by the International Monetary Funds (IMF) and OECD/Eurostat, the problems of inconsistency and aggregation have been dealt with deliberately. However, much remains to be done in this area. Besides, we should not forget that some items of service trade have no counterpart in the national accounts of production and employment. In particular this holds for the categories 'Travel' and 'Government Services n.i.e.' but also for the sub-item of business services 'Royalties and License Fees', amongst others.

Sub-Section 2.1.3   Efforts for improvement of data compilation

Gradually, the idea that services matter for the dynamics of economic development has trickled down into economic theorising (see Chapter 1) as well as into data collection in the field of international trade. The latter development has been strengthened by the recognition that services have become more and more tradeable, notably so in the case of producer services, which are increasingly being linked to the dynamics of the production structure (Francois and Reinert, 1995). In 1993 the 5th edition of the IMF 'Balance of Payments Manual'(BPM5) introduced a new classification of trade in services. The joint effort of the OECD and Eurostat built on the fifth Manual and tried to implement a further disaggregation

in major divisions of the classification of international service transactions.

The major changes in the field of services between earlier editions and the fifth edition of BPM relate to the distinction between international income flows and transactions in (non-factor) services (see OECD/Eurostat, 1998 p.9). Previously, transactions in income (i.e. factor services) were treated inconsistently. Some categories of income flows were classified within a group of non-factor services; often income flows were balanced out with expenditures. BPM5 clearly separates factor services from non-factor services. In the terminology used, factor services are treated purely as income flows while international service transactions now exclusively represent non-factor services. Some changes in other parts of the balance of payments are related to services: repairs on goods are no longer included as part of trade in services, but are included in goods trade. The net value-change of goods that cross borders for processing and afterwards are sent back is no longer treated as processing services. Rather, these goods flows are registered twice, ie. on a gross basis, in the goods balance; finally goods procured in ports are no longer included in transport services.

The next sub-section gives an overview of the classification introduced by the OECD and Eurostat (1998). Furthermore, the concordance with the ISIC/ISDB classification of value-added, based on the International Standard Industrial Classification, is presented, since we will use this concordance for various data-processing operations.

Sub-Section 2.1.4   Classifications and concordance

The joint classification of 'Trade in Services' installed by the OECD and Eurostat is, to use the words of Stibora and De Vaal (1995, 30), both 'pragmatic' in fitting as well as possible with data collection practices of member countries and 'giving in to consistency' since it tries to adjust towards Hill's definition of services. Though more purely reflecting trade in services than previous classifications, pragmatism requires some leniency. Hence the classification does not strictly adhere to Hill's definition or the interpretation given to this definition by Stibora and De Vaal. A description of the divisions that constitute the classification can be found in Appendix 2.1. Since for our purpose a short description of the divisions suffices, the overview is not exhaustive. For more detail the reader should turn to OECD/Eurostat (1998, Appendix 1). Below, the major divisions are given, numbered from 1 to 11. Subsequently we will consider some problems of this classification. Many of the problems of empirical analysis are related to concordance with classifications of value-added. Therefore, the subject of concordance deserves special attention further on.

The OECD/Eurostat classification of international transactions in services

1.	Transportation	5.	Insurance Services
2.	Travel	6.	Financial Services
3.	Communications Services	7.	Computer and Information Services
4.	Construction Services	8.	Royalties and License fees

9.   Other Business Services   10.   Personal, Cultural and Recreational
                                             Services

11.   Government Services,
         not included elsewhere

The transition from BPM4 to BPM5 implied that data from earlier years had to be converted to BPM5. For many countries, the level of disaggregation of BPM5 was not available for the period between 1986 and 1991. If data for this period are still reported, they have been compiled either by Eurostat, using a correspondence table (for European countries), or by national statistical offices, using similar correspondences. This implies that time series exhibit a structural break in 1992. Several service categories of BPM5 are recorded under different categories before 1992. This problem mainly occurs with 'Other Business Services' (division 9), 'Computer and Information Services' (division 7) and 'Construction Services' (division 4). Before 1992, trade figures reported for division 9 include trade in computer and information services and exclude operational leasing and services between affiliated enterprises. For some other countries, like Australia, construction services were also included within division 9.

Consequently, data analysis for the overlapping periods can best be carried out using the World Bank classification, which is illustrated below. This classification uses the logic of BPM5 and OECD (1998), explained in sub-section 2.1.3, but gives a consistent level of aggregation and consistent coverage. A loss in detail is the necessary concession to accomplish this advantage. Especially in Chapter 3, but also in the present chapter, we will make use of World Bank statistics (World Bank, 1999) to avoid incompatibility between countries and over time due to the structural break referred to above. Whenever the analysis requires more disaggregated data, we will cautiously use OECD data (OECD/Eurostat, 1998). Relevant tables will report missing values appropriately when they cannot be avoided in a suitable way.

The World Bank classification differs from the OECD/Eurostat classification in the following ways: divisions 5 and 6 above are combined into the division 'Insurance and Financial services'; divisions 3, 4 and 7 to 11 are taken together in the category 'Communications, computer, etc.'. From now on I will refer to the latter as 'Other Services', when World Bank data are discussed. Transport and travel have each been separately included in the World Bank's WDI classification.

Concordance with value-added data

Several sections below have to combine the data on international trade and value-added to process them into useful indicators of real trade and openness. For such exercises a concordance between trade and value-added classifications is necessary. Firstly I will present the concordance used to combine value-added data (based on the ISIC/ISDB classification) and trade data. After that I will illustrate some problems surrounding this concordance, which concludes Section 2.1.

ISIC 2: Value-Added	**OECD-Eurostat: International Trade**
Major Division 5 Construction	4. Construction services
Major Division 6 Wholesale and Retail Trade and Restaurants and Hotels	not included in BoP statistics
Not included in national accounts	2. Travel
Major Division 7 Transport, Storage and Communication	1. Transportation 3. Communications Services
Major Division 8 Financing, Insurance Real Estate and Business Services	5. Insurance Services 6. Financial Services 7. Computer and Information Services 8. Royalties and License fees 9. Other Business Services
Major Division 9 Community, Social and Personal Services	10. Personal, Cultural and Recreational Services

Balance of Payments division 11, 'Government services, n.i.e.', more or less finds its national accounts counterpart within value-added category 9. We do not separately deal with government services in our analyses though. That brings us to the problems concerning concordance. The reader will have noticed that some value-added categories have no counterpart in the classification of trade in services. Retail and wholesale trade and restaurants and hotels are not classified directly in trade statistics. On the other hand, travel is not included in the national accounts of value-added and employment. Both non-conformities can be traced to the methods used to account for trade and value-added. Trade figures are recorded at gross output values, or 'sales prices'. The value of trade in services thus also includes the intermediate use value. As sales prices for goods (intermediate as well as end use) include the margins for retail and wholesale trade, these services are included in the value of *goods* being exported abroad or imported from abroad. Hence, the value of these services does not appear in the statistics for international transactions in services. Expenditures by foreigner travellers on lodging are included in travel expenditures. As a result, those expenditures are not *separately* accounted for in the classification of trade. Such services *do* have a separate entry in the statistics that trace the origin of value-added in services.

On the other hand, the practice of measuring trade has made it all but impossible to trace expenditure of travellers back to their destination. Consequently, all expenditure of travellers

is taken together in the category 'Travel', which has no meaning in terms of value-added analysis. From a theoretical point of view the identification of travel services makes good sense though. Expenditure of travellers can be seen as a proxy for the delivery of travel services by the tourist industry. However, the fact that travel includes both trade in goods and in all kinds of services (notably lodging and entertainment) complicates analysis both theoretically and practically. Practical problems concerning the treatment of travel and the interpretation of results will indeed be encountered in the following sections.

Finally, we have to come back to the statement that government services, not elsewhere included (division 11), will not be taken into account separately in our analysis. In this division, direct charges (receipts) for services provided by government agencies are included as well as those agencies' and their personnel's payments for goods and services. These expenditures are partly inputs into the production of government services, but also partly private expenditures by staff members (of embassies e.g.). These expenditures are simply complementary to the presence of embassies or military bases and do not have a separate economic rationale. They are included in service trade as a rest-category. For as much as other government related trade in services (through SOEs) takes place, this is classified in the relevant industry and cannot be separated from private sector trade.

We do, however, include division 11 in the calculation of total trade in services. There are several reasons for this. First, as the World Bank data do not separately present division 11, calculations based on World Bank data imply inclusion of these government transactions. Because of reasons of compatibility in results we include division 11 in the presentation of totals for the OECD/Eurostat data, unless indicated otherwise. Moreover, other research done in this area and the requisition of reproduceability of results impelled me to make this choice. Having acquired a complete picture of data sources and problems of classification, we are now ready to progress to an analysis of our research questions.

Section 2.2   The Research Questions: plan of approach

In this section the questions of interest for giving a first impression of trade in services will be discussed. For each I will indicate how subsequent sections try to provide us with an answer.

Firstly, the reader might wonder how trade in services evolved over time. Section 2.3 deals with this subject. More specifically, the question we will look into in that section is: _"What patterns in real services trade can be found across a sample of industrialised countries?"_ To answer this question, OECD/Eurostat data on nominal trade are combined with price index values, which are calculated on the basis of value-added data from the ISDB data set (see Appendix 2.2). Although real trade patterns cannot be precisely determined given the imperfections of our proxy variables, they can be approximated this way. In this way we get an idea of volume growth of trade in services. The dynamics of trade policy, technical progress as well as demand patterns are behind developments in trade volume.

Secondly, common intuition regarding services, perhaps consolidated after having

investigated the concept theoretically in Chapter 1, leads to the view that services are not as easily traded as goods. We know that, as a rule, service sectors increase their share in employment and production over time in accordance with a rising level of income and welfare (see the literature on the so-called 'normal pattern of development' [e.g. De Groot, 1998; De Nooij, 1998 and Van Gemert, 1987 and 1988]). Does the combination of both factors imply that the share of production allocated to the *international* market will fall? Will exposure of national markets to international competition decline? Though it is hard to predict future developments, expectations can be built by comparing some indicator that reveals how 'open' different sectors are. Section 2.4 will address this by focussing on the question: *"How open are services markets, in terms of international trade?".* We compute an indicator that compares trade with value-added in a sector. The indicator of openness that we apply is necessarily imperfect, because comparison of OECD/Eurostat data on trade with ISDB value-added data is not consistent in several ways, as illustrated above.

Section 2.5 continues this investigation by bringing up related questions that moreover provide insight in the relative importance of both trade in services as compared to goods and the importance of different sectors within the service sector in our sample of countries. These questions are: *"How important is trade in services compared to trade in merchandise?"* and *"Which sectors have relatively fast nominal export growth?"* To answer these questions we compute the relevant value shares in exports and imports; the resulting indices can be interpreted to address the issues at hand. Section 2.6 concludes and discusses the relevance of the insights provided in this chapter for the next chapter.

Section 2.3   Trade in Services: Volume Growth

In this section we present the results of analysing services trade in constant prices. Our goal is to gain insight in the volume growth of trade in services, for the major divisions of the OECD/Eurostat classification. A specific research question has been specified that covers the subject mentioned above:

"What patterns in real services trade can be found across a sample of industrialised countries?"

First I will describe the procedure used to generate the relevant data. After that, we take a look at the outcomes. To remain as concise as possible only a sub sample of the countries for which this exercise could be done is presented. The countries in question are what I will call the 'G5': the USA, Japan, Italy, France and the United Kingdom. Germany is excluded because the unification in 1990 distorts the volume patterns over the time period concerned. Data from the OECD/Eurostat publication[38] (1998) are used to attain sufficient detail in the analysis. The investigation focuses on the major divisions of its classification.

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[38] From now on, the classification will be referred to as the OECD classification, for brevity.

Sub-Section 2.3.1   The Method

A first impression of trade in services over time can be given by concentrating on the volume of trade. For that purpose, data on trade have to be converted to *constant prices* of some base year. I have used ISDB (OECD, 1998b) data on value-added to compute sectoral price indices[39] (or trade deflators). These indices enable us to calculate real trade. Appendix 2.2 shows how the concordance between the OECD trade classification and the ISDB classification of production (see Section 2.1) was implemented for this purpose. The reader should take notice of the fact that the relevant price indicators are based on value-added pricing. Using these price indices to deflate nominal trade values, reported in gross output prices (or 'sales' prices), cannot be completely accurate. Price and quantity developments in intermediate consumption will influence gross output prices, independently from the changes in value-added prices in the sector. As a consequence, quantity assessments that follow from our method can be biased since changes in sales prices might not be accurately corrected for.

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[39] The sectoral price indices are based on value-added data in current prices, converted to US $ using current exchange rates as offered by the OECD (1998), and data on value-added in 1990 international prices using 1990 prices in local currency and the 1990 PPP (Purchasing Power Parity) US $ exchange rate. Real trade figures result from dividing the sectoral price index into nominal trade (see Appendix 2.2 for an illustration of the derivation of real trade) They can be interpreted as trade in constant, 1990 international (GDP conversion based PPP-) US $ prices.

Sub-Section 2.3.2   The Results

As we can see in the table below, either transport or travel had the highest real export for most countries in 1986. Since then, on average all sectors experienced real export growth. In some countries, like the USA, financial services, royalties and other business services are also relatively big contributors to exports. In particular 'other' business services, which includes, amongst others, professional services and research, is an important sector in real exports.

Table 2.3.1 Real Trade

Real Exports Major Divisions (billions US$, 1990 international prices using 1990 PPP exchange rates)	USA		Japan[a]		Italy		France		United Kingdom	
	1986	1996	1991	1996	1986	1996	1986	1996	1986	1996
Transportation	22.7	42.5	11.8	11.6	6.9	12.8	9.0	15.5	11.5	17.4
Travel	29.6	67.3	2.3	2.1	13.4	23.5	11.9	18.8	12.2	16.3[b]
Communications Services	2.1	3.2	0.2	0.7	0.2	0.5	0.5[h]	0.4[h]	1.3	1.5
Construction Services	0.8	3.0	2.2	2.9	1.4	2.6	1.8	2.5	0.5[j]	3.0
Insurance Services[i]	1.7	1.6	-0.2[c]	0.2	0.1	1.6	1.5	0.9	7.2	2.9
Financial Services[i]	3.9	6.8	0.1	1.4	1.5	2.9	1.3	1.2	3.9[d]	5.0[d]
Computer and Information Services	1.3	2.3	n.a.	0.6	n.a.	n.a.	0.1[e]	0.3	0.9[f]	2.0
Royalties and License Fees	9.7	26.5	1.9	3.4	n.a.	n.a.	0.9	1.2	1.9	4.0
Other Business Services	12.1	26.1	10.8	11.1	n.a.	n.a.	6.5	13.3	7.4	15.5
Personal, Cultural etc.	0.8	2.1	0.1	0.1	0.1	0.3	0.7	0.9	0.7	2.3[g]

Source: OECD/Eurostat (1998); own computations.
n.a. : not available

Notes at table 2.3.1:
a)   For Japan data are only available from 1991. Therefore we use 1991 in the table for Japan.
b)   Figure for the United Kingdom is for 1995.
c)   Negative values can appear because of the method used to calculate values for insurance service transactions; the total value of insurance service exports is calculated as 'premiums received – claims paid'.
d)   In the United Kingdom, the statistics for Financial Services are compiled on a net basis, underestimating the gross credit (export) and debit (import) flows.
e)   This figure is for 1992.
f)   This figure is for 1992.
g)   This figure is for 1995.
h)   France reports these services on a net basis (using international offsetting mechanisms), underestimating exports and imports.
i)   For Insurance Services and Financial Services, the price level of ISDB sector Finance, Insurance, Real Estate and Business Services (FNI) was used for deflating nominal values for all countries but Italy. For Italy the ISDB sector Financial institutions and Insurance (FNS) was used.
j)   The 1988 value for real trade in Construction Services is used here.

Developments of real exports over time can be analysed on the basis of the following table.

Table 2.3.2 Growth in Real Exports

Index Real Exports Major Divisions[1] (base year =1)	USA	Japan[a]	Italy	France	United Kingdom
	1996	1996	1996	1996	1996
Transportation	1.9	1.0	1.9	1.7	1.5
Travel	2.3	0.9	1.8	1.6	1.3[b]
Communications Services	1.5	4.6	1.9	0.8	1.1
Construction Services	3.6	1.3	1.8	1.4	5.6[f]
Insurance Services	1.0	-1.4	22.4	0.6	0.4
Financial Services	1.7	23.8	2.0	0.9	1.3
Computer and Information Services	1.7	n.a	n.a.	3.0[c]	2.2[d]
Royalties and License Fees	2.7	1.7	n.a.	1.4	2.1
Other Business Services	2.2	1.0	n.a.	2.1	2.1
Personal, Cultural etc.	2.5	1.0	2.0	1.3	3.5[e]

Source: OECD/Eurostat (1998); own computations.
n.a. : not available

Notes at table 2.3.2:
1) Unless specified in a footnote, 1986 is used as base year.
a) For Japan data are only available from 1991. Therefore we use 1991 as base year for Japan.
b) Figure for the United Kingdom is for 1995.
c) For Computer and Information Services, 1992 is used as base year for France.
d) For Computer and Information Services, 1992 is used as base year for the United Kingdom.
e) This figure is for 1995.
f) For Construction Services, 1988 is used as base year for the United Kingdom.

This table gives a direct impression of real growth in export over time. Again we can see that, on the whole, the export volume of services has risen. In a period of at most ten years, real growth has often exceeded 50 % or even 100%. Growth seems to be spread over all sectors, sometimes even taking place in sectors in which a country is a net importer. Such a result confirms a role for intra-industry trade in services. Only France seems to have a less obvious development over time. Several sectors, like finance and insurance, show a decrease in real trade. Financial services in Japan and insurance in Italy show exceptionally high growth rates; although interesting in themselves, these sectors remain relatively of minor importance in real trade. Also worth mentioning is the high growth in construction services in both the USA and the UK. Consistent with its notable net export position (which means that exports exceed imports) in personal services, British exports in this sector have grown very fast to reach a relatively substantial size (see also table 2.3.1).

Real growth in travel exports might be relatively underestimated with respect to other sectors. The price index used to deflate nominal export is an average price index based on all other service sectors (see Appendix 2). Travel however also includes expenditure on all kinds of goods by tourists and other travellers. In general, goods prices fall in relative terms to prices of services over time. Therefore the price index may overstate inflation in travel expenditures; real exports of travel services are understated as a consequence.

The first impression of trade in services confirms the idea set out in Chapter 1 that services are gaining importance in international trade as they have already done in the structure of production. Chapter 1 revealed several possible causes for growth in trade: technological advances that increase tradeability, international liberalisation that allows foreign competition and specialisation, and increased demand for and production of services because of rising incomes and increasing service intensity of intermediate demand. Section 2.4 will consider whether growth in volume has coincided with increased openness of service sectors. This could be an indication for improvements in tradeability of services. As such then, growth in trade is not only demand driven, but also follows developments at the supply-side (technology and perhaps deregulation). As of yet, we cannot evaluate the relative size of trade in services, in comparison to merchandise. This will be done in Section 2.5.

Section 2.4   Services Openness: Revealed Evidence on Tradeability

The service sector is often viewed as largely non-tradeable and strongly protected against international competition. These factors would reveal themselves in the degree of openness of the sectors involved. Our curiosity after evidence for this therefore prompts us to ask:

"How open are services markets, in terms of international trade?"

'Openness' of a sector can be defined in several ways. Here the following definition is chosen: average trade as a percentage of total value-added in a sector (both in current prices, converted into US $). Average trade is used to denote the average absolute value of export and import. As such, specialisation patterns do not play a role in assessing tradeability and exposure to international competitive forces.

Written down as a mathematical formula:

$$O_{ij} = \frac{EX_{ij} + IM_{ij}/2}{VA_{ij}} \qquad\qquad formula\ 2.1$$

with:

EX_{ij} = nominal exports country j in sector i
IM_{ij} = nominal imports country j in sector i
VA_{ij} = nominal value-added country j in sector i

This index gives a proxy for the extent of domestically relevant trade taking place in the market relative to domestic production. Hence it captures both tradeability and, at least partly, the institutional exposure to external competition, though the influence of either element cannot be separated. Besides, it should be noted that low tradeability in itself causes quite some degree of sheltering from international competition.

The values for the indicator in service sectors can be compared with the value in the goods sector as a whole to arrive at a sensible benchmark for comparison. For value-added in the

goods sector, agriculture and industry are relevant. Value-added in total services includes government services, but excludes construction (for more on this see note 'e' at table 2.4.1).

We already considered some implications of relatively low openness in the service sectors. The present opinion is that technological advances increase tradeability of services as well as increase demand for intermediate services. We will now look whether the patterns in the data support this general opinion. However, both the use of this index to answer our question spelled out above and to derive robust and direct conclusions regarding the extent of external competition is subject to problems.

Openness combines trade with value-added. Consequently a concordance has to be used. For the major divisions of the OECD trade classification the concordance given in Section 2.1 is applied. For travel no index of openness can logically be calculated, as this sector is not included in the national accounts of production (see Section 2.1). To avoid problems of data availability, some sectors are combined so that a more aggregated value-added sector could be used. Business services could not be treated separately, but some conclusions are possible on the basis of an adjusted classification I used (see table 2.4.2). A further remark that deserves to be made concerns the interpretation of the index value. As said above the index is supposed to be interpreted as average trade in percentage of total value-added. However, trade data themselves are not in terms of value-added. They are expressed in total production value (gross output value), including all value of intermediate consumption *as well as* the value that is added in the sector itself. Hence, the index value can well exceed 100%. It should be noted that intermediate use in the service sector is said to be far less sizeable than in the goods sector (see for example Bhagwati, 1987). This leads to a downward bias when comparing the index value for services with that for goods. Moreover, transit and staple trade in merchandise may further cause openness in goods to exceed 100%.

We should be careful when using 'openness' as defined before to draw conclusions concerning the impact of external competition. International contestability of an industry does not only depend on direct trade within that sector. Both foreign direct investment (FDI) and indirect trade (which may cause domestic competitive discipline in an industry, because of fierce downstream international competition) are important too. Notably in services these two factors are relatively important. An alternative definition of openness might take FDI into account.

Let us take a look at the results. Table 2.4.1 shows the outcomes for openness for both goods and services as a whole for several important developed and developing[40] economies as well as the OECD and EMU totals.

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40 China, India, Brazil and, to a lesser extent, South Korea

Table 2.4.1 Openness: Goods vs. Services

Index Openness (average trade[a] as % of value-added)	Goods[d]		Services[e]	
	1985	1996	1985	1996
OECD[b]	38.7	49.7	5. 5	6. 7
European Monetary Union[c]	n.a.	n.a.	10. 7	10. 8
United States of America	20.6	33.5	2. 7	3. 7
Japan	24.9	19.6	3. 5	3. 6
South Korea	52.8	57.6	8. 2	10. 8
China	14.5	24.8	3. 2	8. 8
India	11.4	22.5	3. 7	5. 1
Brazil	16.8	17.7	3. 4	2. 5
France	55.3	63.2	9. 0	6. 8

Source : World Bank (1999); own computations.
n.a. : not available.

Notes at table 2.4.1:
a)   Average trade is defined as (exports + imports)/2 .
b)   The figure for the OECD represents the member-aggregate for all included economies. The index is based on the sum of trade and value-added of member countries. Both intra-region and inter-region trade are included.
c)   The figure for the EMU also represents the member-aggregate. The index of openness is calculated similarly as for the OECD.
d)   Germany is not included, because no data on industry value-added were available. This made computation of openness in goods impossible. Data on services are available as of 1991. Openness of services was comparable to EMU averages.
e)   OECD data could not be used for internal consistency reasons. The data from the World Bank leave us with a problem, however. Construction value-added is classified under Industry. Trade in construction services, on the contrary, is included in trade in services. Thus construction enters the numerator of the formula for openness in services and the denominator of the index for openness in the goods sector. As a result, openness for goods is underestimated while the index for services is biased upward.

From the table we can see that openness in goods has shown a tendency to rise over the decade between 1985 and 1996. This supports the often mentioned stylised fact that trade has grown faster than production in merchandise. Advances in trade liberalisation and the ongoing process of globalisation, which have mutually influenced each other, are often seen as driving this development. A striking figure is the marked increase in openness in both China and India, in line with the more outward oriented strategy these two countries, which were traditionally associated with radical import substituting strategies, have come to follow. They might be seen as following the example set by South Korea, amongst others. Brazil on the other hand lags behind, which is consistent with the observations concerning its continued inward orientation and crisis-ridden governance over the time period under consideration (see Evans, 1995).

Furthermore, the stagnation of Japan's exports over the crisis of the nineties might be explaining the observed decline in openness in Japan's goods sector (the complete time series for Japan supports this view). Given their size, the USA and Japan could be expected to be less open than the other developed economies, like France (this also follows from the OECD aggregate). The fact that the USA is relatively closed to international trade may mislead the reader. Patterns of inter-state trade reveal that the degree of specialisation is higher between American states than between European countries, that are comparable in size (Krugman, 1991). Trade based on specialisation is taking place *within* the USA.

The gap in openness between goods and services is immediately apparent. Most countries however have seen openness in services rise over the period of eleven years. Only for the

European countries and for Japan the picture is mixed. Brazil and France experienced a fall in the index. The figure for services looks pale when compared to merchandise. While that supports the view that services remain more difficult to trade directly than goods, the progress made in service sector openness because of improved tradeability and/or because of liberalisation is spectacular. Given the fact that the growth rate of openness in services over the time period as a whole was 22 % for the OECD, 37 % for the USA, 38 % for India and 175 % for China[41], this means that growth of nominal trade exceeded growth in nominal value-added by these figures.

Next, we discuss openness of services more in detail, by focussing on the major divisions (as edited by me to increase the availability of results) of the OECD classification. Table 2.4.2 presents the results for the G7 countries (G5 extended by Canada and Germany).

Table 2.4.2 Openness: Major Divisions

Index Openness Major Divisions (average trade as % of sectoral value-added)	Transport		Communications		Construction		Finance and Insurance		Misc. Services *	Personal, Cultural etc.	
	1986	1993	1986	1993	1992	1996	1986	1993	1993	1986	1993
United States	15.2	18.2	2.3	2.7	0.5	0.7	1.6	1.1	2.2	0.1	0.2
Canada	19.1	28.9	6.2	8.7	0.2	n.a.	4.9	7.1	9.6	0.7	0.9
Japan	n.a.	9.0^a	n.a.	n.a.	0.9	1.1	n.a.	n.a.	5.1^c	n.a.	0.0
France	31.5	41.1	2.9	1.4	2.9	3.9	5.5	6.1^b	6.9^d	1.7	1.5
United Kingdom	24.6^a	22.6^a	n.a.	n.a.	1.5	5.1	n.a.	n.a.	n.a.	1.8	3.1
Italy	25.5	31.2	1.7	2.2	2.5	3.6	5.6	8.1	n.a.	0.2	0.3
Germany **	35.5	n.a.	4.5	n.a.	3.4	3.9	1.9	2.0	10.2	0.1	n.a.

Source: OECD/Eurostat (1998); own computations; the years presented yielded maximum data availability.
n.a. : not available

Notes at table 2.4.2:
a) These figures represent "Transportation" and "Communications" taken together.
b) French data reportation underwent a methodological change in 1995. Though all data from OECD/Eurostat which are used in this publication are meant to be consistent with the joint classification used (see Section 2.1) caution is called for.
   It so happens that the index for openness of the sector Finance and Insurance measures 6.1% and 5.3% for 1995 and 1996 respectively; a sharp break with the pattern of a sharply rising trend between 1986 and 1994. In 1993, for example, our index states that openness reached 25.4%. We reported the indexvalue for 1995
c) For Japan the index value refers to 1996.
d) This figure is for 1995, to be able to compare with the result for finance and insurance.
   * the category "Miscellaneous Services" includes Finance, Insurance and Business Services.
   ** Germany stands for the Federal Republic of Germany before 1990 and for unified Germany after 1990.

Across the board, the transport sector is by far the most 'open' sector within the service sector. The output of this sector is far more tradeable by its very nature than is the case for most other services. Movement of the producer to meet the consumer (or his products) is central to the service of transport. Over time this sector becomes quite more open on average. Personal and Cultural services seem to be the least open.

European countries clearly exhibit more openness in transport, construction, finance and insurance and professional services[42] than Japan and the USA. This is influenced by the size

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[41] For goods the figures are respectively: 28 %, 63 %, 97 % and 71 %. So, openness in goods has shown a spectacular increase too.

[42] Openness for Business Services cannot be shown separately. However, by comparing Finance and Insurance with Miscellaneous Services it can be derived that business services must be more open in all

of the domestic economy in both Japan and the USA. Canada looks a lot like the European countries in openness of finance and business services and increasingly so in transport, perhaps because of liberalisation in transport. Construction however looks more sheltered from international competition through direct trade, as can be expected given the fact that only the USA borders on Canada. Canada has a relatively open communications sector. In general, this sector is less bounded with respect to the tradeability of its products, but suffers globally from strict regulations that lag behind the changes in market structure (see Meijer, 1999a).

The overall picture of openness for the service sector might be heavily influenced by relative shifts in value-added from transport services to all other sectors in services. The gap in openness between these parts of the service sector is still large.

Section 2.5   *Trade in Services: Relative Position and Composition*

The questions addressed in this section are related to the previous section. Since services are less easily traded in a direct way, the relative size of services trade as compared to merchandise trade is expected to be small. The previous section already showed that the service sector remains much less open than the goods sector, except more or less for transport. In fact, the relative size of trade in services compared to the large share of services in national output gives an index for relative openness. In this section, however, we are not dealing specifically with openness. Rather the central issue of concern is the position of the service sector in international trade and the developments within the service sector. Of course these subjects are set against the background of the emergence of a service-dominated economy. The questions of interest for analysing the subject set out above are:

"How important is trade in services compared to trade in merchandise?"
and
"Which sectors have relatively fast nominal export growth?"

A brief discussion of the method of data processing is presented before the results are analysed.

To assess the position of trade in services relative to trade in merchandise, the share of services in total nominal export and import is computed. Value shares of the major divisions within the service sector illustrate the distribution of trade in services. I have mainly used data from the World Bank, because this allows us to analyse a sufficiently long time period. Before 1992, the OECD data coverage and aggregation often comes down to the same level of detail as the World Bank classification (see Section 2.2). To give some further detail, I have used data from the OECD to disaggregate the category 'Other Services' into its components for several OECD countries.

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countries than finance and insurance. This appears especially to be so for Germany, which has a relatively low openness in Finance and Insurance for a European country.

Table 2.5.1 presents the results of comparing nominal services trade with goods trade. The country and region sample consists of the selection of developed and developing countries used before in Section 2.4, table 2.4.1 extended with Germany, for which enough results are available to justify inclusion.

Table 2.5.1 Importance of Trade in Services

Value Share Services Trade in Total Trade of Goods and Services (as % of total nominal exports or imports)	Exports		Imports	
	1982	1997	1982	1997
OECD	20.4	20.9	19.0	20.4
EMU	21.0	20.0	18.8	22.0
USA	23.3	27.3	17.1	16.0
France	27.7	22.2	20.5	19.9
Germany	15.5	13.5	20.2	21.4
Japan	14.1	14.5	22.1	28.6
South Korea	14.8	16.0	12.4	17.2
China	10.6	11.9	10.7	18.2
India	25.6	21.0	11.6	13.7
Brazil	8. 2	12.1	21.8	23.1

Source : World Bank (1999); own computations.

The inclusion of OECD and EMU totals for service shares is meant to illustrate the size or importance of services in trade in these regions. Since both intra- and inter region flows are aggregated, the figures also give a benchmark (average export share) for country specific conclusions about *relative* specialisation in services (i.e. specialisation patterns between *countries or regions*). However, for the purpose of assessing relative specialisation, it is best to compare the country-specific results. Most importantly, the size of sectoral export shares for the regions indicates whether *absolute* trade specialisation (i.e. between *products* as compared within the own trade structure) is located in goods or in services within the region concerned.

For industrial regions, services take account of some 20 % of total exports on average. This indicates that absolute trade specialisation is located in the goods sector. Over time this share appears to be roughly constant. Given the fast growth of trade in merchandise, growth of trade in services has managed to keep up. This corroborates the statements in Section 1.3. Table 2.5.1 confirms the overall image of Section 2.4, that growth in service trade surpassed growth in value-added.

The developments over time are quite different for the individual countries. The importance of services in exports seems to have increased substantially for the USA since the early 1980s. Not surprisingly given this evidence, business interest groups promoting policy interest for trade in services have arisen early on in the USA. France appears to have been relatively specialised in services, within the group of developed countries, in the early 1980s but has converged to the OECD average since. Together with Japan and Germany, the developing countries seem to be more specialised in export of goods, although some catch-up in sectoral export shares of services has occurred. The main exception to this pattern is India, which has an export share comparable to the OECD average. Though Indian export of

services seems to have lost ground with respect to goods, Section 2.4 already suggested that both merchandise trade as well as service trade have grown relatively fast, compared to value-added. Perhaps Indian high-tech exports in the ICT sector lie behind the result.[43] A more detailed analysis of the evidence regarding the sectoral composition of trade in services is given below.

The picture for import shares supports the conclusions based upon the patterns observed in export data for the industrialised regions. The average import share is about 20 %. Again the image of the USA as *relatively* specialised in services is confirmed. The import share of services is relatively low across the time period concerned and is falling towards 15 % of total imports. We have to keep in mind though that the USA typically has a substantial shortage on the current account. This could mean that total import of services does not lag behind export too much in value terms. Imports of services in Japan and Germany, on the other hand, account for a relatively large share of total import expenditure. Comparing export and import shares strengthens the classification of Japan and Germany as specialised in merchandise export. The same pattern is observed for Brazil and increasingly, China. South Korea shows a mixed result. The importance of services in import expenditure is rising along with export shares, though they remain still somewhat below OECD average. The observation that India has a relatively high weight of specialisation in the service sector is corroborated by the relatively low service intensity of imports.

We might conclude the discussion of table 2.5.1 by trying to classify each of the countries included into three groups. Some countries appear *relatively* specialised in services, while others seem to be specialised in goods rather than services. The third group of countries appears, for one reason or the other, to have a less clear-cut specialisation pattern.

Group 1: Relatively Specialised in Services: USA, India (1982), France (1982)

Group 2: Relatively Specialised in Goods: Japan, Germany, China, Brazil

Group 3: Less obvious specialisation pattern: France (1997), South Korea, India (1997)

Some clarification of the classification is required. Strictly speaking, only the export share is relevant for relative specialisation. Taking the OECD figure as a proxy of our table's sample average, France (1997) and India (1997) appear to have average export shares for services. They are less specialised than some countries, but more than others are. South Korea is not specialised in services, according to the value of its export share. The ambiguity that justifies including Korea in Group 3 is the following: imports of countries with relatively goods intensive export should be *relatively* service intensive, but for Korea they are not.

The following hypothesis could explain the result for Korea and also illuminate some aspects of the import-export pattern for China and India.

As these countries are less developed, their stage of development might be characterised by relatively high imports that are relatively capital-good intensive. Though Korea might have a comparative advantage in goods rather than services, its import share of goods may still be

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[43] The ICT sector contains several service activities identified in the classifications we use; amongst others, communications services, computer and information services and a part of research and development are included. For a discussion on the role of India in ICT, see Evans (1995).

relatively high because of a trade deficit in order to import capital goods. Vice versa, this may cause the import share of services to be lower than expected. This *accumulation hypothesis* thus may explain why China and Korea do not look more like Japan and Germany or Brazil in its import-export pattern and why contemporary India does not look more like France. Moreover, consumer demand side differences play a role too. Developed countries simply spend a larger share of their income on services; also intermediate demand for services is relatively higher. This helps explain the larger share of services in imports of developed countries.

In the tables below the distribution of trade within the service sector is discussed. The first table presents the results for the OECD aggregate. Then, consecutively, the USA and Japan, France and the Netherlands and India and China are presented. I have chosen to include the Netherlands as an example of a small European economy, instead of including Germany. A separate table shows a disaggregation of the category Other Services, based on data from OECD/Eurostat.

Table 2.5.2 Composition of Trade in Services: the OECD averages

Value Shares Major Divisions in Total Trade of Services for the OECD[1] (percentage[a] of total export or import of services)	Export Share		Import Share	
	1980	1997	1980	1997
Transport Services	34.2	24.1	38.1	27.3
Travel Services	24.2	29.6	25.8	30.2
Insurance and Financial Services	2.6	5.8	3.3	4.3
Other Services	39.4	41.3	33.2	38.7

Source: World Bank (1999); own computations.

Notes at table 2.5.2:
1)   The figure for the OECD represents the member aggregate for 24 included economies. See note 'b' of table 2.4.1.
a)   The percentage shares of the divisions in the table should add up to 100 %. Differences are due to abbreviation procedures.

As we can see in the table, the centre of gravity in export of services has shifted on average in the direction of travel and Other Services and away from transport services. All sectors realised an increase in their portion of service export, but the sector transport services. This supports the notion of increased tradeability already evident in the results of Section 2.4. Transport services have always been more tradeable over long distances, so the effects of technological advances that increase tradeability in information-intensive services may very well be less important for transport services. Insurance, financial and Other Services should benefit most from falling information and communication costs. The increased tradeability combined with higher demand for co-ordination services produced in those sectors apparently has led to relative growth of trade in information-intensive services compared to the growth in transport services trade that resulted from the fall in transportation cost. The rising share of travel might be related to rising income and falling transportation costs. The pattern for import shares is grossly the same, which might be expected when averaging out country differences. Perhaps it suggests that intra-industry trade also plays a significant role, but that can only be assessed when we compare individual country results.

The following tables allow us to see the spread around the OECD average and enable to compare the results between developing countries and industrialised countries.

Table 2.5.3 Composition of Trade in Services: the USA and Japan

Value Shares Major Divisions in Total Trade of Services (percentage of total export or import of services)	Export Share		Import Share	
USA	1980	1997	1980	1997
Transport Services	29.9	18.7	37.5	28.4
Travel Services	22.3	32.9	25.4	31.7
Insurance and Financial Services	3.2	5.3	2.1	5.5
Other Services	44.6	43.2	35.0	34.4
Japan	1980	1997	1980	1997
Transport Services	62.9	31.5	52.2	25.2
Travel Services	3.2	6.2	14.2	26.7
Insurance and Financial Services	1.6	3.2	2.3	3.8
Other Services	32.4	59.1	31.3	44.2

Source: World Bank (1999); own computations.

When we compare the pattern in export shares between the two countries in the table, Japan traditionally relies more heavily on export of transport services (related to its merchandise exports, no doubt). Over time, this reliance has declined, mainly at the favour of Other Services and insurance and financial services, which have grown very fast in relative importance. Real export figures of tables 2.3.1 and 2.3.2 already showed fast growth in these sectors; now we reach an overall insight in relative nominal growth. Transport was never the largest service export sector in the USA, which is relatively and increasingly specialised in exporting services as we have seen before. The pattern over time is similar to the OECD average. Although some countries exhibit relative specialisation in services, whereas others specialise in merchandise, the cross-country results suggest a pattern of intra-industry trade. That is confirmed by imports, which have a very similar distribution as exports, the only exception being the sizeable import of travel services in Japan as compared to their exports. Not surprisingly, given its language and remote location, Japan is not a popular tourist destination. On the other hand, as is well known, Japanese themselves travel a lot. This is reflected in the substantial share of travel in service imports and the fairly sizeable share of services in total imports.

Table 2.5.4 Composition of Trade in Services: France and the Netherlands

Value Shares Major Divisions in Total Trade of Services (percentage of total export or import of services)	Export Share		Import Share	
France	1980	1997	1980	1997
Transport Services	24.2	23.8	28.4	30.9
Travel Services	19.0	34.4	18.7	25.9
Insurance and Financial Services	3.4	3.8	4.8	4.4
Other Services	53.4	38.0	48.1	38.8
The Netherlands	1980	1997	1980	1997
Transport Services	51.5	39.9	43.9	30.2
Travel Services	13.1	12.5	26.6	22.6
Insurance and Financial Services	1.2	1.3	2.4	2.7
Other Services	34.3	46.3	27.1	44.5

Source: World Bank (1999); own computations.

The results for France do not exhibit the average pattern described above. Transport retains its relative position in exports and even grows relatively in imports. Travel services increase in relative export importance more profoundly than for other industrialised countries. The fall of both the export and import position of Other Services is surprising. Table 2.4.2 already showed a decrease in openness of communications services. Such a decline corresponds well with the observed decline in relative importance of this sector for trade in services. Finance and insurance show a slight rise in export share over the period considered, but the pattern over time was as variable as the pattern of openness in this sector noted in Section 2.4.

The Netherlands has a well-known position as a distribution center. We would expect distribution-related services to play a relatively important role within service trade. Transport services indeed retain a more important export share than in other OECD countries included in this section. Though travel, insurance and finance remain relatively of low importance within Dutch exports of services, the sharp rise in Other Services at the expense of transport replicates the general development over time observed for the OECD on average. Import shares mostly developed in line with the average OECD pattern, though transport and Other Services show a larger than average share, like in exports, possibly related to the distribution and business role of the Netherlands.

Table 2.5.5 Composition of Trade in Services: India and China

Value Shares Major Divisions in Total Trade of Services (percentage of total export or import of services)	Export Share		Import Share	
India	1980	1997	1980	1997
Transport Services	15.0	21.7	60.0	54.8
Travel Services	52.2	32.6	3.8	10.8
Insurance and Financial Services	1.2	2.6	5.3	5.2
Other Services	31.5	43.1	31.0	29.2
China	1982	1997	1982	1997
Transport Services	52.3	12.1	61.6	33.8
Travel Services	28.0	49.1	3.3	33.5
Insurance and Financial Services	8.0	0.8	4.4	4.5
Other Services	11.7	38.0	30.7	28.1

Source: World Bank (1999); own computations.

Although both developing countries, the trade patterns of China and India exhibit some remarkable differences between each other and over time. These differences lie first and foremost in there export patterns. China seems to have passed through a catch-up process in maturity of the position of the service sector in international trade. In the early 1980s China's export of services seems to have been mainly related to exporting goods; transport and (freight-) insurance and (export related) financial services were most important. Nowadays, travel and Other Services have taken the lead in export of services. This corresponds with the huge increase in openness of the service sector noted in Section 2.4. The relaxation of political tensions between China and the non-communist countries shows up clearly in the huge increase of travel export. India already had a more mature service sector twenty years ago. Travel has since then lost importance in exports to Other Services and transport. The export share of finance and insurance also grew rapidly, but remained minor. The import

patterns of China and India show the impact of income growth. Travel abroad by residents has grown fastly, partly reflecting growth in purchasing power for groups of people in these countries. Furthermore, transport retains a *relatively* significant position which is connected with their developing (capital accumulating) status.

Across the board we can say that, amongst others, the relative growth of Other Services in exports is striking, as well as its size in service trade. Table 2.5.6 presents a disaggregated[44] view of the share of this category in both export and import of services for a selection of OECD countries in 1996. Canada has been included because we noted its relatively open communications sector and business services in Section 2.4. Perhaps this means those sectors play a relatively important role in trade.

Table 2.5.6 Value Composition of 'Other Services'

Value Share in Service Trade (1996) (as % of total export or import of services)	Communications		Construction		Personal, Cultural etc.		Business Services[a]	
	Export Share	Import Share	Export Share	Import Share	Export Share	Import Share	Export Share	Import Share
USA	1.5	5.8	1.5	0.3	1.2	0.1	28.7	19.6
Japan	2.0	1.4	8.8	3.7	0.3	0.9	44.1	34.8
Germany	2.4	2.1	5.9	4.5	0.2	2.0	34.0	28.6
United Kingdom	1.9	2.7	3.7	3.3	4.2	2.3	30.6	11.8
France	0.7	0.6	4.5	2.0	1.7	2.7	27.8	29.5
The Netherlands	1.3	1.4	6.1	3.3	1.0	1.1	34.2	33.4
Canada	4.9	3.7	0.4	0.2	2.8	2.8	29.2	26.4

Source: OECD/Eurostat (1998); own computations.

Notes at table 2.5.6:

a) Business Services includes the OECD/Eurostat major divisions Computer and Information, Royalties and License Fees, Other Business Services.

As we can see, business services are by far the most important component of the sector Other Services. In Canada, communication has a comparatively high share in exports. Within business services, it turns out, other business services usually account for 70 to 90 % of exports and imports. Only in the USA and Japan, export of royalties and license fees exceed a 20 % share in business services (for the USA this is almost 50 %). In the UK, import of royalties is relatively important within imports of business services. In Canada export of computer and information services reaches a high percentage, at 14 % of business services. UK imports of computer and information services account for a relatively large percentage share of business services imports. Statements about relative size of trade in different categories of business services have to be interpreted carefully as the size of business services in trade varies between countries. Thus, although British import shares of computer services as well as royalties *within* business services turn out to be large, the import share of business services in total imports of services is relatively small. Also, Japan's high 8.8 % export share of construction should be seen in perspective. Total export of services is relatively small in Japan.

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[44] Government services are not included in the table, although they are included in Other Services.

Section 2.6   Main Insights and Concluding Remarks

Section 2.5 presented a tentative, rough sketch of trade patterns, which constitutes the basis for a more thorough analysis of the developments in export specialisation in services among countries. This chapter has provided us with an impression of the sectors that are important and rising within international trade in services. Some indications have also emerged regarding the differences between developing and developed countries. However, we have not yet gained explicit insight in the distribution and dynamics of the patterns of relative specialisation in service sectors and concerning the importance of intra-industry trade in services. This will be the goals to achieve in Chapter 3. Below, I will summarise the results of the discussions in Chapter 2.

Although data on trade are still scarce and processing them entails specific problems, recent efforts to improve data collection have made an attempt to analyse trade in services worthwhile. After explaining the method used to tackle some problems of concordance in section 2.1, the research questions were introduced in section 2.2. After analysing the results for selected countries and regions we have come to the conclusion that real trade in services has grown in general. Though still much less open to trade than the goods sector, services have become more exposed to international trade. The growth in openness could be the result of both technological advances and liberalisation of trade. Chapter 4 will discuss issues of recent liberalisation, but for the time being growth in openness seems to be related mostly to technical progress and the related increase in demand for intermediate services. The increased demand has caused a shift in value-added towards several service sectors. Together with the improvements in tradeability, this underlies the fact that trade in services has matched the growth rate in merchandise trade. However, the share of direct trade in services remains far from the importance of services in total value-added. In other words, openness of services remains significantly lower than openness of goods sectors.

Within the service sector, the traditionally important contributors to export are transport and travel. Both sectors occupy a special position within services. Transport has been the most tradeable service up till now; travel does not contain a specific category of service activity, but expenditure on all kinds of services and goods. On the whole, the share of transport in both export and import of services has fallen over time, in particular in industrialised countries. Paradoxically, openness in transport has shown an increasing trend. Real growth of export in this sector did not lag behind other sectors too much. Presumably the fall in relative size can be explained by shifts of production factors away from transportation and into services such as finance, business services and construction. Moreover, those services have also experienced relative price increases over time with respect to transport services. Travel has fared well in relative size of trade. Somewhat contradictory patterns in real trade growth and percentage share of nominal trade for travel services might be explained by problems with the trade deflator. New sectors, such as finance and business services have become more important in both export and import of services.

Appendix 2.1 The OECD/ Eurostat classification of international transactions in services

1.   Transportation

This division also includes all transport-related services, such as storage.

2.   Travel

All expenditure of travellers on goods and services are included. Expenditure by non-residents on goods and services in the resident economy are counted as exports; similar expenditure by residents abroad is import of the resident economy.

3.   Communications Services

Besides postal and courier services, the telecommunication sector, an important ICT component, is classified within this major division.

4.   Construction Services

Goods imported or exported for use in relevant construction activities are added to the total value of construction services import or export rather than to trade in goods.

5.   Insurance Services

The value of insurance transactions is calculated as net receipts and net payments.

For example, net receipts equal premiums received minus claims paid. This method is used to account for the fact that only a part of the premium amount represents the value of the insurance *service*. The other part is a risk-based compensation for the possibility that claims are filed.

6.   Financial Services

All services related to financial intermediation are registered under this category.

7.   Computer and information Services

This sector includes some modern ICT related activities, such as development and production of customised hardware and software and computer related consultancy.

8.   Royalties and License fees

Payments for the authorised use of intangible assets classified in this category were in BPM4 reported as income transactions. Now, the service nature of these transactions is recognised.

9.   Other Business Services

Most notable components are professional services, like various consulting activities, research and development and services between affiliated enterprises, as far as not included elsewhere. The latter category turns out to be quite sizeable in trade for some countries. Payments by affiliates to their parents for general management cost and other overhead expenses are among its entries.

10.   Personal, Cultural and Recreational Services

Amongst others, fees and services related to the production and distribution of movies, radio and television programs and music are reported in this division. All kinds of services associated with recreation, sports and culture are included. However, it should be noted that expenditure by travellers on these activities as well as on education and health are not reported here, but as part of travel expenditure.

11.   Government Services, not included elsewhere

More on this major division in the main text, Section 2.1.4, where the problems of concordance are discussed.

Appendix 2.2

This appendix formally illustrates the calculations needed to transform nominal trade figures into real (constant price) figures. After a stylised mathematical presentation of the problem, the reader will find more information on the implementation of the concordance presented in section 2.1, which was used to perform the calculations on the actual data.

From nominal trade to real trade

Data sources have provided us with statistics on nominal trade. In Section 2.3 we wanted to investigate the patterns in real trade to assess volume growth in services trade. A concordance between the ISIC/ISDB classification and the OECD-Eurostat classification of trade (see Section 2.1.4 and below) resulted in sectoral deflators. The deflators transformed nominal trade into real trade for each OECD-Eurostat major division.

The procedure is more clear when we use some symbols to illustrate the calculations. First we will explain the basic idea of deflating nominal trade values. For this it is most instructive to assume at first that it would be possible to deflate on the basis of individual price indices for each traded product. This is the only method that can provide us with correct constant price trade figures, without any constraining assumption. Subsequently we will show a more realistic calculation, based on the data we have possession of. Thus we can illustrate the crucial assumptions that underlie our argument.

If we assume that data series are available on the prices of all service products individually, we can present the deflation procedure as follows:

$$T_r^i = \frac{T_n^i}{(1+\pi)} = \frac{T_f^i * P^i}{P^i / P_0^i} = T_f^i * P_0^i$$

with:

P^i = present price of product i.

P_0^i = price of product i in base year.

$(1+\pi) = P^i / P_0^i$ = price index of product i.

T_n^i = nominal trade in product i.

T_f^i = trade in product i in physical numbers.

T_r^i = real trade in product i, at base year price.

Trade is recalculated using prices of a chosen base year. This makes values comparable over time and between sectors at a chosen unit of account (i.e. the relative and absolute prices of the base year).

In reality we do not have the detailed data required to follow this method, nor would it be easily possible and efficient to acquire, use and maintain such data sets. If we adopt several assumptions, we can make use of available data to generate real trade data that are as accurate as possible.

In fact, data on nominal trade are available at the level of the OECD/Eurostat classification of the balance of payments. Since information on prices and price developments of services on the balance of payments are not available (see section 2.1.2 'Data problems', item 'Real trade data') I had to resort to the national accounts of production for relevant price indices. As exemplified in the main text, section 2.3 and 2.4, the concordance between value added and trade sectors is subject to some problems. One problem that is directly related to the calculation of real trade figures deserves to be mentioned once more: value-added prices do not necessarily display similar patterns over time as trade prices (i.e. gross-output or sales prices). Still, we had to use value-added series to construct sectoral price indices. All in all the available data made it possible to deflate nominal trade figures using the value-added price indices. Below, this exercise is illustrated.

Let's denote the deflator for sector i of trade in services, which is a Paasche price index of sector j, as D^{ji}.

$$I^i = \frac{T_n^i}{D^{ji}} = \frac{P^i * T_f^i}{P^j * Q^j / P_0^j * Q^j} = \frac{P^i}{P^j} * \frac{P_0^j}{P_0^i} \left(P_0^i * T_f^i \right) = \frac{P^i}{P_0^i} * \frac{P_0^j}{P^j} * T_r^i$$

with:

T_n^i	= nominal trade in sector i.
D^{ji}	= sectoral trade deflator for sector i based on concorded output-sector j[45].
P^i	= price level in trade-sector i (this is a gross-output price level)
T_f^i	= physical trade volume in sector i.
T_r^i	= real trade in sector i, at base year prices.
P^j	= value-added price level in production-sector j.
Q^j	= physical output volume in sector j.
subscript 0	= indicates base year value for the relevant variable.

As is immediately obvious, the index value 'I' for each sector i does not exactly equal real trade. Although our goal was to acquire real trade figures, we cannot separate real trade (T_r^i) from the index value. The data extracted from the balance of payments and the ISDB supplied us with series for nominal trade (T_n^i) and the sectoral trade deflator (D^{ji}). Therefore, it is impossible to sort out gross-output prices (the prices of traded products, P^i) and value-added prices (P^j).

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[45] We denote the deflator for sector i of trade in services, which is a Paasche price index of sector j, as D^{ji}. A Paasche price index uses present year output in its sectoral weight index.

Now the assumptions that were referred to earlier have to be made explicit. If we assume that:

- the concordance between trade-sector i and output-sector j is fairly accurate
- patterns over time in the price levels of any well concorded sectors i and j are similar, even though the nature of the price level differs between the balance of payments methodology and the national accounts methodology,

then the index value I^i is an accurate approximation for real trade, T_r^i.

The two factors that pre-multipy T_r^i roughly cancel out, because the price indices in sectors i (P^i/P^i_0) and j (P^j/P^j_0) lie closely to each other in any given year. We endorse the assumptions given above. The concordance that is used in the calculations can be found in the main text, section 2.1.4. However, the actual implementation is illustrated below to give as much relevant information as possible that can justify the endorsement to the first assumption. The second assumption can only be endorsed on intuitive arguments. Production of services does not use as much intermediates as is the case for goods (Stibora and de Vaal, 1995; page 18, footnote 8). Thus, a relatively large part of gross-output prices for services will consist of the value added in the service sector (i.e. the value added prices). The behaviour of the prices of value-added and trade should be very much the same, as a consequence.

Implementation of the concordance between value-added and trade

The concordance that was implemented to construct price indices had to take into account that data availability in the ISDB put some constraints to the possibilities at hand. The schema is presented as follows: for every major division of the trade classification the concorded sector is given upon which the sectoral trade-deflator is based. After the overview, some comments will clarify the choices made.

Trade Division	_Concorded Sector for Deflator (ISDB)_
1. Transportation	7. Transport,Storage and Communication
2. Travel	total value added in services
3. Communications Services	7. Transport,Storage and Communication
4. Construction Services	5. Construction
5. Insurance Services	8. Finance,Insurance,Real Estate and Business Services
6. Financial Services	8. Finance,Insurance,Real Estate and Business Services
7. Computer and Information	8. Finance,Insurance,Real Estate and Business Services
8. Royalties and License Fees	8. Finance,Insurance,Real Estate and Business Services
9. Other Business Services	8. Finance,Insurance,Real Estate and Business Services
10. Personal, Cultural and Recreational Services	9. Community,Social and Personal Services
Total Services Trade	no deflator used

To calculate the sectoral Paasche price index, I have used the ISDB series on sectoral value added. Value-added at current prices, in national currency (ISDB code: GDP) was converted into current US $ using market exchange rates supplied by OECD/Eurostat. For value-added at base year prices I took the ISDB series 'Value-added at constant 1990 prices, using 1990 PPPs (US $)' (ISDB code: GDPD).

Several notes are worthy to be mentioned. First, although travel services did not find a suitable concordance sector in the national accounts, a price index can be used to deflate nominal trade. Since travel expenditures include transactions in all kinds of services, the price developments of total service value-added provide the best possible deflator. The price index of total service value-added could also have been used to deflate total services trade. Instead, I have chosen to calculate total real trade in services as the sum of real trade in the respective major divisions. All real trade is in constant 1990 US $ (using PPP exchange rates), so we do not need to deflate total nominal trade in services separately. Because of the trade-off between data availability and accuracy in the concordance, major divisions of the national accounts were preferred as deflator for trade in transportation, communications services, insurance services, financial services and the components of business services (trade divisions 7 to 9). Theoretically the sub divisions of the national accounts, *Transport and Storage*, *Communication*, *Financial Institutions and Insurance*, *Real Estate and Business services*, respectively, would have been preferable.

In any case when doubt arises with regard to the validity of one or both of the assumptions underlying the calculations, this will be treated explicitly in the main text.

Chapter 3. Patterns of Trade in Services: export specialisation and intra-industry trade[46]

Introduction

In Chapter 2, we illustrated the causes and extent of growth in international service trade. Now we will analyse another part of our research problem. The on-going process of internationalisation of service markets will have a profound influence on specialisation patterns and economic welfare and development across countries. This chapter intends to assess the consequences of the internationalisation of services for the pattern of international specialisation in services.

We will set off to this task by specifying a set of questions which try to raise the most relevant issues with respect to trade patterns in services. The research questions for this chapter are the following:

1. *What are the determinants of competitive advantage and trade in services?*
2. *Do the data show evidence of patterns of inter-industry export specialisation in services between countries?*
3. *How have these patterns evolved over time?*
4. *What is the importance of intra-industry trade in service sectors?*

These questions will be answered in the upcoming sections. On the basis of the conventional theories on international trade, we will consider the underlying factors that determine competitive advantages and trade in the first section. The second section introduces the concepts that we will apply to investigate the specialisation patterns in service trade. The resulting indicators can also serve to illustrate the relation between the theoretical explanation and empirical determination of specialisation patterns. Section 3.3 discusses the methodology of specialisation

The Sections 3.4 to 3.8 present and analyse the results on specialisation patterns. Bar diagrams and tables illustrate the observed patterns. Section 3.4 first explains the approach followed to analyse data patterns. The actual availability of data, as opposed to the coverage required for our computations, leads to an analysis in stages. Several pooled cross-sections of countries have been constructed to investigate specific periods of time. Moreover, we can make use of the separate databases of the OECD and the World Bank again (as in Chapter 2). Each of the Sections 3.4 to 3.8 embodies a certain stage in the analysis. Section 3.4 starts of by presenting an overview over a fairly long time span, including a group of 27 countries from the sample. Section 3.5 and 3.6 focus on a set of industrialised countries and a selection of less developed countries, respectively. Section 3.7 concludes the discussion of World Bank data samples. That section intends to give an up-to-date impression of specialisation patterns

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[46] In writing this chapter, I benefited amongst others from discussing some theoretical and empirical issues of specialisation with Alex Hoen.

in services within a large sample of countries. In Section 3.8 we will be able to enter into more detailed analysis of trade patterns for a selection of OECD countries, using the data from the OECD publication on trade in services. Amongst others, the increased level of disaggregation in the data allows a purposeful investigation of the importance of intra-industry trade.

The final section of this chapter offers a summary of the main insights.

Section 3.1   Competitive advantage and trade in services

Introduction

In Chapter 1 we tried to relate he internationalisation of services to several related developments in economic structure. Before we now turn to the analysis of specialisation patterns and trade in services, some attention will be paid to the theoretical background behind trade in general and trade in services in particular. Eventually, Section 1 seeks to give an answer to the first research question that was stated above: 'What are the determinants of competitive advantage and trade in services?'. First I will give an overview of the most important theoretical principles that bear on the explanation of international trade. Then I will deal with the relevance of these principles for trade in services, as distinct from trade in goods. The focus will be on the positive aspects of international trade theory, as distinct from the normative point of view.

Sub-Section 3.1.1   Trade in theory

Historically, the subject of international trade has been a central topic in economic theory. From the end of the eighteenth century onward, economic developments started to become the dominant ingredients of societal history. A class of bourgeois 'nouveaux riches' was emerging in European countries that represented the rising industrial interests in these societies. As the process of industrialisation proceeded, it became apparent that the international relations between nation states were changing rapidly. The traditional geopolitical arena was given an extra dimension: the world as an international division of labour.

Economists, a branch of social philosophers that had emerged simultaneously with the economic revolution of those times, saw a major challenge in explaining (*positive*) and motivating (*normative*) the economic forces behind the new internationalisation. Theories on international trade were developed. Adam Smith propagated that the market mechanism would lead to countries specialising in the sectors in which they performed best. In fact, he saw the first wave of industrialisation in the United Kingdom as a manifestation of the progression made in the division of labour in both agriculture and manufacturing. The increased productivity because of such specialisation would also hold on the international level. Through trade, specialisation would benefit all nations that possessed a competitive edge.

Today, more than two centuries later, the attention for international trade in economic theory has reached a high-point again. Broadly speaking, we can identify two branches of

theory in the field of international trade. Both branches of theory try to answer two distinct questions which together expose the essence of what the international division of labour is about. In sub-section 3.1.1 we will discuss the answers provided to the following questions, first from the point of view of comparative cost theory, and subsequently from the point of view of new trade theory. The first and theoretically most relevant question is: *"What are the causes of trade?"*. The second question turns to the reality of actual trade patterns, which remain to be explained: *"What determines the patterns of trade?"*[47].

Comparative Cost Theory

If we proceed in historical order, the first major theory on international trade since Adam Smith is the theory of comparative advantage. The principle of comparative advantage concludes that **differences between countries cause international trade**. In fact, this principle (which can be traced back to the famous classical economist David Ricardo and has later on been extended by Heckscher, Ohlin and Samuelson) is based on the central concept of opportunity cost. In an international marketplace that is characterisedby perfect competition, differences between countries in the opportunity cost of production of a set of products will cause these countries to specialise in those activities in which its opportunity costs are relatively low. Note that this theory is not equivalent to Adam Smith's earlier theory. The theory of comparative advantage is able to explain a broader set of trade. Countries need not be absolutely better than others in producing a certain product for them to specialise in such a product. The only requirement for the development of a cost advantage in a product is that your opportunity costs of this product be lower than in other countries. Competitive markets will ensure a *competitive advantage* in a sector if a country has a *comparative advantage* in that sector. Smith, on the contrary, thought that an *absolute advantage* was required to acquire a cost advantage. His focus was on describing trade between Great Britain and its colonies. Britain had an absolute advantage in manufactures, based on its high degree of labour specialisation, while the colonies were abundantly endowed with natural riches, giving them a natural position in providing natural resources and exotic products.

The comparative cost theory, as the theory of comparative advantage is also labelled, also stresses the **differences between countries** as the **determinants of actual trade patterns**. Differences in technological ability, production factor endowments or preferences lead to differences in relative scarcity of products and hence to differences in relative prices, in the absence of trade. The price mechanism will compose specialisation patterns and trade according to initial price differences, such that an international equilibrium of supply and demand is reached.

New Trade Theory

The second major theory on international trade has only been developed the past two decades. The theory has often been named 'new trade theory', to distinguish it from the traditional comparative cost theory. Notwithstanding its many diversities, the assembly of

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[47] The proposed questions have been taken from the exposition on international trade in P.Krugman (1990).

theoretical contributions depart from the same general principle. Specialisation has intrinsic advantages. These advantages are captured by the fact that production is often characterisedby increasing returns. The operation of the market mechanism then leads to a limited number of competitors in each market, since increasing an individual firm's market share leads to lower average cost and more competitive power for this firm. Over time, large firms drive out small firms until only the most competitive firms remain[48]. In many products, market structures are therefore characterised by imperfect competition, which means that producers are no longer taking prices as given.

Let us for now focus on such a market characterised by imperfect competition and (locally) increasing returns. Assume that the structure of the market is one of monopolistic competition[49]. Each producer thus faces a firm-specific demand curve, since his product has been differentiated from the similar products of other firms. Hence, all firms produce imperfect substitutes. Moreover, the individual producers take the prices set by their competitors as given. Suppose that the world exists of two exactly equal nations. Each country's economy consists of n markets, one of which we will concentrate on. On each national market, an equilibrium of supply and demand exists under the conditions of monopolistic competition. Firms on the market are also assumed to be symmetric, both in their cost structure and in the demand they face.

The possibility of unrestricted international trade leads to a larger potential market for each producer than the national market in which it would operate if trade were not possible. The integration of domestic and foreign markets leads to increased competition between existing producers. The total number of firms that remain on the integrated market will be less than the sum of pre-existing firms in both national markets. However, the available variety of the differentiated product to each individual consumer will rise and prices will fall.

We can understand this by looking at the process of competition on the market. Integration combines two existing markets that are completely symmetric. Since the number of firms initially doubles, the market share of each individual firm is reduced by half, given that total demand has doubled. It would be tempting to conclude that nothing changed at the firm level.

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[48] The exact number of firms that constitutes the equilibrium market outcome usually depends on several factors. The argument given in the main text stresses the cost aspect of size. For example, in a setting of increasing returns over a certain range of output (which is often a realistic representation of actual conditions) a certain scale of production is most efficient in terms of average cost. This scale is called 'minimum efficient scale of production'. A combination of the minimum efficient scale and the size of the market (given by total demand) dictates the number of firms that would be cost efficient in the industry. However, this is not the only aspect at play. The eventual number of firms can be lower or higher depending on the nature of competition in the industry and the particular historical heritage of incumbents already present. For example, an industry that would be considered a natural monopoly from the aspect of cost efficiency, can very well operate under conditions of oligopoly. It might be that several competitive firms have historically been operating on the market.

[49] Although the story told earlier in the main text was most appropriate for oligopolistic and monopolistic markets, economic models on trade and imperfect competition are mostly based on the assumptions of monopolistic competition. Such a market structure is characterised by free entry within a set of producers of a differentiated product who do not behave strategically. This choice is mainly justified because the analysis is considerably more simple. Strategic behaviour between competing firms can be abstracted from. In practice, when *internal* increasing returns are important in an industry, the market structure will not necessarily approximate monopolistic competition; none the less it is a possibility (see Krugman and Obstfeld, 1994, Chapter 6).

The scale of operation of the individual firm remains constant and prices do not change. For the individual consumer, the benefits lie in a doubled variety of the differentiated product. The story doesn't end here, though. Because the marketshare of each firm has fallen by half, the extent of competition has increased. It is fair to state that the price elasticity of demand for each individual product has risen in absolute value terms. International competition forces prices down. Because in equilibrium firms in a monopolistically competitive market do not make any (economic) profits, decreasing prices lead to a fall in the number of firms and, logically, varieties. The scale of operation in the remaining firms grows, so that average costs can keep track of the falling price level. Since both integration and falling average prices have led to an increase in the total level of sales in the market, the new international equilibrium will still exhibit an increase in available variety to consumers as compared to the situation before integration. In general, and certainly in a situation of symmetry as is assumed here, each country will specialise in the production of a more limited range of varieties. However, by trading internationally consumers have access to more varieties, against lower average prices.

We can now conclude the analysis of new trade theories. If imperfectly competitive markets are integrated and trade is made possible, the market mechanism (competition) will ensure an equilibrium in which international trade occurs. Producers are forced to increase their scale of production when international competition is opened. International trade is both a mechanism for international competition and a means for firms to successfully increase their scale of operation. More generally[50], in the case of increasing returns and/or imperfect competition, **trade between countries is caused by the competitive advantages of specialising in a limited range of products**.

Against a background of imperfect competition, specialisation leads to trade even when countries do not differ in terms of factor endowments, preferences or technological ability. Although there are no differences in relative scarcity between countries, trade will occur according to a purposeful process of specialisation. The following explanation can also serve to illuminate the importance of this statement.

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[50] When production is subject to global increasing returns, the resulting market structure will be imperfectly competitive as argued in the main text. Still, production need not be characterisedby *global* scale economies for markets to be imperfectly competitive. Markets for heterogeneous products are usually imperfectly competitive, since producers are able to set prices themselves. The model of monopolistic competition is well equiped to describe these markets too. To be able to determine a realistic equilibrium, it is required that production be at least initially subject to increasing returns. These initially increasing returns can be *local*, though. As output increases further, returns to scale may become decreasing. There exists a minimum average cost level of output (see before). Such a cost structure can also occur in industries subject to perfect competition. Perfect competition will ensure that, in the long run, firms will produce at the minimum average cost scale. The difference here with the situation of perfect competition is that firms are price setters. The extent of competition determines the scale and average cost of production. International integration increases the extent of (price) competition. As the price elasticity of demand becomes larger in absolute value, the scale of production of each firm in long run equilibrium will be closer to the minimum cost scale. In a setting of imperfect competition this will generally mean that firms increase their scale of production. The key point is that trade is caused exclusively by the advantages of specialisation in all cases of imperfect competition, provided that firms are similar in their cost and demand structures. Under conditions of imperfect competition, specialisation, instead of differences in resources or technology causes trade.

Compare the results of new trade theories to the problems of traditional comparative cost theory to explain the occurrence of trade when opportunity cost are not different between countries. Comparative cost theory predicts that no systematic trade will occur in a situation in which two countries do not differ in relative scarcity in any way. Because producers are assumed to be subject to perfect competition, international integration does not alter their exposure to competition in any way. Price elasticities of demand are not influenced, nor do ex-ante price differences expose competitive advantages. These countries will not enter into any purposeful pattern of trade. All occurring trade will be accidental.

Yet, as turns out in practice, countries that do not differ substantially in terms of ex-ante comparative cost usually experience intensive bilateral trade in all kinds of products. Trade between countries in the European Union is a good example of this phenomenon. Here, comparative cost theory fails to explain most of the actual trade patterns. Can new trade theories help us out? We have seen how new trade theories explain that the advantages of specialisation can be a cause of trade. The process of competition between similar countries leads to specialisation and trade to exploit the competitive advantages of scale economies that exist in most products.

There are two reasons why scale economies play a more prominent role as a cause for trade between comparable countries. First, the production costs of any product cannot be expected to differ much between countries that do not display ex-ante differences in relative scarcity. Second, international integration of markets leads to increased competition. Firms in the market are forced to reveal their competitive advantage, as market conditions have changed. When markets cannot govern the allocation of resources to production according to pre-existing scarcity differences, the market mechanism will take a different turn. As we saw earlier, increased international competition leads to falling prices but also to a larger market. To remain competitive, existing firms will consolidate and in so doing increase their scale of operation, in order to benefit from lower average cost. The result will be a country-specific pattern of specialisation and an international pattern of trade based on this inter-country specialisation.

Strictly speaking, this story only holds as far as markets are imperfectly competitive. But, in practice, most markets *are* and scale economies also play a prominent role. In fact, theorists often state that perfect competition is only approximated in some agricultural markets. If perfect competition is not a suitable structure to describe many real markets, this could imply that the model of comparative cost, instead, is not a suitable representation of reality. This need not be true. Although the model assumes perfect competition on the level of the individual firm, this abstraction of reality is not essential for the purposes of comparative cost theory. The theory successfully stresses that differences between countries can be a cause of trade. Consequently, the differences can also be the determinants of actual trade patterns. These conclusions do not depend on the real market structure relevant for any product. When countries differ in relative scarcity, competitiveness is determined *in the first place* by this difference. As a result countries specialise according to comparative cost differences. Any scale effects that follow from this specialisation are secondary factors that play a role in determining the final extent of competitive advantage. When differences between countries

are less obvious, however, we *do* need the more realistic assumption of imperfect competition to point to the intrinsic competitive advantages of specialisation as the reason why trade will occur between such countries anyway.

So, new trade theories are able to explain the occurence of trade in the absence of differences between countries. The second goal is to explain the observed patterns in trade between nations. As countries need not differ significantly in either the availability of production factors or technological capabilities, the determinants of the chosen specialisation pattern are not easily found. In the absence of underlying differences between the trading partners, the actual trade pattern is in principle unpredictable. **Trade patterns that are the consequence of deliberate specialisation to exploit economies of scale can be explained only by two factors: chance and history.** The influence of *history* is obvious when we look at the example of a monopolistically competitive market. The varieties of differentiated products that end up being produced in any country, are completely determined by their historical presence there.

When two countries exchange varieties of differentiated products against each other, they engage in *intra-industry trade*. Economies of scale can also lead to *inter-industry trade*, which means that countries exchange products of different industries against each other. This type of trade has usually been associated with comparative cost theory. Comparative advantage leads to price differences in any given industry between countries. Each country will export the products that are in relatively abundant supply against products of other industries that are relatively scarce. Thus, all trade will be inter-industry trade. Still, even when no underlying differences exist between countries, inter-industry trade can take place. Whenever a range of industries is subject to increasing returns to scale, integration of national markets will lead to a pattern of specialisation and trade within this set of industries. Just as in the case of a monopolistically competitive industry specialisation is driven by economies of scale. Countries will trade the products of their industries against products of other countries' industries, according to the pattern of specialisation.

Now the pattern of inter-industry specialisation remains unpredictable, however. How can we explain actual inter-industry specialisation and trade, with hindsight? Firstly we can consider the process of specialisation to be a stochastic process. A certain pattern of specialisation is realised*by accident*. Reference to the path of *history* is another option again. The fact that a certain industry arose in a particular country earliest can explain that the country specialisedin that industry. To investigate the impact of history more extensively we would have to take account of normative issues surrounding trade and international specialisation. As it had been said in the beginning of Section 1, the present chapter would only illustrate the positive aspects of trade theory.

If history can be constructed, industrial policy can be a crucial element in attracting a certain industry. To attain a specific industry instead of losing it to other competing countries, in turn, can have substantial welfare consequences.

Sub-Section 3.1.2   Applicability of trade theory to trade in services

The main body of trade theory does not explicitly pay attention to trade in services. When trade theories were tested empirically services were usually not taken into account on the premise that they were largely non tradeable. Furthermore the logic of trade theories does not limit their applicability to goods only (see for example McCulloch, 1988, Section 6.1.2 page 369). Sapir and Winter, in their recent survey of literature on service trade (1994), also conclude that, "under perfect competition, the theory of comparative advantage applies to international trade in services" as well as to trade in merchandise. In light of our discussion in chapter 1 we can repeat that services are different from goods in many interesting ways. However, this does not mean that we need another kind of *economics* to help us understand the consequences of a rising service economy. The same holds for trade in services. Although the concept of international transactions has been extended to account for the special nature of services, it turns out we do not need different theories for dealing with service trade.

Below I will try to illustrate how the characteristics of service trade can be accounted for within the conventional trade theories that we have seen before. The characteristics of trade depend on the nature of services. There are several channels through which the nature of services determines characteristics of service trade. The analysis that follows will illustrate the relevant links. Yet, the validity of traditional trade theories will prevail even after the special issues of service trade have been expounded.

An important characteristic of services that follows from their nature is the <u>simultaneity</u> of production and absorption (see chapter 1). The provider and consumer enter into a process of 'joint production' without which the service cannot exist. Also, since a service only exists during the moment of consumption, services cannot be stored and transported like goods. Often, therefore, a service transaction requires *physical proximity* between the supplier and his market[51]. Because of that, international transactions in services relatively frequently require market access through FDI (foreign direct investment). International competition in services depends significantly on permanent presence in local markets, as a substitute for commodity trade in services (see chapter 1). Also, the problem of simultaneity, or the interaction beween producer and consumer that is required, often makes long distance trade dependent on the feasibility of complementary movement of the service provider (either temporary or permanent). Therefore, relative to trade in goods, the trading costs to establish commodity trade in services are proportionally higher. Finally, since movement of production factors is frequently an essential part of service trade, the opportunity cost of factor trade relative to commodity trade have been argued to be lower for international service transactions than for merchandise transactions (e.g. Hindley and Smith, 1984; page 375).

In short, both factor trade and FDI are *close alternatives* for commodity trade, which is a relatively *expensive* mode of international supply of services. Do these qualifications of international transactions in services lead to difficulties in the validity of comparative cost

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[51] Unless, of course, telecommunication networks can serve as a perfect medium of simultaneity; more often the availability of telecommunication offers a partial solution for succesful interaction between producer and consumer. See note 53 for additional insights on the role of transaction services, such as telecommunication.

theory for analysing international competition in services? Not at all. Starting with the latter qualification, high trading costs slightly modify the analysis but only to the extent that it has to incorporate the fact that international integration is distorted by a trade-specific cost. High trading costs in services act similarly to transport costs in goods. The famous iceberg model introduced by Samuelson in 1954 (as noted in Sapir and Winter, 1994; page 285) clarified the impact of transport cost on comparative advantages in goods. The conclusion for comparative advantage in services is analogous to the iceberg variant of goods trade. Comparative advantage has to be relatively large for trade to arise. Yet, the 'high cost' characteristic of international trade in services does not oppose the general validity of comparative cost theory.

The observation that, for service sectors, factor trade and FDI are either close substitutes or complements[52] to each other and to direct service trade (= service commodity trade) comprises a specific feature of international service transactions. Still, comparative cost theory need not be disposed of. We only need to label it as a **theory of international transactions**, rather than narrowly confine the theory to international trade.

Differences in comparative cost can express themselves in various ways. Generally comparative advantage can lead to factor trade, commodity trade or FDI depending on both the source of comparative advantage and the relative cost of these various modes of international supply[53]. The relative cost of commodity trade is much higher for many services than for goods. Besides, commodity trade of services more frequently *requires* FDI and complementary factor trade. Therefore, the forces of comparative advantage will reveal themselves more diversely with respect to international competition in services. Again though, the validity of the theory of comparative advantage has not been compromised.

Another important characteristic of services is the <u>intangibility</u> of the final output. How does this affect the trade characteristics of services? International transactions in services have to deal with a relatively important *reputation* problem that characterises internationalisation in services even more than in goods sectors.

A service is a change in condition which strictly spoken only exists on the moment that production and absorption have finished. The actual product cannot exist without the immediate act of consumption which necessarily occurs if both production and absorption of the condition change have been concluded. Hence, a service cannot be observed directly, nor

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[52] Complementarity between factor trade and FDI arises, for example, when TNCs provide services through local affiliates which, however, frequently hire foreign personnel from the parent company to supply specialised factor services such as management (see Tang and Wood, 1999). Direct trade in services and FDI can complement each other when a TNC affiliate mediates specific services from its parent company to local customers (e.g. consultancy services provided by a team of specialists from the headquarters to the local customer, either by telecommunication channels or temporary movement of the team members, or both). Also see note 8.

[53] It is instructive to note the following: international competition in transaction services (like telecommunications and sales services) typically requires FDI to enter the local market. Participation in or access to communication networks is necessary to reach foreign consumers. For real competition on foreign markets, permanent presence is needed. This is even more so for sales services (retail, wholesale). Delivery of sales services requires physical proximity between provider and consumer. However, for sales services the possibilities of internet can break this need for physical requirement (think of Amazon.com). This shows clearly what we argued earlier: comparative advantage can lead to trade, FDI or a combination of both.

can it be stored in stock. A service can only be experienced as the end result of a process of joint production in which both the provider and the consumer (or his proprietary assets, which can also be the object of a service) play an essential role.

Sapir and Winter (1994, page 276) indicate that services are therefore more affected by problems of asymmetric information than goods (also remember Section 1.2). In contrast to many goods, services are characterisedby the absence of any possibility for quality assessment prior to consumption. Thus, services can hardly be 'search products': consumers cannot objectively compare alternative suppliers. Consumers at least need previous experience with the specific supplier. Even then, for practically all services it is relatively difficult to judge the actual quality objectively after consumption. All experience is subjective and the service cannot be examined any further, for its intangible existence has passed. As a result the market for many services is not transparent. At best, services are 'experience products' or otherwise they are 'credence products' of which the quality is never fully learned. In these situations of asymmetric information about product quality some suppliers will behave opportunistically. Problems of adverse selection and most notably moral hazard induces suppliers to develop a *reputation* of good quality. They commit themselves by undertaking client-specific asset investments to enter into tight, quasi-contractual relations with their customers and signal absence of opportunistic incentives. This is in line with our statements in Chapter 1 that service markets are contested on the basis of variety and flexibility. A high variety of output and more flexibility in customising products proved the ultimate competitive assets on services markets because of non-storability and joint-production (see Section 1.2). Client-specific investments are an important way to *signal superior quality* in services. How does this affect the trade characteristics of services?

As Sapir and Winter remark in their review (1994, page 277) signaling quality through reputation 'implies that service markets are often characterised by non-price competition'. Secondly, the investments that have to be done to build up reputation create an entry barrier that reduces 'actual or potential competition in services industries' (Sapir, Winter, page 277). Together with the allegedly high relative capital intensity of services production[54] which often implies relatively high fixed costs (on capital intensity, also see Sapir and Winter, 1994; page 283), the forementioned characteristics of services point to the strong relevance of imperfectly competitive market structures in services. Therefore we should rely not only on comparative cost theory but on *new trade theories as well* when we seek to incorporate the distinctive trade characteristics of services.

The importance of reputation makes that international competition in services is relatively costly (as did the constraints caused by simultaneity). Foreign markets can only be entered if a positive reputation can be transferred abroad, which requires costly investments. Sapir and

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[54] The reader may suspect inconsistency in my argument since I have purported earlier that services are labour intensive. In fact services are both capital intensive and labour intensive, as opposed to natural resource or intermediate use intensive (CPB, 1999; page 51). Services have been defined to include construction, but to exclude trade (which I call sales services, to prevent confusion with international trade as a concept) and transport, which are taken together into a separate sector. Note that this exhibits some similarity with our distinction of services into three categories in Chapter 1. The patterns shown by CPB (1999) arise from data calibrations for 1995.

Winter suggest that producer service firms often follow their multinational customers abroad as a relatively efficient way to preserve reputation. As soon as a reputation has been retained abroad however, the sunk cost nature of these investments can turn out positively as the entry of potential competitors can be battled effectively. Thus, according to Sapir and Winter, retainable reputation 'creates an incentive to sell in foreign markets in order to maximise the rent that can be gained' (1994, page 277). Again, FDI proves a worthy competitor to commodity trade as a means of internationalisation. On the other hand, FDI also forms an opening to complementary direct trade flows by enhancing local familiarity with and trust in the entrants brand name.

Summarising, because of intangibility international transactions in services are *relatively costly* and *frequently rely at least partly on permanent local presence* on the market. However, given the importance of *reputation*, achievement of a position on international markets can be highly profitable. Moreover, the *presence of scale economies* often enhances the lucrativity of exploiting a positive reputation internationally. Relatively high costs and interaction of trade and FDI do not interfere with the theory of comparative advantage, as we saw earlier. Also, the advantages of scale economies in case of imperfect competition and their relevance in explaining trade have not been negated. If transaction costs are sufficiently low, international integration equals effective international competition and all the usual mechanisms of competitive advantage will be fully operational.

After we have considered the effects of the nature of services on service trade characteristics, the standard trade theories of comparative advantage and imperfect competition still appear to be able to explain what drives service trade in a situation of international integration. The same factors that determine competitive advantage in goods production also underlie competitive advantage for services[55]. When exposed to international competition a firm's competitiveness is determined by its relative position in terms of technology and factor prices, the availability of scale advantages *and* the relative value of international transaction costs. The former indicate the location of competitive assets, the latter (transaction costs) determine the extent of international competition.

So, eventually we have got an answer to the first research question specified in the introduction (What are the determinants of competitive advantage in services?). The further progress of the analysis on patterns of trade requests that we turn our attention to the data. At first a separate section will introduce the measurement concepts I used to study specialisation patterns. The purpose of the analysis will be illustrated against the background of existing literature and with respect to the trade theories discussed in Section 1.

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[55] Sapir and Winter also analyse literature on whether complementary of service production to trade in goods (as is the case for the category of transaction services identified in Chapter 1; think, for example, of international transport services) interferes with the independent operation of comparative advantage in services. Despite the dependence of production of these services on trade in goods, it turns out that the provision of these services will be allocated according to comparative advantage in a situation of perfect competition. This is in line with intuition: the lowest cost suppliers survive on the market.

Section 3. 2 *On the indicators of specialisation patterns*

Introduction

Although the issue of service trade has raised interest amongst trade theorists since the early 1980s, literature on trade in services has remained peripheral and mostly theoretical, focusing on normative issues of trade liberalisation. The empirical literature on trade patterns usually regards services as non-tradeable (McCulloch, 1988: page 369). When deliberate attention is paid to patterns of internationalisation in services, the focus is either restricted to answering general questions (i.e. trade in services as a whole) or very specific sectoral or bilateral questions[56]. Sectoral and country specific studies have been done in some detail. The 'big picture' remains to be constructed yet. The unreliability of balance of payments statistics on services and the disregard of services (both because of the difficulties to register intangible service transactions and the implicit opinion that services are non-tradeable) in other international data systems on international trade, such as the SITC, explain the arrearage in empirical literature on service trade. Most importantly, empirical research into the determinants of trade and specialisation patterns of services is lacking.

The recent efforts that have led to an improved balance of payments classification of service trade have got attention in chapters 1 and 2. The purpose of this chapter is to provide a starting point for empirical research on explaining actual trade patterns in services on the basis of the more extensive and consistent set of internationally comparable statistics that have recently been introduced and updated. To that end, the analysis tries to identify the patterns of inter- and intra-industry trade in services. This section will introduce the measurement concepts that are needed to assess trade patterns. In particular, we apply indices of export specialisation to account for inter-industry trade in services and a Grubel-Lloyd index of trade composition to represent the importance of intra-industry service trade.

Sub-Section 3.2.1   Measuring inter-industry export specialisation

Trade economists have produced a wide spectrum of methods to detect specialisation patterns, in order to test trade theories or assess the consequences of trade liberalisation. I will use simple, standard varieties of the indices that follow from these methods. Though each of them has weak points, their interpretation is straightforward and suits our purposes.

Within the data that we use for research the first and most relevant form of trade patterns entails inter-industry trade: export of certain service products in exchange for importing other products. A country can specialise in certain sectors because of both comparative advantage and scale economies. The index that we use to identify *pure* relative export specialisation has often been associated with the trade economist Bela Balassa (e.g. Balassa, 1989[57]). Usually

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[56] A good example of thorough research that focuses on general questions of service trade as well as service trade data and that bears resemblance in some of its purposes to the analysis in this chapter, is Hoekman and Stern (1991). A paper by Sapir and Lutz (1981) is mentioned by Sapir and Winter (1994) as an example of more specific sectoral research on comparative advantage in service trade.

[57] The classic reference often cited is: Balassa (1965) "Trade Liberalisation and 'Revealed' Comparative Advantage"; The Manchester School of Economic and Social Studies, Vol. 33 pp. 99-124.

the Balassa index of export specialisation is known as the 'index of revealed comparative advantage'. From now on the indicator will be referred to as 'index of relative (export) specialisation'. The conventional terminology of 'revealed comparative advantage' explicitly suggests that all specialisation occurs because of comparative advantage, which is incorrect. Specialisation can also reflect scale economies as we argued earlier. Moreover, trade barriers and other distortions (e.g. in factor markets) in the economy affect actual specialisation and trade patterns too. Below I present two related formulas for the sectoral index of pure relative specialisation, R, that measures the extent to which a country j specialises in the export of a sector i as compared to the average of all included countries.

$$R_{ij}^t = \left(\frac{E_{ij}^t / E_j^t}{E_{iw}^t / E_w^t} \right) * 100\% \qquad \text{formula 3.1}$$

with:

R_{ij} = index of relative specialisation for country j in sector i
E_{ij} = nominal export of country j in sector i
E_j = total nominal exports of country j
E_{iw} = aggregated nominal exports within the population of countries, 'w' in sector i
E_w = total nominal exports within the population of countries, 'w'
t = indicator of the relevant time period over which exports have been assembled
w = population of countries including country j

The index consists of the ratio between the share of sector i in the total export of a specified country and the share of that sector in the total export of a sample of countries including the pre-specified country. The outcome can be interpreted easily. The index value can vary between 0% and an infinitely large percentage and can never be negative. Values that exceed 100% for a sector indicate that the country in question is *relatively* specialisedin that sector within export production. When the sectoral specialisation index has a value below 100% the country is said to be relatively unspecialisedin that sector in terms of export production. Finally, an index value of 100% indicates relative non-specialisation in a sector.

A simple arithmetic re-formulation of the index of relative specialisation provides options for interesting new interpretations. After rewriting,it becomes clear that relative specialisation in a sector depends on the relative *market* share (as distinguished from export share) of any country in the aggregated exports of that sector, as compared with its share in total exports of the population of countries.

$$R_{ij}^t = \left(\frac{E_{ij}^t / E_{iw}^t}{E_j^t / E_w^t} \right) * 100\% \qquad \text{formula 3.2}$$

The advantage of rewriting the index like this is the possibility to separate-out the market

shares[58] of individual countries in sectoral and total exports. Particularly when we focus on developments over time for specific countries, as we will do in Sections 4 and 5, market shares give extra information on export performance that is essential in the assessment of specialisation patterns.

The index of relative specialisation (R) is useful for the assessment of pure relative inter-industry export specialisation between countries. Although we will not take notice of the myriad of adaptations suggested to account for the many theoretical imperfections of applying the index (see for example Vollrath, 1991), one characteristic of the index is useful for our analysis. The value of R_{ij} is not symmetric around its (weighted) average of 100. The spread of relative unspecialisation is between 0 and 100% whereas the variation of relative specialisation is between 100% and (in principle) an infinitely large percentage! This asymmetry is caused by the fact that the index focuses on *pure* relative specialisation. Being a ratio of export shares, the index intrinsically has no upper limit (see Hoen, 1999; page 192). This may implicitly bias the interpretation and comparison of results between countries, if the reader doesn't scrupulously take notice of this. A solution for the danger of misinterpretation is to base the index of inter-industry export specialisation on the difference in export share between a specific country and the sample average. This choice follows Alex Hoen (1999, Chapter 6) and Paul Krugman (1991, page 76)[59].

$$S_{ij}^t = \left(\frac{E_{ij}^t}{E_j^t} - \frac{E_{iw}^t}{E_w^t} \right) * 100\% \qquad\qquad \textit{formula 3.3}$$

with:

S_{ij}^t = index of absolute-relative specialisation for country j in sector i

The indicator S_{ij} allows us to assess sectoral relative export specialisation, but is an absolute rather than relative magnitude. In other words, it is about differences (in export shares) instead of ratios or quotients (of export shares). The unit of measurement relevant for this index is 'percentage points' rather than 'percentages'. This implies that interpreting the results requires a different explicit terminology. When one considers pure relative specialisation the interpretation of results leads to statements such as "Greece has a two times higher export share of services than average in 1996". A reader which observes the outcomes in terms of absolute-relative specialisation might conclude: "In 1997 exports of services as a share of total exports exceeded the sample average by 42 %-points in Greece." The

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[58] The idea was conferred to me by Van Schaik, who introduces the deduction of - and rewriting in terms of market shares in "Decompositie van de Balassa index met empirische toepassingen" (Van Schaik, 2001; in Dutch).
[59] In fact the index used by Krugman stresses a more aggregated application, combining several branches of economic activity to compute overall specialisation within this set of related industries (in his case: manufacturing). Hoen also applies an aggregated version to indicate the extent of inter-industry export specialisation of a country as a whole, instead of a sector. Using indices based on export share *differences* (instead of *ratios*) has advantages for measuring country-level specialisation too.

percentage-point difference can lie between (approximately) –100 and +100. This ensures a symmetric, closed interval around the weighted average in which the index value must materialise. For a country that is relatively specialised in a sector, the index will assume a positive value, between 0 and 100 %-points. When a country outsources production to other countries, a negative value will ensue. Contrary to pure relative specialisation, absolute-relative specialisation is a symmetric variable. A specific number of percentage points below 0 indicates an equivalent extent of relative unspecialisation as the relative specialisation associated with a similar deviation above 0 percentage points. The interpretation bias of pure relative specialisation has been solved accordingly.

Although the label 'absolute-relative specialisation' communicates the fact that the index S_{ij} is an absolute rather than relative measure of relative specialisation, the notion of absoluteness has got a more extensive coverage. The indicator gives a mixed impression of both relative *and* absolute export specialisation. Notice that the difference between a country's export share of a certain sector and the average share of that sector in exports depends both on the relative size of the respective shares (as measured by pure relative specialisation, R_{ij}) and the absolute size of the export shares. The latter is determined by the absolute specialisation of countries in a sector within export production. Thus, absolute-relative specialisation tells both whether a country is relatively specialised in a sector and what size a sector occupies in export production.

A comparison of the three methods we introduced to measure relative export specialisation illustrates that all methods have their advantages as well as disadvantages. Moreover, their use is complementary. Formula 3.1 describes a method that is easy to apply for the measurement of pure relative specialisation. The relative specialisation index is defined here as the ratio of export shares, which is the conventional approach applied in the literature on 'revealed' comparative advantage[60]. Amongst the advantages is the comparative ease of applying this formulation. Numerator and denominator refer to a specific country or a group of countries respectively. Moreover, this formulation exhibits synergy with the calculation of the index of absolute-relative specialisation: both are based on export shares. The reformulation of formula 3.2 is more laborious in its calculation and does not have the spill-over to absolute-relative specialisation. However, the interpretation in terms of market shares has the advantage that developments in relative specialisation can be set against the overall development of export performance of a country.

Both indices of pure relative specialisation suffer from the same disadvantage. The extent of specialisation is measured by the quotient of export or market shares. As we already noticed, such a quotient does not have an upper limit. The index of absolute-relative specialisation given in formula 3.3 does not suffer from this problem. Relative specialisation is assessed on the basis of absolute differences in export shares[61]. The major advantage is the

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[60] Though the second approach, based on market shares, was applied early on by Balassa (see Vollrath, 1991; page 268).

[61] I have to be careful to prevent confusion here. 'Absolute difference' does not refer to absolute value terms (i.e. positively defined difference). It is a pleonastic emphasis of the absolute rather than relative nature of differences.

symmetry in the index that facilitates interpretation. Secondly the index also gives information on the size of a sector in exports, which we called 'absolute specialisation'. However, we must be honest enough to point out a disadvantage too. The outcome of absolute-relative specialisation reflects both absolute and relative specialisation, but it is impossible to separate both factors. The interpretation of absolute-relative specialisation depends on additional information of pure relative specialisation or pure absolute specialisation. Briefly said, the indicator cannot be interpreted unambiguously when 'standing alone', in contrast to the other indices of relative export specialisation.

Sub-Section 3.2.2   *Measuring intra-industry export specialisation*

Analysis of trade patterns also includes determination of the importance of intra-industry trade (i.e. trade of products against other products from the same sector: trade in varieties). To find out just how much of trade reflects intra-industry flows, imports are just as important as exports. Up to now we concentrated exclusively on exports in determining relative specialisation between sectors. Specialisation can also occur *within* a sector. This type of specialisation in varieties reflects the benefits of intra-industry trade under conditions of scale economies and of 'love for variety' in both consumer and investment demand. The trade literature has suggested several concepts to measure intra trade. A well-known method to capture the idea of intra- vs. inter-industry trade is to analyse the composition of trade. This idea can be related (again) to Balassa, amongst others. Today most analyses of trade composition use some form of the Grubel-Lloyd index of trade composition. This index, in its most familiar form, calculates the share of trade in a sector that represents intra-industry trade. Below I present the sectoral index of trade composition that we will use in Section 3.8 for the analysis of OECD data (also see Hoen, 1999; page 177).

$$TC_{ij}^t = 1 - \left(\frac{\left| E_{ij} - M_{ij} \right|}{E_{ij} + M_{ij}} \right)$$ *formula 3.4*

with:

TC_{ij} = index of trade composition for country j in sector i
E_i = nominal export of country j in sector i
M_i = nominal import of country j in sector i
$|E_{ij}-M_{ij}|$ = absolute value of export-import difference of country j in sector i
t = indicator of the relevant time period over which trade has been assembled

The index can take values between 0 and 1. A value of zero implies that either export or import in the sector is absent. Hence, the country is engaged in pure inter-industry trade with its trading partners in this sector. On the other hand, an outcome of one means that export and import cancel each other out in sector i. In return for its export the country imports an equal value of similar products. Consequently, all trade has an intra-industry nature; the country

does not specialise in or outsource production of sector i[62] (in fact, intra-industry trade means outsourcing some varieties and specialising in others).

Trade patterns always reflect some form of specialisation. Before we discuss the empirical results with respect to actual trade patterns, additional reflection on the meaning and measurement of specialisation *in general* is appropriate.

Section 3.3   On the concept of specialisation

The intuitive meaning of specialisation is clear. A person, firm or country specialises in a particular activity when an increasing emphasis is put on that activity. Specialisation in trade implies that a country devotes a relatively large share of its resources to export production of specific products. Thus far the analysis implicitly applied this intuitive notion of export specialisation. Although the concept is intrinsically relative, I have introduced the distinction between absolute and relative specialisation for analytical purposes (also see Chapter 2).

Remember that absolute export specialisation expresses the position of a sector in export production, as compared to other sectors on a comparable level of aggregation *for a specified country*. Relative specialisation compares the export position of a sector in a country with the average export position in *all* (other) *countries* under consideration[63]. However you choose to label the different kinds of export specialisation, both types consist of a comparison against some benchmark, hence both are relative concepts.

So far everything seems straightforward once you have persistently thought about the ideas. But how should exports be calculated and compared to serve our purpose of finding the extent of export specialisation, as given by the indices above? Usually when economists think about production structure and trade they classify these subjects as part of the real economy. Hence, the argument will focus on real growth and productivity. However, the subject of inquiry that we need to explore has only got an indirect relation with real quantities such as productivity. Paradoxically the question of export specialisation has to be answered by looking at the input side, rather than the output side of production. Export specialisation depends on the relative allocation of resources to export production of a certain product. Of course productivity plays a role when comparing different countries, but in order to be consistent the calculations should be based on nominal exports. Alternatively we can illustrate this by assuming that, for some reason, we choose real exports as unit of measurement for export shares. Would an index based on exports in constant prices consistently represent developments in sectoral export specialisation? Note that relative developments in real exports can be separated in relative productivity changes and changes in specialisation (i.e. relative shifts in production factors allocated to export production between sectors).

For the assessment of developments in trade patterns both productivity and specialisation matter. In Chapter 2, real export growth was considered separately to get an impression of the

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[62] Later on we will see that this relation between specialisation, inter-industry trade and intra-industry trade requires additional attention.

[63] Note that the index of absolute-relative specialisation is a synthesis of both types of export specialisation, as observed earlier. We use the index primarily for assessment of relative export specialisation.

dynamics in service trade. Yet, the most comprehensive view of trade patterns focuses on export specialisation, rather than real exports. Specialisation allows a comparison of all sectors within the export structure *on equal terms*. As is obvious from the previous paragraph, export shares based on real exports would be distorted whenever relative productivity changes between sectors and between countries are not negligibly small. In reality the differences in productivity growth across sectors can be substantial. In particular, data suggest that many service sectors are relatively stagnant in productivity, at least in the long run. If we used shares in real exports to account for export specialisation, the picture would not accurately depict the allocation of production factors within export production, and therefore specialisation. The patterns over time would fail to include the changes in relative prices that follow from unbalanced productivity growth. Consequently real exports fail to acknowledge the actual *resource value* of export production, which in theory is the sole criterion for comparing export shares between sectors and between countries[64]. From here, it logically follows that export specialisation should reflect patterns of sector shares in nominal exports.

The choice for nominal exports is convenient for another reason too. To calculate real trade we need data on sectoral price indices (see Appendix 2.2). The availability of price data is limited to a number of OECD countries, for a limited time period. Nominal trade data are available for more countries over a longer time-span, which in itself is reason enough to use them.

The choice of nominal data is theoretically sound, but is in practice not always first-best. In the long run, if prices are not distorted by government intervention, perfectly competitive markets will ensure that nominal exports correctly indicate the minimal attainable resource costs of a product. However, in the short run and particularly under conditions of imperfect competition, price differences that reflect international inter-sectoral differences in competitiveness may distort the picture of actual relative resource costs and specialisation. In his chapter on specialisation patterns in the European Community (Hoen, 1999; chapter 6), Hoen analyses trade patterns on the basis of real trade entries in a system of input-output tables. The motivation for his choice of real rather than nominal values reflects his concerns about, for example, the influence of government regulation on price-cost margins. Another potential distortion is high variability in nominal exchange rates and domestic inflation. Suppose nominal exchange rates fluctuate without underlying real or nominal causes. In the short run following a change in exchange rates, export demand and supply will not react accordingly (the so called J-curve effect). Consequently, the domestic price level will not react to accomodate the disequilibrium in real exchange rates. Hence, nominal unit values do not reflect the resource cost of production. This effect has been known to last over a time-lag

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[64] A statement regarding inter-country comparisons is admittedly not that straightforward. As noted in the main text, productivity matters when comparing different countries. Even so in the determination of the resource value of production. Because of international competition in product markets and competitive pressure in national factor markets, production factors earn proportionately lower factor rewards (real wages and sometimes even profits) if their productivity is lower. Consequently, the actual resource value (current cost of production in a specific currency) of producing a homogeneous product tends to be equal across countries in a given industry, if export specialisation does not lead to complete production specialisation. Within a singular country each homogeneous unit of a production factor is valued and rewarded uniformly, regardless of the type of industry in which it has been occupied.

of several months to several years! With market conditions of imperfect competition and price setting that occur in many service sectors, the J-curve effects may be quite prominent in service trade. Even over time disequilibrated prices will not automatically progress towards an equilibrium, because each firm faces a firm-specific demand curve; prices do not follow from the 'invisible hand' but rather from the visible hand of each individual supplier. In these circumstances, adjustment is costly, depends on the expected actions of other competitors and at least takes time. Also, we noted in Chapter 1 that competition in services is heavily shaped by information characteristics and the need and profitability of building reputation. Hence, the process of competition will not focus on price competition in the first place (see Sapir and Winter, 1994; page 277), thus further loosening the ties between prices and resource costs.

Still, despite the valid reasons to advocate using real trade, we will rely on nominal trade. Firstly, we will make best use of the available data in this way. Secondly, the choice of real trade data would depend on roughly approximated price indices, dictating the choice for a base year to fix prices. Moreover, what determines the accurateness of the relation between prices and resource costs in the base year and, more importantly, the correctness of patterns over time as representation of changes in resource allocation? The effect of exchange rate fluctuations is only ruled out if data are first converted to base year prices in national currency and then converted to the benchmark currency (US dollar) using the base year exchange rate. But, how accurate was the real exchange rate in the base year and is it wise to neglect all changes in exchange rates that do not reflect inflation divergence? I think that the practical problems surrounding the use of real trade data are at least as important as the problems that occur with nominal trade. All in all the theoretical basis for choosing nominal trade is more firm. For practical matters, real export figures would at least cause distortions in our index of absolute-relative export specialisation, which is most dependent on the realisation of export shares for an accurate representation of absolute and relative specialisation patterns in resource use for exports.

We have seen and discussed all the indicators that are needed to analyse trade patterns in services. The Sections 3.3 up to and including 3.7 contain the empirical analysis.

Section 3.4   Specialisation patterns in services over time

The next 5 sections present the results of calculating specialisation and trade indices for several sub-samples of countries. In Sections 3.4 to 3.7 the analysis will concentrate on balance of payments data from the World Bank. Each sample has been constructed to provide a maximum coverage of countries over as long a period of time as possible, under the constraint of internal consistency in the method of calculation (see Appendix A). The sub-samples have been constructed for the purpose of performing consistent calculations for specific target data (here 'data' stands for chosen years).

Section 3.4 gives an overview of relative specialisation patterns within sub-sample 1. The results are presented in sector-specific graphs. Each graph gives an impression of the developments in relative export specialisation (R_{ij}) in the sector under consideration. Included in the figures are the countries that show relatively high or relatively low export specialisation

in a particular target year. When the countries appear in any segment within the charts, they do so according to the order listed in the legend that has been added to each separate graph. However for a given year (ie. each separate segment in a graph) only the three countries ranked highest and the three that came out lowest in terms of export specialisation have been charted (see figures 3.4.1 and 3.4.2).

The focus in this section is on the development of relative specialisation patterns over time. Sub-sample 1 allows consistent calculations for a set of 27 countries for the target data 1979, 1984, 1991 and 1996.

As we argued in Chapter 1, tradeability and internationalisation of services have risen over time because of falling trading costs and rising demand. Both communication- and data transmission costs and transport costs have fallen dramatically (see Chapter 1, Section 1.3; Sapir, Winter, 1994; Krugman, 1999). Moreover, the share of services has risen in intermediate as well as final demand (see Chapter 1, Section 1.2; Francois and Reinert, 1995; Stibora and De Vaal, 1995). The process of internationalisation has been supported by our conclusions concerning openness in services and fast growth in service trade in Chapter 2. Given these developments, theories of international transactions suggest that increased internationalisation has consequences for specialisation patterns in services. Therefore, this section and the sections to come try to answer the second research question specified in the introduction to this chapter:

"Do the data show evidence of relative specialisation patterns in services between countries?"

Section 3.4 pays specific attention to the related question: *"How have such patterns evolved over time?"*. On the following pages, figures 3.4.1 and 3.4.2 present the sector-specific graphs for the four sectors of the WDI classification and service trade as a whole.

As we can see, the group of countries that is most specialised in service exports remains quite stable over the period between 1979 and 1996. On most of the target data, Greece is followed by Austria and Spain respectively, as most specialised country for services as a whole, with values over or around 150%. Only in 1979 Spain and Austria switch places. Countries that typically specialise in goods as opposed to services, within sub-sample 1, are for example Brazil, Malaysia, Korea and Japan. Their relative specialisation in services swings near 50%. Note that we can confirm the conjecture made in Section 2.5 that Japan, Brazil and Korea seemed to be relatively unspecialised in services based on their export and import patterns.

Figure 3.4.1 Top-three and bottom-three ranked countries (1979, 1984, 1991, 1996)

Relative export specialization: Services
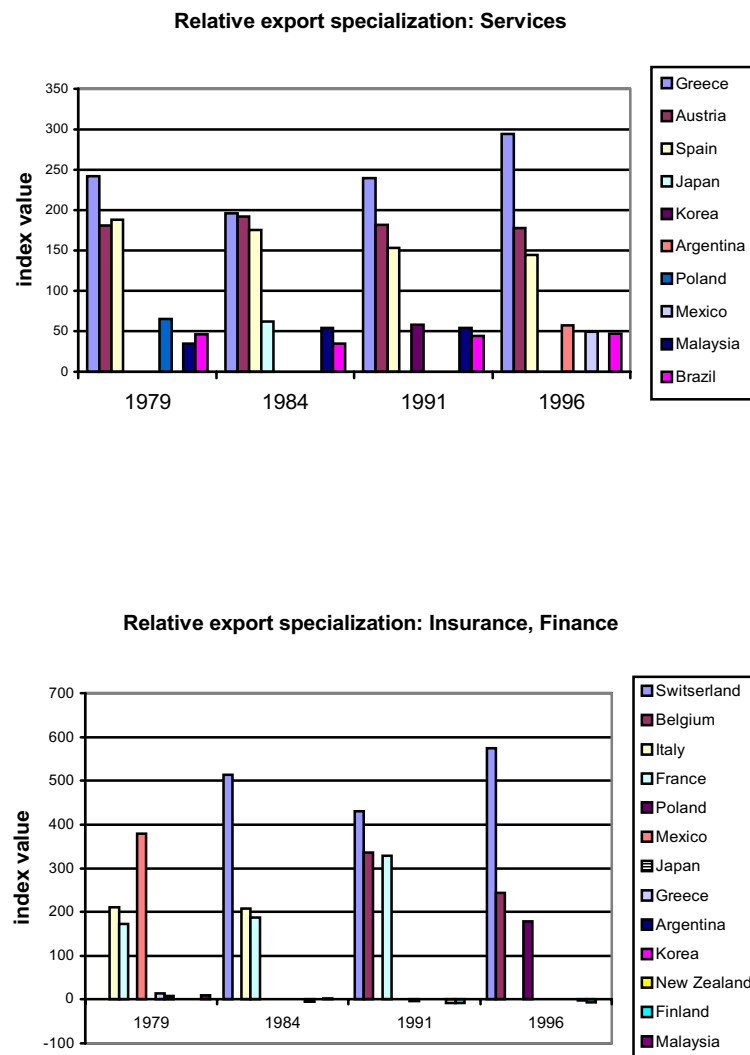

Relative export specialization: Insurance, Finance

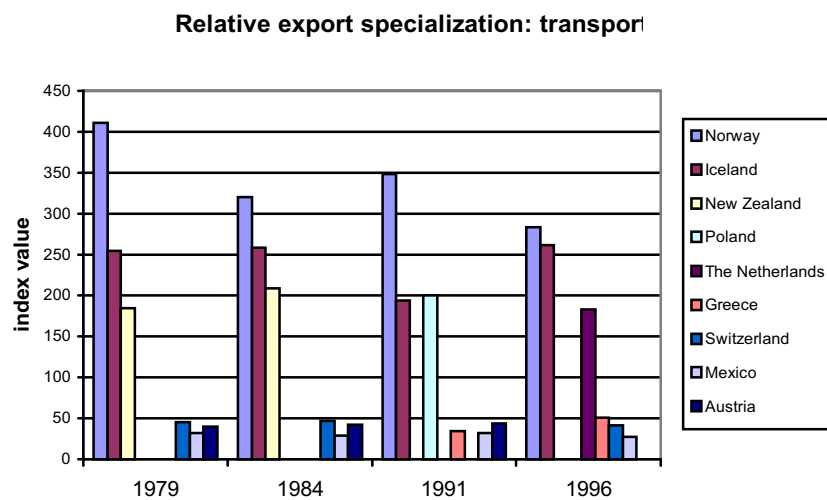*Figure 3.4.2 Top-three and bottom-three ranked countries (1979, 1984, 1991, 1996)*

Relative export specialization: transport

Relative export specialization: travel

Relative export specialization: other services
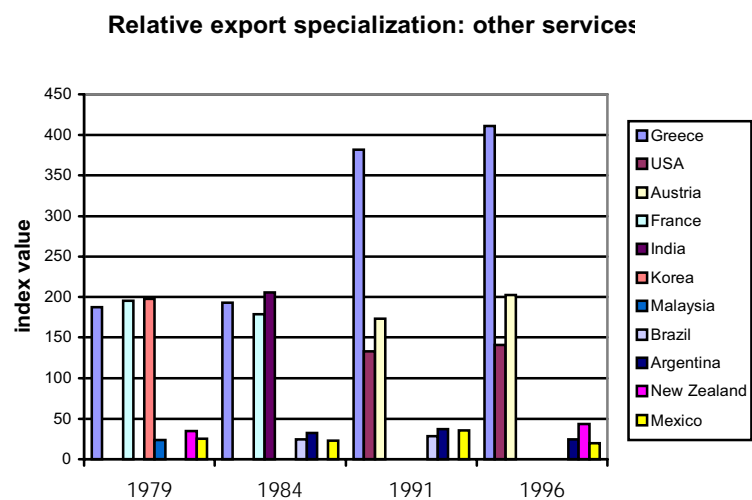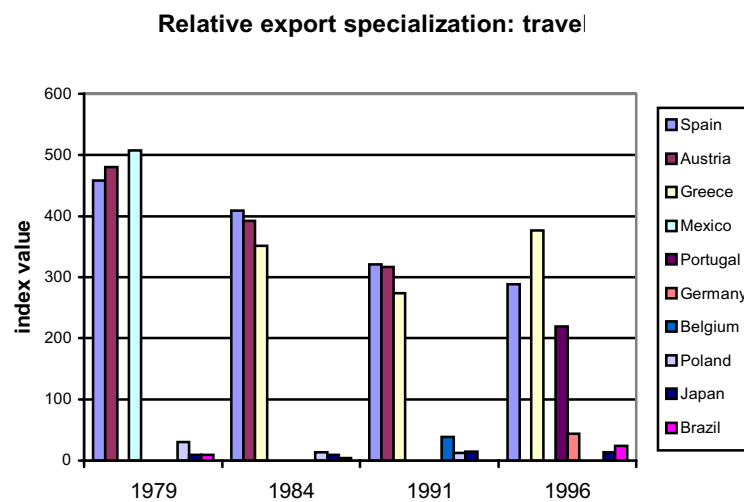
It is striking that the spread of both service-specialised and service-unspecialised countries ranges from the most developed to the least developed countries. Previous research often claimed that many services are either capital (transport) or skill (business services) intensive activities (see Sapir and Winter, 1994, on this) and that such would point to highly developed countries as leaders in service exports. Moreover, from the well known stylised facts of development patterns, we know that their production and employment shares of services are higher than for less developed countries. Thus, the export structure of developed countries should logically reflect this pattern. This picture is not confirmed on first view of our results, since Japan as well as Germany for example are amongst the lower end of the 'specialisation spectrum'. Moreover, some of the countries at the upper end are generally known as relatively less developed within the European Union (in particular, Greece and Spain). Before we can draw definite conclusions we have to look at the sectoral disaggregation of the general service pattern. The Economist (2000) as well as Hoekman (1995) have pointed to the fact that many services in tourist as well as business activities are unskilled labour intensive (in the latter category, think of data entry services for airlines, for example). The ultimate question then becomes which sectors support relatively high service exports in a particular country.

For reasons that will become clear in a while I suggest to skip the sector 'Insurance, Finance' for now.

Transport Services

The first sector that is present in figure 3.4.2 is transport services then. The most relevant fact in relation to the question posed above, is that both Greece and Austria have not specialised in transport services, frequently appearing in the 'bottom three' at a level of relative specialisation of no more than 50% of the average[65]. Other countries that occupy the 'unspecialised zone' in sub-sample 1 are, amongst others, Switzerland and Mexico. At the other extreme, we find countries such as Poland, The Netherlands, Iceland, New Zealand and Norway. Their relative specialisation often lies between 170% up to over 400%. The sectoral pattern remains quite static over the 1980s. Between 1984 and 1996 some changes take place, however. Other countries penetrate the extremes of the distribution and the spread in index values seems to decline a bit within the group of specialised countries. This could point to a few developments. As is well known, transport has always been much more tradeable than many other services (e.g. Chapter 2). However, that does not preclude further potential for falling transaction costs. Actually, the production costs of transportation services are often labelled transaction costs (or trading costs) from the point of view of international trade in goods. Earlier in the present chapter we already referred to such an approach when the

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[65] When comparing data on exports of transport services from OECD and WB sources I found a disturbing incompatibility for Greece. While the WB data that underlie the graphs in this section point to very low relative specialisation in transport, OECD data give an opposite result. The nominal value of transportation exports is ten times as high in OECD data compared to WB data (3 billion US$ against 380 million US$ in 1996). The difference in total exports between both sources is entirely due to the divergence in reported transport services. I cannot judge which source is correct. Since OECD data on Greece cannot be used for the calculation of relative specialisation anyway because some OECD/Eurostat divisions have not been reported, I have chosen to include Greece in the calculations based on (completely available) WB data, while taking notice of the ambiguity in some of the data.

'iceberg model' of Samuelson was quoted (see sub-section 3.1.2). Over the past decades falling transport costs have been declared a major factor in the process of globalisation. The fall of those costs increased international tradeability of *both* goods, because of lower trading costs, *and* transport services themselves, as they have become cheaper to produce and provide *internationally*.

What does this have to do with the apparent changes in specialisation patterns in international transport over the past 15 years or so? Note that the steady top three of specialisation in the late seventies and early eighties are countries that can only be reached by sea or air. Even Norway has limited and certainly inefficient access over land. In order to drive international trade, these countries had to depend historically on maritime activity, later supplemented by air transport. No wonder that they developed a relatively strong position in international transport services, if only to transport their exported goods abroad. Since the market structure in international transport services is characterised by oligopolistic competition (Sapir and Winter, 1994) these countries may have expanded their market position in this sector, based on historical experience. The recent changes in this static pattern suggest that falling transport costs and globalisation have opened up the market for other players. This pulls down the extreme degree of specialisation of the historical top three, since the average export share grows closer. However, the fact that 'new' top specialisers, such as The Netherlands, have always had a firm position in the upper end of specialisation, indicates that competition remains mitigated by oligopolistic conditions.

Travel Services

From transport services let us now move on to travel services, presented in figure 3.4.2. The Mediterranean countries emerge as most specialised in travel, complemented by Austria, an occasional entry of Mexico notwithstanding. Highly unspecialised countries are Japan, Brazil and Poland early on in the sample period which are 'challenged' by Belgium and Germany later on. Over time the spread in relative travel specialisation tends to decline. Again, like in transport activities, the extremes in specialisation are now contested between more countries. Just as I proposed in Section 2.5 on the growth of travel as a share of service trade, rising incomes and falling transportation cost may account for the diversification in travel destinations.

For Greece, Spain and Austria, travel services explain a large part of the high overall specialisation in services trade. Tourism appears not that important in countries like Germany and Belgium. Nonetheless, the tourism industry is very prominent in our daily perception. In developed countries that do not have exceptional natural endowments other sectors are simply relatively more important in export production. Many developing countries are heavily dependent on tourist inflows, because of natural or even exotic beauty of their country-sides and lack of export performance in other sectors. Noteworthy in this respect is a country like Poland. Since the dismantling of the Iron Curtain, Poland moved from least specialisedin travel to relatively specialised, with an index value of 130% in 1996. This has to do both with the opening of Eastern Europe to the West and the collapse of the economic structure in most 'transition economies'. Tourism was one of the few activities that the formerly communist

countries could easily master in the international marketplace.

Other Services

The most interesting sector, which is subject to internationalisation and increased tradeability, is the division 'Other Services'. Transport services and travel, which we discussed above, are distinct from the category of information-intensive producer services that is getting more and more important in production and employment. These services contain, alongside others, consultancy, engineering, computer and information services and other business services. In terms of internationalisation, they benefit from the technological advances in transaction services (i.e. telecommunication services, transport services) and the rising demand for production complementary co-ordination services. Business services personify the dynamic emergence of *complex technology* (see Chapter 1 on this).

From figure 3.4.2 we can see that early in our sample period two developing countries turned out to be most specialised in Other Services. In 1979 South Korea was on top of the list, 5 years later India had taken over. France and Greece could also be identified as highly specialised. The most interesting development over time is the sharp rise in index value for Greece. Whereas the other relatively specialised countries seem to consolidate within the margin between 100% and 200% of average export shares, Greece truly differentiates from the rest. Both South Korea and India evolve from relatively specialised to relatively unspecialised. Especially for Korea, the fall is remarkable. Except for 1979 the index value ranges between 45 to 75%. Perhaps inconsistencies in the composition of division 'Other Services' as compared to the international standards are partly responsible for this erratic pattern. Since the beginning of the nineties Austria and the USA emerge as highly specialised in Other Services. Their position seems to strengthen over time. Amongst the lowest ranks of relative specialisation we can find countries such as Malaysia, Brazil, Mexico and Argentina, that are relatively unspecialised in services in general.

Insurance, Finance

Finally we turn back to the results for the division 'Insurance, Finance', given in figure 3.4.1. It is apparent that the graph is difficult to read, especially for the unspecialised countries. Therefore we will start with a complete specification of the results. In 1979 Mexico was most specialised in this sector, followed by Italy and France. At the other end of the spectrum we find Greece, Malaysia and Argentina. In 1984 the picture yields Switzerland, Italy and France on the one hand and Finland, Malaysia and Korea on the other. For 1991 we get Switzerland, Belgium and France against Japan, New Zealand and Finland. At last, 1996 results in Switzerland, Belgium and Poland as the top three while Malaysia, New Zealand and Finland close the ranks. Again the division between the roles of developed and developing countries is not as clear cut as we would expect from the theoretical hypothesis of high capital and skill intensity. However, the countries in sub-sample 1 that seem to be most persistently specialised in finance and insurance over time are industrialised countries, specifically Switzerland, France and Belgium. Both Japan and South Korea suffered from an economic and financial crisis in, or shortly before, the year that they reached their lowest rank in the

specialisation hierarchy. For example, Korea ranked fourth in specialisation in 1979. Five years later Korea had fallen back to the lower region of export shares. Restructuring of asset and liability positions of banks to lower the risk exposure and improve solvability is common practice in times of economic and/or financial crisis. Since international transactions in financial services contain the additional risk of exchange rate exposure, Korean and Japanese banks may have decided to slow down the rate of lending and other financial services to foreign parties. Also, foreign inflow of venture- and investment capital slows down during economic crises, which causes less foreign demand for intermediation services at local financial institutions. All these factors can potentially contribute to explain the downward outshooters for Korea and Japan.

We did not postpone treatment of division 'Insurance, Finance' for no reason. In the previous chapter we already encountered difficulties with the data on finance and insurance. Similar problems occur when those data are being applied to measure relative specialisation. The methodology used to price transactions of insurance services can explain the theoretically impossible negative values for specialisation that become obvious when looking at the graph in figure 3.4.1. International insurance transactions are difficult to register individually on the balance of payments. Statistical offices often estimate service charges by subtracting total claims from total premiums. Over large numbers of transactions the method works well; in fact, this practice is the competitive edge of insurance companies that enables them to pool and diversify risks and take them away from risk averse consumers. However, for a relatively small number of transactions, such as international trade in insurance still is, and in particular for relatively unspecialised countries the method of estimation can very well result in negative export entries. The recent classification efforts have emphasised the importance of registering gross flows in financial services. In practice, payments traffic has always been settled on a net basis. This is common practice between banks in both national and international settlement systems. Though a rational and efficient institution for its own purposes, the practice of net settlement leads to difficulties for statistical offices that want to record gross transactions in financial services instead of a collection of net exports. Although the extent of gross reported data has improved, net reporting and subsequent estimation problems have caused a downward bias in export and import figures. As a result of such data imperfections, the sector displays an erratic and variable pattern in relative specialisation. The spread in relative specialisation is extremely high. Some countries are as much as five times as specialised in insurance and finance exports as the average, other countries do not exhibit more than 10% of the average relative importance of this major division in exports.

In principle, the volatility of finance and insurance affects the pattern of relative specialisation in other sectors as well. Particularly important for our research purpose of assessing trade and specialisation in services is the impact on the pattern of specialisation in services as a whole. Does the volatility in finance and insurance distort the pattern of specialisation in services? Because the share of finance and insurance in service trade is quite small (see Section 2.5) the effect of distorted data and variable patterns on the stability of service specialisation patterns is minimal. We can determine the effect explicitly using a decomposition of the index of relative specialisation for services. From formula 3.2 we find

that:

$$R_{TS\,j} = \frac{E_{TS\,j}/E_{TS\,W}}{E_j/E_W} = \sum_i \left(E_{i\,W}/E_{TS\,W}\right) * \frac{E_{i\,j}/E_{i\,W}}{E_j/E_W}$$ *formula 3.5*

with:

$R_{TS\,j}$	= index of relative specialisation for country j in total service export
$E_{TS\,j}$	= total service export of country j
$E_{TS\,W}$	= total service export of the entire sample of countries, W
E_j	= total export of country j
E_W	= total export of the sample of countries
$E_{i\,j}$	= export of country j in service sector i
$E_{i\,W}$	= export of sample W in service sector i

In words, formula 3.5 tells that the degree of relative specialisation in total services in a specified country is the weighted average of the individual index values of specialisation in all service sectors. The weights consist of the importance of each sector in total service export of the sample of countries. Now we can clearly see that a relatively small export sector has correspondingly little influence on the realisation of relative specialisation in services as a whole. Although the data on international trade in financial and insurance services are anything but satisfactory, the small weight of these transactions in service trade justifies us to say: the behaviour of specialisation patterns in any other sector is not significantly biased.

The results above gave a first 'worldwide' impression of specialisation in services. The next two sections give a more country-specific impression of the developments in specialisation patterns over time.

Section 3.5   Specialisation patterns in industrial countries

The analysis shifts in emhasis to the countries that were also present in Chapter 2. In this section we take a look at the specialisation patterns for a group of six industrialised nations. They are: the Netherlands, Germany, Italy, France, Japan and the USA. The specialisation patterns are presented in country specific graphs in figures 3.5.1 and 3.5.2. The results are expressed in terms of the index of relative specialisation (R_{ij}), within the group of countries and over the time period of sub-sample 1. Additional insights will be acquired by consideration of the developments in market shares of the respective countries in services trade.

From the figures France and the USA emerge as relatively specialised in service exports over the entire time period. Germany and Japan appear least specialised in services, while Italy and the Netherlands are averagely specialised (non-specialised) compared to the sample average. For each country we now continue to discuss the results separately. Starting with the 'extremes', the

most specialised countries are discussed first, followed by the most unspecialised. Subsequently, Italy and the Netherlands will close the line in the present section.

Figure 3.5.1 Relative export specialisation: Japan, USA and France

Relative Export Specialization: Japan

Relative Export Specialization: USA

Relative Export Specialization: France

Figure 3.5.2 Relative export specialisation: Germany, Italy and the Netherlands

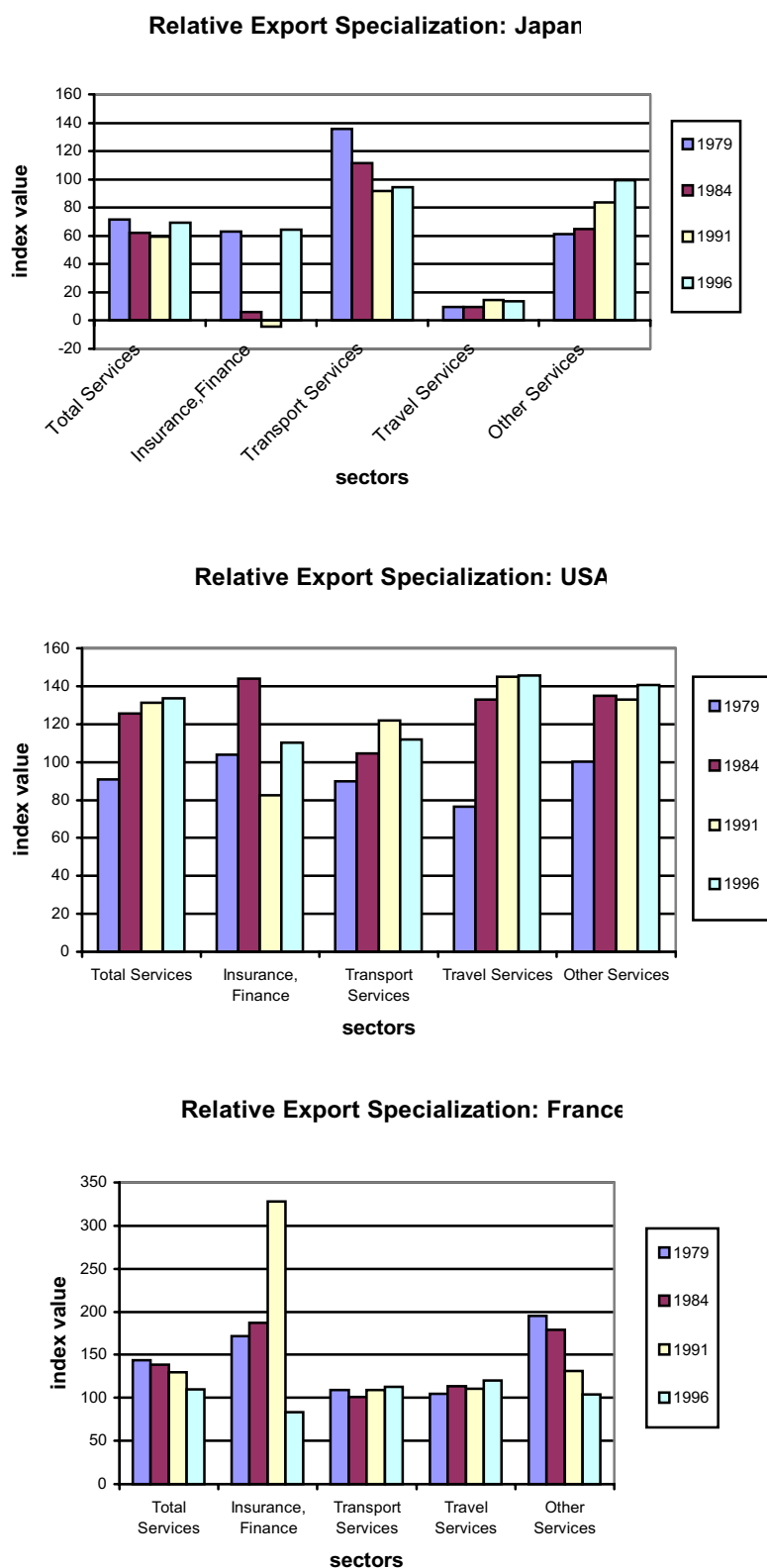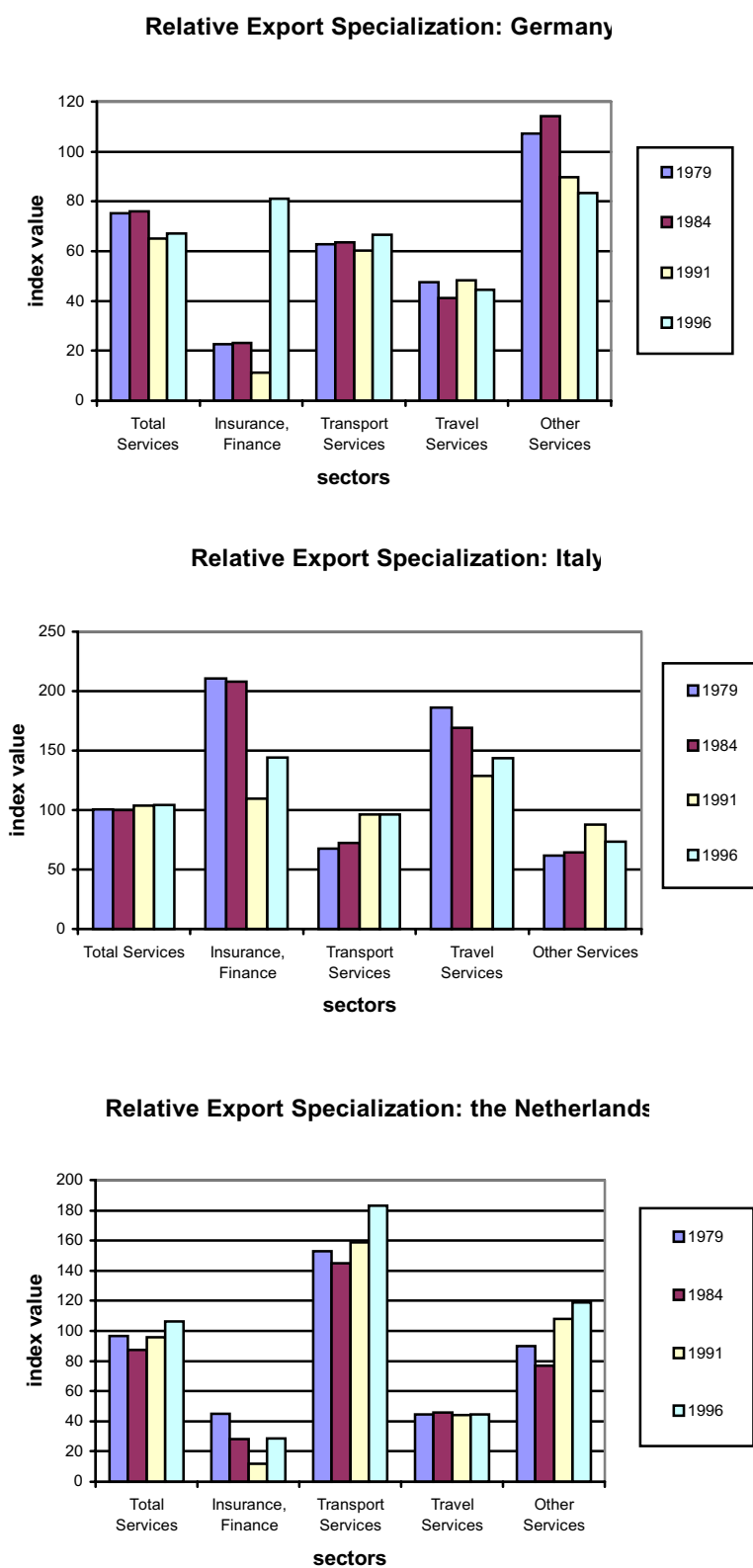**Relative Export Specialization: Germany**

Relative Export Specialization: Italy

Relative Export Specialization: the Netherlands

Japan:

The pattern of relative export specialisation for services as a whole remained quite stable for Japan (fig. 3.5.1). This, however, does not imply that the distribution of service exports did not behave dynamically over the past two decades. Looking back at table 2.5.3, the general development pattern that has been common to high income countries over the sample period is reproduced for Japan. Transport services has given way to travel, insurance and finance and Other Services. A close look at figure 3.5.1 allows us to put an explicit framework to the developments within the distribution of service exports. Compared to the average export shares of the major sectors and their developments over time, Japan has undergone several changes. The relative specialisation in transport has actually vanished. While the importance of travel in the structure of exports[66] remains futile compared to the sample average, export in Other Services has grown rapidly in relative share. Still, the growth does not mean that Japan has become relatively specialised in this category of services. The sector 'Insurance and Finance' again shows a fragile, volatile behaviour over time, but Japan has never been relatively specialised in these activities.

The USA:

Only in the USA we can see a shift from *relative* export specialisation in goods towards services (fig. 3.5.1). The major part of the jump has been realised between 1979 and 1984. Considering the total picture of developments in the USA, the sectors most responsible for the rise in *relative* service share of exports are travel and Other Services. The latter include most of the information and knowledge intensive producer services (McCulloch, 1988;page 376) that are central in modern, complex technology systems and that enjoy the largest advance in international tradeability. It is plausible that the considerable degree of relative specialisation reached by the USA has been caused by the opportunities, increasingly opened because of the advent of ICT, to specialise in exporting high skill-intensive services. In the long run I would argue that these opportunities will continue to rise further, as communication and information channels provide an ever more perfect solution for enabling the necessary interaction during the process of (joint) production. For now, the major service sectors on the Balance of Payments all show *at least* an average importance in the structure of export production.

France:

France was one of the European countries that eventually supported the American proposal to include service trade issues in GATT negotiations on the international trading system. Indeed, at the moment of this proposal, the early 1980s, France was relatively specialised in service trade (fig. 3.5.1). The most important factor behind the relatively high export share of services is the substantial specialisation in Other Services. Apart from the sector 'Insurance, Finance', which

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[66]We cannot refer to 'the structure of export production' when speaking of travel exports. Note that travel does not have a clear concordance to the *production* structure as a distinct sector of activities that have some homogeneous common denominator. The problems regarding travel cause a persistent imperfection in the classification of international trade, which deserves attention from the fields of statistics-measurement and economic methodology. See also Chapters 1 and 2.

shows a volatile pattern, export specialisation in transport and travel seems to consolidate around the sample average. Travel even shows some relative growth in importance within export structure. Only 'Other Services' displays a serious decline in relative specialisation, from twice the sample average to an average export share. France has, for whatever cause, moved towards an average export position in the major service sectors. This tendency had already been implicitly revealed by table 2.5.1. However, then we could do no more than conclude that *absolute* export specialisation in services had fallen in France. Now we have been able to relate the development to the average pattern in other countries as well as to specify the precise distribution of specialisation over service sectors.

Germany:

Previous research has established Germany as a country specialised mostly in goods. For example, Audretsch (1995) describes the country as highly specialised in traditional manufacturing sectors. Discussing the empirical results on export specialisation per sector for selected countries in the European Community, Hoen states the following (Hoen, 1999; page 195): '..Germany experiences most export specialisation in the industrial sectors ... chemicals,..metal products,..machines,..electrical goods,..and transport equipment.' The general picture described elsewhere is confirmed by the results of our data-analysis (fig. 3.5.2). Over the 1980s Germany appeared to have a stable export pattern in services. While ascending in the extent of relative export *un*specialisation from transport, through travel to insurance and finance, Germany was modestly relatively specialised in Other Services. Overall, the result was that Germany stabilised at about 80% of the average export share of services. From 1984 to the present day, the picture changed somewhat. Due mostly to a fall in the extent of specialisation in Other Services into the realm of unspecialisation, Germany moved further downwards into relative unspecialisation in service trade. Near the end of the twentieth century Germany was relatively unspecialised in export production in all major service sectors. Though financial and insurance services display a sharp rise in export share, the sector is too small to mitigate the downfall in relative service specialisation.

Because the sharp fall in the extent of service specialisation has been first displayed in 1991, the reader may be inclined to wonder what influence German unification in 1990 has had on the observed pattern. Careful comparison of the exports of the former Federal Republic of Germany and the united Germany for the period after 1989 is not possible in our data sets. We cannot shed light on the impact of the former German Democratic Republic's economic structure on the export pattern of unified Germany. For what it is worth, the developments in trade patterns could be related to some extent to the German unification. However, the influence of data anomalies related to Germany on the results for other countries is negligible in our sample. I have compared the results when Germany is excluded from the sample with the results of the original sample; the developments over time, especially since 1989, proved to be hardly influenced.

Italy:

The importance of services as a whole in the structure of export production has been stable at the sample average (fig. 3.5.2). The most noticeable developments in the Italian export pattern of

services are the fall in the relative importance of travel and the simultaneous rise in the extent of relative export specialisation in transport. Perhaps the Italian economy has strengthened its global market share in commodity exports. The resultant high relative growth in total commodity exports may have outpaced the growth in tourism revenue (a sector of which supply has little to do with economic determinants, see Lall [1986]), while giving an extra boost to the transport sector. A further investigation based on the data we have available will be performed below to determine the confidence we can attach to this explanation. Together with the slight increase in the relative importance of Other Services, the substantial relative fall in travel as a share of export revenue has been countervailed. Services as a whole even shows a marginal increase in relative export position. The movement in finance and insurance service export strongly resembles the pattern in travel, albeit with higher variance. Against the background of high volatility that has been generally observed up till now in this sector, Italy forms no exception. Still, the relative share in exports is consistently high over the sample period. It is thus justified to say that Italy enjoys a relative export specialisation in financial and insurance services, as well as in travel services, although both have diminished. All other major sectors seem to move up to average importance in exports.

The Netherlands:

Just like Italy, the Netherlands was and is an averagely, or, non-specialised country as far as services trade is concerned (fig. 3.5.2). However, an initial downfall in specialisation between 1979 and 1984 distracts attention from the subsequent persistent rise in relative export specialisation in services up to 1996. Except for travel services, the *relative* export shares of the most important major service sectors (transport and Other Services) have risen considerably over time, after the concomitant early decrease. The Netherlands is now relatively specialised in both international transportation and other service exports. Although foreign tourism has become a notable part of everyday experience for Dutch people, it has apparently not developed into a relatively important source of export revenue. The input of the financial sector in international receipts is even more 'puny' in the Netherlands than on average in the sample. The overall impression that is conveyed by the Dutch patterns of specialisation in services, however, might understate the true importance of services in exports. In terms of openness of industrialised countries, the Netherlands is often quoted as an extreme example. 'Trade compared to national output'-ratios have always been very high (see for example Hirst and Thompson, 1996; table 2.5, page 27). For a considerable part, such high exports and imports reflected the Dutch importance as a logistic centre for merchandise trade. Both transit trade and staple trade are recorded in imports and exports of goods, though most of the *gross* value of this merchandise does not represent value added, produced in the Netherlands. Since services cannot be stored and traded in this way, service trade only[67] represents value produced in the Netherlands. The relatively high

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[67] In fact, because trade is recorded at gross value (sales value), the value of service export will include some intermediate use value imported from abroad. This value will be relatively small, though, because the services represented on the Balance of Payments are not intensive in intermediate use (see footnote 54). Note also that the issue of intermediate use value is a further aspect of the differences between merchandise and services to cause a downward bias in the registered importance of services in export production. Part of the recorded export value of goods produced domestically will reflect imported intermediates, hence overstating the allocated domestic

importance of transit - and staple trade of goods distorts the comparative picture of the composition of exports for the Netherlands, especially when the analysis focuses on services. If the data on exports were to be reported in value added rather than gross value terms, the Netherlands would be more specialised in service trade than can be concluded on the basis of our Balance of Payments related data.

In Section 3.3 (*On the concept of specialisation*) I argued that both productivity and specialisation matter for the assessment of trade patterns across countries. At a given level of specialisation superior productivity will lead to a superior market share in the total world market of a given product (controlling for differences in the size of the labour force). Moreover, productivity and specialisation are directly linked together. Relative productivity among countries in traded services is a very important determinant of cost advantages between countries, especially when compared to relative productivity in goods. For our purposes of descriptive research, even a preliminary look at the evidence on market shares can link the patterns of relative export specialisation to the developments in export performance and productive competence in our countries, which is motivated by formula 3.2. Besides the fact of the direct relation between market shares and relative specialisation, the analysis of market shares allows us to consider the export performance of more countries in a more consistent way than was possible in Chapter 2 when considering real trade.

Performance in total exports and in services exports will be compared and interpreted in terms of productive competence. The disaggregated developments in service sectors will be understood against the framework of more general developments in productive abilities.

A separate investigation of market shares has the advantage of supplementing our previous analysis on relative specialisation. Apart from the additional information that allows us to get an impression about the distribution of productive abilities across countries, there is a further reason to use this info. Developments in relative specialisation over time do not give an unambiguously explicit result for the extent of relative export growth across sectors. The impact of a given rate of growth in a sector's exports on the realised value of the index of relative specialisation depends on the share this sector already had in export production. The larger the ex-ante share of a sector in exports, the higher the weight of export-growth in this sector will be in total export growth. Thus, the smaller the resulting growth in export *share* can be. Market shares provide a better insight of the export growth-performance behind developments in relative specialisation.

To recuperate the previous argument, the main reasons for analysing market shares are the following:
-    market shares supply us with a proximate static impression of productive ability
-    they enable us to link developments in specialisation with overall export performance
-    market shares offer an alternative to real export growth to put developments in
     relative specialisation in the appropriate perspective

From table 6.12 in McCulloch (1988), the six countries that were the object of enquiry in the

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resources relative to services exports. Gross value of service trade comes more close to value added than gross

previous paragraphs emerge as the largest service exporters in the world in 1980, supplemented by the UK. Since the data provided for the UK do not cover all major divisions (sectors) in the period before 1986, we have not included the United Kingdom in sub-sample 1. For the countries that have been included in the sample, the tables below give a similar impression of their relative importance, i.e. their market shares, in total exports of goods and services (table 3.5.1) and total service exports (table 3.5.2). In the present section the emphasis lies on the 'G 6' of industrialised countries.

Table 3.5.1 Market shares in total exports of goods and services

Country Market Share in total aggregate exports of the sample (%)	1979	1984	1991	1996
The USA	18,22	19,93	18,86	18,94
Germany	16,22	13,66	15,22	13,53
Japan	9,56	13,11	11,46	10,42
France	10,75	8,74	9,39	8,13
Italy	7,29	6,34	7,06	7,17
The Netherlands	6,35	5,42	5,34	5,02
Belgium	5,09	4,00	4,50	4,24
Singapore	1,46	2,07	2,44	3,47
South Korea	1,56	2,09	2,61	3,41
Spain	2,34	2,47	2,90	3,27
Switzerland	3,25	3,08	3,05	2,71
Mexico	1,36	2,32	1,67	2,38
Sweden	2,77	2,43	2,25	2,26
Austria	1,93	1,69	2,14	2,05
Malaysia	0,97	1,26	1,24	2,03
Australia	1,80	1,90	1,73	1,76
Thailand	0,51	0,64	1,15	1,59
Norway	1,70	1,79	1,54	1,43
Brazil	1,36	1,98	1,13	1,18
Finland	1,09	1,06	0,89	1,07
India	0,81	0,91	0,76	0,93
Poland	1,24	0,94	0,59	0,83
Portugal	0,42	0,47	0,70	0,75
Argentina	0,75	0,66	0,47	0,60
New Zealand	0,49	0,47	0,39	0,42
Greece	0,61	0,49	0,46	0,34
Iceland	0,09	0,07	0,07	0,06

Source: World Bank (1999); own computations.
Note at table 3.5.1:
All shares are expressed against total exports in sub-sample 1. The countries appear according to descending size of markets shares as realised in 1996.

As appears from the tables the general picture that was described in McCulloch (1988) re-emerges in the patterns for more recent years. Clearly the productive ability of the G6 is superior in the export market, both of goods and services, although the bias caused by the influences of country size (more precisely, of openness and of the size of the labour force) has not been controlled for. In itself, this observation is interesting for a number of reasons. Firstly it shows that a country need not be specialised to enjoy a large share in the export market for services.

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value of merchandise trade.

Table 3.5.2 Market shares in total service exports

Country Market Share in total aggregate service exports of the sample (%)	1979	1984	1991	1996
the USA	16,58	25,03	24,74	25,33
Germany	12,20	10,40	9,90	9,09
France	15,49	12,08	12,19	8,94
Italy	7,31	6,34	7,32	7,48
Japan	6,84	8,14	6,82	7,25
the Netherlands	6,15	4,74	5,12	5,33
Spain	4,39	4,34	4,44	4,74
Belgium	4,70	3,67	4,65	3,80
Austria	3,49	3,25	3,89	3,64
Singapore	1,54	2,17	2,10	3,20
Switzerland	2,54	2,87	3,01	2,81
South Korea	1,88	1,40	1,52	2,51
Australia	1,39	1,60	1,66	1,98
Thailand	0,44	0,69	1,11	1,82
Sweden	2,83	2,22	2,24	1,81
Malaysia	0,34	0,68	0,67	1,55
Norway	3,01	2,50	2,03	1,51
Mexico	2,22	1,70	1,35	1,17
Poland	0,80	0,71	0,56	1,05
Greece	1,47	0,96	1,10	1,00
Portugal	0,68	0,58	0,80	0,88
Finland	0,96	0,86	0,65	0,82
India	0,98	1,21	0,76	0,81
Brazil	0,63	0,69	0,51	0,55
New Zealand	0,44	0,52	0,39	0,50
Argentina	0,58	0,53	0,37	0,35
Iceland	0,13	0,12	0,09	0,08

Source: World Bank (1999); own computations.
Note at table 3.5.2:
All shares are expressed against total service exports in sub-sample 1. The countries
appear according to descending size of markets shares as realised in 1996.

This has to do with productive ability and more fundamentally with intra-industry trade and the ranking of comparative advantage that occurs in a multi-country, multi-product world. Later on I will come back to the interpretation of relative specialisation in a multi-product world. Second, although the importance of services in the structure of export production does not come close to the level occupied in output and employment in their total structure of production, the industrialised countries are the major players on the export markets for services. Thus, the pattern of 'international-market' shares replicates the patterns within the national structure of production across countries.

Although developments over time in market shares may reflect different time paths of openness between countries and divergence in labour force growth[68], they are a good

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[68] Both are closely related to each other. Growth in the labour force goes together with developments in openness. Ceteris paribus, a larger labour force increases the supply of a country's export products as well as import demand. The terms of trade will normally deteriorate, which triggers a movement to a new trade equilibrium, in which the country's openness will have decreased, while the openness of its trading partners has risen. In general, the larger a country is, the closer it will relatively be to a situation of autarky (ceteris paribus). 'Larger' may be

representation of both developments in relative specialisation and in general productive abilities, certainly as long as we concentrate on the G6. Table 3.5.1 gives an overview of total export performance over time. Our selection of industrialised countries includes a variety of patterns. After an initial, steep rise, the market share of the USA in exports appears to stabilize around 19%, an eventual increase of less than 1 percentage-point in the total aggregate market since 1979. Within a cyclical pattern Germany shows an overall downward trend in its share on the international world market. Interestingly, the addition of the complete economy of former Eastern-Germany seems to have done little to prevent the decline of the German market share. Japan, not that long ago often mentioned as destined to take over the world lead, did a good job on the way to fulfill this prophecy, at least in terms of exports, during the 1980s. After that, however, its market share fell back dramatically during the prolonged recession of the '90s. For France, we can see a cyclical pattern similar to that of Germany. While Italy seams to stabilise its share in world exports after an initial decline in the early 1980s, the export performance of the Netherlands seems to have fallen over time. The losses incurred by some of the G6-countries in terms of market *shares*[69] have been the gains of the outward-oriented newly industrialising countries, such as Singapore, South Korea, Mexico, Malaysia and Thailand.

The developments in overall market shares provide the background against which to interpret the patterns in relative service specialisation. Remember from formula 3.2 that a country's market share in total exports of goods and services is the benchmark for assessing relative export specialisation. The patterns in market shares for overall service exports from table 3.5.2, as well as the data for relative specialisation used earlier, can be related to this benchmark to provide interesting results. For example, the American rise in relative service specialisation is obviously linked to an improvement in export performance, both generally and in service exports in particular. The same holds for the individual service sectors. Impressive growth in market shares has been realised in travel and Other Services over the past two decades. The German fall in relative service exports is associated with a more persistent fall in relative export performance in service sectors, particularly Other Services, than in total exports. In Japan, export performance in services keeps in pace with overall exports. Although this implies a general picture of decline in the relative importance of Japanese exports in services as in goods, the steady growth in the market share of 'Other Services' that can be deduced from figure 3.5.1 and table 3.5.1 proves that Japan probably has export potential in co-ordination (business-) services. The impetus from

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caused either by the size of the population, by the amount of accumulated material inputs, or by technological lead and refers to absolute production capacity. A larger part of the advantages of trade will ensue to its relatively smaller trading partners. It should be noted that trade in a situation of imperfect competition and scale economies tends to favour size historically. Then, 'larger' can imply more advantage, but also only to a certain extent. This story holds most closely on a national level and in the long run. Export supply should be met by an equal value of import demand, because equilibrium on the balance of payments should be reached entirely by a balanced trade account. Thus, market shares of individual countries in total exports of goods and services do not *automatically* follow *absolute* productive abilities!

On a sectoral level though, market shares are a more accurate representation of productive competence. Between competitors on the same market, productive abilities determine relative productivity and the opportunity to reach competitive advantage in scale and comparative cost. Competitive advantage on a specific market expresses itself in terms of market share, both nationally and internationally.

[69] Recall that world exports have grown faster than world output (see Section 1.3). Moreover, service export growth has on the whole kept up with merchandise exports, in nominal terms. So, market shares do not tell the

this service sector explains why service exports leads Japan's export recovery from its severe recession of the 90s. The market share in service exports of France shows a more pronounced downward trend than its overall export market share. The movement away from relative service specialisation has taken place against the background of overall dwindling export performance. The pronounced fall in relative specialisation in Other Services, as shown in figure 3.5.1, translates in a dramatic fall in market share, from 21% in 1979 to 8.5 % in 1996 (using table 3.5.1). Most of France's downfall in service market share has been located in this sector of information- and knowledge intensive co-ordination services. The Italian market share in service exports behaves similarly to its overall export performance. This corroborates the observation from figure 3.5.2 that the degree of relative specialisation in services has hardly changed over the sample period. The market shares in Other Services and transport have risen, while travel and finance have lost some ground. Overall, the share of Italia in total exports of services has improved slightly. While Dutch total export performance was relatively bad, its export performance in services recovered somewhat. Though the market share in services has fallen since 1979, the performance in transport and Other Services has stabilised and improved a bit respectively. Hence, the sharp rise in specialisation in these sectors took place against a background of lagging relative export performance in the Netherlands.

We have discussed the patterns in relative specialisation for a set of industrialised countries. We have already taken notice of the rise in relative importance of a number of newly industrialising countries. The next section will take a closer look at the developments in those and other less developed nations. In this light it is noteworthy to stress that table 3.5.2 shows a similar rise in market share of service exports for countries like Thailand, Singapore, Malaysia and to a lesser extent, South Korea. Only in Mexico the export performance in services has not matched overall performance in terms of market shares.

Section 3.6   Specialisation patterns in less developed countries

Below we will consider the specialisation patterns in the set of less developed countries that was also featured in Chapter 2. Moreover, the group has been augmented by several other countries to present a richer overview. The countries that will be covered now include India, China, Argentina, Brazil, Mexico, South Korea and Malaysia. Thus, the spectrum ranges from very poor economies (India and China) that are nevertheless often said to have interesting developmental potential, through lagging middle income economies with a rich developmental history (Argentina and Brazil) to more or less successful newly industrialising economies (South Korea, Malaysia and Mexico). The results in terms of the index of relative export specialisation are presented in country-specific bar-diagrams, figures 3.6.1 to 3.6.3. In order to include China in the sample, the results are based on sub-sample 2, which includes three target dates: 1984, 1991 and 1996. This data-set covers a larger number of countries.

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whole story about export performance.

Figure 3.6.1 Relative export specialisation: India and China

Relative Export Specialization: India

Relative Export Specialization: China
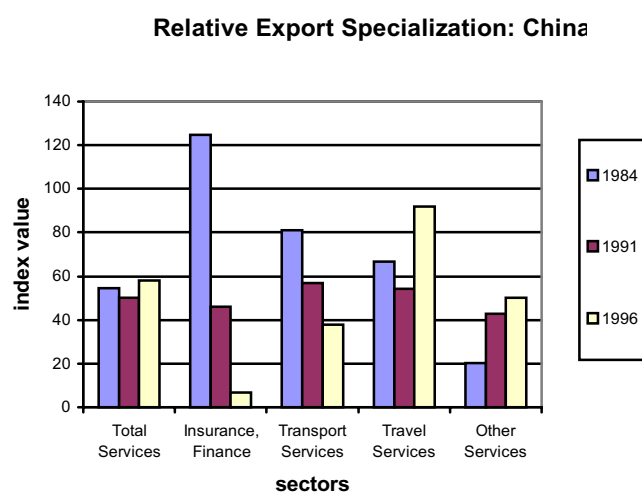
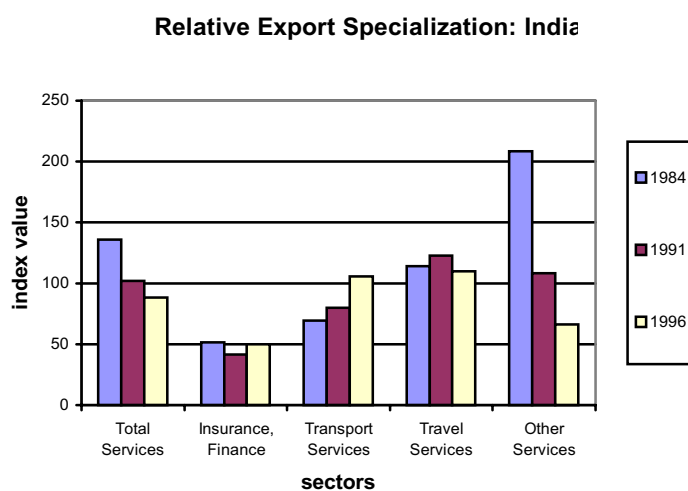*Figure 3.6.2 Relative export specialisation: Argentina, Brazil and Mexico*

Relative Export Specialization: Argentina

Relative Export Specialization: Brazil

Relative Export Specialization: Mexico

Figure 3.6.2 Relative export specialisation: South Korea and Malaysia
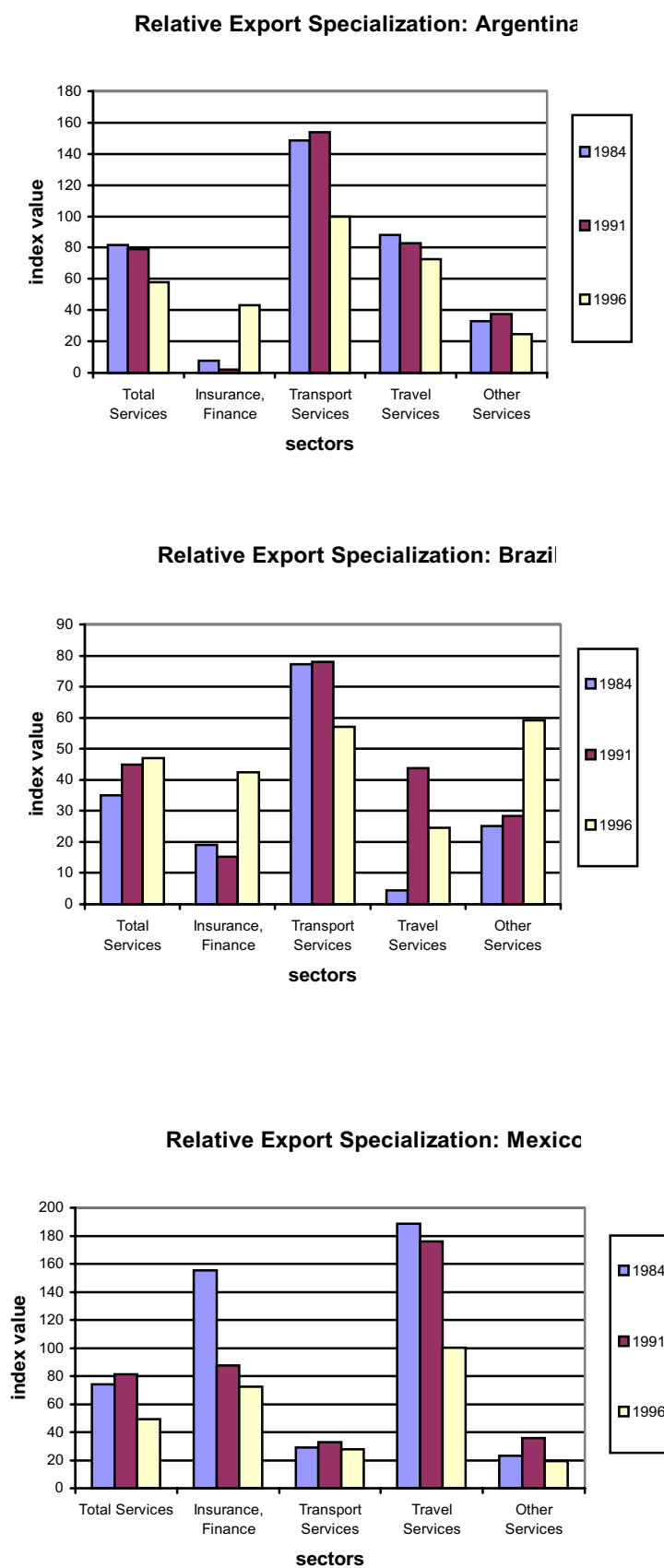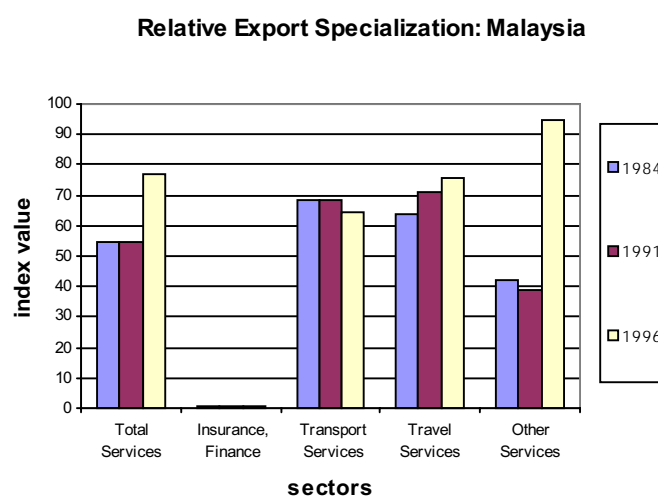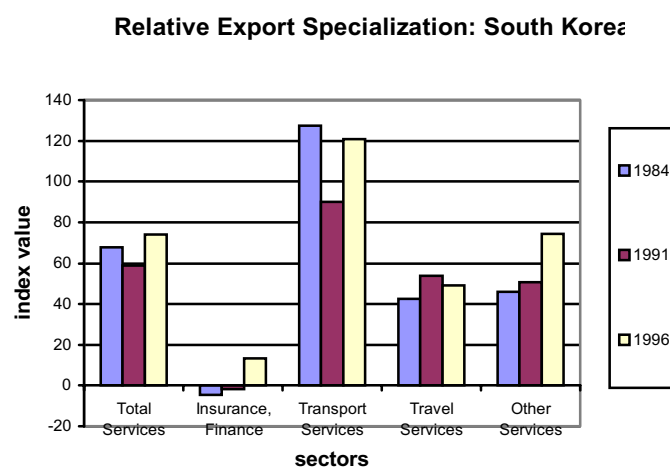
Relative Export Specialization: South Korea

Relative Export Specialization: Malaysia

India

The first country that appears in figure 3.6.1 is India. In Chapter 2 we concluded that India used to have a fairly high service share of exports, but since then has moved to a more goods oriented export structure. The pattern of relative specialisation confirms and illustrates our earlier findings explicitly. The most remarkable developments are the decline from very high relative specialisation into considerable unspecialisation in Other Services (also see Section 3.4) and the rising relative specialisation in transport services. In the tables in the previous section we observe that the pattern in service market share follows the overall movement in the Indian share of world exports[70]. However, the market share in services falls behind that in goods, which conforms to the picture in terms of relative specialisation. The share of Indian exports in international trade of goods and services has been rather volatile, without persistent growth. In services, only the international transport sector has succeeded to raise its market share, perhaps related to the relative growth of merchandise exports. In general, it is justified to conclude that the fall in Indian service specialisation was not merely caused by a sharp rise in merchandise market shares, but at least partly by the loss of market share in nearly all service sectors.

The results are remarkable, if we compare them to the impression we got in Sections 2.4 and 2.5. The sharp rise in openness in services and goods apparently reflected a productive performance in value-added that lagged behind the sample average even more than the performance of exports. The rising share of Other Services in service exports from 1980 to 1997 does not seem to conform to the decline in relative specialisation in this sector that continues up to and including 1997. However, this contradiction does not hold on closer scrutiny. Section 2.5 showed the pattern for service exports in 1997, while the results in this section showed specialisation in 1996. Comparing the source data, the share of services in total exports has risen from 18,2 % in 1996 to 21,0 % in 1997. Furthermore, the share of Other Services in exports of services has risen from 30,5 % in 1996 to 43,1 % (Section 2.5) in 1997. Apparently, services specialisation and especially relative specialisation in Other Services has taken a big jump upward again. Only, we could not include 1997 as an explicit target year for relative specialisation in our sub-samples, because of lack of data and, consequently, of consistency in that year. Still, the evidence on Indian export shares is sufficient to say that the presumed contradiction between the conclusions of Section 2.5 and the present section is not really a contradiction.

China

China remains relatively unspecialised in services, at a service export share of approximately 50 to 60% of the average (fig. 3.6.1). Growth in service trade has kept up with merchandise trade. The developments within the category of services point to a maturing of the export structure: the export of knowledge-based co-ordination services, included in Other Services, has gained importance. Moreover, Chinese exports of transport services has

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[70] Market shares are based on the export totals within sub-sample 1. This implies that the market shares are not perfectly in line with the specialisation-index values presented in section 3.6. China is not included in the market shares of table 3.5.1 and 3.5.2. The choice to use market shares of sub-sample 1 yields a longer time span and consistency when comparing the countries of Sections 3.5 and 3.6.

declined relatively. Although certainly not generally true, the fall in the relative importance of transport could point to an increasing outsourcing of these services to other countries against the background of fast growing merchandise exports and a comparative disadvantage in international transportation. Unfortunately, we cannot confirm the hypothesised fast export growth with evidence on growing market shares, but the record of recent Chinese export growth is well known. The sharp rise in travel specialisation is testimony of the détente in both political and business foreign relations following the reforms that had started in 1979.

Argentina

The next figure first presents Argentina. In a setting of overall worsening export performance, relative specialisation in services falls. From table 3.5.1 it appears that Argentine exports gained world market share between 1991 and 1996, somewhat recovering from the steep decline since 1979. Service sectors however failed to recover their share in export markets (table 3.5.2 and own computations for separate sectors), except for the financial sectors whose global volatility renders any result mostly insignificant. The pattern of relative specialisation over time (figure 3.6.2) indeed shows that Argentina further specialises in merchandise exports relative to the sample average. Argentina looses its relative specialisation in transport and moves away from export production in tourism and Other Services. In the latter, Argentina remains among the lowest ranked countries in terms of relative export specialisation (see Section 3.4).

Brazil

When we start by looking in the tables on market shares, we can begin with observing that the overall pattern in export performance is reproduced for services as a whole. After a period of relative growth between 1979 and 1984, export performance fell back comparatively and stagnated. However, as the pattern is less profound in services, we expect relative specialisation in services to rise between 1984 and 1996. Figure 3.6.2 confirms that expectation. On a disaggregated level, though, individual sectors follow different patterns in export performance and relative specialisation. While travel revenues show no resemblance with overall export performance (which confirms that technological supply factors are of relatively little importance in determining travel and tourism, see Lall, 1986), transport services and Other Services show divergent patterns in market shares too. Loss of market share in international transportation is countered, eventually, by gains in Other Services. In general, Brazil remains relatively unspecialised in service exports, being in the lower end of the specialisation spectrum within the sample for travel and Other Services.

Mexico

The overall export pattern of Mexico was highly cyclical over the period 1979-1996, in terms of market shares. In services, only transport services show a similar movement in market shares. The stability, at a low index value, of this sector in terms of relative specialisation (figure 3.6.2) follows logically from the correspondence in market share developments. The temporary rise in specialisation in services, from 1984 to 1991, is largely

due to the steep fall in merchandise market shares, rather than significant improvements in service market shares. In the end, the extent of export specialisation in services falls from an already low level, conform the persistent fall in the market share of services that is evident from table 3.5.2. Mexico ranks among the lower end of the specialisation spectrum for services, especially transport and Other Services, which are on average important contributors to service exports within the total sample of countries. Mexico has lost its traditional, sizeable export specialisation in travel and the financial sectors.

South Korea

In figure 3.6.3 the specialisation patterns for Korea indicate that the country is relatively specialised in goods export. Section 3.5 already mentioned the fast growth of Korea's share in world export of goods and services. If we take a look at the relevant tables, Korea appears to have moved quickly and drastically from relative service specialisation to merchandise specialisation. In this respect, remember Section 3.4, where South Korea emerged as highly specialised in Other Services as early as 1979. Although its market share in Other Services actually fell dramatically between 1979 and 1984 (own computations), the change in overall specialisation took place against very benign changes in export performance. Especially since 1984, market shares in all major service trade sectors have grown persistently. Since 1991 up to 1996, export performance even outpaced growth in merchandise exports on the whole. Especially in transport and Other Services specialisation increased over the last five years of the sample period.

Malaysia

Malaysia is an example of a country that has followed in the slipstream of South Korean export performance. The share in world export has risen considerably, especially since 1991, as represented in table 3.5.1. Service exports have followed suit, but showed a more pronounced pattern. Between 1991 and 1996, specialisation in service export has taken a leap, as it did earlier from 1979 to 1984. Figure 3.6.3 shows that the sector Other Services was mainly responsible for the relative rise in the importance of services in the structure of export production. Nevertheless, Malaysia remains relatively unspecialised in services.

Up to now, the results have been represented to offer an impression of developments in comparative export specialisation in services over time. The following section purports to illustrate the current state of affairs in terms of export specialisation for as many countries as possible within our representative data set of countries. Moreover, the use of the index of absolute-relative specialisation allows us to get an impression of the absolute importance of services in export production as well.

Section 3.7   Specialisation: absolute and relative

The set-up of this section resembles that of Section 3.4. The results are offered in sector-specific bar-diagrams on the extent of absolute-relative specialisation (S_{ij}). Figures 3.7.1 and

3.7.2 present an overview of the five most specialised and the five most unspecialised countries <u>per sector</u> of the WDI trade classification for both 1994 and 1997. The countries included in the computations for this section have been grouped together as sub-sample 3 (see Appendix A).

Before we begin interpreting the data on absolute-relative specialisation, table 3.7.1 combines the extent of pure relative specialisation and absolute-relative specialisation to arrive at the *average absolute export specialisation* in services within sub-sample 3[71]. In other words, the average share of total services and WDI service sectors in export production appears in the table below.

Table 3.7.1 Average absolute export specialisation

Average Export Share of Service Sectors within sub-sample 3 (%)	1994	1997
Total Services	21,2	20,5
Insurance, Finance	1,1	1,1
Transport Services	5,2	4,7
Travel Services	6,5	6,2
Other Services	8,4	8,5

Source: World Bank (1999); own computations.

Total service export averages about 21% of export production. This is conform the common estimations provided in the literature (see Section 1.3.2). A slight decrease in absolute service specialisation seems to have taken place since 1994. Only Other Services shows a rising average export share. Since the table only covers two years, it is difficult to judge whether the development in average export shares reflects a trend. Therefore, table 3.7.2 offers similar data for a longer time span. Although the coverage of a longer period of time implied we had to resort to sub-sample 1, the countries that consequently cannot be covered represent only a small part of total exports in sub-sample 3[72].

Table 3.7.2 Average absolute export specialisation

Average Export Share of Service Sectors within sub-sample 1 (%)	1979	1984	1991	1996
Total Services	19,1	19,5	21,3	20,8
Insurance, Finance	0,6	0,7	1,1	1,1
Transport Services	6,0	5,9	5,4	4,9
Travel Services	4,9	5,2	6,6	6,5
Other Services	7,6	7,7	8,1	8,3

Source: World Bank (1999); own computations.

When combined, the number of countries covered, together with the period of time reported, justifies to state that after 1991 absolute export specialisation in services has shown a slight decrease. The tables supplement evidence from Chapter 2 to the effect that fast export growth in sectors such as insurance, finance, travel and business services has led to consistent growth in export shares up to 1991. Since then, finance and insurance seems to stagnate or fall

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[71] Based on own computations, using World Bank (1999) data and the relation between the indices of specialisation R_{ij} and S_{ij}.

[72] A significant bias because of the incompatibility of both samples can be expected to arise only in relation to the fact that the UK is not included in sub-sample 1, whereas Switzerland is not included in sub-sample 3. Most influence on average export shares can be expected in the sector Insurance,Finance, in which both countries feature prominently as highly specialised.
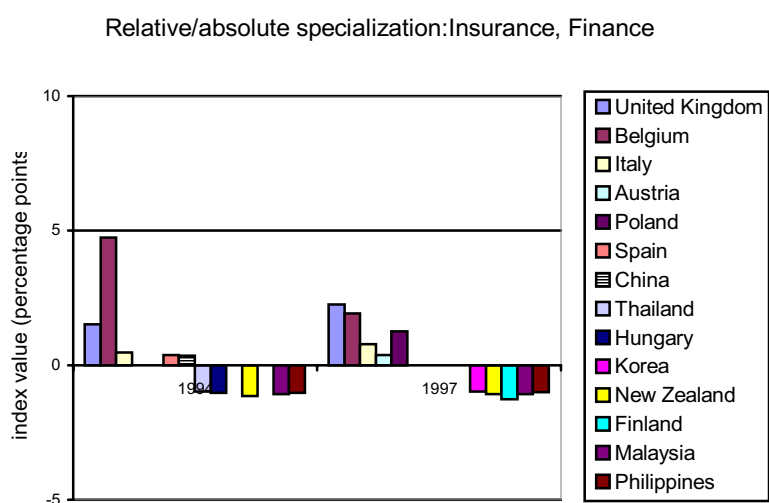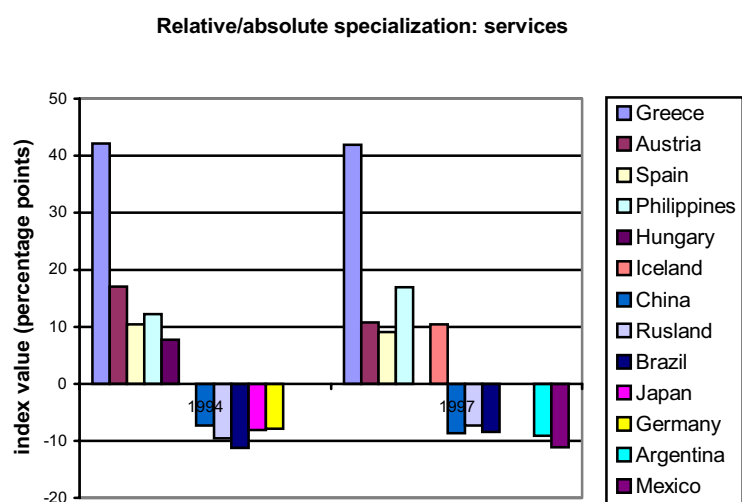
in terms of average absolute export specialisation, while the share of travel in exports appears to decrease slightly, but definitely. Transport services has continuously lost relative importance in the average structure of export production, probably related to its high growth in productivity and falling relative price. Business services, embedded in Other Services, have continued to rise in terms of average export share after 1991.

The developments in absolute specialisation after 1991 serve as a background for the developments in absolute-relative specialisation patterns between 1994 and 1997. More generally, table 3.7.1 is useful because it depicts the relative size of different service sectors in average export production. In contrast with pure relative export specialisation (R_{ij}), the values of absolute-relative export specialisation across different sectors are rather *simply* related. Because the index measures the *percentage-point* difference from the average export share, the composite index value for services as a whole can be constructed by adding-up the index values for the respective service sectors. No weights are required to correct for sector size, as sector size is explicitly incorporated in the index values[73]. Another advantage of absolute-relative export specialisation as an index to measure *relative inter-industry export specialisation* is its symmetry around 0%-points (see sub-section 3.2.1). The index has both a theoretical upper-limit and a lower-limit, that are explicitly defined as approximately 100%-points and –100%-points respectively[74].Let us take a look at the most recent and most comprehensive international patterns of inter-industry export specialisation in services.

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[73] See formula 3.5 to understand that the relation of pure relative specialisation between sectors is more complex and, more importantly, indirect. Individual index values have to be weighted before summing-up to the extent of relative specialisation in total services export.

[74] Hoen (1999, Chapter 6) precisely discusses some theoretical issues of this and alternative specialisation indices. See also Section 3.2 for insights on this matter.

Figure 3.7.1 Absolute-relative specialisation: top-five and bottom five ranked countries: 1994 and 1997

Relative/absolute specialization: services

Relative/absolute specialization:Insurance, Finance
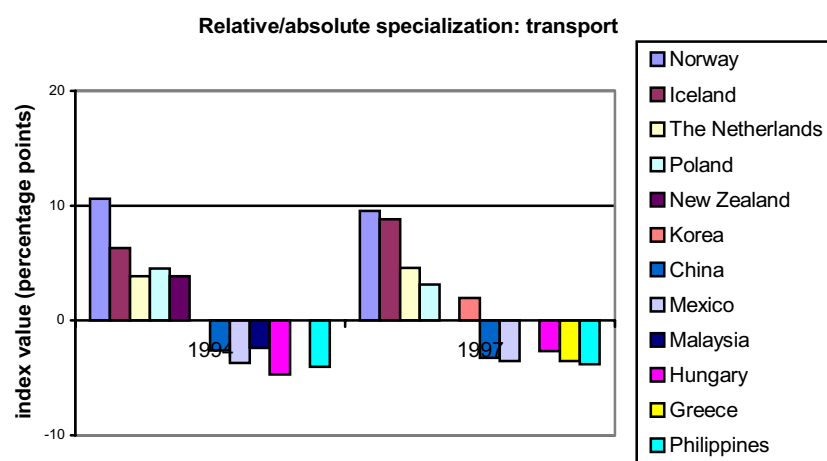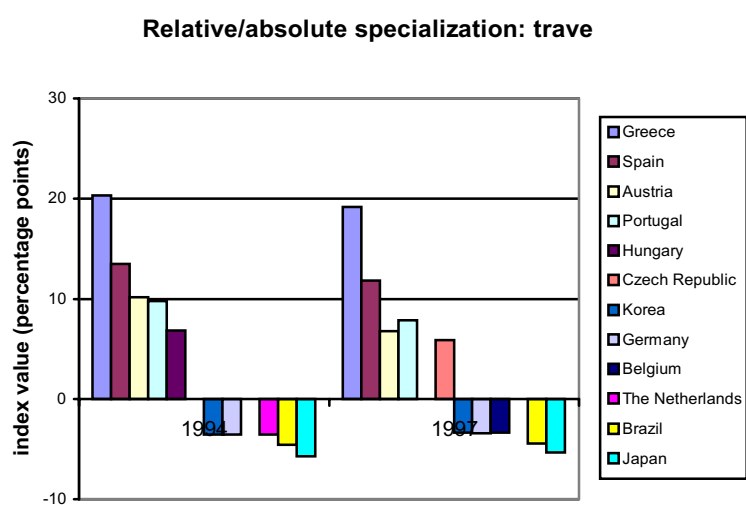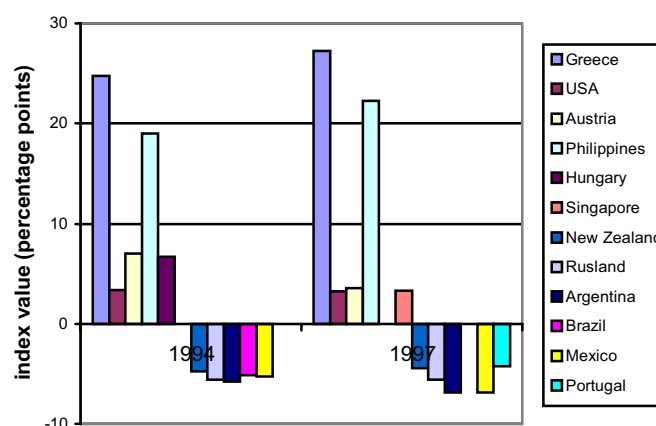
Relative/absolute specialization: transport

Figure 3.7.2 Absolute-relative specialisation: top-five and bottom five ranked countries: 1994 and 1997

Relative/absolute specialization: trave

Relative/absolute specialization: other services

As in Section 3.4 Greece, Austria and Spain emerge as highly specialised in services in figures 3.7.1 and 3.7.2. From the index of absolute-relative specialisation in services and table 3.7.1, one can deduce that the share of services in total exports of Greece exceeds 60%! A substantial part of the above average export share of services emerges, as we can now clearly see, from travel exports (about 20%-points of total exports above average). However, an even more significant contribution is made by Other Services, in which Greece enjoys a more than 25%-points above-average export share. Austria also has a relatively specialised position in Other Services and travel., while Spain is relatively specialised within services only in travel (see fig. 3.7.2).

A most remarkable appearance is made by the Philippines, which is relatively unspecialised in both finance and transport services, but highly specialised in Other Services. The share of Other Services (i.e. co-ordination services and communication services, amongst others) in exports exceeds 27% in the Philippines (against a sample average of about 8%). This observation is interesting in view of the impression in the literature (e.g. Sapir and Winter, 1994) that these services are human capital intensive, leaving comparative advantage in developed countries. Together with Singapore, the role of the Philippines as exporter of Other Services may be twofold. First, the cost of business travel and cultural factors, both related to the need for interaction in joint-production, constrain the reach of international trade in these services. This would give particular countries a regional competitive edge in co-ordination services. Another factor is the presence of transnational companies (TNCs) in sectors such as finance and, perhaps more relevant here, business services. Because of the possibility that such foreign presence reflects fairly independently operating enclaves of relatively high-tech products, Pizer (1991) remarks:

"Much of what we see in the statistics as an upsurge in international service activity, or investment, in developing countries reflects the importance of a few developig countries as low-cost havens... Such

developments should not be averaged across developing countries as a whole, nor should their economic significance for the populations of their host countries be exaggerated" page 287.

Concluding, the human capital intensity of co-ordination services justifies to say that competitive advantage will be located in developed countries mostly, in a situation of free and effective international competition. Moreover, any production in developing countries will be pre-dominantly in sectors in which trading cost are low and will be disproportionately geared to serve international markets (in short: *off-shore provision*). Yet, a viable national competitive advantage will possibly be located in lower-complexity or -quality niches, indicating the relevance of *vertical differentiation* in international trade.

The extent of absolute specialisation in financial and insurance services is relatively small compared to other sectors, as we can see from tables 3.7.1 and 3.7.2. Therefore, although pure relative specialisation has assumed highly positive extremes over time, absolute-relative specialisation is of relatively little importance overall. The United Kingdom and Belgium currently appear as most specialised nations. Italy is less specialised, but a stable factor in the top-five[75].

The relatively fast growth of trade in financial services, at least up to 1991, indicates that this sector is becoming more important in services trade. If the trend of relative growth is upheld in the future, measurement problems in finance and insurance will have more pronounced disturbing effects on patterns of total service trade. Because of that, the methods of registration for finance and insurance trade should be improved as soon as possible. Besides the expansion of data on gross trade and the explicit reporting of nominal insurance service trade, the considerable importance of *intra-firm trade* in the financial sector should be reflected in the measurement of international transactions.

The recent pattern for transportation services conforms with the pattern over time we saw in Section 3.4. Because of the greater detail, however, we are able to impart some qualifications. New Zealand used to be in the top-three of relative export specialisation for target dates until 1991. In figure 3.7.1 New Zealand subsequently ranks fifth in 1994 and has fallen out of the top-five in 1997. Poland, that briefly entered the top-three in 1991 (see Section 3.4) proves to be a stable specialiser in international transport, although a top-three classification has not been accompished anymore. South Korea appears in the upper end of the specialisation spectrum in 1997. This indicates that the recovery of relative specialisation in international transport which has occurred between 1991 and 1996 (see Section 3.6) has extended.As far as the patterns of specialisation in travel are concerned, we may further take notice of the fact that many developed countries seem relatively unspecialised in tourism. Lall (1986) has argued that tourism should be seen as distinct from other economic activity, because economic determinants of supply (such as technology, productivity) are less important in explaining patterns of trade. The tourism industry depends for a large part on the existence of favourable natural features, such as landscape, climate and cultural history. The

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[75] Switzerland could not be included in the sub-sample, because data were absent for 1997. However, from Section 3.4 we can safely presume that Switzerland is highly relatively specialised in financial services at present, too.

impact of these factors does not discriminate in absolute terms against less developed countries. Hence, we may expect that the relative importance of tourism is larger on average in less developed countries. A significant factor at play is the lack of technological capability in manufacturing and producer services in less developed countries. The emergence of Eastern European countries like Hungary and the Czech Republic as relatively specialised in tourism partly reflects the poor economic performance in other sectors. Still, some less developed countries appear amongst the least specialised countries (e.g. Brazil), while the most special-ised countries qualify amongst high-income countries. In fact, this is further testimony of the unimportance of economic (i.e. man-made) determinants of supply.

So far we have made use of data from the World Bank in the analysis of specialisation patterns in services trade. Although the lack of detail in the WDI classification of international trade in services hampers analysis, the World Bank provides the only data-set at present that is suited for the performance of inter-country analysis of trade patterns over a reasonable period of time. Because we have succeeded to illustrate the developments over time and across a diversified set of countries, it is now suited to look into the data-set compiled by OECD/Eurostat for greater detail.

Section 3.8   _Specialisation and Trade Composition in high income countries: a static overview_

Despite the lack of coverage in reported statistics, we are able to apply the information for 17 OECD countries (labelled sub-sample 4 in appendix A) to create a static, recent image of relative specialisation in service sectors as classified by OECD/Eurostat (1998).

Table 3.8.1 indicates that the average export shares in 1996 for service sectors in sub-sample 4 are close to the outcomes reached in sub-sample 3, table 3.7.1 (after applying the concordance between WDI and OECD trade classifications reported in Section 2.1). Although sub-sample 4 includes only 17 countries, the weight in terms of market share of the countries not included as compared to sub-sample 3 is relatively small, which implies that these countries do not influence the overall sectoral averages very much[76].

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[76] However, the average export share of Other Services is about 1 %-point below the value reached in sub-sample 3. Because three of the most specialised countries (Greece, Philippines and Austria) do not feature in sub-sample 4, the outcome for average export shares may have been influenced significantly in this sector. Moreover, international receipts from government services have not been included in service trade in sub-sample 4, while these transactions are part of Other Services in WDI statistics. This also causes a downward adjustment in average export shares of Other Services as well as total services.

Table 3.8.1 Average absolute export specialisation

Average Export Share of Service Sectors within sub-sample 4 (%)	1996
Total Services	20,1
Insurance Services	0,4
Financial Services	0,8
Transportation	5,1
Travel	6,3
Communications Services	0,4
Construction Services	0,8
Computer and Information	0,3
Royalties and License Fees	1,3
Other Business Services	4,3
Personal, Cultural and Recreational Services	0,3

Source: OECD/Eurostat (1998); own computations.

The extra level of disaggregation enables us to gain insight in the composition of average trade in the sectors Finance, Insurance and Other Services that we looked at before. Financial services are most important within the former sector, while other business services and royalties and license fees account for the major part of average export revenue in the latter sector. It is noteworthy to remark that business services itself (computer and information services, royalties and license fees and other business services) is only outpaced by travel in terms of average export revenues. Despite of the allegedly high trading cost of many business and professional services, they account for approximately 6% of total exports in sub-sample 4. Presumably, separated or cross-border trade already plays an important role in keeping trading cost relatively low, so that effective international competition on the basis of trade is increasingly possible.

In tables 3.8.2 and 3.8.3, I have presented disaggregated evidence on recent (1996) patterns of export specialisation for the 'G6'-countries that also featured in Section 3.5 and Chapter 2. For the first time, it is possible to include the United Kingdom in calculations of relative export specialisation. Table 3.8.2, in which the results for *pure* relative specialisation have been summarised, more clearly provides an impression of relative export specialisation. Given the results of that table, the outcomes for absolute-relative specialisation in table 3.8.3 reveal the relative size of different sectors (the extent of absolute specialisation), as well as the direction of relative specialisation[77].

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[77] Recall Section 3.2. Average absolute export specialisation can easily be derived by combining absolute-relative specialisation with pure relative specialisation. Moreover, the possibilities for "double-check" helped me locate an error in my calculations and correct the mistake for the purpose of composing the tables.

Table 3.8.2 Relative inter-industry export specialisation in the G7-countries

Relative Specialisation (R_{ij}, 1996)	The Netherlands	Germany	France	Italy	United Kingdom	Japan	USA
Total Services	108	65	110	104	117	71	129
Insurance Services	21	101	91	123	224	23	53
Financial Services	28	57	65	127	217	76	127
Transportation	176	64	108	92	103	90	109
Travel	46	46	124	149	94	14	154
Communications Services	76	89	42	44	120	78	113
Construction Services	163	100	125	119	108	153	52
Computer and Information	82	77	41	19	197	76	99
Royalties and License Fees	78	41	38	16	103	106	294
Other Business Services	145	92	133	86	123	109	91
Personal, Cultural and Recreational Services	82	9	143	46	368	14	126

Source: OECD/Eurostat (1998); own computations.

Table 3.8.3 Absolute-relative inter-industry export specialisation in the G7-countries

Absolute-relative specialisation (S_{ij}, 1996)	The Netherlands	Germany	France	Italy	United Kingdom	Japan	USA
Total Services	1,56	-7,01	2,09	0,79	3,48	-5,90	5,82
Insurance Services	-0,36	0,00	-0,04	0,10	0,56	-0,34	-0,21
Financial Services	-0,57	-0,34	-0,28	0,21	0,93	-0,19	0,22
Transportation	3,88	-1,83	0,41	-0,39	0,15	-0,50	0,49
Travel	-3,36	-3,36	1,50	3,09	-0,40	-5,40	3,40
Communications Services	-0,09	-0,04	-0,22	-0,21	0,08	-0,08	0,05
Construction Services	0,52	0,00	0,21	0,16	0,06	0,44	-0,40
Computer and Information	-0,06	-0,08	-0,20	-0,28	0,33	-0,08	-0,01
Royalties and License Fees	-0,30	-0,79	-0,83	-1,14	0,04	0,08	2,61
Other Business Services	1,94	-0,32	1,42	-0,61	1,00	0,41	-0,40
Personal, Cultural and Recreational Services	-0,05	-0,25	0,12	-0,15	0,73	-0,23	0,07

Source: OECD/Eurostat (1998); own computations.

Let us review the most important results for the seven major service exporting countries as reported in the tables. The strong specialisation in international transportation services for the Netherlands is in line with the findings in previous paragraphs on the basis of World Bank statistics.

Table 3.8.2 reveals that such a strong specialisation in transport yields a substantial extra share of transportation services in total exports. Compared to an average of 5.1 % of total export of goods and services, the Netherlands stands of at 9 % of exports in the sector international transportation. The major advantage of OECD data is the increased detail, especially in the composition of exports of Other Services. While we already took advantage of the increased detail in Section 2.5 to gain insight in the structure of exports and imports of Other Services, now we can deduce information on relative and absolute specialisation within Other Services. So we can see that the Netherlands is relatively specialised in construction services and other business services, which are relatively important sectors within Other Services. The remaining components of Other Services are of less than average importance,

though the extent of unspecialisation is moderate. In light of the relatively strong export specialisation in business services[78] in the Netherlands, I would like to refer to a recent sector-specific study by Kox (2001). He presents disaggregated evidence on internationalisation of business services industry. This study supports and extends the general impression expressed on the basis of our results. After empirical analysis, Kox draws the following conclusions for Dutch business service industry (amongst others):

- the Netherlands is an important player on the global market for business services, ranking in the top-six for both exports and imports (see also the evidence on market shares in Section 3.5)
- the Dutch domestic market of business services is more open and less sheltered from foreign competition
- globally, total trade in business services is rising in importance within total trade in services; in the Netherlands, the share of business services in foreign trade is growing, both in exports and in imports (see Section 2.5 on the share of business services[79] in service trade, Section 3.5 and Section 3.7 on specialisation in the Netherlands and Section 3.7 on the share of business services in world exports)

At present, Germany is clearly relatively unspecialised in service export. However, some sectors that represent mainly co-ordination services play a more average role in export production. Such a feature confirms the productive competence of leading industrial economies in services that are important in complex technology systems because of complementarity to production. As a case in point, Germany is fairly non-specialised in other business services, such as consultancy, research and development and professional services. Insurance services (and construction services) also have average export shares, at least for 1996.

Besides its specialisation in travel, which affects absolute specialisation in services the most, France displays a remarkable specialisation pattern in business services. While significantly specialised in other business services, France is relatively unspecialised in computer and information services and royalties and license fees. Factor intensities in these knowledge-intensive services should not deviate much from each other. Hence, this typical inter-industry specialisation pattern indicates the importance of new trade explanations of specialisation, even for specialisation *between* industries.

Italy owes its modest overall relative specialisation in services to the sizeable specialisation in travel. As we already noted earlier, Italy has specialised in financial services and insurance too. An even more pronounced specialisation in finance and insurance characterises the United Kingdom (UK). In fact, the UK is relatively specialised in nearly all service sectors. However, the extent of relative specialisation is comparatively more moderate in sectors that account for larger average absolute export specialisation, such as transport, royalties and other business services (though specialisation in other business services is still fairly high, internationally). Therefore, overall relative specialisation in services is not significantly

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[78] Business services include the categories computer and information services, royalties and license fees and other business services.

[79] In the sections referred to, business services are included in Other Services.

higher than for France and the Netherlands. Some additional differences compared to the patterns of other European countries are worth noting here. Relative specialisation in communications services and computer and information services has not been seen before and is highest among the 'G7'. The latter qualification also holds for personal, cultural and recreational services, such as entertainment events and movie fees.

The results of Section 3.5 illustrated the position of Japan as relatively unspecialised in services. However, a similar remark applies as for Germany. The export share of other business services and royalties is not below average compared to the other high income countries included in sub-sample 4. Japan even shows a remarkable specialisation in construction services, which may be related to its considerable foreign real estate investments[80].

On aggregate, the USA is most specialised in services within the 'G7'. Over time, travel has become a relatively important source of export revenue (see Section 3.5). In fact, travel is the most important source of above average exports of services in the USA, as we can deduce from table 3.8.3. The picture for co-ordination services is mixed. Some sectors do not ascend above average export shares: computer and information services and other business services. On the other hand, the United States is specialised in financial services and by far most specialised in exporting technology-related services in the form of licensing and content provision. Although this sector is small in terms of average export share, if it is anything close of a good indication of technological lead, we should note that only Japan and the United Kingdom also succeed in reaching an above average export share in technology exports[81].

So far we have only paid attention to patterns of relative inter-industry export specialisation, without explicitly analysing the composition of trade in services. The patterns of specialisation presented in Sections 3.5, 3.6 and 3.8 suggest that intra-industry trade might be substantial in services. Consider, for example, the evidence in table 3.8.2 for the sectors transportation services and other business services. Across the board, even relatively unspecialised countries have substantial exports in these sectors. The statistics on imports, presented in Section 2.5, indicate that, within the OECD, the import shares of sectors are close to their export shares. When combined, these average trade patterns cannot be completely due to intra-OECD inter-industry trade. Intra-industry trade should play a role here. First, we have to pay some attention to the application of intra-industry trade and the relation between relative specialisation and trade composition.

Intra-industry trade and sectoral classification

We already defined intra-industry trade in the beginning of sub-section 3.2.2 as import and

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[80] As anecdotal evidence, moreover, I refer to the recent installation of a futuristic shark-basin in a Dutch zoo by Japanese specialists. Construction services are often closely related to engineering services, which are part of business services (see UNCTAD and WB, 1994; page 30, footnote 8).

[81] Explicit research and development services are classified within other business services, though (this contains the selling of technology, rather than "renting" of technology). Moreover, much of technology transfer takes place within transnational companies (TNCs). Such intra-firm trade is not adequately captured in balance of payments statistics, as mentioned before (Section 1.3 and Section 3.7). If some of it is captured, this will mostly be classified as services between affiliates, under Other Business Services again. As a result, export patterns in other business services are also relevant for assessing trade in directly export-related services.

export of products within the same sector. To measure intra-industry trade, we need to decide where to draw the boundary between different sectors. The distinction depends on the purpose served. In theoretical digressions on trade theory, such as in Krugman and Obstfeld (1994, Chapter 6), the distinction is often applied between agriculture and manufacturing, interpreted as traditional and high-tech products[82] respectively. Implicitly, the criterion behind the distinction is the assumption that sectors within manufacturing and agriculture are similar in terms of factor intensities and technology, while agriculture and manufacturing are clearly different from each other in these respects. For theoretical purposes, this is fine. In practice, homogeneity in terms of factor intensities between sectors that are typologically categorised together as either agriculture, manufacturing or services, is not self-evident. More importantly, we have chosen to base our classification firstly on the distinction between goods and services[83] and then on the role or function of services within the production system. Within the three sorts of services identified in Section 1.2, activities that share homogeneity as a distinct type of services can be grouped together in a sector. The ultimate sectors have been chosen on the basis of very specific functional similarity in output or activity. As an example, consider transportation services and communication services as two separate cate-gories, or sectors, of transaction services. Reciprocal trade of products within such a sector is characterised as intra-industry trade. Similarity has been defined as similarity in nature and function. So, in principle, intra-industry trade does not refer to similarity in factor intensity per sé for our purposes. However, it is likely that within the sectors as derived by our categorisation framework, factor intensities are quite similar[84].

Most systems of sectoral classification more or less fit in the framework of categorisation that we apply. However, the World Bank classification of services trade used for compiling the WDI statistics does not. The sector Other Services includes a variety of transaction services (communications), more or less independent services (construction services and personal and entertainment services) and co-ordination services (computer and information services, content provision[85] and licensing and other business services). For our purposes, the similarity within this sector is insufficient to justify comparisons of intra-industry trade. The OECD/Eurostat classification, on the other hand, displays sufficient detail to warrant analysis

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[82] Note the absence of services in these digressions on international trade!

[83] The motivation to separately deal with trade in services has been central to this thesis: the difference in nature between goods and services shows itself in the different characteristics of production and transaction. Services require interaction between provider and absorber (the object of the service) and cannot be stored and exchanged. For many services, this implies that transaction costs of international trade are relatively high. In fact, only information-based services, information services and, to some extent, knowledge-based services can be traded without physical proximity between provider and object as a necessary condition to achieve joint-production (see Sections 1.1, 1.3 and 3.1).

[84] Some authors argue that differences in technology and factor-intensity between activities within a given sector can be as wide as between different sectors (Van Nunen, 1988; page 100). Although this may be true for some sectors (such as other business services), we should not question the validity of our categorisation framework because of this. The criteria for classification are: nature of product (good vs. service) and role or function within the economic system. Factor intensity and technology are not direct criteria. Still, I believe that the classification which follows from our framework yields sectors that contain more similar activities on the basis of factor intensity than the rough distinction between agriculture, manufacturing and services.

[85] In light of the provision of complete information, I should mention that content provision in the areas of music and movies are included in personal and entertainment services.

of trade composition. Moreover, given a suitable level of detail, the similarity of activities within a specific sector extends from function to factor intensity. Together with the notion that intra-industry trade is particularly relevant when competitive advantage arises from specialisation in varieties rather than comparative cost differences, a sample composed of countries that are relatively similar seems sufficient to successfully interpret the importance of intra-industry trade within these countries. Since no data exist on a sufficient level of disaggregation for less developed countries, we concentrate on patterns of trade for OECD countries.

Trade composition and relative inter-industry export specialisation

To expose the patterns in trade composition, we cannot rely solely on evidence on relative inter-industry export specialisation. We need to make use of the explicit indicator of trade composition, introduced in formula 3.4. On first sight, this is not as evident as it may seem, as is clearly explained by Alex Hoen (1999, pp. 200-201).

In *pure* theory of international trade, the world economy is often characterised as consisting of two countries that produce two products in total. Trade may occur for any of two reasons: comparative cost differences and product differentiation under economies of scale. In one extreme, the two countries will only exhibit different comparative cost. Consequently, as Hoen states, after markets have been opened to international trade:

> "..each country starts to specialise in the production of the commodity that it produces relatively cheap. Hence, integration causes <u>inter-industry trade</u> and [inter-industry] export specialisation.." (Hoen, 1999; page 200); comment added between rectangular brackets; underlining added.

In the other extreme, countries will not differ in terms of comparative cost, while the products are both differentiated and produced under economies of scale. Trade will occur because of the competitive advantages of specialisation, given imperfect competition and scale economies (see Section 3.1). Each country specialises in the production of a limited number of varieties of both products, which enlarges the scale of individual operation. In the words of Hoen (idem, page 200):

> "..integration causes <u>intra-industry trade</u> and intra-industry export specialisation.." (underlining added).

Logically, in between these two extremes the following relation between inter-industry trade and intra-industry trade exists: a decrease in intra-industry trade implies that the share of trade that is composed of reciprocal trade of similar products decreases; consequently, the share of trade in each country that exists of export and import of different products will grow (see also Krugman and Obstfeld, 1994; Chapter 6). This relation holds in general, even if we depart from the abstraction of two countries and two (types of) products to the real multi-country, multi-product world. The index of trade composition (formula 3.4) precisely indicates the share of trade within a country in a specific sector that is composed of intra-industry trade: swapping export for import of similar products.

Still, a mistaken conclusion is often deduced from the two country, two product world. The inverse relation between inter-industry *trade* and intra-industry trade is automatically

extrapolated to the relation between aggregate[86] inter-industry *export specialisation* and intra-industry trade.

In general, however, relative inter-industry export specialisation does not unambiguously predict the exact composition of trade in the sector under consideration. In case we analyse a situation of only two products and two countries, an increase in aggregate relative inter-industry export specialisation can only be due to an increasing share of inter-industry trade between the countries. If one of both countries becomes a net exporter of a specific product, the other becomes a net importer of that product. Necessarily, the situation for the remaining other product becomes reverse. The latter country becomes a net exporter of that product, while the former country becomes a net importer. Thus, in this situation, inter-industry trade in each sector increases, which automatically causes sectoral relative inter-industry export specialisation to increase in the net exporting country and to decrease in the net importing country for each sector (or product). Hence, patterns of relative export specialisation reflect the importance of inter-industry trade in a sector, as well as between countries as a whole, for our benchmark world! As Hoen puts it: inter-industry trade goes together with *non-average* sectoral export specialisation. So, the inverse relation between inter-industry trade and intra-industry trade translates into an *inverse relation, in absolute value terms*, between sectoral relative export *specialisation* and *intra-industry trade*.

However, according to Hoen,

"Although the relation between specialisation and intra-industry trade holds in the case of two countries and two commodities, it does not have to hold in the case of more than two countries and more than two commodities" (Hoen, 1999; page 201).

We can see this by considering some situations that can occur in a world of many countries and many products. Suppose a country is non-specialised in a particular sector, which means that the value of the index of pure relative export specialisation (R_{ij}) is close to 100%. It is very well possible that the country has a competitive advantage in this sector and has become a net exporter. In fact, it may even 'specialise' in the sector, in the sense that no imports need to be made and all domestic demand is met by domestic supply, while the domestic production even exceeds this demand for export purposes. However, because production possibilities include many other sectors, the cost advantage of the country may be even higher in other sectors. Relative costs and production possibilities bring about a ranking of export production, in which the export share of the sector under consideration may be low relative to the outcome in other specialising countries. Thus, specialisation in the sense of pure inter-industry export within a sector may result in an average or even slightly below-average extent of relative inter-industry export specialisation!

Consequently, high inter-industry export does not automatically imply high relative export specialisation for a given sector and, equivalently, high inter-industry import in a sector does not imply high relative export unspecialisation in that sector.

Furthermore, remember that relative export specialisation is measured against an average

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[86] Aggregate inter-industry export specialisation is the extent of relative specialisation for a country as a whole, as based on a summation of sectoral indices of absolute-relative specialisation. See Hoen (1999, page 191) for such an indicator.

over all countries in the sample. If that sample consists of a substantial amount of countries that moreover are quite diverse in terms of the level of economic development, the picture may be further disturbed. Especially in the samples we used for the analysis of WDI statistics, patterns of trade within certain groups of countries should motivate us to be careful in the interpretation of specialisation patterns. Given their economic structure and the patterns of demand that follow from that, industrialised countries may be relatively specialised compared to the sample average, while much of the relatively high exports in certain sectors are met by reciprocal imports in the same sectors. Industrialised countries engage in high intra-industry trade with each other, because of their similarity. So, high relative specialisation can at least partly go together with high intra-industry trade, because the average is influenced by less developed countries too.

This part of the problem could be solved by focusing on a specific set of countries between which we would like to analyse patterns of trade and specialisation. In other words, we would like to filter towards *relevant* trade. Since our data do not enable us to track down origin *and* destination of trade flows, we unfortunately cannot investigate trade between DCs separately from DC-LDC trade, for example. As an example of research that focuses on relevant trade within a group of "similar" countries, consider Hoen (1999, Chapter 6) who has used input-output data and - estimations to analyse trade flows within the European Community. He concludes that intra-industry trade is quite significant in this group of countries for goods and services, based on a higher level of disaggregation than we can reach on the basis of balance of payments statistics.

From this finding we may infer that intra-industry trade between industrialised countries influences, to some extent, the interpretation of specialisation patterns in the samples that also included less developed countries. High relative specialisation of the group of developed countries does not necessarily indicate a large importance of inter-industry trade with less specialised developing countries. Still Hoen concludes, also on the basis of other empirical evidence, that the inverse relation, in absolute value terms, between intra-industry trade and export specialisation seems applicable in a substantive part of the cases. High *relative* specialisation or unspecialisation in a sector often implies that trade in the sector is largely a reflection of inter-industry trade patterns between trading partners. Because relative specialisation and trade composition are logically different concepts, however, we should be careful in the interpretation of the results of this and previous sections. Caution is necessary to avoid inappropriate conclusions about patterns of trade on the basis of indices that do not directly intend to measure that specific part of trade patterns. For example, conclusions drawn on the basis of outcomes for trade composition may not reflect the patterns of relative inter-industry export specialisation between countries.

The composition of trade in service sectors for the seven major participants in service trade

Being aware of the details in the interpretation and use of relative export specialisation and trade composition, we can conclude the analysis of the patterns of trade in services by considering the evidence on the composition of service trade in the largest, most important exporters and importers of services. Table 3.8.4 presents the results for the sectoral indices of

trade composition in the 'G7' countries in 1996, based on the statistics for nominal sectoral export and import as, respectively, originating from and entering in each of these countries.

Table 3.8.4 Intra-industry trade in service sectors

Trade Composition within sub-sample 4 (1996)	The Netherlands	Germany	France	Italy	United Kingdom	Japan	USA	U. A. per division
Insurance Services	0,38	0,94	0,97	0,60	0,38	0,41	0,63	0,62
Financial Services	0,92	0,50	0,95	0,80	n.a.	0,98	0,52	0,67
Transportation	0,81	0,89	0,99	0,78	0,98	0,78	0,99	0,89
Travel	0,72	0,51	0,77	0,69	0,87	0,20	0,77	0,65
Communications Services	0,99	0,86	0,84	0,72	0,89	0,85	0,63	0,82
Construction Services	0,67	0,92	0,53	0,55	0,86	0,90	0,16	0,66
Computer and Information	0,99	0,80	0,97	0,52	0,84	0,67	0,25	0,72
Royalties and License Fees	0,90	0,73	0,83	0,56	0,87	0,81	0,44	0,73
Other Business Services	0,92	0,91	0,89	0,89	0,29	0,80	0,78	0,78
Pers., Cult. and Recr. Services	0,98	0,11	0,87	0,56	0,65	0,26	0,11	0,50
U. A. per country	0,83	0,72	0,86	0,67	0,66	0,66	0,53	

Source: OECD/Eurostat (1998); own computations

Note: "u.a." stands for unweighted average

The table shows that trade in services is mostly composed of intra-industry trade for OECD countries. The index of trade composition takes values above 0,50 for all sectors except for entertainment and personal services . This implies that over 50% of total trade[87] in a sector for an individual country represents intra-industry trade. We applied unweighted averages per sector (or "division"), since the computation of intra-industry trade does not contain interdependencies among countries (as was the case for export specialisation). Therefore, it is not immediately clear how possible weights should be determined. The sectors transportation, communications and business services show the most pronounced presence of intra-industry trade across the board. The relation between export specialisation and intra-industry trade that would be expected from the 2-country/2-sector idea, to some extent holds for OECD countries. For example, comparing export specialisation in table 3.8.2 with trade composition in transportation, we see that the countries with relatively most export specialisation or unspecialisation in transport services (the Netherlands, Germany, Italy and Japan) roughly exhibit lowest intra-industry trade. The findings thus conform to our expectations. Moreover, since OECD countries on the whole did not show extensive cross-country differences in export specialisation for transportation, we expected high intra-industry trade in this sector. This turned out to be so, even relatively to other sectors with above 50% intra-industry trade.

Next, we can compare the share of intra-industry trade in services as a whole for individual countries, across the G7. Here, a weighted average to aggregate different sectors would have been better as a proxy for the country-specific importance of intra-industry trade in total services. For a rough impression of country differences in results, however, an unweighted average of sectoral trade composition suffices. The most striking result is that the countries most dedicated to European Integration (the Netherlands, Germany and France) show most

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[87] Here, the term "total trade" is used for an individual country and refers to the sum of exports and imports in a sector.

intra-industry trade in services[88], while countries that are relatively more oriented towards other parts of the world, such as the United Kingdom, Japan and the USA reflect lower intra-industry trade in services. For the USA, we may again (see Chapter 2) point out that intra-state trade may assume the role that is played in Europe by international trade between different countries (although inter-industry trade seems more important between different regions in the USA; see Krugman, 1991). The pattern for the importance of intra-industry trade in services as a whole also roughly reflects the pattern of relative specialisation in services between G7-countries. The USA, the United Kingdom and Japan exhibit relatively extreme export specialisation and unspecialisation, respectively, in services, while intra-industry trade in services is relatively low. This is in line with the on average expected relation between intra-industry trade and inter-industry export specialisation.

Main Insights and Concluding Remarks

Literature on international trade in services is peripheral and mostly theoretical. We have tried to supplement this literature by a descriptive analysis of the actual patterns of trade in services. Still, we started from economic theory by considering the validity of traditional comparative cost theory and new trade theories for international trade in services. We found that the specific nature of services does not invalidate the theories. The high trading costs of services and the close relation to permanent local presence, as a substitute and a complement for direct trade in services (for reputation building) only led us to interpret the theories more as theories of international transactions, including FDI-related sales.

Although the availability and consistency of data on trade in services is low compared to merchandise, we have been able to present evidence on relative specialisation in service sectors and on the development and composition of trade in those sectors. Moreover, we have derived some useful insights on the methodology of doing descriptive empirical research. Without the need to repeat the findings described in the sections of this chapter, we can summarise the general results to get an impression of the findings.

As far as the methodology is concerned, we have shown that export specialisation primarily reflects underlying patterns of allocation of production factors across sectors for the purpose of exporting some products and importing others, or other varieties. In this way, we can reflect the ultimate theoretical explanations of trade that are offered by comparative cost theory and new trade theories. The fact that trade statistics are often reported in gross output terms, impedes this translation from measured patterns to theory. A suggestion would be to try and collect data on trade in terms of value added, including both direct trade and indirect trade of *embodied* intermediates (see Section 1.3 on the difference between direct and indirect trade, as concepts). This would allow us to better locate the sectors and chains of sectors in which a competitive advantage exists. In that way, we would get a better picture of the ultimate, direct and indirect allocation of production factors to production for purposes of international trade. An example of such a research has been offered by Francois and Reinert

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[88] These results are not completely in line with the findings of Hoen (1999; Chapter 6) for economy-wide importance of intra-industry trade within the European Community for individual member countries. He, however, also includes merchandise trade in the picture, which weighs heavily in country wide indices.

(1995).

The empirical results presented in Chapter 3 indicate that Other Services has experienced the fastest growth in service trade, while the growth of the share of total services in total aggregate trade has stagnated somewhat, but only recently. The fact that the share of aggregate trade of Other Services has consistently grown relative to total aggregate trade, indicates the relevance of the theories illustrated in Chapter 1 that interpret the rise and changing role of services in economic structure and the fall in trading cost, specifically of knowledge- and information-based co-ordination and transaction services.

Industrialised countries appear to be the largest importers and exporters of services, relative to merchandise, compared to less developed countries (LDCs). However, developing countries have also experienced fast growth in service trade and openness (also see Chapter 2). Moreover, the importance of Other Services in trade has grown in many of the developing countries selected in our samples. Thus, our results[89] show that the Philippines, Singapore, Malaysia and (recently) India are even relatively specialised in exporting Other Services, while Thailand, Poland and the Czech Republic are not far behind in terms of specialisation. Also the importance in imports has risen on average for less developed countries. The market shares of these less developed countries in aggregated exports for service sectors has often shown growth. This implies that LDCs are making a slight catch-up in service trade.

The developments in market shares for services as a whole often qualitatively reflect the developments in the country's share in total aggregated exports. From this, we may infer that macro-economic factors are important in explaining growth of exports and relative export performance in both goods and services.

The patterns of relative specialisation in service sectors that appeared from the results give the following general division.

Developed countries are relatively specialised, on average, in exporting Other Services, while less developed countries are usually relatively specialised in goods rather than services. Still, some developing countries are relatively specialised, mostly in travel. On the import side (see Chapter 2 and UNCTAD and WB, 1994; page 13), industrialised countries have a relatively high import share of Other Services and travel, while developing countries have high import shares of Other Services and transport services, among services.

Given these patterns of trade, high relative specialisation at least to some extent reflects inter-industry net-trade between countries specialising in different service sectors on the basis of different competitive advantages. Yet, the high importance of intra-industry trade in service sectors for industrialised countries suggests that some of the specialisation patterns reflect differences in demand patterns between developed and less developed nations, with a high proportion of trade in similar services between similar countries.

As far as the explanation of trade patterns, our research is too descriptive to provide definite answers. Inter-industry trade and inter-industry specialisation do not necessarily go together as argued and applied above. Still, both inter-industry trade and intra-industry trade occur. For the latter, we can point to the importance of new trade theories of differentiation

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[89] Not all results for all countries have been included in the graphs and tables, so some of the following

and scale economies as most important explantory factors. Only differences in quality, leading to vertical intra-industry trade could imply some role for comparative cost theory in explaining this type of trade. Patterns of inter-industry trade could reflect both traditional comparative cost differences and competitive advantages related to scale economies (as also noted in Sapir and Winter, 1994).

remarks are new.

Chapter 4   Protection in services and service trade

Introduction

The present chapter intends first to give an overview of developments in trade liberalisation with respect to services and then to illustrate the current state of affairs in the area of institutional barriers to international competition on service markets. Eventually, the purposes of the chapter are twofold. On the one hand, the overview helps us to assess the position of liberalisation as a potential cause for the process of service internationalisation. On the other hand, the information on the current relative restrictiveness of service sectors may serve to provide a qualitative insight in the possible effects of protection on trade patterns.

The chapter begins with a section that gives a picture of the general trends in trade liberalisation, particularly in services.

Because of the special characteristics of international transactions in services, barriers to international competition in services are more diverse and mostly of a non-tariff nature. Section 4.2 reviews the institutional barriers to foreign contestation. The first research question thus becomes:

"Which barriers to international competition are most pervasive in service sectors?"

Since the first sections will have provided insight in service liberalisation and protection, the last section will attempt to further illustrate the current incidence of protection in service markets. Section 4.3 intends to combine qualitative evidence on current relative restrictiveness of service sectors with the statistics on trade patterns we have used and compiled to assess the internationalisation in terms of service trade. The following research questions embody the final analysis of this chapter:

"Does evidence on effective protection justify the partial relation of differences in trade shares between service sectors to differences in average effective protection?"

and

"Can differences in effective protection between countries be causally correlated to differences in trade patterns?"

The analysis of this chapter is brought to an end with some concluding remarks.

Section 4.1   Liberalisation of international transactions in services: some trends

The interest in opening-up world markets to service transactions was first asserted by industrialised countries in the early 1980s, most pronounced by the USA. However, since the mid-80s developing countries have emerged as relatively fastly liberalising their service industries (UNCTAD and World Bank, 1994; page 20).

To understand the trend towards liberalisation, we first have to determine exactly what is meant with liberalisation in this respect. From now on, I will reserve the term "liberalisation" for the "process whereby measures are taken that expand market access to foreign services providers or diminish discrimination against them vis-à-vis domestic suppliers" (idem, page 25). Hence, liberalisation is specifically applied to the area of *international* transactions. For

the process of reducing government intervention in domestic markets per sé, also often labelled (domestic) liberalisation, I will henceforth use the term "deregulation". Often, liberalisation requires deregulation to foster competition as a first condition for foreign market access to occur. As we will see, domestic regulation is especially pervasive in services and acts as effective barrier to international contestability. From the other side, regulation in services is sometimes justified for reasons of economic efficiency (see Chapter 1,Section 1.3). Hence, liberalisation may involve increased regulationary efforts by governments to control for market imperfections that might arise or increase in a more liberal competitive environment.

The relatively outspoken move towards liberalisation of services in developing countries takes place mainly within the concept of autonomous liberalisation initiatives. These unilateral policy reforms should be understood against the background of broader neo-liberal reform in LDCs since the early 1980s. The goal of reforms was to promote openness and efficiency of developing economies. The efforts initially focused on trade in goods. Besides liberalisation, remaining trade policy instruments were to be reformed towards greater neutrality, advocating market conforming (i.e. price-related) restrictions[90]. Though the literature offers some rationales for these reforms, such as a purported theoretical and empirical relation between openness and economic growth, the ineffectiveness of inward-oriented development strategies and the institutional support offered by the World Bank and the IMF, these justifications are debateable. The relation between openness and growth does not hold for developing countries in general (see Wade, 1990; Chapter 1). Evidence on East-Asian countries' growth experience suggests that an export-oriented strategy of development may very well require temporary import-substitution, or husbandry of particular sectors. If properly disciplined, a governed or subsidised market is likely to outperform a free market in late-development (see Amsden, 1992 and Evans, 1995). Hence, the neo-liberal reform supported by the World Bank and IMF should perhaps rather be characterised as imposed programs of structural adjustment. The reforms are part of a conditionality clause, in which countries as a result have to comply under coercion. This negatively affects the long-run sustainability of drastic deregulation and liberalisation in developing countries.

Although trade barriers and regulation in services continue to render the contestability of service markets more restrictive, the trend towards liberalisation in services seems to be more widespread at the moment than for goods. Not only developing countries, but also industrialised nations have recently embarked upon a liberalising path. One reason, again, is that service markets are more restrictive and liberalisation has a farther way to go. The other reasons are related to the rising importance of services in economic structure. In the first place, rising demand for producer services and the importance of efficient services for productivity (see Sections 1.2 and 1.3) and secondly, the emergence of telematics, which has

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[90] Bhagwati provided a theoretical argument for more neutral trade regimes. The main objective of neutrality is to offset any protection of import-competing production with export incentives, in order to avoid biased incentives for home-market production and against export-production. Thus, protection of infant-industries is geared towards export-markets. Moreover, protection should not be selective, but generic across industries to correct for market failure that is due to the institutional shortcomings of an LDC in general. This theoretical argument has been labeled export-promotion strategy (see Wade, 1990; Chapter 1).

resulted in a changing competitive environment (which affects contestability) in many service markets. Potential access to efficient intermediate services and the possibility to increase the efficiency in both services and downstream industries are a stimulus for all countries to engage in liberalisation efforts. Hence, liberalisation appears to follow these ultimate causes of internationalisation in services. As proposed earlier in Chapter 1, liberalisation is most likely to be an auxiliary cause for ongoing internationalisation.

Because of the factors mentioned in the previous paragraph, further liberalisation in services has more positive prospects in terms of sustainability. The question remains, however, how far liberalisation will go in bringing about free international competition. The best possibility to co-ordinate unilateral and minilateral liberalisation actions is the construction of a multilateral liberalisation framework for services. As a potentially important step towards explicit multilateral liberalisation of service markets, countries across the world have negotiated an agreement on service trade in the Uruguay Round of GATT-negotiations (1986-1994, which also resulted in the institution of the WTO[91]). Although a significant number of developing countries participated in the eventual agreement (the GATS, General Agreement on Trade in Services) that resulted from the negotiations[92], the multilateral commitments made by developing countries are more limited than those made by industrialised nations. As it has been the first effort for multilateral liberalisation in services, the lack of results in terms of effective liberalisation may have been expected. Yet, the structure of the GATS agreement proves even of little promise in terms of binding countries to a standstill in terms of the degree of current protection (see Hoekman, 1995).

Concluding, we may say that efforts to remove institutional barriers so far have not yielded much multilateral commitment to effective liberalisation. Even after the inception of the GATS, there still remains significant scope for liberalisation of international transactions in services. As a case in point, many governments remain ambivalent towards FDI (as noted by UNCTAD and WB, 1994). Moreover, due to strategical disputes between developing and developed countries, negotiations fail to advance even in mutually beneficial directions[93]. Perhaps the most important example of such a fundamental dispute is given by the issue of international migration. LDCs argue that negotiations on services should include labour in general, which consistently draws the logical connection between advocating free trade and free migration. Constraints on migration are actually barriers to protect the labour market and, as such, in contradiction to the principle of free trade, advanced by the WTO (Keyzer and Merbis, 2000; page 265).

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[91] The GATT stands for General Agreement on Tariffs and Trade, an institutional arrangement (1947) to install a multilateral negotiation process towards an integrated world trading system of free markets. In 1994, GATT-negotiating parties launched the World Trade Organization (WTO) as permanent institution to prepare and support further negotiations.

[92] The negotiations on financial service trade under the GATS continued after 1994, and were not concluded untill 1997.

[93] This has been illustrated by the failure of the Seattle Conference (end of 1999) in even setting the agenda for new multilateral negotiations under the Millennium Round.

Section 4.2   The nature of protection in service markets

Section 4.2 discusses the nature of protection in the service sector. The research question that emerges in this light is:

"Which barriers to international competition are most pervasive in service sectors?"

Because service trade often requires (temporary) movement of provider or consumer, protection in services mostly arises from regulations and discriminating requirements regarding this movement. The product-transaction of the service itself is often invisible for customs control. Even cross-border transactions of most separated services are difficult to monitor for customs authorities. As we noted in Section 1.3, the process of joint-production takes place through interaction using communications networks. The product itself usually remains invisible for customs, only the joint-production process can be observed and charged directly. Tariffs thus can only be applied on communications services and other services (such as transportation) that can be observed more or less directly by customs. Service transactions that make use of these transaction services can only be charged in their transaction costs of joint-production, not by tariffs on the product transacted itself. Therefore, most policy instruments that affect international transactions in services are essentially non-tariff barriers rather than tariffs on the product itself. As a result, the effect of policies concerning services are less amenable to quantification, which makes the assessment of protection in services an arduous task.

The definition of liberalisation that we expressed earlier, leads to a classification of policy instruments that constrain international transactions, which is often used in the literature (see UNCTAD and WB, 1994; Box 1.5). Policies may either explicitly restrict *market access* or violate *national treatment*, once a foreign supplier has entered the market. In the case of services, market access refers to the extent of freedom for foreign service providers and for consumers to choose any of the four modes of international transaction: cross-border trade, temporary movement of providing personnel, temporary movement of the object of the service (usually the consumer) or permanent local presence of a foreign-based provider. National treatment refers to the fact that foreign providers, once they have entered a local market, can offer their product or perform their production at no less favourable terms than local providers.

Because of the extensive prevalence of regulation in service markets, a third category can be added here. Some policies, such as intellectual property-rights protection or regulations that are devised to correct for market failures that are widespread in services (as we argued before), such as imperfect information and scale economies that lead problems like moral hazard, adverse selection and other abuse of market power, may inadvertently discriminate against foreign service providers. This third category of policies may not explicitly or exclusively be intended to constrain international transactions. Given the pervasiveness of regulatory restrictions in service markets, both to amend for market failures and as the most important option to restrict foreign competition, the distinction between the three groups is "somewhat blurred" (UNCTAD and WB, idem) in the case of services. Since tariff-based protection is less of an option to constrain international transactions of services, given their

nature, "violations of national treatment are often used as an instrument to deny market access" (UNCTAD and WB, idem). Still, it is possible to categorise the wide variety of non-tariff instrument that directly or indirectly affect the international contestability of domestic service markets according to these three categories.

Hoekman and Sauvé (1994, page 7) identify five broad categories of policy instruments that impede trade in services[94]:

- quantity-based measures
- price-based measures
- measures that impose physical or corporate presence in a domestic market
- measures related to standards, certifications and industry-specific regulations
- procedures of government procurement and subsidisation

Quantity-based measures are intended to limit the value of service imports over a certain period or to restrict the number or market share of foreign-originating permanent establishments. The instruments may vary from discriminatory restrictions that, for example, ration the amount of foreign exchange allowed for purposes of importing services or limit the extent of foreign ownership allowed, to non-discriminatory quantity restrictions. These include, amongst others, limitations on the number of firms allowed to contest a market either by imports or local production and on the nature of their operations. Quantity-based restrictions should clearly be categorised in the group of *restrictions on market access*, as foreign suppliers are not free to choose the amount of services to be provided to a local market in any of the four modes of international supply.

The fact that import tariffs cannot often be used for services does not imply that price-based restrictions do not exist. Price controls in services may be installed to ensure quality and avoid adverse selection or abuse of market power. In the first case, prices are raised above competitive equilibrium, which may inadvertently constrain foreign competition and, hence, economic efficiency if foreign providers would be able to undercut domestic prices without loss of quality due to a competitive advantage. These instances would categorise as *inadvertent restrictions of trade* and may be especially relevant in professional services. In the second case, price controls are installed to regulate a natural monopoly (such as telecommunications services) or oligopolistic markets (such as financial services). Often, however, governments want to keep a regulated situation that is under control from changing. Therefore, price measures have been constructed in a discriminatory way so as to keep foreign firms from gaining market power. These measures would classify *as violations to national treatment* and may be especially harmful to economic efficiency if technology would allow the movement to less regulated and more competitive markets (as has happened in telecommunications; see Meijer, 1999a).

Measures that require physical or corporate presence in a market are also often related to the practice of regulating imperfectly competitive service markets that operate under imperfect information. For purposes of consumer protection, regulatory oversight and

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[94] We focus on trade in services, and interpret measures that force foreign suppliers to enter by permanent

effective supervision, foreign companies are often required to establish legal presence in a domestic market. Such measures restrict the freedom in *market access*. Although understandable from the perspective of required sensible regulations, the path chosen is only second-best. First best would be to improve government capacity to keep oversight in a more dynamic market with changing players and to be able to supervise foreign-based suppliers. The latter would require multilateral legal co-operation. If capacities and jurisdiction could be improved, the efficiency of the market would definitely improve upon the present situation.

Sometimes, governments might go as far as to install government-owned or subsidised companies to keep a market under control. Also they might favour resident firms in purchasing products. These examples classify as either impediments of market access or as violations of national treatment.

Finally, measures related to standards, certifications and industry-specific regulations also focus on the difficult trade-off between sensible regulation and impediment of competition. In general, diverging standards and certifications are discriminatory measures that *violate national treatment*. They may lead to non-recognition of foreign services or service production equipment and networks (e.g. in telecommunications services) or non-recognition of the qualifications or certifications of foreign service providers and their personnel. This may seem non-discriminating, but it actually still is. Foreign providers should invest additionally in assets they actually already possess in qualitative terms, just because standards are different. Even more discriminating, and more explicit, examples of protectionist policies would include professional requirements that are more demanding for foreign suppliers compared to residents. Clearly, efforts at unifying standards would improve (static) economic efficiency.

All in all, policy regimes in services are more difficult to assess, while restrictiveness seems to be higher because of the pervasiveness of regulation. Institutional restrictions on contestability thus appear to complement the natural barriers of relatively high trading costs. Hence, institutional changes towards increased exposure to foreign competition have yet to make a significant contribution to (further) internationalisation of service markets. The following Section will try to provide a first descriptive determination of current restrictiveness of service policies and to assess the effects on trade in services.

Section 4.3   Relative restrictiveness of services and trade patterns: from qualitative assessment to quantification, a first descriptive step

Introduction

As we have acknowledged in the previous section, the nature of institutional barriers to international transactions in services leaves analysts with extensive difficulties when trying to assess the costs and benefits of current policies in service sectors. As Hoekman (1995, page 354) stresses, this "greatly impedes analysis on the potential market opportunities and relative restrictiveness of regulatory regimes". He also argues that "any objective attempt at

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location on a local market as an impediment to service trade.

tariffication and the calculation of price-cost margins would greatly expand available information on the effect of current policy".

In Section 4.3 we will make use of the results of Hoekman's pioneering contribution to the tariffication of service sectors. The intention is to illustrate the present situation in terms of the institutional impediment of international competition in services. On the basis of the indicator of relative restrictiveness of policy regimes concerning service industries across countries, an attempt will be made to assess the possible influence of effectively protectionist policy on trade patterns. The relevant research questions for this purpose are as follows:

"Does evidence on effective protection justify the partial relation of differences in trade shares between service sectors to differences in average effective protection?"

and

"Can differences in effective protection between countries be causally correlated to differences in trade patterns?"

Sub-Section 4.3.1   The Methodology of effective protection

The difficulty of quantifying the extent of protection caused by non-tariff-based policy regimes for services has resulted in a focus on qualitative assessment in the literature (e.g. UNCTAD and WB, 1994). The conclusion of the GATS agreement offers new qualitative information for the ranking of policy regimes across countries and sectors. To understand the possibilities that arise, we have to take some notice of the structure of the GATS. For our purposes it suffices to observe that the GATS ultimately became an agreement that attempts to make countries commit themselves to bind the status-quo in terms of protection in service sectors[95]. Individual member countries have offered schedules of sectors for which they subscribe to the GATS agreement at least to impose a standstill on the adoption of new restrictions on international transactions in services. The coverage of service sectors varies widely across countries, leaving individual subscribers ample space to except sectors partly or completely from the binding commitments.

Hoekman (1995, Annex 2) recognises the usefulness of country schedules submitted by GATS members to assess the relative restrictiveness of service policies regarding foreign market access and national treatment. He attempts an indirect *ordinal quantification* of the extent of *effective protection* that results from each country- and sector-specific set of institutional barriers to international transactions. Note that I have used the terminology "effective protection" above. This refers to the fact that Hoekman tries to capture the protective bias in import prices for a specific country and -sector in a single variable, the *tariff equivalent*. In fact he constructs a tariffication of the impact of service policies on post-border prices and effective international competition: hence the term "effective protection". In the absence of explicit information on the actual policy regimes in force in the various countries (cf. Hoekman, 1995; page 360), he deduces the relative restrictiveness, as embodied in the tariff equivalents, from countries' GATS coverage. The logic and assumptions he applies are

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[95] Hoekman (1995) offers a detailed assessment of the framework of the GATS and the options to improve

as follows:

The key assumption is that the coverage of each country's schedule indicates its present policy stance. Hoekman argues that "(t)he more liberal a country, the less constrained its government can be expected to be in binding the status quo in the GATS. The higher the coverage ratio of its schedule, the more liberal the country relative to other countries."

Then Hoekman suggests "to relate each country's coverage ratio to a sectoral benchmark 'guesstimate' of what the tariff equivalent of the most protectionist nation might be, to get a country-specific 'tariff equivalent'." The extent of actual maximum protection differs across sectors, which is reflected in the values of the benchmarks chosen.

To proceed with tariffication, Hoekman first concorded the GATS-list of sectors to the ISIC classification we also used in Chapter 2. Subsequently, he corrected the country-specific coverage of each GATS sub-sector for its intensity (referring to whether all modes of international supply [see Section 1.3] are fully-, partly- or non-committed to free market access) for each individual country that participated in GATS. Finally, he computed the total coverage for each 2-digit ISIC item by expressing the weighed coverage of all embodied GATS (sub-) sectors as a percentage of the maximum coverage of sub-sectors within the specific ISIC item. The tariff equivalent for a country in a specific 2-digit ISIC sector then becomes:

$$TE = (1-CP) * BTE \hspace{4cm} \textit{formula 4.1}$$

with:

CP = weighed coverage as perunage of maximum coverage
BTE = benchmark tariff equivalent in most protective country
TE = country-specific tariff equivalent

If a country's schedule provides full coverage in a 2-digit sector, which means that the country commits itself fully and unconditionally to free market access and non-discrimination, Hoekman assumes that its policy stance is completely liberal, hence the tariff equivalent has a zero-value.

Of course, the complete arbitrariness of the benchmark tariff equivalents renders the ranking of country- and sector-specific effective protection essentially ordinal, hence primarily qualitative. Moreover, the option of countries not to bind the status-quo causes a gap in the logic of using GATS-schedule coverage to assess the relative restrictiveness of individual countries' policy regime. Hoekman (1995, page 360) quotes the example of traditionally liberal countries such as Hong Kong (now Hong Kong, province of China) and Macau (idem) that did not bind the status-quo. In the above analysis, the result is a zero-coverage for any sector that is unbound. Consequently, the tariff equivalent for such a sector assumes its maximum, the benchmark value. This does not conform with the actual policy

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upon this structure in order to achieve more successful multilateral discipline of service policies.

stance in these nations, which is characterised by (nearly) free market access and non-discrimination. The culprit for misrepresentations like the above is the fact that the status-quo in terms of effective protection is country-specific and not binding this status-quo has entirely different meaning for different countries. In our model, not binding the status-quo is taken to imply a choice for a maximum protective policy stance with respect to any specific sector. Despite its imperfections, the approach suggested by Hoekman provides a satisfactory first attempt at quantification of effective protection, given the lack of information on actual policy regimes and their distortionary effects.

In the remainder of the section, we will apply Hoekman's estimates to derive information on the extent of effective protection in service sectors as classified in the statistics on the Balance of Payments. The purpose is to provide a descriptive quantification of the partial relation between protection and patterns of trade. For that purpose we try to answer the research questions stipulated at the beginning of this section.

Sub-Section 4.3.2   Average sectoral tariff equivalents and the structure of aggregate imports

A first concise way to derive useful information on the effects on trade patterns from the set of data concerning effective protection is to focus on average cross-sector differences in protection. For this we have to devise a way to aggregate the tariff equivalents of different countries for each sector, to arrive at an average tariff equivalent per sector for the sample as a whole. Then we are able to analyse the partial correlation between differences in average tariff equivalents and differences in aggregate trade shares across sectors. This way, we can answer the first research question of interest in this section:

"Does evidence on effective protection justify the partial relation of differences in trade shares between service sectors to differences in average effective protection?"

Below, I will describe the procedure followed to compose a proxy for average sectoral tariff equivalents. Following that, I will introduce possible benchmark variables for the sectoral composition of trade in services. Without benchmarking, analysis of the partial effect of protection on aggregate trade shares is impossible, since we logically do not possess information on the sectoral composition of trade that would occur in the absence of differences in effective protection between service sectors and between services and goods.

Hoekman (1995, Annex 2) has constructed an extensive database of country-specific tariff equivalents for 1-digit and 2-digit ISIC service sectors (including construction). In order to be useful in the analysis of balance of payments statistics on patterns of trade, we have to adapt Hoekman's results to the World Bank (WDI) classification of service trade[96]. Departing from

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[96] Although the level of detail is higher in the statistics offered by OECD/Eurostat, the procedure of Hoekman treats the countries included in the European Union as a single group in terms of tariff equivalents. Therefore, the European countries concerned do not differ in any way in terms of effective protection. Especially for answering the second research question spelled out at the beginning of Section 4.3, cross-country differences in protection are necessary to investigate the effect of protection on patterns of trade. Therefore, the wider coverage of countries offered by World Bank statistics caused me to base the analysis on World Bank data and the WDI classification of service trade. Moreover, the longer time span available allows us to include growth of

the tariff equivalents for ISIC sectors offered by Hoekman, I made use of the following concordance table to derive country-specific tariff equivalents for WDI service sectors:

Concordance for computation tariff equivalents[97]

ISIC 1 or 2 digit	OECD/Eurostat	WDI
Land, Water and Air Transport	Transportation →	Transport Services
Education, Lodging and Entertainment	Travel →	Travel Services
Financial and Insurance Services	Financial Services / Insurance Services	Insurance, Finance
Telecommunication →	Communications Services	
Construction →	Construction Services	
Computer Services →	Computer and Information	
Business Services →	Royalties and License Fees	Other Services
Business Services →	Other Business Services	
Social, Personal and Recreational Services	Personal, Cultural and Recreational Services	

Some explanation of the computations is required here. Because some inconsistencies characterise the conversion of 2-digit into 1-digit tariff equivalents in Hoekman (1995), I have chosen only to use the 1-digit weights for tariff equivalents of the 2-digit ISIC (sub-)sectors Land Transport, Maritime/Waterway Transport and Air Transport Proper for transport services. Similar reasons motivate the choice of Telecommunication, a 2-digit entry in Hoekman's Annex 2 Table of country-specific tariff equivalents, as the concordance for communications services. Finally, similar considerations have rationalised the choice to exclude the sub-sector life insurance from the determination of the tariff equivalent for insurance and financial services.

To compose tariff equivalents for travel services, we will assume that tourism and student travel are most important for the determination of effective protection in the sector travel services. Protection to student travel is represented by protection in the ISIC sector education, while the sectors lodging (hotels and restaurants) and entertainment (recreational and cultural services) represent tourism. The tariff equivalents for education and entertainment can be weighed with respect to each other by making use of the 1-digit weights of education and entertainment as provided by Hoekman (1995) in his Annex 2 Table. Relative output weights, presented in Hoekman's (1995) Annex 1 table, allow us to compute the weighted sum of the tariff equivalents of lodging, on the one hand, and education[98] and entertainment[99] on the

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trade in the analysis.

[97] Chapter 2 also dealt with concordance between ISIC and OECD/Eurostat.

[98] Higher education is assumed to represent the relevant part of educational services for international competition through travel. Hence, only the output share of higher education is included in the weighing procedure to assess effective protection against potential import in eductional services, as relevant for the sector travel services. The sectors presented by Hoekman (1995) in Annex 1 are based on the GATS classification of

other. This weighted sum represents the country-specific tariff equivalent for travel services.

In order to compute the country-specific tariff equivalent for Other Services, we have to combine the tariff equivalents for OECD/Eurostat sectors that are part of the WDI sector Other Services. Again, a weighted sum of individual sectoral tariff equivalents is taken as a proxy for the country-specific tariff equivalent for Other Services. How should we determine the weights for different sectors within Other Services? To find an answer to the above question, we should remember that the goal of tariff equivalents is to assess effective protection against *potential import* in a sector. Hence, the weights of individual sub-sectors should reflect the potential relative importance of the sectors, in terms of import demand potential, for the composed sector Other Services as a whole for each individual country. The output weights of the included sectors that Hoekman presented in Annex 1 (Hoekman, 1995; pp.352-353) are useful for this purpose, as they were for travel services. Unfortunately, these output weights have not been reported for individual countries, only for an 'average' industrialised country. Therefore, the suitability of relative output weights in reflecting relative potential import demand in sectors within Other Services in both developed and developing countries is not perfect. Cross-country differences in relative potential import demand in service sectors arise, for example, from differences in export specialisation and level of development. Some additional considerations for using output weights as 'guesstimate' for potential trade patterns will follow later on in the present section, when we discuss benchmarking to enable analysis.

In the knowledge that there exists no explicit information on potential trade patterns in the absence of protection and differences in trading cost, output weights are a sensible choice to derive the required weights from. The relative size of output weights of sectors within Other Services determines the weights for computing country-specific tariff equivalents for Other Services. In this way, Telecommunication services and Audiovisual services yield the weight for communications services; Construction and related engineering services is used for the weight of construction services; Computer and related services for computer and information services; Professional services and Other Business services for royalties and license fees and other business services; and finally, Entertainment services, Libraries and other cultural services and Sporting and other recreational services for personal, cultural and recreational services.

On the basis of the concordances and the considerations given above, the country-specific tariff equivalents for WDI service sectors have emerged from the source data provided by Hoekman (1995). We are now in the position to derive a proxy for average sectoral tariff equivalents. Average cross-country tariff equivalents can be used to assess the possible partial effect of differences in average effective protection between sectors on the share of respective sectors in total aggregate[100] trade of goods and services. The following proxy-variable for

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service activities.

[99] The output weight of entertainment, as relevant for international competition through travel, also includes cultural services, but excludes sporting events.

[100] In this chapter, aggregate trade stands for exports, imports or production aggregated over the countries in the sample, for an individual sector or for the total set of sectors.

average sectoral tariff equivalents will serve for that purpose:

$$ATE_i = \sum_j \left[TE_{ij} * MS_{TMj} \right] \qquad \qquad formula\ 4.2$$

with:

ATE_i = proxy for average tariff equivalent for sector i

TE_{ij} = tariff equivalent for country j in sector i

MS_{TMj} = market share of country j in total aggregate import of goods and services (perunage)

R_{ij} = index value of relative export specialisation for country j in sector i

For each sector, the tariff equivalent of each individual country in the sample is weighed by the market share of that country in total aggregated import of goods and services and subsequently summed to arrive at the average sectoral tariff equivalent.

A few remarks will be necessary to illustrate the formula. First, since protection interferes with potential imports, average effective protection across countries has to reflect the importance of the extent of sheltering of any particular segment of the world market of a specific sector, for the bias in the average post-border price in the sector on a world market scale. Therefore, effective protection in any individual country is 'scaled' by the importance of the country in terms of potential import demand on the world market of a each specific sector. In that way, the effect of sectoral protection in a single country on potential import supply and demand on the world market for that sector is to be captured. To get the idea: protection in Sri Lanka will not affect average international prices for a given product as much as protection in Germany.

We can also illuminate the logic behind the above in the following manner. The effect of protection on patterns of trade, which we desire to illustrate in this section, expresses itself on both sides of the market: import demand and export supply. Consumers will buy less foreign products, when protection raises the consumer price of imported commodities. On the other side, producers at a potential competitive advantage will supply less products to foreign markets when protection in those markets lowers the competitive rent they can gain from selling on foreign markets. These price incentives should express themselves in the composition of the patterns of trade that we observe. In this light, average tariff equivalents should reflect these *incentives* and their impact on *potential* world markets.

The potential relative import demand of a country in a sector is approximated by the overall share of the country in aggregated total imports. This becomes the weight factor to aggregate country-specific sectoral tariff equivalents into average sectoral tariff equivalents. The overall market share of a country is preferred over the country-specific market share in aggregated sectoral imports. The import market share in the relevant sector already reflects the *consequences* of protection on the actual patterns of trade. Therefore, the calculation of

average effective protection against potential aggregated imports in the sector would be biased if we made use of actual sectoral market shares.

Theoretically, we would like to incorporate the extent of sectoral export specialisation in the determination of the weight factors for individual countries' tariff equivalent in each separate sector. For, we may expect that most imports of a country will be located in sectors in which the country is relatively unspecialised, if we abstract from the possible countervailing influence of intra-industry trade. Hence, the market share in total aggregated imports tends to understate the relative importance of a country in terms of potential imports in its net import sectors and vice versa in its net export sectors. Still, correcting the weights for export specialisation would violate the condition that the sum of the weights equal 1. Suppose, for example that we would correct for specialisation by dividing the market share by the sectoral index value of relative export specialisation (in perunages). In the knowledge that Japan's market share in aggregate total imports is about 11 % (see, e.g., UNCTAD and WB, 1994; page 15) and its relative specialisation in travel about 15%, the weight of Japan's tariff equivalent in travel services would become: (0.11/0.15) = 0.73. Given the fact that all weights will be positive and Japan is just one of 29 countries, the sum of weights will exceed 1. As a result, the possibility arises that average sectoral tariff equivalents exceed the highest country-specific tariff equivalents in value! Such would be a contradiction to the concept of an average value. For this reason, we do not include a correction for export specialisation in the computations of average sectoral tariff equivalents.

We may remember that the intention of this sub-section was to provide a first descriptive assessment of the possible, partially explanatory role of differences in average tariff equivalents between service sectors for the actual pattern of aggregate trade shares (ie. sector shares in aggregate total imports of goods and services) across service sectors. The results of average tariff equivalents and aggregate patterns of imports are based on Hoekman (1995, Annex 1 and Annex 2 Table) and the WDI trade statistics for sub-sample 2 (see appendix A).

Before we can proceed to discuss the results, we have to think of a method that enables us to study the relation between average protection and patterns of aggregate imports across service sectors. Earlier in the present section, we clearly stated that protection affects potential imports across the world. The relation between differences in average protection and patterns of trade would show itself if we could compare the sectoral composition of aggregate trade in the absence of protection (or in a situation of completely neutral average protection) to the actual composition, given actual patterns of average protection.

As so often in economics, such a with-without comparison is not possible. Therefore it is necessary to turn to some benchmark variable that is suitable as a proxy for the division of aggregate trade shares across service sectors. Essentially analogous to the choice we made to use relative output weights for the construction of country-specific tariff equivalents in the sector Other Services, we opt for the average shares of service sectors within total value-added as a *first benchmark* for the sectoral composition of total aggregated imports of goods and services with respect to services. We will also consider a second, different benchmark variable in our analysis. Both benchmarks can then be related to actual aggregate shares of

service sectors in total import. Now the argument behind the choice for our first benchmark needs to be illustrated first. That will also motivate the choice for the complementary second benchmark. After that, we will look at the results in table 4.3.1.

Relative demand and relative prices ultimately determine the share of individual sectors in total value-added, aggregated across countries. The same demand- and price factors lie at the root of total aggregated trade. The hypothesis is now posed that, in a situation of neutral average effective protection and absence of cross-sector differences in trading costs, the sectoral composition of *total aggregated imports* will replicate the composition of value-added. The value-added structure reflects *aggregate potential imports* and serves as an ideal, or natural, composition of total aggregated imports. Since industrialised countries are the most important importers and exporters on the world market, in terms of market share, the composition of value-added for an 'average' industrialised country provided by Hoekman (1995, Annex 1) is applied as benchmark[101]. The concordance from GATS sectors to WDI sectors is straightforward for transport and insurance and financial services. For Other Services and travel services we apply the considerations as discussed in detail in footnotes 8 and 9 and the paragraph that followed in the main text.

Some qualifications are to be made here. Firstly, as already established before, statistics on international trade are not reported in value-added terms, but in terms of gross output values, or sales values. International trade statistics probably cause understatement of the share of service sectors in trade, in comparison to their actual value-added share in direct export production. The reason for the difference in direct trade shares between value-added data and sales value data is the following: gross output value of services contains a lower relative value of intermediate inputs compared to goods (see CPB, 1999 and sub-section 3.1.2). Moreover, many services are themselves intermediate products into the production process of other products, mostly of goods (think of transaction services and co-ordination services). So, instead of direct trade in services[102], many services are traded indirectly as intermediate value embodied in the sales value of goods. As a result, sales value of goods rises because of the intermediate input of services that are not traded directly, which means that these services are not part of value-added in direct export production. This should even cause a deviation in the value-added share of service sectors in aggregated direct export production (i.e. aggregated direct value-added imports) from the value-added share of service sectors in total aggregate production. Thus, demand and price factors that govern trade as well as production express themselves more precisely in the structural conformance of aggregated direct- plus indirect *export production* (or, equivalently, aggregated direct- plus indirect value-added imports) on the one hand, and *total average* (cross-country) *value-added* on the other.

Secondly, a further reason for caution in using our first benchmark arises from economic

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[101] Because Hoekman provided output weights of service sectors in total service production, the weights have to be multiplied by the average share of services in total nominal value-added in developed countries to compute weights in total output. Because our sample also includes developing countries we will make a concession by modestly estimating the contemporary value-added share of services at 60% (derived from Table 1.1 in UNCTAD and WB, 1994).

[102] See sub-section 1.3.1 for the concept of direct trade in services (also labelled commodity- or product trade in services).

theory. 'Natural' aggregate trade shares need not reflect aggregate (or equivalently, average-) value-added shares. Consider the case of a model-world existing of two countries and two tradeable products, without international capital flows and intra-industry trade. The international trade equilibrium implies that both commodities represent 50% of total aggregate imports, which equals total aggregate exports and total aggregate trade. This does not depend on the relative preferences and –prices of both commodities! Discrepancies between aggregate trade shares and aggregate value-added shares would show itself in differences in openness between sectors. In a real world of many products and many countries in which no individual sector approaches a majority share in total aggregate value-added, the impact of this theoretical problem for our first benchmark is of less importance. Still, the presence of at least two potential problems for the accuracy of our benchmark as a measure of the 'natural' sectoral composition of total aggregate imports compels us to add a *second benchmark* to the analysis. We assume that, for each sector, the unweighted average of the shares of that sector in country-specific average trade[103] in 1996 for the two countries in the sample that exhibit the lowest sectoral tariff equivalent, provides an indication for the natural share of the sector in total aggregate imports. A formula might illustrate the second benchmark more clearly:

$$BM_{2i} = \frac{1}{n} * \sum_{j} \left[\left(\frac{NEX_{ij} + NIM_{ij}}{2} \right) \Big/ \left(\frac{TNEX_j + TNIM_j}{2} \right) \right] \qquad \text{formula } 4.3$$

with:

BM_{2i} = second benchmark variable for sector i
NEX_{ij} = nominal exports country j in sector i
NIM_{ij} = nominal imports country j in sector i
$TNEX_j$ = total nominal exports country j
$TNIM_j$ = total nominal imports country j
n = the lowest n countries in terms of tariff equivalent in sector i, $n \in \{1,2\}$

This benchmark is based on international trade statistics itself, which improves the comparability to actual aggregate import shares in the sample. Moreover, it explicitly recognises the effect of differences in trading cost between goods and different service sectors as a factor that influences the natural sectoral composition of aggregate trade (in contrast to our first benchmark, for which the effect of trading cost poses a third problem). However, the second benchmark also displays some problems. Since the benchmark is based on the actual patterns of trade for countries in our sample, the effect of cross-sector differences in actual protection on trade patterns has not been ruled out completely. Although the use of an (unweighted) average across several countries of average trade, and the flexibility in choosing

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[103] The concept average trade was first applied in Section 2.4.

different countries for different sectors tries to amend for these problems, the result is not complete. Even the lowest tariff equivalents differ a lot between sectors, which is a problem since we would like to approximate the 'natural' share of service sectors in total aggregate imports that would occur if average protection in services was as low as in goods. Furthermore, the benchmark becomes somewhat arbitrary, precisely because it is based on a small number of countries that differ across sectors. Other ideosyncratic factors besides protection help determine the sectoral composition of trade in the countries in question. Even though the use of average trade instead of imports tries to accomodate this feature of the second benchmark, patterns of export specialisation and level of development provide a potential bias to the accuracy of the second benchmark.

Both benchmarks, though, have their merits in providing an indication of the sectoral composition of total aggregate imports, with respect to service sectors. The following table, table 4.3.1, confronts the evidence on average sectoral tariff equivalents with the data on the shares of WDI service sectors in total aggregate imports in 1996. Applying the benchmarks we will try to analyse the partial correlation between differences in average tariff equivalents and differences in aggregate trade shares across sectors. Thus we can assess the research question central to this sub-section:

"Does evidence on effective protection justify the partial relation of differences in trade shares between service sectors to differences in average effective protection?"

Table 4.3.1 Average effective protection and aggregate trade patterns

Average tariff equivalents and patterns of trade: some indications	Average Tariff Equivalent	Import Growth (1984-1996) (%)	Share in Aggregate Imports (IMS)	Benchmark 1 (BM$_1$)	Benchmark 2 (BM$_2$)	IMS/BM$_1$	IMS/BM$_2$
Transport Services	35,02	167,39	0,06	0,06	0,03	0,94	1,80
Travel Services	10,34	290,92	0,06	0,06	0,06	1,00	1,02
Insurance and Financial Services	23,13	322,71	0,01	0,06	0,01	0,16	1,44
Other Services	33,39	261,43	0,08	0,20	0,13	0,38	0,59

Source: World Bank (1999); Hoekman (1995); own computations; based on sub-sample 2, excl. Iceland.

The table shows that transport services has the highest average sectoral tariff equivalent, closely followed by Other Services, then insurance and financial services and finally travel services. The share of Other Services is highest in aggregate total imports.

Is relatively high protection associated with relatively low growth in imports? In any case, growth in transport service trade has been lowest, but this can also be related to the fact that positive changes in tradeability have been smallest in this sector, which has traditionally been the largest sector of service trade untill recently. Growth in Other Services trade has been high, although effective average protection is relatively high.

The other expectation is that high average protection implies that the share of a sector in aggregate trade is low compared to the benchmark shares that model a situation of low, or neutral, protection. The last two colums should contain values below 1 for these sectors. In fact, this holds for Other Services against both benchmarks and for financial services against the first benchmark. However, the second benchmark does not operate well here, which could be related to the general volatility in data for this sector referred to earlier. The picture for

travel services is also consistent, since the low extent of average protection may compare with average protection in goods. The fact that the share of travel in total aggregated imports approaches closely to both benchmarks is supportive for our expectations. For transport services, the picture is indecisive and we have to assume that factors other than protection are important in explaining its share in aggregate trade.

From the table it appears that the first benchmark performs better at first sight, implying that choosing output shares as model-situation was not that bad an idea. However, the support for a partial relation between aggregate trade shares and average sectoral effective protection is only shallow.

Sub-Section 4.3.3 Relative protection and relative import 'specialisation'

To answer the second question,

"Can differences in effective protection between countries be causally correlated to differences in trade patterns?",

we have to compare the results on the relative restrictiveness of policies in individual countries for specific sectors with the relative imports in the same sectors by those countries.

We would expect that high relative protection would imply low relative imports in a sector, ceteris paribus.

Relative protection in a country for a specific sector is represented by the country-specific sectoral tariff equivalent relative to the average sectoral tariff equivalent (formula 4.4); relative imports in that sector are represented as the market share of the country in aggregated import for the sector relative to the market share of the country in total aggregate imports of goods and services (formula 4.5); note the analogy to the index of relative export specialisation as presented in formula 3.2.

$$RTE_{ij} = \frac{TE_{ij}}{ATE_{ij}} \qquad\qquad\qquad formula\ 4.4$$

with:

RTE_{ij} = relative tariff equivalent

and

$$RMS_{ij} = \frac{IM_{ij}/IM_{iw}}{IMj/IMw} \qquad\qquad\qquad formula\ 4.5$$

with:

RMS_{ij} = relative import 'specialisation' country j in sector i
IM_{ij} = nominal imports country j in sector i
IM_{iw} = aggregated nominal imports in sector i
IM_{i} = total imports of goods and services by country j
IM_{w} = aggregated total imports of goods and services

The following table, table 4.3.2, presents the results of our calculations for sub-sample 2 in 1996. Table 4.3.3 presents a quick way to check whether the results are in line with our expected negative partial correlation. If so, then most of the combinations of RTE_{ab} and RMS_{ab} ($\{a,b\} \in \{i,j\}$) for each pair $\{a,b\}$ should be located in either the top-left or the bottom-right box.

Table 4.3.2 Import patterns and effective protection: evidence for individual countries

Import and protection indices (imports: 1996)	Transport		Travel		Ins, Fin		Other Serv.	
	RTE	RMS	RTE	RMS	RTE	RMS	RTE	RMS
USA	0,79	0,80	0,73	0,87	0,54	0,75	0,92	0,73
JPN	1,07	1,33	0,67	1,39	1,08	1,17	0,61	1,61
CHE	0,71	0,62	1,09	1,16	0,74	0,15	0,91	0,47
AUS	1,25	1,48	0,91	1,22	0,72	1,48	1,00	0,83
ITA	0,91	1,62	0,97	1,02	1,08	2,34	1,00	1,14
NLD	0,91	1,23	0,97	0,97	1,08	0,70	1,00	1,27
SWE	1,11	1,03	1,26	1,23	0,36	0,33	1,04	1,14
AUT	1,30	0,60	0,82	1,95	0,54	1,92	0,71	1,87
SGP	1,43	0,78	1,30	0,68	0,97	0,74	1,18	0,58
BEL	0,91	0,75	0,97	0,87	1,08	1,99	1,00	0,94
FIN	1,04	0,95	1,30	1,01	0,81	0,48	1,02	1,50
FRA	0,91	1,09	0,97	0,89	1,08	1,05	1,00	1,01
DEU	0,91	0,76	0,97	1,47	1,08	0,60	1,00	1,13
NOR	0,82	1,71	0,83	1,49	0,90	1,51	0,90	0,89
BRA	1,36	1,11	1,99	1,11	1,82	0,48	1,56	0,90
IND	1,43	1,24	1,82	0,17	1,57	0,68	1,64	0,46
THA	1,14	1,67	1,59	0,86	1,53	1,22	1,45	1,03
MYS	1,43	1,09	1,41	0,48	1,17	0,00	1,03	1,34
POL	1,43	0,73	1,06	0,24	1,70	2,39	1,21	1,03
GRC	0,91	0,88	0,97	0,79	1,08	0,83	1,00	0,80
KOR	1,32	1,04	1,30	0,72	1,53	0,19	1,13	0,88
NZL	0,68	1,97	0,95	1,32	0,81	1,01	1,22	0,93
PRT	0,91	0,74	0,97	0,91	1,08	1,27	1,00	0,74
ESP	0,91	0,86	0,97	0,57	1,08	1,28	1,00	1,01
ARG	1,43	1,54	1,38	1,40	0,83	0,80	1,22	0,36
MEX	1,32	0,30	1,03	0,56	1,73	3,92	1,38	0,27
CHN	1,36	1,19	1,80	0,49	1,66	0,16	1,45	0,65
HUN	1,04	0,28	0,92	0,79	1,35	1,23	1,12	1,30
PHL	0,61	0,98	1,57	0,51	0,60	0,21	1,00	1,85

Source: World Bank (1999); Hoekman (1995); own computations; based on sub-sample 2, excl. Iceland.

Table 4.3.3 Partial correlation between relative imports and relative effective protection

Share of 'hits' from Table 4.3.2 (%)	RMS ≤ 1	RMS ≥1
RTE ≥ 1	29,3	
RTE ≤1		15,5

Source: World Bank (1999); Hoekman (1995); own computations; based on sub-sample 2, excl. Iceland.
Note: total number of entries is 29*4=116.

Since the top-left and bottom-right entries suffice to determine the correlation, we can conclude the following: 44,8 % of the entries is a 'hit', from our point of view. They behave confirm our expectations. As a result, import patterns across countries do not behave in line with the influence expected from country-specific relative effective protection. We must conclude that differences in protection do not show any clear correlation to differences in trade patterns. Clearly, other factors, such as net exports that follow from competitive advantages and inter-industry specialisation and divergence in the level of development (income) and intra-industry trade also influence country-specific patterns of import.

Main Insights and Concluding Remarks

Internationalisation of services has drawn the attention of both policy makers and economists to liberalisation in services. The potential role of liberalisation for further internationalisation of service markets is well understood. As noted by several theorists (e.g. Stibora and De Vaal, Chapter 2), protection in services is both pervasive and mainly occurs as non-tariff barriers. These are hard to quantify explicitly, which makes it hard to assess the consequences of protection. Still, it is clear that little effective liberalisation has taken place up till now, especially multilaterally.

Hoekman (1995) has attempted an ordinal quantitative assessment of effective protection. Based on his effort, we have tried to derive a first preliminary descriptive quantification of the relation between protection and aggregate patterns of trade, as well as country-specific patterns of trade.

As the results are inconclusive, it becomes clear that additional research is needed to gain explicit knowledge of actual policy stances in services. Moreover, research to explain the exact importance of different potential determinants of trade patterns, including protection, is requested.

Main Insights and Concluding Remarks

The share of services in the composition of nominal production and employment has risen over time[104], which has evoked attention for the issues of deindustrialisation and the emerging service economy in economic theory (e.g. De Groot, 1998; part three). Yet, as far as international relations were concerned, services were widely believed to be non-tradeable and thus sheltered from foreign competition through product trade. Consequently, the attention for services in economic theory did not equally arise in theory on international economic relations. Still, the second main field of interest in recent decades focused on the purported globalisation of trade, investment and production in the world economy. Clearly, these two developments seemed at odds with each other. The emergence of a sheltered service economy against the background of rising internationalisation of markets provides analytical problems. Instead of persisting the widespread practice of neglect between the branches of literature on macro-economic structures of production and employment and international trade, investment and specialisation, efforts to integrate both phenomena are required to judge whether and to what extent they really are at odds.

This thesis has attempted to build on the line of investigation chosen by a growing number of authors that try to relate the issues of economic structure, technology, productivity and international relations and the position of services in them (e.g. Giarini, 1987; Francois, 1990; Stibora and De Vaal, 1995 and De Groot, 1998). Departing from this broad field of production, trade and investment, the aim of the thesis has been to assess the position of services in international trade.

To analyse trade in services we needed a conceptual framework that explained the nature of services and the distinction from goods. Chapter 1 dealt with the construction of such a framework. Furthermore, the framework allowed us to categorise services into different groups that illuminate the role of services in economic structure. Based on their nature as condition changes rather than independent objects, we have argued that services exhibit the following relevant characteristics:

- services are non-transferable
- services are non-storable
- services are heterogeneous and flexible in production
- imperfect competition is highly relevant for services

Because of their flexibility, services take a central position in production and other transactions between economic agents. This has motivated us to group services into three different categories: independent services, transaction services and co-ordination services. Given their central position in production chains across the economy, we focused on the roles played by so-called producer services within the categories of transaction services and co-ordination services. Developments in modern technology that try to enhance efficiency and improve the

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[104] Cf. Stibora and De Vaal, 1995 and UNCTAD and WB, 1994.

matching of consumer demand, lead to increasing complexity, specialisation and interdependence between sectors. A major example of a new technological development that is a major factor in changing economic structures, is the rise of telematics. The increasing importance of interaction between different economic units in the production and marketing of products, has naturally led to rising relative demand for intermediate services by producers. Hence, transaction services, such as telecommunications services, and co-ordination services, such as knowledge-based business services, have become more important in economic structure. This explains a large part of the emergence of a service 'dominated' economy (cf. e.g. Stibora and De Vaal, 1995, Chapter 1). Given rising demand for services, the incentive to expand sales to international markets become more positive. Does international trade become the next outlet for service production?

The non-transferable nature of services explains why services have widely been regarded as non-tradeable. From their nature, trading costs of services are relatively high compared to merchandise. Services require joint-production, hence interaction between the provider and the absorber of the product in the process of creating it. Therefore, provider and client often have to meet in person for the service to be produced and transacted. Often, the cost of such international trade are prohibitive, and permanent local presence is required to serve foreign markets.

Chapter 2 addressed the evidence on international trade in services, given the expectations of low tradeability. Though trade in services has grown fast, leading to a stabilisation of the share of service trade in total world trade, openness in services remained relatively low. The question emerges whether the growing importance of services in (nominal) domestic output and employment, combined with the relatively low openness of service sectors implies that globalisation will be reversed over time. In other words, will employment and production become increasingly sheltered from (international) competition?

The analysis of the role of services and the nature of the rising service economy in Chapter 1 provides a first answer. The rise of a service economy is for an important part related to the increasing importance of transaction- and co-ordination services. These sectors actually promote internationalisation of the economy through progressing specialisation and interdependence between sectors. Even if production of these services will remain largely sheltered from direct international trade, it will still enhance productivity in the economy on the whole. For, competitiveness of manufactures and other tradeables depends on efficient and productive producer services. This ensures that the advantages of trade and competition are ensured, even if, or perhaps *because*, services rise in importance.

Moreover, a second answer is suggested by actual developments in- and prospects of trade in services. Chapter 2 and Chapter 3 show that the share of services in total nominal trade in both developing and developed countries has been slightly rising since 1980. Moreover, the importance of co-ordination services in total trade has risen at the expense of the traditionally most tradeable and open service sector, transport services. This indicates that service sectors are most certainly submitted to a process of internationalisation, just as goods. Openness in services has risen fast and growth in service trade has kept up with merchandise growth. The fact that services lag behind and fail to catch-up does not disqualify this conclusion.

Moreover, the technological developments referred to in Chapter 1 indicate growing possibilities for direct trade in services. Because of the possibilities opened by innovations in information and communications technologies (ICT), the interaction necessary for joint-production of many information-intensive co-ordination and transaction services can be increasingly realised using telecommunication networks. Consequently cross-border trade in services, as opposed to trade relying on temporary movement of personnel or clients, will become increasingly possible. This unquestioningly lowers the trading cost for services that share communication or information as most important characteristic of their interaction of joint-production, such as knowledge-based services and information-based services. Because of the further fall in trading cost, to be expected in the future, internationalisation of services via international trade will continue to rise in importance. Hence, a reversal of globalisation and international competition does not necessarily follow from the rise of a service economy. In fact, the rise of services fits entirely in the momentum of globalisation.

Notwithstanding the dynamics of trade in services, the relative importance of foreign affiliate sales (following FDI) will remain high in services, given the nature and characteristics of services. Chapter 1 showed that FDI in services has grown fast over the post-1980 period too. Moreover, the importance of foreign local presence as a close substitute as well as complement to direct trade was illustrated in Chapter 3 (also see UNCTAD, WB,1994).

An interesting statement is made by Kox (2001) on the relation between local sales by affiliates and international trade as a means of supply on foreign markets. Even if trading cost will continue to fall and demand for co-ordination services will rise, against the background of further development and integration of telematics and the on-going development of complex technologies, this does not imply that trade will increasingly replace foreign affiliate sales. In the words of Kox (2001, page 31):

> "The Dunning-Markusen-Vernon framework predicts that in a fast-growing market where intangible assets are an important aspect of competitiveness, imports by foreign suppliers will increasingly be substituted by local production by subsidiaries of these foreign firms."

This qualification may be quite relevant for information- and knowledge-based co-ordination services, which face strong growth in demand. Although we focused on internationalisation by means of international trade, foreign direct investment (FDI) is also a mode of internationalisation of market access. Therefore, increasing FDI is an alternative means of enlarging competitive impetus by foreign contesting.

The increased possibilities for- and the potential efficiency advantages of international specialisation in services raised interest in the international liberalisation of service markets. Chapter 4 gave an overview of developments in service liberalisation, amongst others. Service markets are commonly understood to be highly regulated compared to goods markets. Moreover, the myriad of service policies (see e.g. Hoekman and Sauvé, 1994) renders policy regimes in service markets relatively restrictive towards foreign competition. The rising attention for the subject shows that liberalisation follows the developments in technology and demand. In fact, it would accommodate the incentives provided by the market and can thus

become an auxiliary force on the path towards further internationalisation of service markets.

So far, it has become clear that modern internationalisation has also been initiated in the service sector. The next step in the thesis has been to analyse the consequences of growing trade in services for the patterns of trade in services across countries. The current state of affairs in the patterns of specialisation in services and the possible influence of protection on trade are also illustrated. Chapter 3 focused on patterns of specialisation and the role of contemporary theories of international trade in explaining services trade. Chapter 4 tried to analyse the relation between actual restrictiveness of service policies and patterns of trade. Both chapters have also dealt with the methodology of descriptive empirical analysis of trade in services, as did Chapter 2. Because of the relatively poor usefulness of available data, hard-nosed analytical empirical research of trade and investment in services is scarce.

To start with the effects of protectionist policies, we may conclude that the analysis performed in Chapter 4 yields hardly more than some descriptive evidence on the effects of protection on the aggregate sectoral composition of trade. Yet, the literature provides ample record of the relative restrictiveness of policy regimes regarding services (see, e.g. Hoekman, 1995; UNCTAD and WB, 1994). The high effective protection is motivated by the fact that service sectors are the most regulated sectors in the economy. Moreover, because protection in services mostly takes the form of a wide variety of regulatory impediments, it is not transparent and difficult to quantify, assess and abate.

All in all, the effect of protectionist policy, which can be labelled *institutional trading costs*, adds to the relatively low natural tradeability of services. Patterns of trade in services hence do not reflect the potential internationalisation of service markets that might be reached through international trade in the future. Patterns of trade in services as well as the relative importance of services in trade will be subject to considerable change over time, as trading cost and institutional barriers further diminish. Still, the evidence on relative specialisation, on de-elopements in absolute specialisation and on the composition of trade in separate service sectors, constitutes relevant information.

As we saw in Chapter 3, a few main conclusions can be drawn from the descriptive analysis.

- trade in services has kept up with trade in merchandise
- business services (part of Other Services) have increased in importance within exports and imports of both industrialised and less developed countries
- industrialised countries are in general more specialised in services and have a higher import share of services
- relative export specialisation in each separate service sector, however, occurs in both developed and less developed countries
- export specialisation in Other Services is mostly located in industrialised countries
- travel services are relatively important in developing country exports of services
- intra-industry trade is relatively significant in OECD countries

The possible explanation of these patterns of trade can be offered both by traditional

comparative cost differences and by new trade theories, which locate competitive advantages of trade in the possibility to specialise and differentiate under economies of scale.

The data do not allow us to investigate relevant trade flows between different sets of countries, because the links between origin and destination are lacking. Given the fact that trading costs in services can reasonably be assumed to be relatively high up to now, two scenarios come into mind for the pattern of internationalisation in services. This holds especially for services other than transport and travel, which have traditionally dominated trade in services until recently other services and financial services have started a process of catch-up. High trading costs imply that the extent of international competition through trade is relatively small, as has been reflected by relatively low openness in service sectors. Either trade only takes place when comparative cost differences exist between countries and are large. Trade flows will represent inter-industry trade. The other possibility is that trade is based on product differentiation and strategic relations with local foreign affiliates in building reputation and permanent local presence. This factors all primarily reflect non-price (or comparative cost-) competition. Because evidence has indicated the importance of intra-industry trade within the OECD as well as the relative importance of developed countries as exporters and importers of services, we are tempted to conclude that a large part of international trade in services other than transport and travel remains limited to industrialised countries and takes place on the basis of product differentiation.

Explicit analysis of the explanatory factors behind the patterns of trade observed would require substantial improvements in the statistics on international trade in services. The importance of the ultimate determinants of trade we identified above can only be assessed if we can analyse the importance of proximate determinants of inter-industry and intra-industry patterns of trade. Analogous to much research on trade in goods (e.g. Aturupane et al., 1997), some of the proximate determinants of trade composition and specialisation are: concentration in an industry, fixed costs, factor endowments and actual country-specific effective protection.

To be able to successfully perform such hard-nosed empirical research, data on relevant trade in terms of origin and destination should be available at a level of detail that is comparable to trade in merchandise. Ideas to compile such a service variant to the common SITC classification of merchandise trade, a so-called SITS (Standard International Trade classification for Services) have already been suggested (see Ascher and Whichard, 1991). In fact, the GATS applied a product-oriented classification, the CPC (Central Product Classification; see UNCTAD and WB, 1994), which also distinguishes services at a high level of detail. Unfortunately, the use of the system in practice and the coverage of reported trade statistics according to this system are negligible. A crucial element for such a system and for empirical research, is the availability of quality- and quantity-based data on trade in services. Such data are lacking up to date.

Appendix A

In this appendix the samples of countries that we make use of are explicitly written out. The total sample of countries that enter the analysis at some stage, have been split in a number of sub-samples.

Sub-sample 1

Australia, Italy, the Netherlands, Sweden, the USA, Austria, Singapore, Belgium/Luxemburg, Finland, France, Germany, Norway, Brazil, India, Thailand, Malaysia, Poland, Greece, Iceland, Republic of Korea, New Zealand, Portugal, Spain, Switzerland, Japan, Argentina, Mexico.

Sub-sample 2

Australia, Italy, the Netherlands, Sweden, the USA, Austria, Singapore, Belgium/Luxemburg, Finland, France, Germany, Norway, Brazil, India, Thailand, Malaysia, Poland, Greece, Iceland, Republic of Korea, New Zealand, Portugal, Spain, Switzerland, Japan, Argentina, Mexico, China, Hungary, Philippines.

Sub-sample 3

Australia (AUS), Italy (ITA), the Netherlands (NLD), Sweden (SWE), the USA, Austria (AUT), Singapore (SGP), Belgium/Luxemburg (BEL), Finland (FIN), France (FRA), Germany (DEU), Norway (NOR), Brazil (BRA), India (IND), Thailand (THA), Malaysia (MYS), Poland (POL), Greece (GRC), Iceland (ISL), Republic of Korea (KOR), New Zealand (NZL), Portugal (PRT), Spain (ESP), Switzerland (CHE), Japan (JPN), Argentina (ARG), Mexico (MEX), China (CHN), Hungary (HUN), Philippines (PHL), United Kingdom (GBR), Czech Republic (CZE), Russian Republic (RUS).

Sub-sample 4

Australia, Canada, Italy, the Netherlands, Sweden, the USA, Belgium/Luxemburg, Finland, France, Germany, Norway, Sweden, United Kingdom, Spain, Portugal, Poland, Czech Republic, Japan.

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