

CULTURAL DIVERSITY AND INTERNATIONAL TRADE IN CULTURAL PRODUCTS

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Abstract

Whether free trade in cultural products ‘serves’ or ‘erodes’ cultural diversity has been widely discussed in the public arena, but within economics there has been relatively less research, despite the increasing influence of cultural trade on the economy. This thesis theoretically and empirically investigates how trade liberalisation in cultural products affects the degree of cultural diversity at both local and global levels, drawing upon the propositions from two sub-disciplines of economics: international trade and cultural economics. The thesis consists of three parts. In the first part, I examine various issues in defining the concept of cultural diversity and identify three types of cultural diversity that are relevant in the context of international trade: the intra-national/local, inter-national and global cultural diversities. In the second part, I construct a bilateral model of cultural trade based on the standard ‘new trade’ theory framework with an additional assumptions of cultural discounting behaviour of consumers and its asymmetry. The model proposes two effects, the home market effect and the hub effect, from which all three types of cultural diversities are at minimum if larger economies are also characterised by higher accessibility of their cultural contents. In the third part, I test the hypothesis by econometrically exploiting trade data for a particular cultural commodity, namely movies. There is not sufficient evidence found to reject the presence of the home market effect and the hub effect. In addition, I also find that the current decline of three cultural diversities exhibited in international film industry is associated with the increasing cultural accessibility of the United States’ films. The thesis conclude by discussing some implications of the results for cultural trade policy.

Keywords: cultural diversity, cultural trade, new trade theory, cultural discount, film trade

Statement of Candidate

I hereby certify that the work contained in this thesis has not been submitted for a degree at this or any other university or institution.

Sunny Yousun Shin

A handwritten signature in black ink, appearing to read 'Sunny Yousun Shin', written in a cursive style.

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CHAPTER 1

INTRODUCTION

1.1 Two Views on Free Trade in Cultural Expressions

About forty years ago, Scitovsky (1976) observed a rising demand for stimulus and novelty as supplied by ‘frivolous’ goods such as decorative items, antiques and imported works of art. He argued that this phenomenon resulted from the redundant time that consumers had at their disposal, generated by improved production technologies and mass production. He suggested that the increased demand for stimulus and novelty is expressed in two ways: a rapid increase in international travelling for holidays, and the importation of stimulus from foreign cultures. The latter effect could be expected to lead over time to an increase in cultural trade. In fact the international market for cultural goods and services, facilitated by new information and communication technologies, has undergone a dramatic expansion in recent years. It has been reported that the world trade in the products of the creative industries more than doubled from 2002 to 2011 (UNCTAD, 2013), and the contribution of these industries to the national income is approximately 5 percent on average (WIPO, 2014). Considering that an increasing proportion of cultural trade occurs in the market for audio-visual products where exchange occurs in the form of rights which are not recorded in official trade statistics, the actual volume of trade in cultural expressions is believed to be much greater than the reported figures.

While the growth of trade in cultural products and its increasing importance to the global economy is a fact, there has been no agreement on whether the impact on society of free trade in cultural expressions is positive or negative. And in the centre of this disagreement is *the association between trade liberalisation in cultural products and the level of cultural diversity*.

On one hand, there is a series of arguments that a free flow of cultural expressions works in favour of cultural diversity. On the demand side, economic theory tells us that

an individual's economic decisions are determined by two factors: internal preference and external constraints. Frictionless exchange of things amongst individuals or groups increasingly loosens the latter constraints. As a result, all parties involved in the exchange become 'happier', as they have more things and more kinds of things; this outcome underlies the most fundamental proposition put forth in international economics. It can be argued also that free trade in cultural expressions can provide opportunities for niche cultural markets to meet consumers with diverse preferences that would otherwise have vanished. In regard to the supply side, the free flow of cultural expressions stimulates innovation and creativity, resulting in the creation of new hybrid cultures (Cowen, 2002).

On the other hand, serious concerns have been raised, particularly from the humanities disciplines, that cultural expressions are embedded with something beyond their commercial value that cannot be fully appreciated in market exchange. Such a proposition supports the claim that free trade in cultural expressions results in loss of cultural diversity, because it leads to the standardisation of preferences on the consumption side, and to the crowding out of local, traditional and minority cultural industries by international conglomerates on the production side. These effects in turn imply loss of cultural distinctiveness and identities (e.g. Smiers, 2003; Zuidervaat, 2011). This claim is also argued alongside the general market failure proposition (e.g. Sauvé and Steinfatt, 2000) as well as within the context of 'trade problems' that emphasise the clash between economic gains from trade and non-economic policy objectives (Trachtman, 1998). Concerns are also expressed amongst some cultural economists, who argue in favour of using so-called 'protectionist' trade measures for 'endangered' cultures. They suggest to account for the notion of 'cultural capital', in the formulation of which cultural diversity plays a significant role, in national and international policy making processes, as natural capital and environment costs are taken into account in economic decisions (Throsby, 2008a).

Over the past few decades in the arena of international trade policy, a rough resolution between the two opposing views has been reached via the concept of 'cultural exception', which refers to treating cultural products differently from commercial merchandise in trade negotiations that are guided by the principle of free trade. Specifically, 'cultural exception' provisions were stated in the General Agreement on

Tariffs and Trade (GATT) in 1947, and in the General Agreement on Trade in Services (GATS) in 1995 as a result of the Uruguay Round. Accordingly, the ‘exceptions’ are also implemented in some regional trade negotiations such as North American Free Trade Agreement (NAFTA). In the interim, the term ‘cultural diversity’ has increasingly replaced or accompanied ‘cultural exception’ as the French government linked the two notions as a goal to achieve and the legal means thereof (Kozymka, 2014). In 2005, the United Nations Educational, Scientific and Cultural Organization (UNESCO) formulated the Convention on the Protection and Promotion of the Diversity of Cultural Expressions (hereafter, the Cultural Diversity Convention), which allows the signatories to implement trade policy measures to protect their ‘endangered’ cultural expressions. The two seemingly opposite programmes from the WTO and UNESCO imply a policy dilemma faced by nation states. Nevertheless, most countries make a loose resolution by accepting both the free trade guideline from the WTO and the cause for cultural diversity from UNESCO.

1.2 Research Questions

The two opposing views outlined in the previous section arise from two points of disagreement which raise in turn two significant research questions.

The first point of disagreement involves the definition of the term ‘cultural diversity’. This is a classic question upon which the relevant literature generally agrees on its ill-definition as both words ‘culture’ and ‘diversity’ are at a high level of generality as well as context-dependent. The term ‘cultural diversity’ is translated differently in the two opposing views due to the philosophical contrast. The proponents of free trade in cultural products tend to understand the concept in terms of the size of consumption possibility set that individuals face, therefore emphasising such notions as consumer sovereignty and economic efficiency. The opponents, however, tend to view the concept in terms of collective distinctiveness between groups of people, therefore arguing for such notions as cultural identities. As a consequence, for example, Kawashima (2011) points out that the supporters of free trade in cultural products tend to value more the cultural diversity within a country; whereas the opponents, the cultural diversity at

the global level. This implies that there are potentially multiple definitions of cultural diversity relevant in the context of international trade, and hence the first research question is raised: *What are the relevant definitions of cultural diversity in the context of international trade?* In order to answer this question, this thesis will examine various issues arising in defining cultural diversity and attempt to identify three definitions of cultural diversity that are considered relevant in the present context.

The second point of disagreement is related to the positive question noted earlier as to whether free trade in cultural expressions and the level of cultural diversity are positively or negatively associated, both from theoretical and empirical perspectives. Relevant research is found across many disciplines in the social sciences, including international trade, cultural economics, media economics and economic sociology, as well as in the humanities. Of course the ways of approaching and answering the question differ depending on different theoretical frameworks and the resulting definitions of cultural diversity. However, all of them more or less claim or imply that economic conditions matter in the association between trade in cultural expressions and the level of cultural diversity. Given the three definitions of cultural diversity identified as relevant from investigating the first research question, and as will be discussed further in due course, I argue that the the impact of trade liberalisation on the level of cultural diversity depends on how the pattern of trade in cultural diversity is determined. With this said, the second research question arises: *What determines the pattern of trade in cultural products?* I approach this question within the frameworks developed in the literature of international trade and cultural/media economics.

The two views, however, do agree that higher levels of cultural diversity are better. Indeed the term ‘cultural diversity’ has obtained a positive connotation over the last few decades, such that a higher level of cultural diversity is generally presumed to be ‘good’. In the debate concerning cultural diversity and free trade in cultural products, a higher level of cultural diversity is assumed to lead to a greater menu of choice according to the proponents for free trade in cultural products, and to preservation and harmony across various cultural identities according to the opponents. Despite this agreement, a couple of interesting welfare-related questions arise. First, if multiple types of cultural diversity are under consideration due to competing views on the matter and trade liberalisation influencing them in varying directions, how should one prioritise different

types of cultural diversity? This thesis does not attempt to answer this question given that it involves a political decision-making process. Second, one of the unpopular but interesting questions is whether the higher level of cultural diversity is always better. This thesis largely leaves this question for future research.

1.3 Outline of Thesis

The structure of the thesis is as follows. In Chapter 2, I investigate the first research question by examining various issues arising in defining the concept of cultural diversity, and identify three types of cultural diversity as being most relevant in the context of international trade. I also identify the source of disagreement by using a simple thought experiment and show why it is appropriate to predict the pattern of trade in cultural products in answering the question of trade liberalisation and cultural diversity. In Chapter 3, I review the relevant literature and discuss the theoretical foundation based on which the second research question is investigated. In Chapter 4, I investigate the second research question by developing a bilateral model of trade in cultural products based on the propositions put forth by the literature of international trade and media/cultural economics, and derive hypotheses to test. In Chapter 5, I describe and prepare the international film industry data and other variables used for the hypotheses testing. In Chapter 6, I test the hypotheses by econometrically exploiting the data. In Chapter 7, I conclude, derive policy implications, and outline the scope for future research.

CHAPTER 2

DEFINITIONAL ISSUES AND DIRECTION OF THESIS: CULTURAL DIVERSITY IN THE CONTEXT OF INTERNATIONAL TRADE

In investigating the association between trade liberalisation in cultural products and the level of cultural diversity, the first task at hand is to clarify what is meant by ‘cultural diversity’, a term used in a variety of contexts connoting a variety of ideas. It often suffers from semantic confusion when used without clarification. In this chapter, I discuss issues in defining the term ‘cultural diversity’, in an attempt to derive a suitable and operational definition(s) within the context of international trade.

In investigating the origin of the term ‘cultural diversity’ within the context of American culture, Wood (2003) states that there are two types of cultural diversity. One is the ‘factual condition’ in relation to which the ‘degree’ of diversity is under question. The other refers to the ‘ideal condition’ that a society should pursue. The first type is the denotation of the term used to describe the state of a system, and can be ‘measured’ to be either high or low. But the second is the positive connotation that the term has obtained in recent history, and is set as reasonably high as a ‘goal’ to achieve. The present thesis is about cultural diversity in the first sense. As mentioned in Chapter 1, whether it is better for a society to have a higher degree of cultural diversity is a separate question that is not investigated in the present thesis, but is left for future research. The term ‘cultural diversity’ used in the rest of the thesis only refers to the actual condition of a system, and does not imply wishes or hopes for future.

The general term ‘diversity’ can be defined as ‘the condition of a system composed of elements with differing attributes’. An adjective put in front of the word indicates the kind of attributes that are in question: for example, biological diversity concerns biological attributes of the elements in question. ‘Cultural’ diversity then can be defined as the condition of a system composed of elements with differing ‘cultural’ attributes. In order

for this general definition of cultural diversity to be functional and operational in the context of international trade, three things require further elaboration and specification, as follows:

- (a) *Elements with differing cultural attributes* relates to what is meant by ‘cultural’ in defining ‘cultural diversity in the context of international trade’, which will be discussed in Section 2.1. In this section, I attempt to answer two questions: what we mean by ‘cultural attributes’, and on which ‘elements’ we generally find these cultural attributes.
- (b) *The condition* relates to how one can conceptualise ‘diversity’ in ‘cultural diversity in the context of international trade’, which will be discussed in Section 2.2. In this section, I draw upon the three-dimensional concept of diversity introduced by Stirling (1998) who suggests that the word ‘diversity’ most of the time involves one or a combination of the three notions: variety, balance and disparity.
- (c) *A system* relates to ‘the context of international trade’ in which one identifies levels where cultural diversity is assessed. This will be discussed in Section 2.3. Although there are many different domains in which cultural diversity is being discussed, I focus on the country and the world levels.

In the process of elaboration and specification of the above concepts, I take a rather practical approach: I intend to describe and embrace the current usages of the term ‘cultural diversity’ relying on the general perception and the connotation it has in the context of international trade, rather than how the term should be used. By uniting the discussions made in Sections 2.1-2.3, I consider three types of cultural diversity as relevant in the context of international trade, which will be referred to throughout the rest of the thesis. In Section 2.4, I conceptualise how the three cultural diversities are associated with the outcomes of trade liberalisation in cultural products, by which the direction of the thesis will be derived. In Section 2.5, I summarise and conclude this chapter.

2.1 'Cultural' Diversity in the Context of International Trade

Given that cultural diversity can be generally defined as 'the condition of a system composed of elements with differing cultural attributes', in this section I elaborate 'elements with differing cultural attributes', or the subject upon which diversity can be assessed. The elaboration is two-fold. First, I discuss how 'cultural attributes' can be defined. Then I look for 'elements' that possess these cultural attributes.

To define 'cultural attributes', it is necessary to determine what 'culture' means. However, defining 'culture' is not an easy task. By and large, the word 'culture' is understood and used in two ways. Firstly, it is used based on the broad notion of culture, or one that refers to a set of beliefs and practices shared by a group of individuals, as used in an anthropological or sociological sense. This broad notion of culture therefore includes more or less everything that is human-made, and therefore is not very useful in a functional sense. So, one would most of the time add a specific descriptor, as in 'Australian culture', 'Aboriginal culture', 'corporate culture' and so on, in order to label the manner of living a life shared by a particular group of individuals. In this sense the adjective 'cultural' implies 'collectiveness'. Secondly, the word 'culture' can also be used based on a narrow definition, or one that refers to some sort of intellectual accomplishment of individuals or groups which primarily includes 'the arts', as in 'a man of culture'. The adjective 'cultural' in this sense implies 'intellectual' or 'artistic'.

In this thesis, I understand the notion of 'cultural attributes' to relate to the broad definition of culture, as those attributes that reflect different collective manners of pursuing lives shared by groups of individuals; thus, the words 'culture' and 'cultural' used in this thesis only imply the broad definition of culture, unless specified otherwise. In fact in general usage, the connotations attached to the term 'cultural diversity' concern the broad definition of culture rather than the narrow one: 'cultural diversity' usually implies diversity in ways of living lives instead of diversity in the arts. For example, one would not refer to the condition in which the arts are expressed in different media, such as visual arts, auditory arts, performing arts and so on, as being 'cultural diversity'.

On what types of 'elements' can one observe these 'cultural attributes'? There are largely two domains in which cultural attributes are revealed. First, individuals can

seen as the ‘elements’ in which such cultural attributes can be observed. For example, individuals may share the same attributes such as ethnicity, language or religion, which therefore can be considered as ‘cultural attributes’. For this reason, the term ‘cultural diversity’ is often used as a synonym for, or operationalised as, ethnic, linguistic or religious diversity (e.g. Alesina and La Ferrara, 2005; Ottaviano and Peri, 2006). Although not referred to as ‘cultural diversity’, the idea that individuals are where cultural attributes can be observed is also found in such terms as ‘fractionalisation’ (Alesina et al., 2002), ‘polarisation’ (Esteban and Ray, 1994), ‘disenfranchisement’ (Ginsburgh, Ortuño-Ortín and Weber, 2005), and ‘social antagonism’ (Desmet, Weber and Ortuño-Ortín, 2009).

Second, cultural attributes can also be observed from creative expressions produced by individuals, in particular what are conventionally referred to as ‘the arts’, such as literature, paintings and sculptures, music, performing arts, films and so on. In other words, the arts represent another set of ‘elements’ with differing ‘cultural attributes’. Given a reasonable statement that the producers of these expressions, or artists, cannot be entirely isolated from the collective ways of living that they are exposed to, the arts are considered to possess ‘cultural attributes’. We therefore often categorise the arts by where they are produced or where the artists are based, as in Australian arts, American arts, African arts and so on, given that the locations of artistic production can be a proxy for particular ways of pursuing lives. In this sense the term ‘cultural diversity’ can be specified as ‘condition of a system composed of artistic expressions with attributes that reflect collective ways of living lives’. This specification of cultural diversity is found in the cultural economics literature, such as in diversity in books based on their original languages written (Benhamou and Peltier, 2007), or diversity in films based on their geographical origins or languages spoken in them (Moreau and Peltier, 2004; Benhamou and Peltier, 2011).

In further clarification, the notion of ‘cultural attributes’ is distinguished from ‘artistic attributes’ that the arts possess. For example, sculptures have their media as an artistic attribute, such as marble or porcelain. Some sort of diversity assessed based on the media of sculptures therefore would not be called cultural diversity in general because the media of sculptures do not closely represent certain lifestyles or belief systems; it would be rather called ‘artistic diversity’ since it is assessed based on ‘artistic’

attributes, not 'cultural' ones. However, artistic and cultural attributes are not necessarily mutually exclusive. For example, different styles in films such as German expressionism or Hong Kong noir might be both artistic and cultural attributes in the sense that these artistic styles can represent certain beliefs systems or ways of pursuing lives.

Given that artistic expressions possess 'cultural' attributes, they are often referred to as 'cultural' products. Throsby (2001, 2008b) suggests the following three characteristics of a cultural product: i) human creativity used as an input in production process; ii) symbolic messages to those who consume them; and iii) some intellectual property that is attributable to those who produce them. The second characteristic implies that cultural products are "more than utilitarian, insofar as they serve in addition some large communicative purpose" (Throsby, 2008b, 219), which is the main reason why a piece of artwork can be considered 'cultural'. Different branches in the arts such as literature, painting, films and so on, readily satisfy these three criteria. A similar concept to 'cultural product' is 'creative product'. The two terms are frequently used interchangeably. However, given the three criteria, Throsby (2008b) understands that a creative product only fulfils the first property but not necessarily the other two. A similar view is also taken by Singh (2010) who explains that cultural value is selectively assigned to certain creative products by the process of cultural politics. Therefore it can be said that not all creative products are cultural.

The idea of observing 'cultural attributes' on the arts is also found in the definition of cultural diversity in the Cultural Diversity Convention put forth by UNESCO (2005). In Article 4, the Cultural Diversity Convention defines *cultural diversity* as "the manifold ways in which the cultures of groups and societies find expressions"; *cultural expressions* as "those expressions that result from the creativity of individuals, groups and societies, and that have cultural contents"; and *cultural contents* as "the symbolic meaning, artistic dimension and cultural values that originate from or express cultural identities". It is clear that the Cultural Diversity Convention understands the word 'cultural' based on the broad definition of culture and it finds the broad notion of culture in the arts, given that it associates creative expressions and cultural identities.

In this respect, it is illuminating to consider the five phases over which the UNESCO's understanding of cultural diversity has evolved (Stenou, 2007). In the

initial phase after World War II, the term cultural diversity was understood as plurality in works of art. It seems that the notion of ‘cultural attributes’ was equated to that of ‘artistic attributes’, based on the narrow definition of culture. Through the second to fourth phases, as the concept of culture became linked to those of collective identity, endogenous development, democracy and human rights, the meaning of cultural diversity expanded towards diversity in different beliefs systems and ways of living lives, closer to the contemporary connotation that the term ‘cultural diversity’ has. This understanding of cultural diversity seems to be closely related to the idea of identifying cultural elements on individuals. In the latest phase since 1990s, “a multiplicity of meanings is attached to the notion of cultural diversity, with many political, cultural, economic and social ramifications” (Throsby, 2010, 173). The notable feature of the recent period, however, is that the concept of cultural diversity has become understood in the context of globalisation and furthering economic integration, and as a part of trade agenda. This understanding of cultural diversity is closely associated with the idea of identifying cultural attributes in artistic expressions, in which ‘cultural attributes’ of the arts are distinguished from their ‘artistic attributes’. This idea is also related to the definition of cultural expressions put forward by the Cultural Diversity Convention, as well as the concept of cultural product suggested by (Throsby, 2001, 2008b). Under this idea of linking the arts to collective ways of living lives, the industries of artistic expressions have been a ‘cultural exception’ to the international ‘norm’ of free trade. And this is why some critics of cultural globalisation liken protectionist measures against imports of the arts with ‘safeguarding’ certain modes of life or value systems.

In sum, considering the contemporary understanding of the term ‘cultural diversity’, ‘cultural attributes’ is interpreted based on the broad definition of culture, a set of beliefs and practices shared by a group of individuals; and ‘elements’ are specified as artistic expressions created by individuals. Therefore, ‘elements with differing cultural attributes’ in the general definition of cultural diversity put forward in the beginning of this chapter, can be elaborated as ‘artistic expressions with differing attributes that reflect collective ways of pursuing lives’, or ‘cultural products’ in short.

2.2 Cultural 'Diversity' in the Context of International Trade

In the previous section, I discussed 'elements with differing cultural attributes' and specified them as 'artistic expressions with differing attributes that reflect collective ways of pursuing lives.' In this section, I discuss how to describe the condition in which these artistic expressions with cultural attributes coexist, or how to conceptualise the term 'diversity'. The reason why it is necessary to conceptualise 'diversity' is to be able to make a comparison among conditions of multiple systems. In some cases, the comparison can be easily done: for example, a group of people who speak the same language is obviously less linguistically diverse than another group of people who speak ten different languages. However, as I will discuss later in this section, there are many ambiguous cases, for which there arises the need for a numerical measure. As Hill (1973, 427) points out, "the purpose of determining diversity by a numerical index is rather to provide a means of comparison between less clear-cut cases." For this reason, the concept of diversity, or how to describe the conditions of multiple systems of elements with differing attributes, has developed mainly in the literature of biology and linguistics where the quantification of the degree of diversity is frequently required. Drawing upon this literature, this section introduces different views of the concept of diversity along with their corresponding mathematical presentations, and attempts to apply these to the case of cultural diversity.

Since the word 'diversity' is at such a high level of generality, there are various diversity concepts with a corresponding diversity in their measures. The definition of diversity therefore varies depending on the context and the purpose of the study. However, Stirling (1998) points out that discussion of any type of diversity can be more or less summarised by the following three points: i) how many categories constitute a system (variety); ii) how to characterise the nature or degree of apportionment between categories (balance); and iii) what criteria to employ in making a well-defined distinction between categories and how distinctive the categories are among each other (disparity). Stirling (2007, 709) states, "[d]espite the multiple disciplines and divergent contexts, there seems no other obvious candidate for a fourth important general property of diversity beyond these three." This three-dimensional approach on the concept of diversity has been adopted in measuring diversity in cultural sectors including books

(Benhamou and Peltier, 2007), films (Moreau and Peltier, 2004; Benhamou and Peltier, 2011) and television programmes (Farchy and Ranaivoson, 2011). As will be discussed in detail in due course, it is also applicable to our case of defining cultural diversity in the context of international trade. Let us consider each of the three dimensions in turn.

2.2.1 Variety and Singular Concept of Diversity

The first dimension relates to the notion of *variety*, which simply refers to the number of categories in a system. We perceive System A is more diverse than System B if System A consists of a larger number of distinguishable categories than System B does. For example, it is natural to judge that a hypothetical market composed of films from ten different cultures is more culturally diverse than another hypothetical market with films from five different cultures, given that films from each country can be a distinguishable category from others.

Categorisation is a critical procedure in assessing any diversity. It can be defined in general as the ordering of elements into categories on the basis of their similarity by maximising both within-category heterogeneity (Bailey, 1994), and the categories need to be mutually exclusive and exhaustive.^{2.1} Categorisation requires criteria that allow categories to be distinguishable from each other. Depending on the types of variables (e.g. quantitative/qualitative, discrete/continuous, etc.) used as criteria, various methods can be employed to address the heterogeneity among categories.^{2.2} One of the most common ways found across different sciences to address dissimilarity is to adopt the Euclidean space. Considering m criteria, each category can be represented as a coordinate in an m -dimensional Euclidean space, which is what Stirling (1998, 2007) refers to as ‘disparity space’, or what Saviotti and Mani (1995) refers to as ‘characteristics space’. Given that it involves ‘selection’ of criteria, the categorisation process is inevitably subjective to some extent. However this does not necessarily mean that any categorisation process is at risk of arbitrariness. One would try to select criteria that ‘make sense’ to testing a particular question in a given context. The concept or measure of variety is only reliable when the

^{2.1}There is a variety of terminology used in the literature of diversity. For example Bailey (1994) uses ‘entities’ for ‘elements’ in our term, and ‘groups’ or ‘classes’ for ‘categories’.

^{2.2}See for example Sneath and Sokal (1973, Chapter 4).

task of categorisation is properly done, and is much related to the notion of disparity, which will be discussed later in this section.

In our case of defining cultural diversity in the context of international trade, one needs to select the criteria by which artistic expressions can be assigned into categories that represent cultures that are distinguishable from each other. Artistic expressions have a range of attributes that reflect different cultures: languages used in the expressions, regions where artists are based, certain artistic styles adopted, and so on. One of the most common sets of attributes used to conceptualise cultural diversity in the context of international trade is the countries of origin in which the artistic expressions are produced, as in 'Australian films', 'Korean films', 'American films', and so on. This is especially so as the term 'cultural diversity' is understood in the arena of international trade as diversity in artistic expressions, or cultural products, which reflect different national cultures. One may argue that the notion of national culture is arbitrary to some extent, given that the current nation states are not formed based on the cultural distinctiveness. However, in the context of international trade in cultural products, where countries of origin matter more in comparison to other cultural attributes, it would not be unreasonable to categorise artistic expressions by where they are produced. This categorisation of cultural expressions by their countries of origin will be used in the rest of the thesis.

Measuring the degree of variety is straightforward: it is the number of categories in a system under consideration. The mathematical illustration is simple as follows:

$$D_1 = n$$

where D_1 denotes the measure of variety, and n the number of categories identified in a system. This is a singular concept of diversity, since it only accounts for one dimension, variety, as opposed to others that consider the notion of balance and/or disparity as well. For example, if a film market consists of films representing ten different cultures, the degree of cultural variety in the film market is ten.

Although looking at the degree of variety provides intuitive information on the degree of diversity, it is often not sufficient to make a definitive judgement in many ambiguous cases. For example, consider a film market in which 99% of the films are from one country and the remaining 1% is from nine different countries, and another in which an equal number of films are from five different countries. It would be difficult to say the former is more culturally diverse than the latter simply based on the number of cultures the films represent. In this sense, the notion of variety is not enough to describe cultural diversity, therefore we turn to the other two dimensions of diversity: balance and disparity.

2.2.2 Balance and Dual Concept of Diversity

The second dimension relates to the notion of *balance*, which is the extent of apportionment between categories. Given that System A and B have the same number of categories, i.e. the same degree of variety, we perceive System A is more diverse than System B if the categories in System A are more evenly proportioned, or balanced. For example, a film market in which an equal number of films originate from five different cultures is considered to be more culturally diverse than another in which 99% of the films are from one culture and the remaining 1% is from four different cultures.

Considering the notion of balance when addressing diversity in addition to variety, it is not difficult to make a definitive judgement when one system exhibits a higher degree of variety *and* a higher degree of balance, that is, more categories that are more evenly proportioned, in comparison to another. A film market in which an equal number of films are from five different cultures is undoubtedly more culturally diverse than another in which films from three cultures are unevenly distributed. But how would one make a judgement between a film market in which three cultures are evenly represented and another in which five are unevenly represented? As mentioned earlier, for these uncertain cases, a numerical index that accounts for both notions of variety and balance can be helpful. The diversity concept that considers both variety and balance is called ‘dual concept diversity’, which makes up a large body in diversity-related literature, largely in ecology.^{2,3} “To many authorities in ecology, dual concept diversity is synonymous

^{2,3}The label ‘dual concept diversity’ was first coined by Junge (1994) according to Stirling (1998).

with diversity itself” (Stirling, 1998, 48). And there have been numerous numerical measures proposed within the fields of ecology and conservation biology, since it has been the popular idea of conceptualising biodiversity.^{2,4} The general form of the dual concept diversity index has been suggested by Hill (1973):

$$D_2 = \left[\sum_{i=1}^n p_i^a \right]^{(1/1-a)}$$

where p_i is the contribution of category i such that $0 \leq p_i \leq 1$ and $i = 1, \dots, n$, and the parameter a can be seen as the relative weighting applied on the categories with large contributions, such that $-\infty \leq a \leq \infty$. The above formula represents a continuum of the dual concept diversity indices, and the particular index may be called ‘the dual concept diversity index of order a ’. As a approaches ∞ , D_2 approaches the proportion of the largest category; as a approaches $-\infty$, D_2 approaches the proportion of the smallest category.

Hill (1973) introduces three interesting cases where the parameters are 0, 1 and 2 as following:

$$\begin{aligned} D_2|_{a=0} &= n \\ D_2|_{a=1} &= -\sum_{i=1}^n p_i \ln p_i \\ D_2|_{a=2} &= \frac{1}{\sum_{i=1}^n p_i^2} \end{aligned} \tag{2.1}$$

The dual concept diversity measure of order 0 yields the number of categories in a system, or variety, equivalent to the singular concept. Applying $a = 0$ ignores varying contributions of categories, therefore the index does not consider the notion of balance

^{2,4}See, for example, Stirling (1998, 47) and Smith and Wilson (1996) for a variety of biodiversity indexes.

in measuring diversity. The measure of order 1, i.e. $a = 1$, is equivalent to the popular Shannon (1948) diversity index, also known as Shannon's entropy or Shannon-Wiener diversity index.^{2.5} And the measure of order 2, i.e. $a = 2$, is the inverse form of the also popular Simpson (1949) index, which takes its maximum of unity when all categories are perfectly evenly proportioned and its minimum of $1/n$ in the case of perfect domination, i.e. one category contributes 100% in a system. The inverse of $D_2|_{a=2}$ is equivalent to the Hirschman-Herfindahl index, introduced by Hirschman (1945), frequently used in measuring the degree of market concentration in economics. The Simpson index is also related to Gini's (1912) inequality index, and the mathematical form $1 - \sum p_i^2 = 1 - \frac{1}{D_2|_{a=2}}$ is known as the Gini-Simpson index. One advantage of using the Gini-Simpson index in comparison to the Simpson index is that it increases in the degree of diversity.

The Gini-Simpson index is the most popularly used measure in quantifying the degree of linguistic diversity. It is known as the monolingual nonweighted method as introduced by Greenberg (1956), in which p_i denotes the share of ethno-linguistic group i in a society and the index simply measures the probability that two individuals randomly and independently drawn from the population turn out to belong to different groups. The index is also known in the field as ethno-linguistic fractionalisation, or ELF, since it was referred to as such in the *Atlas Narodov Mira (Atlas of Peoples of the World)* in 1964, where findings of a USSR's worldwide ethnolinguistic project were published.^{2.6}

2.2.3 Disparity and Triple Concept of Diversity

Although the dual concept diversity and its measures are popularly used and straightforward, sometimes they are not sufficient to make a confident judgement between the conditions of different systems. For example, consider a film market in which an equal number of films are from China, Japan and South Korea, and another in which an equal number of films are from China, Australia and Brazil. Given the singular or dual concept diversity, the degree of diversity is equal between the two systems—the

^{2.5}See Hill (1973) for the proof.

^{2.6}While the Gini-Simpson index, or $D_2|_{a=2}$ in Equation (2.1) is frequently referred to as the ELF index in the relevant literature, Ginsburgh and Weber (2011, 125) points out that the ELF only refers to the dataset used by the USSR project, therefore "calling an index ELF without relying on the Soviet 1864 data set prolongs confusion."

same degree of variety and balance.^{2.7} But our natural perception would rather be that the latter is more culturally diverse than the former, since the dissimilarity among Chinese, Australian and Brazilian cultures is higher than the one among Chinese, Japanese and South Korean cultures. In other words, the nature and degree of dissimilarity among categories matter in assessing diversity. This is the third dimension of diversity concept suggested by Stirling (1998), or the notion of *disparity*. More generally, given that System A and B have the same degrees of variety and balance, System A is more diverse than System B is if the categories in System A are more dissimilar to each other than those in System B are. In this sense, the singular or dual concepts of diversity are sometimes not sufficient to cover meaningful information regarding our perception of diversity. For this reason, the ethno-linguistic fractionalisation index, or the Gini-Simpson index in Equation (2.1), have been criticised. That is, they are incapable of addressing the notion of disparity (e.g. Greenberg, 1956), although disparity, or the dissimilarity between languages, matters much particularly in the notion of ethnic or linguistic diversity.

A generalised form of a diversity measure that accounts for all three dimensions of variety, balance and disparity, which we might call ‘triple diversity concept’, is addressed by Stirling (2007) as follows:

$$D_3 = \sum_{ij(i \neq j)} (d_{ij})^\alpha \cdot (p_i \cdot p_j)^\beta, \quad (2.2)$$

where d_{ij} denotes the degree of dissimilarity between the categories i and j such that $d_{ij} = d_{ji}$ and $i, j = 1, \dots, n$; p_i and p_j represent the contributions of the categories i and j ; and α and β are parameters that represent weights on disparity and balance, respectively. Similarly to Hill’s class of dual diversity index, this triple concept diversity heuristic represents a continuum of indices with varying α and β . Stirling’s generalised index above focuses on pairs of categories, whereas Hill’s index on individual categories.

In some cases where we allow α and β to take values of 0 or 1, we obtain indices that we are already familiar with. The four cases where either α and β are 0 or 1 yield the following four indices:

^{2.7}By applying the singular concept diversity, we obtain 3; and by applying the Simpson index, 1/3 for both markets.

$$D_3|_{\substack{\alpha=0 \\ \beta=0}} = \frac{n(n-1)}{2} \quad (2.3)$$

$$D_3|_{\substack{\alpha=0 \\ \beta=1}} = \sum_{i,j(i \neq j)} p_i p_j \quad (2.4)$$

$$D_3|_{\substack{\alpha=1 \\ \beta=0}} = \sum_{i,j(i \neq j)} d_{ij} \quad (2.5)$$

$$D_3|_{\substack{\alpha=1 \\ \beta=1}} = \sum_{i,j(i \neq j)} (d_{ij}) \cdot (p_i \cdot p_j) \quad (2.6)$$

First, if we do not apply any weights on either disparity or balance, i.e. $\alpha = \beta = 0$, then Equation (2.2) reduces to a singular concept diversity measure, or variety: the number of pairs of categories as in Equation (2.3) is an increasing function of n . Second, if we take into account balance but not disparity, i.e. $\alpha = 0$ and $\beta = 1$, then we have a dual concept diversity index as in Equation (2.4), which is $D_3|_{\substack{\alpha=0 \\ \beta=1}} = (1 - 1/D_2|_{\alpha=2})/2$, equivalent to the half of Gini-Simpson index. Third, considering disparity but not balance, i.e. $\alpha = 1$ and $\beta = 0$, gives us the sum of all of the pairwise dissimilarities as in Equation (2.5), which accounts for variety and disparity but not balance. Lastly, given both balance and disparity, i.e. $\alpha = \beta = 1$, then the measure accounts for all three dimensions, variety, balance and disparity, as in Equation (2.6). This measure is related to the monolingual weighted method suggested by Greenberg (1956), one of the earliest concepts of linguistic diversity, formulated as follows:

$$D_3|_{\substack{\alpha=1 \\ \beta=1}}^{\text{Greenberg}} = 1 - \sum_{ij} p_i p_j \cdot r_{ij}$$

where r_{ij} represents the resemblance factor such that $0 \leq r_{ij} \leq 1$, i.e. the degree of similarity between language groups i and j , and p_i the proportion of speakers of language i in a society. By replacing the similarity factor r_{ij} with a dissimilarity factor $d_{ij} = 1 - r_{ij}$ and avoiding double counting, Ginsburgh and Weber (2011) suggest the following measure:

$$D_3 \Big|_{\substack{\alpha=1 \\ \beta=1}}^{\text{Ginsburgh}} = \frac{1}{2} \sum_{ij} p_i p_j \cdot d_{ij}$$

which is equivalent to the half of Equation (2.6). This measure aggregates the probability of choosing a speaker of language i and another of language j weighted by the dissimilarity between the two languages.

It has been pointed out that accounting for disparity in defining diversity is not always straightforward due to the difficulty of measuring dissimilarity among different categories. In general, however, the degree of dissimilarity between two categories with n attributes can be conceptualised as a distance between two coordinates in an n -dimensional Euclidean space. In our case of defining cultural diversity in the context of international trade, one may need to quantify the degree of dissimilarity among ways of living lives in different countries, which is also often called ‘cultural distance’. One way of doing so is to identify sets of attributes that reflect collective ways of lives and compute the Euclidean distance. ‘Cultural dimension scores’ evaluated by Hofstede (1984, 2001) are one of the popular cultural attributes used to quantify the differences among cultures, adopted in many fields in business administration and finance, for example, in measuring cultural differences across countries or explaining FDI in international finance market. Hofstede started the project by identifying four cultural dimensions, and two more are added in later years. The six dimensions are: power distance, uncertainty avoidance, individualism, masculinity, long term orientation, and indulgence.^{2.8} Considering these six dimensions and respective scores, one can measure dissimilarity between two cultures as a six-dimensional Euclidean distance or a version of it, such as in Kogut and Singh (1988) who introduced a measure of cultural dissimilarity that aggregates the score differences in the dimensions.

The notions of diversity—variety, balance and disparity—are all applicable to the present case of defining cultural diversity. It seems, however, the concept of cultural diversity in the context of international trade pertains more to the notions of balance and/or disparity rather than that of variety. As Janeba (2004, 1) points out, “many critics

^{2.8}See <http://geert-hofstede.com> for descriptions of each cultural dimension.

are not so much concerned about the quantities of physical goods being consumed, but the pattern and origin of goods consumed.” In the next section, the two notions, balance and disparity, will be further explained at different levels at which cultural diversity is to be assessed.

2.3 Cultural Diversity ‘*in the Context of International Trade*’

Given the two previous sections, the general definition of cultural diversity, as ‘the condition of a system composed of elements with differing cultural attributes’, is specified as ‘balance and/or disparity of a system composed of artistic expressions with differing attributes that reflect collective ways of pursuing lives’. In this section, I elaborate a ‘system’ or the domains on which cultural diversity will be discussed and assessed throughout this thesis. Within the context of international trade in cultural products, which in a broader sense may well be synonymous with ‘cultural globalisation’ as used in some contexts, trade liberalisation would influence the degree of cultural diversity in many different levels of human organisation: workplaces, schools and universities, small and big cities, countries, and even the whole world. Especially with the positive connotation that the term cultural diversity has garnered for the last few decades, the notion is indeed being talked about in relation to all these levels. The general interest, however, especially with the notion of cultural diversity having become understood as a part of a trade agenda, seems to be on the country and the world levels, which implies that more than one type of cultural diversity is relevant in the context of international trade.

The concept of cultural diversity at the *country* level is quite straightforward: it is about how culturally diverse a country, or a national market of cultural expressions, is *within* itself, which we may adjectivise with ‘intra-national’ or ‘local’. Given the ‘system’ identified as a country, as well as considering the discussion in the previous sections, the intra-national/local cultural diversity can be defined as: *variety, balance and/or disparity of a national market of cultural expressions categorised by their countries of origin*. The degree of intra-national/local diversity is higher if cultural expressions existing in a national market represent more cultures (higher variety) and more dissimilar cultures

(higher disparity) in a more even manner (higher balance). Depending on the research purpose, the intra-national/local cultural diversity may be measured by one of the dual and triple concept of diversity indices introduced in Section 2.2.

The concept of cultural diversity at the *world* level, however, seems to be more complicated to define, as the usages of the term do not agree in different contexts. In some instances, the term implies compositional or distributional dissimilarity *across* countries, or national markets of cultural expressions. As Cowen (2002, 15) explains:

“... diversity *within* society refers to the richness of the menu of choice in that society. Many critics of globalization, however, focus on diversity *across* societies. This concept refers to whether each society offers the same menu, or whether societies are becoming more similar.”

In this sense, the notion of cultural diversity at the world level could be referred to as ‘inter-national’, as opposed to ‘intra-national’. It may also be illuminating to refer to ecologist Whittaker’s (1960) idea on types of biodiversity. He suggests that the idea of biodiversity is determined by two types of diversity: i) species diversity within a habitat at the local level, which he terms ‘alpha diversity’, an equivalent concept to the ‘intra-national/local’ cultural diversity in our terms; and ii) dissimilarity among the habitats at the ecosystem level, which he terms ‘beta diversity’, an equivalent concept to the ‘inter-national’ cultural diversity in our terms. Given the notion of beta diversity, the inter-national cultural diversity can be defined as: *compositional disparity among national markets of cultural expressions categorised by their countries of origin*. The degree of inter-national cultural diversity between two countries increases as they ‘converge’ in their compositions of cultural expressions categorised by countries of origin. For example, consider two countries containing 99% of artistic expressions that represent Culture A and the rest 1% represent Culture B. Both countries exhibit a fairly low degree of intra-national cultural diversity since one kind of culture dominates both countries; but the degree of inter-national cultural diversity is at the maximum given that both countries exhibit the identical composition of cultural expressions. The inter-national cultural diversity therefore can be quantified by dissimilarity measures.

In other cases, however, the notion of cultural diversity at the world level rather

refers to the degree of deviation from to some sort of ‘reference’ amount of global presence assigned to different cultures in the world. Obuljen (2006, 22) explains:

“The second approach that has been widely debated, especially in the past two decades, is the issue of cultural diversity “among” nation states, societies and/or cultures. In this sense, cultural diversity is regarded as a principle representing the need for balanced exchange of cultural goods and services between states and/or cultures.”

The meaning of ‘balanced exchange of cultural goods and services between states’ seems to be qualitative than quantitative, and does not seem to be directly related to the balance of trade in cultural sectors. That is, this type of diversity is not technically about whether every country in the world exports and imports the same value of cultural expressions, or whether the balance of trade in cultural sectors is zero. Rather, this view conceptualises cultural diversity referring to the situations where certain countries net-export or net-import cultural expressions beyond some sort of ‘reasonable’ limit, or where certain cultures are globally over- or under-represented, thus having more or less than their ‘reference’ amount of global presences.

In terms of ‘reasonable’ limit or ‘reference’ amount of global presence, which can be quite subjective, we may relate them to the concept of ‘proportionality’ which Ferreira and Waldfogel (2010) refer to as the state in which each country has a global market share according to its economy size. In other words, cultural diversity at the world level can be seen at maximum when the world market of cultural expressions are in the state of ‘proportionality’ and at minimum when one country dominates the whole global market. Therefore this type of cultural diversity is about how culturally ‘balanced’ the global market of cultural expressions is. In this sense, we may refer to this kind of cultural diversity as ‘global’, as opposed to ‘local’, and define it as *balance in the global market of cultural expressions which reaches its maximum at the state of proportionality*. Additionally, note that this proportionality-based notion of balance differs from its general notion. For example, the Gini-Simpson index reaches its maximum when all categories are evenly proportioned, which is not necessarily true with the proportionality-based notion of balance.

2.4 Three Types of Cultural Diversity and Trade Liberalisation: A Simple Thought Experiment

Given the three types of cultural diversity identified in the previous section as relevant in the context of international trade, I illustrate in this section a simple thought experiment on the relationship between trade liberalisation and the level of cultural diversity. The aim of this section is two-fold. First, it clarifies the source of disagreement between the two opposing views on free trade in cultural products. By doing so, and second, it sets out the direction of the rest of this thesis.

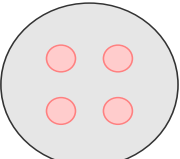
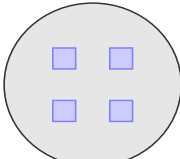
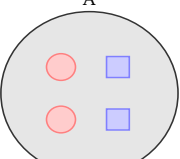
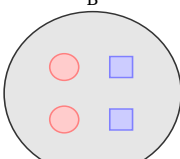
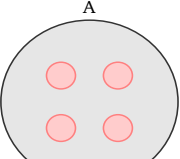
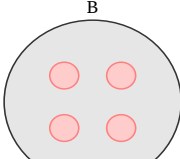
Consider two countries of the same economy size in cultural autarky, i.e. no exchange in cultural expressions. Also assume that each country produces culturally homogeneous products which are the only culture each consumes. Therefore, as depicted in Table 2.1, there is no intra-national/local cultural diversity in autarky. However, the degree of inter-national cultural diversity is at maximum in the sense the compositions of cultural expressions in both countries cannot be more dissimilar than this. The degree of global diversity is also at maximum in the sense that both countries have an equal global market share, that is, the world market of cultural expressions is at the state of proportionality.^{2.9}

Now let us allow the two countries to exchange their cultural expressions. There can be two extreme outcomes. The first case is that two countries exchange the half of their cultures and end up consuming even amounts of cultural expressions from both cultures, which we might call an ‘optimistic’ trade outcome. The degree of intra-national/local cultural diversity would reach the maximum as each country cannot become more culturally diverse. But there is no inter-national cultural diversity in the sense that the distribution of cultural expressions in both countries is the same, or both countries offer the same menu of choice. The degree of global cultural diversity remains unchanged at its maximum since both countries still ‘proportionally’ produce after trade.

The other extreme outcome is where one country’s cultural expressions entirely dominate the other as a result of exchange, therefore the two countries become one

^{2.9}The quantification of the three types of cultural diversity and their over-time trends in international film industry are shown in Chapter 6.

Table 2.1: Trade Liberalisation and Three Types of Cultural Diversity

	Graphic Illustration	Degree of Cultural Diversity		
		Intra-national/ local	Inter-national	Global
Autarky	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> </div>	Min	Max	Max
'Optimistic' Outcome	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> </div>	Max	Min	Max
'Pessimistic' Outcome	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> </div>	Min	Min	Min

bigger culture, the one of the dominating country's, which we might call a 'pessimistic' trade outcome. In this case, the degree of intra-national/local cultural diversity is at minimum as there is no heterogeneity in cultural expressions in each country, unchanged in comparison to autarky, although the market composition of the dominated country is entirely different.^{2.10} The degree of inter-national cultural diversity reaches the minimum as both countries end up exhibiting the same composition of cultural expressions, those of the dominating country's. And so does the global cultural diversity since only one kind of culture exists in the world after trade. The world market of cultural expressions is entirely out of the state of proportionality because the dominating country produces 100% of global share which is a lot higher than its economy share 50%.

Two things can be mentioned regarding the result of this simple illustration. First, trade liberalisation may affect the three types of cultural diversity in different direction,

^{2.10}From the standpoint of the culturally dominated country, whether trade brings positive or negative wellbeing effect should be considered separately from the matter of conceptualising the notion of cultural diversity. The welfare implication of trade liberalisation on cultural expressions will be briefly discussed in Chapter 7.

and they cannot be at their maximums at the same time. Trade liberalisation may result in an increase in intra-national cultural diversity, but also simultaneously bring in a decrease in inter-national or global cultural diversity. As Cowen (2002, 17) explains, “[c]ultural homogenization and heterogenization are not alternatives or substitutes; rather, they tend to come together”. In practice, it implies a trade/cultural policy dilemma or a need to prioritise different types of cultural diversity, as the question comes down to which type of cultural diversity is more valued than the others.

Thus far within economic analyses, the notion of cultural diversity viewed at the intra-national/local level has received much more attention than the other two have. The reason can be explained alongside the contrast between the individualistic nature of economics and the collective nature of culture: an economic activity involves a self-interested individual pursuing the maximisation of her net benefit, whereas a cultural activity involves beliefs or practices that relate to a group of people (Throsby, 2001). Putting this contrast within the context of trade liberalisation of cultural expressions, the individualistic nature of economics would favour diversity at the intra-national level, which can be represented by the freedom of choice that underlies consumer sovereignty, whereas the collective nature of culture would favour cultural diversity at the inter-national or global level of cultural diversity, which may represent cultural identities ‘safeguarded’ by maintaining the distinctiveness amongst national cultures or a ‘fair’ distribution of cultural presence in the world. Therefore, it is not surprising to find in general that the intra-national/local cultural diversity is a bigger concern for economists. One of the most powerful propositions established in international economics is that trade brings net gains to all of the parties involved in exchange of goods and services. In particular, the ‘new trade’ theory identifies the increased menu of choice enjoyed by individuals as the most significant source of the gains from trade as well as the driving force for countries to trade similar goods. Therefore, from the individualist/economist point of view, the gains from more freedom of choice or the intra-national/local cultural diversity undoubtedly outweigh the loss, if any, from becoming less cultural distinctive as a nation.

In contrast, inter-national or global cultural diversity has been discussed more among cultural theorists or critics of cultural globalisation who in general believe that distinctiveness among different cultures or maintaining ‘fair’ shares of global cultural

presence among nation states is something worthy of protection, and therefore ‘free trade’ should not be the only guideline offered in the arena of international trade (Footer and Graber, 2000). However, these sorts of arguments, or the existence of such a concept as ‘national culture’, have been largely dismissed in economics as being the nationalist view of politicians, nostalgia of the older generation missing ‘good old days’, or frustration of local artists who blame foreign cultures for their unsuccessful careers (Cowen, 1998).

This tug-of-war between the economic and cultural natures is well reflected on the sphere of international cultural politics. For example, as Kawashima (2011) illustrates, France argues that its cultural distinctiveness as a nation is something worthy of protection, emphasising the value of diversity defined at the global or inter-national level. On the other hand, the U.S. argues that cultural expressions produced in the U.S. serve cultural diversity as the U.S. is a culturally diverse country itself, highlighting the value of the intra-national/local diversity. This may partially explain the reason why the U.S. does not approve of the Cultural Diversity Convention (UNESCO, 2005), which states the sovereign rights of signatories to take internal measure to protect their ‘endangered’ cultural expressions. In most countries, a rough resolution is made by accepting both the free trade guideline from the WTO as well as the cause for cultural diversity from UNESCO. As Singh (2010, 42) describes the situation: “[t]hat the same government often supports cultural flows through WTO while signing on to UNESCO instruments speaks to the competing influences and schizophrenia among governments.”

I question, however, if it is appropriate to exclude the inter-national and/or global cultural diversities from economic analyses. This is because, as pointed out by Cowen (2002), cultural distinctiveness can be instrumentally valued from the individualist/economist point of view as it provides potential for even bigger menu of choice in the future. The value of the inter-national and/or global cultural diversities can be also understood within the concept of cultural capital introduced by Throsby (1999). The concept of cultural capital is suggested as the fourth type of capital, following the three conventional types of capital in economics—physical, human and natural. The concept refers to “the stock of cultural value embodied in an asset” (Throsby, 1999, 6), and like other types of capital, it yields a flow of goods and services that may contain cultural as well as economic value and deteriorates if not maintained. The asset of cultural capital may take a tangible form such as heritage sites and artworks, or an

intangible form such as a set of ideas and beliefs. As frequently used, a biodiversity analogy may help understanding the relationship between cultural diversity and cultural capital. As biodiversity plays a significant role in maintaining the stock of natural capital, cultural diversity can be thought of as an important part in maintaining the stock of cultural capital (Rizzo and Throsby, 2006). In this regard, distinctiveness across cultures and a fair global representation of cultures, or cultural diversity at the inter-national and global levels, may have value that should not be ignored in economic analyses as they contribute to the world stock of cultural capital which eventually becomes a source of richness in our menu of choice. In conclusion, it may not be sufficient to only include the intra-national or local level of cultural diversity in this thesis because the inter-national and global levels of cultural diversity are also worthy of investigation in the present context.

The second point that can be made from Table 2.1 is that the levels of the three types of cultural diversity depend on the outcome of trade liberalisation. For example, if the trade outcome is 'optimistic', in which countries are in balanced trade, the levels of intra-national and global cultural diversities are at maximum; but if 'pessimistic' in which one country becomes the only producer and exporter, both cultural diversities are at minimum. That is, depending on which trade outcome is assumed, the impact of trade liberalisation on the level of cultural diversity differs. The proponents of free trade in cultural products tend to assume the 'optimistic' outcome, in which intra-national cultural diversity, the kind of diversity they favour, increases compared to autarky. Therefore they argue for a positive relationship between free trade in cultural products and the degree of cultural diversity. The opponents, however, tend to assume the 'pessimistic' outcome, in which the levels of inter-national and global cultural diversities, the kinds of diversity they favour, decrease. Thus, they claim a negative relationship between trade liberalisation and the degree of cultural diversity. This contrast between the two opposing views naturally leads to a positive question of how the pattern of trade in cultural products is determined, from which the degrees of different types of cultural diversity are also predicted. Therefore the rest of this thesis focuses on investigating the pattern of trade in cultural products both from theoretical and empirical perspectives. Specifically, the trade pattern in cultural products will be hypothesised in Chapter 4 by

developing a trade model, and tested in Chapters 5 and 6 based on the film industry data.

2.5 Chapter Conclusion: Definitions of Cultural Diversity and Direction of Thesis

In this chapter, two things are accomplished. First, I have identified functional definitions of *cultural diversity in the context of international trade* by examining various definitional issues of the term. Specifically, in the first section, I discussed what ‘cultural’ means. Along with the contemporary usage of the term as a part of trade agenda, I choose to view cultural diversity as diversity in cultural expressions, which refers to the so-called arts that represent sets of collective beliefs and practices. In the second section, I explained the general term ‘diversity’ based on its three-dimensional concept composed of variety, balance and disparity, and showed by examples how the three notions can be applied to the case of cultural expressions categorised by their countries of origin. In the third section, I discussed ‘the context’, and identified three levels at which the notion of cultural diversity is considered by taking into account how the term is used and what it implies in the related fields. By uniting these discussions, I identified three types of cultural diversity at the country and world levels as relevant in the context of international trade:

- *intra-national/local cultural diversity*, specified as variety, balance and/or disparity of a national market of cultural expressions categorised by their countries of origin;
- *inter-national cultural diversity*, specified as compositional disparity among national markets of cultural expressions categorised by their countries of origin; and
- *global cultural diversity*, specified as balance in the global market of cultural expressions which reaches its maximum at the state of proportionality,

which will be referred to throughout the thesis as a basis of theoretical and empirical analyses.

Second, and most importantly in this chapter, I have also illustrated by a simple thought experiment how the three types of cultural diversity can be associated with trade liberalisation in cultural products, and how their degrees differ depending on the trade outcomes. Given this link between the degrees of different cultural diversities and trade outcomes, I argued that predicting the pattern of trade in cultural products is a critical step to take in investigating the association between trade liberalisation and the level of cultural diversity. As noted above, I investigate what determines the outcome of trade in cultural products in Chapter 4 by developing a theoretical model, and test the propositions thereof in Chapters 5 and 6.

CHAPTER 3

THEORETICAL BACKGROUND

The aim of this chapter is to review the relevant literature on trade liberalisation and cultural diversity, and to discuss the theoretical foundations incorporated in the model that will be constructed in Chapter 4.

There are broadly two approaches found in the literature on modelling trade and cultural diversity, depending on whether the notion of cultural diversity is viewed in terms of cultural attributes of individuals or artistic expressions, as discussed in Section 2.1. The two different views are generally associated with two differing modelling approaches. The first finds cultural attributes in individuals and associates a representative preference with a culture. Therefore in this approach, cultural diversity is viewed as a state of heterogeneity in preferences and is endogenised through a dynamic process which allows for preferences to be influenced by economic conditions. This line of models is surveyed in Section 3.1. In contrast, the second approach finds cultural attributes in cultural products, and cultural diversity is viewed as heterogeneity in cultural products. This approach takes preferences as exogenously given and the distribution of cultural products is endogenised thus predicting the pattern of trade in cultural products, which is how the problem of cultural diversity and trade in cultural products is understood in this thesis as argued in Chapter 2. In this regard, I discuss in Section 3.2 the pattern of trade in cultural products within the framework of trade theories. In Section 3.3, I proceed to discuss further in detail the type of trade barrier peculiar to cultural trade, i.e. cultural discount, which is the critical assumption considered in the model developed in Chapter 4.

3.1 Trade and Diversity in Cultural Identities

The first modelling approach understands that cultural diversity is diversity in cultural identities, represented by a state of heterogeneity in representative preferences. In this

sense, this approach is related to the literature in economic sociology or demographic economics. Preferences are endogenised through some sort of inter-generational replicator dynamics and evolve by interacting with economic variables such as endowments and prices. In this way of modelling, one can predict a two-way relationship between trade and cultural diversity: given the initial preferences and economic conditions, the economy reaches a general equilibrium, which in turn alters the distribution of preferences through a dynamic process until the distribution of preferences reaches a steady state. Therefore this line of models is about how the demand side is affected by the supply side, and how material conditions influence the way of living a life in a broader sense.

A simple model of these processes is introduced by Bala and Van Long (2005) who use an exogenous replicator dynamics in representing the evolution of preferences based on the Darwinian literature in biology. They suggest that the preference of the larger country dominates as a result of economic integration and the smaller country's preferences becomes 'extinct'. In this sense, they predict the 'pessimistic' trade outcome displayed in Table 2.1.

Bisin and Verdier (2014) explain trade and cultural diversity by incorporating a more theoretically grounded replicator dynamics based on their previous model of cultural transmission (Bisin and Verdier, 2000a,b, 2001), in which cultural traits or preferences are either inherited from the parent generation or learnt from the peer group. By combining this process of cultural transmission and the competitive economic exchange setup, they propose that the final distribution of preferences is determined by the relative abundance of endowments. Trade liberalisation means a change in the relative abundance of endowments and the relative price, hence a change in the incentive structure faced by parents who decide whether to pass their cultural traits onto the next generation. Since individuals face the same relative price in both countries after trade liberalisation, the distributions of preferences within countries converge, implying a fall in cultural diversity at the inter-national level in our terms. Also, since cultural minorities have stronger incentives to pass their cultural traits onto the next generation, Bisin and Verdier (2014) exclude the possibility of the trade outcome being a complete homogeneity in preferences.

Also based on the replicator dynamics of cultural transmission, Olivier, Thoenig and Verdier (2008) introduce consumption externalities on the demand side. They study two aspects of globalisation: goods market integration and social integration. In the former case, economic integration leads to cultural homogeneity within each country and cultural divergence across countries, which is the opposite prediction to Bisin and Verdier (2014). This is so because in autarky a favoured good in each country is relatively more expensive than an unfavoured good, and trade lowers the relative price of the favoured good, which alters preferences even more towards the favoured good. In the latter case, social exchanges occur among people in different countries, which alters the degree of consumption externalities. In this case, in contrast to the market integration, cultural convergence takes place across countries and cultural heterogeneity remains within each country. In the case where both economic and social integrations occur, the two opposite effects may counterbalance each other, and it is possible to maintain the distribution of preferences under autarky.

While all these models assume a perfectly competitive Walrasian market, since the focus is on the dynamics of preferences, Thoenig et al. (2009) incorporate increasing returns to scale and product differentiation on the supply side based on the ‘new trade’ theory. They assume autarky with three goods: two are culturally specific to two countries and the third is commonly consumed. Trade liberalisation expands the global proportion of the common good due to increasing returns to scale, as predicted by Helpman and Krugman (1985). This is commonly referred to as the ‘home market effect’ or ‘size effect’. Through the replicator dynamics of cultural transmission, the distributions of preferences in both countries alter towards the common good, which implies a fall in cultural diversity at the national, inter-national and global levels—hence the ‘pessimistic’ trade outcome in our terms. Thoenig et al. (2009) also find empirical support for the positive association between cultural convergence and trade openness based on the micro-level dataset from the World Value Survey.

3.2 Trade and Diversity in Cultural Products

The second modelling approach in theorising trade and cultural diversity finds cultural attributes in cultural expressions, or cultural products. In this approach, cultural diversity is defined as heterogeneity in cultural products, which is in line with the definitions of cultural diversity established in Chapter 2, and more related to the literature of economics of arts. In contrast to the first approach, preferences are exogenously given whereas the distribution of products is endogenised. In this respect, this approach comes down to predicting the pattern of trade in cultural goods and services and is also directly related to the international trade literature in general. The model to be constructed in Chapter 4 is also in line with this approach in the sense that the relationship between trade and cultural diversity is viewed as a problem of predicting the pattern of trade in cultural products. Therefore, it is first necessary to discuss the applicability of trade theories to trade in cultural products.

3.2.1 Applicability of Trade Theories to Trade in Cultural Products

Classical trade theory explains the occurrence of international trade based on the concept of comparative advantage arising from differences among countries under assumptions of perfect competition, homogeneous goods and constant returns to scale. The two seminal models are the Ricardian model and the Heckscher-Ohlin model. The former identifies the cause of international trade as being based on technological asymmetry between countries, while the latter explains it on the basis of differences of factor endowments. There have been a variety of modifications and extensions, but the fundamental proposition is: a country exports goods in which it has a comparative advantage and imports those in which it has a comparative disadvantage, and that all parties involved in trade become better off compared to autarky by complementing each other's disadvantages and therefore having more things as well as more kinds of things. So, classical trade theory is well known as explaining the 'inter-industry' trade that takes place between countries with differing economic conditions, but not the trade of similar products among economically similar countries, which makes up a significant bulk of the world trade volume.

Hence we have the so-called ‘new trade’ theory, which introduces assumptions of increasing returns to scale and monopolistic competition under which economically similar countries still benefit from trading differentiated products with each other. The fundamental proposition that all parties involved in trade become better off still holds, although the source of gains from trade is different. Under the ‘new trade’ theory, economic integration allows all involved parties to be better off due to the increased number of varieties available after trade, which is the driving force for economically similar countries to trade similar goods. Therefore the ‘new trade’ theory is known to better explain ‘intra-industry’, or North-North, trade.

Considering the assumptions made in these two lines of trade theories, it seems more appropriate to apply the ‘new trade’ theory to the case of trade in cultural products, as Schulze (1999) and Rauch and Trindade (2009) point out. First, the nature of trade in question, i.e. trade in cultural products, is intra-industry trade, and the problem in question is to see the pattern of trade in similar goods. Therefore it would be natural to rely on the framework of the ‘new trade’ theory rather than on the classical theory. Second, cultural products are highly differentiated by nature, where a Lancasterian view of the product space is appropriate (Throsby, 1994). Also, product differentiation is highly encouraged in such industries: originality and creativity, or producing something differential to existing ones, is known to be the primary source of producers’ motivation as well as of the value-added generated in the production process. Third, trade in cultural products is observed to occur more among economically similar countries. Since cultural products could be categorised as a sort of ‘luxury good’, trade in these products occurs mostly among developed and some of the developing countries. UNCTAD (2010) reports that in 2008 developed countries (Europe, USA, Japan and Canada) made up 56% of the total world exports and 75% of the total world imports of cultural goods. Also high-income economies exported 82% and imported 89% of core cultural goods according to UNESCO Institute for Statistics (2005).^{3.1} Fourth, the production technology of reproducible cultural products—such as films, books (print or electronic), or music recordings—can be characterised by a fairly high degree of increasing returns to scale.

^{3.1}Countries of which their GNI per capita is USD 9,706 or more (UNESCO Institute for Statistics, 2005, 98).

In producing this sort of goods, the fixed costs (those involved in creating the original) are relatively high, whereas the variable costs of producing the copies are negligible.^{3.2}

3.2.2 Pattern of Trade in Cultural Products: Home Market Effect and Cultural Discount

While the perfectly frictionless trade models (Krugman, 1979, 1980) do not determinately predict the location of production and hence the pattern of trade, the trade model under the existence of transport costs does, as in Krugman (1980) and Helpman and Krugman (1985, Section 10.4). In the latter models, trade liberalisation implies the removal of policy barriers such as tariffs or quotas but not the physical transport costs. In the setup of two countries of different economy sizes who produce differentiated varieties of a good in an industry subject to increasing returns to scale exhibited at the level of variety, trade liberalisation leads a larger country to produce a larger global share than its relative economy size and a smaller country to produce a smaller global share than its relative size. This more-than-proportional relationship between the demand and output shares is known as the ‘home market effect’, the ‘size effect’, or the ‘magnification effect’. The reasoning behind the ‘home market effect’ is that, due to the increasing returns to scale exhibited in producing a variety of a good, a firm will choose one location of production instead of splitting into multiple locations. As a result, due to the asymmetry in economy size and the existence of transport costs, firms will concentrate towards the larger economy in order to minimise the transport costs.^{3.3} Therefore, the larger country is predicted to be the net-exporter whereas the smaller the net-importer in the industry of increasing returns to scale. This prediction is the most important feature that separates the models of increasing returns from those of comparative advantage, since the larger country is predicted to be an importer instead of an exporter as predicted by the latter (Davis and Weinstein, 1996). In sum, the pattern of trade under increasing returns to scale and product differentiation is determined by two factors: asymmetry in economy size and the presence of transport costs.

^{3.2}However, some cultural goods such as paintings and crafts would be more subject to constant returns to scale (Schulze, 1999).

^{3.3}In this sense, this body of literature is also called the new economic geography as it addresses spatially unequal economic development.

Given the better applicability of the ‘new trade’ theory to the case of trade in cultural products, the home market effect proposition, although not always directly referred to as such, has been a fairly well-established explanation amongst economists for the unbalanced trade flows in some cultural industries such as films and music recordings—in particular, the dominance of Hollywood movies and American pop music (Wildman and Siwek, 1988; Hoskins and Mirus, 1988; Frank, 1992; Lee and Waterman, 2007). The explanation is two-fold, as Schulze (1999) points out. First, the increasing returns to scale exhibited in those industries explains why there exists a concentration of production towards one location such as Hollywood. It should be noted, however, that it alone is not sufficient to explain why Hollywood exists in the U.S. Given the transport costs in those industries considered to be relatively low, a production concentration can take place anywhere and the pattern of trade would not be determinate. However, and secondly, a concentration of cultural production towards a larger country such as the U.S. may be predicted with the notion of cultural discount replacing the role of transport costs in the home market effect model. Cultural discount, referring to the tendency of consumers valuing less the foreign cultural contents because it is difficult to fully appreciate them, can be considered as a type of trade barrier incurring from the consumption of cultural expressions, which will be further discussed in Section 3.3. An important thing to note regarding the home market effect under the notion of cultural discount, as will be further discussed in Chapter 4, the production concentration to a larger economy does not necessarily mean a geographical concentration, but rather the homogenisation of cultural contents towards a larger economy’s culture which technically does not have to be accompanied with physically moving the production.

Based on the above discussion about the home market effect and trade in cultural products, a formal theoretical extension of the standard home market effect is put forward by Rauch and Trindade (2009), who question whether the home market effect itself is sufficient to explain such extremely high U.S. shares in many countries’ film and music markets. They introduce characteristics of cultural consumption and production in the standard model of home market effect. First, they address cultural discounting behaviour on the demand side, which is the assumption of cross-country heterogeneity in preferences and causes the standard home market effect. Secondly, they introduce network consumption externalities, which they consider as another explanation for the

U.S. or Anglo-American dominance in international film and music trade. Thirdly, they augment the utility structure with the quality of cultural goods, which is affected by past production through a spill-over effect reflecting the public-good aspect of cultural products. As a result of trade liberalisation, the home market effect that arises from the existence of cultural discount is reinforced by network externalities. The reason is that incentives to firms to produce the larger economy's culture generated under cultural discounting, are magnified by the network externalities, which is technically the same effect as that of a decrease in cultural discounting factor, or the magnification of home market effect.

In terms of empirical evidence for the home market effect under the presence of cultural discount, the literature on film trade film industry has generally reported that national income and cultural ties, such as languages or historical linkage between trade partners, are important determinants of cultural trade volume (Marvasti and Canterbury, 2005; Schulze, 1999; Chung, 2011), which may be taken as implicit support for the home market effect under the assumption of cultural discount. This is naturally predicted when one assumes the gravity specification, which gained its theoretical justification as the 'new trade' theory emerged.

Also, given that cultural discounting replaces the role of transport costs in the home market effect model (Krugman, 1980; Helpman and Krugman, 1985) as another form of trade barriers peculiar to trade in cultural products, there have been a few studies that explicitly examine the presence of the home market effect in the cultural sector. Lee and Waterman (2007) find a positive association between a country's global film expenditure share and its domestic performance based on the historical data of six countries covering over fifty years. Hanson and Xiang (2009) also report that the relative size of the U.S.' GDP has a positive impact on its relative market performance in other countries. They also show a negative effect of cultural discount, measured by linguistic distance, on the U.S. films' performance in foreign countries. Both studies focus on the relationship between the global demand share and the production performance within a country, which is implied but not directly claimed by the proposition of the home market effect. Ferreira and Waldfogel (2010) examine the international music recordings industry of 22 countries over the years of 1960–2007, and show a discrepancy between the global GDP and sales shares of twenty two countries, hinting at the presence of the home market

effect. They also find that the domestic shares of sample countries in relation to their global GDP shares have been rising in their sample years.

3.3 Cultural Discount and its Asymmetry

The novelty of the model to be developed in Chapter 4 is the formal application of asymmetry in cultural discounting behaviour to the standard model of home market effect (Helpman and Krugman, 1985, Section 10.4), where the industry in question is described by increasing returns to scale, monopolistic competition and product differentiation. In this regard, as well as given the important role of the concept of cultural discount in predicting the pattern of trade in cultural products, this section further discusses the concept and its asymmetric characteristic.

As briefly mentioned in the previous section, cultural discount refers to the tendency of consumers valuing less the foreign cultural contents because it is difficult to fully appreciate foreign values delivered in foreign languages. The term was initially coined by media scholars Hoskins and Mirus (1988) in explaining the U.S. dominance in television programming trade. As they describe it, “[a] particular programme rooted in one culture, and thus attractive in that environment, will have a diminished appeal elsewhere as viewers find it difficult to identify with the style, values, beliefs, institutions and behavioural patterns of material in question.” (Hoskins and Mirus, 1988, 500). Moreover, the concept can be considered as a type of trade friction inherently operating from the demand side, and is significantly relevant to trade in cultural products. Similar terms include ‘cultural distance’ and ‘cultural proximity’. The former is similar to cultural discount except that it is symmetric between two countries by the definition of ‘distance’. The latter is related to “sharing of a common identity, to the feeling of belonging to the same group, and to the degree of affinity between two countries” (Felbermayr and Toubal, 2010, 279), which can be considered as an inverse notion of cultural discount.

The presence of cultural discount as well as its theoretical justification are generally agreed upon. For example, Disdier et al. (2010) adopt different measures of cultural discount and find their varying impact on different cultural products such as cultural heritage, books, visual arts and so on. The common language is shown to have a bigger

impact on trade in literary cultural products such as books and newspapers than in visual arts, and the past colonial link has a bigger impact on trade in cultural heritage than in books. Lee (2008) examines the box office revenues for different genres earned by the U.S. films in a number of Asian countries. He finds that certain genres such as action or adventure perform better in international markets in comparison to comedy or drama, which are subject to a higher degree of cultural discount due to their culture-specific nature. At the microeconomic level, Park (2006) elaborates the notion by using a survey of Chinese consumption of South Korean TV programmes and finds that how much one likes a foreign culture matters more in cultural consumption than how similar one thinks one's own culture is to another.

In passing, the general idea that cultural difference can play a role in determining the trade volume is not completely unique to the case of cultural products. Two accounts are found in the trade literature. First, especially in the empirical trade literature, cultural difference has long been recognised as a part of trade friction: it is a conventional practice in estimating the gravity equation to include cultural variables such as the use of common language or historical linkages (e.g. Mélitz, 2008). Therefore, embracing the notion of cultural discount, or cultural difference in general, within the trade model can theoretically justify the empirically common practice of including such cultural variables in estimating the gravity equation. Also, the role of cultural variables in international trade does not seem negligible: for example, Anderson and van Wincoop (2004) infer that the language barrier in trade is a 7 percent ad-valorem tax equivalence applied to the exporting price. Second, in the sense that cultural discount refers to the tendency of consumers preferring domestic products to foreign ones, the concept of 'home bias' or 'border effect' also can be related to the notion of cultural discount. 'Home bias' or 'border effect' refers to the difference between international and intra-national magnitudes of trade (Rogers, 2008), which would not have been generated if the products were not crossing international borders.^{3,4}

The theoretical and empirical treatment of the notion of cultural discount, or

^{3,4}The border effect has been called a puzzle (Obstfeld and Rogoff, 2000) since McCallum (1995) found that the trade volume among Canadian provinces is almost twenty times larger than the volume between individual Canadian provinces and the U.S. states. The parameter twenty since then has been turned out to be smaller as subsequent studies used more refined methodologies (e.g. Anderson and van Wincoop, 2003; Wei, 1996; Wolf, 2000); however the existence of home bias has not been rejected thus far.

cultural difference in a broader sense, has mostly been to assume it as symmetrical between two countries. And I loosen this assumption in the model developed in Chapter 4. The asymmetric manner in cultural discounting behaviour addresses the commonly observed phenomenon that some country's cultural products are popular in foreign cultures more than foreign cultural contents are in its territory, or vice versa. For example, it would be fair to say that Australian consumers are more familiar with and more appreciative of U.S. cultural contents than U.S. consumers are with Australian ones. In other words, the cultural discount applied by Australia to the U.S. culture is smaller than that applied by the U.S. to Australian culture. This idea of asymmetric cultural discount is not entirely new: it has been addressed in a number of studies including Hoskins and Mirus (1988), Frank (1992) and Schulze (1999) as a potential explanation for the imbalance in cultural trade.

There could be a couple of explanations as to why the asymmetry occurs. First, some cultural products are readily subject to low cultural discounting regardless of which culture they are sold in, whereas some are not. Hoskins and Mirus (1988) point out that, due to the commercial nature of the U.S. television programming industry where the revenues are yielded from selling an audience to advertisers, and to the relatively high cultural diversity in the U.S. society, the supply side is encouraged to 'dumb down' the contents aimed for the 'lowest common denominator'. In other countries especially with relatively homogeneous cultural backgrounds, producers would not have such an incentive to lower the cultural discount, therefore these contents are rather heavily discounted abroad. It seems that the 'dumbing down' process in Hollywood may go further as the foreign demand grows; for example, Walls and McKenzie (2012) find that Hollywood films have evolved to accommodate more the global demand as revenues from foreign film markets grow.

Secondly, the asymmetric behaviour in cultural discounting may also be explained from the consumption side, along with two peculiarities of consuming cultural goods: consumption externalities and addictiveness. Part of the utility of consuming cultural products is received from sharing the experience with others. And especially as the global social interaction increases due to the advancement of information technologies, "[i]f everyone communicates equally with everyone else, the standard of the larger country will tend to take over" (Rauch and Trindade, 2009, 810) and consumers in

general will be exposed more to the culture of the larger country. Then as the theory of rational addiction (Stigler and Becker, 1977; Becker and Murphy, 1988) predicts, the appreciation of the cultural products that consumers are more exposed to would grow more rapidly. “As Europeans get more and more used to American films, the cultural discount for American films diminishes, but because Americans are hardly exposed to European films, their cultural discount remains” (Schulze, 1999, 125).

In relation to the standard home market effect model, introducing asymmetry in cultural discounting is equivalent in the technical sense to relaxing the symmetry assumption imposed on transport costs, as found in Johdo (2013). The asymmetry in trade barriers is also related to the concept of ‘hub effect’, which in the literature of international trade and economic geography in general refers to the tendency of a country with a central location, literally or economically, being an attractive location of production because of low transport costs. The hub effect is often considered as an issue arising in a multi-country modelling setup: Krugman (1993) mentions that a hub does not exist when there are only two locations but it does with three. Therefore, the hub effect mostly has been theorised under a multiple-country setting (Behrens et al., 2004; Suedekum, 2005; Niepmann and Felbermayr, 2010). This is so, however, because one assumes the symmetry of trade barriers within a country pair and asymmetry across country pairs. But, with the asymmetry in trade barriers also within a country pair, a hub can exist in a two-country setting as well. In this sense, and given the understanding of cultural discount as a form of trade friction, we may call a country whose cultural products are subject to relatively less cultural discounting or better accessibility between two countries, a ‘cultural hub’.^{3.5} In the example of the U.S. and Australia, the U.S. can be said to hold the position of a cultural hub due to the relatively higher popularity and accessibility of its cultural contents in Australia than vice versa.

3.4 Chapter Conclusion

In this chapter, I reviewed two approaches of modelling trade liberalisation and cultural diversity: one that understands the term cultural diversity as diversity in cultural

^{3.5}One may view the notion of cultural hub in relation to that of ‘cultural hegemony’.

identities; and the other, as diversity in cultural products. The present thesis is in line with the second approach in the sense that the problem of trade and cultural diversity is viewed as that of predicting the pattern of trade in cultural products. Considering the characteristics of cultural industries, the ‘new trade’ theory based on the assumptions of increasing returns to scale and product differentiation is arguably more applicable to trade in cultural products. Given the existence of trade costs, the standard model of the ‘new trade’ theory predicts that a larger country becomes a net-exporter since firms concentrate towards the larger economy in order to exploit the increasing returns to scale technology as well as minimising the transport costs, which is known as the ‘home market effect’. The critical assumption that makes the home market effect pertinent to trade in cultural products is the presence of cultural discount, the tendency of consumers valuing foreign cultural contents less than domestic ones, which replaces the role of transport costs in the standard model. In this regard, the explanation for the current imbalance in trade flows in some cultural industries—in particular the audio-visual sector—established in the literature can be summarised as the home market effect under the presence of cultural discount: a larger country becomes a net-exporter since firms exploit the increasing returns to scale technology as well as minimising the trade costs incurring from the cultural discounting behaviour of consumers.

The model to be constructed in the next chapter builds on these notions of the home market effect and cultural discount. Specifically, I modify the standard model of home market effect Helpman and Krugman (1985, Section 10.4) by accounting for the notion of cultural discount on the demand side, and extend it by additionally assuming the asymmetry of cultural discounting behaviour discussed in Section 3.3.

CHAPTER 4

A MODEL OF TRADE IN CULTURAL PRODUCTS

The goal of this chapter is to develop a theoretical model of trade that predicts the pattern of trade in cultural expressions, and accordingly derive hypotheses of how trade liberalisation is associated with the degrees of the three types of cultural diversity identified in Chapter 2. I theorise the problem of trade and cultural diversity as that of predicting the pattern of trade in cultural products, because of the systematic association between trade outcomes and the degrees of the three types of cultural diversity, as mentioned in Chapter 2. For example, as Table 2.1 illustrated, the ‘pessimistic’ trade outcome implies that there exists only one exporter and that all of the three types of cultural diversities are at their minimums; and the ‘optimistic’ one implies that both countries both import and export and that the intra-national/local and global cultural diversities are at their maximums while the inter-national one is at minimum.

In predicting the pattern of trade in cultural products, I modify and extend the standard home market effect model (Helpman and Krugman, 1985, Section 10.4, ‘the reference model’ hereafter), a bilateral trade model based on monopolistic competition, increasing returns to scale, product differentiation, and the existence of transport cost. The modification is made by replacing the transport costs with another form of trade barriers arising from the demand side: the cultural discount, a tendency of consumers to value foreign cultural contents less. The extension of the model is effected by allowing asymmetry in cultural discounting behaviour of consumers between two countries. This asymmetry assumption is in a technical sense equivalent to loosening the symmetry imposed on transport costs in the reference model. In this sense, this model can be generally applied to other cases of non-cultural trade where trade barriers occur in an asymmetric manner.

The motivation of adding the assumption of asymmetry in cultural discounting to the reference model is two-fold. First, while the home market effect proposition itself is a plausible explanation for the U.S. dominance in the global audio-visual sector, it does

not seem the only channel that determines the trade pattern in cultural products. First, as noted by Rauch and Trindade (2009) and Chisholm et al. (2015), the degree of U.S. dominance in such industries is perhaps still ‘too high’, even considering the size effect. As will be discussed in Chapter 6, the data show that the relative size of the U.S. market has been declining over the last decade or so. In this sense, Hoskins and Mirus (1988) and Frank (1992) have pointed out the asymmetric nature in cultural discounting as another plausible explanation for the unbalanced trade flows in such industries. Hoskins and Mirus (1988) suggest that asymmetry in cultural discounting may strengthen the degree of U.S. dominance in the television programming trade since U.S. programmes are generally popular abroad whereas U.S. audiences are rather intolerant towards foreign programmes. Secondly, the home market effect itself does not explain other cases of unbalanced trade patterns, where smaller economies net-export or other large non-U.S. countries net-import. For example, the home market effect does not have a say as to why the U.K. or Australia net-exports films to China when their cinema demand is much smaller than China’s, the second biggest film market in the world according to Motion Picture Association of America (2013). In this case one would naturally suspect that the imbalance between the U.K./Australia and China has something to do with the fact that English films are more accessible in China than Chinese films are in the U.K. or Australia. Therefore it seems reasonable to hypothesise that the asymmetric characteristic of cultural discounting will potentially have an impact on the pattern of trade in these cultural industries.

The basic setting is very similar to the reference model. There are two countries of potentially unequal economy size: Home and Foreign. Foreign variables are distinguished by asterisk from Home variables. There is one production factor, labour. There are two industries. One is costlessly tradable homogeneous non-cultural good produced under constant returns scale and perfect competition, which allows the wage rate to be constant across two countries and absorbs the trade imbalance the other industry.^{4.1} The other is a differentiated cultural good, where increasing returns to scale are exhibited at the firm

^{4.1} Although popularly made, the assumptions of the homogeneous industry, also called ‘the outside good’, are quite strong and do not much reflect reality. Crozet and Trionfetti (2008, 318) however show that “the outside good assumption, although clearly at odds with reality, does not affect qualitatively the results concerning international specialization and the direction of trade. Therefore, its pervasive use is justifiable on the ground of algebraic convenience.”

level and asymmetric cultural discounting is applied.^{4.2} There are no transport costs assumed, which is for technical convenience but also can represent the declining physical transportation costs in some cultural industries due to the on-going improvement of information technologies and increasing digital transactions.

The chapter comprises of seven sections. In Sections 4.1 and 4.2, I illustrate consumers and producers of cultural products. In Section 4.3, I derive the solution of the model by using the market clearing condition. In Sections 4.4-4.6, I present and discuss the pattern of trade predicted by the model. Based on the prediction, I conclude the chapter by deriving hypotheses that will be tested in Chapters 5 and 6.

4.1 Consumers

There are two approaches in modelling consumers' preferences towards multiple varieties of a differentiated product. The first approach is to consider a consumer who prefers as many varieties as possible, which is called the S-D-S form named after Spence (1976) and Dixit and Stiglitz (1977). The other way is to consider a consumer who chooses the best variety among a range of varieties, as in Lancaster (1980). However, either way implies that there is a preference towards diversity in consumption in the aggregate terms, and it has been shown that the two approaches lead to very similar results (Helpman and Krugman, 1985). Due to the technical simplicity, I take the first approach in this model. The representative consumers' preferences in Home and Foreign are specified by using a two-level utility function, as defined below:

$$U = u(x_0, V)$$

$$U^* = u^*(x_0^*, V^*),$$

^{4.2} Helpman and Krugman (1985) explain that there are four approaches taken in illustrating increasing returns scale: a) external scale economies, b) contestable market, c) oligopolistic market, and d) monopolistic competition. The first three assume homogeneity in goods, whereas the fourth takes into account product differentiation. The first one considers that increasing returns to scale is exhibited at the industry or national level, while the other three are about scale economies at the firm level. The present study is based on the fourth approach. The terms 'increasing returns to scale' and 'economies of scale' will be used interchangeably. The two concepts describe the same type of technology when input prices are assumed to be constant.

where x_0 is the consumption of the homogeneous good, and V and V^* are the sub-utility functions for the differentiated good defined as a CES (Constant Elasticity of Substitution) form. The sub-utility functions are defined as follows:

$$V = \left[\sum_{i=1}^n x_i^{\frac{\sigma-1}{\sigma}} + \sum_{j=1}^{n^*} \left(\frac{x_j}{\delta} \right)^{\frac{\sigma-1}{\sigma}} \right]^{\frac{\sigma}{\sigma-1}}$$

$$V^* = \left[\sum_{i=1}^n \left(\frac{x_i^*}{\delta^*} \right)^{\frac{\sigma-1}{\sigma}} + \sum_{j=1}^{n^*} (x_j^*)^{\frac{\sigma-1}{\sigma}} \right]^{\frac{\sigma}{\sigma-1}},$$

where x_i is the consumption of variety i produced in Home ($i = 1, 2, \dots, n$), and x_j the consumption of variety j produced in Foreign ($j = 1, 2, \dots, n^*$). These sub-utility functions are concave in consumption of each variety, which allows the consumer to prefer as many varieties as possible. Since V and V^* take the CES form, the degree of elasticity of substitution is constant as σ , and so is the degree of price elasticity of demand, given that there are many firms in the market where an individual firm cannot affect the overall market price.^{4.3} Note that $\sigma > 1$ as firms in the monopolistically competitive market produce only when marginal revenue is positive.

The behaviour of cultural discounting is introduced by δ and δ^* taking the iceberg form such that $\delta > 1$ and $\delta^* > 1$: a Home consumer appreciates only $1/\delta$ of every unit consumption of Foreign cultural good; and a Foreign consumer appreciates only $1/\delta^*$ of every unit consumption of Home's cultural good. A Home consumer becomes close to the full appreciation of the Foreign cultural content as δ reaches one. In autarky, we can consider $\delta = \infty$ and $\delta^* = \infty$. Importantly, in order to allow asymmetry in cultural discounting, there is no restriction that $\delta = \delta^*$. This specification of utility functions implies heterogeneity in preferences between Home and Foreign which plays a critical role in determining later the pattern of trade.

The budget constraints for Home and Foreign are as expressed as follows:

^{4.3}See Footnote 4.4.

$$E = \alpha w L = \sum_{i=1}^n x_i p_i + \sum_{j=1}^{n^*} x_j p_j$$

$$E^* = \alpha w L^* = \sum_{i=1}^n x_i^* p_i + \sum_{j=1}^{n^*} x_j^* p_j,$$

where E and E^* represent the budget for the differentiated good, α the share of income spent for the differentiated good (assumed to be equal across Home and Foreign), and L and L^* the labour force in Home and Foreign representing the size of demand. Note that the wage rate w is equal across two countries due to the existence of the homogeneous good.

The utility maximisation yields the following four demand functions of Home and Foreign varieties demanded by Home and Foreign consumers:

$$\begin{aligned}
D_i : \quad x_i &= \frac{p_i^{-\sigma}}{\sum_{i=1}^n p_i^{1-\sigma} + \sum_{j=1}^{n^*} (p_j \delta)^{1-\sigma}} \cdot \alpha w L \\
D_j : \quad x_j &= \frac{\delta^{1-\sigma} p_j^{-\sigma}}{\sum_{i=1}^n p_i^{1-\sigma} + \sum_{j=1}^{n^*} (p_j \delta)^{1-\sigma}} \cdot \alpha w L \\
D_i^* : \quad x_i^* &= \frac{(\delta^*)^{1-\sigma} p_i^{-\sigma}}{\sum_{i=1}^n (p_i \delta^*)^{1-\sigma} + \sum_{j=1}^{n^*} p_j^{1-\sigma}} \cdot \alpha w L^* \\
D_j^* : \quad x_j^* &= \frac{p_j^{-\sigma}}{\sum_{i=1}^n (p_i \delta^*)^{1-\sigma} + \sum_{j=1}^{n^*} p_j^{1-\sigma}} \cdot \alpha w L^*,
\end{aligned} \tag{4.1}$$

where D_i represents Home demand for a Home variety i ; D_j Home demand for a Foreign variety j ; D_i^* Foreign demand for a Home variety i ; and D_j^* Foreign demand for a Foreign variety j .

The demand for varieties in autarky can be solved by setting $\delta = \infty$ and $\delta^* = \infty$, as a result of which both Home and Foreign consumers only demand domestic varieties:

$$D_i : \quad x_i = \frac{p_i^{-\sigma}}{\sum_{i=1}^n p_i^{1-\sigma}} \cdot \alpha w L$$

$$D_j^* : \quad x_j^* = \frac{p_j^{-\sigma}}{\sum_{j=1}^{n^*} p_j^{1-\sigma}} \cdot \alpha w L^*.$$

4.2 Producers

As in the reference model, the technology of increasing returns to scale, or economies of scale, takes place at the firm level, and is described by taking the approach of monopolistic competition and differentiated products. There are many potential varieties of a differentiated product, and each firm produces under the same cost structure a unique variety that is distinguished from others. This is so because producing a variety that is already chosen by another would lead to a lower profit level than what would have been earned by supplying a unique one. Each firm therefore maintains some monopolistic stance within its variety. Given that there are a large number of firms in the market, when each firm chooses its variety and the price level, it takes other firms' choices as given and its choice does not affect the overall market price. This approach goes back to Chamberlin's (1933) 'large group' monopolistic competition model. For example, the Home demand perceived by a Home firm is: $x_i = k_i p_i^{-\sigma_i}$ where $k_i = \alpha w L / [\sum_{i=1}^n p_i^{1-\sigma} + \sum_{j=1}^{n^*} (p_j \delta)^{1-\sigma}]$. Also due to this large group setting, the price elasticity that an individual firm faces is constant at σ .^{4.4}

This setting describes to some extent the nature of production in some cultural industries such as films, book publishing, music recording and so on, where the product is by nature very differentiated, and the fixed cost to produce the original copy is relatively large and its reproducing cost is negligible. However, the assumption of symmetry across

^{4.4}The price elasticity that a firm faces is:

$$\varepsilon_{p_i} = \sigma + (1 - \sigma) p_i^{1-\sigma} \left[\frac{(A^*)^2 \alpha w L + A^2 \alpha w L^* (\delta^*)^{1-\sigma}}{(A^*)^2 A \alpha w L + A^2 A^* \alpha w L^* (\delta^*)^{1-\sigma}} \right] \approx \sigma$$

where $A = \sum_{i=1}^n p_i^{1-\sigma} + \sum_{j=1}^{n^*} (p_j \delta)^{1-\sigma}$ and $A^* = \sum_{i=1}^n (\delta^* p_i)^{1-\sigma} + \sum_{j=1}^{n^*} p_j^{1-\sigma}$. The second term reaches zero as the number of firms increases.

firms, specified in terms of one variety per firm and an equal cost structure, is quite strong. Nevertheless, it allows the model to focus on the main modification made on the demand side, that is, asymmetry in cultural discounting.

A Home firm faces the combined demand of Home and Foreign for its variety, which is $x_i + x_i^*$; and a Foreign firm faces $x_j + x_j^*$. In monopolistic competition, two conditions need to be met in equilibrium. First, the representative firm that produces variety i maximises its profits given the cost structure, say $C(x) = a + bx$, where a and b represent the fixed and marginal costs respectively. The degree of increasing returns to scale can be thought of as the size of a in relation to b . Profit maximisation yields the following standard pricing decision:

$$p_i = b \left(1 - \frac{1}{\varepsilon_i} \right)^{-1} = b \left(\frac{\sigma - 1}{\sigma} \right)^{-1}, \quad (4.2)$$

where $\varepsilon_i > 0$ is the price elasticity which is equal to the value of σ . Note that $p > b$ holds, which implies that each firm maintains some monopoly power over its variety. Secondly, the free entry and exit condition leads to zero profit, i.e. the price is set at the level of average cost:

$$p_i = \frac{a + b(x_i + x_i^*)}{(x_i + x_i^*)}. \quad (4.3)$$

Combining the two conditions Equation (4.2) and Equation (4.3) above, we obtain the following quantity produced per firm or variety:

$$x \equiv x_i + x_i^* = \frac{a}{b}(\sigma - 1), \quad (4.4)$$

which is determined only by the cost structure and the degree of elasticity of substitution. Since all firms share the same cost structure and the elasticity of substitution, the equilibrium quantity per firm and the price are determined equally across firms: $x_i + x_i^* = x_j + x_j^* = x$ and $p_i = p_j = p$. Also, since the cost structure and the elasticity of substitution do not change in the course of trade liberalisation, the above price level and the quantity

produced also hold in autarky. As Feenstra (2004) explains, abstracting away from the impact of trade liberalisation on the price level implies two things. First, there is no scale effect, or the production scale of each firm does not change after trade liberalisation. Second, there is no selection effect. As will be seen in the next section, the total number of firms nested in the market does not change either, and there is no firm that exits the market due to economic integration. This is the result of using the CES specification of consumer preferences, which is often used in the monopolistic competition approach due to its homotheticity property.

4.3 Market Clearing

Since free entry and exit in the differentiated product market is assumed, the numbers of firms or varieties produced in Home and Foreign, n and n^* , are endogenously determined by applying the market clearing condition. The total output of the cultural industry in Home and Foreign is given by the following:

$$X = nx = \frac{np^{-\sigma}}{\sum_{i=1}^n p^{1-\sigma} + \sum_{j=1}^{n^*} (p\delta)^{1-\sigma}} \cdot \alpha wL + \frac{n(\delta^*)^{1-\sigma} p^{-\sigma}}{\sum_{i=1}^n (p\delta^*)^{1-\sigma} + \sum_{j=1}^{n^*} p^{1-\sigma}} \cdot \alpha^* wL^*$$

$$X^* = n^*x = \frac{n^* \delta^{1-\sigma} p^{-\sigma}}{\sum_{i=1}^n p^{1-\sigma} + \sum_{j=1}^{n^*} (p\delta)^{1-\sigma}} \cdot \alpha wL + \frac{n^* p^{-\sigma}}{\sum_{i=1}^n (p\delta^*)^{1-\sigma} + \sum_{j=1}^{n^*} p^{1-\sigma}} \cdot \alpha^* wL^*.$$

If the wage rate is normalised at $w = 1$, the above two equations can be simplified as follows:

$$\frac{x}{\alpha} = \frac{p^{-\sigma}}{np^{1-\sigma} + n^*(p\delta)^{1-\sigma}} \cdot L + \frac{p^{-\sigma}(\delta^*)^{1-\sigma}}{n(p\delta^*)^{1-\sigma} + n^*p^{1-\sigma}} \cdot L^*$$

$$\frac{x}{\alpha} = \frac{p^{-\sigma} \delta^{1-\sigma}}{np^{1-\sigma} + n^*(p\delta)^{1-\sigma}} \cdot L + \frac{p^{-\sigma}}{n(p\delta^*)^{1-\sigma} + n^*p^{1-\sigma}} \cdot L^*.$$

In the cases of zero output, or complete specialisation, the solutions for n and n^* are:

$$n = 0, \quad n^* = \frac{\alpha(L + L^*)}{xp}$$

or

$$n = \frac{\alpha(L + L^*)}{xp}, \quad n^* = 0.$$

And the non-zero solutions in the case of incomplete specialisation are as follows:

$$\begin{aligned} n &= \left(\frac{\alpha}{xp} \right) \left[\frac{\delta^{1-\sigma} L^*}{\delta^{1-\sigma} - 1} - \frac{L}{(\delta^*)^{1-\sigma} - 1} \right] \\ n^* &= \left(\frac{\alpha}{xp} \right) \left[\frac{(\delta^*)^{1-\sigma} L}{(\delta^*)^{1-\sigma} - 1} - \frac{L^*}{\delta^{1-\sigma} - 1} \right], \end{aligned} \quad (4.5)$$

which are determined by the economy sizes and cultural discounting factors of Home and Foreign. Note that the solutions are reduced to those of the reference model if the cultural discount factors are equal between Home and Foreign, i.e. $\delta = \delta^*$.

As discussed in the previous section, the total number of varieties is not affected by either the cultural discount factor or the elasticity of substitution as shown below:

$$n + n^* = \left(\frac{\alpha}{xp} \right) (L + L^*) = \left(\frac{\alpha}{a\sigma} \right) (L + L^*).$$

This shows that more varieties are produced in the world as: a) consumers spend a larger share of their income on the differentiated good; b) the world economy size is bigger; c) the differentiated industry exhibits a lower degree of scales economies; and d) varieties of the differentiated good become more substitutable, which all intuitively make sense. Note that the second equality is obtained by combining Equations (4.2) and (4.4).

The autarky equilibrium can be expressed by setting $\delta = \infty$ and $\delta^* = \infty$, which yields $n = \alpha L / a\sigma$ and $n^* = \alpha L^* / a\sigma$. Although trade liberalisation does not affect the total number of varieties produced in the world due to the CES form of utility, it does

affect the number of varieties produced by each country, which is due to the cultural discounting factors applied by consumers.

Now let $\lambda = n/(n+n^*)$ and $\theta = L/(L+L^*)$ represent the output and demand shares of Home in the differentiated cultural industry. Also, let $d = \delta^{1-\sigma}$ and $d^* = (\delta^*)^{1-\sigma}$, which represent the freeness that Foreign faces exporting to Home and the freeness that Home faces with Foreign, respectively.^{4.5} Note again that the present model does not assume the symmetry in trade barriers and therefore I define the freeness separately for Home and Foreign. The freeness d and d^* decrease in cultural discounting factors δ and δ^* , and also decrease in the elasticity of substitution. Given that the elasticity of substitution is applied equally both on Home and Foreign, the freeness d and d^* can be thought of as an inverse indicator of cultural discount factor. Since $\delta > 1$, $\delta^* > 1$ and $\sigma > 1$, we have the freeness with its maximum at unity and minimum at zero. The freeness reaches 1 as consumers discount more the foreign cultural contents and the varieties become more substitutable.

Using the newly defined notations, the post-trade relationship between the demand and output shares can be derived from Equation (4.5), as follows:

$$\lambda = \begin{cases} 0, & \text{if } \theta \leq \frac{d^2}{1-dd^*} \\ \frac{\theta(1-dd^*)}{dd^*} - \frac{d}{d^*}, & \text{if } \frac{d^2}{1-dd^*} < \theta < \frac{d}{1-dd^*} \\ 1, & \text{if } \theta \geq \frac{d}{1-dd^*} \end{cases} \quad (4.6)$$

which tells us that there are three qualitative post-trade cases which are analogous to the reference model. First, if Home is of sufficiently small economy size, or demand, it cannot be part of the world production of the differentiated good after trade, i.e. $\lambda = 0$. Second, if Home is of sufficiently large economy size, it becomes the only producer in the differentiated good after trade, i.e. $\lambda = 1$. Third, if Home is neither sufficiently small nor large, then the incomplete specialisation in the differentiated industry takes place, and both Home and Foreign share the world production. Note that the trade is balanced through the costlessly tradable homogeneous industry.

^{4.5}In the related literature this freeness measure is also called ‘phi-ness’ which is expressed as $\phi \equiv \tau_{ij}^{1-\sigma}$ where $\tau_{ij} = \tau_{ji}$ represents the symmetric trade barriers between two countries.

4.4 The Home Market Effect: The Effect of Asymmetry in Demand on Post-Trade Output

The standard home market effect can be demonstrated by allowing asymmetry for the economy size, i.e. $\theta \neq \theta^*$, but not for the cultural discount, i.e. $d = d^*$. In the case of incomplete specialisation, the relationship between the demand share θ and the output share λ is as follows:

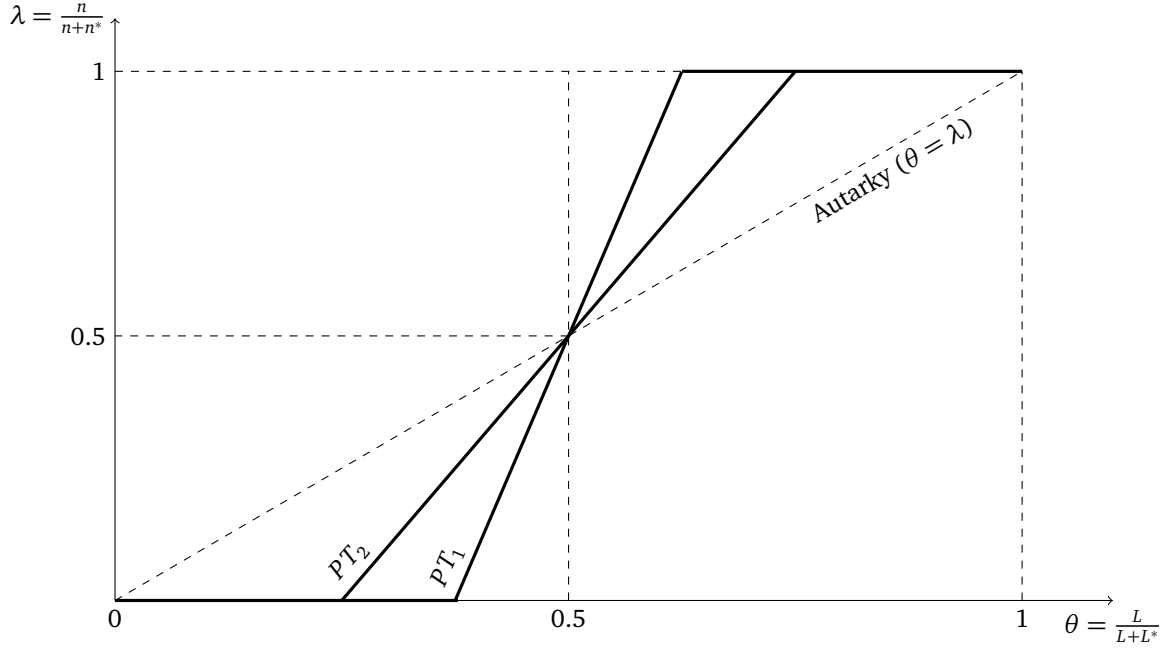
$$\lambda = \theta \left(\frac{1+d}{1-d} \right) - \frac{d}{1-d}.$$

And the home market effect, or the more-than-proportional relationship between the demand and output shares, can be defined as the first derivative of λ with respect to θ being greater than one, i.e. $\partial \lambda / \partial \theta = (1+d)/(1-d) > 1$. The graphic illustration of the home market effect is in Figure 4.1. In autarky, each country produces its global share equal to its demand share, that is, $\theta = \lambda$, as shown by the dashed Autarky line.^{4,6} The post-trade outcome is represented by PT_1 with its slope greater than one, which shows the home market effect. The size of the home market effect $(1+d)/(1-d)$ increases in freeness d , as shown by PT_2 , which is known as the magnification of home market effect, or the magnification of magnification effect. A decrease in cultural discount factor makes the relationship between the demand and output shares even more disproportionate.

Although the replacement of transport costs with the concept of cultural discount is a simple one in the technical sense, and the above home market effect derived under cultural discount takes the same mathematical form as in the reference model, one needs to interpret the result of this model with caution. Recall that the home market effect under transport costs in the reference model is about ‘spatial’ concentration of firms towards the larger economy because it costs to physically deliver the goods to another country. With the assumption of cultural discount, however, the home market effect is not necessarily about spatial concentration anymore. Due to the increasing returns to scale at the level of variety, a firm would decide to produce one variety, which reflects either Home’s cultural attributes or Foreign’s, instead of splitting its production

^{4,6}Note that $\partial \lambda / \partial \theta = 1$ is derived when $\delta = \infty$ and $\delta^* = \infty$.

Figure 4.1: Home Market Effect, or The Effect of Asymmetry in Demand Size on Output



into multiple varieties. Then, because of the cultural discount that will be applied to its variety, a firm will choose one that is appreciated the most in sum, which leads to better profitability. Under cultural discount instead of transport costs, a firm technically does not have to locate in Home in order to produce a variety catered towards Home consumers.

In further refining this interpretation, Mas-Colell (1999) can shed light on the difference between the home market effect under transport costs in the reference model and the present model under cultural discount, when he distinguishes the notions of ‘national cultural production’ and ‘production of national culture’. The former refers to cultural production that takes place within the national border regardless of which culture the contents reflect. In contrast, the latter refers to production of cultural contents that represent a certain national culture which does not necessarily care where the production takes place. The home market effect under cultural discount in the present model is about a larger country’s expansion in the latter, ‘production of national culture’, or its disproportionately gaining the cultural presence globally, rather than its becoming the net exporter of cultural products in the balance sheet. In other words, trade liberalisation

on cultural products leads the larger economy's culture to be over-represented while the smaller economy's to be under-represented globally; but it may not coincide with the larger country becoming the location of spatial production concentration. In this sense, Rauch and Trindade (2009, 812) discuss the case of the clothing manufacturing sector, where "the Western share of clothing *production* is far smaller than the Western share of clothing *style*".

In some cases, however, the 'national cultural production' and the 'production of national culture' may coincide for other reasons that are outside of this model. The spatial concentration of production may occur alongside the homogenisation of cultural contents, as in Hollywood, for such reasons as external economies exhibited at the industry level. If a firm decides to produce a variety that targets Home's consumers, it would rather locate itself in Home closer to other firms that also produce similar varieties to gain the benefits from clustering. For example, it would be apparently easier for a producer to create books, films, music and so on that reflect Australian culture if it locates in Australia. In this sense, the home market effect under cultural discount *can* involve the geographical concentration as well given the external scale economies, which allows us to predict from this model that the larger country tends to become the net-exporter of the industry in question, and the smaller country the net importer, as a result of trade liberalisation.

4.5 The Hub Effect: The Effect of Asymmetry in Cultural Discount on Post-Trade Output

Now allow asymmetry in cultural discount, i.e. $d \neq d^*$, but assume symmetry in economy size, i.e. $\theta = \theta^*$ in order to suppress the home market effect. Also assume $d + d^* = 1$ so that the absolute size of cultural discounting is restricted and the focus can be made exclusively on the degree of asymmetry in cultural discounting. If Home consumers discount Foreign varieties to a greater extent than Foreign consumers discount Home varieties, then we have $\delta > \delta^*$, in which case Home is a cultural hub in the sense that its cultural contents are relatively more accessible to Foreign. This also means $d < d^*$: a Home firm faces a relatively higher freeness in entering Foreign than a Foreign firm

does entering Home. Since $d + d^* = 1$, Home's degree of cultural 'hub-ness' increases in d^* and decreases in d . In the case of incomplete specialisation, the relationship between the degree of asymmetry in cultural discounting and the output share of Home is as follows:

$$\lambda = \frac{0.5 - (1 - d^*)^2}{d^*(1 - d^*)} - 0.5,$$

from which the hub effect under asymmetric cultural discount can be expressed as $\partial \lambda / \partial d^* > 0$, the tendency of a cultural hub to become a dominant producer under trade liberalisation. As illustrated in Figure 4.2, Home's output share increases in its cultural hub-ness, *ceteris paribus*. Due to the increasing returns to scale at the level of variety, a representative firm would choose to produce one variety instead of many. Now due to the asymmetry in cultural discount, a firm chooses to produce a variety that represents the hub's culture instead of the peripheral one in order to minimise the cultural discount applied onto its variety which also leads to better profitability. The hub effect predicts that the disproportionate relationship between demand and output shares may occur even when there is no home market effect. While the home market effect is the result of interaction between increasing returns to scale and asymmetry in demand sizes, the hub effect is about increasing returns to scale and asymmetry in trade barriers. Also, in line with the interpretation of the home market effect discussed in Section 4.4, note that the hub effect refers to the cultural hub's expansion of the 'production of national culture', not 'national cultural production', although the two may coincide due to increasing returns at the industry level or the benefit from clustering.

4.6 Combination of The Home Market Effect and The Hub Effect

Allowing for both the home market effect and the hub effect, that is, $\delta \neq \delta^*$ and $\theta \neq \theta^*$, the relationship between the demand and output shares is shown in Figure 4.3, which represents the trade outcomes in Equation (4.6). The pattern of trade in cultural products is determined by the direction and degree of two factors: asymmetry in economy size and in cultural discount.

Figure 4.2: Hub Effect, or The Effect of Asymmetry in Cultural Discounting on Output Share

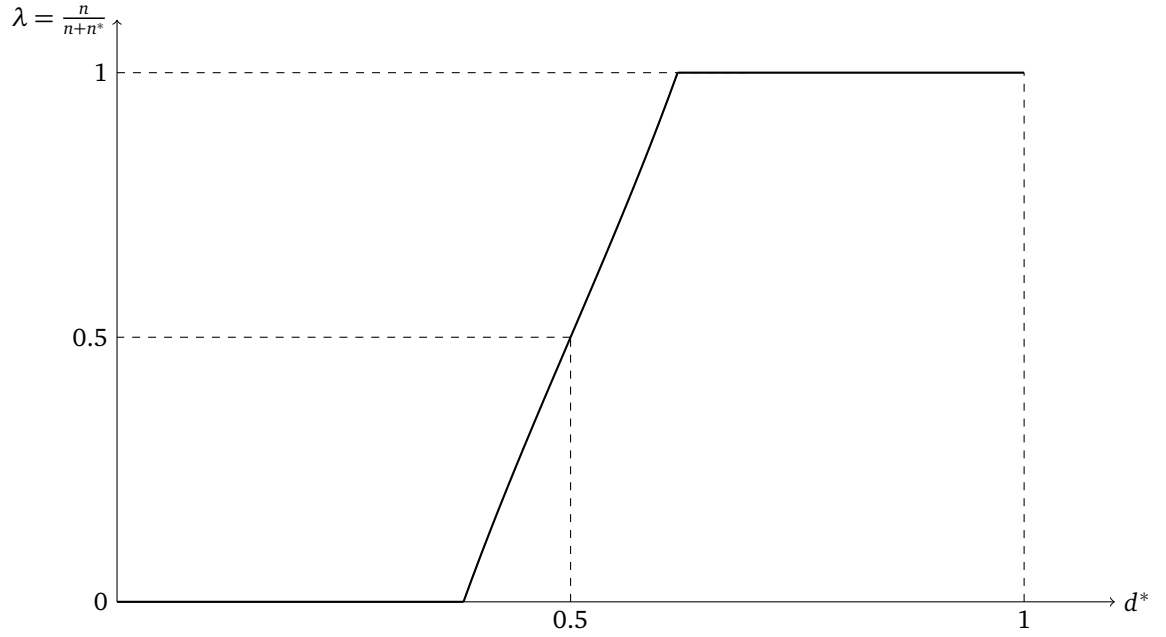
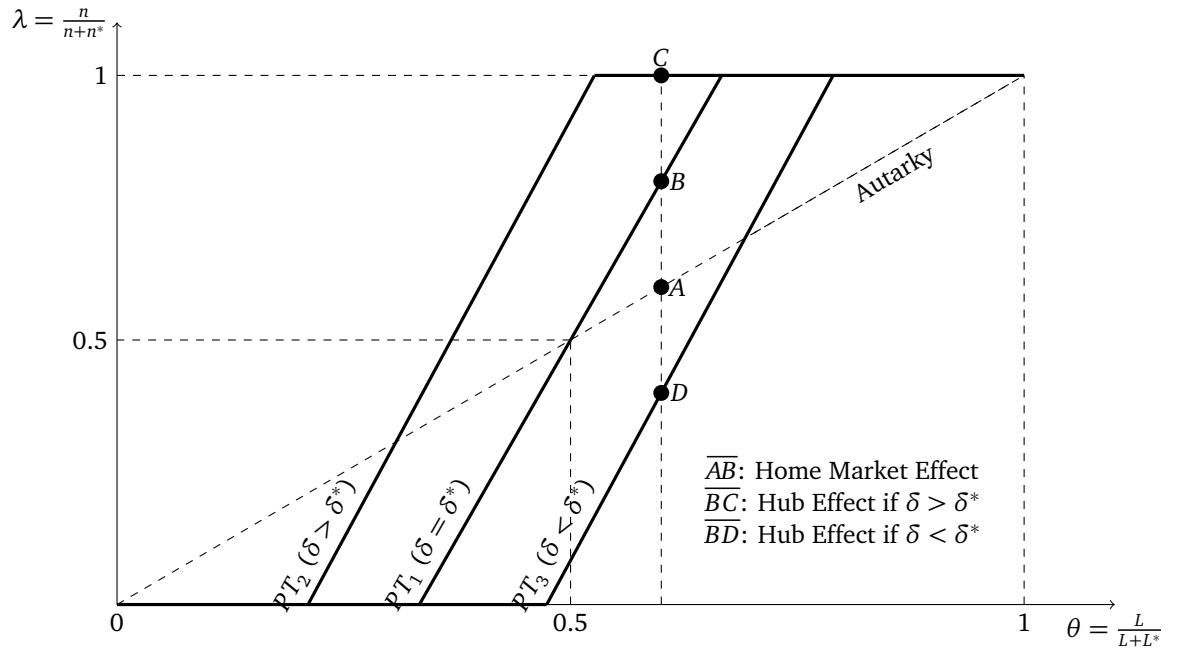


Figure 4.3: Home Market Effect and Hub Effect Combined



There are three cases to consider given the difference in economy size, assuming that Home is of a larger demand in comparison to Foreign, i.e. $\theta > 0.5$. In the first case where there is no asymmetry in cultural discount, represented by PT_1 , there is only the home market effect, \overline{AB} , but the hub effect is not in effect since no country holds a position of cultural hub due to the symmetry in cultural discount. The more-than-proportionate relationship between the demand and output shares takes place due to the home market effect, as explained in Section 4.4, which indicates that the larger country net-exports in the cultural industry of increasing returns to scale, whereas the smaller net-imports.

The second case is where Home, a larger country, holds the position of a cultural hub—that is, Home’s cultural products are relatively more accessible to Foreign or relatively less culturally discounted by Foreign, which is shown by PT_2 . In this case both the home market effect and the hub effect occur, as shown by \overline{AB} and \overline{BC} respectively. Since both effects take place in the same direction in favour of Home’s culture, the more-than-proportionate relationship between the demand and output shares is intensified in comparison to the first case. This case may provide some answer to why the U.S. dominance in the audio-visual sector is ‘too high’ even considering its larger demand as discussed earlier (Rauch and Trindade, 2009; Chisholm et al., 2015).

Lastly, the third case is where Home is of a larger demand but culturally peripheral. Both the home market effect and the hub effect are in effect but they take place in opposite directions: the home market effect \overline{AB} occurs in favour of Home’s culture but the hub effect \overline{BD} is in favour of Foreign. As a result, the more-than-proportionate relationship between the demand and output shares that would have appeared under symmetric cultural discounting is not visible. The home market effect is shadowed by the hub effect, and the larger country Home may not hold a dominant position in the industry. The demand-output relationship in this case can be less-than-proportionate, exact-proportionate, or even reversely proportionate, depending on the degree of asymmetry in demand size as well as in cultural discount. In other words, a smaller economy can also be a net-exporter of cultural products if it holds a sufficient amount of cultural hub-ness against a larger economy. This last case may shed some light on why China, a country of relatively large demand, net-imports films from relatively smaller English-speaking economies such as the U.K. or Australia, given the dominant position

of English language in the world and thus a smaller cultural discount factor applied on English contents.^{4.7}

4.7 Chapter Conclusion: Implications on Cultural Diversity and Derivation of Hypotheses

In this chapter, I have developed a model of bilateral trade in cultural products based on the standard home market effect model (Helpman and Krugman, 1985, Section 10.4) of monopolistic competition, increasing returns to scale at the firm level, product differentiation, and the presence of transport costs. Two critical assumptions were introduced: the presence of cultural discount on the consumption side that replaces the role of transport costs; and its asymmetric manner. Given the difference in demand size between countries, trade liberalisation—that is, removal of policy barriers—induces two effects: the home market effect and the hub effect. The former refers to the more-than-proportionate impact of demand share on the output share, and occurs due to the interaction between the increasing returns to scale technology and the presence of cultural discount given the difference in economy size. The latter refers to the positive impact of cultural hub-ness on the output share, and occurs due to the interaction between the increasing returns to scale technology and the asymmetry in cultural discount. Note that the output share was interpreted differently from the reference model: a country's output share does not necessarily mean cultural products produced within its borders but rather those that reflect its cultural attributes. However, considering the potential existence of scale economies at the industry level or benefit from clustering, it can be presumed that cultural products produced within the border also reflect a culture within the border.

Given that the association between trade liberalisation in cultural products and

^{4.7}This third case is where the present model is differentiated from Rauch and Trindade (2009), in which the trade pattern is determined by asymmetry in economy size and the amount of consumption externalities. In their model, the effect of difference in economy size on the output share and the effect of consumption externalities occur in the same direction because a larger economy is associated with larger consumption externalities. But in the present model, the effect of asymmetry in economy size and that of cultural discount can potentially occur in the opposite direction, which allows a possibility for a smaller country to become a net exporter.

the level of cultural diversity is understood as a problem of predicting the pattern of trade in cultural products, as discussed in Chapter 2, I formulate the testable hypotheses in two stages. First, the home market effect and the hub effect are hypothesised as the channels through which the pattern of trade in cultural products is determined:

- H1** The home market exists in international trade in cultural products: a country of larger demand will be a net-exporter while a smaller will be a net-importer of cultural products, *ceteris paribus*.
- H2** The hub effect exists in international trade in cultural products: a country which is a cultural hub will be a net-exporter, while a culturally peripheral country will be a net-importer of cultural products, *ceteris paribus*.

Second, given that the above two hypotheses are not rejected, or that the pattern of trade in cultural products will be determined by the direction and the degree of asymmetry in economy size as well as by the asymmetry in cultural discount, it can be inferred along with Table 2.1, that if a larger economy also holds a position of cultural hub, the trade outcome becomes close to the ‘pessimistic’ one in Table 2.1, where all three types of cultural diversity are at minimum. However, if a larger economy is culturally peripheral, the ‘optimistic’ trade outcome is also a possibility unless a smaller economy’s cultural hub-ness is not sufficiently high. With this said, I hypothesise the association between the trade pattern in cultural products and the levels of cultural diversity as follows:

- H3** The degrees of intra-national/local, inter-national and global cultural diversities will decrease as a country of a larger demand holds an increasingly high degree of cultural hub-ness.

The three hypotheses will be tested in Chapters 5 and 6 by analysing the international film industry.

CHAPTER 5

DATA DESCRIPTION AND MEASUREMENT OF ASYMMETRIC CULTURAL DISCOUNT

The aim of this chapter is to introduce data that will be used in Chapter 6 to test the three hypotheses derived in Chapter 4 by examining the film industry. In Section 5.1, I describe and explain the dataset of international cinema box office revenues. As will be discussed in detail below, the film industry is chosen mainly for two reasons. First, its characteristics are consistent with assumptions made in the model developed in Chapter 4. Second, the data coverage is more comprehensive across countries and over time in comparison to other cultural industries. In Section 5.2, I introduce two measures of asymmetric cultural discounting behaviour in the film industry, which will be used to quantify the direction and the degree of cultural hub-ness in Chapter 6. The first measure is a modified version of the popular freeness index that quantifies the level of overall trade barriers revealed in the film trade. The second measure is constructed by using the two-way tourist arrivals statistics that quantify the level of cultural proximity.

5.1 The Data: International Cinema Box Office Revenues

In testing the three hypotheses, I examine cinema box office data, sourced from International Box Office Essentials collected by Rentrak. The data are collected at the film level covering twenty four national film markets for which the time coverage varying from six to fourteen years, with the last year being 2013. For each national market, the film level box office revenues are aggregated by countries of origin. Two balanced panels are used in this chapter as presented in Table 5.1. Panel 1 includes thirteen countries and fourteen years; Panel 2, twenty four countries and six years. For each panel, films originated from a country that is not in Table 5.1 are excluded as they are not suitable for bilateral analysis. The box office revenues generated within the two panels cover over seventy and eighty percent on average, respectively, of the global

Table 5.1: Data Availability

Country		Panel 1:	Panel 2:
		2000-2013 13 countries	2008-2013 24 countries
Argentina	AR	✓	✓
Austria	AT	✓	✓
Australia	AU	✓	✓
Bolivia	BO		✓
Brazil	BR	✓	✓
Chile	CL	✓	✓
Colombia	CO		✓
Germany	DE	✓	✓
Spain	ES	✓	✓
France	FR		✓
Hong Kong	HK		✓
Italy	IT	✓	✓
Japan	JP		✓
South Korea	KR		✓
Mexico	MX	✓	✓
The Netherlands	NL		✓
New Zealand	NZ	✓	✓
Portugal	PT		✓
Russia	RU		✓
Singapore	SG		✓
Taiwan	TW	✓	✓
UK/Ireland	UK	✓	✓
USA/Canada	US	✓	✓
Venezuela	VE		✓

film industry, when compared against other industry reports such as Motion Picture Association of America (2013). The box office revenues are adjusted by CPI of the first quarter of 2014 and converted to US dollars.^{5.1}

The country of origin of a film is determined by the industry convention—based on the financial contribution. The determination of the countries of origin of films is not clear-cut since especially these days more films are internationally co-produced and co-financed. For example, *The Lord of the Rings* was originally written by an English writer, directed by a New Zealander, and co-financed by New Zealand, the UK, and the US productions. Ideally, country of origin would be determined by the content of it that

^{5.1}The CPIs and the exchanges rates between local currency and USD are primarily retrieved from International Financial Statistics (2014), and also from OECD.stat (2014) and national statistics agencies depending on availability.

includes the language spoken, the social values represented, the creators' viewpoint and so on, in order to satisfy the assumption of the model in Chapter 3 that a variety of a good reflects one national culture. However, since this ideal process can be a subjective as well as time-consuming one, the industry convention, that is the financial contribution, is applied as the second best. Also, it is not entirely inappropriate to assume that a film most reflects the culture of a country that finances it the most, given that most of the movies are written, shot, and financed in the same country.

The film industry data are chosen for several reasons. First, the characteristics of the film industry appear to be consistent with some of the assumptions made in the theoretical model of monopolistic competition and product differentiation. Film production tends to require a large amount of fixed costs and relatively smaller variable costs, which implies a technology involving increasing returns to scale. The film industry can be categorised as a creative or cultural industry, where the products are by nature differentiated to a large extent in comparison to the non-creative or non-cultural industry, i.e. a product space that is closer to the Lancastrian one (Throsby, 1994). Also as discussed in Chapter 3, the barriers in film trade can be characterised better by cultural factors such as languages or social norms than by physical transport costs, which are actually becoming less important due to the on-going advancement of information technology. These characteristics are also met in other cultural industries such as music recordings or electronic books. However, the availability of data both over time and across countries in such industries is not as comprehensive as the film industry.

Secondly, using the cinema box office data aggregated by countries of origin has a technical advantage in the sense that both demand and output variables are readily computable instead of having to be inferred. Testing the home market effect requires the operationalisation of demand and output variables. A natural way to tackle the task is to set the demand variable as the sum of national absorption and imports, and output as the sum of national absorption and exports. Ideally, one needs a dataset of national absorption and trade volumes that are collected based on the same classification system consistently over time and across countries. In reality, however, statistics of national absorption are often not readily available. Because of this, national absorption is computed by subtracting net exports from production as done in Head and Ries (2001), which potentially causes the simultaneity problem due to carried-over measurement

errors (Trionfetti, 2001; Davis and Weinstein, 2003). In order to avoid the simultaneity issue, Trionfetti (2001) uses an input-output table. However, this resolution is only plausible when the industry or product classification systems between production and trade over time and across countries are consistent with one another. Such consistency, however, is not generally available, given that trade volumes and national output statistics are universally based on different classification systems. For example, production is collected based on the International Standard Industrial Classification (ISIC) and the trade volume on the Standard International Trade Classification (SITC) or Harmonised System (HS), which do not exactly correspond with each other. Finding such consistency is even more difficult in cultural industries, especially when the interest is in services such as cinema, hence one needs to resort to privately collected industry data, or construct the dataset from scratch. In this chapter, I choose the former. The latter is, for example, chosen by Ferreira and Waldfogel (2010) who collected popular music charts from various sources and estimated music recordings sales by countries of origin.

5.2 Measures of Asymmetric Cultural Discounting

One of the biggest challenges in testing the hypotheses is to find appropriate measures of cultural discounting that are possibly asymmetric within each country pair. Although not directly observable, it would not be entirely inappropriate to presume that the amount of cultural discount towards foreign cultures is somehow revealed. An example of such measure was constructed by Felbermayr and Toubal (2010) using the Eurovision Song Contest scores. However, these scores are only available for European countries.

I suggest two such measures of asymmetric cultural discounting. The first is a modified version of the popular ‘freeness index’, computed by using the box office revenues, which therefore possibly more directly reflects the revealed cultural discounting behaviours in film trade. However, this measure potentially creates a collinearity issue when testing the hypotheses by also using the box office revenues to construct the dependent and independent variables. The second measure is constructed based on tourist arrival statistics, assuming that the behaviour of choosing a film to watch can be somewhat similar to that of choosing a holiday destination in the sense that the

proximity towards certain cultures, or cultural discounting, plays some role in such decision-making.

5.2.1 Modified Trade Freeness Index

The first measure of asymmetric cultural discounting is a modified version of the popular freeness index. Recall that in a two-country setting, the domestic shares of two countries i and j can be expressed as a portion of expenditure on domestic films over the total film expenditure^{5.2}:

$$s_i = \frac{n_i p_i^{1-\sigma} \alpha w L_i}{n_i p_i^{1-\sigma} \alpha w L_i + n_j (\delta_{ij} p_j)^{1-\sigma} \alpha w L_i} \quad (5.1)$$

$$s_j = \frac{n_j p_j^{1-\sigma} \alpha w L_j}{n_i (\delta_{ji} p_i)^{1-\sigma} \alpha w L_j + n_j p_j^{1-\sigma} \alpha w L_j}, \quad (5.2)$$

where s_i and s_j represent domestic shares of countries i and j , and n_i and n_j are the number of varieties produced by countries i and j . Let $d_{ij} = \delta_{ij}^{1-\sigma}$, which decreases in cultural discounting that country i applies on country j 's cultural contents, hence representing the degree of freeness that firms from country j face in exporting cultural contents to country i . Using Equations (5.1) and (5.2) and taking $p_i = p_j$, the freeness d_{ij} and d_{ji} can be solved as follows:

$$d_{ij} \equiv \delta_{ij}^{1-\sigma} = \left(\frac{n_i}{n_j} \right) \left(\frac{1-s_i}{s_i} \right) = \left(\frac{n_i x}{n_j x} \right) \left(\frac{1-s_i}{s_i} \right), \quad i \neq j \quad (5.3)$$

$$d_{ji} \equiv \delta_{ji}^{1-\sigma} = \left(\frac{n_j}{n_i} \right) \left(\frac{1-s_j}{s_j} \right) = \left(\frac{n_j x}{n_i x} \right) \left(\frac{1-s_j}{s_j} \right), \quad i \neq j, \quad (5.4)$$

where x is the quantity produced per variety, equal over all varieties as shown in Equation (4.4), hence $(n_i x / n_j x)$ represents the ratio of the output between countries

^{5.2}It is equivalent to $(p_i x_i) / (x_i + x_j)$ in Equation (4.1).

i and j . The freeness index d_{ij} at its maximum of unity implies no cultural discount applied by country i on country j 's films, i.e. $\delta_{ij} = 1$ given $\sigma > 1$; and the freeness at its minimum of zero implies that country i culturally discount country j 's films to the full extent, i.e. $\delta_{ij} = \infty$. The former case is revealed if country i 's domestic share is equal to its global output share; and the latter if country i does not import any films from country j . The freeness index measured from the other direction, d_{ji} , in Equation (5.4), can also be interpreted analogously. Given the two-country setting, the freeness is measured by the discrepancy between the national and global distributions of films by their countries of origin. Note that it is not necessarily the case that $d_{ij} \neq d_{ji}$, hence allowing for the asymmetry in cultural discount between two countries. Also note that, if symmetry of trade barriers is assumed, i.e. $d_{ij} = d_{ji}$, the conventional freeness can be computed, as the geometric mean of d_{ij} and d_{ji} , or $d_{ij} = d_{ji} = \sqrt{(s_i/(1-s_i)) \cdot (s_j/(1-s_j))}$, which is equivalent to the 'border effect' index used in Head and Ries (2001).

The freeness indices given in Equations (5.3) and (5.4) are readily computable using the box office revenues as follows:

$$d_{ij} = \left(\frac{R_{ii} + R_{ij}}{R_{jj} + R_{ji}} \right) \left(\frac{R_{ji}}{R_{ii}} \right)$$

$$d_{ji} = \left(\frac{R_{jj} + R_{ji}}{R_{ii} + R_{ij}} \right) \left(\frac{R_{ij}}{R_{jj}} \right),$$

where R_{ij} represents country i 's film exports to country j , or the box office revenues of films that are produced by country i and consumed in country j ; and R_{ii} , the box office revenues generated in country i by its domestic films, as illustrated in Table 5.2.

The freeness index being larger than one is supposed to occur if a country exhibits a domestic share smaller than its global output share. Although not a possible case in theory, and unlikely to arise in reality given that a film generally performs better domestically than internationally, it does occur in data for a couple of reasons. First, it can be simply a measurement error, when some films are recorded by the importer but not by the exporter. Second, it may happen due to the time difference between the domestic release and the foreign release of a film. For example, the global hit films

Table 5.2: Cinema Box Office Revenues in the Bilateral Setting

		Destination		Total Film Production
		Country i	Country j	
Origin	Country i	R_{ii}	R_{ij}	$R_{ii} + R_{ij}$
	Country j	R_{ji}	R_{jj}	$R_{ji} + R_{jj}$
Total Film Expenditure		$R_{ii} + R_{ji}$	$R_{ij} + R_{jj}$	$R_{ii} + R_{ji} + R_{ij} + R_{jj}$ [†]

Note: [†] The total film market size.

Crouching Tiger, Hidden Dragon and *Lord of The Rings* were released internationally in the years following their domestic release, which resulted in Taiwan's and New Zealand's global shares being much higher than their domestic shares in those later years, hence the freeness index larger than one. In these cases, the freeness index is replaced by the theoretical maximum, one.

A potential issue is that the computed indices of freeness, d_{ij} and d_{ji} , reflect all sorts of trade barriers. For example, d_{ij} may include not only the cultural discounting behaviours of country i against country j 's films, but also trade policy barriers such as quotas and subsidies, and other barriers potentially resulting from the differences in national market conditions such as how films are consumed in the related markets of television and DVDs, which is not assumed in the theoretical model but needs to be considered in the empirical reality. One might want to find a way to filter out such influence of policy measures. However, the causal relationship between so-called 'protectionist' measures and film trade volumes does not seem conclusive. For example, Marvasti and Canterbury (2005) find a positive relationship, which may be an indication that the policy measures are implemented due to 'too many' foreign films. But Hanson and Xiang (2009), using the same measure of policy barriers constructed by Marvasti and Canterbury (2005), find a negative relationship, which corroborates rather a conventional view that policy measures deter film trade.^{5.3} Therefore, the above revealed freeness is not adjusted for the impact of policy barriers, and will be largely interpreted as a valid measure of trade barriers in film trade including cultural discount as well as other barriers.

^{5.3} Although not reported here, the regression of d_{ij} on the policy barrier index constructed by Marvasti and Canterbury (2005) within the present sample showed a positive coefficient under the random effects specification.

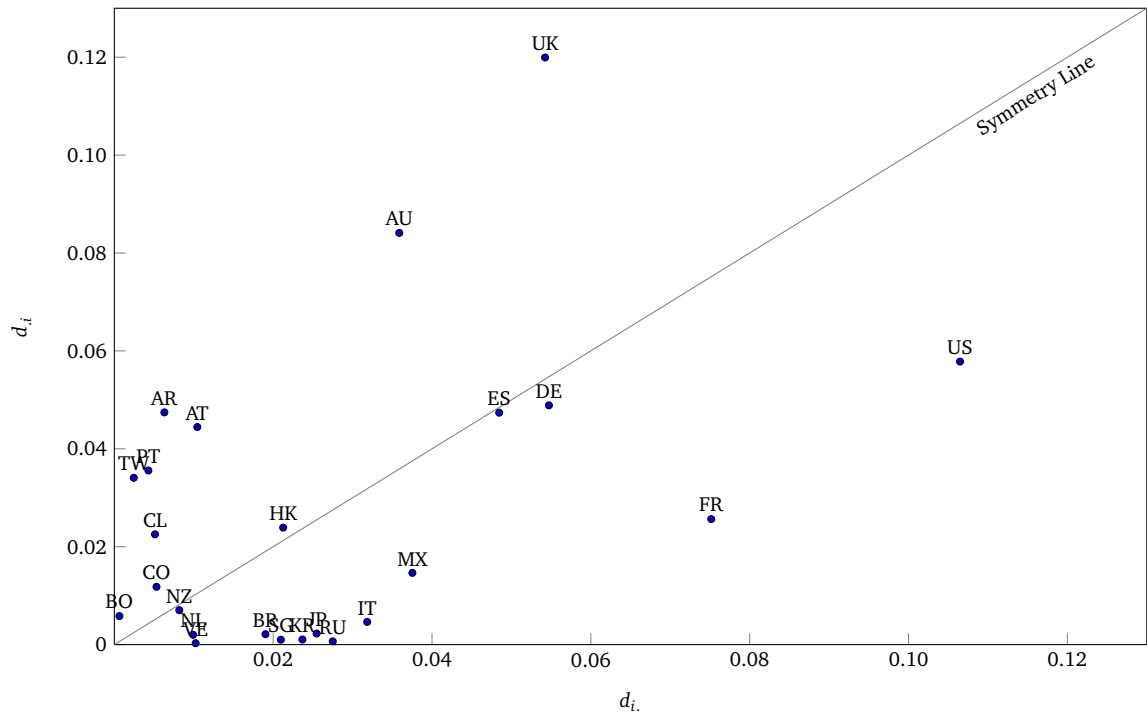
Figure 5.1 shows the freeness computed by using box office revenues, averaged over time and across trade partners within Panel 2 of Table 5.1: $d_{i\cdot}$ indicates the level of average freeness applied by foreign countries on country i 's films, or the freeness that country i 's films face when entering foreign cultures; and $d_{\cdot i}$ shows the average level of freeness that country i applies towards foreign films, or the freeness that foreign films face entering country i 's culture. A high $d_{i\cdot}$ would imply that country i 's films are not discounted much by foreign consumers, due to either cultural discount or policy barriers. The top three countries are the UK (and Ireland), Australia and the U.S. (and Canada), all English-speaking countries, which is not surprising given the global popularity of the their mainly spoken language: films made in English language are more accessible or less culturally discounted in non-English speaking countries than vice versa. In turn, a high $d_{\cdot i}$ implies that consumers in country i do not culturally discount much the foreign cultures. Two things need to be said regarding Figure 5.1. First, the trade barriers are indeed asymmetrically occurring in film trade. Many countries in the sample are off the symmetry line, showing significant differences between $d_{i\cdot}$ and $d_{\cdot i}$. Secondly, there seems to be a positive relationship between $d_{i\cdot}$ and $d_{\cdot i}$, which indicates that a culture that is accessible to or acceptable by foreign cultures tends to be also accepting towards foreign ones.

Given the hypotheses H1-H3, it is important to first examine whether a country of larger demand also holds a position of cultural hub within a country pair. This can be done by comparing the freeness applied by larger countries to smaller countries, and vice versa. Let us redefine countries i and j as countries of larger and smaller demand respectively, based on their over-time average demand shares. The demand shares between two countries i and j are computed by using the box office revenues as follows:

$$\begin{aligned}\theta_{ij} &= \frac{R_{ii} + R_{ji}}{R_{ii} + R_{ij} + R_{ji} + R_{jj}} \\ \theta_{ji} &= \frac{R_{jj} + R_{ij}}{R_{ii} + R_{ij} + R_{ji} + R_{jj}}\end{aligned}\tag{5.5}$$

where θ_{ij} and θ_{ji} denote countries i and j 's relative demand share within the country

Figure 5.1: Asymmetry and Reciprocity in Freeness



Notes: d_i denotes the freeness applied by foreign countries on country i 's films; d_i denotes the freeness that country i applies towards imported films; Panel 2 is used ($N = 24$).

pair. Countries i and j are such that $\overline{\theta_{ij}} > \overline{\theta_{ji}}$, where $\overline{\theta_{ij}}$ and $\overline{\theta_{ji}}$ denote the over-time averages of θ_{ij} and θ_{ji} .

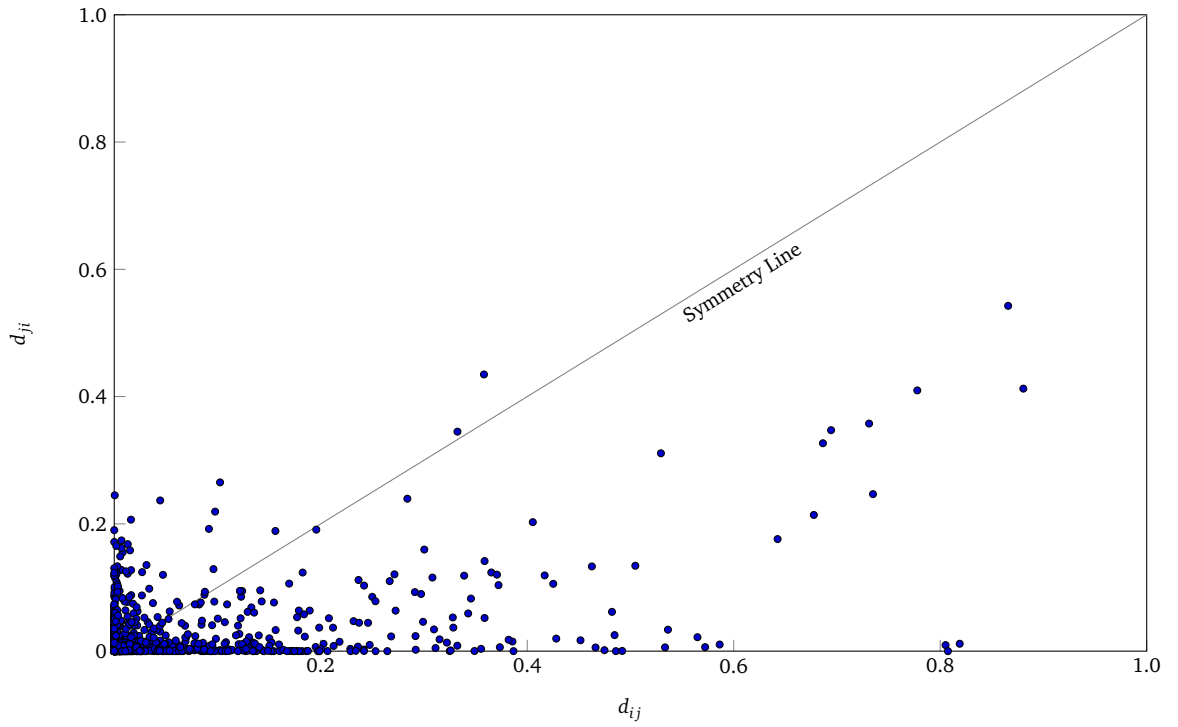
Figure 5.2 scatter-plots the redefined d_{ij} and d_{ji} calculated for 276 country pairs and six years in Panel 2 of Table 5.1. See Appendix A.1 for summary statistics. The symmetry line represents the equal degree of freeness applied in both ways. It reveals the asymmetry in freeness between countries of larger and smaller demand. Many country pairs locate below the symmetry line, or d_{ij} is higher than d_{ji} . In other words, a larger country tends to apply a larger degree of freeness on a smaller country than vice versa, which indicates that it is, on average, more difficult for a larger country to export films to a smaller country. There are two ways of interpreting this direction of asymmetry in freeness. First, assuming that the freeness index largely measures the degree of cultural discount, this asymmetry indicates that larger countries are not holding a position of cultural hub against smaller countries in the international film industry. This is surprising as one might expect the opposite. Hence the second interpretation, as the freeness may reflect not only the amount of cultural discount but also other sorts of trade barriers such as protectionist policy measures. This said, the asymmetry in freeness between larger and smaller countries can imply that smaller countries are implementing heavier policy measures against larger countries' films, in comparison to vice versa. This explanation corroborates Marvasti and Canterbury (2005) who find a positive relationship between film trade volumes and the amount of policy barriers, an indication that countries implement policy barriers against 'too many' foreign films.

5.2.2 Adjusted Tourist Arrival Statistics

The freeness index has an advantage in that it can directly measure the revealed trade friction in film trade. However, as noted earlier, it potentially creates a collinearity issue if box office revenues are also used in the construction of dependent and independent variables. Moreover as I have pointed out, the freeness index reflects the degree of cultural discount as well as other sorts of trade barriers, in particular the intensity of policy measures implemented against foreign films.

An alternative way to model asymmetric cultural discount that I have developed is

Figure 5.2: Asymmetry in Freeness between Larger and Smaller Countries



Notes: Country i has a larger over-time average film demand in comparison to country j ($\overline{\theta_{ij}} > \overline{\theta_{ji}}$); d_{ij} denotes the freeness applied by a larger country i on a smaller country j 's films; d_{ji} denotes the freeness applied by a smaller country j on a larger country i 's films; Panel 2 is used ($N = 1656$).

based on bilateral tourist arrivals statistics, under the assumption that choosing a film to watch is somewhat similar to choosing a holiday destination: one would often choose a film or a holiday destination based on one's preference across foreign cultures. The tourism literature reports that choosing a holiday destination is affected by consumers' familiarity towards foreign cultures, or choosing a holiday destination may be even affected by the movies one watches (Kim and Richardson, 2003). Therefore the number of tourists from country i to country j would indicate to some extent the degree of cultural proximity that consumers from country i feel towards the culture of country j : the inverse notion of cultural discounting.

The annual statistics of inbound tourist arrivals by nationalities or countries of residence covering the years 2000–2011 are retrieved from the 2006, 2011 and 2013 editions of *The Yearbook of Tourism Statistics* published by The World Tourism Organization (UNWTO). Tourist arrivals are influenced by not only cultural factors but also by economic factors such as real exchange rates and geographical distance (e.g. Culiuc, 2014). In order to filter out non-cultural factors in tourist arrival statistics, the antilogs of the residuals from the following Equation (5.6) are taken as a measure of cultural proximity that consumers in country i feels towards country j 's culture. Although not ideal in the sense that tourism statistics are not directly related to consumption of movies, this measure is not entirely implausible since it can still capture to some extent the level of cultural proximity in a broad sense.

$$\ln \text{TRAR}_{ij} = \beta_0 + \beta_1 \ln \text{DIST}_{ij} + \beta_2 \ln \text{POP}_i + \beta_3 \ln \text{rPPP}_{ji} + \varepsilon_{ij} \quad (5.6)$$

where TRAR_{ij} represents the number of tourists arrived in the destination country j from the origin country i ;

DIST_{ij} , the geographical distance between two countries adjusted by inter-city distances and their populations, sourced from Mayer and Zignago (2011);^{5.4}

POP_i , the population of the origin, retrieved from The World Bank; and

rPPP_{ji} , the PPP factor ratio between two countries.

The population of the origin is included to adjust for the fact the more people travel from

^{5.4}Specifically, the weighted distance named *wdist* from Mayer and Zignago (2011) is used.

Table 5.3: Correlations: Freeness, Tourist Arrivals, and Adjusted Tourist Arrivals

	TRAR _{ij}		Panel 1 ADTRAR _{ij}		Panel 2 ADTRAR _{ij}	
TRAR _{ij}			0.3351*	(1267)	0.2221*	(1496)
d_{ij}	-0.0062	(2614)	0.2439*	(1267)	0.3160*	(1496)
Cultural Distance	-0.1153*	(2572)	-0.3011*	(1267)	-0.2176*	(1454)

Notes: Number of observations in parentheses varying due to data availability; Panel 1 includes 13 countries and 14 years; Panel 2 includes 24 countries and 6 years; * Significance at .01 level

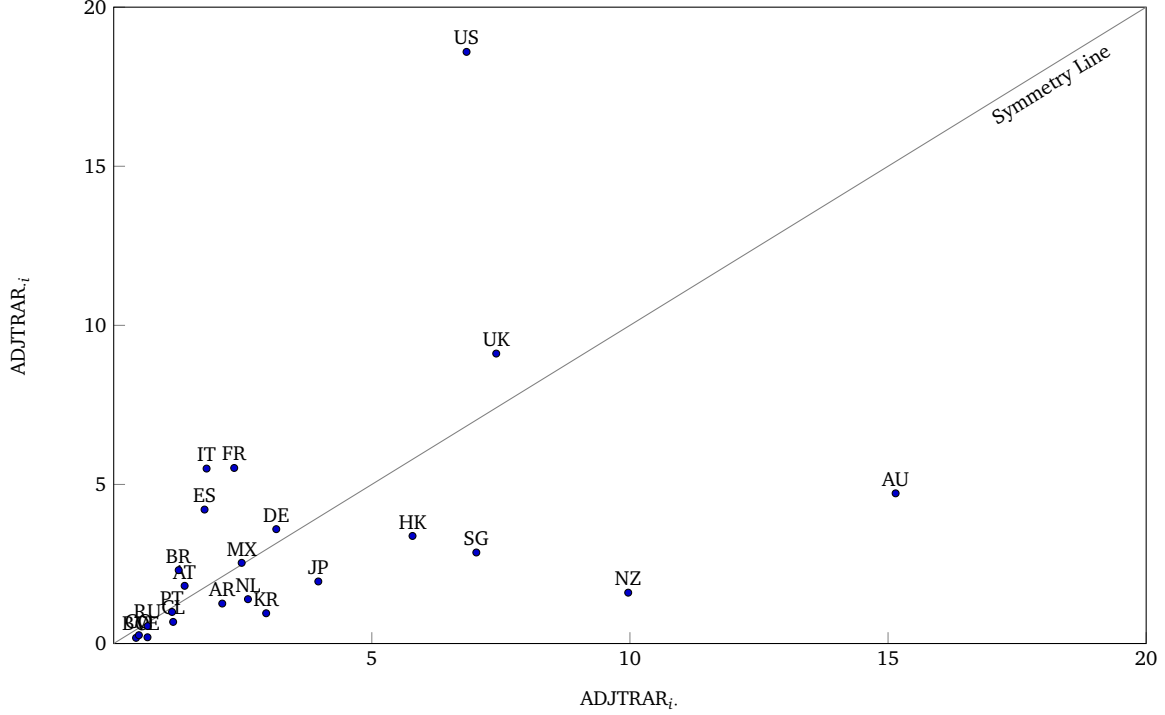
a more populated country. The real exchange rate is also accounted for by using the PPP factor ratio: the destination-to-origin ratio of the purchasing-power-parity factors, which are the PPP terms against the US, introduced in Culiuc (2014). The PPP factors are computed as the PPP divided by the exchange rate, which represents the amount in US dollars that is needed to purchase what one US dollar can afford in the US. The PPP index and exchange rates are retrieved from Rao et al. (2014). See Appendix A.1 for summary statistics and A.2 for the estimation results of Equation (5.6).

The correlations among the freeness index d_{ij} , the raw tourist arrivals TRAR_{ij}, and the antilogs of the residuals from the regression Equation (5.6) which we may call ‘adjusted tourist arrivals’, ADTRAR_{ij}, are reported in Table 5.3. The correlation between the raw and adjusted tourist arrivals is 0.34 and 0.22 within Panels 1 and 2. The adjusted tourist arrivals ADTRAR_{ij} are more highly and significantly correlated with the freeness index than the raw statistics are, which provides justification for the adjustment. This also reassures that the freeness does reflect cultural discount as well as other types of trade barriers. The raw and adjusted tourist arrivals are also compared against one of the popular measures of cultural distance, computed as an aggregate index of cultural dissimilarity suggested by Kogut and Singh (1988) based on the scores of the four cultural dimensions assessed by Hofstede (1984, 2001).^{5.5} The adjusted tourist arrivals show a higher correlation with the cultural distance in comparison to the raw statistics, which also provides justification for the adjustment. Note that the number of observations vary due to the data availability.

Similarly to Figure 5.1, the adjusted tourist arrivals ADJTRAR_{ij} are averaged over

^{5.5}The four cultural dimensions include: power distance, individualism versus collectivism, masculinity versus femininity, and uncertainty avoidance.

Figure 5.3: Asymmetry and Reciprocity in Adjusted Tourist Arrivals

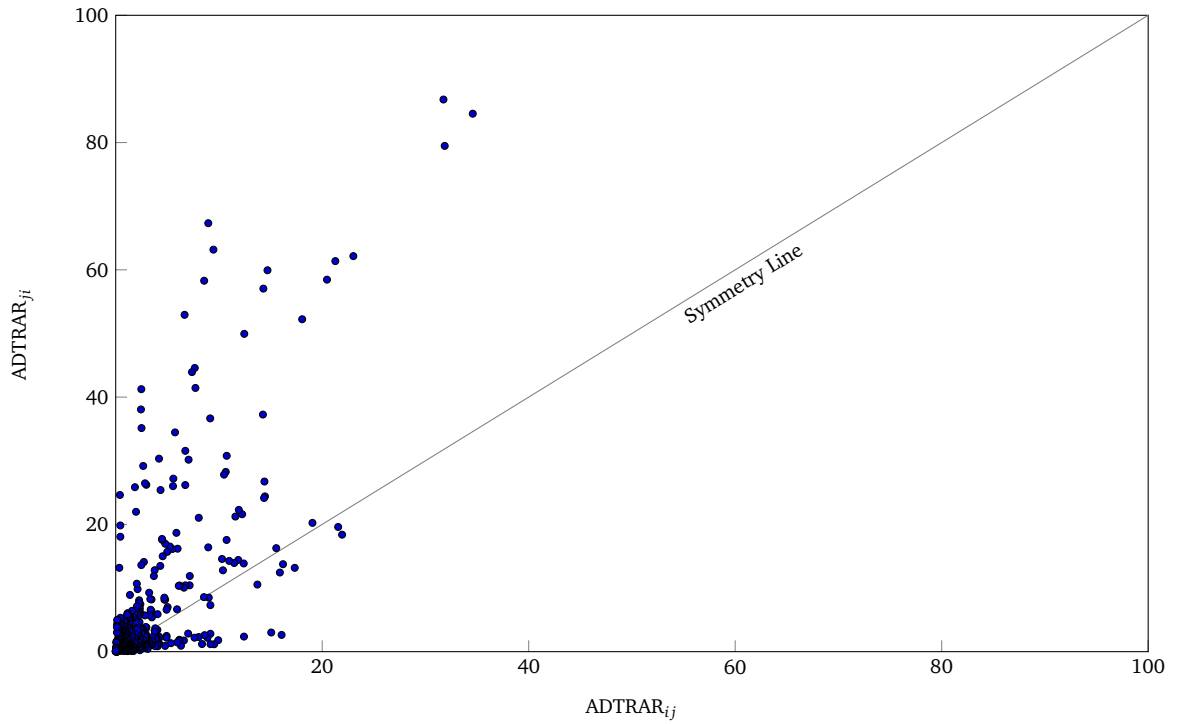


Notes: $ADTRAR_i$ represents cultural proximity applied by foreign countries on country i 's culture; $ADTRAR_j$ represents cultural proximity that country j applies towards foreign cultures; Panel 2 is used ($N = 24$).

time and across trade partners within Panel 2 and shown in Figure 5.3. It also shows asymmetry and reciprocity in cultural discount.

Also similarly to Figure 5.2, let us redefine countries i and j as those of larger and smaller demand, such that $\bar{\theta}_{ij} > \bar{\theta}_{ji}$. Figure 5.4 is a scatter plot of $ADTRAR_{ij}$ against $ADTRAR_{ji}$. The number of observations is smaller than in the case of freeness index given the lack of availability of tourist arrivals statistics. The asymmetry is also shown between larger and smaller countries. However, interestingly, the direction of asymmetry is opposite. Many country pairs locate above the symmetry line, or $ADTRAR_{ij}$ is lower than $ADTRAR_{ji}$: smaller countries show a higher cultural proximity towards larger countries than vice versa. This indicates that larger countries generally hold a position of cultural hub against smaller countries.

Figure 5.4: Asymmetry in Adjusted Tourist Arrivals between Larger and Smaller Countries



Notes: Country i has a larger over-time average film demand in comparison to country j ($\overline{\theta}_{ij} > \overline{\theta}_{ji}$); $ADTRAR_{ij}$ represents cultural proximity applied by a larger country i on a smaller country j 's culture; $ADTRAR_{ji}$ represents cultural proximity applied by a smaller country j on a larger country i 's culture; Panel 2 is used ($N = 581$).

5.3 Chapter Conclusion

In this chapter, I have introduced the data that will be used in testing the hypotheses in the next chapter. Specifically, I have discussed the international cinema box office revenues, and developed two measures of cultural discount by modifying the freeness index and by exploiting the two-way tourist arrivals statistics.

CHAPTER 6

HYPOTHESIS TESTING AND ESTIMATION RESULTS

The aim of this chapter is to test the three hypotheses derived in Chapter 4 by using the data introduced in Chapter 5, namely, international cinema box office revenues and the two measures of asymmetric cultural discount. In testing the presence of the home market effect (H1) and the hub effect (H2), I estimate an empirical counterpart of Equation (4.6) with the bilateral demand and output shares computed using box office revenues, following Head and Ries's (2001) specifications. In testing H3, I introduce appropriate measures of the three types of cultural diversity identified in Chapter 2, and examine their current trends along with the level of cultural hub-ness of the United States over the sample years.

This chapter consists of four sections. In Section 6.1, I first discuss issues in empirically testing the home market effect as raised in the trade literature. This body of studies mainly pertains to the manufacturing sectors within OECD countries with the assumed presence of transport costs symmetric within a country pair. Since H1 and H2 are based on the notion of cultural discount which replaces the role of transport costs in the reference model, these studies and the present analysis share many issues that arise in the empirical specification, and determination and operationalisation of variables. In Section 6.2, I investigate the presence of the home market effect (H1) and the hub effect (H2). In Section 6.3, I investigate H3. In the last section, I conclude the chapter.

6.1 Issues in Testing Home Market Effect

Although straightforward in theory, empirical testing of the home market effect poses many challenges. Above all, the concept itself can be interpreted in multiple ways, allowing therefore multiple predictions. As Head and Mayer (2004, 20) explain:

“There are three closely related predictions regarding the effects of market

size asymmetries on the geographic distribution of industry activity that have come to be known as “home market effect.” Krugman (1980) initiates the literature by demonstrating that the country with the larger number of consumers of an industry’s goods will run a trade surplus in that industry. Further development of the model in Helpman and Krugman (1985) shows that the larger country’s share of firms in the increasing returns industry exceeds its share of consumers. They also show that increases in a country demand lead to more than one-for-one increases in production.”

A couple of issues arise due to this interpretive difference of the home market effect. The first issue is related to the first interpretation versus the second and third, which relates to the operationalisation of the home market effect. With regard to the first prediction, the home market effect is interpreted as a relationship between national demand and exports. Feenstra, Markusen and Rose (2001) take this interpretation by estimating the gravity equation separately for two aggregate manufacturing industries, one of homogeneous products and the other of differentiated products. They find that the elasticity of exports with respect to the exporter’s income is higher than that with respect to the importer’s in the aggregate industry of differentiated products, which is taken as the evidence for the home market effect. Hanson and Xiang (2004) also use national income and exports to find a positive relationship between the two based on a difference-in-difference specification. They interpret the evidence as supporting the home market effect by finding that larger economies export relatively more of the good that is of a higher degree of product differentiation and a higher level of transport costs. With the second and third predictions, however, the home market effect is interpreted as a relationship between demand and output in the increasing returns industry. Therefore, within this interpretation, trade volumes are not directly used in the investigation of the home market effect. This approach is taken in the series of studies done by Davis and Weinstein (1996, 1999, 2003), which examine the association between the idiosyncratic demand for a particular good, estimated by the deviation from the world demand pattern, and its corresponding output. Their first study does not find support for the presence of home market effect in the manufacturing sector within OECD countries. However, using different datasets and estimation techniques, their subsequent studies do. Head and Ries (2001) and Trionfetti (2001) also base their empirical specifications on the

relationship between demand and output, but use the shares instead of the absolute volumes, for which the econometric specifications come along rather naturally from the theoretical model.

The second issue is related to the second interpretation versus the third, which pertains to the dimension of the home market effect. With the second prediction, the home market effect is viewed as a cross-country concept: a country of larger demand produces more-than-proportionally. With the third, however, the home market effect is a dynamic concept: an increase in demand leads to a more-than-proportional increase in output over time. The contrast between the two approaches is well reflected in Head and Ries (2001) who tested the home market effect hypothesis against the national product differentiation framework as in Armington (1969). They employed the within and between estimation techniques, which exploit the variances of the demand and output shares of the U.S. and Canada, over time and across industries respectively. They find stronger support for the home market effect from the between estimation, which implies the presence of the home market effect between the U.S. and Canada across different industries. In contrast, their within estimation results do not provide strong evidence for the home market effect, which potentially implies no home market effect over time. They reason this based on the time period of six years in their sample which may not be long enough for the home market effect to take place. In the present analysis, I also take the second and third approaches and employ the between and within estimation techniques following Head and Ries (2001).

In addition to the above two issues, another conceptual issue arises given the empirical reality of multiple countries interacting with each other, in contrast to the hypothetical world of two countries. This naturally leads to a theoretical problem of how to construct the home market effect hypothesis in these circumstances, and a question as to whether the hypothesis will still hold. This problem was investigated by Behrens et al. (2004), who first distinguish the dynamic and static definitions of the home market effect, which are equivalent to separation between the over-time and cross-country dimensions of the home market effect as mentioned earlier. The former concerns whether a country's increase in demand leads to an even bigger increase in output, which therefore implies a time-series investigation of the home market effect. They define the dynamic home

market effect as the elasticity of global output share with respect to the global demand share as follows:

$$\frac{d\lambda_i^{glob}}{d\theta_i^{glob}} \cdot \frac{\theta_i^{glob}}{\lambda_i^{glob}} > 1, \quad (6.1)$$

where λ_i^{glob} and θ_i^{glob} denote the expenditure and output shares of country i in the multi-country setting, $d\theta_i^{glob} > 0$, and $\sum_j d\theta_j^{glob} = 0$. Behrens et al. (2004) show that the definition in Equation (6.1) does not hold in the multi-country setting, unless the trade costs are equal across all countries involved. “[A]s expenditure shares change between two periods, a ‘HME [Home Market Effect] shadow’ may arise, in the sense that *even if country i gains expenditure share, it may actually gain a less than proportional industry share if another country j also gains some expenditure share.*” (Behrens et al., 2004, 20).

In turn, the static definition of home market effect concerns whether a country with a bigger demand share has an even bigger output share in comparison to other countries, which therefore implies a cross-sectional analysis. The static home market effect is defined as follows: assuming n countries that are in order of their global demand share such that $\theta_1^{glob} \geq \theta_2^{glob} \geq \dots \geq \theta_n^{glob}$, the output shares are:

$$\frac{\lambda_1^{glob}}{\theta_1^{glob}} \geq \frac{\lambda_2^{glob}}{\theta_2^{glob}} \geq \dots \geq \frac{\lambda_i^{glob}}{\theta_n^{glob}},$$

which suggest that a country with a larger demand share always produces a larger global share of output in the increasing returns industry. Behrens et al. (2004) propose that the static home market effect appears only after controlling for cross-country differences in accessibility, or the hub effect, which refers to the tendency of a centrally located country becoming an attractive location of production since it is cheaper to export from. In other words, a country of larger demand but a peripheral location may not produce more than its demand share. Or, a country with a relatively smaller demand but a central location may produce more than its demand share. As such, the authors suggest a theoretically grounded linear filter which can remove the hub effect from the observed output shares;

then find stronger support for the home market effect based on non-parametric tests. Applying the linear filter suggested by Behrens et al. (2004), Niepmann and Felbermayr (2010) find support for the home market effect. As will be explained in Section 6.1, the analysis in this chapter employs bilateral shares of demand and output rather than multilateral ones, and accounts for the third country effects by including the market potential variables.

The present analysis differs from this line of literature in that it adopts the notion of cultural discount as another form of trade barriers rather than transport costs, and that it accounts for the asymmetry in trade friction within a country pair.

6.2 Testing H1 and H2: Home Market Effect and Hub Effect in Film Industry

As previously discussed, the home market effect and the hub effect can be interpreted in several ways. I choose to test both effects in the context of the relationship between the demand and output shares, such that the econometric specification naturally derives from the theoretical model. The bilateral demand and output shares of country i with respect to country j are computed using box office revenues. The former is prepared as in Equation (5.5); and the latter as follows:

$$\lambda_{ij} = \frac{R_{ii} + R_{ij}}{R_{ii} + R_{ij} + R_{ji} + R_{jj}} \quad (6.2)$$

where λ_{ij} denotes relative output shares of countries i and j within the country pair. Within each country pair, country i is set as that of larger demand averaged over time, i.e. $\overline{\theta}_{ij} > \overline{\theta}_{ji}$, a treatment done in order to exclude duplicated observations within each country pair.

The degree of cultural hub-ness of a larger country i is operationalised by the direction and degree of asymmetry in cultural discount measured as $(d_{ji} - d_{ij})$ and $(ADTRAR_{ji} - ADTRAR_{ij})$, the reciprocal variance of the cultural discount measures developed in Section 5.1, namely, the freeness index and the adjusted tourist arrivals. A

positive value of $(d_{ji} - d_{ij})$ indicates that it is easier for country i 's films to enter country j 's film market than vice versa; and a positive value of $(ADTRAR_{ji} - ADTRAR_{ij})$ indicates that country i 's culture is more popular among country j 's consumers than vice versa. In other words, a positive value of $(d_{ji} - d_{ij})$ or $(ADTRAR_{ji} - ADTRAR_{ij})$ implies that the larger country i holds a position of cultural hub against country j . The higher the value of $(d_{ji} - d_{ij})$ or $(ADTRAR_{ji} - ADTRAR_{ij})$, the higher the cultural hub-ness of a larger country i is within a country pair.

Following Head and Ries (2001), two estimation techniques are specified, which are within and between estimations. The specified models are:

$$(\lambda_{ijt} - \bar{\lambda}_{ij}) = \beta_0 + \beta_1(\theta_{ijt} - \bar{\theta}_{ij}) + \beta_2(ASYM_{ijt} - \bar{ASYM}_{ij}) + (\varepsilon_{ijt} - \bar{\varepsilon}_{ij}) \quad (6.3)$$

$$\bar{\lambda}_{ij} = \beta_0 + \beta_1 \bar{\theta}_{ij} + \beta_2 \bar{ASYM}_{ij} + \bar{\varepsilon}_{ij} \quad (6.4)$$

where λ_{ijt} and θ_{ijt} denote the output and demand shares of country i in relation to country j at time t , respectively, as computed by Equations (5.5) and (6.2); $ASYM_{ijt}$, the direction and degree of asymmetry in cultural discount or the degree of cultural hub-ness of country i against country j , proxied by either $(d_{ji} - d_{ij})$ or $(ADTRAR_{ji} - ADTRAR_{ij})$; and $\bar{\lambda}_{ij}$, $\bar{\theta}_{ij}$ and \bar{ASYM}_{ij} , the over-time averages. The within and between estimation techniques can be considered in relation to the over-time and cross-country predictions of the home market effect mentioned in Section 3.3. The former is tested by the over-time variations as in Equation (6.3), and the latter by the cross-country variations as in Equation (6.4).

The above model empirically tests the relationship illustrated in Figure 4.3 where the post-trade line has a slope larger than one and is shifted upward or downward by the degree of asymmetry in cultural discounting. The coefficient $\hat{\beta}_1 > 1$ would indicate a more-than-proportional relationship between demand and output shares, or the presence of home market effect, which can be taken as support for H1. The other coefficient $\hat{\beta}_2 > 0$ would indicate a positive relationship between the level of cultural hub-ness and

the output share, or the presence of the hub effect, which can be taken as support for H2. Accordingly, the testable hypotheses of H1 and H2 can be written as follows:

H1' A country with the larger bilateral demand share produces a more-than-proportional bilateral output share, i.e. $\beta_1 > 1$, *ceteris paribus*.

H2' A country with the higher cultural hub-ness produces a higher bilateral output share, i.e. $\beta_2 > 0$, *ceteris paribus*.

It is important to note the critical role of $ASYM_{ij}$, which is an addition to the existing literature of home market effect. In a world of symmetric trade barriers where the hub effect does not exist, an estimate of β_1 that is larger than one would provide evidence for the presence of home market effect as in Head and Ries (2001): a more-than-proportional relationship between the demand and output shares. The slope coefficient being less than one would be considered as evidence against. However, given the potential presence of both the home market effect and the hub effect, and putting aside potential technical issues and the third country effects for the time being, if one excludes $ASYM_{ij}$, the slope coefficient β_1 is interpreted differently. First, the slope coefficient larger than unity suggests two possible scenarios: one where the home market effect and the hub effect occur in the same direction in the favour of country i of larger demand, solidifying the more-than-proportional relationship between demand and output shares; and the other where the two effects take place in the opposite direction hence the home market effect is shadowed by the hub effect but not sufficiently enough to weaken the demand-output relationship to be less-than-proportional. Second, the slope coefficient smaller than one would also indicate that the two effects take place in opposite directions and that the home market effect is shadowed by the hub effect to the point where the demand-output relationship becomes less-than-proportional. Therefore, the inclusion of the variable of asymmetry in cultural discounting $ASYM_{ij}$ is expected to remove the shadow and reveal separately the home market effect and the hub effect, which makes it safer to infer the presence of home market effect from $\hat{\beta}_1 > 1$.

The preliminary results are presented in Table 6.1. Columns (1)-(8) are the results from the within estimation where fixed effects are included for each pair of countries;

Table 6.1: Home Market Effect and Hub Effect: Preliminary Specification

Within Estimation: Output Share λ_{ij}								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Demand Share θ_{ij}	0.987*** (0.0240)	1.028*** (0.0252)	0.981*** (0.0387)	1.003*** (0.0050)	1.012*** (0.0051)	1.012*** (0.0151)	1.027*** (0.0118)	1.041*** (0.0287)
$d_{ji} - d_{ij}$		0.128*** (0.0397)			0.108*** (0.0165)		0.105*** (0.0253)	
ADTRAR _{ji} – ADTRAR _{ij}			0.000616 (0.000567)			0.00112** (0.000567)		0.00113* (0.000615)
constant	0.000721 (0.0200)	-0.0215 (0.0199)	0.00342 (0.0315)	0.00448 (0.00424)	-0.000780 (0.00430)	-0.000153 (0.0129)	-0.00692 (0.00993)	-0.0245 (0.0246)
Obs.	1092	1092	515	1656	1656	580	630	342
Years	14	14	14	6	6	6	6	6
R ²	0.900	0.914	0.896	0.994	0.995	0.993	0.993	0.992
RMSE	0.063	0.059	0.066	0.015	0.013	0.016	0.016	0.016
Between Estimation: Output Share λ_{ij}								
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Demand Share θ_{ij}	1.014*** (0.0245)	1.068*** (0.0238)	1.028*** (0.0342)	1.001*** (0.010)	1.008*** (0.010)	0.976*** (0.016)	1.016*** (0.023)	0.981*** (0.028)
$d_{ji} - d_{ij}$		0.155*** (0.0305)			0.120*** (0.0227)		0.072* (0.0427)	
ADTRAR _{ji} – ADTRAR _{ij}			-0.000541 (0.00119)			0.00145*** (0.000278)		0.00148*** (0.000346)
constant	-0.0213 (0.0207)	-0.0524*** (0.0190)	-0.0298 (0.0280)	0.00588 (0.00874)	0.00260 (0.00836)	0.0286** (0.0137)	0.00120 (0.0195)	0.0249 (0.0283)
Obs.	78	78	50	276	276	162	105	87
R ²	0.958	0.968	0.955	0.972	0.975	0.961	0.951	0.941
RMSE	0.0312	0.0271	0.0350	0.0252	0.0240	0.0303	0.0336	0.0357

Notes: standard errors in parentheses; Panel 1 in (1)-(3) and (9)-(11), Panel 2 in (4)-(6) and (12)-(14), OECD countries in Panel 2 in (7)-(8) and (15)-(16); * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

and (9)-(16) from the between estimation.^{6.1} The regressions are estimated on three different samples: Columns (1)-(3) and (9)-(11) cover Panel 1, thirteen countries and fourteen years; Columns (4)-(6) and (12)-(14), Panel 2, twenty four countries and six years; and Columns (7)-(8) and (15)-(16) are for fifteen OECD countries within Panel 2. Within each sample, the number of observations is smaller when the adjusted tourist arrivals are used instead of the freeness, due to the lack of availability of two way statistics of tourist arrivals.

Columns (2), (5), (10) and (13) reveal that the slope coefficients increase as the

^{6.1}Fixed effects for years are not included because the box office revenues are adjusted by annual CPIs.

variable of asymmetry in cultural discount is included in addition to (1), (4), (9) and (12), respectively. Also, the more-than-proportional relationship between demand and output shares, or the home market effect, appears as the hub effect, or the effect of asymmetry in cultural discount on the output share, is controlled for in each specification. This indicates that, in many country pairs, the home market effect and the hub effect operate in opposite directions, or not all countries of larger demand do not hold a position of cultural hub against its trade partner.

In the results from the within estimation, the slope coefficients are larger than one and significant at .01 level when both the demand share and the asymmetry in cultural discount are included, which may be an indication of the presence of the over-time home market effect. The between estimation, however, shows mixed results in regard to the home market effect. For Panel 2, and when the asymmetric cultural discount is proxied by the adjusted tourist arrivals in Column (14) and (16), the slope coefficients are smaller than one, which does not support the presence of the home market effect. The coefficients for the asymmetric cultural discount are all positive and statistically significant at least at 0.1 level except for in Columns (3) and (11). Within Panel 2, the coefficients for the demand share and for the asymmetric cultural discount are larger within OECD countries which is expected, given the prediction of the new trade theory that the intra-industry trade and the home market effect is to take place among economically similar countries.^{6.2}

One needs to interpret Table 6.1 with caution, however, due to several issues related to using the demand share as an independent variable. First, the demand share is not likely to be exogenous. The demand for film is supposed to influence the output, but is also likely to be influenced by the output, which simply describes the case where consumers watch more films because there are more films produced. Or, there could be some industry shocks that apply to both sides of demand and output. That is, the demand shares suffer from a simultaneity problem, which is known to create an upward bias in estimates. This has been pointed out many times in the literature (e.g. Head and Ries, 2001; Trionfetti, 2001), and has been dealt with in a couple of ways. One

^{6.2}This is the reason why many studies on testing the home market effect have examined the manufacturing sector of OECD countries in an attempt to meet the assumption of economically similar countries.

may simply take the approach of using the lagged demand share as in Niepmann and Felbermayr (2010). Or the issue may be toned down if one uses the ‘deviations’ of demand share from some sort of ‘reference’ that indicates the level of demand share a given country would have exhibited if there were no cross-country differences in preferences, as initially introduced by Davis and Weinstein (1996, 1999, 2003) based on the concept of ‘idiosyncratic demand’, and also explored by Trionfetti (2001) and Head and Ries (2001). They set the ‘reference’ share as the share of the higher digit industry. This approach however is not applicable in the present analysis where only one industry is of interest, and hence the ‘reference’ share of demand is not easy to determine.

Second, measurement errors in demand and output shares may be present. For example, some films are released internationally over multiple years, which may result in the demand share of the first release year being under-reported and those of successive years over-reported. The measurement error would create a downward bias. Combined with an upward bias potentially created by the simultaneity, the direction of bias on the coefficients in Table 6.1 is not obvious.

In resolving these two issues, I apply the bilateral GDP share as an instrument for the demand share. Since the interest of the present analysis is on one industry, it would be reasonable to presume that national income is likely to be correlated with the expenditure on films, but less likely to be with the film production given the small contribution of film industry to the national income.

The third and last issue stems from the fact that the shares are considered within a country pair, whereas the two countries within each pair also interact with those outside of a pair. The exclusion of such influences can create an omitted variables bias as pointed out by Anderson and van Wincoop (2003). The third country effects can be partly controlled for by including the following ‘market potential’ for both countries i and j (Head and Mayer, 2004).

$$MP_i = \sum_j d_{ji} \cdot \theta_j^{glob}, \quad MP_j = \sum_i d_{ij} \cdot \theta_i^{glob}$$

where d_{ij} and d_{ji} are the freeness index calculated from Section 5.2, and θ_i^{glob} and

θ_j^{glob} are the global expenditure shares of countries i and j , computed separately within Panels 1 and 2. The market potential is to measure the global film production share of a country weighted by the freeness applied on its films, which partly account for the interactions of countries i and j with the other countries within each panel. The output share of country i , λ_{ij} , is expected to be positively related to its own market potential, MP_i , but negatively related to its counterpart's, MP_j . See Appendix A.1 for summary statistics.

Table 6.2 shows the results after instrumenting the demand share θ_{ij} with the GDP share and controlling for the third country effects using the market potentials of both countries. Columns (1)-(8) show the results from the within estimation, and (9)-(16) from the between estimation. The regressions are again estimated on three different samples: Columns (1)-(3) and (9)-(11) cover Panel 1, thirteen countries and fourteen years; Columns (4)-(6) and (12)-(14), Panel 2, twenty four countries and six years; and Columns (7)-(8) and (15)-(16) are for fifteen OECD countries within Panel 2. See Appendix A.3 for the first stage results.

Columns (1), (4), (9), and (12) show the results after instrumenting the demand share with the GDP share, the direction of change in the coefficient for the demand share is not consistent in comparison to Table 6.1, which is expected given multiple sources of endogeneity as mentioned earlier. Controlling for the third country effects by including the market potential terms consistently decreases the coefficient of the demand share as shown in Columns (2), (5), (10) and (13), which indicates the upward omitted variable bias given that λ_{ij} and θ_{ij} are positively correlated with MP_i and negatively with MP_j . Most of the coefficients of MP_i are positive, and those of MP_j are negative, as expected.

As the demand share is instrumented and the third country effects are accounted for by the market potentials, the discrepancy between the slope coefficients of the within and between estimations becomes noteworthy. The within slope estimates tend to be less than one, while the between estimates, larger than one. It may be taken as evidence against the over-time home market effect and for the cross-country home market effect, which partially supports H1. A reason for this discrepancy may be related to Behrens et al.'s (2004) propositions regarding the home market effect in a multi-country setting. They propose that the dynamic home market effect, or the more-than-proportional

Table 6.2: Home Market Effect and Hub Effect: Instrumented Demand Share and Market Potentials

Within Estimation: Output Share λ_{ij}								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Instrumented Demand Share θ_{ij}	1.209*** (0.010)	1.070*** (0.095)	0.899*** (0.203)	1.008*** (0.030)	0.979*** (0.029)	0.897*** (0.079)	0.990*** (0.052)	0.882*** (0.218)
$d_{ji} - d_{ij}$	0.148*** (0.015)	0.071*** (0.017)		0.107*** (0.007)	0.100*** (0.007)		0.089*** (0.010)	
$ADTRAR_{ji} - ADTRAR_{ij}$			0.0033* (0.0020)			0.0011** (0.0005)		0.0010* (0.0006)
MP_i		0.0044 (0.0117)	0.0169 (0.0161)		0.0554*** (0.0057)	0.0912*** (0.0167)	0.0820*** (0.0111)	0.0866*** (0.0240)
MP_j		-0.0852*** (0.0097)	-0.146*** (0.0141)		-0.0012 (0.0061)	-0.0265** (0.0120)	-0.0083 (0.0093)	-0.0280* (0.0145)
constant	-0.170** (0.083)	-0.047 (0.078)	0.087 (0.165)	0.003 (0.025)	0.023 (0.025)	0.091 (0.067)	0.018 (0.044)	0.106 (0.186)
Obs.	1092	1092	515	1656	1656	580	630	342
Between Estimation: Output Share λ_{ij}								
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Instrumented Demand Share θ_{ij}	1.036*** (0.032)	1.007*** (0.035)	0.983*** (0.037)	1.037*** (0.014)	1.027*** (0.013)	0.976*** (0.019)	1.045*** (0.031)	1.001*** (0.032)
$d_{ji} - d_{ij}$	0.136*** (0.033)	0.059 (0.051)		0.013*** (0.023)	0.119*** (0.026)		0.016 (0.054)	
$ADTRAR_{ji} - ADTRAR_{ij}$			0.0037*** (0.0013)			0.0015*** (0.0002)		0.0014*** (0.0003)
MP_i		-0.0127 (0.0182)	-0.0126 (0.0234)		0.103*** (0.0132)	0.118*** (0.0162)	0.160*** (0.0278)	0.142*** (0.0260)
MP_j		-0.0854** (0.0348)	-0.213*** (0.0381)		0.0289 (0.0226)	-0.0849*** (0.0226)	-0.0318 (0.0436)	-0.0858*** (0.0319)
constant	-0.027 (0.025)	0.008 (0.029)	0.036 (0.033)	-0.021* (0.012)	-0.023** (0.012)	0.024 (0.017)	-0.037 (0.028)	0.003 (0.030)
Obs.	78	78	50	276	276	162	105	87
RMSE	0.0274	0.0270	0.0319	0.0244	0.0219	0.0252	0.0295	0.0292

Notes: standard errors in parentheses; Panel 1 in (1)-(3) and (9)-(11), Panel 2 in (4)-(6) and (12)-(14), OECD countries in Panel 2 in (7)-(8) and (15)-(16); * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

influence of demand share on output share over time, is not definable unless trade barriers among all countries are equal, due to the third country effect. With this said, an explanation for $\beta_1 < 1$ in within estimation can be that the market potentials do not fully capture the third country effects. Another possible explanation is that the time period in the sample is not long enough for the home market effect to take place, as pointed out by Head and Ries (2001), who also find the discrepancy between the within and between estimates. This explanation may be applicable in this case, given that Panel 1 with fourteen years yields larger slope coefficients in Columns (2) and (3) than Panel 2 with six years from within estimation in (5) and (6).

It is also noticeable that the slope coefficients when $(ADTRAR_{ji} - ADTRAR_{ij})$ is used tend to be smaller and less than one than those when $(d_{ji} - d_{ij})$ is used, as in Columns (3), (6), (11) and (14). The reason for $\hat{\beta}_1 < 1$ may be that when using the adjusted tourist arrivals, other trade barriers potentially resulting from protectionist policies and conditions of related markets such as those of television and DVDs, are not accounted for, therefore creating omitted variable bias. If the policy barriers tend to be implemented towards larger countries, as shown in Figure 5.2, and lead to a decrease in their output shares, i.e. if policy barriers are positively correlated with θ and negatively with λ , the coefficients can be downward biased. This indicates that the true slope parameter can be larger than one. In sum, there is not sufficient evidence to reject H1'.

The coefficients for $(d_{ji} - d_{ij})$ and $(ADTRAR_{ji} - ADTRAR_{ij})$ are all positive and significant at a 0.1 level or lower except for Columns (10) and (15). The positive impact of the asymmetry in cultural discount on output share appears consistently in both the within and between estimations, which suggests the presence of the hub effect over time as well as across country pairs. This overall supports the proposition of the hub effect or the effect of the asymmetry in cultural discount on output share, and does not reject H2' that a country's cultural hub-ness leads to a higher output share in the cultural industry of increasing returns to scale.

6.3 Testing H3: Trends in Three Cultural Diversities and Cultural Hub-ness of U.S. Films

Given that the hypotheses H1 and H2 are not rejected, the home market effect and the hub effect can be considered as two channels through which the pattern of trade in cultural industries, in particular, in the film industry, is determined. With this proposition taken, one can infer that the ‘pessimistic’ trade outcome in Table 2.1 occurs as countries of larger demand in the industry hold a stronger position of cultural hub. Therefore, H3 is proposed in Chapter 3:

H3 The degrees of intra-national/local, inter-national and global cultural diversities decrease, as a country of a larger demand holds an increasingly high degree of cultural hub-ness.

Testing H3 is not based on the econometric analysis due to different cross-country and over-time dimensions involved the relevant variables. Specifically, cultural hub-ness is a concept defined within a country pair; the intra-national/local cultural diversity is defined per country and year; and the inter-national and global cultural diversities is defined per year. Therefore, I choose to observe the over-time trends of individual variables: first, I introduce appropriate measures for the three types of cultural diversity, and examine their trends over the sample years; and second, I also examine whether countries of larger demand have gained cultural hub-ness over the sample period. Also, the analysis is based only on Panel 1 since this panel covers a longer period of time compared to Panel 2.

First, the degree of intra-national/local cultural diversity is quantified based on the notion of proportionality in Chapter 2, which represents the state where countries have their output shares in each national market according to their global demand shares and could be considered as a sort of ‘fair’ state of market distribution of films by their countries of origin. Therefore the concept of intra-national/local cultural diversity cannot be simply measured by the Gini-Simpson index, which is set at maximum when all countries produce an equal share of output. For this reason I suggest that the degree of intra-national/local diversity be quantified by an overall discrepancy between a country’s

Table 6.3: Intra-national/Local and Global Cultural Diversities Over Time

	(1) D^{Local}	(2) D^{Global}
Year	-0.00568* (0.00153)	-0.00482* (0.000903)
N	182	14
F	18.18	28.54
R ²	0.585	0.717

Country-specific fixed effects included in (1); Standard errors in parentheses: * $p < 0.01$

global demand share and its market share in a national market. The measure is computed for each year and each national market in Panel 1 by using the box office revenues, as follows:

$$D_{it}^{\text{Local}} = 1 - \sum_j \left(\frac{R_{jit}}{\sum_j R_{jit}} - \frac{\sum_i R_{ijt}}{\sum_i \sum_j R_{jit}} \right)^2 \quad i, j = 1, \dots, 13$$

where R_{jit} represents the box office revenue of films produced in country j and consumed in country i , hence the left term in the parentheses computes the market share of country j in country i at year t , and the right term, the global demand share of country j . The measure is at maximum of unity when there is no discrepancy between the two terms in the parenthesis, i.e. when a national film market is at the state of proportionality; and becomes closer to zero as the discrepancy increases. Since the number of countries is fixed as thirteen in the sample, the above measure reflects the degree of balance, not variety. A simple regression of D^{Local} on years with the country-specific fixed effects indicates that the thirteen countries have been experiencing a decline on average in cultural diversity in their national film markets, as shown in Column (1) in Table 6.3. The coefficient is negative and significant at .01 level.

Second, the concept of global cultural diversity is also quantified based on the notion of proportionality, and its degree is considered to be at maximum when countries have their global output shares according to their global demand shares in the international film industry. In a two-country setting, the state of proportionality is equivalent to the autarky line in Figure 4.3, in which neither the home market effect nor

the hub effect take place. Again, the Gini-Simpson index is not appropriate to reflect the notion of proportionality. Therefore the degree of global cultural diversity is also measured by aggregating the overall discrepancy between the global demand and output shares, as follows:

$$D_t^{\text{Global}} = 1 - \sum_i \left(\frac{\sum_j R_{jit}}{\sum_i \sum_j R_{jit}} - \frac{\sum_j R_{ijt}}{\sum_i \sum_j R_{jit}} \right)^2 \quad i, j = 1, \dots, 13$$

where the terms in the parentheses represent the global demand and output shares of country i , respectively. Again, the measure is at maximum when the industry is at the state of proportionality. A simple regression of D_t^{Global} on years provides a negative coefficient statistically significant at a 0.01 level, as shown in Column (2) in Table 6.3. There are only fourteen observations because one measure is computed for each year. The global diversity has been in decline over the fourteen years, which indicates an increase in overall deviation from the state of proportionality in the global film industry.

Third, recall that inter-national cultural diversity as defined in Chapter 2 is the compositional disparity or dissimilarity among different national markets of cultural products categorised by their countries of origin. An increase or a decrease in the degree of the inter-national diversity can be considered as a matter of divergence or convergence among different countries' consumption patterns in terms of countries of origin of films. The difference in such consumption patterns between two countries can be assessed by using measures of dissimilarity. As noted in Chapter 2, the most commonly used measure of dissimilarity is Euclidean distance. Dissimilarity between consumption profiles of countries i and j , in which films have thirteen countries of origin, can be measured by the distance in thirteen-dimensional Euclidean space. Country i 's consumption profile can be described as a vector or a thirteen-dimensional Cartesian coordinate $\mathbf{s}_i = (s_{1i}, s_{2i}, \dots, s_{13i})$ and country j 's by $\mathbf{s}_j = (s_{1j}, s_{2j}, \dots, s_{13j})$, where s_{ij} denotes the box office shares of country i 's films in country j , and $i, j = 1, 2, \dots, 13$. The domestic share is represented by s_{ii} . The disparity between countries i and j can be measured by the following Euclidean distance:

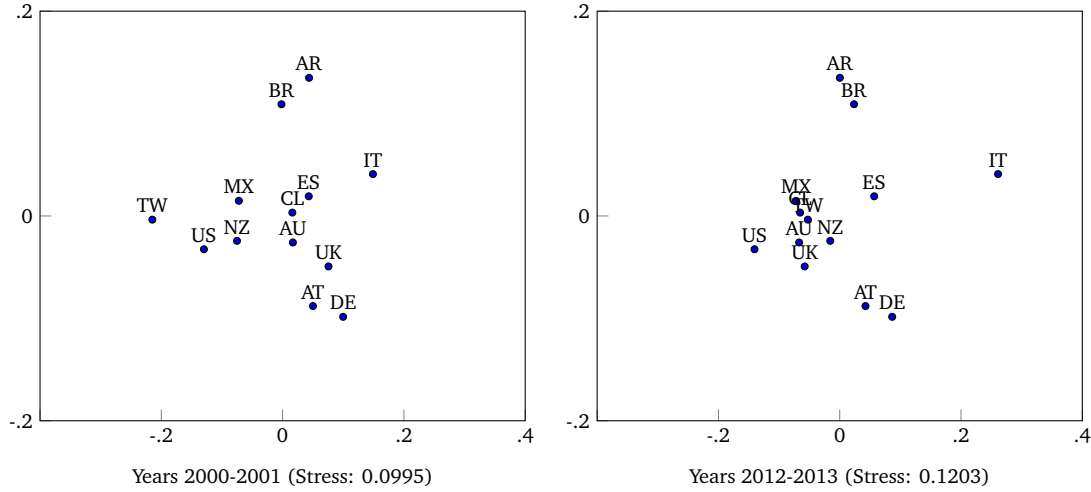
$$D_{ij} = \left\{ \sum_k (s_{ik} - s_{jk})^2 \right\}^{1/2} \quad k = 1, \dots, 13, \quad (6.5)$$

which provides 78 thirteen-dimensional distances amongst thirteen countries per year. However, it is difficult to identify the overall disparity among consumption patterns of the thirteen countries, i.e. it does not provide a summary measure of disparity for a given year. Therefore I use the multidimensional scaling (MDS) technique, which produces a visualised summary of multidimensional dissimilarity by reducing the number of dimensions, i.e. projecting the thirteen-dimensional distances onto a lower dimensional space.

Figure 6.1 presents the overall dissimilarity among the thirteen countries' film consumption patterns in terms of countries of origin of films in two different time periods, namely, 2000–2001 and 2012–2013. The modern MDS technique is used and the configuration is made onto a three-dimensional space in order to enhance the goodness-of-fit of the model. Only two dimensions are shown in Figure 6.1; the other combinations of two dimensions also show similar patterns. The goodness-of-fit of the model can be evaluated by the 'stress function' which measures the discrepancy between the actual Euclidean distances calculated in Equation (6.5) and the distances on the MDS configuration. The two MDS configurations in Figure 6.1 yield approximately 10 and 12 percent of stress, respectively, which indicates that the goodness-of-fit is about 'fair' according to the criteria suggested by Kruskal (1964).

An MDS model does not specify what the three dimensions represent, which therefore need to be interpreted by the researcher. However, in the present case the interpretation of dimensions is not necessarily required since the purpose is to compare the two periods and determine convergence or divergence among consumption patterns of different countries. The comparison of the two time periods in Figure 6.1 shows an overall convergence, except for a few countries such as Italy, Argentina and Brazil. Although not reported here, the Euclidean distances averaged over country pairs, computed as in Equation (6.5), declined over the two time periods. This convergence indicates a decrease in inter-national cultural diversity.

Figure 6.1: Inter-national Cultural Diversity Over Time

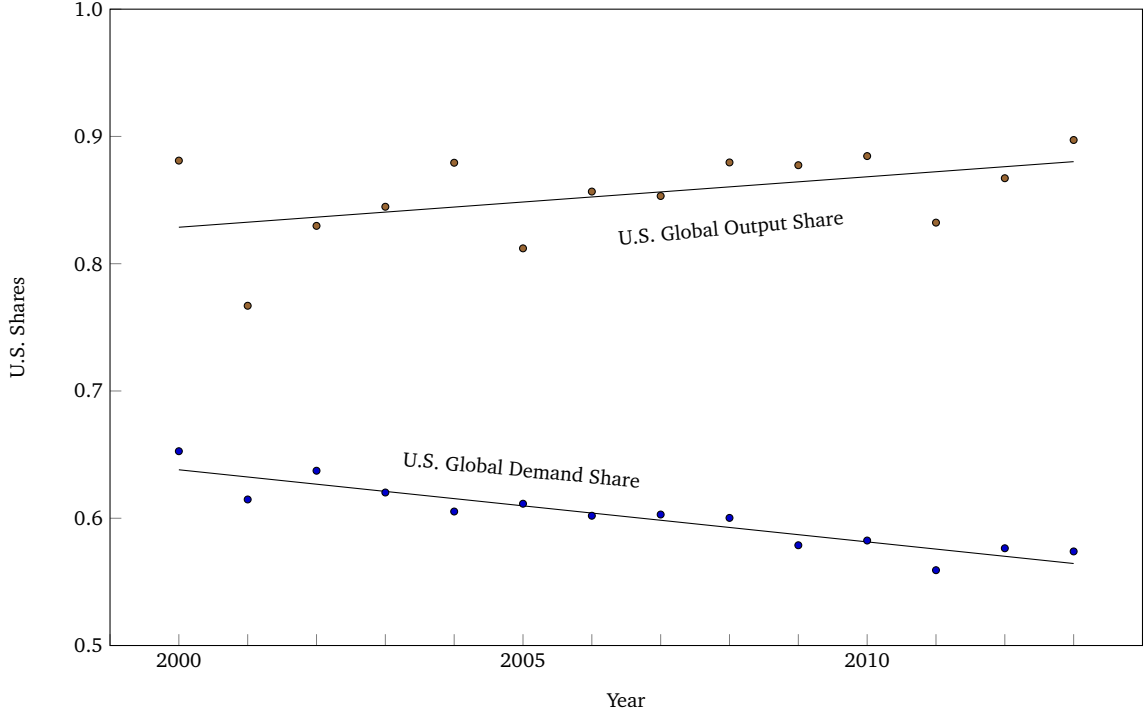


All three types of cultural diversity measured in the film industry seem to be in decline over the fourteen years of the sample period, which implies that the outcome of international film trade is becoming closer to the ‘pessimistic’ outcome in Table 2.1. In order to complete the investigation of H3, one needs finally to determine whether countries of larger demand have gained a stronger position of cultural hub. Although not reported in detail here, the biggest source of the declines in D^{Local} and D^{Global} over the sample years is the increasing discrepancy between the United States’ global demand and output shares. Its global output share and the average foreign market share have increased, while its global demand share has declined from 65 percent to 57 over the fourteen years, as shown in Figure 6.2. In other words, there are non-U.S. countries whose expansion in film demand shares did not lead to an increase in their output shares. The home market effect therefore does not explain this observation because a decrease in demand share is supposed to be associated with an even larger decrease in output share. This also corroborates Behrens et al.’s (2004) proposition that the home market effect is not definable as an over-time concept unless the trade barriers across all countries are equal.^{6.3}

So, I consider next the hub effect and the asymmetry in cultural discount, for

^{6.3}Note, however, that this does not dismiss the static home market effect or the home market effect across countries. Although its relative market size is decreasing, the U.S. is still the country of the largest global demand share in the world who produces the largest global output share.

Figure 6.2: Global Demand and Output Shares of The U.S. Films

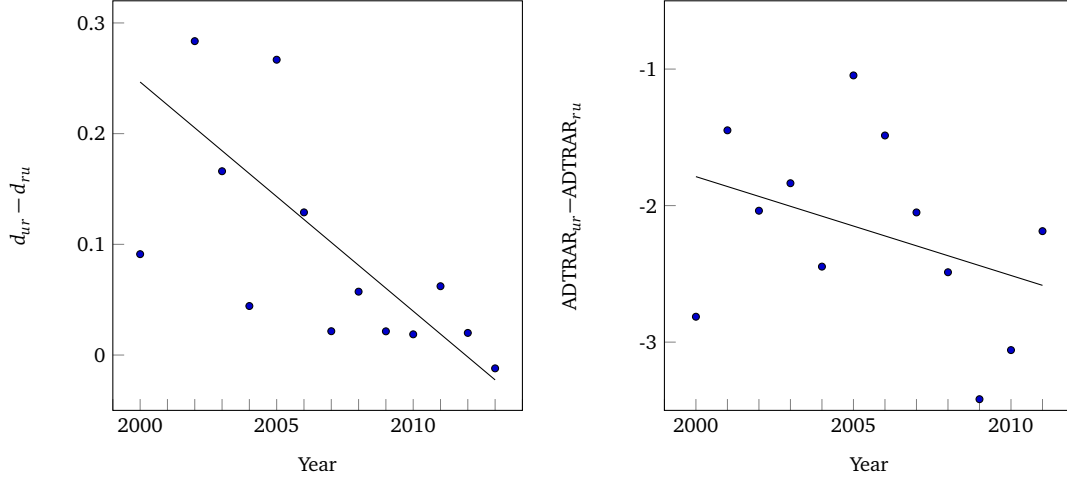


which I investigate the level of cultural hub-ness of the U.S. against the rest of the world. By using the measures of cultural discount developed in Section 5.2, namely, the freeness index and the adjusted tourist arrivals, the degrees of cultural discounting applied between the U.S. and the rest of the world are measured by the following:

$$\begin{aligned} d_{ur} &= \sum_i d_{ui} \cdot \lambda_i^{glob} \\ d_{ru} &= \sum_i d_{iu} \cdot \theta_i^{glob} \end{aligned} \quad (6.6)$$

where d_{ur} denotes the average freeness applied by the U.S. consumers on films from the rest of the world, weighted by each country's global output share λ_i^{glob} ; d_{ru} is the average freeness applied on the U.S. films by the rest of the world, weighted by each country's global demand share θ_i^{glob} ; d_{ui} and d_{iu} denote the freeness applied by the U.S. consumers on films from a non-U.S.

Figure 6.3: Cultural Hub-ness of The U.S. Films Against The Rest of The World



country i and that applied on the U.S. films by consumers from country i , respectively;

and

λ_i^{glob} and θ_i^{glob} are the global output and demand shares of country i .

The average freeness d_{ur} can be also considered as the amount of ‘appreciation’ that the U.S. consumers have of the non-U.S. films, while d_{ru} , the amount of ‘appreciation’ that the U.S. films receive from the non-U.S. consumers. Also, another set of measures is calculated in the same manner as Equation (6.6) by replacing d_{ur} and d_{ru} with the adjusted tourist arrivals $ADTRAR_{ur}$ and $ADTRAR_{ru}$.

As in Section 6.3, the direction and degree of asymmetry in cultural discount between the U.S. and the rest of the world is operationalised as the reciprocal variance, namely, $(d_{ur} - d_{ru})$ and $(ADTRAR_{ur} - ADTRAR_{ru})$. The over-time trends of the two measures are shown in Figure 6.3, in which $(d_{ur} - d_{ru})$ is presented on the left side and $(ADTRAR_{ur} - ADTRAR_{ru})$ on the right. A noticeable feature is that $(d_{ur} - d_{ru}) > 0$ while $(ADTRAR_{ur} - ADTRAR_{ru}) < 0$ in all sample years. The freeness applied by the U.S. on the rest of the world is higher than that applied on the U.S. films by the rest of the world. As previously discussed with respect to Figure 5.2, this could be because the freeness index may reflect all sorts of trade barriers including protectionist policy measures, and may be the result of the rest of the world implementing heavier policy barriers against the U.S. films than vice versa. The adjusted tourist arrivals from the U.S. to the rest of

the world are higher than those from the rest of the world to the U.S., which indicates that the rest of the world feels a higher level of proximity towards the American culture than vice versa.

The most important feature of Figure 6.3 is that both trends show a decline in the relative cultural proximity of the United States towards the rest of the world, which in turn means that the cultural proximity of the rest of the world towards American culture is relatively increasing. That is, the culture of the U.S. has been gaining its cultural hub-ness against the rest of the world over the sample years, which may be an explanation for why the three types of cultural diversities in the international film industry are in decline, given the proposition of the hub effect. Why or how the U.S. has been gaining its cultural hub-ness is not certain according to the present analysis. An account can be found in Walls and McKenzie's (2012) supply-driven explanation. They find support for the hypothesis that the increasing international performance of Hollywood films is due to their accommodation of global demand as the relative size of the U.S. domestic market has declined.

In sum, the hypothesis H3 is supported given the association between the declines in the three cultural diversities and the increasing level of cultural hub-ness of the U.S., the largest film market in the world.

6.4 Chapter Conclusion: Pattern of Trade and Cultural Diversity in Film Trade

In this chapter, I tested the three hypotheses derived in Chapter 3:

- H1** The home market exists in international trade in cultural products: a country of larger demand is a net-exporter while a smaller, a net-importer of cultural products, *ceteris paribus*.
- H2** The hub effect exists in international trade in cultural products: a country of cultural hub is a net-exporter, while a culturally peripheral country, a net-importer of cultural products, *ceteris paribus*.

H3 The degrees of intra-national/local, inter-national and global cultural diversities decrease, as a country of a larger demand becomes a cultural hub.

The empirical investigation of the above hypotheses is based on the two panel datasets constructed by using international cinema box office revenues. The two panels cover thirteen countries and fourteen years 2000–2013, and twenty four countries and six years 2008–2013, respectively.

The novelty of this empirical analysis is the development and application of the two asymmetric cultural discount measures. The first measure is a two-way version of the freeness index, popularly used to gauge the amount of bilateral trade barriers in international trade literature, which is computed based on the bilateral film trade volumes. This measure is advantageous in that it can directly reflect the amount of cultural discount in effect in the film trade. But it potentially suffers in two respects. First, the measure includes not only the degree of cultural discount but also other trade barriers such as policy measures. Second, it may create a collinearity problem if the demand and output shares are also generated based on the film trade volumes. Hence the second measure is externally constructed by using bilateral tourist arrivals statistics, as a proxy for preference across foreign cultures. Once economic factors such as geographical distance between the origin and destination and the real exchange rate are filtered out, the residuals are taken as a broad measure of cultural proximity. As construction of this second measure is based on non-film data, it does not suffer from the problems arising in the first measure; however it lacks data availability, and therefore decreases the number of observations.

The hypotheses H1 and H2 under the assumption of cultural discount are tested by using bilateral demand and output shares and the asymmetric cultural discount measures, based on the within and between estimation techniques. After accounting for the endogeneity issue and the third country effects, the coefficient of the demand share is found overall to be larger than one in the between estimation, but overall smaller than one in the within estimation. This may be interpreted as support for the cross-country home market effect; and against the over-time home market effect. Given that the slope coefficient is larger in Panel 1 with fourteen years than in Panel 2 with six years, however, it may be that the over-time home market effect requires a longer time period to take

place as reasoned by Head and Ries (2001). Also, the slope coefficients are less than one in two specifications in which the adjusted tourist arrivals are used as a cultural discount measure. This may be a result of the downward bias caused by the policy trade barriers unaccounted for in these specifications. This said, there is not sufficient evidence to reject H1 or the presence of home market effect under cultural discount.

In turn, the coefficient for the hub-ness of a larger country, measured as a reciprocal variance of cultural discount measures, is overall positive and significant in both within and between estimations. This indicates that the hub-ness of a larger country is positively associated with its output share. In other words, a larger country being a cultural hub solidifies the more-than-proportional relationship between demand and output shares, whereas a larger country being culturally peripheral casts a shadow on the home market effect so that the more-than-proportional relationship between demand and output share may become exact-proportional, less-than-proportional, or even reversely proportional. The higher a country's cultural hub-ness, the more it exports its cultural contents, which supports H2, or the presence of the hub effect under cultural discount.

Given that the hypotheses H1 and H2 are not rejected, or the home market effect and the hub effect are shown as two channels through which the trade pattern in cultural industries, in particular, in the film industry, is determined, one can infer that the 'pessimistic' trade outcome in Table 2.1 may occur as larger countries gain their cultural hub-ness, as hypothesised in H3. In investigating H3, I made three observations. First, by introducing appropriate measures for the three types of cultural diversity identified in Chapter 2 as relevant in this context, I find all three diversities are in decline over the fourteen years in the sample. Second, the biggest source of declines is the increasing discrepancy between the United States' global demand and output shares; in particular, its demand share is decreasing while its output share is increasing. Three, the cultural hub-ness of the U.S. against the rest of the world has been increasing, when computed using the cultural discount measures developed in Section 5.2. Considering these three observations together, and given the propositions of the home market effect and the hub effect, the declines in the three diversities can be associated with the U.S., the country of the largest film demand in the world, recently becoming a stronger cultural hub, which can be taken as support for H3.

CHAPTER 7

CONCLUSIONS, POLICY IMPLICATIONS AND SCOPE FOR FUTURE RESEARCH

This chapter concludes, derive some policy implications, and outlines the scope for future research.

7.1 Summary and Conclusions

This thesis set out to investigate the association between liberalisation of trade in cultural products and the level of cultural diversity in the context of the two opposing views on the free international flow of cultural expressions—namely, one with the claim that trade liberalisation serves in favour cultural diversity, and the other with the opposite claim. As introduced in Chapter 1, the two views largely disagree in two areas: in defining the term ‘cultural diversity’, and in understanding the relationship between trade liberalisation and the level of cultural diversity. Based this discrepancy between the two views, I raised two research questions: i) *What are the relevant definitions of cultural diversity in the context of international trade?*; and ii) *What determines the pattern of trade in cultural products?*

The first research question was investigated in Chapter 2 by examining various definitional issues of the term ‘cultural diversity’. I identified three types of cultural diversity as relevant in the context of international trade: i) intra-national/local cultural diversity, or variety, balance and/or disparity in a national market of cultural expressions; ii) inter-national cultural diversity, or compositional disparity across national markets of cultural expressions; and iii) global cultural diversity, or balance of the global market of cultural expressions based on the notion of proportionality. Based on the identification of the three types of cultural diversity, I argued that trade liberalisation can affect the three types of cultural diversity in different directions, and they cannot be at their maximums

at the same time. This implies a need to prioritise different types of cultural diversity, from which the first point of disagreement between the two views emerge. On one hand, the proponents of free trade in cultural products tend to understand cultural diversity in terms of the size of menu of choice, based on the individualist/economist perspective, therefore they tend to favour the intra-national cultural diversity over the other two. For this reason, economic analyses thus far have paid much more attention to the intra-national concept of cultural diversity. On the other hand, the opponents, largely found in humanities disciplines, tend to view cultural diversity in terms of collective value generated by cultural distinctiveness or a sort of ‘fair’ representation of different cultures, therefore they tend to value the inter-national or global concept of cultural diversity.

The contrast between the two views leads to a question: should economic analyses keep excluding the inter-national and global concepts of cultural diversity? Or, do these two cultural diversities have value to investigate from the economist point of view? I argued that they do, given that the inter-national and global cultural diversities also possess instrumental value from the economist perspective in the sense that cultural distinctiveness or a ‘fair’ representation of different cultures can be a source of richness in the future menu of choice. This said, I considered all three types of cultural diversity throughout the thesis.

The second research question was formulated from the second point of disagreement between the two opposing views. The proponents of free trade in cultural products tend to assume what I labelled the ‘optimistic’ outcome, in which two countries are engaged in balanced trade. In this trade outcome, intra-national diversity, the kind of diversity they favour, increases compared to autarky. Therefore they argue for a positive relationship between free trade in cultural products and the level of cultural diversity. The opponents, however, tend to assume what I labelled the ‘pessimistic’ outcome, in which one country becomes the only producer and exporter. In this case, the levels of inter-national and global cultural diversities, the kinds of diversity they favour, decrease. Thus, they claim a negative relationship between trade liberalisation and the degree of cultural diversity. In this regard, a rather appropriate question to ask is not whether trade liberalisation is negatively or positively associated with the level of cultural diversity, but rather how the outcome of trade liberalisation is determined.

So, the problem of the association between trade liberalisation and the level of cultural diversity was redefined as how the pattern of trade in cultural products is determined. And this question was theoretically investigated in Chapter 4, drawing upon the propositions from the literature of international trade and media/cultural economics. Specifically, I modified and extended the standard ‘new trade’ model of increasing returns to scale, product differentiation and monopolistic competition (Helpman and Krugman, 1985, Section 10.4) by incorporating two assumptions regarding the consumption of cultural products. First, I incorporated the notion of ‘cultural discount’ as another form of trade friction arising from the demand side, which refers to the tendency of consumers valuing less the foreign cultural contents due to their inability to fully appreciate them. Second, I also assumed the asymmetric fashion in cultural discounting behaviour, considering the commonly observed phenomenon that some country’s cultural contents are preferred in foreign cultures more than how much its consumers prefer foreign cultural contents.

The model predicts the pattern of trade in cultural products through two channels: the home market effect and the hub effect. The former is analogous to the reference model except that it occurs under the presence of cultural discount instead of transport costs; while the latter proposition is the novelty of the model caused by the assumption of asymmetry in cultural discount. Through the home market effect, given the asymmetry in economy size between trading partners and the *ceteris paribus* condition, a larger economy becomes the dominant producer and a net-exporter of cultural products. This is so because more firms choose to produce a variety of cultural product that reflects the larger economy’s culture in order to minimise the aggregate cultural discount applied on its variety, which is analogous to the reference model under the presence of transport costs. In turn, through the hub effect, given the asymmetry in cultural discount between trading partners and *ceteris paribus*, a country positioned as a cultural hub, whose cultural products are culturally discounted by foreign consumers less than their consumers discount foreign cultural contents, becomes the dominant producer and a net-exporter. And this is so because firms choose to produce a variety of cultural product that reflects the cultural hub’s culture in order to minimise the aggregate cultural discount applied on its variety. I pointed out that the two effects are interpreted as homogenisation of cultural contents towards the larger economy’s or the cultural hub’s culture, which does

not technically involve a geographical concentration since no physical transport costs are assumed. However, the occurrence of geographical concentration can accompany the homogenisation of cultural contents if one additionally considers the external scale economies or benefits from clustering of firms.

The home market effect and the hub effect were empirically tested in Chapter 6 by examining international film industry data, based on the within and between specifications from Head and Ries (2001) that relates demand and output shares over time and across country pairs respectively. As an extension to the specification, I additionally included a measure of asymmetric cultural discounting, which made it possible to separately reveal the home market effect and the hub effect. Two measures of asymmetric cultural discount were developed: one based on the popular freeness index that reveals the overall level of trade barriers including potentially both cultural discount and other policy barriers, and another based on the two-way tourist arrival statistics, which measures the degree of cultural proximity in a broad sense. Accounting for technical issues such as endogeneity and the third country effect, I did not find sufficient evidence to reject the presences of the home market effect and the hub effect.

Given the presence of both effects, it was hypothesised that the ‘pessimistic’ outcome becomes more likely if a larger economy also holds a position of cultural hub, such that the home market effect and the hub effect occur in the same direction. On the other hand, the ‘optimistic’ outcome becomes a possibility if a larger economy is culturally peripheral such that the two effects take place in opposite directions, cancelling each other out. In other words, all three types of cultural diversity would decline as a larger economy becomes a stronger cultural hub. I investigated this issue by examining the current trends of the three types of cultural diversity and the cultural hub-ness of the largest film market in the world, i.e. the United States. The three types of cultural diversity showed declines over the sample years, the biggest source of which was the United States’ increasing global market share; and the United States’ cultural hub-ness, measured based on the freeness and the tourist arrivals statistics, showed an increase over the sample years. Given the presence of the home market effect and the hub effect, it was inferred that the current declines in the three cultural diversities in the international film industry may be caused by the strengthening position of cultural hub held by the U.S., the largest film market in the world. That is, the current situation in

the international film industry is rather ‘pessimistic’ than ‘optimistic’. This shows that a country of a small demand is likely to be under-represented locally and globally if it does not hold a sufficient amount of accessibility from its trading partners of larger demand, which is quite intuitively obvious but never has been seriously considered in the literature on trade in cultural products.

7.2 Policy Implications

As noted earlier, this thesis refrains from prioritising the three types of cultural diversity. However, presuming that all three have some value to pursue from the perspectives of national governments as well as of the global community, a couple of policy implications can be derived from the present thesis.

The first is in regard to how to approach the problem of trade liberalisation and cultural diversity. Given the instrumental value that the inter-national and global cultural diversities possess in terms of their potential to enrich the future menu of choice, the problem of trade liberalisation and cultural diversity does not necessarily have to be approached as an either-or choice between achieving economic efficiency and safeguarding cultural identities, or a clash between economic and non-economic objectives. Instead, it can also be understood as a problem of inter-generational equity, or a problem of how to maintain ‘cultural sustainability’ between generations (Throsby, 1997). In this sense, loss in inter-national and global cultural diversities might be seen as considerable costs from an economic perspective, in the same way as negative environmental impacts of economic activities are being considered nowadays as economic costs in the policy making processes (Throsby, 2008a).

The second policy implication is related to how to find a resolution between the two opposing views on free trade in cultural products. As mentioned in Chapter 1, the two views do agree that a higher level of cultural diversity—although understood differently—is better. With this said, the two views can agree that what I labelled the ‘pessimistic’ outcome, in which all three cultural diversities are at their minimums, is something to avoid.

Then how can one avoid the ‘pessimistic’ trade outcome? This thesis showed that the ‘pessimistic’ outcome occurs if countries of larger demand also hold a sufficiently strong position of cultural hub, or if the home market effect and the hub effect occur in the same direction to the extent that the larger country becomes the only producer of cultural products.^{7.1} In a theoretical sense, the ‘pessimistic’ outcome can be avoided in two ways. First, countries of smaller demand can increase demand for cultural products, which may lead to weakening the home market effect. And this seems to occur rather naturally in the course of economic development. It has been reported that cultural consumption increases with per capita income. However, as shown in the case of the film industry, increased demand in smaller non-U.S. countries did not lead themselves to gain a higher global output share, because of the United States’ strengthened cultural hub-ness. Therefore, and second, smaller countries can enhance their cultural-hubness against larger countries. In this sense, the provisions for ‘protectionist’ measures in the UNESCO Convention on Cultural Diversity has support from this thesis as long as those measures are used by smaller economies and given that the goal is to avoid the ‘pessimistic’ situation. The effects of these measures can lead to two different directions. First, such policy instruments may lead to what is labelled the ‘optimistic’ outcome if they are used to promote cultural accessibility, for example through subsidies for presenting local cultures abroad or inviting foreign artists to produce something inspired by local cultures. Second, if they are simply used to ban imported cultural products with no influence on the level of cultural hub-ness, the situation may become closer to autarky. Again, the resulting situation depends on how policy makers prioritise between the intra-national/local and inter-national notions of cultural diversity, and is an arguable matter. However, from the economist’s point of view, the former policies seem to be a better option in the long term, although the latter may be used as a temporary solution (Bhagwati, 2000).

^{7.1}According to the model developed in Chapter 4, the pessimistic trade outcome can also occur when the home market effect and the hub effect occur in the opposite directions if the hub effect is sufficiently large to the extent in which the smaller economy becomes the only producer. However, this seems unlikely in reality.

7.3 Limitations and Scope for Future Research

I identify two particular areas raised in thesis that call for further investigation.

7.3.1 Pattern of Trade in Cultural Products

There could be several ways to extend the present analysis regarding the pattern of trade in cultural products. First, the concept of asymmetry in cultural discount, the key assumption used in the present thesis, was presumed to be exogenous. In this regard, how the direction and degree of asymmetry in cultural discount are determined would be an interesting question. As discussed in Chapter 3, the degree of asymmetry in cultural discount may well be influenced through different channels. From the production side, some cultural products are readily subject to low cultural discount due to the different incentive structures that producers face. And from the consumption side, the cultural discount factor may well be lowered due to consumption externalities and addictiveness as consumers become more exposed to foreign cultural contents. The latter implies that the degree of asymmetry in cultural discount is influenced by the current distribution of cultural products and therefore is subject to a dynamic process. In this regard, the theoretical model could be extended to a dynamic one that endogenises the degree of asymmetry in cultural discount.

Second, another direction of extension of the present analysis could be made towards the multilateral setting of the model. As discussed in Chapter 6, the home market effect hypothesis does not survive through the multilateral extension as proposed by Behrens et al. (2009), who assumed symmetric trade barriers within a pair but asymmetric barriers across country pairs. It would be interesting to investigate the home market effect and the hub effect in the case where the asymmetry is present also within a country pair.

Third, the present analysis made a strong assumption of symmetry across firms who produce varieties of a cultural good. However, firms vary in the level of productivity, and in the degree of increasing returns to scale technology given the varying fixed costs to produce an original. Especially, the audio-visual sector is known for its high risk in

which the mean performance at the film level is characterised by a strongly right-tailed distribution (De Vany and Walls, 1999; Fernandez-Blanco et al., 2012). In this sense, and it would be of interest to apply the model of Melitz (2003) that investigates intra-industry trade with the assumption of heterogeneity in firms, as pointed out by Iapadre (2014).

Fourth, the present thesis considered the world trade in films where the U.S. holds the dominant position. It would be interesting to investigate the pattern of trade in cultural products within different regions of the world where trade flows are not dominated by the products of a single country.

7.3.2 Welfare Impacts of Cultural Diversity

Given the positive analysis conducted in the present thesis, further exploration is called for with regard to the welfare impacts of different types of cultural diversity. As mentioned in Chapter 1, the general perception towards the concept of cultural diversity is that a higher level of cultural diversity is better. However, this general perception can be refuted in some ways. First, regarding the inter-national cultural diversity, the statement that the greater the menu of choice the better seems to have been challenged in psychology. For example, a menu that is too big can be ‘demotivating’ (Iyengar and Lepper, 2000): consumers decide not to decide on what to buy and give up on the purchase (Schwartz, 2004). Second, regarding the intra-national and global cultural diversity, the higher level of cultural distinctiveness can also have negative influence on collective welfare, if cultural distinctiveness amongst cultural products can be considered to represent that amongst individuals. Co-existence of highly distinctive cultures may be an important source of innovation and creativity, but it can also be related to political unrest and social conflicts (Alesina and La Ferrara, 2005). In this sense, it would be of interest to investigate whether the concept of an ‘optimal’ degree is applicable to different types of cultural diversity.

7.4 Concluding Remark

The two areas that have been the subject of study in this thesis—cultural diversity and international cultural trade—have been of theoretical and practical interest for some time. It is ten years since the adoption of the UNESCO Convention on Cultural Diversity (2005) and even longer since the UNESCO Universal Declaration on Cultural Diversity (2001). It is much longer still since the concept of the cultural exception in international trade was first proposed. Yet despite the longstanding interest in these fields, they both continue to raise significant policy issues at both national and international levels today. In bringing these two fields together, I hope that this thesis illustrates how the tools and methods of economic theory and analysis can illuminate important policy questions that are being faced in the contemporary world.

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Appendices

A.1 List of Variables and Summary Statistics

Variable	Description
θ_{ij}	Country i 's demand share in relation to country j
λ_{ij}	Country i 's output share in relation to country j
d_{ij}	Degree of freeness or cultural proximity that country i applies on the smaller country j 's films
d_{ji}	Degree of freeness or cultural proximity that country j applies on the smaller country i 's films
$d_{ji} - d_{ij}$	Degree of cultural hub-ness of the larger country i measured by difference in freeness
$ADTRAR_{ij}$	Adjusted tourist arrivals that the smaller country j received from the larger country i
$ADTRAR_{ji}$	Adjusted tourist arrivals that the larger country i received from the smaller country j
$ADTRAR_{ji} - ADTRAR_{ij}$	Degree of cultural hub-ness of the larger country i measured by difference in adjusted tourist arrivals
MP_i	Market potential of the larger country i
MP_j	Market potential of the smaller country j

Variable	Panel 1					Panel 2				
	Obs	Mean	S.D.	Min	Max	Obs	Mean	S.D.	Min	Max
θ_{ij}	1656	0.8428	0.1708	0.0566	0.9999	1092	0.8333	0.1802	0.0238	1.0000
λ_{ij}	1656	0.8499	0.1734	0.0566	0.9999	1092	0.1667	0.1802	0.0000	0.9762
d_{ij}	1656	0.0370	0.1021	0.0000	0.8805	1092	0.1412	0.2468	0.0000	1.0000
d_{ji}	1656	0.0170	0.0430	0.0000	0.5426	1092	0.0484	0.1191	0.0000	1.0000
$d_{ji} - d_{ij}$	1656	-0.0202	0.0889	-0.8075	0.2444	1092	-0.0928	0.2143	-0.9993	0.3633
$ADTRAR_{ij}$	769	2.2773	3.8995	0.0002	34.5814	654	1.8917	2.8736	0.0175	15.6957
$ADTRAR_{ji}$	727	4.9309	10.8269	0.0022	86.7628	613	3.8391	6.3412	0.0207	35.6091
$ADTRAR_{ji} - ADTRAR_{ij}$	580	3.0605	9.1472	-13.4340	58.3637	515	1.9250	4.9216	-8.3230	23.9926
MP_i	1656	0.0753	0.1151	0.0000	0.5035	1092	0.1758	0.2455	0.0003	1.8408
MP_j	1656	0.0537	0.0966	0.0000	0.5035	1092	0.1866	0.2621	0.000	1.8408

A.2 Results for Equation 5.6

$\ln \text{TRAR}_{ij}$	Panel 1	Panel 2
$\ln \text{DIST}_{ij}$	-1.378*** (0.119)	-1.550*** (0.0805)
$\ln \text{POP}_i$	0.467*** (0.126)	0.595*** (0.0799)
$\ln \text{rPPP}_{ji}$	-0.749** (0.306)	-0.329* (0.195)
constant	15.90*** (2.268)	14.45*** (1.449)
N	1267	1496
F	26.59	78.03
R ²	0.520	0.489

Standard errors in parentheses; Year fixed effect accounted for; Clustered robust t-statistics used; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

A.3 First Stage Results for Table 6.2

θ_{ij}	Within Estimation			Between Estimation		
	(1)	(2)	(3)	(4)	(5)	(6)
GDP Share _{ij}	0.395*** (0.0754)	0.486*** (0.101)	0.532*** (0.146)	0.650*** (0.0754)	0.588*** (0.0360)	0.589*** (0.0563)
constant	0.533*** (0.0574)	0.475*** (0.0769)	0.444*** (0.110)	0.340*** (0.0501)	0.397*** (0.0280)	0.401*** (0.0435)
N	1092	1656	630	78	276	105
F	27.51	22.93	13.27	101.8	267.3	109.3
r2_o	0.373	0.378	0.419	0.373	0.378	0.419
r2_b	0.573	0.494	0.515	0.573	0.494	0.515
r2_w	0.0264	0.0164	0.0247	0.0264	0.0164	0.0247

Standard errors in parentheses; *** $p < 0.01$