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*Monometapoly: the economic impact of the
recording industry on the music market*

**This is Working Paper
No 56 (April 2008)**

The Intellectual Property Rights (IPR) elements of the DIME Network currently focus on research in the area of patents, copyrights and related rights. DIME's IPR research is at the forefront as it addresses and debates current political and controversial IPR issues that affect businesses, nations and societies today. These issues challenge state of the art thinking and the existing analytical frameworks that dominate theoretical IPR literature in the fields of economics, management, politics, law and regulation- theory.

Monometapoly or the Economics of the Music Industry

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19th April 2008

Abstract

With four major companies sharing more than 85% of the market share, the recording industry is one of the most concentrated industries. While this market concentration has been traditionally linked with high barriers to entry, recent technological changes have made these barriers almost disappear. Nonetheless, market concentration remains, mostly due to IPRs protecting major companies. This has traditionally been considered acceptable due to the high sunk costs of music recording that prevent an efficient outcome in competitive environment. This article calls this traditional wisdom into question and demonstrates that majors are not only monopolies but also monopsonies: they are monometapolies. Using analytical methods it is shown that the negative effects of a monometapoly are worse than those of a simple monopoly and that the loss of welfare indirectly caused by IPRs is likely to be much higher than what is usually expected.

Keywords:

Music industry, monopoly, monopsony, monometapoly, Intellectual Property Rights

JEL Codes:

D21, D43, J42, L12, L13, L82

Introduction

The IPR issues in the music market have been in the spotlight for a few years, due to the rampant piracy phenomenon occurring in this sector. Although artistes may seem, at first, as the most concerned by this phenomenon, it is, in fact, the recording companies that have led the fight against piracy and have lobbied for stronger IPRs. Based on their own account, piracy has cost recording companies large losses and undermined the profitability of this industrial sector.

In the meantime, important technological changes have taken place. Recording and distributing music, once both very costly processes, have now become so affordable that artistes have sometimes the means to conduct these activities independently. Yet, these two activities have been, over the past seven decades, not only the prerogative, but also the *raison d'être* of recording companies.

There are thus important changes that are, currently, challenging the very viability of recording companies. At a time when governments are placed in a position where they have to make important decisions in regard to the safeguard of this sector, it is crucial to conduct a thorough investigation of the economic role and impact of the recording industry on the music market.

Although the highly oligopolistic aspect of recording industries has long been acknowledged, both by researchers and policy makers, who see in the large market power of the firms of this sector a necessary market distortion to ensure a sufficient provision of cultural goods, the market power of the recording companies in regards to the artistes has often been left aside. Furthermore, the combinatorial effect of these multiple market distortion has not, so far, been investigated.

To this respect, it is shown, in this article, that recording companies are, in fact, in a very peculiar situation, in the sense that they are "*monometapolies*" – both, at the same time monopoly, from the consumer perspective, and monopsony, from the artiste perspective. This, rather uncommon, situation has very important consequences, since both monopoly and monopsony, on their own, lead to market distortion and loss of social welfare. The two effects brought together are shown to lead to a further loss of social welfare.

Furthermore, it is demonstrated that the *monometapoly* situation of recording companies induces two further negative effects that have, traditionally, not been accounted for in the literature. The first of this effect is related to the variety and diversity of musical creations that is expected to be greatly decreased due to the presence of a *monometapoly*. This argument is particularly important to take into account, since the usual account of the loss of social welfare only considers the missed advantageous trade opportunities exogenously, that is it the fact that some consumers and artists miss trading opportunities due to the imperfect market structure. In contrast, the argument developed in this article also considers the endogenous loss of social welfare. Indeed, the filtering activity exerted by recording companies decreases the quantity of potentially advantageous trade due to the fact that artistes endogenously adapt their product to match a standard promoted by recording companies. Thus the loss of social welfare, related to missed opportunities, is further aggravated by the endogenous reduction of the number of opportunities.

Finally, this article points out a risk of further market failure due to adverse selection taking place in the music market. Due to the high risk involved, on the artiste's side, and due to the low expected reward obtained through creating and playing music, the question of the ability of the recording industry to efficiently select and promote the best artistes. Quite on the contrary, it is conjectured that the current system is such that there is little correlation between the potential social value of an artiste's creation and the probability that this artiste will be signed by a recording company.

Overall, this article demonstrates that the current *monometapoly* structure of the recording industry leads to a double loss of social welfare, related to the existence of a deadweight loss on both supply and demand sides. In addition,

this loss is aggravated by the fact that this structure leads to a sub-optimal outcome, both in terms of quantity and quality. Finally, the analysis of the economic rationales this *monometapoly* structure shows that the current technological trends have considerably weakened them, thereby enabling a new, more efficient, course of action for the production and distribution of music.

1 Recording industry and monometapoly

The first fact that can be noted about recording industry is that it is, indeed, a very concentrated market. The largest recording company, Vivendi Universal, controls 31.9% of the global music market. It is followed by Sony BMG, which holds 25% of the market, Warner (20.3%) and EMI (9.4%). Independent labels account for the remaining 13.4%¹. Furthermore, since some independent companies depend on the majors for certain stages in music production the indirect share of the Majors is even higher (Frith, 1987).

However, in parallel to horizontal integration (through mergers and acquisitions), major companies also engaged in vertical integration (e.g. manufacturing, supply, distribution, etc.). The importance of vertical integration has been emphasised by Peterson and Berger (1975). The fact that majors owned manufacturers of musical instruments and audio equipment and the fact that some of the majors were owned by film studios in their turn has helped majors maintain their oligopoly status and enabled an increased number of potential revenue sources, centralised administrative functions, and control over releases schedules to maximise performances.

Although the primary source of market power in the recording industry has long been thought to be related to large natural barriers to entry, characteristics of this sector (both recording and distributing used to be very costly activities and involved large amounts of sunk costs), it is important to note that IPRs played, very early, an important role in the high degree of concentration of the recording industry.

Indeed, in the infancy of the recording industry (around 1900), the main barrier to entry were patents, related to recording technologies, held by a small number of recording companies. However, gradually, competing companies overcame these barriers through the introduction of innovative technologies, leading to an increase in the number of industry players. This number subsequently decreased during the 1930s, due to mergers and acquisitions following the Depression and, later on, major recording companies were able to establish barriers to entry through copyright.

Nonetheless Peterson and Berger (1975) demonstrate that by using innovative technology (tapes) and releasing innovative music (rock and roll) independent companies were able to account for up to 75% of the music market during the 1960s. Since then, though, the number of companies operating in the recording industry and the market share of independent label has been constantly decreasing.

After decades without radical transformation (aside from the use of new media, such as Audio-CDs), there has been, recently, some important changes due to the advent of the internet and digital technologies. These changes are

¹ http://www.forbes.com/2008/01/03/year-in-music-biz-media-cx_1h_0103bizyear_print.html

related to the natural barriers to entry, that have so far protected the market power of major companies.

Indeed, whereas the recording and mastering costs used to amount to several hundreds of thousands of Euros a decade ago, similar results, in terms of quality, can now be achieved with a regular personal computer. Likewise, the diffusion and promotion of music used to be very costly, but can now be achieved at almost no cost thanks to peer-to-peer networks and Web 2.0.

Yet, while natural barriers to entry in the recording industry have almost vanished, it is hard to notice any significant change in the market. The reason for that is that the barriers to entry created by IPRs seem high enough to enable major companies to survive the disappearance of natural barriers to entry.

However, the market power of major companies does not only lie on the fact that they provide, altogether, 85% of the recordings, it also lies on the fact that these same companies also are the first, if not only, employer for most of the artistes. There are, indeed, very few job opportunities for singers and bands besides the contracts that a major company can offer. Since records are a *passage oblig* for artistes, the cumulated market power of major companies, as buyers, on the artistes markets is also likely to be close to 85%.

With such a concentration ratio, the recording industry has not only a strong oligopolistic structure, it is also an “oligopsony”²: a large number of sellers (musicians, singers, bands) are in interaction with a very small number of buyers (four in the case of the music industry). Therefore, the major players in the music industry can be seen as both a monopsony from the artistes’ point of view *and* a monopoly from the consumers’ point of view: they are, in fact, a *monometapoly*³ – a combination of a monopoly and a monopsony.

The model presented in the next section aims at analysing the consequences, in terms of inputs, outputs and welfare, of the existence of such market structure.

Similarly to a monopoly, a monopsony leads to a loss of welfare and efficiency. The maximising profit behaviour of the monopsony results in a loss of surplus for the sellers. The equilibrium price is lower than the price in a competitive situation, and the quantity of production factor bought from the sellers by the monopsony is lower as well. Since this loss of sellers’ surplus is not compensated by an increase in the buyers’ surplus, the monopsony creates a deadweight loss.

2 The model

The aim of this model is to investigate the consequences, in terms of quantities of input and outputs and social welfare, of the existence of a metamonopoly. A market for records is considered and it is assumed that the output (e.g. songs or albums) is produced using the labour of artistes. In the short run, the amount of capital used (for example the recording assets) is assumed to be constant. It is further assumed that the production function is quasi-linear:

$$f(\bar{k}, l) = f(l) = kl \tag{1}$$

²Due to the small number of firms in the industry and their repeated interactions, it can be assumed that there is tacit collusion between the major players (Tirole, 1988). This allows us to consider, without loss of generality, the major players as a single monopsony.

³If abstraction is made of tacit collusion, then each major company is an *oligometapoly*.

On the output, market, the inverse demand function for the output is:

$$p(q) = c - dq \quad (2)$$

On the input market, the supply function is given by:

$$w(l) = a + bl \quad (3)$$

2.1 The monometapoly

A monometapoly is both a monopoly and a monopsony and is, thus, a price-maker on both input and output markets. The optimisation problem of such a firm is:

$$\max_l \Pi(l) = TR(l) - w(l)l \quad (4)$$

With:

$$TR(l) = p(f(l))f(l) \quad (5)$$

The first order condition is:

$$\frac{dTR}{dl} - (w + \frac{dw}{dl}L) = 0 \quad (6)$$

Where $\frac{dTR}{dl}$ is the marginal revenue product (MRP) and $w + \frac{dw}{dl}L$ is the marginal labour cost (MLC). Thus:

$$MRP(l) = \frac{dTR}{dl} = k(c - 2dkl) \quad (7)$$

$$MCL(l) = w + \frac{dw}{dl}L = a + 2bl \quad (8)$$

Consequently, the optimal level of input for the metamonopoly is:

$$l_{MM} = \frac{ck - a}{2(dk^2 + b)} \quad (9)$$

It is interesting to note that, in regard to the input market, the behaviour of a metamonopoly is similar to the optimising behaviour of a monopsony. Indeed a monopsony also chooses a quantity of input that equates marginal revenue product and marginal factor cost. This is not surprising, though, as this simply reflects the price-making behaviour of such entities on the input market.

To this level of input corresponds the following level of output:

$$q_{MM} = f(l_{MM}) = \frac{k(ck - a)}{2(dk^2 + b)} \quad (10)$$

As a result, the equilibrium prices on both markets are:

$$w_{MM} = w(l_{MM}) = a + \frac{b(-a + ck)}{2(dk^2 + b)} \quad (11)$$

$$p_{MM} = p(q_{MM}) = \frac{2bc + dk(a + ck)}{2(dk^2 + b)} \quad (12)$$

It can easily be checked that the behaviour of the metamonopoly, in addition to be similar to the one of a monopsony on the input market, is also akin the behaviour of a monopolist on the output market:

$$MC_q = \frac{d}{dq} w(f^{-1}(q)) f^{-1}(q) = \frac{ak + 2bq}{k^2} \quad (13)$$

$$\begin{aligned} MR(q) = MC(q) &\Leftrightarrow c - 2dq = \frac{ak + 2bq}{k^2} \\ &\Leftrightarrow q = \frac{k(ck - a)}{2(dk^2 + b)} \end{aligned}$$

Thus the optimal quantity of input and output chosen by a metamonopolist corresponds both to the quantity of labour that would have been chosen by a monopsonist and to the quantity of output that would have been chosen by a monopolist.

2.2 Competitive outcome and loss of welfare

In order to measure the economic effect the metamonopoly, it is necessary to consider the outcome that would have prevailed on both the input and output markets if these had been fully competitive.

A competitive outcome on the input market requires equality between supply and demand. In this case, the demand is represented by the marginal revenue product and the quantity of labour bought if the input market were competitive would therefore be:

$$MRP(l) = w(l) \Leftrightarrow l = \frac{ck - a}{2dk^2 + b}$$

The competitive outcome on the input market would thus be:

$$l_c = \frac{ck - a}{2dk^2 + b} \quad (14)$$

$$w_c = a + \frac{b(ck - a)}{2dk^2 + b} \quad (15)$$

Likewise, a competitive output market would be such that the market demand equals the supply, represented by the marginal cost curve:

$$p(q) = MC(q) \Leftrightarrow q = \frac{k(ck - a)}{dk^2 + 2b}$$

The competitive outcome on the output market would thus be:

$$q_c = \frac{k(ck - a)}{dk^2 + 2b} \quad (16)$$

$$p_c = c - \frac{dk(ck - a)}{dk^2 + 2b} \quad (17)$$

From this it can be noted that the level of input chosen by the metamonopoly is lower than the competitive level of input and the level of output is lower

than the competitive level. There is, thus, a deadweight loss on both input and output markets:

$$DWL_{in} = \int_{l_{MM}}^{l_c} MRP(x) - w(x) dx = \frac{b^2(a - ck)^2}{8(dk^2 + b)^2(2dk^2 + b)} \quad (18)$$

$$DWL_{out} = \int_{q_{MM}}^{q_c} p(x) - MC(x) dx = \frac{k^4(ad - cdk)^2}{8(dk^2 + b)^2(dk^2 + 2b)} \quad (19)$$

$$DWL_{MM} = DWL_{in} + DWL_{out} = \frac{(a - ck)^2(2d^2k^4 - bdk^2 + 2b^2)}{8(dk^2 + b)(dk^2 + 2b)(2dk^2 + b)} \quad (20)$$

2.3 Monopoly vs. monometapoly

However, when it comes to digital products, as other goods protected by intellectual property rights, the benchmark is not perfect competition. The reason for that is the idea that the production of these goods being characterised by high fixed initial costs and low replication costs, a competitive price would be too low to recover the initial investment and, thus, a competitive environment would provide too little incentives for such goods to be produced in a sufficient, from a social perspective, quantity and/or variety.

Intellectual Property Rights provide firms with monopoly power, thereby allowing them, through the monopoly profit, to recover the initial investment cost. The extent and the length of IPRs is chosen by policy makers so to provide enough incentives to firms while minimizing the welfare loss entailed by the monopoly market output.

Nonetheless, when considering the appropriate level of IPRs, governments only consider the market distortion (and the associated welfare loss) related to the output market. It is usually assumed that the input market is, in contrast, competitive, and is free of monopoly induced market distortions.

The next step in our model was thus to determinate what would be the outcome of a monopolist that would operate in a similar environment, but with a (perceived) competitive market for inputs and to compare the resulting levels and welfare loss with the ones associated with the monometapoly.

The demand function served by the monopoly would be identical to the one served by the monometapoly. However, a simple monopolist would consider the price of input as exogenous:

$$w = \bar{w} \quad (21)$$

Consequently, the marginal cost of the monopoly is:

$$MC_q = \frac{d}{dq} \bar{w} f^{-1}(q) = \frac{\bar{w}}{k} \quad (22)$$

The profit maximising output of the monopoly would thus be:

$$q_M = \frac{ck - \bar{w}}{2dk} \quad (23)$$

And the corresponding quantity of input demanded by the monopoly would be:

$$l_M = \frac{ck - \bar{w}}{2dk^2} \quad (24)$$

Which implies on the input market that:

$$w_M = w(l_M) = a + \frac{b(ck - a)}{2dk^2 + b} \quad (25)$$

And thus:

$$l_M = \frac{ck - a}{2dk^2 + b} \quad (26)$$

$$q_M = \frac{k(ck - a)}{2dk^2 + b} \quad (27)$$

$$p_M = c - \frac{dk(ck - a)}{2dk^2 + b} \quad (28)$$

It can thus be noticed that the monopoly outcome on the input market is identical to the competitive outcome:

$$l_M \equiv l_c \quad (29)$$

$$w_M \equiv w_c \quad (30)$$

Thus, a monopoly would not create distortion on the input market if the latter were competitive.

In regard to the output market, it can be noted that the output of the monopolist, although lower than the competitive output, is greater than the monometapoly outcome:

$$q_{MM} < q_M < q_c \quad (31)$$

Consequently:

$$p_c < p_M < p_{MM} \quad (32)$$

Comparing the profits of the monopoly and the monometapoly:

$$\pi_M = \frac{dk^2(a - ck)^2}{(2dk^2 + b)^2} \quad (33)$$

$$\pi_{MM} = \frac{(a - ck)^2}{4(b + dk^2)} \quad (34)$$

It is clear that $\pi_{MM} > \pi_M$: the monopoly profit is never as great as the profit of the monometapoly.

In terms of social welfare, a monopoly would not be as harmful as a monometapoly. Firstly, because the former does not create market distortion (and deadweight loss) on the input market; secondly, because, the output of the monopoly being larger, the its deadweight loss on the output market is lower than the one of the monometapoly.

$$DWL_M < DWL_{MM} \quad (35)$$

It is thus essential for policy makers to consider the competitiveness of the input markets when granting monopoly rights. Indeed, as demonstrated by this model, the burden put on the society when a monopolist also happens to be a monopsonist is far greater than the negative effects of a simple monopoly. Overlooking the degree of competition on the input market is, thus, likely to lead to inadequate policies granting too much monopoly power because of an undervaluation of the social negative effects of the existence of a monometapoly.

3 Consequences of the monometapoly on the recording industry

It has now been demonstrated that the monometapoly combines the negative effects of a monopoly and an monopsony and restricts the quantity exchanged in both input and output markets. In regard to the recording industry, it is obvious that the sales of songs and albums are far from what would prevail in a competitive environment. Prices of outputs are also far from being competitive. This is particularly evident when considering the prices of Audio-CDs. While the technology has constantly improved and allowed a dramatic decrease in production costs, to such extent that the marginal cost of duplicating a CD has almost become negligible, the prices of Audio-CDs have remained constant during almost two decades after their initial introduction to the market⁴.

In regard to the input market, that is the artistes market, the model presented in the previous section demonstrates that the monometapolistic structure of the recording industry does not only lead to less input being used (and thus less artistes signing a contract) but also to lower wages on the artistes market. Overall, artistes are placed in a more competitive and less rewarding situation than what would prevail with perfect competition. An examination of the facts reveals that this accurately describes the relations between the artistes and the recording industry. First of all, less than 1% of the artistes get a chance to sign a contract with a recording company. Also, the “price” they are paid is impressively low. Albini (1993)⁵ outlines a hypothetical but typical record deal that includes a \$250,000 advance on a young band. The album sells 250,000 copies, earning \$710,000 for the label. The band, after repaying expenses ranging from recording fees and video budgets to catering, wardrobe and tour bus costs, is left \$14,000 in the hole on royalties.

Furthermore, the market power of the monopsony is not only reflected in the price, but also in the terms of the contracts signed with the artistes:

Senator Orrin Hatch, Utah, once stated that the record business is the only industry in which the bank still owns the house after the mortgage is paid. (Gundersen, 2002)⁶

A good example of this is Paul McCartney having to pay to play some of the songs he wrote for the Beatles when touring in America. This is due to the rights on the songs still being owned by recording companies (and subsequently sold, for some of them, to third parties) despite the tremendous amount of money brought by the sales of Beatles songs, which undoubtedly have more than largely covered any advance and expense made to record and promote the songs.

Thus, the monometapolistic market structure puts artistes in a situation which is worse than what it would have been in a perfectly competitive environment. In addition, the loss of welfare for the sellers is not the only negative outcome of this situation, as it would be in the case of a simple monopsony.

⁴Prices have, in fact, very recently, started to decrease due to the competitive pressure of online music downloads.

⁵Steve Albini is a singer, songwriter, guitarist, audio engineer, producer and music journalist. Among others, he produced artistes such as Nirvana, Pixies, Robert Plant and Jimmy Page (of Led Zeppelin), The Stooges, PJ Harvey.

⁶Many other examples illustrating this point can be found in Gundersen (2002).

In the case of the recording industry, the negative effects of the monometapoly go further. Indeed, in this case, outputs and inputs are not perfect substitutes (Artiste A and Artiste B are not exactly the same, despite belonging to the same genre; likewise no two albums or songs released are exactly the same). The situation in the music market is such that consumers, most of the time, do unit purchase (an album is bought only once) and have a taste for variety.

The restricted quantity on the output market means that the variety of songs and genres consumer access to is lower than what would prevail in a competitive setting. Peterson and Berger (1975) and Rothenbuhler and Dimmick (1982) show a negative correlation between concentration of industrial control and the diversity of music. Consequently, consumers are even more harmed: restricted output has a further negative effect on welfare when welfare depends on both quantity and variety than when it solely depends on quantity.

However, variety is not only present in the output market and also (and primarily) exists in the input market, where each artiste is likely to differ from the others. Thus, a lower quantity of input used means a lower potential variety on the output market. This phenomenon is likely to be exacerbated due to the ability to substitute capital for labour. Indeed, instead of using the labour of artistes to release “new” products, recording companies can use capital instead and release compilations, best-of, remix albums. Likewise, the re-release of the same albums in different formats (vinyl, tape, CD, Mini-Disc, DVD, etc.) corresponds to a substitution of capital for labour.

Beyond that, the variety can also be expected to be endogenously reduced. Indeed, since artistes have, in fact, very little chance to sign a contract, they are likely to adapt and modify their creations to sound more “mainstream” and, thereby, increase their chances to be signed. There is, thus, a sort of Keynesian “beauty contest” that reduces the variety further.

Furthermore, due to fact that the equilibrium price is lower than in perfect competition, some artistes may decide to leave the market. This not only creates yet another loss of variety but, also, most likely, a decrease in quality, as it can be assumed that some brilliant and creative musicians will exit the market. In fact, the most gifted artistes are even likely to leave first, since they are the ones who would, otherwise, expect to receive the highest salary. Gifted artistes are also more likely to be able to find a job in other industries. To this respect, this situation is similar to that described in “market for lemons” (Akerlof, 1970): “good quality” artistes do not feel rewarded enough by the market price and consequently decide to leave the market. As we can reasonably expect consumers to also have a preference for quality, the monopsony price leads to a decrease in the consumers’ welfare.

Thus, in addition to the loss of welfare (related to quantity of inputs and outputs), caused by the existence of a monometapoly, that were demonstrated in the model, the loss of welfare in the recording industry is further increased due to multiple sources of decrease of variety and quality.

Concluding remarks

It is very interesting to note that, in spite of the progressive disappearance of the natural barrier to entry, the recording industry has never been as concentrated has what it is nowadays. These natural barriers to entry have, indeed, been

replaced by other barriers created by IPRs. Although it has been expected by policy makers that IPRs would lead to some degree of market power, it has been argued, in this article, that the actual market power (and market distortion) resulting from IPRs is likely to have been greatly underestimated.

Indeed, the high degree of concentration in the recording industry does not only mean a high degree of market power for major companies on the (output) records markets, but also on the (input) artists markets. Majors are not only oligopolies, they also are oligopsonies, and, if we consider the inevitable market collusion that arises with four players, the whole recording industry behaves, in fact, as a monometapoly: a combination of an upstream monopsony and a downstream monopoly. A model of such a monometapoly was presented in this article.

In regard to social welfare, the model demonstrated that the loss of welfare owing to the presence of the monopsony (on the supply side) is augmented by a loss of social welfare due to the existence of the monopoly (on the demand side). In fact, it can be considered that a monometapoly is the vertical integration of monopsony and monopoly.

In regard to vertical integration, Tirole (1988) asks the following question: “what is worse than a monopoly?”. The well-known answer to this question is “a chain of monopolies”. This phenomenon occurs because of the multiple price distortion caused by the multiple-marginalisation that happens in the chain of monopolies. The solution to this problem is a vertical merging of the chain of monopolies, resulting in a single marginalisation, and thus a single price distortion. A question that could be raised here is “what is worse than a chain of monopolies?” The answer would be “a chain of monopsony and monopoly”. Unfortunately, as the monopsony and the monopoly are already vertically integrated, there is no way to cancel this double price distortion. If the monometapoly were split, it is to be feared that, unless a significant degree of competition is introduced, the situation would even worsen, due to an extra marginalization appearing between the two entities.

It seems, overall, that the conventional wisdom that monopolies are a bad for a good, and that *in fine* the loss of social welfare will be fully compensated by the increase of innovation and release of new products, underestimates some of the effects associated with the existence of intellectual monopolies. Indeed, if the market concentration is high, an intellectual monopoly is also very likely to be a monopsony as well. In this situation, due to a double price distortion, the loss in welfare is higher than the one usually associated with a monopoly.

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