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The effects of gallery and artist reputation on prices in the primary market for art: a note.

Susanne Schönfeld and Andreas Reinstaller **

Abstract — *This paper advances a decision theoretical foundation for pricing scripts by means of a simple model of product differentiation implementing the undercut-proof equilibrium concept. We argue that while sociological factors play undoubtedly an important role, economic analysis can complement the insights from economic sociology on pricing in the primary art market. Our model analyzes the effects of the gallery's and the artist's reputation on the price the gallery charges. The results suggest that prices positively correlate with an artist's reputation and negatively correlate with a gallery's reputation. The model may therefore explain the results of recent empirical studies that have led to similar results.*

Keywords: Pricing scripts, art galleries, visual arts, undercut proof equilibrium

JEL-Classification: Z11, L11

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1   Introduction

The crucial distinction between art and other consumption goods is that the quality of an artwork cannot be objectively determined. Instead, the value of art is socially constructed. Several authors working in the field of cultural economics have advanced this idea. For example Bonus and Ronte [3, p.104] state that "the quality of art cannot be proven or disproven by scientific method." Instead, the value of art is a function of social consensus, where the opinion of art world insiders has greater weight. As pointed out by Shubik [6, p.195], "unlike the evaluation of many consumer goods, the problem in the evaluation of the worth of an art object is by far more dependent on cultural norms and social acceptance than the perceived needs of the consumers." The gallery's pricing decision reflects the problematic valuation process, and it is this pricing decision that the paper investigates.

In a first crude distinction a primary and a secondary art market segment can be identified. The primary market comprises all artworks without provenance, i.e. the market where artworks are sold for the first time. Art reentering the market is sold in the secondary market segment. While in the latter the history of ownership of an artwork and the curriculum of its artist are relatively well known, the scarcity of information on artist and artwork is the main characteristic of the former. By definition, there is no secondary market for work by artists who do not enjoy a distinguished reputation. Informational priors about these artists and their oeuvre are common knowledge. In the primary market typically little is known about the artwork and the artist. To be sure, new artworks from well-known artist are also sold in the primary market, yet less often. The lack of informational priors makes it very difficult for the potential art buyer to assess the quality of the work. The high degree of uncertainty in the primary art market leads to a limited number of potential buyers, less liquidity and thus higher market volatility (see Gérat-Varet [4, p. 511]). At the same time the importance of galleries as mediators rises. This makes the primary market for contemporary art especially interesting for our attempt to single out the effects of reputation on art pricing.

A recent in-depths study by Velthuis [9] has identified institutional arrangements among art dealers to alleviate problems of uncertainty. He suggests that art dealers apply rules of thumb, which guide their pricing decision and economize on costs involved in decision-making, as a solution to the pricing problem. He calls these tacit rules pricing scripts and defines them as a set of routines which function as a cognitive manual for the variety of pricing decisions that a dealer needs to make at different stages of an artist's career. For instance, for new artists the rule is that their work is compared to that of similar artists already introduced in the market, and based on this, it is then priced low at first; for an artist with a price history trends are adopted and extrapolated. Moreover, size, medium and the reputation have an impact. Price decreases are avoided. All this is combined with galleries committing to invest in their artists by organizing art shows and similar events. In this way galleries are able to influence prices, as price increases are

anchored in artists' reputation, sales and time. The scripts are diffused among galleries by an imitation process and are stable in the short run, whereas they may change over the long run. This leads Velthuis to the important observation that art galleries are price and not profit maximizers. Scripts enable dealers to price art systematically and make prices predictable. Instead of anchoring the price on a diffuse notion of quality, observable features are taken into account. As a result the mystery of the pricing decision is reduced and exchange in the market becomes more transparent and more attractive to buyers and sellers. In a nutshell, Velthuis claims that galleries do not set the price according to the forces of supply and demand but according to scripts.

We believe that Velthuis' analysis can be advanced to include not only symbolic interchanges of agents but also economic determinants in the pricing decision. For instance, the rule not to lower prices may well be anchored in a specific type of competition art galleries are engaged in and not only in a relation of trust between the gallery and the artist, as claimed by Velthuis. We propose a simple economic model that points towards the economic foundations of pricing scripts. For this purpose we model the primary art market as a differentiated products market in which art dealers, such as art galleries, compete using their reputation and the reputation of the artist as determinants in their price setting behaviour. As we will show this model is able to capture some features of the primary market that sociological theories have not been able to explain so far. This note is organized as follows: Section 2 presents the core characteristics of the primary art market, which are then condensed into a simple model in Section 3. We discuss the results and draw conclusions in the last section.

2 An economic view of the primary market for art and the pricing decision

There are two major economic agents in the primary art market. On the one hand there are the sellers, mainly art galleries, and on the other hand there are art buyers. The interaction between these two agents determines the nature of competition and the rules of exchange in the primary art market. This section discusses their specificities and argues that their interaction goes beyond symbolic interchanges and has intrinsically economic characteristics.

Given the high degree of uncertainty about the quality of an artwork, the reputation of art galleries and their artists are the *sine qua non* of a functioning primary market. A distinguished reputation is the result of a flawless history documenting the continuous work for the fine arts as a respected art world member. Reputation is a strong signal about the gallery's competence in picking high potential artists and thus opposite proportional to the individual buyer's risk to buy low quality art. It is a signal that is easy to understand even to outsiders with no competence in the field at all and therefore a particularly powerful signal. The reputation of the gallery and the artist are intertwined and reinforce

each other. To sum up, reputation alleviates the intrinsic risk of art purchase and thus enhances the functioning of the market.

The gallery influences their artists' reputation signals through various mechanisms. By the mere act of deciding to feature an artist the gallery sends a signal to potential customers, but also to the artist, namely that it trusts her. Given the asymmetry of art-specific knowledge this is an important signal about the artist's quality. Moreover, galleries develop communication strategies for their artists. They organize art shows and make the effort to get them reviewed in the media, showing the work to art experts and directing the attention of the public to the artist. Furthermore, an ambitious gallery is not only trying to attract any buyer for a painting, but to attract the right one, e.g. an important collector whose purchase supports the quality judgment of the gallery. If these efforts are fruitful the gallery is able to establish a long run relationship with its customers as well as with its artists. In this way it boosts the artists' reputation, which enables it to raise prices. Overall this process indirectly increases the gallery's own reputation, too. The artists' as well as its own reputation are therefore important parameters that the gallery influences through its own efforts.

In the primary art market, sellers are easily categorized according to their reputation and according to the reputation of their featured artist. Buyers, on the other hand, can also be classified, namely according to the art know-how they have accumulated. As is claimed by Stigler and Becker [8], people's tastes are rooted in the specific social environment in which they have grown up, their education and so forth. Given these priors they have accumulated consumption (or art) specific human capital, which is coined as 'consumption capital'. Each art customer has a different taste and therefore different preferences. In line with Stigler and Becker we may therefore argue that the more an individual knows about a specific artist, the higher are the pay-offs she derives from consuming her art. Art consumers, therefore, are likely to buy more from one artist (or a group of them) relative to others. Hence, present consumption increases future consumption of a specific type of art. The path dependent nature of the accumulation of consumption capital presents the rationale for consumers not to diversify indefinitely. It also implies that due to the specificity of consumption capital buyers incur switching costs if they change between art styles or specific artists. These dynamics are a rationale for the emergence of stars. As Adler [1, p.209] put it "stardom is a market device to economize on learning costs in activities where 'the more you know the more you enjoy'."

Not only reputation and popularity of an artist, but also competition between galleries has major influence on the pricing decision. There is strong evidence that galleries frequently interact and react towards each other. Gallery districts, cooperation in the presentation of artists, common rules of conduct, and art fairs are examples of the complex relationship among galleries. They take each others' actions into account. All galleries face the same problem: they cannot objectively determine the quality of an artwork. If the pricing decision of the gallery was solely based on the subjective estimation of quality, the primary

art market would be very volatile and hardly reliable. Nevertheless, given the presence of switching costs on the side of their customers, there is an incentive for them to charge prices slightly above the competitive level, which would prevail if prices were set only according to the relatively objective criteria of size and medium of the artwork and specific career profiles of the artist. The existence of switching cost lowers the risk to lose market share. On the other hand, they can subsidize switching cost for consumers endowed with different consumption capital. This effective price drop allows gaining market share. This type of price competition would lead to Edgeworth cycles, where 'high' prices allow a gallery to gain market share by undercutting the price set by its competitors. At 'low' prices profits can increase by raising prices. As Edgeworth conjectured and Shy [7] has shown, under these conditions no equilibrium in pure strategies exists: galleries always have an incentive to change prices in order to increase profits. This signal of instability increases the uncertainty in the market and undermines its proper functioning. Therefore, it is a good strategy for galleries to set prices in a way, that does not allow their rivals to profitably undercut them.

From an economic point of view the outlined interaction between galleries and buyers reflects a differentiated product market: galleries deliver the artworks that meet the heterogeneous preferences in the market. Uncertainty, as well as the specificity of human capital that help to reduce it, create switching cost. Buyers, venturing to acquire artworks of artists whose quality signals are difficult to interpret, must bear this cost. Bertrand or Cournot analysis is not suited because in this type of model art buyers would be assumed to gain utility from consuming a variety of products by definition and therefore we would loose an important characteristic of the primary art market. For this reason the next section picks up the specificities of the primary art market and aggregates them into a discrete address model of product differentiation to address the following questions: What role does competition play in the enforcement of pricing scripts? And what does this imply for the impact of a gallery's reputation on the price it can ask? And finally, what is the impact of the star phenomenon on the price a gallery can ask?

3   The model

We use a discrete version of a linear city model of product differentiation, where consumers incur switching costs if they change to another firm. This is known in the industrial organization literature as the undercut proof equilibrium (UPE) model (see Shy [7]). The main characteristic of the UPE concept is that firms - in our case the art galleries - do not search for a best response to their rivals' actions as in the case when they play Nash strategies, but they try to anticipate the reaction of competitors and set prices in such a way that there is no incentive for other firms to undercut their price.

We assume that there are two artists i and j each exclusively represented by one art gallery indexed by the same letters. Overall there are N potential customers in a specific

market segment $n_i > 0$ of which are endowed with consumption capital related to the style of artist i. Similarly there are $n_j = N - n_i$ art lovers with consumption capital enabling them to appreciate the style of artist j.

There are no "objective" quality signals available that would allow to judge an artist. As has been discussed in the introductory sections of this paper, art is art by social construction. But, there is one public signal an art collector can easily perceive also with little art related consumption capital. It is the reputation of the gallery which is independent from the artist. A gallery with a good commercial record and with high esteem by art customers is also likely to sell good art. Gallery reputation is an important signal for art buyers, but it is a variable that evolves only very slowly, as it depends on the cumulated past successes a gallery has had. To boost the reputation of an artist and establish her once in the market, will influence its reputation only marginally. It will build up only slowly, and it can be lost very quickly as a consequence of mistakes.

On the other hand, art consumers have private consumption capital that allows them to better understand and judge the characteristics of a specific artist and engage into social interaction on specific art with other people in their social peer group. If the artist has high reputation it will be cheaper to accumulate the related consumption capital. For artists with low reputation this is not the case and art buyer will need to invest more into their consumption capital and incur learning costs to achieve similar levels of confidence about the alleged quality of their work. The reputation of an artist is therefore a strategic variable for the art gallery. It can be changed by increasing the amount of informational priors that are present in the market. In this way the costs an art customer has to incur if he intends to switch to another artist increase. Given these assumptions the pay-off to art buyers depends on the matching of their art know-how and the field of specialization of the gallery where they buy art:

$$
\begin{aligned}
u_{ii} &= r_i(e_i) - p_i \\
u_{ij} &= r_j(e_j) - p_j - \delta_{ij}(e_i) \\
u_{jj} &= r_j(e_j) - p_j \\
u_{ji} &= r_i(e_i) - p_i - \delta_{ji}(e_j)
\end{aligned}
\tag{1}
$$

that is, if an art customer is endowed with consumption capital of type i, he buys at gallery i which has a reputation that pays off $r_i(e_i)$ to the art customer. It may be thought of as some minimum price the buyer thinks he may get if he is to resell the work because of the gallery related quality signal that goes with it. If instead a consumer holding consumption capital i buys from the gallery specialized on artist j he would need to incur a switching cost of readjusting his consumption capital to j of $\delta_{ij}(e_i)$. Both variables depend on the effort e_i a gallery invests to promote its artist. This is the parameter the gallery controls directly.

With this basic set-up we may now define an UPE in the art market for new art as the non-negative pairs (s_i, p_i) and (s_j, p_j), where s_i, s_j are non negative market shares for

galleries i and j. In an UPE

1. art dealer i chooses his highest price p_i, subject to

$$p_j n_j \geq [p_i + r_i(e_i) - \delta_{ij}(e_i)](n_i + n_j), \tag{2}$$

2. while art dealer j similarly chooses her price p_j, s.t.

$$p_i n_i \geq [p_j + r_j(e_j) - \delta_{ji}(e_j)](n_i + n_j). \tag{3}$$

3. It is implicit from the pay-offs in (1) that for the market share s_i of gallery i holds:

$$s_i = \begin{cases} 0 & \text{for } \Delta p < \Delta r - \delta_{ij}(\cdot) \\ \frac{n_i}{n_i + n_j} & \text{for } \Delta r + \delta_{ji}(\cdot) \geq \Delta p \geq \Delta r - \delta_{ij}(\cdot) \\ 1 & \text{for } \Delta p > \Delta r + \delta_{ji}(\cdot) \end{cases}, \tag{4}$$

with $\Delta p \equiv p_j - p_i$ and $\Delta r \equiv r_j(\cdot) - r_i(\cdot)$.

This implies that gallery i sets the highest possible price subject to the constraint that j's equilibrium profit is higher when not undercutting. This is the case if i sets its price $p_i < p_j + \delta_i - \Delta r$ and $p_i > p_j - \delta_{ji} - \Delta r$, that is, low enough to make it unattractive for its own customers to switch to j but high enough not to attract gallery j's customers. The same reasoning applies also for gallery j. At the boundary the inequalities in (2) and (3) hold with equality and can be solved to get the exact price combinations where each gallery will undercut and where there is no incentive to do so. These are the lines plotted in figures (1a) through (1c).

(**Figure 1 about here**)

They show the price combinations where it is beneficial for a gallery to undercut and where not. At their intersection point there exists then a unique undercut proof equilibrium in the art market where the galleries' shares are strictly positive, i.e. $s_i^* = \frac{n_i}{n_i + n_j}$ and $s_j^* = \frac{n_j}{n_i + n_j}$. UPE prices in this market are then given by

$$\begin{aligned} p_i^* &= \frac{(n_i + n_j)^2(\delta_{ij}(e_i) - r_i(e_i)) + n_j(n_i + n_j)(\delta_{ji}(e_j) - r_j(e_j))}{n_i^2 + n_i n_j + n_j^2} \\ p_j^* &= \frac{(n_i + n_j)^2(\delta_{ji}(e_j) - r_j(e_j)) + n_i(n_i + n_j)(\delta_{ij}(e_i) - r_i(e_i))}{n_i^2 + n_i n_j + n_j^2}. \end{aligned} \tag{5}$$

Closer scrutiny of the equilibrium prices in (5) reveals that prices may be strictly positive for gallery i even if it does not invest into switching costs such that $\delta_{ij} = 0$. This would be the case if the competing gallery j sets its switching costs to $\delta_{ji} > r_j + s_j^{-1} r_i$. This means that if gallery j sets its switching costs high enough so that they are larger than

its reputation effect and the reputation effect of the competitor weighted by the inverse of its market share gallery i can still yield positive prices even though it has not invested in its artist. This is very likely if the market share of gallery i is relatively small as compared to gallery j. In this case gallery i "free rides" on the investment of its larger competitor. This happens because, due to the effort of gallery j, the general price level in this particular segment of the primary art market will rise making it possible for gallery i to charge a price for its own artist without being undercut. On the other hand, if gallery i invests into switching costs and gallery j does not then it must invest enough effort such that $\delta_{ij} > r_i + s_i r_j$. This means that the switching costs must be larger than the payoff customers derive from the gallery's reputation and the reputation of its competitor weighted by its own market share. The UPE in this market therefore would support smaller galleries at the expense of larger ones.

This short discussion illustrates what the economic foundations of pricing scripts are likely to be. Firstly, by promoting undercut proof behavior they guarantee that a primary market actually exists. Secondly, they are an (implicit) commitment of all galleries in a specific market segment to invest a minimum amount into building up a reputation for their artists and not to free ride on the efforts other galleries make for their artists. They guarantee that galleries will undertake similar measures to promote artists with similar observable features. This in turn ensures that no free riding takes place and prices are jointly maximized in a given market segment.

If we consider now the effect of a gallery's effort to increment the switching costs for its customers by providing additional information and service, we see that the effect of this policy is ambiguous. As can be easily seen from a little comparative static exercise high reputation r_i of an art gallery i lower equilibrium undercut proof prices, while the switching costs δ_{ij} increases them. The first partial derivatives with respect to the effort level e_i of the equilibrium prices in (5) yield

$$
\begin{aligned}
\frac{\partial p_i^*}{\partial e_i} &= \frac{(n_i + n_j)^2 (\delta_{ij}' - r_i')}{n_i^2 + n_i n_j + n_j^2} \\
\frac{\partial p_j^*}{\partial e_j} &= \frac{(n_i + n_j)^2 (\delta_{ji}' - r_j')}{n_i^2 + n_i n_j + n_j^2},
\end{aligned}
\tag{6}
$$

where $\delta_{(.)}'$ and $r_{(.)}'$ are the first derivatives of switching costs and reputation after the effort parameter $e_{(.)}$. From the equations in (6) we see that changes in efforts have a positve effect on prices through their increase of switching costs $\delta_{(.)}$ and a negative effect through their effect on the reputation $r_{(.)}$ of the gallery. If $\delta_{(.)}' \leq r_{(.)}'$ the prices may not change or even fall. Nevertheless, as we have argued before gallery reputation is a slow variable. It does not change just because the gallery has made an effort to support an artist once. It depends very much on the track record of the gallery and therefore on the history of its past efforts so that $r_{(.)}'$ is likely to be rather small and smaller than $\delta_{(.)}'$. As $\delta_{(.)}$ is also directly related to one artist it will have a much more immediate and direct impact on the

prices for her work than a more general and diffuse change in reputation of the gallery. So, if a gallery increases the reputation of an artist it will increase the switching costs $\delta_{(\cdot)}$ for its customers. However it will also involuntarily increase its reputation which will counteract the price gain induced by the increase in switching costs.

(**Figure 2 about here**)

The implication of an asymmetric increase of switching costs and reputation of an art dealer is illustrated in figure (2a). It shows that while an increase in the switching cost increases the level of undercut-proof prices, the increase in reputation reduces it such that prices are lower if switching costs had increased alone. The figure also shows that an increase in switching costs for one gallery increases the equilibrium price for *both* competitors, but to a lesser extent for the gallery whose switching costs have not changed. This is immediately seen from the partial derivatives in (7):

$$
\begin{aligned}
\frac{\partial p_i^*}{\partial e_j} &= \frac{n_j(n_i + n_j)(\delta_j' - r_j')}{n_i^2 + n_i n_j + n_j^2} \\
\frac{\partial p_j^*}{\partial e_i} &= \frac{n_i(n_i + n_j)(\delta_i' - r_i')}{n_i^2 + n_i n_j + n_j^2},
\end{aligned}
\tag{7}
$$

as ceteris paribus $n_j(n_i + n_j) < (n_i + n_j)^2$. The effect of an increase in the effort of gallery j on gallery i's prices is smaller than the effect on its own prices, but the overall price level increases. The reason for this is straightforward. As the price level for j increases due to an increased effort e_j, gallery i can move along its undercut proof price schedule and charge higher prices because its own customers are less likely to switch away due to the higher prices charged by competitors. Therefore, the increase in the price level of the competitor acts like an increase of its own switching costs. This scenario illustrates a point made before. A gallery, which under invests in its artists, can free ride on the effort of its competitors as it increases the general price level in the specific market segment.

Figure (2b) shows the case for symmetric increases in switching cost and reputation. Here, the overall price level in a particular segment of the primary art market increases as both galleries make an effort to tie up their customers to their artists. It shows that both galleries can get higher prices if both invest into the switching costs of their respective artists. Therefore, galleries can jointly maximize their prices if both devote similar efforts to their respective artists.

4 Empirical evidence on pricing in the primary art market.

The previous section has argued that galleries' reputation *lowers* the equilibrium price for new art, because of the danger of being undercut. On the other hand, factors influencing

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artists' reputation affect prices positively. A multi level regression analysis carried out by Beckert and Rössel [2] has addressed exactly the question we have analyzed in this paper. These authors have studied the factors influencing prices in the primary and secondary art market for visual art.[1] They have focused on role the reputation of the artist and a proxy for gallery reputation play in the price determination. Table 1 shows their results. They indicate that a number of factors influencing the reputation of an artist (length of artist's career, art shows, public perception, but not the parameter capturing whether the artist holds a professorship) positively correlate with prices, while the proxy for gallery reputation correlates negatively with it. Beckert and Rössel seem to be puzzled by this result and fail to explain the phenomenon.

(**Table 1 about here**)

Interestingly, the signs of the estimated coefficients exactly match the predictions from our model. However, none of the estimated coefficients (besides the length of an artist's career) are statistically significant. Given these statistical limitations the results of Beckert and Rössel indicate that the implications of our model are likely to point in the right direction. All factors that tend to be a more objective measure to judge the artwork, like the size of painting, a possible academic affiliation of the artist as well as the gallery reputation enter with negative sign, supporting our view, that competition plays a role in the primary art market. These findings however require confirmation by means of a larger data set.

5 Conclusion

In contrast to previous studies this note incorporates economic analysis, and, in particular, competition into the script methodology. As the quality of art in the primary market is highly uncertain, the reputation signal of both artists and art galleries is the central element in the pricing decision. Furthermore, as a consequence of these specificities of the art market, consumers develop also different preferences based on consumption capital. This makes it costly for them to switch to different artists all the time. The results of the model we have advanced on the basis of these assumptions indicate that it is beneficial for galleries to support their artists' reputation, though indirectly harming themselves by boosting their own reputation. This boost amplifies the danger of other galleries undercutting. As a consequence galleries with a higher reputation increase their prices by less than if their reputation had remained unchanged. An empirical study we quote in this paper lends some support to our analytical findings. So we are able to explain the counterintuitive findings that galleries with a more distinguished reputation set comparatively lower prices.

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[1]To some extent their analysis matches those of Rengers and Velthuis [5] on Dutch galleries, but the latter did not include gallery reputation proxies.

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Tables and figures

Table 1: Determinants of pricing by art galleries

parameter	regression coefficient
size of painting	-0.037***
	(4.625)
length of artist's career	0.055***
	(2.895)
professorship	-0.038
	(0.09)
art shows	0.005
	(0.625)
public perception	0.220
	(1.594)
gallery reputation	-0.012
	(0.25)
constant	0.639***
	(3.286)

Notes: Source: Excerpt from Beckert and Rössel [2, p.44]. Dependent variable is the price per square centimeter. Controls for type of art work and gender of artist were included in original regression, but are not reported here. The variable for gallery reputation was constructed out of expert interviews. Regression coefficients and t-values in brackets. $***$ significant at the 1% level.
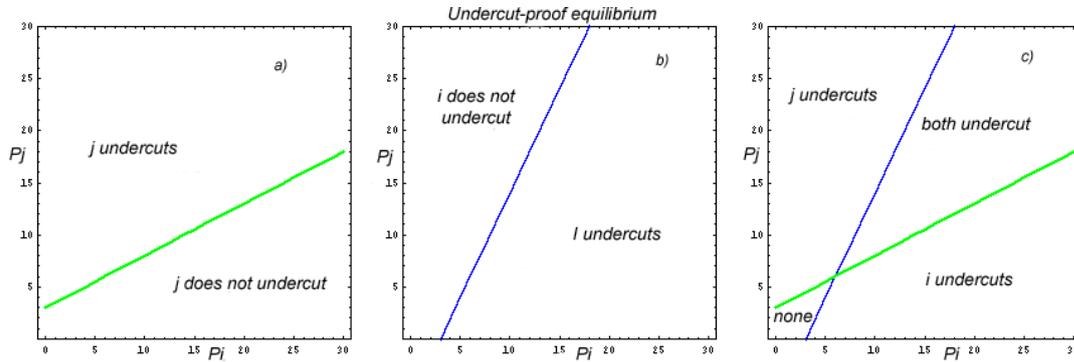

Figure 1: a) Boundary for gallery j in the undercut-proof equilibrium, b) boundary for gallery i, c) behavioural areas and undercut-proof equilibrium.
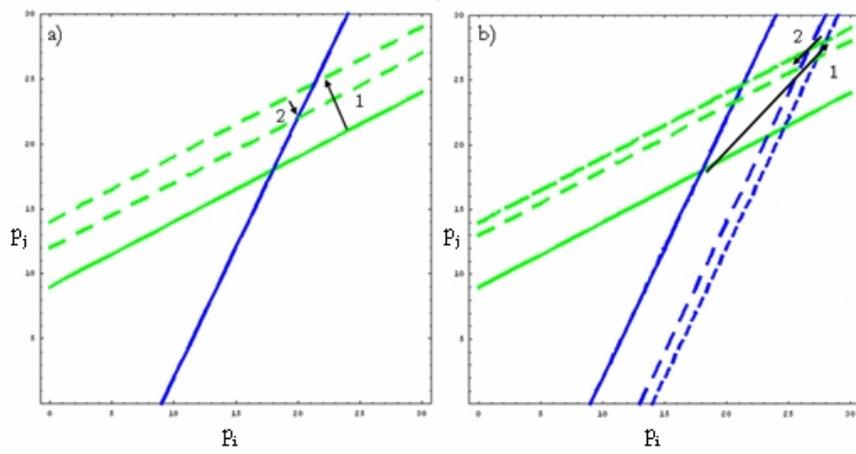
Figure 2: a) an increase in switching costs δ_{ji} shifts out (1) the UPE schedule increasing equilibrium prices the increase in reputation r_j lowers (2) equilibrium prices again by shifting the UPE schedule downwards, b) reputation increased for both artists i and j with a shift in δ_{ij} and δ_{ji} (1) and an equal increase in reputation of both galleries (2).