INTERNATIONAL TRADE AND CULTURAL IDENTITY

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ABSTRACT

Economists emphasize the benefits from free trade due to international specialization, but typically have a narrow measure of what matters to individuals. Critics of free trade, by contrast, focus on the pattern of consumption in society and the nature of goods being consumed, but often fail to take into account the gains from specialization. This paper develops a new framework to study the effects of trade liberalization on cultural identity, which emerges as the result of the interaction of individual consumption choices, similar to a network externality. In a Ricardian model of international trade the paper shows that (i) trade is not Pareto inferior to autarky if the free trade equilibrium is unique, (ii) trade is not Pareto superior to autarky if the world is culturally diverse under free trade, but can be if the world is culturally homogenous, (iii) and when multiple free trade equilibria exist everybody in a country can lose from free trade if that country is culturally homogenous under autarky. Consumers of imported cultural goods tend to gain, while consumers of exported cultural goods tend to lose from trade liberalization.

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1   Introduction

To most economists the benefits from international trade and the globalization process are clear and significant. Consumers gain when countries specialize according to their comparative advantage and factors flow to their most productive use. The general public and many politicians are often more skeptical. The doubts are not constrained to non-academics however. A casual look at other social sciences like sociology and political science, or more generally the humanities, shows deep concerns over globalization and trade liberalization.[1] Even superficial examination of the related literatures reveals an interesting, if little acknowledged fact. Economists and their critics seem to speak about different phenomena, even though they both refer to globalization.[2]

For economists globalization and trade liberalization are good because physical output increases as the result of international specialization, which in turn enlarges the consumption set and hence makes individuals better off. By contrast, many critics are not so much concerned about the quantity of physical goods being consumed. Rather they fear that the globalization process erodes national cultures and individual identities. From that standpoint, the increase in physical consumption of mass produced goods of western origin like McDonalds hamburgers, Hollywood movies, and pop music, is seen as negative because it crowds out self-produced or locally manufactured goods. Traditional life-styles vanish.[3] This argument is popular both in many developing countries and in industrialized countries like France. Whereas economists do not attach any value *per se* to consuming locally produced goods, this is an essential part for the survival of national or regional cultures, according to the critics' view. To risk oversimplification, one might say that economists do not care about what is consumed, but about how much, whereas many globalization critics care about

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[1]It is impossible to give an overview of the literature in other social sciences. Three books comprising articles from various authors may give an indication however; Lamberton (2002), Chan and McIntyre (2002), and McAnany and Wilkinson (1996).

[2]A simple search on www.jstor.org confirms the point. A full-text simultaneous search for the terms "globalization" and "culture" produces 15 hits among 22 economics journals for the entire period, but 145 hits in 86 journals in Anthropolgy, Language and Literature, and Sociology for the 1990-1995 period alone.

[3]For a sociology perspective on this see Castells (1997). The following quote from Akande (2002) expresses the point very clearly as well. *...globalized "cultural" industries are taking over traditional forms of creation and dissemination of culture. Local culture's role as a spontaneous and integral part of people's life is eroded and it ceases to serve as the means of constructing societal values, reproducing group identity and building social cohesion. The end result becomes global integration at the expense of local disintegration.* See also Tardiff (2002).

society's pattern of consumption, and rank the amount of consumption as second order.

Economists may react to this observation in several ways. One response is to dismiss most of the globalization critics' arguments as many of their academic studies lack the rigor of a theoretical model and the systematic evidence that economists derive from econometric studies.[4] Another response might be to view the different approaches by economists and non-economists as an efficient process of specialization in itself. Let economists worry about the gains from trade, while the humanities deal with cultural aspects. This paper takes a third approach by taking the critics' views seriously for two reasons. First, economists cannot win the debate over globalization without properly responding to the concerns of globalization critics - even if the arguments are often not well formulated.[5] The second reason is that cultural aspects do matter in real life to most people. Economists often hesitate to incorporate cultural aspects, perhaps because of the difficulty in how to capture it both theoretically and empirically.[6] The third approach turns out to be useful as it leads to novel insights about the gains from trade and the identity of gainers and losers from trade liberalization.

The key innovation of the paper is to formalize the notion of cultural identity and incorporate it into a Ricardian model of international trade. To this end, I adapt the formalization of identity as introduced by Akerlof and Kranton (2000), who show that the notion of identity can explain many labor and other market phenomena better than traditional models. They do not consider aspects of international trade. For the present paper, individual identity is a function that involves an individual's own and all other individuals' consumption choices. I ignore the process of identification which is the term used by psychologists to describe the assertion of one own's norm if other violate the norm (I return to this issue in section 5). The present identity function therefore works like a network externality.[7] Individuals must choose between consuming either one of two cultural goods. The loss in identity is zero if all

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[4]For example, a typical weakness of globalization critics' argument is that it does not refute the economist's argument of revealed preference. If consumers around the world choose to eat popcorn while watching a Hollywood movie, the observation suggests *prima facie* that consumers must be better off than when consuming a local movie and traditional food.

[5]This is in line with a recent paper by Paul Segerstrom (2003), who examines the arguments of globalization critic Naomi Klein. In the cultural context Cowen (2002) provides anecdotal evidence for the benefits of globalization and the survival of indigenous cultures.

[6]An exception is the paper by Lazear (1999) who analyzes the role of language and cultural assimilation.

[7]The idea of network externalities within an industrial organization context goes back to Katz and Shapiro (1985).

individuals within a country consume the same cultural good (called *cultural homogeneity*). An example may illustrate my approach. Often people perceive certain consumption behavior with a specific country: The French drink wine, while Germans drink beer. Similarly, viewing the same movie (or, more generally, the same art exhibition, theatre performance, etc.) creates a bond among people because it allows them to talk about a common experience. Yet people differ in their taste for cultural goods and thus may consume the other cultural good (which leads to *cultural diversity*), i.e. some French drink beer. The degree of non-conforming behavior depends on the difference in prices of the cultural goods as well as the social punishment, perhaps expressed as disrespect by others and leading to feeling of shame by the non-conforming individual. Trade liberalization changes the relative price of cultural goods, which in turn drives social consumption behavior and therefore indirectly also the amount of social punishment, as the latter is a function of how many people conform to the norm.

Incorporating the above notion of identity in a model of international trade based on technological differences allows me to analyze when and why the argument for open borders is strong. Recall that in a standard Ricardian model free trade is always (weakly) Pareto improving relative to autarky as countries specialize according to their comparative advantage. Consistent with this framework all results are derived under the assumptions of perfect competition, constant returns to scale, and in addition identical factor endowments. The first main result of this paper proves that in the presence of cultural identity trade is not Pareto inferior to autarky if the free trade equilibrium is unique. While changes in a society's pattern of consumption due to trade liberalization have the potential to make an individual worse off, there are some individuals who are better off either from the traditional gains from trade due to efficient specialization, or from a favorable shift in consumption pattern, or from both. This is true regardless of whether the country is culturally homogenous or diverse before and after opening borders, as long as there are not multiple equilibria (more on this below).

The second main result shows whether and when trade liberalization is Pareto improving: When the world is culturally diverse under free trade, trade is not Pareto superior to autarky. To understand this result note that cultural diversity is a double-edged sword. On the one hand it indicates that the distribution of tastes for different cultural goods is sufficiently

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wide relative to the price difference of the goods. On the other hand, the diversity in consumption choices implies a loss in identity. Under free trade the identity loss effect becomes more prominent for some individuals who continue to consume the same cultural good after borders open up. Yet, trade can be Pareto superior to autarky. This happens when the world is culturally homogenous under free trade, thereby eliminating the losses in cultural identity. Trade is not always Pareto superior, however, because cultural homogeneity comes at a price. Individuals with strong taste preference for one cultural good may find it advantageous to give up the consumption of their favored good if the rest of society prefers the other, but would have been better off under autarky, when more individuals conform with their choice.

The last main result focuses on the welfare effects in a single country. Everybody in a country can lose when the country is culturally homogenous under autarky. Since the other country is by assumption more efficient in producing the other cultural good, free trade is consistent with cultural homogeneity in either of the two cultural goods for some parameter values. When the two equilibria can be ranked in terms of individual welfare for one country, it is possible that the economy moves from the unique, superior and culturally homogenous equilibrium under autarky to the worse culturally homogenous equilibrium under free trade. Note that this can occur only if the distribution of tastes is small relative to the loss of identity if an individual deviates from the social norm. The above case also opens up the possibility that trade is Pareto inferior to autarky, which happens if the other country is homogenous in the same good before and after trade liberalization (and hence those individuals are indifferent between closed and open borders).

Together the results highlight the importance of consumer choices, which is in contrast to traditional thinking by trade theorists. Economists have known for a long time that trade liberalization has distributional effects. In a simple Heckscher-Ohlin model a country's scarce factor loses from trade liberalization, while the abundant factor gains. By contrast, in the present context the gainers are those individuals who before *and* after trade liberalization consume the cultural good that is imported under free trade because of the favorable shift in society's consumption pattern and the traditional gains from trade. The individuals who consume the export good under free trade lose when the society's consumption pattern changes in favor of the imported cultural good. This prediction seems consistent with the

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observation that opponents of trade liberalization are often the consumers of the good that is domestically produced and exported (e.g., French farmers oppose McDonalds).

The theoretical literature on trade in cultural goods is fairly small, but increasing. Three papers are close to the present undertaking, although different at the same time. Francois and van Ypersele (2002) argue that under certain conditions protection of cultural goods can be Pareto improving. Using trade in movie pictures as an example, consumers have by assumption identical valuations for Hollywood produced movies, but differ in their valuations of local, non-Hollywood movies. A key assumption is that individuals are interested only in the local movies produced in their own country. Since movie production requires spending of fixed costs, local non-Hollywood movies may be driven out of the market depending on the taste distribution and fixed costs. A tariff on Hollywood movies can be Pareto improving because it makes local movies viable in both markets. The distribution of preferences plays an important role in the present model as well. However, unlike Francois and van Ypersele's model increasing returns to scale on the producer side do not drive the results here.

In another recent contribution Bala and Van Long (2003) analyze the effects of trade on cultural diversity. Their model and mechanism of preference interaction is however different from mine. Using replicator dynamics, they assume that the number of individuals preferring one type of good over another depends on the fraction of people having the same preference in the previous period as well as the relative price of the two goods. Trade may lead to the extinction of one preference type, depending on the relative endowment of each good and country size. In contrast to their approach the present paper derives the interaction of individual behavior more directly by borrowing from a framework that finds support in the psychology literature. In addition, the lack of cultural diversity is not driven here by differences in country size or relative endowments, but rather by differences in technology. I also provide a complete welfare analysis.

Yet another recent contribution is Suranovic and Winthrop. They explore two ways of incorporating culture into a Heckscher-Ohlin model to examine the effects of trade liberalization. The first one gives workers in a particular industry an additional gain beyond the wages paid. The second version is more similar to the present one by assuming that workers receive an additional benefit from society's consumption of a particular good. Unlike the present paper, however, there is no taste heterogeneity for different cultural goods and no possibil-

ity for individuals to collectively gain when the majority consumes the imported cultural good. This biases the results against trade liberalization and leads directly to protectionist arguments.

The rest of the paper is organized as follows. The next section introduces the model and derives some preliminary results that hold both in the closed and open economy. Section 3 provides a characterization of the equilibria under both situations, which is followed in section 4 by the welfare analysis. Section 5 extends the model in various direction, while the final section concludes.

2 The Model

2.1 Model Description

In this section a simple two-country Ricardian model of international trade is set up. In contrast to a standard Ricardian model I assume that individuals care about other individuals' choices, which gives rise to an individual identity function. This is explained in more detail below. In order to focus on understanding the relationship between trade liberalization and identity I abstract from increasing returns to scale and from country asymmetries other than differences in technology.[8] Each country produces three goods x, y, and z, using a linear technology with labor as the only input. The production functions for Home and Foreign are

$$X = \frac{L_x}{a_x}, \quad Y = \frac{L_y}{a_y}, \quad Z = \frac{L_z}{a_z}$$

$$X^* = \frac{L_x^*}{a_x^*}, \quad Y^* = \frac{L_y^*}{a_y^*}, \quad Z^* = \frac{L_z^*}{a_z^*},$$

(1)

where $L_i, i = x, y, z$, is the quantity of labor used in each industry and a_i is the unit labor requirement coefficient in Home, and similar for Foreign. An asterisk denotes foreign country variables. All markets are perfectly competitive.

In each country there is a continuum of consumers of size one. Each individual supplies one unit of labor inelastically. In what follows I focus on the description of Home. Each

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[8]Some asymmetries are discussed in section 5.

consumer may purchase good z (the noncultural good) and one unit of either good x or y (the cultural goods).[9] One way to think about this setup is to see goods x and y as differentiated products in an industry (say beer and wine, or Hollywood movies and locally produced movies), and each person consumes only one of the two. The unit purchase restriction simplifies the analysis and the introduction of individual identity. Good z is a composite consumption good, comprising all other goods in the economy.

Assume that individual preferences are given by

$$U(b) = c_z + \begin{cases} b + \widetilde{I} - (1-\lambda)I & \text{if individual consumes good } x \\ \\ \widetilde{I} - \lambda I & \text{if individual consumes good } y \end{cases} \tag{2}$$

where c_z is the amount of good z consumed, b is a preference parameter that is uniformly distributed on $[-\overline{b}, \overline{b}]$ for $\overline{b} > 0$. As motivated by Akerlof and Kranton (2000), $\widetilde{I} - (1-\lambda)I$ is the *identity function* when the individual buys good x, and $\widetilde{I} - \lambda I$ if the person consumes good y. The parameter $\widetilde{I}$ is the base identity level that each individual obtains. I assume that $\widetilde{I}$ is sufficiently large so that consumption of a cultural good dominates consumption of the noncultural good only. If this holds, $\widetilde{I}$ plays no further role, as it becomes a constant in the utility function. Identity is reduced by an amount that depends on the pattern of consumption in society. Let $\lambda \in [0,1]$ be the number and thus fraction of society that consumes good x. If Home's norm is to consume good x, then individuals who consume good x suffer from each individual that deviates from the norm and consumes good y in the amount of $I > 0$. Each x consumer's total loss in identity is $(1-\lambda)I$. Clearly, when all individuals consume x, there is no identity loss. Moreover, if a person violates the norm and consumes good y, then the individual inflicts an identity loss λI onto itself, that is larger the more individuals consume good x.[10] An alternative interpretation of the utility function

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[9]Assumptions introduced later will guarantee that consumption of good z only or the cultural good only will be dominated by consumption of both types of goods. In this sense cultural good consumption is essential and affordable.

[10]Compared to Akerlof and Kranton (2000) the identity function is more complex because there are more than two individuals. At the same time, I simplify the identity function by assuming that the identity loss parameter I is the same regardless of whether the person consumes x or y. Akerlof and Kranton allow for the possibility that when the social norm is to consume x, the loss parameter is I_o (o for other) for every other consumer who consumes good y. Similarly, when deviating from the norm by consuming y, the loss parameter is I_s (s for self) to indicate the self-inflicted loss in identity. *A priori*, there is no restriction on the relative size of the two parameters. For the present purpose, it is useful to assume that the two are the same. As mentioned in the introduction, I ignore the process of identification, which psychologists use to describe the additional actions taken by those whose norms are violated by others to reconfirm their values.

(2) is to see it as a consumption or network externality.

Let the price of good i be p_i, an individual's budget constraint reads

$$w = p_z c_z + \begin{cases} p_x & \text{if person buys good } x \\ p_y & \text{if person buys good } y \end{cases} \tag{3}$$

where w is the wage rate and thus income, given the assumption that each person inelastically supplies one unit of labor.

Before I analyze optimal consumption choices, I introduce the following assumption. The productivity in cultural goods production is sufficiently high in both countries such that a single country could serve world demand if the world population consumes the same cultural good. Since world population is two, this amounts to assuming $(a_x, a_y, a_x^*, a_y^*) < 1/2$. In equilibrium therefore each country must produce positive levels of the noncultural good. In addition, the technology assumption ensures that noncultural good consumption must be nonnegative as well everywhere. To see this, note from budget constraint (3) that for $i = x, y$

$$c_z = \frac{w - p_i}{p_z} \geq \frac{w(1 - a_i)}{p_z} > 0,$$

because the price of a cultural good p_i can never exceed Home's production cost in equilibrium (wa_i). This completes the description of the model, which is identical to a standard Ricardian model except for the interdependent consumption behavior.

2.2   Preliminary Results

The equilibrium notion is straightforward. An *autarky equilibrium* is a vector of industry labor inputs and outputs $\{L_{i=x,y,z}, X, Y, Z\}$, a consumption tuple for each individual, consisting of c_z and the variety of the cultural good consumed (x or y), a price vector $\{p_i, w\}_{i=x,y,z}$, and a critical value $\widehat{\lambda}$ such that (i) all national goods markets and the national labor market clear given prices and $\widehat{\lambda}$, (ii) firms' input-output choices are feasible and maximize profits given the price vector, and (iii) individual consumption choices are feasible and maximize utility taking $\widehat{\lambda}$ and prices as exogenous. In addition, the following must be true: (iv) the number of individuals who prefer buying x based on (iii) must equal $\widehat{\lambda}$. The last condition is the only true novel aspect compared to a standard Ricardian trade model, and amounts together with (iii) to a fixed point requirement.

A *free trade equilibrium* has the same qualitative structure as the autarky equilibrium, with the difference that goods markets are integrated, that is, (i') national labor markets clear and international markets for cultural and noncultural goods are balanced. Each country has its own critical value, $\widehat{\lambda}$ and $\widehat{\lambda}^*$, but because of symmetry of preferences and endowments the two will coincide, as shown later. In the remainder of this section I derive properties that both autarky and and free trade equilibria must satisfy, namely conditions (ii) to (iv).

Before solving for the equilibrium, it is useful to introduce a new terminology.

Definition. A country is called *culturally diverse* if $\widehat{\lambda} \in (0,1)$, and *culturally homogenous in good $x(y)$* if $\widehat{\lambda} = 1$ ($\widehat{\lambda} = 0$).

Since countries will be symmetric in their consumption pattern under free trade I will use the same terminology for a free trade situation, that is, the world is called culturally diverse or homogenous corresponding to the value of λ.

I start solving the model with condition (ii). Perfect competition and profit maximization imply

$$p_i \leq wa_i, \quad i = x, y, z, \tag{4}$$

where the equality holds when the output in industry i is strictly positive.

Next consider condition (iii) regarding utility maximization. Recall that consumption of only z is never optimal and $c_z \geq 0$. The decision which cultural good to consume depends on the price difference of x and y. I use the following definition $p \equiv \frac{p_y - p_x}{p_z}$ to denote this price difference in terms of the noncultural good. Using (2) and (3), a person buys x if

$$b \geq I(1 - 2\lambda) - p \equiv \widehat{b}(\lambda, p). \tag{5}$$

Condition (5) shows that the decision depends on the magnitude of the taste parameter b relative to I, λ and price difference p. The critical value $\widehat{b}$, which may be below $-\overline{b}$ or above $\overline{b}$, indicates the individual who is indifferent between consuming good x or y, given an arbitrary consumption pattern in society λ and price p. An individual consumes good y when $b < \widehat{b}$. Note that when $\widehat{b}(\lambda, p) \in (-\overline{b}, \overline{b})$, the critical value is strictly decreasing in λ and p. A crucial role below plays the sign of the difference $\overline{b} - I$. Note that when $\overline{b} > I$ the highest valuation individual for good x buys good x even if no one else does, as long as the price of x is less than the price of y.

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The individual consumption choice is illustrated in *Figure 1* for an individual with preference parameter b under the assumptions $p > \max\{0, -b\}$. The two lines plot the utility as function of society's consumption pattern λ, given that the consumer either buys x or y. Obviously, $u(x, b)$ is increasing in λ, while $u(y)$ is decreasing. The intersection point gives the critical level of consumption behavior in society which makes the consumer indifferent between the two cultural goods. Values below (above) the critical value lead to strict preference for good $y(x)$.

An increase in the preference parameter b shifts only the $u(x, b)$ line upwards, and thus lowers the threshold level and the set of $\lambda-$values that make the individual prefer good y. For sufficiently large values of b no intersection may exist, and hence the individual prefers good x regardless of what society does (and vice versa for sufficiently low values of b). Another parameter influencing individual decision making is the identity loss parameter I. An increase in I rotates both utility curves downward around the maximum utility point. The base identity level $\widetilde{I}$ has no influence.

Turning to equilibrium condition (iv), aggregate demand for good x given an arbitrary consumption pattern in society λ equals the sum of all unit demands from those individuals for which condition (5) holds. Denote aggregate demand by $X^d(\lambda, p)$. A fixed point now requires

$$X^d(\lambda, p) = \int_{\min\{\overline{b}, \max\{-\overline{b}, \widehat{b}\}\}}^{\overline{b}} f(b) db = \frac{\overline{b} - \min\{\overline{b}, \max\{-\overline{b}, \widehat{b}\}\}}{2\overline{b}} = \lambda, \tag{6}$$

where I use for notational convenience $\widehat{b}$ as shortcut for $\widehat{b}(\lambda, p)$. For the moment I treat price p as a parameter. The *min* and *max* requirements stem from the fact that demand can neither exceed one nor become negative. The aggregate demand function can take only a certain number of shapes, as is illustrated in *Figure 2* (and which will be discussed in more detail below). To see this properties of the aggregate demand function for good x are derived. When $-\overline{b} \leq \widehat{b}(\lambda, p) \leq \overline{b}$, X^d is increasing in λ as $\partial X^d / \partial \lambda = I/\overline{b} > 0$. Otherwise, aggregate demand is independent of λ. Since $\widehat{b}(\lambda, p)$ is monotone in λ, aggregate demand is piecewise linear with at most three segments. If there are three segments, the middle one is increasing in λ, and the other two are independent of λ. In addition, it is useful to have the properties

of aggregate demand for good x at $\lambda = 0$ and $\lambda = 1$,

$$X^d(\lambda = 0, p) = \begin{cases} 0 & \text{if} \quad \overline{b} < I - p \\ \frac{\overline{b} - I + p}{2\overline{b}} & \text{if} \quad -\overline{b} \leq I - p \leq \overline{b} \\ 1 & \text{if} \quad I - p < -\overline{b} \end{cases} \tag{7}$$

and

$$X^d(\lambda = 1, p) = \begin{cases} 0 & \text{if} \quad I + p < -\overline{b} \\ \frac{\overline{b} + I + p}{2\overline{b}} & \text{if} \quad -\overline{b} \leq I + p \leq \overline{b} \\ 1 & \text{if} \quad \overline{b} < I + p. \end{cases} \tag{8}$$

I now prove the following preliminary result.

Lemma 1. For given price p :

- If $\overline{b} - I > \max\{p, -p\}$, there exists a unique stable fixed point

$$\widehat{\lambda} = \frac{1}{2}\left(1 + \frac{p}{\overline{b} - I}\right) \in (0, 1). \tag{9}$$

- If $\min\{p, -p\} \leq \overline{b} - I \leq \max\{p, -p\}$, there exists a unique stable fixed point where

$$\widehat{\lambda} = \begin{cases} 0 & \text{if } p < 0 \\ 1 & \text{if } p > 0. \end{cases}$$

- If $\overline{b} - I < \min\{p, -p\}$, there exist two stable fixed points, $\widehat{\lambda} = 0$ and $\widehat{\lambda} = 1$. An interior fixed point exists but is unstable.

<u>Proof:</u> Consider an interior fixed point, which must be a solution $\lambda \in (0, 1)$ to equation (6) or $\overline{b} - \widehat{b}(\lambda) = 2\overline{b}\lambda$. Solving for λ gives (9), which is interior if and only if $-1 < \frac{p}{\overline{b} - I} < 1$, or

$$\overline{b} - I > \max\{p, -p\}.$$

The interior fixed point is stable[11] if

$$\frac{\partial X^d}{\partial \lambda} < 1. \tag{10}$$

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[11] The intuition for the stability notion is as follows. Starting from a fixed point, assume that a few individuls mistakenly buy good y instead of x (or vice versa). When the stability condition holds, however, aggregate demand is higher than λ near the fixed point when a few individuals switch from x to y by mistake, and thus other individuals will be induced to buy x. This pushes the consumption pattern back to the original point. By contrast, when the stability condition does not hold, fewer individuals have an incentive to buy x, which will lead to a corner solution eventually.

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Since the slope of aggregate demand is either 0 or $I/\overline{b}$, the interior equilibrium is stable whenever aggregate demand is independent of λ at the fixed point, or when $\overline{b} > I$ in the increasing portion of the aggregate demand curve. The former case, $\partial X^d/\partial \lambda = 0$, can never happen for an interior fixed point. To see this, note that it requires either $0 < X^d(\lambda = 0) < 1$, or $0 < X^d(\lambda = 1) < 1$, or both. Since X^d has at most three segments, these conditions are contradictory because X^d cannot both be dependent on λ at $\lambda = 0$ or $\lambda = 1$, and be independent of λ in order to have the zero slope (see (7) and (8)).

Next consider corner solutions. From (6), $\widehat{\lambda} = 0$ requires that $\min\{\max\{-\overline{b}, \widehat{b}\}, \overline{b}\} = \overline{b}$, which in turn requires $\widehat{b} \geq \overline{b}$ or $\overline{b} - I \leq -p$. Similarly, for $\widehat{\lambda} = 1$ to be a fixed point, $\min\{\max\{-\overline{b}, \widehat{b}\}, \overline{b}\} = -\overline{b}$ is needed, which necessitates $\overline{b} - I \leq p$. This means also that when both $\widehat{\lambda} = 0$ and $\widehat{\lambda} = 1$ are fixed points, the interior fixed point cannot be stable as $\overline{b} - I < \min\{p, -p\} < 0$ violates the stability condition (10) because $\partial X^d/\partial \lambda = I/\overline{b}$. The corner fixed points are stable by definition because $\partial X^d/\partial \lambda = 0$ at these points. ∎

The aggregate demand curve and fixed points are shown in *Figure 2*. Panel 2a shows the unique interior fixed point, which is stable because aggregate demand cuts the 45 degree line from above. Panel 2b refers to the multiple fixed point case, where only the corner points are stable. An example for the unique corner case is shown in panel 2c. Panel 2d depicts an impossible configuration as aggregate demand cannot be dependent on λ at 0 and 1, and at the same time have a zero slope locally.

Lemma 1 is useful in a number of ways. While multiple fixed points can exist given p, there are at most two and they are corner solutions. Any interior fixed point is unique.

3 Equilibrium

3.1 The Closed Economy

I now solve for the autarky equilibrium, which requires to pin down the autarky price p^A. Once this price is found, the rest follows from Lemma 1. To this end - and parallel to the price term definition p - the definition $a \equiv \frac{a_y - a_x}{a_z}$ is used, which describes the productivity difference in producing the two cultural goods relative to the composite good's punit labor

requirement. Obviously, $p^A = \frac{p_y - p_x}{p_z} = \frac{wa_y - wa_x}{wa_z} = a$ if all goods are produced. The sign of a, like the sign of p, is not determined *a priori*. Lemma 1 establishes for any given price p at most two fixed points. This leaves open the possibility that multiple equilibria in p with different consumption pattern could exist, that is, fixed points $\lambda' \neq \lambda''$ exist corresponding to two price terms $p' \neq p''$. In addition, if one cultural good is not produced, price p is not uniquely determined, as (4) does not have to hold with equality. As it turns out, however, all these concerns about multiplicity and indeterminancy are not justified. Nothing is lost by assuming that the autarky price always equals a. If for this price two corner equilibria exist according to Lemma 1, a different price leads to fixed points that must also be corner equilibria in terms of λ. Moreover, if for such a price a unique interior fixed point exist, then there cannot exist another price such that a corner equilibrium emerges as fixed point.

Lemma 2. Suppose there exists an autarky equilibrium which is unique given equilibrium price p. Then there does not exist another equilibrium price $p' \neq p$ which has a unique fixed point and a different consumption pattern.

Proof: First, there cannot be two different interior equilibria because an interior equilibrium requires $p = a$. Consider next a corner equilibrium, say $\lambda = 0$, which - using (7) and (8) or Lemma 1 - requires $a \leq p \leq \bar{b} - I \leq -p \leq -a$, where the two inequalities in the middle follow from the assumption that the fixed point is unique. The outside inequalities come from using $p_x \leq wa_x$. A second, interior equilibrium under price p' requires $p' = a$ and $\bar{b} - I > \max\{p', -p'\}$. These requirements are inconsistent with the corner equilibrium: When $a > 0$, the corner equilibrium implies $\bar{b} - I < 0$, while the interior equilibrium calls for $\bar{b} - I > 0$. Similarly, when $a < 0$ the interior equilibrium requires $\bar{b} - I \geq -p' = -a > 0$, a contradiction.

The last step is to consider the other corner equilibrium, $\lambda = 1$, as a second equilibrium besides $\lambda = 0$. Lemma 1 implies $-a \leq -p' \leq \bar{b} - I \leq p' \leq a$, if it is to be unique given p'. This contradicts the assumption that $\lambda = 0$ is an equilibrium however. ∎

Lemmas 1 and 2 now give immediately the first main result by setting $p^A = a$.

Proposition 1. An autarky equilibrium exists for $p^A = a$ and has the following properties:

(a) If $\bar{b} - I > \max\{a, -a\}$, the equilibrium is unique, stable, and Home is culturally diverse,

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where $\widehat{\lambda}^A = \left(1 + \frac{a}{\overline{b} - I}\right)/2$.

(b) If $\overline{b} - I \leq \max\{a, -a\}$, the equilibrium is stable and Home is culturally homogenous.

    (b1) The equilibrium is unique if $\min\{a, -a\} \leq \overline{b} - I \leq \max\{a, -a\}$. Home is culturally homogenous in x $\left(\widehat{\lambda}^A = 1\right)$ if $a > 0$, and homogenous in y $\left(\widehat{\lambda}^A = 0\right)$ if $a < 0$.

    (b2) There exist two equilibria, in which Home is culturally homogenous in x or y if $\overline{b} - I < \min\{a, -a\}$.

Proposition 1 is illustrated in *Figure 3* for the case where $a > 0$. Depending on the value of $\overline{b} - I$ relative to a, the autarky equilibrium is unique or not, and is either culturally diverse or homogenous. Cultural diversity is more likely the larger the difference between the preference parameter for the person with the highest taste for good x $\left(\overline{b}\right)$ and the value of the identity loss parameter (I), holding technology constant. A similar figure applies when $a < 0$. In this case the only difference is that the middle segment of *Figure 3* is replaced by a unique equilibrium in which the country is homogenous in good y, that is, $\widehat{\lambda} = 0$. The comparative statics of $\widehat{\lambda}^A$ with respect to $\overline{b}$ and I depend on the sign of a, whose sign is determined by the absolute difference in unit labor coefficients of x and y.

For later comparison it is useful to write down equilibrium autarky utility levels conditional on the type of cultural good consumed,

$$
\begin{aligned}
u^A(x, b) &= \frac{1 - a_x}{a_z} + b + \widetilde{I} - (1 - \widehat{\lambda}^A)I \\
\\
u^A(y) &= \frac{1 - a_y}{a_z} + \widetilde{I} - \widehat{\lambda}^A I,
\end{aligned}
\tag{11}
$$

where A denotes autarky values, and $\widehat{\lambda}^A$ follows from Proposition 1. Note that $u^A(y)$ is independent of b.

3.2   Free Trade

Recall that Foreign is identical to Home except for technology parameters. Thus $I = I^*, \overline{b} = \overline{b}^*$, and countries have the same population. To make trade potentially different from autarky,

I assume

$$\frac{a_x}{a_x^*} < \frac{a_z}{a_z^*} < \frac{a_y}{a_y^*}. \tag{12}$$

This assumption narrows down the trading structure, without fixing it entirely. Condition (12) implies that under free trade Home produces and exports good x, while Foreign produces and exports good y, if all goods are consumed (recall that both countries must produce the noncultural good). Any other ordering of labor coefficients than (12) would open up the possibility that a country exports both x and y, something that appears less interesting for the present purpose. The assumption is also consistent with a situation in which each cultural good can be produced only in one country, say French wine in France or Hollywood movies in the U.S., which can be formalized by assuming that a_y and a_x^* go toward infinity.

Condition (12) implies $a > a^*$ because from (12) I obtain $\frac{a_x}{a_z} < \frac{a_x^*}{a_z^*}$ and $\frac{a_y^*}{a_z^*} < \frac{a_y}{a_z}$, which in turn leads to $\frac{a_y}{a_z} - \frac{a_y^*}{a_z^*} > 0 > \frac{a_x}{a_z} - \frac{a_x^*}{a_z^*}$, and thus $a = \frac{a_y - a_x}{a_z} > \frac{a_y^* - a_x^*}{a_z^*} = a^*$. Foreign's autarky equilibrium has the same qualitative structure as the one given in Proposition 1. Depending on the sign of a^*, however, the range of values for $\bar{b} - I$ under which the foreign economy is culturally diverse, can be larger or smaller. For example, if $a > a^* > 0$, Foreign is diverse for a larger set of values of $\bar{b} - I$. The reverse is true, however, if $-a^* > a > 0 > -a > a^*$.

The definition of a free trade equilibrium follows now the one under autarky with the difference that goods markets are integrated (while labor markets stay national) and consumers in both countries maximize utility given their national parameter λ and λ^* respectively. The critical value $\hat{\lambda}$ has the same structure as in (9), assuming an interior solution, although now relating to the free trade price p^T. In the following I use superscript T to indicate free trade values (as opposed to A for autarky). Also I normalize the price of the composite good to one, $p_z^T = 1$.

Some preliminary insights are straightforward. With the price normalization, the free trade relative price differente becomes

$$p^T = \frac{p_y^T - p_x^T}{p_z^T} = w^{*T} a_y^* - w^T a_x, \tag{13}$$

if all goods are produced in equilibrium. Since in this situation both countries can serve the maximum world demand for either cultural good, wages can be deduced from marginal cost pricing in the noncultural good production, that is, $w^{*T} = 1/a_z^*$ and $w^T = 1/a_z$. The free

trade price becomes then

$$p^T = \frac{a_y^*}{a_z^*} - \frac{a_x}{a_z} \equiv \widetilde{a}, \tag{14}$$

where $\widetilde{a}$ reflects the price difference of cultural goods in terms of the composite good, when countries produce according to their comparative advantage. In (14) it is assumed that all goods are produced in equilibrium. Similar to Lemma 2 for autarky, however, nothing is lost by assuming that the price under free trade is given by (14) even when the world is culturally homogenous under free trade.

It is now easy to see that condition (12) implies $a > \widetilde{a} > a^*$.

Countries are symmetric except for technology and thus have the same consumption pattern. The utility maximizing choice in both countries is still governed by (5), and similarly the aggregate demand condition is given by (6). This implies that if a fixed point λ^T for Home exists given p, it exists in both countries. Standard arguments then ensure a free trade equilibrium.

Proposition 2. In a free trade equilibrium $p^T = \widetilde{a}$.

a) If $\overline{b} - I > \max\{\widetilde{a}, -\widetilde{a}\}$, the equilibrium is unique and the world is culturally diverse, where $\widehat{\lambda}^T = \left(1 + \frac{\widetilde{a}}{\overline{b} - I}\right)/2$.

b) If $\overline{b} - I \leq \max\{\widetilde{a}, -\widetilde{a}\}$, the world is culturally homogenous. The equilibrium is unique if $\min\{\widetilde{a}, -\widetilde{a}\} \leq \overline{b} - I \leq \max\{\widetilde{a}, -\widetilde{a}\}$. The world is culturally homogenous in x $(\widehat{\lambda}^T = 1)$ if $\widetilde{a} > 0$, and homogenous in y $(\widehat{\lambda}^T = 0)$ if $\widetilde{a} < 0$. There exist two equilibria, in which the world is culturally homogenous in x or y if $\overline{b} - I < \min\{\widetilde{a}, -\widetilde{a}\}$.

Proof: Follows proof of Prop. 1 by replacing a with $\widetilde{a}$. ∎

Under free trade the equilibrium utility level for each type of consumer at Home is

$$u^T(x, b) = \frac{1 - a_x}{a_z} + b + \widetilde{I} - (1 - \widehat{\lambda}^T)I \tag{15}$$

$$u^T(y) = \frac{1}{a_z} - \frac{a_y^*}{a_z^*} + \widetilde{I} - \widehat{\lambda}^T I.$$

Conditional on consuming x, autarky and free trade utility differ only by the loss in identity. When consuming y under free trade, consumption of the noncultural good changes as well.

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Individuals may switch cultural good consumption, something that is considered in more detail below.

4 Welfare Effects of Trade Liberalization

This section compares autarky and free trade and thus provides an assessment of the welfare effects of trade liberalization. As a first step it is helpful to compare society's consumption pattern in the two situations.

Lemma 3. If $\widehat{\lambda}^A = \widehat{\lambda}^{*A}$, then countries cannot be culturally diverse under autarky. Moreover, the cultural consumption pattern under free trade is bounded by the consumption pattern under autarky in the two countries, that is, $\widehat{\lambda}^{*A} \leq \widehat{\lambda}^T = \widehat{\lambda}^{*T} \leq \widehat{\lambda}^A$.

<u>Proof:</u> Assume $\widehat{\lambda}^A = \widehat{\lambda}^{*A} \in (0,1)$, where the values of the consumption patterns are given by (9) with $p^A = a = a^* = p^{*A}$. But this contradicts (12), as shown above.

The consumption pattern must be the same for both countries under free trade. Because countries are symmetric except for technology, and there are no frictions in trade, all consumers face the same price vector and thus consumers with identical preferences in both countries make the same consumption decision. Therefore, under trade the fraction of individuals consuming good x must be the same in both countries $(\widehat{\lambda}^T = \widehat{\lambda}^{*T})$.

Next consider the comparison between autarky and trade values for λ. Obviously $\widehat{\lambda}^T \leq \widehat{\lambda}^A$ if $\widehat{\lambda}^A = 1$. Furthermore $\widehat{\lambda}^T \leq \widehat{\lambda}^A < 1$ when $\widehat{\lambda}^A > 0$ because $p^T = \widetilde{a} < a = p^A$. Lastly, assume $\widehat{\lambda}^A = 0$, which implies $1 + p^A/(\overline{b} - I) \leq 0$. It is now impossible that $\widehat{\lambda}^T > 0$ because the latter implies $1 + p^T/(\overline{b} - I) > 0$. Jointly with the previous inequality, I get $p^T - p^A > 0$, a contradiction.

A similar logic can be used to demonstrate $\widehat{\lambda}^{*A} \leq \widehat{\lambda}^T$. ∎

Lemma 3 is useful because it allows us to make predictions about how the pattern of cultural consumption changes qualitatively when moving from autarky to free trade. For welfare evaluation we can distinguish three *potential* groups at Home (although not all three are always relevant): Those who consume good x under trade and autarky, those who consume good y under both regimes, and those who switch from x to y (the "switchers").

No consumer at Home switches from consuming good y to good x, given the assumption on technology. To see this, note from (5) that $\widehat{b} = I(1 - 2\lambda) - p$ and thus

$$\widehat{b}(\widehat{\lambda}^T, p^T) > \widehat{b}(\widehat{\lambda}^A, p^A)$$

because $p^T = \widetilde{a} < a = p^A$ and $\widehat{\lambda}^T \leq \widehat{\lambda}^A$ by Lemma 3. When an individual prefers good y under autarky, so it must under trade. The reverse is not true.

For each of the three potential cases the utility difference is

$$u^T(x, b) - u^A(x, b) \quad = \quad (\widehat{\lambda}^T - \widehat{\lambda}^A)I \leq 0$$

$$u^T(y) - u^A(y) \quad = \quad \left(\frac{a_y}{a_z} - \frac{a_y^*}{a_z^*}\right) - (\widehat{\lambda}^T - \widehat{\lambda}^A)I > 0 \qquad (16)$$

$$u^T(y) - u^A(x, b) \quad = \quad -\widetilde{a} - b - (\widehat{\lambda}^A + \widehat{\lambda}^T - 1)I$$

Several insights follow immediately. Individuals who under both regimes consume good x cannot gain from trade, and lose if some people switch from x to y. Intuitively, Home is the cheapest source of producing good x and trade only could change society's consumption pattern away from this good. By contrast, therefore, individuals who consume y under both situations must gain for two reasons. One is the traditional source of the gains from trade, as Foreign can produce good y more cheaply. In addition such consumers potentially gain from the favorable change in society's consumption pattern toward their preferred cultural good. Regarding the last group, the switchers from x to y, the welfare change is not clear immediately. Similarly, the utility differentials for foreign consumers are

$$u^{*T}(y) - u^{*T}(y) \quad = \quad -(\widehat{\lambda}^T - \widehat{\lambda}^{*A})I \leq 0$$

$$u^{*T}(x, b) - u^{*A}(x, b) \quad = \quad \left(\frac{a_x^*}{a_z^*} - \frac{a_x}{a_z}\right) + (\widehat{\lambda}^T - \widehat{\lambda}^{*A})I > 0 \qquad (17)$$

$$u^{*T}(x, b) - u^{*A}(y) \quad = \quad \widetilde{a} + b - (\widehat{\lambda}^T + \widehat{\lambda}^{*A} - 1)I$$

The last line gives the utility change for switchers from y to x. No individual in Foreign switches in the opposite direction.

Proposition 3. Free trade is not Pareto inferior to autarky if the free trade equilibrium is unique.

Proof: It is sufficient to show that at least one consumer gains. This is the case when there are y consumers at Home under autarky and trade (see 16), or when there exists a consumer in Foreign who consumes x in both situations (see 17). Obviously, this requirement is fulfilled when $(\widehat{\lambda}^A, \widehat{\lambda}^{*A}) \in (0,1)$ by Lemma 3.

A similar argument applies when only one country is culturally diverse under autarky, say $\widehat{\lambda}^A = 1 > \widehat{\lambda}^{*A} > 0$. Foreign x consumers under trade and autarky always gain. For the same reason Home y consumers gain when only Foreign is homogenous under autarky.

Next assume both countries are culturally homogenous under autarky, but in different goods, that is $\widehat{\lambda}^{*A} = 0$ and $\widehat{\lambda}^A = 1$. If $0 < \widehat{\lambda}^T < 1$, the utility change for the switcher at Home with the lowest preference for good x, $b = -\overline{b}$, is

$$u^T(y) - u^A(x, -\overline{b}) = -\widetilde{a} + \overline{b} - \widehat{\lambda}^T I > 0,$$

which must be positive by the condition that the world is diverse under free trade (Prop. 2). When $\widehat{\lambda}^T = 1$, some switchers in Foreign gain as the utility change for the person with highest preference for good x has utility change

$$u^{*T}(x, \overline{b}) - u^{*A}(y) = \widetilde{a} + \overline{b} > 0$$

because $\widetilde{a} > 0$ by Proposition 2 when the equilibrium is unique. A similar argument applies when $\widehat{\lambda}^T = 0$ instead of $\widehat{\lambda}^T = 1$.

Finally, if both countries are homogenous in the same good under autarky, the traditional gains from trade argument holds. ∎

An intuitive way to understand Proposition 3 is to note that for consumers who consume the same set of goods under both trade and autarky consumption of good z cannot decline. It is clear then that if the world is culturally diverse under both regimes somebody must be better off. The only problem could arise when a good is not consumed in either autarky or trade. Uniqueness of the free trade equilibrium is sufficient to make somebody better off.

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The case where the free trade equilibrium is not unique plays a role further down. The next result sheds light on the question whether trade is Pareto superior.

Proposition 4. a) If the world is culturally diverse under free trade, trade is not Pareto superior to autarky. b) If the world is culturally homogenous under free trade, trade is Pareto superior to autarky for some parameter values.

<u>Proof:</u> a) Follows immediately from Lemma 3 and utility comparison for both Home and Foreign (see 16 and 17) if $\widehat{\lambda}^T \in (0,1)$. b) Assume the world is culturally homogenous under free trade, say $\widehat{\lambda}^T = 0$. From Lemma 3 follows $\widehat{\lambda}^{*A} = 0$, and thus in Foreign all individuals are indifferent between autarky and free trade. In Home, assume $\widehat{\lambda}^A \in (0,1)$ which requires $\overline{b} - I > \max\{a, -a\}$. There are no individuals who consume x under both regimes. Those who consume y under both regimes are obviously better off (see 16). It remains to be seen whether all switchers are no worse off. Consider therefore the individual with type $b = \overline{b}$ who has the smallest gain from switching cultural good consumption from x to y. The utility change equals $-\widetilde{a} - \overline{b} - (\widehat{\lambda}^A - 1)I$, which is positive if $\overline{b} - I < -\widetilde{a} - \widehat{\lambda}^A I$. This must be consistent with the assumption that Foreign and the world are homogenous in y, which holds if $\overline{b} - I < -a^*$, where $a^* < 0$ (by Prop. 1 applied to Foreign), and $\overline{b} - I < -\widetilde{a}$ for $\widetilde{a} < 0$ (by Prop. 2). Since $\widetilde{a} > a^*$, the binding assumption is simply that the utility change is positive, that is $\overline{b} - I < -\widetilde{a} - \widehat{\lambda}^A I < -\widetilde{a} < -a^*$. Parameter values exist that fulfill this condition, as an example below further illustrates. ∎

Proposition 4 is perhaps surprising in several ways. Recall that in a standard Ricardian model trade is always weakly Pareto superior. A country does not gain from free trade relative to autarky if its terms of trade do not change. If this happens, however, then the other country must have gained, assuming relative labor input coefficients differ across countries. This is no longer the case once cultural identity is considered and the world is culturally diverse under free trade. The latter means that some people consume the same set of goods under autarky and trade. Opening up for trade then must imply an unfavorable $\lambda-$ shift for some individuals.

The second part of Proposition 4 is noteworthy as well. It should be emphasized that the result holds only for some parameter values, but not in general. Intuitively, trade is Pareto improving when one country is a 'little' diverse in the closed economy, and the

production of the 'minority' cultural good is relatively costly. In the open economy those 'minority' consumers can be attracted to buy the other cultural good if this is relatively cheaply produced elsewhere. At the same time there is no longer a loss in cultural identity. If sufficiently large, these gains outweigh the loss from having a high preference for the original 'minority' cultural good.

As mentioned above, the following example illustrates the point.

Example 1. Let the parameter values be

$$
\begin{aligned}
a_x &= 7, a_y = 4, a_z = 4, \\
a_x^* &= 9, a_y^* = 1, a_z^* = 4 \\
\bar{b} &= 3, I = 2.
\end{aligned}
$$

This gives $a = -3/4, \tilde{a} = -3/2$ and $a^* = -2$. Home consumes mostly y under autarky as $\widehat{\lambda}^A = 1/8$, while Foreign consumes only y $\left(\widehat{\lambda}^{*A} = 0\right)$. Under free trade the world is homogenous in y $\left(\widehat{\lambda}^T = 0\right)$. All conditions are satisfied for Pareto improving trade because $-a = 3/4 < \bar{b} - I = 1 < 5/4 = -\tilde{a} - \widehat{\lambda}^A I < 3/2 = -\tilde{a} < -a^* = 2$.

The previous results are concerned with a global comparison of autarky and free trade in terms of the Pareto criterium. The last result focuses on the welfare effects of complete trade liberalization in one country.

Proposition 5. For some parameter values everybody in a country can lose from free trade.

Proof: Consider the following parameter values:

$$
-a < \bar{b} - I < -\tilde{a} < 0.
$$

The first inequality together with $a > 0$ implies that Home is homogenous in x under autarky by Prop. 1. This equilibrium is unique. The second inequality together with $\tilde{a} > 0$ implies that free trade has two corner equilibria, in which the world is homogenous in either of the cultural goods. Assume now that the world is homogenous in y under free trade. Then the individual at Home with the lowest preference for good x $(b = -\bar{b})$, i.e. the person who gains the most from free trade among the switchers, has utility change

$$
u^T(y) - u^A(x, -\bar{b}) = -\tilde{a} + \bar{b}.
$$

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The change is negative, and hence everybody at Home loses, if $\bar{b} < \tilde{a}$. Together with the initial assumption above this requires $\bar{b} < \tilde{a} < I - \bar{b}$ and therefore $\bar{b} < I/2$. $\blacksquare$

Proposition 5 undermines some of the positive light shed on culturally homogenous equilibria under free trade as given in the previous result. Note the difference here though. The example underlying Proposition 5 is based on corner equilibria under autarky and free trade $(\bar{b} - I < 0)$. There is no loss in identity under both regimes. The problem arises because of a coordination failure when multiple equilibria exist under free trade. By contrast, the Pareto improvement in Prop. 4 is partly driven by the gains from eliminating identity losses, which required $\bar{b} - I > 0$ for the country that is diverse under autarky.

The scenario described above can also make free trade Pareto worse than autarky if $-a < \bar{b} - I < -\tilde{a} < -a^* < a^*$, so that $\widehat{\lambda}^{*A} = \widehat{\lambda}^{T} = 0$. While in Home everybody is worse off under free trade, the above parameter values imply that all individuals in Foreign are indifferent between autarky and free trade. Clearly, the multiplicity of equilibrium under free trade is an essential part of the result, because otherwise it would contradict Proposition 3.

5   Extensions and Discussion

The model can easily be extended to handle additional issues, some of which are discussed now.

Country Size Differences

So far I assumed that countries are symmetric except for technology, which in particular meant that countries are symmetric in population size. One advantage of this formulation is that results are not driven by country size effects. Note, however, that differences in population size have no direct effect under certain conditions. For example, assuming that the taste distribution is the same in both countries, the properties of the autarky equilibrium are invariant to country size. This can be seen from condition (6) for the fixed point requirement. Country size would enter multiplicative on both sides and thus simply cancels out. In the open economy country size typically doesn't matter as well because the consumption pattern in both countries continues to be the same. This could change if a country becomes too small

to serve a particular cultural good to the entire world. Opening up for trade may lead to a different pattern of specialization than the one that would otherwise occur.

Asymmetric Taste Distributions

Similar to differences in country size one can introduce differences in the distribution of the parameter b. Comparative statics for the maximum preference for good x, $\overline{b}$, is easily done for the closed economy. A decrease in $\overline{b}$ while holding technology parameters constant makes it more likely that the country is culturally homogenous under autarky. This can be seen from *Figure 3*. In the open economy consumption patterns across countries will typically differ now (unless both countries are homogenous). Intuitively, however, the properties of Lemma 3, showing that the consumption patterns are bounded by the autarky patterns should still be true. Nevertheless it would be interesting to extend the model in this direction to examine how the gains or losses from trade are affected.

The Process of Identification

As mentioned in the introduction, the concept of identity used in the present paper is very rudimentary. Psychologists emphasize the process of identification by which they mean that individuals may engage in activities to reaffirm their values if others violate them. For example, if the social norm is to consume good x, a x consumer may undertake an activity against a y consumer, which is costly to the latter. The execution of such action is costly to the x consumer as well, but the benefit is that through this action she avoids the loss of identity. Depending on the size of the costs and losses, the process of identification takes place or not. Incorporating such behavior into the present model is possible in principle, although it might lead to more complex solutions. One benefit of such an extension is, however, that the interaction among individuals is no longer a simple consumption externality as in the present form. Opening up markets for international trade may now change not only the pattern of consumption in society but also the magnitude of retaliation (identification).

International Consumption Links

Another avenue for future work is to link the consumption behavior internationally. In the present model an individual's cultural consumption decision depends on prices and the consumption behavior in the rest of the own country. In reality there are many examples

where individual consumption behavior is driven by foreign consumption patterns. For example, teenagers around the world copy consumption patterns from teenagers and/or athletes in the U.S. This could be incorporated into the model fairly easily by interpreting λ as the fraction of the *world* population that consumes good x. As long as countries are symmetric in size and taste distribution, this modification should not change any of the results because countries have symmetric consumption patterns in the present model. Results could change once countries were allowed to differ on any other dimension than technology.

Government Internvention

Until now I assumed that governments do not interfere. This might be considered unrealistic for several reasons. Due to the consumption externality even the autarky equilibrium is likely to be not first-best efficient.[12] In addition, opening borders up for trade will often produce gainers and losers, in particular if the country is culturally diverse both under autarky and free trade. Similar to traditional models of international trade where distributional effects within a country are operative we should expect political pressure to occur. Consider therefore specific taxes as government instrument. A uniform tax on cultural goods does not change the results of the paper qualitatively as it has no effect on the individual's decision which cultural good to consume. By contrast, a differential tax on one cultural good, say in the form of a tariff on the imported cultural good, does change the cultural consumption pattern in society. One way to think about such an extension is to view the tariff as a worsening of the efficiency of producing the particular good abroad. This discourages consumption of the good domestically, and reduces the gain of those consumers who nevertheless prefer it. A sufficiently high tariff, of course, eventually eliminates imports, although not necessarily the consumption of the good unless the domestically produced version is also heavily taxed.

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[12]To verify this statement is not trivial however. If the autarky equilibrium is inefficient, it is not clear whether a Pareto-improving tax/transfer scheme could be implemented under the assumption that the taste parameter b is not observable. In this situation taxes or transfers can be conditioned only on the type of cultural good consumed, which will tend to limit the governments ability to implement desired outcomes.

6 Conclusion

This paper has developed a simple model of international trade in cultural products. In contrast to the new trade theory or other models of trade in cultural goods, this paper does not rely on increasing returns to scale on the production side of the economy or on country size differences. Cultural goods differ from other goods in that they create an interdependence among individual consumption decisions, like a network externality, and thus generate cultural identity. This modeling approach seems a natural way of introducing cultural goods, and is based on ideas in sociology and psychology, as explained in Akerlof and Kranton (2000). From a modeling point of view, the interdependence of individual consumption decisions is similar to increasing returns to scale in the new trade theory (see Krugman (1979) and Ethier (1982) for early contributions in this area). In the latter higher output decreases average costs and hence price, and therefore makes it even more attractive for consumers to purchase the good. Here, the more consumers buy the same good the lower is the loss in identity for existing consumers and the more attractive becomes the consumption of such good for other consumers.

The present paper shifts the attention away from the production side to the consumer side of the economy. This becomes clear when the distributional effects of trade liberalization are considered. In a Heckscher-Ohlin model the factor that is used in intensively in the production of the export good gains while the factor used intensively in the import good loses when trade is liberalized. By contrast, in the present model gainers are those indiviudals who consume the import good both under autarky and free trade. Individuals who consume the cultural good exported under free trade tend to lose.

An important feature of the model in this paper is that cultural diversity has no value in itself, but rather implies losses in identity that must be worthwhile for some given their taste preference. This feature could be challenged by those who believe that cultural diversity, similar to biological diversity, is a positive value in itself. For example, even if a person consumes only a particular cultural good, the person may put a large value on the option to consume other cultural goods. The present analysis has not paid any attention to such a positive option value, something that should be explored in the future.

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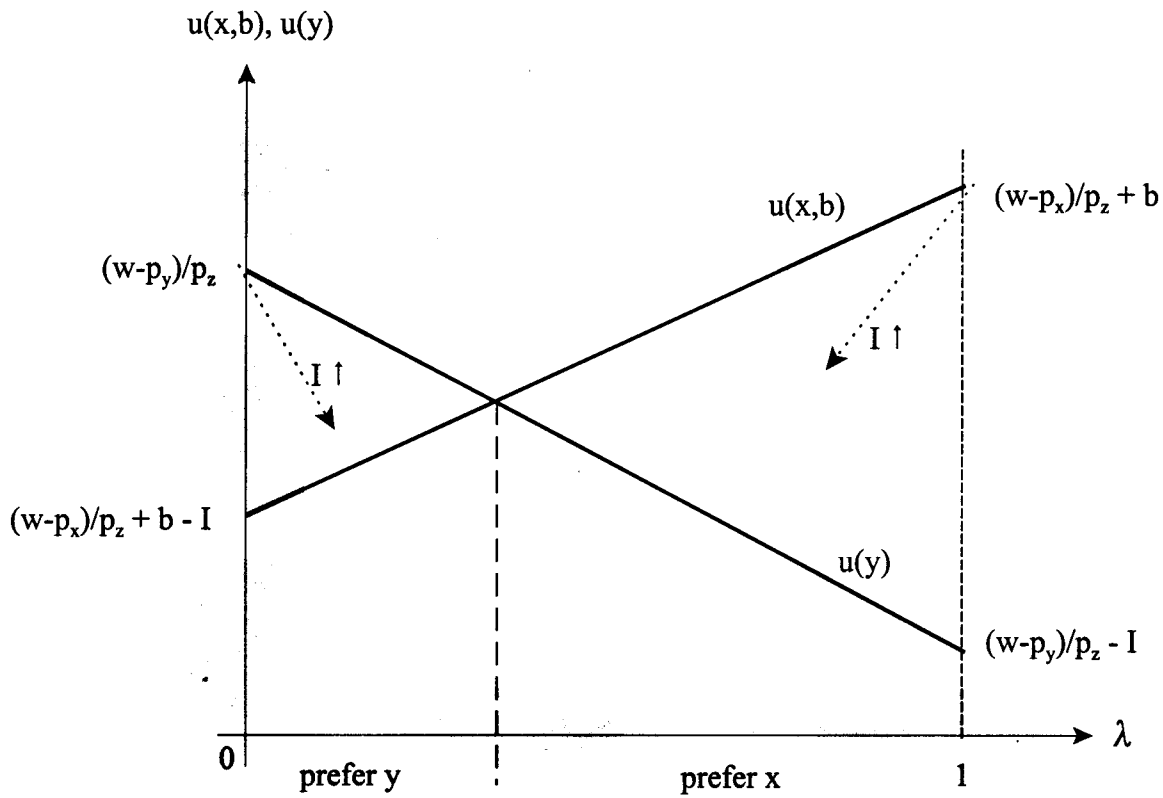
http://www.globalpolicy.org/globaliz/cultural/2002/0529geocultural.htm

Figure 1: Choice of cultural good for individual with taste parameter b
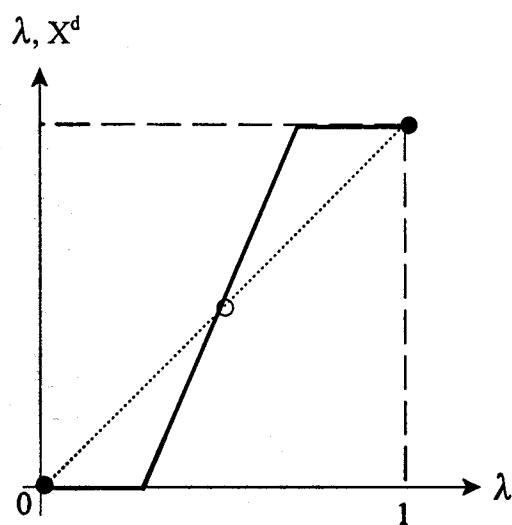given λ and p
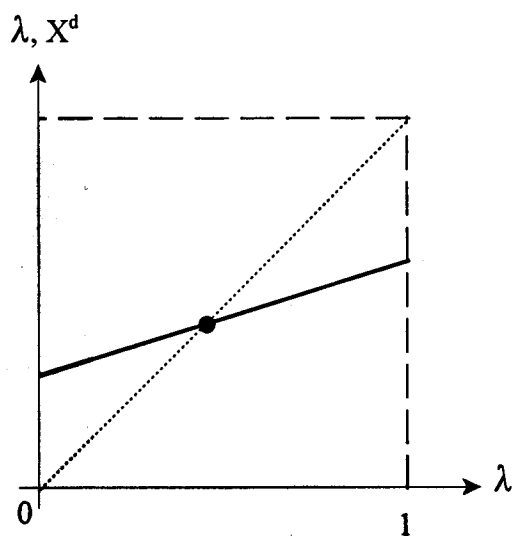
Figure 2a
Unique, stable interior fixed point

Figure 2b
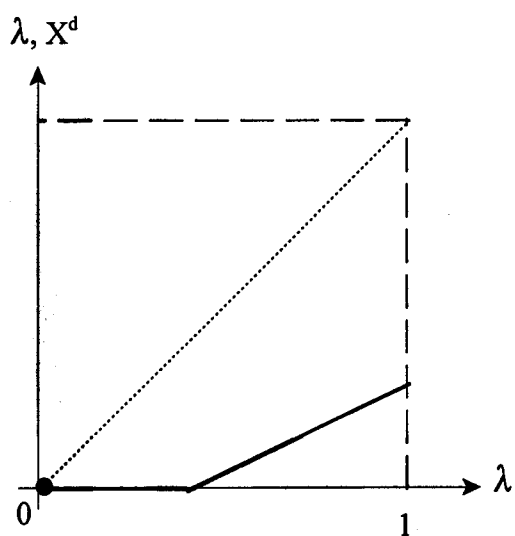Two stable corner fixed points
Interior fixed point unstable
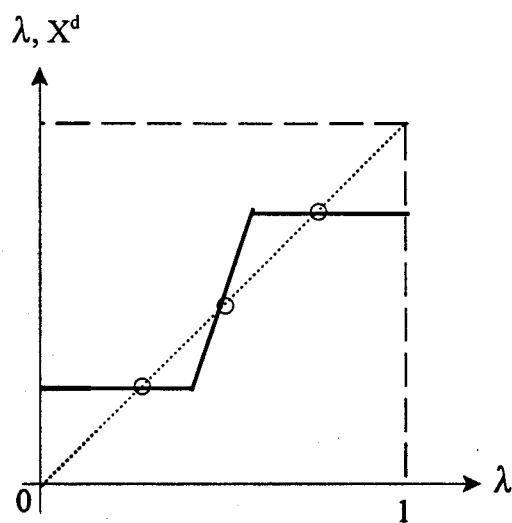
Figure 2c
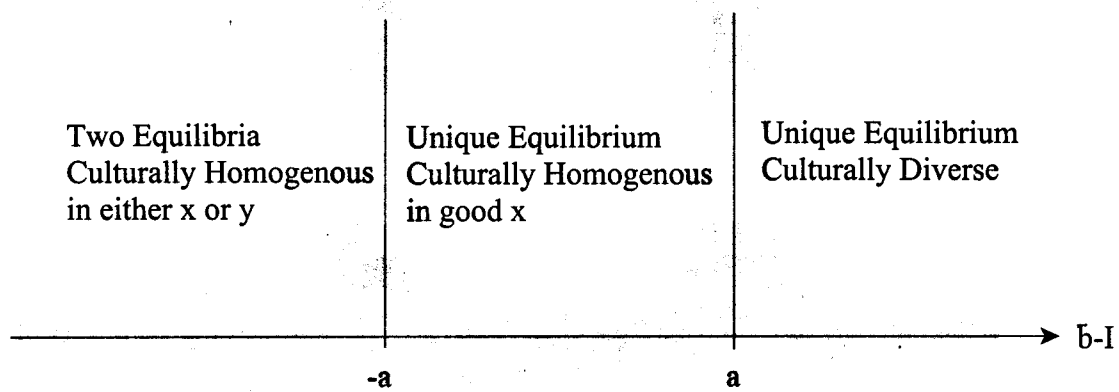Unique, stable corner fixed point

Figure 2d
Impossible configuration

Two Equilibria
Culturally Homogenous
in either x or y

Unique Equilibrium
Culturally Homogenous
in good x

Unique Equilibrium
Culturally Diverse

-a

a

b-I

Figure 3: Autarky Equilibria when a>0