

Parallel Imports and the lot of a Starving Artist

Abstract

This paper studies the role of copyright in the market for cultural output and how parallel imports affect the structure of incentives faced by artists. It demonstrates that parallel imports affect the distribution of income between generations of artists, raising the income of younger artists while reducing the income of superstars; the net outcome being a decline in the number of artists producing cultural output. Optimal subsidies to offset this decline can either involve a subsidy to starving young artists and no subsidy for superstars or the opposite outcome depending on governments attitudes towards the distribution of income.

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JEL Classification: F13, F14, O34

1 Introduction

The question of the exhaustion of an intellectual property right relates to determining at what point the original creator of the intellectual property relinquishes control over their creation. Intuitively one would expect that the sale of a product extinguishes the rights of the original creator over control of the further resale of that product. However, this is not generally the case. A prominent example is the attitude many countries have towards parallel imports. Parallel imports are authentic products, not counterfeits, imported into a country by an unauthorized distributor. A typical scenario is one where a firm owns the intellectual property of a good in several countries (e.g. copyright of a book or sound recording), with this right conferring exclusive control of the production of the product in each country. Parallel importing occurs when another party obtains the product in one of these countries (from a legitimate source) and diverts it to one of the other countries without the authorization of the owner of the intellectual property. In this sense the unauthorized product serves the market in “parallel” with the authorized product.¹ Many countries take the position that the sale of a copyrighted good does not extinguish the international rights of the copyright holder and therefore ban parallel imports.²

A decision to ban parallel imports leads directly to international market segmentation, and consequently the analysis of parallel imports to date has focused on static models of either price discrimination (Malueg and Schwartz, 1994; Richardson, 1999) or vertical price control (Maskus and Chen, 2004). One shortcoming of this static approach to parallel imports is that it does not provide a role for intellectual property rights. In contrast this paper studies the role that intellectual property rights play in providing an incentive to innovate and how the admission of parallel imports can affect both the structure of incentives faced by innovators and the level of creative output. In particular this paper focuses on the market for creative expression, such as books and music, and analyzes the impact that amending copyright law to allow for parallel imports has on this market.

The provision of copyright protection for cultural output is an important way of pro-

¹The TRIPs agreement covers minimum standards of intellectual property protection that the members of the WTO must adhere to. However, it explicitly states that the TRIPs agreement does not cover the issues relating to the international exhaustion of intellectual property rights. For an overview of the TRIPs agreement see Maskus (2000).

²See NERA (1999) and Maskus (2000) for an overview of the policies of various countries towards parallel imports.

viding an incentive to produce goods of artistic merit. These industries are also generally considered to be ‘sensitive’ industries and are often a source of national pride.³ The admission of parallel imports into such sensitive markets is construed as reducing the degree of protection that copyright affords these industries. Hence, allowing parallel imports is interpreted as withdrawing support for cultural output, especially for domestically produced cultural output. The reaction to recent decisions in both Australia and New Zealand to allow parallel imports of sound recordings is typical of the views expressed about the impact of parallel imports on local artists, with fears that local artists will find it even more difficult to survive, with parallel imports further increasing the level of competition.⁴ Such concerns conjure up images of starving artists subjected to an even harsher economic environment as a consequence of parallel imports.

What this paper argues is that in a market consisting of young starving artists and established performers, the implications of parallel imports for one group are not paralleled by the experience of the other group. In particular, while the earnings of established artists are adversely affected by parallel imports, the lot of a starving young artist is actually improved by parallel imports. Hence, parallel imports have an important effect on the distribution of income between different generations of artists and therefore affect the structure of incentives to produce cultural output. The net outcome of this change in incentives is shown to be a decline in the number of domestic artists producing cultural output.

This negative aspect of allowing parallel imports is likely to further add to concerns that ‘globalization’ will undermine national cultural output.⁵ Such a concern may prompt a government to consider policies to offset this decline, thereby replacing the restriction on parallel imports with a program of subsidies to artistic output.⁶ It is shown that if the government is concerned about the distribution of income between young and established

³See The Cultural Industries Advisory Group on International Trade (1999) for a discussion of these issues in relation to Canada.

⁴For an overview of the debate leading up to the Australian decision to allow parallel imports of sound recordings see Capling (1996). For a discussion of the New Zealand context see Richardson (1999). The reforms in New Zealand are more extensive than in Australia and apply to all copyrighted material not just sound recordings.

⁵See “France and World Trade: Except us” in *The Economist*, October 16th, 1999, for a description of French attitudes towards the impact of globalization on cultural diversity.

⁶Efforts to protect national cultural output from foreign competition through subsidies and other policies has a long history, see Footer and Garber (2000).

artists, then a policy to encourage the entry of artists will be solely directed towards assisting younger artists. Alternatively, if the government is concerned only with increasing the number of artists then the optimal policy involves giving greater assistance to established artists and may even preclude any assistance at all to younger artists.

To establish these results the paper is organized as follows. Section 2 sets out the basic structure of the model and section 3 describes the impact of parallel imports on the market equilibrium. Section 4 evaluates the optimal structure of subsidies under alternative objective functions for the government and section 5 concludes.

2 The Model

The basic structure follows that of the rising stars model set out in MacDonald (1988). It consists of an overlapping generations model with two groups of agents, domestic artists and domestic consumers. Artists are assumed to live for two periods, and all potential artists start out life ex ante identical. Consumers, on the other hand, live for only one period and are characterized by heterogeneity in their taste for artistic output. To make things concrete the market analyzed below can be thought of as either the literary market, with the artists/performer being writers, or the market for musical recordings, with the artists/performer being a musician.

2.1 Domestic Performers

Begin by considering the domestic artists. Domestic performers are assumed to be risk neutral maximizers of expected wealth.⁷ There are two broad types of domestic performers, those who are young and without a track record (these types will be denoted by y) and those who are older and have a track record. A track record is gained by producing a creative expression (e.g. recording a CD or writing a book), with this creative output judged to be unambiguously good (these types denoted by g) or bad (these types denoted by b). The quality of the performance a local artist gives is assumed to be stochastic. Those with a track record (i.e. performed in the first period) are assumed to give a good performance in the second period with probability θ_j , with $j = g, b$. To reduce the burden of notation without changing the results, assume that $\theta_g = 1$ and $\theta_b = 0$. For an

⁷The analysis can be extended to include the case where domestic artists are risk lovers. However, this complicates the analysis without changing the qualitative nature of the results.

untried domestic performer the probability of a good performance is given by θ_y , with $\theta_g > \theta_y > \theta_b$.⁸

In addition to raising the probability of a good performance in the second period, a good performance in the first period is assumed to entitle a domestic performer to international distribution of their product.⁹ This assumption provides scope for parallel imports in the output of successful domestic artists, and reflects concerns raised about the impact of parallel imports (NERA 1999; Commonwealth of Australia 1998). In contrast, an untried domestic performer is assumed not to have their output distributed internationally.

To keep the model simple it will be assumed that an individual artist is a price taker in both the domestic and foreign markets, with the price in the domestic market assumed to be higher than the price in the foreign market. This simplification allows us to focus on how the quantities of interest (the number of artists and the structure of their earnings) are affected by the admission of parallel imports. This competitive framework also captures a property of copyright protection that distinguishes it from other forms of intellectual property rights such as patents. One element of the distinction between these two types of rights is that copyright only protects the expression of an idea and not the idea itself, while a patent protects both the idea and its implementation. Hence, when analyzing markets where copyrights are important (such as literature and music) a model which tends to the competitive end of the spectrum seems to be appropriate.

Let the cost of creative output be represented by the following function: $F + \frac{q_i^2}{2}$, where F is the fixed cost and q_i is the quantity of artistic output.¹⁰ In the case of music the quantity q_i is thought to be the number of copies of a particular musical CD from a performer with a track record given by i . In the case of the literary market, q_i represents

⁸Note that an untried performer can enter in either the first or the second period. However, as will be shown below, equilibrium behavior requires that an untried performer will never enter in the second period.

⁹For simplicity it is assumed that any income that an established performer receives from foreign sources is unaffected by domestic decisions regarding parallel imports. Consequently, reference to this source of income will be suppressed in the discussion which follows. As will be seen below, the important thing is that an established performer's income is reduced by parallel imports. A similar outcome would arise by modelling parallel imports as motivated by price discrimination on the part of established performers. However, doing this only adds complexity to the model without changing the conclusions of the paper.

¹⁰The assumption that the fixed costs are the same for all artists is made to simplify the notation. The results derived below are based on the comparative static properties of the model, which do not depend on the structure of fixed costs.

the number of copies of a particular manuscript published by a writer with a track record given by i . In addition, let the price of creative output of an artist be p_i , $i = g, y, b$. Therefore, an artist will choose the quantity of artistic output to maximize:

$$p_i q_i - F - \frac{q_i^2}{2} \quad (1)$$

in which case the optimal level of artistic output is $q_i^* = p_i$, yielding net revenue of $\pi_i = \frac{p_i^2}{2} - F$, $i = g, y, b$. Since the cost structure is assumed to be the same for all artists, regardless of their ability, this net revenue function has the property of increasing returns to talent (assuming $p_g > p_y > p_b$).

A local artist who does not perform in a given period receives a constant outside option of \bar{w} . The decision to perform in the first period depends on the comparison between the expected discounted value of performing in the first period and proceeding optimally thereafter, and the expected discounted value of choosing the alternative occupation in the first period and then proceeding optimally:

$$\pi_y + \delta[\theta_y \max\{\pi_g, \bar{w}\} + (1 - \theta_y) \max\{\pi_b, \bar{w}\}] (\geq \leq) \bar{w} + \delta \max\{\pi_y, \bar{w}\} \quad (2)$$

where δ is the discount rate.

To determine the supply of artistic output assume there is free entry of young artists in any period. This restriction implies that $\pi_y < \bar{w}$ in equilibrium, otherwise an arbitrary number of untried performers would enter in the second period. Given this ordering of payoffs and that $\pi_b < \pi_y$, this implies that $\pi_b < \bar{w}$. Consequently any artist that produced low quality output in the first period will not produce at all in the second period. Therefore under the assumption of free entry a young artist must be indifferent between embarking on a career as a performer and a permanent attachment to the outside option:

$$\pi_y + \delta[\theta_y \pi_g + (1 - \theta_y) \bar{w}] = \bar{w}(1 + \delta) \quad (3)$$

Hence an equilibrium with free entry requires that $\pi_g > \bar{w}$, and that young artists are in fact starving (i.e. $\pi_y < \bar{w}$).

Due to the indifference on the part of a young artist regarding entry, the number of young performers is determined by demand conditions. Let the number of young performers be denoted by N , and let the total audience served by young performers be given by

$$Nq_y^* = Np_y$$

The role that copyright plays in this model relates to the ability of an established performer to earn positive profits. If copyright did not exist then entry would occur with new entrants supplying a duplicate version of the output of an established artist. This entry would raise the number of producers in the established performer market and eliminate the profits. However, the effect of copyright is to restrict entry into the established performer market to only those artists which have been successful in the first period. Therefore, the number of established performers is $\theta_y N$ and the aggregate audience served by established performers is given by

$$\theta_y N q_g^* = \theta_y N p_g$$

2.2 Domestic Consumers

If a domestic consumer purchases a unit of creative output, they will receive utility of v if it is good and 0 if it is bad. If a domestic consumer chooses not to purchase the output of any artist, then they receive their reservation level of utility which is normalized to 0. Assuming risk neutrality, a domestic consumer will choose the type of performance which solves:

$$\max\{v - p_g, \theta_y v - p_y, -p_b, 0\} \quad (4)$$

Demand for creative output is based on the heterogeneity of v among domestic consumers. Assume that v is distributed uniformly on $[\underline{V}, \bar{V}]$, with $0 < \underline{V} < \bar{V} < \infty$. Let $\Delta = \bar{V} - \underline{V}$.

The focus is on equilibria for which there is positive demand for both young and established performers, although not all consumers purchase creative output. This implies that a domestic consumer type \underline{v} can be identified, with this consumer having the characteristic that they are indifferent between purchasing creative output and not. This consumer is given by $\underline{v} = \frac{p_y}{\theta_y}$. It is also the case that a consumer type \bar{v} can be identified, with this consumer type indifferent between purchasing the output of a young artist or an established performer. The identity of this consumer is given by $\bar{v} = \frac{p_g - p_y}{1 - \theta_y}$. The identification of these types allows the demand for the various performers to be calculated, with the demand by young performers given by

$$\int_{\underline{v}}^{\bar{v}} \frac{1}{\Delta} dv = \frac{1}{\Delta} \left[\frac{p_g - p_y}{1 - \theta_y} - \frac{p_y}{\theta_y} \right] \quad (5)$$

While the demand for established performers is given by

$$\int_{\bar{v}}^{\bar{V}} \frac{1}{\Delta} dv = \frac{1}{\Delta} \left[\bar{V} - \frac{p_g - p_y}{1 - \theta_y} \right] \quad (6)$$

3 Equilibrium

3.1 Without Parallel Imports

In an equilibrium without parallel imports, the domestic price of the creative output of both young and established artists are solely determined by domestic considerations. Consequently, the equilibrium values of p_y , p_g and N are implicitly defined by the following three equations. The first two conditions equate domestic demand and domestic supply in the young artist and established performer markets respectively. The third condition represents the constraint imposed by free entry.

$$Np_y = \frac{1}{\Delta} \left[\frac{p_g - p_y}{1 - \theta_y} - \frac{p_y}{\theta_y} \right] \quad (7)$$

$$\theta_y Np_g = \frac{1}{\Delta} \left[\bar{V} - \frac{p_g - p_y}{1 - \theta_y} \right] \quad (8)$$

$$\delta\theta_y p_g^2 + p_y^2 = 2(\bar{w} + F)(1 + \delta\theta_y) \quad (9)$$

The focus of this paper is on equilibria for which there is positive demand for both young and established performers, although not all consumers purchase creative output. This implies that in equilibrium $p_g > p_y$, since consumers with a high valuation ($v > \bar{v}$) consume the output of successful artists, those with lower valuations ($\bar{v} > v > \underline{v}$) consume the output of the newcomers, and those with the lowest valuations ($\underline{v} > v$) consume nothing. Furthermore, this implies $\frac{\pi_g}{\pi_y} > \frac{p_g}{p_y} = \frac{q_g^*}{q_y^*} > \frac{1}{\theta_y}$. Therefore, in equilibrium, successful performers produce more output compared to the output of newcomers and receive profits which are disproportionately higher than the expected differential in talent, a result due to the increasing returns to talent associated with the net revenue function. In this sense established performers are “superstars”.

3.2 With Parallel Imports

The above equations describe an equilibrium in which parallel imports are prohibited, with the equilibrium price of creative output of established performers determined purely by domestic factors. However, if the government changes its policy to allow parallel imports, then established artists find that international arbitrage restricts the price they receive in their domestic market to be equal to the world price. This arbitrage is possible since a legitimate copy of a book or CD of an established performer produced anywhere in the world can now be imported to serve the domestic market in parallel with domestically produced versions of the product. Hence, the international market segmentation that was possible for established performers under the ban on parallel imports is ruled out if the government changes its policy to allow parallel imports.¹¹

To focus on the relevant outcome assume the international price is \bar{p} , with $\bar{p} < p_g$ ensuring that the impact of international arbitrage is for imports to flow into the domestic economy. In the recent debate surrounding the decision to allow parallel imports into the Australian musical recording market, the price differential between p_g and \bar{p} is estimated by the government to be in the order of 25%-30%. The source of this differential is attributed to differing demand conditions which can be exploited under the market segmentation generated by a ban on parallel imports.¹² For the analysis that follows the international price \bar{p} will be treated as exogenous. While this assumption does simplify the analysis it is also empirically relevant for many countries, including both Australia and New Zealand which allow parallel imports.¹³

Modelling the price ordering as $\bar{p} < p_g$ raises a concern that the increased competition from abroad may reduce incentives to such an extent that the domestic cultural industries are totally wiped out. This phenomena is possible in the current setting. If the international price falls below a certain level then there is insufficient incentive for domestic artists to enter the creative market. While this is a possibility, the analysis that follows assumes that the international price does not fall so dramatically. This assumption translates into

¹¹Note that pirated copies, whether produced domestically or abroad, contravene copyright and are not allowed.

¹²For example, the main source of parallel imports into Australia is anticipated to be the US. The price differential between Australia and the US is thought to be related to the larger market size of the US, with the larger market size leading to higher elasticity of demand due to the greater possibilities for substitution that exist in the US.

¹³For more details on the Australian decision to allow parallel imports see IPCRC (2000)

the following parameter restriction $\bar{p}^2 > \frac{2(\bar{w}+F)(1+\delta p_y)}{(\delta p_y + (\frac{p_y}{p_g})^2)}$.

Allowing for parallel imports generates the following four equations.

$$Np_y = \frac{1}{\Delta} \left[\frac{\bar{p} - p_y}{1 - \theta_y} - \frac{p_y}{\theta_y} \right] \quad (10)$$

$$Q_g^d = \frac{1}{\Delta} \left[\bar{V} - \frac{\bar{p} - p_y}{1 - \theta_y} \right] \quad (11)$$

$$Q_g^s = \theta_y N \bar{p} \quad (12)$$

$$\delta \theta_y \bar{p}^2 + p_y^2 = 2(\bar{w} + F)(1 + \delta \theta_y) \quad (13)$$

Once again the first equation equates the domestic supply and domestic demand in the young artist market. The next two conditions characterize the impact of international arbitrage, allowing a differential to exist between the domestic quantity demanded (Q_g^d) and domestic quantity supplied (Q_g^s) in the domestic market for established performers. This differential is met by parallel imports. Note that since they lack an international distributor, young artists do not face the parallel importation of their output.

To determine the impact of parallel imports, totally differentiate the equilibrium conditions.

$$dp_y \left(\frac{1}{\Delta(1 - \theta_y)\theta_y} + N \right) + dN(p_y) = d\bar{p} \frac{1}{\Delta} \left(\frac{1}{1 - \theta_y} \right)$$

$$dQ_g^d - dp_y \frac{1}{\Delta} \left(\frac{1}{1 - \theta_y} \right) = -d\bar{p} \frac{1}{\Delta} \left(\frac{1}{1 - \theta_y} \right)$$

$$dQ_g^s - dN(\theta_y \bar{p}) = d\bar{p}(\theta_y N)$$

$$dp_y(p_y) = -d\bar{p}(\delta \theta_y \bar{p})$$

The solution yields.

$$\frac{dp_y}{d\bar{p}} = -\frac{\delta \theta_y \bar{p}}{p_y} < 0 \quad (14)$$

$$\frac{dN}{d\bar{p}} = \frac{p_y + \delta(\Delta N \theta_y (1 - \theta_y) + 1)\bar{p}}{\Delta(1 - \theta_y)p_y} > 0 \quad (15)$$

$$\frac{dQ_g^d}{d\bar{p}} = \frac{-(p + \delta\theta_y\bar{p})}{\Delta(1 - \theta_y)} < 0 \quad (16)$$

$$\frac{dQ_g^s}{d\bar{p}} = \theta_y N + \theta_y \frac{dN}{d\bar{p}} > 0 \quad (17)$$

Consequently, π_y increases, due to an increase in p_y (from (14)). Furthermore, the increase in net revenues of the younger artists is more than in proportion to the increase in price due to the convex nature of the net revenue function (see discussion surrounding (1)).

At first sight this result seems surprising. One may have expected a policy change that is detrimental to established artists to also be detrimental to the young starving artists. However, the implications of parallel imports for one group are not paralleled by the experience of the other group. In particular, while the earnings of established artists are adversely affected by parallel imports, the lot of a starving young artist is actually improved by parallel imports. The intuition for the improved lot of a starving artist under parallel imports follows directly from the fact that young artists are starving in equilibrium and that this is behavior that is consistent with expected welfare maximization. In this case, the amount of starving a young artist is prepared to endure can be thought of as the price they pay to enter a lottery, where the prize from the lottery is becoming a superstar. Since the size of the prize is reduced by parallel imports, but the probability of success remains unchanged, it must be the case that the equilibrium price of the ticket goes down. Since the price a young artist pays for the prospect of being a superstar is the degree to which they starve (i.e. $\pi_y < \bar{w}$), less starving must be done by a young artist in the pursuit of a successful artistic career after the introduction of parallel imports. Therefore, the starving artists find their immediate circumstances improved by the presence of parallel imports. Moreover, each young artist produces more artistic output under parallel imports (since $q_y^* = p_y$). Therefore, a young artist finds that parallel imports raise both their income and their audience size.

In contrast, the established artists experience not only a decline in the price of their artistic output, but their net revenue declines by an even greater proportion, due once again to the convex nature of the net revenue function. Consequently, the admission of parallel imports alters the structure of incentives, reducing the return to older established artists and increasing the return to younger starving artists.

4 Policies to increase the number of Artists

The net outcome of this change in the structure of incentives is given by (15), and therefore the number of young artists in the industry is reduced. This reduction in the number of young artists is likely to be perceived as adversely affecting the cultural output of a country and raises the question as to what is the best way to offset this decline. Therefore, the ban on parallel imports is likely to be replaced by subsidies to the artists.¹⁴

Aside from the usual choice of the appropriate size of the subsidy to marginal costs (s_i), there is an extra dimension in the current problem that relates to whether the same subsidy is paid to all artists, or whether it is optimal to pursue a discriminatory policy and pay a different subsidy to young (s_y) as compared to established artists (s_g). The payment of subsidies implies the equilibrium is implicitly given by the following system:

$$N(p_y + s_y) = \frac{1}{\Delta} \left[\frac{\bar{p} - p_y}{1 - \theta_y} - \frac{p_y}{\theta_y} \right] \quad (18)$$

$$D_g = \frac{1}{\Delta} \left[\bar{V} - \frac{\bar{p} - p_y}{1 - \theta_y} \right] \quad (19)$$

$$S_g = \theta_y N(\bar{p} + s_g) \quad (20)$$

$$\delta\theta_y(\bar{p} + s_g)^2 + (p_y + s_y)^2 = 2(\bar{w} + F)(1 + \delta\theta_y) \quad (21)$$

The two endogenous variables of most interest are the number of young artists (N) and the price of the creative output of a young artist (p_y). The impact of subsidies to young artists and established artists on these variables are given by:

$$\frac{dN}{ds_y} = \frac{dN}{ds_g} \frac{(p_y + s_y)}{(\bar{p} + s_g)\delta\theta_y} - \frac{N}{(p_y + s_y)} \quad (22)$$

$$\frac{dp_y}{ds_y} = -1 \quad (23)$$

$$\frac{dN}{ds_g} = \frac{\delta(\Delta N\theta_y(1 - \theta_y) + 1)(\bar{p} + s_g)}{\Delta(1 - \theta_y)(p_y + s_y)^2} \quad (24)$$

¹⁴For example the decision to allow parallel imports into Australia was accompanied by a program to compensate artists for the policy change (see DCITA 1998).

$$\frac{dp_y}{ds_g} = -\frac{(\bar{p} + s_g)\delta\theta_y}{(p + s_y)} \quad (25)$$

Since subsidies can affect both the distribution of income and the number of domestic artists, a government may have preferences over the behavior of both of these quantities. Therefore, this paper will evaluate two alternate criteria. First, the government may consider the distribution of income associated with parallel imports to be more equitable than the previous situation. Consequently, the government may choose a policy that encourages entry but minimizes the reduction in relative earnings of the two groups of artists. At the other extreme a government may have the objective of implementing the policy that is most effective at raising the number of artists in the industry, with no concern about the impact on the distribution of income. Under each scenario the government is assumed to have a fixed budget (B) that it distributes between young and established artists in such a way so as to best meet the stated policy objective.

If the policy objective is to encourage entry while maintaining the distribution of income, the optimal policy can be deduced directly from the derivatives described by equations (22) to (25). From these derivatives it is clear that a subsidy to young artists does not alter their earnings (since $\frac{\partial p_y}{\partial s_y} = -1$) nor does it reduce the earnings of an established artist since these are determined by the parallel imports (i.e. \bar{p} is a constant). In comparison, a subsidy to an established performer increases the degree of earnings inequality. Therefore, if the objective is to encourage entry whilst maintaining relative earnings the optimal policy would involve setting $s_y > 0$ and $s_g = 0$.

While a government may be concerned with the distributive implications of its policy, these concerns may be counter-balanced or mitigated entirely by the desire to maximize the number of artists in the industry. The government may argue that since entry is voluntary, the appropriate focus should be exclusively on the ability of a policy to raise the number of artists in the industry, with the distributive implications of the policy more a function of the nature of the market rather than of the policy intervention per se. Moreover, no matter what the structure of subsidies, the present value of the expected welfare of an artist is a constant. This occurs because free entry ensures that the expected welfare from embarking on a career as an artist is the same as a permanent attachment to the outside option (see (3)). Hence, from an artists perspective, any structure of subsidies is equivalent in an expected welfare sense. Therefore the government may decide to focus on distributing the given budget, B , in such a way as to maximize the number of artists in

the industry. Formally the problem can be stated as:

$$\underset{s_y, s_g}{Max} N$$

subject to

$$s_y q_y^* N + s_g q_g^* \delta \theta_y N = B$$

Using the profit maximizing level of artistic output implied by equation (1) the Lagrangian can be written as:

$$L = N + \lambda [B - (s_y^2 + p_y s_y + \delta \theta_y s_g^2 + \delta \theta_y s_g \bar{p}) N]$$

The first order necessary conditions yield:

$$\frac{\partial L}{\partial s_y} = \frac{\partial N}{\partial s_y} \left[1 - \lambda (s_y^2 + p_y s_y + \delta \theta_y s_g^2 + \delta \theta_y s_g \bar{p}) \right] - \lambda \left[2s_y + p_y + s_y \frac{\partial p_y}{\partial s_y} \right] N = 0$$

$$\frac{\partial L}{\partial s_g} = \frac{\partial N}{\partial s_g} \left[1 - \lambda (s_y^2 + p_y s_y + \delta \theta_y s_g^2 + \delta \theta_y s_g \bar{p}) \right] - \lambda \left[2\delta \theta_y s_g + \delta \theta_y \bar{p} + s_y \frac{\partial p_y}{\partial s_g} \right] N = 0$$

Combining these two equations and eliminating the Lagrange multiplier gives the following efficiency condition:

$$\frac{\frac{\partial N}{\partial s_y}}{2s_y + p_y + s_y \frac{\partial p_y}{\partial s_y}} = \frac{\frac{\partial N}{\partial s_g}}{2\delta \theta_y s_g + \delta \theta_y \bar{p} + s_y \frac{\partial p_y}{\partial s_g}} \quad (26)$$

This condition can be simplified by using equations (22), (23) and (25) and after some manipulation the efficiency condition can be written as:

$$\frac{s_g p_y - s_y \bar{p}}{[s_g(p_y + s_y) + p_y(\bar{p} + s_g)](\bar{p} + s_g)} = \frac{N}{(p_y + s_y)} \frac{\delta \theta_y}{\frac{\partial N}{\partial s_g}}$$

Since right hand side is positive and the $\bar{p} > p_y$, this implies that $s_g > s_y$. Therefore, the government gives the greater subsidy to the established performers/superstars.¹⁵

The intuition for this ordering follows from the incidence of imposing a subsidy on the output of the various artists. Holding N constant, it is clear that the full value of any

¹⁵An alternative artist assistance scheme might be to provide subsidies to fixed costs. If the government's objective is to maximize N subject to a budget constraint, then the solution to this problem does not produce a unique structure of subsidies. In this case the subsidies to the young and established artists are perfect substitutes. If the government does use distributional criteria, then once again it would favor subsidizing the young over the established artists.

subsidy to an established artist is retained by those artists, while a subsidy to younger artists is partially passed on to the consumer in the form of a lower p_y . The extent to which the subsidy is passed on to consumers is negatively related to the elasticity of demand for the creative output of younger artists. This suggests that subsidizing the older artists will be more effective since more of the subsidy is retained by those artists. However, the expected earnings of an artist over a lifetime do not increase by the full extent of the subsidy to an older artist (still holding N constant), with the benefit of the subsidy only gained after a period of performing as a successful younger artist. Therefore subsidies to neither group can raise the expected earnings of an artist by the full extent of the subsidy, and it is this quantity that influences the degree of entry.

The inability of either form of assistance to be fully appropriated by a potential entrant implies that a trade-off exists between subsidizing artists of different generations. This trade-off favors subsidizing the established artists since the elasticity of demand for the creative output of younger artists is decreasing in the subsidies paid to both younger and established artists. These effects reinforce one another, making subsidies to younger artists a relatively less effective method of encouraging entry. In addition, it should be noted that this trade-off does not always imply that the optimal policy involves $s_y > 0$. In which case the optimal policy involves setting $s_y = 0$ and $s_g > 0$, the exact opposite of a policy designed to encourage entry on whilst preserving the distribution of income between young artists and established performers.

5 Conclusion

One impediment to allowing parallel imports is a concern over the potential negative impact on the economic status of local artists. This paper argues that it is important to distinguish between artists at different stages in their career. In particular it is shown that while an established artist may be made worse off, younger starving artists will find their earnings increased by the introduction of parallel imports. These younger artists also enjoy larger domestic audiences as a result of parallel imports. However, the change in the structure of incentives to produce artistic output results in a decrease in the number of domestic artists. This reduction in the number of artists may prompt a government to assist domestic artists through subsidies. It was shown that if a government is concerned about the distribution of income between young and established artists, then a policy to

encourage the entry of artists will be solely directed towards assisting younger artists. Alternatively, if a government is concerned only with increasing the number of artists then the optimal policy involves giving greater assistance to “superstars” and may even preclude any assistance at all to younger artists.

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