# Cultural Effects of Trade Liberalization

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September 2005

## Abstract

We incorporate culture into a standard trade model in two distinct ways. In the "cultural affinity from work" model, workers receive a non-pecuniary cultural benefit from work in a particular industry. In the "cultural externality" model, consumers of a product receive utility from other consumer's consumption of a domestic good. We show that resistance to change due to cultural concerns can reduce the national benefits from trade liberalization. Complete movements to free trade will have a positive national welfare impact in the cultural affinity case whereas it may lower national welfare in the cultural externality case. We also show that a loss of cultural benefits is more likely to occur in the externality model.

Keywords: Culture, trade, liberalization, externalities, non-pecuniary benefit.

JEL Classification: F1, Z1, F11, F16

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Notes

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[2] The authors wish to thank participants at the George Washington University Economics Department seminar; colleagues in the Program on Culture in Global Affairs in the Elliott School at GW University, and colleagues at the Society for Applied Anthropology annual meeting.

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We incorporate culture into a standard trade model in two distinct ways. In the "cultural affinity from work" model, workers receive a non-pecuniary cultural benefit from work in a particular industry. In the "cultural externality" model, consumers of a product receive utility from other consumer's consumption of a domestic good. We show that resistance to change due to cultural concerns can reduce the national benefits from trade liberalization. Complete movements to free trade will have a positive national welfare impact in the cultural affinity case whereas it may lower national welfare in the cultural externality case. We also show that a loss of cultural benefits is more likely to occur in the externality model.

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## 1. Introduction

The reality of global cultural difference challenges the goal of creating an integrated world trading system based on common rules and norms. For some advocates of trade liberalization, as represented by the expansive, post-Uruguay Round trade agenda, global cultural diversity represents an irritating distraction on the road to a rationally organized world economy. For some opponents of globalization, the perceived threat to the global diversity of values and practices represents one of the great dangers of the policies animating the World Trade Organization (WTO). Examples arise in the controversies over animal rights (the tuna/dolphin dispute), child labor (carpet manufacturing), and environmental protection (logging practices in tropical forests). Moreover, "culture" and similar terms are invoked with increasing frequency to justify departures from liberal trade: as in Japanese rules limiting practice by foreign attorneys (Coulter 1995); in French defense of farm subsidies as a means of preserving rural social life (Gardner 1996:101); or in Saudi opposition to foreign investment in the insurance sector (Pruzin 2002).

The economic analysis of trade liberalization has largely ignored formal modeling of cultural factors, despite the fact that national cultural differences form an inescapable aspect of the global economic system. Some exceptions have begun to appear. Bala and Long (2004) develop an evolutionary model of preferences to show that a large country may be able to overrun the indigenous preferences of a smaller country through trade. However, their paper incorporates a value to culture only as an afterthought in saying that if governments place value in a particular preference structure they may opt for

protection to preserve a cultural heritage. Janeba (2004) introduces culture explicitly into a Ricardian model by assuming an individual's utility for a cultural good is based in part on how many others are also consuming it. One implication is that trade can be welfare reducing when a country is culturally homogeneous. Francois and van Ypersele (2002) also introduce a cultural effect by assuming consumption of some goods generate an externality. They show the possibility that protection can raise welfare in the presence of cultural goods. Finally, Lazear (1999) identifies culture with language and assumes that transactions costs are lower when trading with another person who shares one's language (culture). Rather than look at the effects of international trade, though, Lazear's focus is on immigration patterns.

This paper contributes to the literature by identifying and comparing the cultural and national welfare impacts of trade liberalization within two distinct trade models in which cultural values are incorporated. In the first model (the *cultural externality model*) a domestically produced good provides a public as well as private benefit. This model is most similar to Janeba (2004) and Francois and Ypersele (2002) in that culture arises out of a positive consumption externality. The issue motivating this model are cases where protection is often suggested for domestic movies, music or other culturally based products. In the second model (the *cultural affinity model*), workers in an import-competing industry are assumed to derive "culturally-based" utility from employment in their own industry, but not from employment in the other industry. This type of cultural effect does not appear elsewhere in the trade literature to our knowledge. It is motivated by cases where resistance to trade liberalization arises because of cultural changes

induced by a reduction in the size of a domestic industry. The cases of French and American family farming and traditional textile production in India provide several examples.

This paper incorporates these two cultural effects in standard Hecksher-Ohlin trade models to demonstrate first, that culture can reduce the welfare effects from trade liberalization, and second that the way in which trade liberalization affects outcomes, whether welfare rises or falls, and the degree of cultural degradation, if any, is specific to the way in which culture manifests itself. In the cultural externality model, trade liberalization can reduce national welfare and reduce cultural benefits since increasing imports of foreign cultural goods reduces the public cultural benefits obtained in consumption of the domestic good. However, trade liberalization in the cultural affinity model, need not reduce welfare or cultural benefits since, as will be shown, worker behavior can safeguard the threatened industry.

Next, we begin by briefly sketching the concept of culture as it informs the rest of our discussion. We then consider two cases, both in the context of a standard two country - two good trade model, in which cultural values may affect the trajectory of trade liberalization. We conclude by considering the application of these models to current policy challenges, and suggest where further research is needed.

## 2. Defining Culture

Asserting cultural difference has become an increasingly common vehicle for challenging dominant policies and institutions (Anaya 1996, ch. 4; Stavenhagen 1995),

including a liberal international trading system. Such claims reflect our assumptions regarding the nature of culture, notoriously one of the most complex concepts in the lexicon of social theory (Keesing 1974; Williams 1958; Winthrop 1991: 50-61). In the most abstract sense *culture* describes a system of understandings through which social life is transacted (for an overview, see Hannerz 1992). But culture exists in and through distinctive contexts--particular places, times, and social groupings--producing "bounded and localized system[s] of meanings" (Appadurai 1986:15). In western Europe and North America, such local systems of meaning dictate that traffic proceeds on the right (not, except for Britain, on the left); that nature is considered a resource (not, as in American Indian societies, an abode of spirits); that employment opportunities should be gender-blind (not, as in Saudi Arabia, gender-determined); and that consumption should be maximized (in contrast to the Amish).

This usage, broadly representative of anthropological theory, contrasts with another: culture as a society's intellectual and artistic achievements, a usage alive and well in economics. In the latter sense, culture involves "activities drawing upon the enlightenment and education of the mind rather than the acquisition of purely technical or vocational skills" (Throsby 2001:4). Relative to the broader, anthropological usage, this is both highly restrictive and highly commodified (see Dominguez 2000). From this follows the notion of *cultural industries* (and the related *cultural goods* and *cultural services*), including cinema, ballet, book and magazine publishing, and the like (Acheson and Maule 1999: ch. 1; Bernier 1998; Keat 2000; Throsby 2001: ch. 7). As the phrase "cultural industries" is commonly applied in trade policy debates, we do not contest its

usage, but emphasize that this represents a departure from the concept of culture employed here.

From an economic perspective, cultural systems act to constrain both the choice sets and the reasoning of individual actors in a given decision context. Operating within a cultural system thus can be construed as a type of bounded rationality. Choice under cultural constraint remains nonetheless a rational procedure: "the (much needed) realism injected by bounded rationality does not alter the essentially rational nature of *Homo Economicus*; it merely redefines the boundaries of rationality" (Doucouliagos 1994:879). Thus a religiously observant Muslim banker acts rationally in avoiding transactions involving payments of interest, given the prohibition on interest in Islamic law. He maximizes utility within what is (culturally) possible, usually by having the lender share in the risk of a borrower's investment, so that the rate of return is not fixed in advance (Haron 1995:29). Similarly, because it is prohibited in the Torah, an Orthodox Jew will not shift her diet choices from beef to pork, regardless of how low the price of pork may fall. Her marginal rate of substitution of pork for beef remains zero.

## 3. The Cultural Externality Model

The first model considers non-pecuniary cultural benefits resulting from *consumption* of certain goods and services: the cultural externality model. We develop this variation using the example of national protection for domestic media.

### *a) Cultural Externalities*

Film, television, newspapers, and magazines provide a picture of the society in which they are produced. In this way media can be powerful determinants of national

identity. The protection of domestic information and entertainment media from the dominant market power of foreign competitors constitutes the most widely recognized example of cultural constraints on trade. (For an overview, see Bernier 1998.) Exempting information and entertainment media from the normal WTO principle of national treatment (treating goods or services in a uniform manner regardless of the country of origin) defines for many scholars *the* "cultural exception" in trade policy (Bhala 2001: 463-98). For advocates of these protections (including the Canadian and French governments), visual media such as film and television, and print media such as books, newspapers, and magazines should not be understood as conventional goods or services, but as "cultural products" created by "cultural industries." The protection of a nation's cultural products, argues French foreign minister Hubert Vedrine, is justified "by their impact on the language, the mentality, and the deep identity of the country," as well as by the quasi-monopolistic position of American media (Vedrine et al. 2001: 19).

Canadian efforts to protect domestic media have been among the most widely discussed examples of culturally protectionist trade policies. The United States is not only Canada's largest trading partner, but increasingly the source of its news, its entertainment, its political commentary, and--many Canadians fear--its values. Some statistics: 95 percent of feature films screened in Canada are foreign; and 83 percent of newsstand magazine sales are for foreign periodicals (Rabinovitch 1998: 30).[3]

[3] In the 1990s Canada responded to foreign (read: American) domination of its magazine market with several measures, including a special tariff, an eighty percent excise tax on foreign periodicals, and preferential postage rates for domestic periodicals. The United States successfully challenged these policies at the World Trade Organization, whose dispute settlement board found all measures in violation of WTO rules (Carmody 1999, Sec. IV). See Carmody 1999 and Knight 1999 for an analysis of this case.

Whether the predominance of foreign media should be a matter for concern depends on one's understanding of the appropriate role of media and the value of market competition. Opponents of protections for domestic media hold that success or failure of media enterprises should reflect consumer preferences, in a manner comparable to other goods and services. If Canadian consumers did not prefer foreign films, television programs, newspapers, or magazines to their domestic counterparts, they would not dominate local markets (Acheson and Maule 1999: 18-22).

Proponents of protections approach the problem with fundamentally different assumptions. The most basic justification concerns the displacement of domestic *content*: "foreign product crowds out 'national voices telling national stories'" (Acheson and Maule 1999: 11). A second argument focuses not on content , but on the potential role of media in creating a national *cultural discourse*. "Cultural products and services communicate ideas and information [which bring] . . . . Canadians together as audiences and as communities of active, reflective citizens" (Rabinovitch 1998: 29). In this view, "culture is a historically developed context in which those whose identity is at stake participate" (Baker 2000: 1368). As Baker points out, this argument presumes that national "cultural industries" constitute a public good. Like national defense or clean air, the capacity for an evolving national identity cannot be adequately provided by conventional market forces (Baker 2000: 1378-89).

*b) A Cultural Externality Model*

To model such a cultural public good, we assume that all individuals in Country A receive benefits from the presence of a locally produced "cultural" good. Consumption

of the cultural good by other residents of A is assumed to raise each individual's utility. In this way consumption by each person has a positive external effect on all others, i.e., there is a consumption externality, and thus the good has public good characteristics. An aggregate utility function incorporating the consumption externality can be written as,

$$U(C_A, C_B, S_A) = u(C_A, C_B) + \delta S_A \quad (13)$$

where $C_A$ is the aggregate consumption of the cultural good, $C_B$ is the consumption of good B, and $S_A$ is the total amount of the domestic cultural good produced. The final part of the expression incorporates the additional utility consumers receive from aggregate consumption of the domestic cultural good, where $\delta$ represents the marginal utility from additional production of the cultural good.

The aggregate equilibrium is found by maximizing national welfare in (13) subject to the following four constraints.

$$S_B = T(S_A) \quad (14)$$

$$E_B = \psi(M_A) \quad (15)$$

$$C_A = S_A + M_A \quad (16)$$

$$C_B = S_B - E_B \quad (17)$$

Equation 14 specifies the transformation curve. Equation 15 is the foreign offer curve giving the relationship between domestic imports of A, $M_A$, and exports of B, $E_B$. Equation 16 says that domestic consumption of A must equal production plus imports and equation 17 states that consumption of B equals production minus exports. The Lagrangian for this system can be written,

$$L = u(C_A, C_B) + \delta S_A + \lambda_1 (S_B - T(S_A)) + \lambda_2 (E_B - \psi(M_A)) + \lambda_3 (C_A - S_A - M_A) + \lambda_4 (C_B - S_B + E_B) \quad (18)$$

Maximizing L with respect to choice variables $C_A$, $C_B$, $S_A$, $S_B$, $M_A$, $E_B$ and the four Lagrange multipliers, and assuming an interior solution, yields the following first-order conditions,

$$u_{CA} + \lambda_3 = 0 \quad (19a)$$

$$u_{CB} + \lambda_4 = 0 \quad (19b)$$

$$\delta - \lambda_1 T'(S_A) - \lambda_3 = 0 \quad (19c)$$

$$\lambda_1 - \lambda_4 = 0 \quad (19d)$$

$$\lambda_2 + \lambda_4 = 0 \quad (19e)$$

$$-\lambda_3 - \lambda_2 \psi'(M_A) = 0 \quad (19f)$$

plus four constraints.

Combining (19a) and (19b) yields,

$$\frac{\lambda_3}{\lambda_4} = \frac{u_{CA}}{u_{CB}} = DRS \quad (20a)$$

where DRS is the domestic marginal rate of substitution in consumption between goods A and B.

Combining (19c) and (19d) yields,

$$\frac{\lambda_3}{\lambda_4} = \frac{\delta + \lambda_1 T'(S_A)}{\lambda_1} = \frac{\delta}{\lambda_1} + DRT \quad (20b)$$

where DRT, the slope of the transformation curve, is the domestic marginal rate of transformation between goods A and B.

And finally, combining (19e) and (19f) yields,

$$\frac{\lambda_3}{\lambda_4} = \psi'(M_A) = FRT \qquad (20c)$$

where FRT is the foreign rate of transformation, the slope of the foreign offer curve, between goods A and B.

Combining (20a), (20b) and (20c) shows that when the cultural externality exists and $\delta > 0$,

$$DRT < DRS = FRT \qquad (21)$$

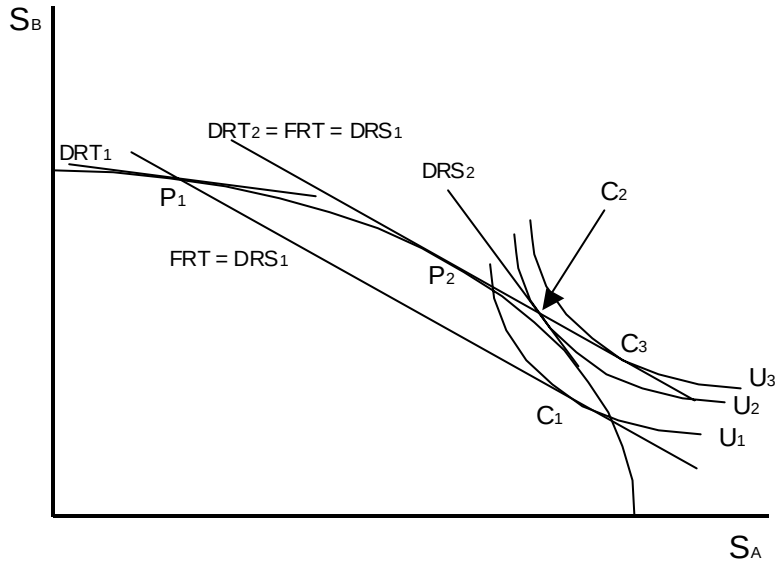
at the equilibrium when there is no intervention, taxes or tariffs, in the market.

A free trade equilibrium is depicted in Figure 1. Production is at $P_1$ with the domestic rate of transformation, $DRT_1$, given by the slope of the transformation curve at $P_1$. Since we assume this is a small country, the foreign rate of transformation is simply the world price ratio. From (21) FRT exceeds DRT, given by the steeper line drawn through $P_1$. Finally, the domestic rate of substitution, $DRS_1$, is equal to FRT and determines the consumption point $C_1$ at the tangency of the indifference curve with utility level $U_1$. Notice that consumption occurs inside the production frontier. This occurs because the consumption externality, which is not corrected in the free trade equilibrium, leads to domestic underproduction of the cultural good A, relative to what's best from a social standpoint. Also, the larger is the cultural externality effect, represented by $\delta$, the larger will be the deviation between DRT and FRT, the lower will be the production of good A in a free trade equilibrium, and the lower will be national welfare.

Next consider what occurs if a tariff is implemented on the imported cultural good A. A tariff will have two effects. First, it will raise the domestic price received by producers leading to an increase in DRT. Second, the tariff will raise the domestic price of good A to consumers resulting in an increase in DRS. If the optimal tariff is

implemented, it will correct the distortion such that $DRT_2$ = FRT leading to a shift in production to $P_2$ as shown in Figure 2. However, the tariff creates a second distortion by raising DRS. The higher consumer price of good A leads to a substitution away from A towards B along any indifference curve. The new consumption point with the tariff in place is determined where the steeper $DRS_2$ line is tangent to the indifference curve $U_2$ at $C_2$.

**Figure 2**




However, as is well-known from the theory of the second-best, the optimal policy to correct for this type of externality will not be a trade policy, such as a tariff. Instead, a more efficient correction of the externality can be achieved with a purely domestic policy, since this type of policy will correct the externality effect more directly. In this case the proper policy choice is a production subsidy to domestic firms producing good A. The production subsidy has the advantage of affecting only the price faced by producers, thus affecting DRT, without affecting the price paid by consumers, equal to

DRS. As such, if a production subsidy is set at a level sufficient to bring DRT to equality with FRT, then production will rise to $P_2$ in the diagram, as was true with the tariff. However, consumption will not be distorted allowing consumption to move to $C_3$ on the higher indifference curve with utility $U_3$. It is clear from the diagram that the optimal tariff policy will never be superior to the optimal domestic production subsidy. Hence the tariff is a second-best policy choice while the production subsidy is first-best.

These results suggest several things. First, in the presence of the cultural consumption externality, the optimal tariff is positive for the small importing country. The size of the optimal tariff depends upon the strength of the externality effect. The greater the marginal impact of total consumption on each individual, the larger will be the optimal tariff. This result implies that protectionism in the form of a tariff is a national welfare improving policy when it protects against imports that compete with a culturally important domestic product. It also means that trade liberalization that encourages greater imports of a foreign good, and which competes with a domestic good that has cultural value, may result in a reduction in well being for the country rather than an improvement. This argument can be used to argue for a cultural exception in trade policy, that is, that countries should be allowed to protect against imports of goods, or should be allowed some exceptions in trade liberalization for goods that compete with culturally important domestic products.

Of course, it is true that tariffs are often easier to implement since they generate government revenue rather than obligating government expenditures. In addition, despite the opportunity for cultural conservation through the use of trade or domestic policy, optimal implementation assumes good knowledge about the nature and magnitude

of the cultural effect. In the case of cultural externalities, δ would be difficult to measure accurately. If δ were relatively small for a country and if that country put a very high protective tariff or production subsidy into place, then the efficiency losses would likely exceed the cultural benefits and result in a reduction in national and individual welfare. In other words, with inaccurate measurement, a government would not be able to assure that the protection provided would result in a national improvement. Just because an optimal tariff or subsidy exists, does not imply that the appropriate level is easy to identify. It is not true that any tariff or subsidy will be better in the presence of a cultural externality, only that tariffs or subsidies at the proper level can lead to an improvement.

## 4. The Cultural Affinity of Work Model

*a) Non-Pecuniary Cultural Benefits*

In this model variation, we postulate the existence of a non-pecuniary cultural benefit (a form of psychic income) for workers in the import-competing sector of the labor market, and examine its effect on worker mobility when a decrease in trade protection causes falling wages.

Labor economics has long recognized that a decision to accept employment or to remain employed is sometimes determined by more than the respective wages offered by alternative firms and industries in a worker's job choice set. Because employment information and worker mobility are neither perfect nor costless, short-run labor markets may diverge from long-run equilibrium conditions. Beyond these factors lies a range of

intangible influences on job choice, conventionally termed psychic or non-pecuniary benefits .[4]

Monastic labor, as seen in Catholicism's Benedictine Order, offers an extreme example of the importance of non-pecuniary benefits. The very considerable labor that is entailed in monastic life is not directly compensated: material simplicity is the norm. From the perspective of monastic culture, work itself has positive utility, one element in a mode of life intended to bring an individual closer to God. In the words of an early monastic text, "I go to the place where labour is, and labour becometh unto me a pleasure" (Budge 1934: Bk. 1, 235).

It is not the activity per se that generates the psychic benefit found in monastic labor--otherwise, all farming, book binding, and teaching (typical monastic occupations) would be compensated at the minimal levels of food and shelter found in monastic households. Rather, the non-pecuniary benefits accrue from the work performed in the cultural context of monastic life: the utility of labor is at least in part culturally mediated. This is not a new idea. As Lester Thurow noted, "In a society where many people place a high premium on 'machismo,' a job with high physical risks may be considered a better job than a job with low physical risks" (Thurow 1978:142).

The types of cultural values suggested by Thurow can be expected to influence job choice in all relevant occupations across the labor market. But because such effects are not sector-specific, they may not affect the patterns of economic adjustment that would be encountered by import-competing industries facing trade liberalization. Our aim is to model a type of cultural effect on job choice (and thus labor mobility) that

[4] For a thorough discussion of non-pecuniary influences on wage determination see Rosen (1986).

reflects the intrinsic attributes of a particular economic sector, which we term *non-pecuniary cultural benefits* (NPCBs).

We suggest that NPCBs can originate in at least two ways. First, following the analyses of Keat and MacIntyre, work may provide psychic benefit directly by the opportunity to achieve excellence in a culturally salient activity: scientific discovery in biomedical research; athletic achievement in baseball; artistic accomplishment in jazz piano (Keat 2000: ch. 6; MacIntyre 1984: ch. 14). Second, work may generate psychic benefit indirectly, by involvement in a valued, culturally distinctive social system integrating work and community. Under the rubric of "the multifunctional character of agriculture," the European Union now asserts the importance of a range of public goods agriculture provides: distinctive rural landscapes, biodiversity, and the viability of rural social life (European Commission 1998). Similarly, American timber workers discuss the value of their work not so much in terms of the intrinsic satisfaction of their dangerous and physically demanding jobs, but the benefits they experience from living in rural, forestry-based communities (Brown 1995). The two sets of benefits are not mutually exclusive. We contend that both types of sector-specific cultural benefits affect the demand for employment in such sectors, and thereby the impacts of changing wages n import competing sectors produced through trade liberalization.

*b) A Cultural Affinity Model*

We will use a standard two-sector international trade model and assume two goods (A and B) are produced with two factors of production (labor and capital) under constant returns to scale. Goods and factor markets are assumed to be perfectly competitive. In the short-run, labor is assumed to be perfectly mobile between industries

but capital is immobile. This is the standard capital-specificity model of Jones (1971), Mussa (1974) and Neary (1978). In the long-run, following Neary (1978), we'll assume capital is mobile between industries reflecting an eventual convergence to the Heckscher-Ohlin model. Full employment of capital and labor is maintained throughout.

We'll begin with a baseline equilibrium in which we'll assume an import industry A, with an import tariff in place, and an export sector B. Suppose all capital and labor is allocated to their long-run positions such that wages and rents are equalized between industries.[5]

Demand for goods A and B is represented by a community-wide utility function $U(C_A, C_B)$ where U is the utility, and $C_A$ and $C_B$ are total demands for goods A and B respectively. In the aggregate, utility maximization implies that the marginal rate of substitution in consumption must equal the domestic price ratio. However, in the presence of a NPCB, utility will be derived both from the consumption of goods and from the context in which production takes place, namely in which industry a worker derives his or her income. Without loss in generality, we will assume that the cultural benefit arises only for workers in the import-competing industry.[6] With the NPCB included, the utility function for workers in the import-competing sector is rewritten as,

$$U_{LA}(C_A^{LA}, C_B^{LA}) = U(C_A^{LA}, C_B^{LA}) + N_A \qquad (1)$$

[5] The initial equality of wages across sectors is not necessary for these same results to follow, however the assumption does make for a convenient point of reference.

[6] Since the exercise we perform is trade liberalization, this will cause a movement of factors from the import sector to the export sector. Since workers in the export industry will have no reason to exit the industry, it will be immaterial if they have an NPCB.

where $U_{LA}$ is the utility of a representative worker in industry A, and $N_A$ is the non-pecuniary cultural benefit that accrues to this worker when he or she works in industry A. This benefit disappears if the worker switches employment to the B industry.

The effect of the cultural benefit is to raise utility of workers above the level attained by workers in industry B. Even though workers in each industry make the same initial wage, the benefit $N_A$ accrues to A workers but not to B workers. Furthermore, workers in B have no incentive to switch to A, since, having no history working in A, they would not perceive a cultural benefit.[7] This implies that the development of cultural sentiments in A, i.e., an increase in the value of $N_A$ over time, will not upset the initial long-run equilibrium. The cultural benefit that accrues to workers in A represents a non-pecuniary rent.

*c) Effects of Trade Liberalization*

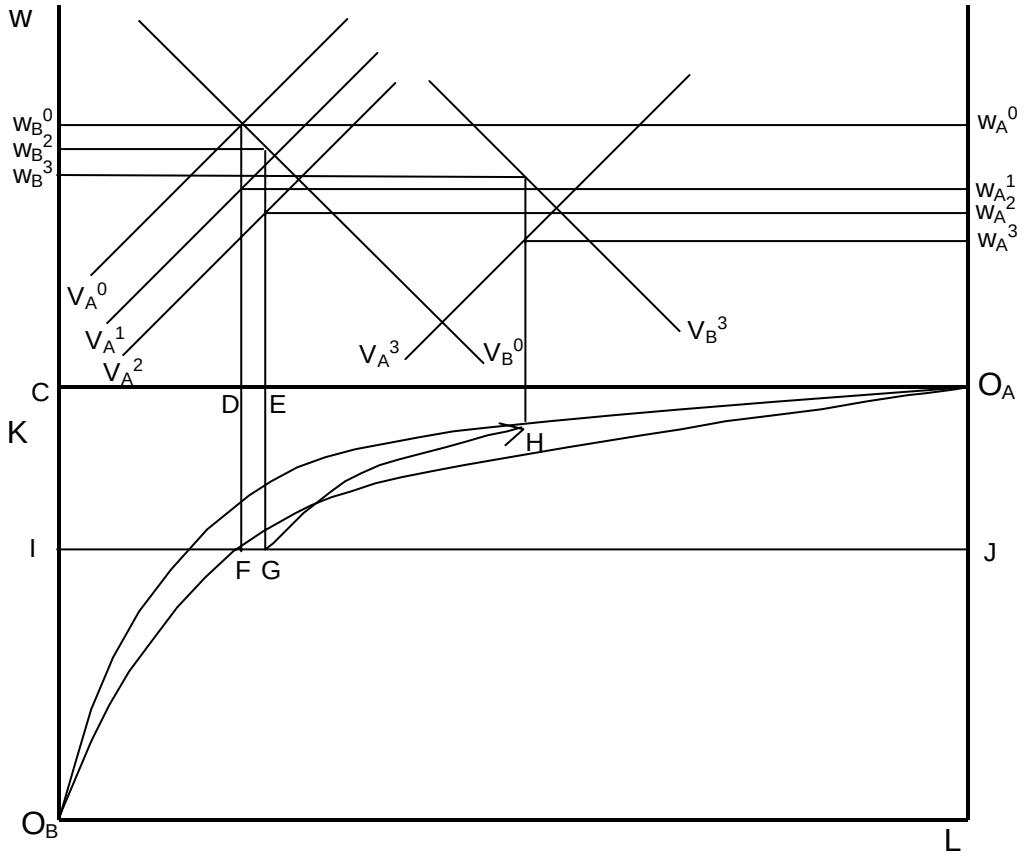
In Figure 1, the initial long-run equilibrium is represented on the top diagram by the intersection of the value of marginal product of labor curves $V_A^0$ and $V_B^0$. The equilibrium wage is determined at $w_A^0 = w_B^0$. The intersection defines the allocation of labor between the two industries measured along the horizontal axis with CD allocated to industry B and $DO_A$ to industry A.

We'll consider three different stages of adjustment to trade liberalization. In the first stage we'll assume the price decline is insufficient to cause labor adjustment between industries. In the second stage we'll assume the price decline does cause labor

[7] The idea is that cultural benefits arise as a history develops in an industry. A new entrant to an industry would not receive the cultural benefit until he or she had been there for some time. As long as the marginal cultural benefit to a new worker is zero at time of entry, B workers would not be attracted to industry A. Alternatively, we could assume that B workers have established their own history and cultural benefits which would have to be given up to move to industry A where new cultural benefits would take time to accrue.

adjustment. In the third stage we'll assume adjustment proceeds to a long-run equilibrium with capital mobility.

**Figure 1**




*Stage 1: No Labor or Capital Adjustment*

When trade liberalization occurs, the price of the imported good (A) falls on the domestic market. This leads to a downward shift in the value of marginal product curve in industry A to $V_A^1$. The initial effect, before any factors can adjust, is a reduction in the wage and rental rate to factors employed in the import industry A. In the diagram, the wage rate in A will fall to $w_A^1$, proportional to the price decrease, where $V_A^1$ crosses the initial labor allocation position. The rental rate will also fall proportionately to the price reduction as owners compete among themselves for market share. Remember that

although labor and capital is immobile across industries it is not immobile between firms within the industry.

If the price decrease is small enough, or if the NPCB ($N_A$) is large, the wage reduction in industry A will not be sufficient to induce workers to accept the relatively higher wage in B, since to do so would mean foregoing the larger NPCB. The utility cost of switching to industry B is $N_A$ while the utility benefit is $\mu(w_B - w_A)$ where $\mu$ is the marginal utility of income.[8] Thus, if $w_B - w_A < N_A/\mu$ workers will remain in industry A despite the price decrease and the short-run equilibrium will be maintained until capital begins to adjust in the long-run.

Thus, the short-run effect of moderate trade liberalization is to lower wages and rents in the import industry with NPCB. Workers in the industry suffer real losses in money terms but do not suffer a loss of cultural value since they choose to remain in the industry. Instead the non-pecuniary rents that accumulated over the past due to rising affinity for work in the industry, are substituted by lower wages when the industry declines. Note if the NPCB is extremely high or the price decline sufficiently small, this equilibrium may be the final result even after complete trade liberalization is accomplished.

*Stage 2: Labor Adjustment but no Capital Adjustment*

Next suppose a price decrease (tariff reduction) drives the wage differential sufficiently far apart to induce labor mobility between industries A and B, i.e., $w_B - w_A > N_A/\mu$. Assume we remain in the short-run with respect to capital mobility. Also, assume for convenience, that the wage differential, $w_B^0 - w_A^1$ above, was just equal to

$N_A/\mu$. Thus, any further price decrease will cause a shift to a new short-run equilibrium. Suppose the price decline shifts A's value of marginal product curve to $V_A^2$. The presence of the NPCB means that a wage differential will be maintained between the two industries, such that $w_B - w_A = N_A/\mu$.

In the adjustment, the lower import price drives wages in A lower than needed to compensate for the NPCB. This will induce some workers to shift from A to B in pursuit of the higher wage. The new short-run equilibrium will involve a shift of labor of quantity DE from industry A to B. The wage rate in industry B will be pushed down to $w_B^2$, while the wage in A will move to $w_A^2$. Due to the partial labor reallocation, the secondary reduction in the wage in industry A will be less than proportional to the price decrease. In other words, once wages are driven sufficiently apart, the rate of decline of industry A's wage is reduced. In the Edgeworth box diagram below, the labor reallocation causes a shift in the equilibrium from F to G and moves production off the Pareto-optimal contract curve.

In the new short-run equilibrium, workers with a NPCB in industry A are indifferent between working in A or B. If a worker shifts to B he gives up the NPCB but is compensated for the loss with the higher wage. The worker who remains in A continues to enjoy the NPCB but endures a lower wage to achieve that benefit. Because industry A declines in size with the shift of workers, total societal cultural benefits are reduced.

[8] The formula requires the marginal utility of income to be fixed for all income levels.

*Stage 3: Labor Adjustment and Capital Adjustment*

Eventually, because rental rates in the two industries have been driven apart with higher rents obtaining in industry B, there will be a reallocation of capital in the long-run from industry A to B. Since industry B is capital-intensive, it will demand more capital per worker than industry A is able to give up resulting in excess demand for capital and excess supply of labor during the adjustment. The increase in capital in industry B will raise its value of marginal product curve upwards as to $V_B^3$ in the diagram. Loss of capital in industry A will reduce its VMPL curve to $V_A^3$. The final resource allocation shifts to point H in the lower diagram.

At the long-run equilibrium, rental rates are equalized between industries A and B. The wage distortion persists however at the level $w_B^3 - w_A^3 = N_A/\mu$. This implies that the wage-rental ratios are not equal in the two industries and thus resource allocation lies on a distorted contract curve given by $O_BHO_A$. The drop in price of the labor–intensive good also leads to the long-run reduction in the wage rental rate in both A and B, thus the capital-labor ratio falls in both industries. Wages will ultimately fall in both sectors, but they will fall more in the culturally important sector than in the export sector. Rental rates will rise since the country is assumed to be capital-abundant.

*National Welfare Effects*

We can use this model to compare the overall national gains from trade that accrue with and without a cultural affinity effect. In the absence of a NPCB, it is well known that free trade results in an improvement in national welfare, despite the fact that the country's relatively scarce factor (here, labor) will suffer real losses. When workers

receive a non-pecuniary cultural benefit as a result of work in industry A however, the adjustment of capital and labor is not as complete as would occur without the cultural benefit. This is because in free trade a wage differential is maintained between workers in the two industries, representing a market distortion. However, since the distortion acts to maintain the cultural benefits of industry A workers, national welfare does rise with free trade in this version of the model compared with protection. A further implication is that empirical estimates of the benefits that countries will attain (such as GDP increases) from trade liberalization may be overestimates of the true welfare effects because these studies do not explicitly incorporate distortionary cultural effects into their models.

*Cultural Effects of Trade Liberalization with NPCB*

A common criticism of trade liberalization is its contribution to global cultural homogenization. Dani Rodrik argues that international trade encourages an "arbitrage in national norms and social institutions. . . . by raising the social cost of maintaining divergent social arrangements" (Rodrik 1997, 29). (also see Cohen 2002). While this may sometimes be true, our analysis of liberalization in the presence of non-pecuniary cultural benefits suggests a different outcome.

In the cultural affinity model, moderate trade liberalization need not lead to declining employment in the industry with NPCB. Insofar as work directly or indirectly contributes to cultural transmission (as is assumed in this model), although wages will decline, non-pecuniary cultural benefits remain. In effect, falling wages eliminates the non-pecuniary rents that were obtained with protection but need not have an effect upon the work culture or the number of workers who enjoy these benefits.

In addition, the larger the cultural affinity of workers, the stronger is the resistance to adjustment. When the cultural affinity is very large, even a movement to free trade may not sufficiently reduce wages to induce a shift of workers between industries. Thus, the stronger the cultural affinity in an industry, the less likely that trade liberalization will result in a loss of the cultural understandings with which it is associated.

*Cultural Evolution*

Consider briefly the model in a dynamic context, in which, over time, older workers retire from the workforce while young workers enter. To model a dynamic system, we hypothesize that younger workers have a smaller affinity for work in the import sector than do older workers. This may reflect a lack of appreciation for the community life associated with that particular production sector, or exposure to a more modern system of values during their childhood.

Once trade liberalization has begun, because of the cultural aversion to job switching by the veteran workers, a wage differential between industries develops. However, when workers retire, it will lower the supply of workers to the domestic import competing industry, which in turn will begin to raise the wage of remaining workers. New workers entering the workforce will not be attracted to the import sector because of the lower wage and because they have no cultural attachments to the sector. Thus they will seek work only in the high wage export sector. The increased supply of labor to this sector, over time, will bid down their wage rate. Eventually, wages in the import sector will rise up to meet the declining wages in the export sector and all workers will again be paid the same wage.

In the long-run equilibrium, all workers with a cultural affinity for the old sector will eventually retire. These cultural effects will disappear from society. However, presumably they will be displaced by new values among the younger generation. These workers will likely develop their own affinity for working in the new sectors and may display the same aversion to potential adjustment in their future.

## 5. Conclusion

This paper has incorporated culture into a trade model in two distinct ways. The first approach assumed that national consumption of a domestically produced import-competing good generates an external improvement in individual utility (the cultural externality model). The second method assumed that workers in an import-competing industry have an affinity for employment in that sector (the cultural affinity model).

The results suggest that trade liberalization will have a more definite cultural effect in the first case, in which society derives a shared benefit from the domestic production of a particular good, rather than when workers within a declining industry have a cultural affinity to work in that sector. While individual consumers can have little if any impact upon the price of the product in the market, each being too small to affect the market price, workers can maintain production in an industry by accepting a lower wage. As a result trade liberalization in the cultural affinity model does not necessarily lead to the decline of the culturally important industry, whereas trade liberalization in the externality model will lead to such a decline.

National welfare will rise with trade liberalization in the cultural affinity model, whereas it may fall in the externality model. Note that with cultural affinities present, the

overall benefits from trade liberalization may be smaller than when a non-pecuniary cultural benefit is absent. This suggests that we should recognize the presence of culturally motivated resistance to trade liberalization, which will have an impact upon market outcomes even when government regulations are eliminated. The effect of such resistance may be to maintain distortions vis-à-vis the free market case: thus measures of the benefits from trade liberalization countries may be overestimates. All of this suggests that greater attention be paid to the effects of cultural consumption externalities in trade issues, such as policies regarding the protection of domestic media in Canada or the EU than to the consequences of cultural affinities in production, as in policies to protect French farmers or American timber workers.

The growing interest in accommodating culturally-based exceptions in trade policy, however, risks opening a pandora's box of tariff demands, in which many industries claim to be in need of protection because of their cultural significance. Devising a defensible policy framework for assessing such claims will require a more adequate theory of the place of cultural value in trade (and more generally, in all economic exchange). This represents a multidisciplinary challenge. While such an effort goes far beyond the scope of the present paper, we have tried, through the models presented here, to indicate how economic and anthropological perspectives can jointly contribute to building the needed theoretical framework. Modeling the cultural impacts of trade is intended to build a theoretically defensible basis for assessing claims to a cultural exception in trade disputes. While some interesting proposals have been made (Baker 2000; Carmody 1999), far more is needed to provide a policy mechanism that is

applicable to a broad range of cases, and well grounded in both economics and culture theory.

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