NECKTIES IN THE TROPICS:
A MODEL OF INTERNATIONAL TRADE AND CULTURAL DIVERSITY

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Some cultural goods, like clothes and films, are consumed socially and are thus characterized by the same consumption network externalities as languages. At the same time, producers of new cultural goods in any one country draw on the stock of ideas generated by previous cultural production in all countries. For such goods, costless trade and communication tend to lead to the dominance of one cultural style, increasing utility in the short run but reducing quality and generating cultural stagnation in the long run. Increasing trade costs while keeping communication costs low may reduce welfare by stimulating production of cultural goods that are "compatible" with the dominant style, thereby capturing consumption network externalities, but that add little to the stock of usable ideas. Our two-country analysis suggests a reform of cultural policy whereby import restrictions in the smaller country are replaced by subsidies to the fixed costs of production of "authentic" new cultural goods, funded by contributions from the larger country.

I Introduction

In this paper we intend to answer at least three questions. First, why is the market share of U.S. or Anglo-American cultural goods so high in other cultures? Second, why is cultural trade different from other trade in its welfare implications – or is it? Third, what are the likely effects of policies adopted to protect domestic cultural goods production? Our answers to these questions will lead to specific proposals regarding policy reforms in the area of international trade in cultural goods.

Like others, we will argue that part of the reason for U.S. dominance in cultural goods is the home market effect (Helpman and Krugman 1985, section 10.4). The home market effect results from the interaction of transportation costs with increasing returns to scale in a model of trade in differentiated products. Transportation costs for cultural goods such as film and music are negligible, but as Hoskins et al. (1997) have pointed out, their place is taken by the "cultural discount" that consumers apply to cultural goods from a different culture.[1]

However, we question whether the standard home market effect alone could explain the extent of U.S. or Anglo-American dominance in cultural goods. Table 1 shows that in 2002 the median U.S. cinema market share across three large European and two Asian countries is 63 percent and the median ratio of the U.S. to national cinema market share is 2.9. The U.S. cinema market share rivals the U.S. market share of roughly 70 percent (in 1998) in large commercial jet aircraft (Pavcnik 2002), which may be the highest U.S. market share for any well-defined commercial manufactured product. We lack data for the Anglo-American share of the popular music market, but we suspect

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[1] It is well known that home bias in preferences and "ice" transportation costs are equivalent in the "love of variety" monopolistic competition model of international trade.

that it is also unusually high, though probably not as high as the U.S. film market share (*Economist* 1998).

U.S. or Anglo-American dominance could be explained by network externalities in cultural goods consumption. Many writers have recognized the social nature of cultural goods consumption (Sintas and Álvarez 2002; Eaton, Pendakur, and Reed 2003). Traditionally these social interactions have taken place within a culture, but falling communication and transportation costs, student exchanges, and most recently internet chat rooms and music file-sharing have increased social interactions across cultures. It is no surprise then that the U.S. cultural market share is increasing, as reflected in the cinema market shares reported in Table 1.

Janeba (2004) sees the social consumption property of cultural goods as making their consumption an input to production of national "identity," giving rise to special welfare implications of cultural goods trade. In contrast, from a static point of view we treat trade in cultural goods as being no different than trade in any consumption network externality good, such as computer software. We emphasize instead a difference in the dynamic implications of such trade. As in Romer (1990) and Grossman and Helpman (1991), we argue that production of current cultural goods generates ideas that spill over to future cultural goods production. We also make the crucial assumptions that producers of cultural goods have access to the ideas generated by past cultural goods production of all cultures, and that ideas of different cultures are imperfect substitutes.

There can be little doubt that producers of commercially lucrative cultural goods are influenced by ideas from other cultures. This is true of producers in the dominant culture as well. For example, the "film noir" style, considered by many to be the most

enduring achievement of 1940s Hollywood, was heavily influenced by German

expressionist cinema.[2] George Lucas spent months in Japan in the early 1970s soaking

up Japanese films before creating *Star Wars*, which borrows many key elements directly

from the work of the great Japanese director Akira Kurosawa.[3] In music, it is universally

acknowledged that Anglo-American "rock and roll" grew out of "rhythm and blues," a

musical style of African-Americans in the U.S. South (see, e.g., Stuessy 1990) that in turn

has its roots in West Africa.[4] The Beatles then led a revolution in rock and roll while

under the influence of the European avant-garde, especially the electronic music of

Karlheinz Stockhausen.[5]

The imperfect substitutability of ideas from different cultures in production of

new cultural goods is a more controversial assumption, and it has the crucial implication

that the ideas that spill over from the cultural goods production of the subordinate

culture(s) are more valuable because they are more scarce. Cultural scholars categorize

film and music by national or cultural/linguistic "schools" or genres, each of which has a

set of recognizable characteristics.[6] It stands to reason, then, that a producer of new film

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[2] Hirsch (1981, p. 53) writes, "The cinematic origins of *film noir* can be traced to the German Expressionist films of the late 1910s and twenties". *Double Indemnity* (1944) is one of the signature Hollywood films in this style.

[3] Baxter (1999, p. 73) states, "Lucas loved the formalized sword-duels of Kurosawa's historical films….No less attractive were his themes: loyalty to a lord; honor; mutual respect among warriors; fidelity to *bushido*, the samurai code."

[4] Evans (2002, pp. 23-24) describes the influences of African music on the harmony, instrumentation, and even subject matter of rhythm and blues songs.

[5] Everett (1999, p. 10) writes that Paul McCartney "introduced the Beatles to the worlds of Stockhausen and Bach, leading to a revolution in the expressive capacity of mainstream rock music." Stockhausen appears in the crowd on the celebrated cover of *Sgt. Pepper's Lonely Hearts Club Band*.

[6] For example, Thomas (1985), writing about "Indian popular cinema," states, "What seems to emerge in Hindi cinema is an emphasis on emotion and spectacle rather than tight narrative, on *how* things will happen rather than *what* will happen next, on a succession of modes rather than linear denouement, on familiarity and repeated viewings rather than 'originality' and novelty, on a moral disordering to be (temporarily) resolved rather than an enigma to be solved." Slonimsky (1997, p. 29) states of "Arab music" that "The traditional music of Arab nations of the Mediterranean and Persian Gulf basins differs so greatly from the nature of Western music that transcription with any degree of fidelity into Western

or music will get ideas from watching, listening to, and studying the film or music of other cultures that are qualitatively different from the ideas he absorbs from the film or music of his own culture. [7]

Our argument suggests that, by preserving cultural diversity, protection of cultural goods production can generate dynamic welfare gains that offset the static welfare losses it causes.[8] To understand the likely long-term effects of protection, however, we turn to a cultural good for which the rest of the world does not fear U.S. or Western dominance, but quite the opposite: clothing. Clothing is not only an integral part of culture but also a consumption network externality good par excellence: people dress up to be seen by others. Perhaps as a result, Western clothing appears to have achieved a market share outside of the West comparable to the U.S. cinema market share, despite its occasional inappropriateness (as millions of necktie-wearing tropical businessmen and office workers will attest).[9] At the same time, clothing was the lead industry in import-substituting industrialization throughout the world, and now the Western share of clothing *production* is far smaller than the Western share of clothing *style*.

The example of clothing shows that the long-term effect of protection is not likely to be preservation of cultural diversity but rather imitation of the goods produced by the dominant culture, as producers in other cultures respond to the demand created by consumption network externalities. Language barriers make low-wage export platform

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notation is fraught with difficulties….The melodies themselves register to a Western-trained ear as progressions of quarter tones, semitones, and other divisions of a whole tone."
[7] In our model, we will assume that the same set of ideas processed through a Chinese or Indian "sensibility" yields Chinese film or Indian music rather than U.S. film or music. We argue that the same cannot be said of a spreadsheet program, for example, which will be no more different from other spreadsheet programs than if it had been designed by U.S. software producers.
[8] Ottaviano and Peri (2004) find evidence that cultural diversity makes U.S. cities more productive.
[9] Non-western clothing survives mainly in rural areas where opportunities for social interactions with Westerners, both real and virtual, are much more limited.

production of film and music unlikely, but import substitution with some exports is the outcome we predict. An excellent example is provided by the experience of Argentina in the 1990s. Under the Menem regime, heavy state subsidies were provided to domestic film production. Content was deregulated but participation of domestic television stations was encouraged to insure commercial viability of output. The result was the production of films such as *Comodines* (Cops), billed as "the first Hollywood-style movie spoken in Spanish," and a smash hit in Argentina (Falicov 2000, p. 330).

Ironically, the Argentine experience also points towards the policy recommendations generated by our model. As in the 1990s under Menem, in the 1980s under Alfonsín Argentina provided state subsidies to domestic film production, but projects were chosen "with an international film festival audience in mind, rather than a domestic one" (Falicov 2000, p. 334). This maximized the spillover of ideas from Argentine film output while allowing Argentine consumers to enjoy the consumption network externalities from U.S. films. What made this policy package unsustainable, of course, was that the main beneficiaries were not the Argentine taxpayers who were financing the subsidies. We shall recommend that if this kind of policy package is to be sustained, the foreigners who reap most of the benefits will have to bear more of the subsidy burden.

To support the intuition presented here and generate additional results, in the next section we will develop a model of international trade in differentiated products subject to consumption network externalities. The static part of our model should apply equally well to non-cultural goods subject to such externalities, such as computer software. We believe that the dynamic part and the policy implications that flow from it only apply to

trade in cultural goods, however. In section III we derive both positive and normative

results for our basic model. We add the possibility of imitative cultural goods production

in section IV.   In our concluding section we explore the lessons that our model and

results provide for cultural policy.

II. The Model

Our model builds upon the well-known home market effect model of Helpman

and Krugman (1985, section 10.4), and we will adopt their notation where convenient.

There are two industries, one producing a differentiated product and the other a

homogeneous product. We will call the differentiated product industry the cultural goods

industry. We assume Cobb-Douglas utility for the two goods, yielding constant

expenditure shares, and we will let the subutility for cultural goods take the standard CES

form. There are two countries, home and foreign. We distinguish all foreign variables by

labeling them with an asterisk. Production technology is identical across countries, but

the cultures of each country are distinct. There is one factor of production, which we

shall call labor.

The homogeneous product is costlessly tradable and both countries produce it

when there is trade. It is produced under constant returns to scale and perfect

competition, which ensures that the wage rate will be the same in both countries.

Cultural goods are produced under increasing returns to scale, with a fixed cost and

constant marginal cost, in a monopolistic competition setting.

Our first change to the Helpman-Krugman model is that we assume that cultural

goods are costlessly transportable, but they are subject to a "cultural discount" by

domestic consumers. This change proves to be only notational, i.e., the cultural discount in our model is equivalent to the "ice" transportation cost in the Helpman-Krugman model. Our second change is to assume that the utility from consuming cultural goods is augmented by consumption network externalities, which we will specify below. Our third change is to assume that the utility from consumption of cultural goods is also augmented by the quality of cultural goods production, which in turn is a function of past cultural goods production through spillover of ideas.

These three changes are incorporated into the utility function of the representative home country consumer:

$$u_\tau = C_{y\tau}^{1-\alpha} \left\{ Q_\tau \left[n_\tau \left(H_\tau C_\tau \right)^\rho + n_\tau^* \left(\delta \widetilde{H}_\tau \widetilde{C}_\tau \right)^\rho \right]^{1/\rho} \right\}^\alpha ,$$

$$U_t = \sum_{\tau=t}^{\infty} \frac{u_\tau}{\left(1+r\right)^\tau},$$

(1)

where τ indexes time; C_y is the consumption of the homogeneous good by the representative home country consumer; C and $\widetilde{C}$ are the consumptions by the home consumer of a typical variety of the home and foreign cultural good, respectively; δ is the cultural discount rate, where we assume that $0 < \delta < 1$; H and $\widetilde{H}$ measure the consumption network externalities enjoyed by consuming home and foreign cultural goods, respectively; n and n^* are the number of varieties of home and foreign cultural good that are produced, respectively; Q is the quality of cultural goods production; and r is the time discount rate. In equation (1), u_τ is the instantaneous utility at time τ, and U_t is total utility, discounted to time t. We have incorporated into the utility function the symmetry of all home and all foreign varieties of cultural good.

The utility of the representative foreign country consumer is symmetric to equation (1) and can be written as follows:

$$u_\tau^* = \left(C_{y\tau}^*\right)^{1-\alpha} \left\{ Q_\tau \left[n_\tau \left(\delta H_\tau^* C_\tau^*\right)^\rho + n_\tau^* \left(\widetilde{H}_\tau^* \widetilde{C}_\tau^*\right)^\rho \right]^{1/\rho} \right\}^\alpha,$$

(2)

$$U_t^* = \sum_{\tau=t}^\infty \frac{u_\tau^*}{(1+r)^\tau},$$

where the notation is in all respects analogous to equation (1). Note that the assumption of equal cultural discounting by home and foreign consumers is made for notational simplicity, and does not qualitatively affect our results.

Equations (1) and (2) incorporate the assumption that the quality of all cultural goods production is the same across the two countries, implying that the ideas generated by production of past cultural goods have the same spillover to both home and foreign producers. Thus, the model works as if all cultural goods producers attend the same international film and music festivals, making the gains from past cultural production a public good. We could easily let each country's producers give more weight to the ideas generated by past production in their own country without qualitatively changing our results, but we maintain symmetry for simplicity.

For the quality of current period production of cultural goods we specifically assume:

$$Q_\tau = Q(n_{\tau-1}, n_{\tau-1}^*).$$

This equation incorporates two important additional assumptions. First, ideas generated by past production of home and foreign varieties of cultural goods are imperfect substitutes in production of current cultural good quality, as we argued in our introduction. We assume this implies that the marginal product of an additional past

variety of a country is increasing with the relative scarcity of that country's past varieties.

Second, current cultural goods quality depends only on varieties produced in the

immediately preceding period; there is no accumulation of ideas that would cause cultural

goods quality to increase over time.[10] This means that there is no state variable in the

model, and we can drop the time subscript to simplify notation.

We complete the specification of our model by defining the consumption network

externalities:

$$H = H(nD + \gamma nD^*), \ \widetilde{H} = H(n^*\widetilde{D} + \gamma n^*\widetilde{D}^*),$$

$$H^* = H(\gamma nD + nD^*), \ \widetilde{H}^* = H(\gamma n^*\widetilde{D} + n^*\widetilde{D}^*),$$

where the different Ds are aggregate demand for a given variety of cultural good, with an

asterisk denoting consumption by foreign consumers, and a tilde denoting consumption

of foreign varieties. In the equation above, γ is a parameter such that $0 < \gamma < 1$, and $H(.)$ is

an increasing function of its argument, where for simplicity we assume that $H(0) = 1$.

There are two key features of our specification. First, consumption network externalities

are stronger within a country than across countries, with the extent of cross-country

externalities determined by γ, a parameter that we can think of as measuring

"globalization." Second, externalities for any variety depend not only on consumption of

that individual variety but also on consumption of all "compatible" varieties, i.e.,

varieties produced within the same culture.

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[10] Thus, cultural goods producers in our model are only influenced by "fresh ideas." In reality, current cultural goods producers may also get ideas from archived film and music, for example, nearly all of which loses relevance with time. Allowing for less than 100 percent depreciation of cultural ideas after two periods would mean that the impact on future cultural goods quality of changes in current numbers of varieties of cultural goods being produced would unfold more slowly.

This second feature may be controversial. We argue that a major reason why film is socially consumed is that people like to discuss the films they see. Discussion will often involve comparison with other, similar films, so enjoyment of any given film is enhanced by the extent to which similar films have been seen by the participants in the discussion. Music needs to be compatible to be programmed by DJs at events and on the radio and for dance music at parties, so again, demand for any given piece of music is enhanced by the extent to which similar music is consumed by others. Obviously, the symmetry across all varieties in our consumption network externality specification is unrealistic: externalities will be stronger within than across genres (action-adventure versus romantic comedy, country-western versus rock), and stronger for the variety in question than for other compatible varieties. Incorporating these complications would not qualitatively affect our results, provided that each individual producer is still too small to affect the sum of consumption network externalities for its variety of cultural good.

III. Model Solution and Results

It is easy to show that we obtain the standard CES demands for cultural goods, which are therefore given by:

$$D = \frac{p^{-\sigma} H^{\sigma-1}}{np^{1-\sigma} H^{\sigma-1} + n^* p^{1-\sigma} \left(\delta \widetilde{H}\right)^{\sigma-1}} \alpha L,$$

$$\widetilde{D} = \frac{p^{-\sigma} \left(\delta \widetilde{H}\right)^{\sigma-1}}{np^{1-\sigma} H^{\sigma-1} + n^* p^{1-\sigma} \left(\delta \widetilde{H}\right)^{\sigma-1}} \alpha L,$$

$$D^* = \frac{p^{-\sigma} \left(\delta H^*\right)^{\sigma-1}}{np^{1-\sigma} \left(\delta H^*\right)^{\sigma-1} + n^* p^{1-\sigma} \widetilde{H}^{*\sigma-1}} \alpha L^*, \tag{3}$$

$$\widetilde{D}^* = \frac{p^{-\sigma}\widetilde{H}^{*\sigma-1}}{np^{1-\sigma}\left(\delta H^*\right)^{\sigma-1} + n^* p^{1-\sigma}\widetilde{H}^{*\sigma-1}}\alpha L^*,$$

where $\sigma \equiv 1/(1-\rho)$ is the elasticity of substitution between any two varieties of the cultural good, and p is the price of any variety in either country in monopolistic competition equilibrium. In monopolistic competition equilibrium, p will be fixed by the constant markup and the constant wage (which determines a constant marginal cost). Note that cultural goods quality Q drops out of the demand for cultural goods. This occurs because the Cobb-Douglas specification of the utility function makes Q^{α} a shifter of the entire level of utility.

As in the Helpman-Krugman model, the output of any variety in monopolistic competition is fixed and equal across countries. Denoting this output by x, we have two market clearing conditions:

$$D + D^* = x,$$

$$\widetilde{D} + \widetilde{D}^* = x. \tag{4}$$

Equations (3) and (4) give us six equations in the six unknowns: $n, n^*, D, \widetilde{D}, D^*$, and $\widetilde{D}^*$. If the function H were identically one, the model would reduce to the Helpman-Krugman model. Indeed, it will be convenient to assume that the function H is bounded from above by $1/\delta$. To see why, combine the two market-clearing conditions to obtain:

$$D - \widetilde{D} = \widetilde{D}^* - D^*.$$

Substituting the equations for the demands (equations 3) in the equation above and eliminating p and α yields:

$$\frac{[H^{\sigma-1}-(\delta\widetilde{H})^{\sigma-1}]L}{nH^{\sigma-1}+n^*(\delta\widetilde{H})^{\sigma-1}} = \frac{[\widetilde{H}^{*\sigma-1}-(\delta H^*)^{\sigma-1}]L^*}{n(\delta H^*)^{\sigma-1}+n^*\widetilde{H}^{*\sigma-1}}.$$

Now suppose that n^* approaches zero, so that $\widetilde{H}, \widetilde{H}^* \to 1$. Then, $\widetilde{D}^* - D^*$ (the right-hand side of the equation above) approaches a positive term times $1 - (\delta H^*)^{\sigma-1}$.

Therefore, we want $H^* < 1/\delta$, since $D - D^*$ (left-hand side of the equation) is certainly positive.

We can gain some intuition about the behavior of the model by rearranging the previous equation as follows:

$$\frac{n}{n^*} = \frac{[(H/\widetilde{H})^{\sigma-1} - \delta^{\sigma-1}](L/L^*) - [1 - (\delta H^*/\widetilde{H}^*)^{\sigma-1}]\delta^{\sigma-1}}{[1 - (\delta H^*/\widetilde{H}^*)^{\sigma-1}](H/\widetilde{H})^{\sigma-1} - [(H/\widetilde{H})^{\sigma-1} - \delta^{\sigma-1}](\delta H^*/\widetilde{H}^*)^{\sigma-1}(L/L^*)}. \qquad \textbf{(5)}$$

As L/L^* increases, we expect n/n^* to increase because home consumers demand relatively more home cultural goods than foreign cultural goods, due to the cultural discount. Indeed, if we let H for a moment be a constant function, it is clear from equation (5) that this result must obtain (recall that $\delta < 1$). However, we can also see that, through the H functions, the increase in n/n^* will tend to reinforce, rather than offset, the increase in L/L^*. Note that if this tendency is strong enough, n/n^* will actually have to fall in response to an increase in L/L^* in order to maintain equation (5).[11] Thus, the consumption network externality cannot be too strong (i.e., H' cannot be too large) if our model is to be well behaved. We therefore maintain the assumption of a sufficiently weak externality for the remainder of this paper.

We can further use equation (5) to study the impact of globalization, which we model as an increase in γ.[12] We conjecture that an increase in γ will cause a larger

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[11] We have established through simulation that increasing the strength of the consumption network externality (i.e., increasing H') can switch the impact of L/L^* on n/n^* from positive to negative.
[12] One example of why this may be true is the rise of the Internet, possibly the most often-mentioned dimension of globalization. We can conjecture that the increase in chatrooms and other specialized websites where people from all over the world exchange opinions and share common interests is precisely one way in which consumption externalities in cultural goods can cross borders in a more intensive way.

percentage increase in H or H^* than in $\widetilde{H}$ or $\widetilde{H}^*$, i.e., it will increase the consumption network externality effect for home goods relative to that for foreign goods, thereby raising n/n^*. For concreteness, consider the ratio $H^*/\widetilde{H}^*$. Logarithmic differentiation of this ratio with respect to γ, treating all variables as exogenous, yields:

$$\frac{H'(\gamma nD + nD^*)nD}{H(\gamma nD + nD^*)} - \frac{H'(\gamma n^*\widetilde{D} + n^*\widetilde{D}^*)n^*\widetilde{D}}{H(\gamma n^*\widetilde{D} + n^*\widetilde{D}^*)}.$$

Let n^* approach zero. Since $H(0) = 1$, this expression becomes positive, provided that $H'(0)$ is finite. In this limit, the percentage change in H^* must therefore exceed the percentage change in $\widetilde{H}^*$. As n^* approaches n the percentage change in $\widetilde{H}^*$ (the second term of the expression above) increases relative to the percentage change in H^*, but we know that for $n^* = n$ we must have $L^* = L$, in which case the two countries are completely symmetric and we must have $d(n/n^*)/d\gamma = 0$.

We have now established the intuition for the following propositions and lemmas, [which we expect to prove in a future draft of this paper:

Proposition 1: Given $L > L^*$, n/n^* increases with γ. That is, increased globalization raises the market share of the large country in cultural goods.

Lemma 1: The minimum L^* consistent with $n^* > 0$ increases with γ. That is, increased globalization means that cultural goods production will disappear from increasingly large countries (that are still smaller than the home country).

A test of the predictions of Proposition 1 and Lemma 1 would involve changes over time. Our model also makes cross-sectional predictions that may be easier to test. These concern market shares for cultural goods that differ in the extent to which they are socially consumed.

Proposition 2: Consider two types of cultural goods, 1 and 2, such that

$(d/dz)\ln H_1(z) > (d/dz)\ln H_2(z)$. That is, good 1 is more "sensitive" to network

consumption externalities than good 2. We will obtain $n_1/n_1^* > n_2/n_2^*$, i.e., the market

share of the large country will be greater for cultural goods with stronger consumption

network externalities.

Lemma 2: The minimum L^* consistent with $n_1^* > 0$ is larger than the minimum

L^* consistent with $n_2^* > 0$. Thus, production will disappear when the foreign (small)

country is relatively large when the cultural goods have stronger consumption network

externalities.

The most promising way to test Proposition 2 or Lemma 2 is to look within a

category of cultural goods for types that clearly differ in the extent to which the social

aspect of consumption is important. This will hold constant as many confounding factors

(e.g., comparative advantage and trade costs) as possible. For example, we would predict

that the market share of Western clothing would be greater for business attire than for

sleepwear. An especially interesting comparison is film versus television. Even

primetime television is less viewed and discussed with individuals outside the home than

are films. The consensus view among media scholars is that the U.S. share of foreign

television viewing, even for primetime, is far below the U.S. share of foreign cinema

admissions.[13] Unfortunately, systematic ratings data giving market shares of U.S. and

foreign programming are unavailable or expensive for most countries. We know that the

U.S. audience share for the largest commercial network in S. Korea has fluctuated

between 5 and 13 percent during the period 1992-2002 (compared to a cinema market

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[13] Straubhaar (2002, p. 197) states, "As ratings in many countries reflect, audiences usually tend to prefer local programming when they can get it."

share of 49 percent in Table 1). An article in *Variety* (Johnson 2003) notes, "A recent

survey by Nielsen Media Research found that 71% of the top ten programs in 60

countries were locally produced." As an example of the cultural specificity to which

local producers cater, the article cites the popularity of "religious fiction" in Italy:

"Hardly a week goes by without a spiritual offering in primetime, a series or made-for

based on the Bible or the lives of popes and saints. The latest example of religious fiction

was dedicated to the saint Maria Goretti and drew 10 million viewers (a 35% share)."

In order to increase their cultural goods market shares, countries around the world

such as Australia, Canada, France, and S. Korea have turned to protectionist measures

such as requiring that a minimum percentage of total domestic screen time or of each

broadcaster's programming be domestic content (Hoskins et al. 1997). For the remainder

of this section we investigate the welfare effects of an ad valorem tariff imposed by the

foreign country on imports of home cultural goods, which can be thought of as the tariff

equivalent of a quantitative restriction. We rewrite foreign country demands as:

$$D_T^* = \frac{(pT)^{-\sigma}(\delta H^*)^{\sigma-1}}{n(pT)^{1-\sigma}(\delta H^*)^{\sigma-1} + n^* p^{1-\sigma}\widetilde{H}^{*\sigma-1}}\alpha L^*,$$

$$\widetilde{D}_T^* = \frac{p^{-\sigma}\widetilde{H}^{*\sigma-1}}{n(pT)^{1-\sigma}(\delta H^*)^{\sigma-1} + n^* p^{1-\sigma}\widetilde{H}^{*\sigma-1}}\alpha L^*,$$

where *T* equals one plus the tariff rate, and for simplicity we have assumed that the

government spends all tariff revenue on the homogeneous product. We can then go on to

rewrite equation (5) as:

$$\frac{n}{n^*} = \frac{[(H/\widetilde{H})^{\sigma-1} - \delta^{\sigma-1}](L/L^*) - [1 - (\delta H^*/\widetilde{H}^*)^{\sigma-1}T^{-\sigma}]\delta^{\sigma-1}}{[1 - (\delta H^*/\widetilde{H}^*)^{\sigma-1}T^{-\sigma}](H/\widetilde{H})^{\sigma-1} - [(H/\widetilde{H})^{\sigma-1} - \delta^{\sigma-1}]T^{1-\sigma}(\delta H^*/\widetilde{H}^*)^{\sigma-1}(L/L^*)}.$$

We see that the direct effects of increasing T are all to decrease n/n^*, and we assume that these dominate any indirect effects through the H functions (which should be a consequence of having sufficiently weak consumption network externalities to ensure that the model is well behaved).

We can now establish the following proposition.

Proposition 3: Protection of cultural goods production in the small country (the foreign country) can increase welfare of the representative consumer in both home and foreign.

In the current period protection reduces welfare of the representative foreign consumer by raising prices of imported cultural goods, and reduces welfare for all consumers by causing the number of varieties available to be below the free-market equilibrium level of $\alpha(L + L^*)/px$.[14] In all future periods, however, these effects can be dominated by increased quality of cultural goods. The effect of protection on future quality will be larger the smaller is the initial market share of the foreign country. When improved quality dominates the loss from the price distortion and reduced variety, welfare of the representative consumer in both the foreign and home countries increases provided the rate of time discount is sufficiently small.

Note that since globalization has the opposite effects on relative market shares from protection, it can cause welfare of the representative consumer in both countries to fall despite the static benefits of increased consumption network externalities. The fall in welfare of the representative home consumer could be termed "cultural blowback."

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[14] This effect can only be avoided if the foreign government spends all the tariff revenue it collects on cultural goods.

IV. Imitative Cultural Production

In this section, we introduce the possibility of imitative cultural production into our model. Imitative cultural production is defined as the production of cultural goods that share the cultural discount properties of domestic cultural goods but the consumption network externalities of the other country's cultural goods (i.e., they are "compatible" with the other country's cultural goods). Imitative film would be film that adopts the plot conventions and cinematic style of the other country while employing domestic actors and using a domestic setting. Imitative music would be music that adopts the rhythm, harmony, and instrumentation of the other country while employing domestic singers and using lyrics that address domestic concerns and values. The use of the domestic language by the actors or singers in imitative cultural goods would be the most important element in maintaining the cultural discount properties of domestic cultural goods, whereas the adoption of core features of the other country's cultural goods would allow imitative films to be part of the same "conversation" as the other country's films and imitative music to be programmed with the other country's music at parties and on the radio.

There are now potentially two types of cultural goods being produced in each country. For clarity, we will refer to the cultural goods already present in the model of the previous section as "authentic," as opposed to "imitative." (We recognize that "authentic" is a loaded term and will discuss some of the issues it raises in our conclusions.) We assume that the fixed cost of producing imitative cultural goods is a multiple $\lambda > 1$ of the fixed cost of producing authentic cultural goods, reflecting the costs to domestic producers of adopting the unfamiliar features of the other country's cultural

goods.[15] We also assume that producers of authentic cultural goods are the

"incumbents," and that potential producers of imitative goods only enter if it is profitable

given the existing levels of consumption network externalities. With these assumptions,

it is easy to see that imitative cultural goods will not be introduced in the home country,

because cost is higher and the consumption network externality is smaller than for

authentic cultural goods. We will therefore only consider the possibility of imitative

cultural production in the foreign country.

Let D_* and D_*^* be the home and foreign demand for a foreign imitative good,

respectively. The condition for successful entry of imitative goods producers is then

easily shown to be $D_* + D_*^* \geq \lambda x$, where D_* and D_*^* are evaluated at the equilibrium

without imitative production. Since $\widetilde{D} + \widetilde{D}* = x$, this condition can be rewritten as

$D_* + D_*^* \geq \lambda(\widetilde{D} + \widetilde{D}*)$. It is then easily shown that $(H/\widetilde{H})^{\sigma-1} \geq \lambda$ and $(H^*/\widetilde{H}^*)^{\sigma-1} \geq \lambda$

are sufficient for this condition to hold. It can be shown that for $\gamma < 1$, $H/\widetilde{H} > H^*/\widetilde{H}^*$,

so $(H^*/\widetilde{H}^*)^{\sigma-1} \geq \lambda$ is a sufficient condition for $D_* + D_*^* \geq \lambda(\widetilde{D} + \widetilde{D}*)$ to hold.

Intuitively, it is profitable to introduce imitative production when its consumption

network externality in the foreign country is sufficiently high relative to that of authentic

production to offset its higher cost.

We now have the following results.

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[15] The marginal costs of producing the physical film or CD are presumably the same for both types of cultural goods, though the marginal costs of imitative cultural goods could also be higher if, for example, it was necessary to hire supporting artists from the other country and pay them royalties.

Proposition 4: *Globalization favors introduction of imitative production.* This

follows because $H^*/\widetilde{H}^*$ is increasing in γ. [This has only been proven rigorously for n^*

= 0.]

Proposition 5: *With homogeneous foreign consumers, authentic and imitative*

production cannot coexist in equilibrium. In equilibrium we must have $D_* + D_*^* = \lambda x$.

Since $D_* + D_*^* \geq \lambda(\widetilde{D} + \widetilde{D}^*)$ evaluated at the equilibrium without imitative production, it

follows that $x \geq \widetilde{D} + \widetilde{D}^*$ evaluated at the equilibrium without imitative production. It is

then easily shown that since positive imitative production augments its own consumption

network externality, $\widetilde{D} + \widetilde{D}^* < x$ when there is positive imitative production in

equilibrium.

Proposition 6: *In the presence of imitative production, foreign protection must*

reduce foreign and world welfare. The key to this result, of course, is that imitative

foreign varieties are treated as perfect substitutes for home varieties in the production of

cultural good quality. The current mix of varieties between home and foreign no longer

affects the quality of future cultural production; only the total number of current varieties

matters. With total expenditure on cultural goods fixed at α(L + L*), the total number of

varieties must fall with foreign protection because the price of home varieties rises for

foreign consumers and because each foreign variety requires more real resources given

that imitative production is more expensive than authentic production. Thus, in addition

to its standard distortionary impact, protection must also lower welfare by reducing the

quality of future cultural production.

This strong negative result for the impact of foreign protection is suspect because

it follows from the result that imitative production completely drives out authentic

production in the foreign country, which is clearly not true in the real world. In order to

allow authentic and imitative production to coexist in the foreign country, we need to

allow for consumer heterogeneity there. We do so by dividing foreign consumers into

two groups, "urban" and "rural." Urban foreign consumers have stronger social

interactions with home country consumers than do rural foreign consumers. Since

imitative goods share the consumption network externalities of home country cultural

goods, urban foreign consumers will tend to have stronger preferences for imitative

relative to authentic goods.[16] In equilibrium, we will have $H_U^*/\widetilde{H}_U^* > H_R^*/\widetilde{H}_R^*$, recalling

that *H** applies equally to home cultural goods and foreign imitative cultural goods.

This model is too complicated to solve. However, we can gain some intuition

about its behavior by developing the market clearing conditions for authentic and

imitative cultural goods. For each of the two types of goods we sum home, urban

foreign, and rural foreign demand:

$$\widetilde{D} \ + \ \widetilde{D}_U^* \ + \ \widetilde{D}_R^* = x.$$

$$D_* \ + \ D_{*U}^* \ + \ D_{*R}^* = \lambda x.$$

Letting n_* denote the number of varieties of the imitative foreign cultural good produced

in equilibrium, μ denote the urban share of foreign consumers, and *T* denote one plus the

tariff rate on imported home cultural goods, we can expand these two market clearing

conditions as follows:

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[16] The terminology "urban" and "rural" suggests that we are treating "authentic" as equivalent to
"traditional." We will return to the relationship between the concepts of "authentic" and "traditional"
cultural production in our conclusions.

$$\frac{p^{-\sigma}(\delta\widetilde{H})^{\sigma-1}}{np^{1-\sigma}H^{\sigma-1}+n_*p^{1-\sigma}(\delta H)^{\sigma-1}+n^*p^{1-\sigma}(\delta\widetilde{H})^{\sigma-1}}\alpha L$$

$$+\frac{p^{-\sigma}\widetilde{H}_U^{*\,\sigma-1}}{n(pT)^{1-\sigma}(\delta H_U^*)^{\sigma-1}+n_*p^{1-\sigma}H_U^{*\,\sigma-1}+n^*p^{1-\sigma}\widetilde{H}_U^{*\,\sigma-1}}\alpha\mu L^* \tag{6}$$

$$+\frac{p^{-\sigma}\widetilde{H}_R^{*\,\sigma-1}}{n(pT)^{1-\sigma}(\delta H_R^*)^{\sigma-1}+n_*p^{1-\sigma}H_R^{*\,\sigma-1}+n^*p^{1-\sigma}\widetilde{H}_R^{*\,\sigma-1}}\alpha(1-\mu)L^* = x,$$

$$\frac{p^{-\sigma}(\delta H)^{\sigma-1}}{np^{1-\sigma}H^{\sigma-1}+n_*p^{1-\sigma}(\delta H)^{\sigma-1}+n^*p^{1-\sigma}(\delta\widetilde{H})^{\sigma-1}}\alpha L$$

$$+\frac{p^{-\sigma}H_U^{*\,\sigma-1}}{n(pT)^{1-\sigma}(\delta H_U^*)^{\sigma-1}+n_*p^{1-\sigma}H_U^{*\,\sigma-1}+n^*p^{1-\sigma}\widetilde{H}_U^{*\,\sigma-1}}\alpha\mu L^* \tag{7}$$

$$+\frac{p^{-\sigma}H_R^{*\,\sigma-1}}{n(pT)^{1-\sigma}(\delta H_R^*)^{\sigma-1}+n_*p^{1-\sigma}H_R^{*\,\sigma-1}+n^*p^{1-\sigma}\widetilde{H}_R^{*\,\sigma-1}}\alpha(1-\mu)L^* = \lambda x,$$

where for simplicity we have assumed that the foreign government spends all the tariff revenue it collects on the homogeneous good. We can then divide both sides of equation (7) by λ, equate the left-hand sides of equations (6) and (7), and rearrange to obtain:

$$\frac{pD_*}{\alpha\lambda} - \frac{p\widetilde{D}}{\alpha} + \frac{(H_U^{*\,\sigma-1}/\lambda - \widetilde{H}_U^{*\,\sigma-1})\mu L^*}{nT^{1-\sigma}(\delta H_U^*)^{\sigma-1}+n_*H_U^{*\,\sigma-1}+n^*\widetilde{H}_U^{*\,\sigma-1}}$$

$$= \frac{(\widetilde{H}_R^{*\,\sigma-1} - H_R^{*\,\sigma-1}/\lambda)(1-\mu)L^*}{nT^{1-\sigma}(\delta H_R^*)^{\sigma-1}+n_*H_R^{*\,\sigma-1}+n^*\widetilde{H}_R^{*\,\sigma-1}}. \tag{8}$$

We see from equation (8) that increasing globalization (γ), by raising H_U^* relative to $\widetilde{H}_U^*$ and H_R^* relative to $\widetilde{H}_R^*$, operates in the same direction as increasing urbanization (μ), as expected. (Effects through $\widetilde{D}$ and D_* can be assumed to be small.) The more interesting question is the effect of increasing protection (*T*). Focusing on the

denominators in equation (8), we see that a higher T, like a higher μ, raises the left-hand side relative to the right-hand side because $H_U^* > H_R^*$. This reflects the fact that urban consumers have a stronger preference for foreign goods because they are more "globalized" and therefore will experience a stronger impact from protection and a stronger substitution effect towards domestic goods than rural consumers. This will stimulate demand for imitative goods relative to authentic goods because urban consumers have a stronger preference for the former. Turning to the numerators in equation (8), we expect $\widetilde{H}_U^*$ to increase relative to H_U^* and $\widetilde{H}_R^*$ to increase relative to H_R^* because authentic goods do not share consumption network externalities with home goods. This effect will be greater, the larger is n^* relative to n_*, because the substitution effect towards domestic consumption will then have a greater impact on consumption network externalities for authentic goods than for imitative goods. Given that the effects of protection on the numerators and denominators of equation (8) are offsetting, we conjecture that protection will promote authentic cultural production in the foreign country only when the ratio of rural to urban consumers (or "unglobalized" to "globalized" consumers) and thus n^* to n_* is high. It may be that this occurred in post-revolution Iran, where strong government restrictions on imported films gave rise to a vigorous authentic domestic cinema that is described as "one of the pre-eminent national cinemas in the world today" by both the New York Film Festival and Toronto International Film Festival (Naficy 2003, p. 138).

V. Lessons for Cultural Policy

Our model is full of distortions: pricing above marginal cost in monopolistic competition equilibrium, consumption network externalities, and knowledge spillovers. An optimal policy package to address all of these distortions is likely to be quite complicated and, more importantly in our view, quite unrealistic in terms of the demands it would make on government implementation capacity. Our goal in this concluding section is much more modest: to find a Pareto-improving reform of cultural policy that builds on existing institutions and practices and is therefore feasible to implement.

Current cultural policy in many countries is to set aside some percentage of total domestic screen time for domestically produced film and some percentage of total domestic air time for domestically produced music or television (UNESCO n.d.). These are quantitative restrictions, for which tariff equivalents can be found (at least in theory). According to our model, it is at least possible that these policies are welfare-improving, because they may be increasing production of authentic cultural goods that generate ideas with large marginal impacts on the quality of future cultural goods output in all countries. However, to the extent that these policies protect or even stimulate production of imitative cultural goods, they are purely welfare-decreasing. This negative outcome becomes more likely over time as globalization makes imitative production ever more attractive. In either case, standard economic reasoning suggests that import restrictions are an inefficient way to achieve a target level of domestic output. In our model, moreover, replacing import restrictions with production subsidies has the special advantage that production subsidies can be directed towards authentic production, whereas import restrictions cannot. Our recommendation for reform of cultural policy is

therefore that import restrictions be removed and replaced by production subsidies that maintain at least the pre-existing level of authentic cultural output.   (In a future draft we expect to formally prove that such a reform must be Pareto-improving.)

Since the purpose of subsidizing production of authentic cultural goods is to make the ideas embedded in them available to producers worldwide, subsidies should be to the fixed costs of production rather than to the marginal costs of production or distribution. The cultural output should then be made available to international film and music festivals at no more than marginal cost. Our policy reform thus translates into replacing import restrictions with a combination of increases in the budgets for national arts agencies and retargeting of their existing resources, which sometimes appear to be aimed more at supporting domestic cultural employment than domestic cultural ideas (*Economist* 1998). The practical difficulty with implementation of this reform, to which we already alluded in our introduction, is that taxpayers in small countries would be explicitly funding programs for which most of the benefits accrue to the rest of the world, simply by virtue of its larger size. This suggests that, in exchange for removing its restrictions on imports of cultural goods, a small country should ask the large country (the United States) to contribute to the funding of its national arts agency. The contribution could be made directly, or indirectly via increased U.S. funding of a supranational agency such as UNESCO.

Our discussion so far has assumed that the national arts agencies that administer production subsidies for cultural goods will have no difficulties in distinguishing authentic from imitative production. In practice, explicit targeting on the basis of "authenticity" runs the risk of favoring cultural production that is considered to be safely

"traditional," which could stifle rather than reward creativity and thus reduce the quality of the ideas that are embedded in the output. A better strategy might be to make "originality" a major criterion for funding, which will be an effective criterion to the extent that culturally imitative production also tends to be imitative in the sense of "unoriginal." In the final analysis, however, appropriate criteria for national arts agencies should be developed with input from producers themselves, who hold the real expertise in this area.

REFERENCES

Baxter, John. 1999. *Mythmaker: The Life and Work of George Lucas* (New York: Avon).

Eaton, B. Curtis; Pendakur, Krishna; and Reed, Clyde G. 2003. "Socializing, Shared Experience, and Popular Culture." http://econ.ucalgary.ca/fac-files/bce/culture9.pdf.

The Economist. 1998. "Culture Wars." September 12, pp. 99-103.

Evans, David. 2002. "The Development of the Blues." In Allan Moore, ed., *The Cambridge Companion to Blues and Gospel Music* (Cambridge: Cambridge University Press).

Everett, Walter. 1999. *The Beatles as Musicians: Revolver through the Anthology* (New York: Oxford University Press).

Falicov, Tamara L. 2000. "Argentina's Blockbuster Movies and the Politics of Culture under Neoliberalism, 1989-1998." *Media, Culture, and Society* 22(3): 327-342.

Grossman, Gene and Helpman, Elhanan. 1991. *Innovation and Growth in the Global Economy* (Cambridge, MA: MIT).

Helpman, Elhanan and Krugman, Paul. 1985. *Market Structure and Foreign Trade* (Cambridge, MA: MIT).

Hirsch, Foster. 2001. *The Dark Side of the Screen: Film Noir* (Da Capo Press).

Hoskins, Colin; McFadyen, Stuart; and Finn, Adam. 1997. *Global Television and Film: An Introduction to the Economics of the Business* (Oxford: Oxford University Press).

Janeba, Eckhard. 2004. "International Trade and Cultural Identity." National Bureau of Economic Research Working Paper No. 10426 (April).

Johnson, Debra. 2003. "Auds Prefer Local Flavor Over U.S. Fare." *Variety*, March 24, p. A3.

Naficy, Hamid. 2003. "Poetics and Politics of Veil, Voice and Vision in Iranian Post-revolutionary Cinema." In David A. Bailey and Gilane Tawadros, eds., *Veiling, Representation and Contemporary Art* (Cambridge, MA: MIT).

Ottaviano, Gianmarco and Peri, Giovanni. 2004. "The Economic Value of Cultural Diversity: Evidence from U.S. Cities." UC Davis Working Paper (March).

Pavcnik, Nina. 2002. "Trade Disputes in the Commercial Aircraft Industry." *World Economy* 25 (May): 733-751.

Romer, Paul M. 1990. "Endogenous Technological Change." *Journal of Political Economy* 98(5): S71-102.

Sintas, Jordi López and Álvarez, Ercilla García. 2002. "The Consumption of Cultural Products: An Analysis of the Spanish Social Space." *Journal of Cultural Economics* 26: 115-138.

Slonimsky, Nicolas. 1997. *Baker's Dictionary of Music* (New York: Schirmer).

Straubhaar, Joseph. 2002. "(Re)asserting National Television and National Identity Against the Global, Regional and Local Levels of World Television." In Joseph M. Chan and Bryce T. McIntyre, eds., *In Search of Boundaries: Communication, Nation-States, and Cultural Identities* (Westport, CT: Ablex).

Stuessy, Joe. 1990. *Rock and roll: Its History and Stylistic Development* (Englewood Cliffs, NJ: Prentice-Hall).

Thomas, Rosie. 1985. "Indian Cinema: Pleasures and Popularity." *Screen* 26(3-4): 116-131.

UNESCO. n. d.
http://www.unesco.org/culture/industries/trade/html_eng/question17.shtml#17.

Table 1
U.S. & National Cinema Market Shares

	1985		2002	
	U.S.	National	U.S.	National
France	39	44	56	34
Germany	59	23	83	12
Italy	49	32	63	22
South Korea			49	45
Thailand			75	23

Notes: Market shares for Thailand are based on gross box office receipts, while all other countries' market shares are based on total admissions. Shares from 1985 are the earliest available figures for France, Germany and Italy. No earlier observations are available for South Korea and Thailand.

Sources : European Audiovisual Observatory; Screen Digest; Spitzenorganisation der Filmwirtschaft; Variety Magazine.