



THE ” BAD DEAL ” ILLUSION

Fabrice Larceneux, Thomas Lefebvre

► **To cite this version:**

Fabrice Larceneux, Thomas Lefebvre. THE ” BAD DEAL ” ILLUSION. Congrès de l’ACFAS, Jun 2016, Montreal, Canada. <halshs-01671084>

HAL Id: halshs-01671084

<https://halshs.archives-ouvertes.fr/halshs-01671084>

Submitted on 21 Dec 2017

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L’archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d’enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

THE “BAD DEAL” ILLUSION

Fabrice Larceneux

Thomas Lefebvre

DRM - UNIVERSITE PARIS-DAUPHINE (FRANCE)

Abstract:

Why can contracting with an intermediary be perceived as a “bad deal” compared with a direct contract between buyers and sellers? This study shows that information asymmetries in brokerage services lead to forming a judgmental heuristic that is a negative attitude toward commission fees, called “commission inequity.” Using a questionnaire from 3,484 housing buyers and sellers, we show that this heuristic influences the perceived satisfaction of the transaction price which, in turn, influences broker reputation. Moreover, buyers using brokerage services do not report different purchasing prices than buyers via direct transactions (FSBO) but perceive a significantly lower price satisfaction. These results are replicated with sellers who report a higher selling price when using a broker as compared to sellers selling directly. However, they also indicate a significant lower price satisfaction compared with FSBO sellers. Therefore, the commission inequity heuristic is shown to lead to the illusion of a bad deal.

Introduction

It is a popular knowledge that brokers have a bad reputation in most advanced countries. In real estate for instance, 67.5% of American consumers polled do not trust agents (*Los Angeles Times*, 2013). These rate rises to 75% of distrust in the UK (Ifop, 2016) and even 85% in France (Mediaprism, 2014). Like real estate agents, lots of brokers suffer from trust and get a bad reputation. Indeed, brokers sell nothing other than the possibility for a transaction to be made between buyers and sellers. Agency theory and information asymmetry between principal and agent provide relevant insight for understanding why contracting with an intermediary can be perceived as a “bad deal” compared to a direct agreement between the two parties. Agency theory addresses problems that arise when the goals of the principal (buyers or sellers) and the agent (broker) differ and more specifically when the principal is not able to verify (because it is difficult and/or expensive to do so) what the agent is actually doing. This situation characterizes intermediaries and brokers who sell services that connect demand with supply.

As mentioned by Anglin and Arnott (1991), in a world with informational symmetry, consumers and brokers are supposed to be equally well informed, i.e., buyers and sellers are likely to know the skills of the agent and be able to observe the amount of effort the agent expends. As a result, the contract should state a specified amount of effort. However, in the real estate industry, asymmetries of information occur when consumers sign a deal to obtain a specific outcome (i.e. creditworthy buyers or expected purchase). Two types of asymmetries are traditionally mentioned in the economic literature. First, moral hazard occurs when individuals are unable to observe the hidden action of agents, i.e., how much effort s/he is putting into finding buyers or selling a house. Second, adverse selection arises when individuals are unable to assess the agent’s skills and knowledge. As a result, individuals sign a contract and pay the agent solely on the basis of observable outcome, i.e., the sought-after property for buyers and creditworthy buyers for sellers. In situations of asymmetry, the price paid for brokerage services is not a function of the broker’s visible efforts or skills but a fixed rate. In real estate for instance, it is function of the housing price at the time of sale. If some variations exist, the rate is usually between 4 and 8% in Western countries (in 2016, it was on average 4.9% in France). As Jia and Pathak (2010) argue, prices that agents charge their clients may not be a signal of quality since commissions do not appear to be informative of the agent’s impact on days on the market or the sales price. We suggest that this leads to a general perception for consumers who may retain the fact that the broker’s commission is not linked to effort and skill. This perception is supposed to create unfairness feelings about the transaction and lead to the

opinion of a “bad deal” for them. Indeed, in order to gain a better understanding of the consumer behavior toward a broker, we suggest a model based on the consumers perceptions of fairness of fees and the consequence in terms of price satisfaction and broker reputation. Second the transaction price and its related satisfaction is challenged with those of individuals using direct platforms (FSBO) in order to reveal a latent internal bias in their evaluation of transactions.

This research argues that consumers of brokerage services form a general judgmental heuristic, i.e. a psychological belief called “commission inequity” which reflects the perception of unfairness of the deal involving brokerage services. This heuristic is shown to influence negatively the consumers’ attitudes toward the broker reputation even after a successful transaction. In the real estate industry, a questionnaire sent to housing buyers using brokerage services allows to show that this general belief in commission inequity decreases the broker’s reputation and this effect can be significantly explained by decrease of the satisfaction of the final transaction price (study 1.1). Moreover, based on a comparison with buyers using direct platforms, complementary studies are run to show no significant differences regarding the price paid to get the housing between brokers and FSBO but a significant difference in satisfaction toward the price paid (Study 1.2). This negative effect of commission inequity on broker reputation is also replicated on a sample of sellers who are not supposed to pay the brokers fees. Again, the mediating negative effect of the price satisfaction is shown (study 2.1) and internal rationality of consumers of brokerage services is once more challenged with sellers using FSBO who report a lower net selling price but a higher price satisfaction (Study 2.2), reinforcing the outcome that commission equity induce biased perceptions, leading to a misunderstanding of the effective value of brokers.

1. Literature review

1.1 Agency theory and brokerage services

Seminal references to information asymmetries and moral hazards from Jensen and Mekling (1976) or Holmstrom (1979) point out that, since the agent's effort is unobservable, a commission can only be based on what can be observed or deduced. The problem of defining the value of a service, from a consumer’s point of view, is embedded in the intrinsic nature of the “service” that is supposed to be provided by the brokers. The degree of *intangibility* (Levitt,

1981) meaning that consumers are unable to assess a service's intensity and quality and *heterogeneity*, i.e. the high potential variability in service delivery among brokers contribute to enhancing consequences of information asymmetry and as a result, to putting consumers in a difficult position to define the "fair" value and price for brokerage services.

Whereas principal / agent theory shows that agents may use these asymmetric situations to their own advantage, Yinger (1981), Wu and Colwell (1986), and Zorn and Larsen (1986) note that a commission contract can partially overcome the problems of not being able to monitor an agent's activities via the contract's duration. In case of housing purchase, some scholars suggest it is efficient for agents to devote more time to expensive houses (vs. less expensive) since the commission contract provides an appropriate incentive (Shroeter, 1987; Carroll, 1989; Knoll, 1988). As Anglin and Arnott (1991) have previously noted, the standard principal-agent theory provides little support for the prevalence of the fixed-commission contract or for the observed uniformity of the commission rate. From the perspective of principal-agent theory, the commission contract is seriously inconsistent in many ways. For instance, it fails to allocate risk efficiently and gives agents inadequate incentives to work hard. Also, it precludes self-selection by agents across contracts according to their ability, making it difficult for individuals to select skilled agents. Since no supervisory mechanisms exist to control the intensity of work produced by agents, we suggest that consumer infer the amount of broker effort involved and that the nature of services leads consumers to feel unfairness and inequity in terms of broker commission.

When quality is difficult to assess, individuals are likely to use judgmental heuristics to form a specific attitude. Using laboratory situations where the assessment of the output's quality is ambiguous, Kruger et al. (2003) propose the notion of "effort heuristic" to refer to the fact that people use "perceived effort" as a clue for quality and value: the more effort invested in the creation of an object (a painting, poem or paper submitted to a scientific publication in their field of study), the better it is believed to be. Individuals are likely to be more influenced by the effort that is supposed to be embedded in the creation when the quality of the object being evaluated is difficult to ascertain: effort heuristics should be enhanced by ambiguity. Therefore, when there is a high level of information asymmetry, consumers appraise effort, its perceived value and the fairness of the price paid.

1.2 The judgmental heuristic of "commission inequity"

Over the past years, researchers have developed and adapted various theories to gain a better understanding of when and how consumers form price fairness judgments. In one of the most fruitful perspectives for understanding how the interpretation consumers have concerning the fairness of an exchange affects consumer satisfaction, Bolton and Lemon (1999) propose a theoretical model in which consumers who have to pay for products or services make judgments on payment equity by comparing the current payment with normative expectations. Extending this model to the brokerage services, the notion of “commission inequity” refers to the consumer perception in general regarding the unfairness of the fees charged for a transaction processed under the supervision of a broker. We use the notion of “commission inequity” and not “commission equity” because equity and inequity, just like fairness and unfairness, may be different concepts with asymmetrical meanings (Finkel, 2001). According to Xia et al. (2004), images of unfairness are typically clearer, sharper and more concrete than those of fairness because consumers know what is unfair when they experience it though it is more difficult to articulate what is fair. In the same vein, it seems easier for consumers to judge unfair situations than fair ones and they more impulsively develop negative emotions (Rozin and Royzman, 2001).

1.3 From effort perceived to unfairness

Commission inequity can be defined as a consumer judgment, associated with cognitive and emotive perceptions concerning whether an outcome and/or process for reaching the outcome are beyond what may be considered reasonable, acceptable or just (Xia et al., 2004). Thus, commission inequity is a general consumer belief that can be assessed by comparing the relative perceived fairness of commission for brokerage services with a normative reference payment for an equivalent effort. This consumer judgment is comparative and the reference payment is a standard against which consumers judge the purchase price of the service (see Mazumdar and Sinha for a review, 2005). Explicit or implicit price comparisons can be involved and the deal might be seen as unfair and to the consumers’ disadvantage (Ordonez et al., 2000).

Xia et al., (2004) indicate various factors that may influence unfair price perception and beliefs about practices. First are the variables that specify the context of comparative transactions and second are the perceived reasons that explain why a certain price may influence perceptions of unfairness. Third are previous experiences, which are supposedly less relevant with infrequent real estate purchases.

Unfairness perception can be explained by the equity theory. This theory argues that the distribution of resources is expected to be fair for both relational partners (Adams, 1965). And previous research on equity in commercial situations has largely been non precisely inspired by the principle of dual entitlement (Kahneman et al., 1986), which argues that fairness perceptions are governed by the belief that firms are entitled to a reference profit and customers are entitled to a reference price. The judgment of fairness is determined by consumers' perception of the service provider's cost and what is deemed to be a "normal" payment (Mazumdar et al., 2005).

This normal payment and consumers' judgment of fairness can be first assessed via the perceived effort (Bolton et al., 2003). The perception that broker fees are unfair results from the understanding of the reasons why the price is as such. When consumers believe that brokers have set high fees to gain an advantage, irrespective of high costs, they will view fees as unfair (Frey and Pommerehne, 1993; Urbany et al., 1989), especially if they perceive that brokers profit from the consumer's loss or that the same output could have been attained without such fees, which occurs with direct transactions.

The perceived effort is evaluated via comparable situations. Based on a comparison between losses and gains, equity theory suggests that various "comparative others" may influence the perceived fairness of an exchange relationship and that a normative reference commission is deemed "fair" or "just" for the broker to charge compared to a "reference other" (Bolton and Lemon, 1999; Campbell, 1999). Price fairness judgments depend on the source of comparison as well as transaction similarity since consumers usually do not know either the broker's cost structure or other pertinent information in order to evaluate their input accurately (Bolton et al., 2003). Social comparison theory has identified "similar others" as the most important comparison target because of its salience (Major, 1994; Wood, 1989). As a consequence, social comparisons are supposed to produce greater effects on the perception of entitlement than do self-comparisons and explain fairness judgments and satisfaction (Austin et al., 1980; Major and Testa, 1989). Scholars highlight a similarity bias, suggesting that consumers tend to compare two transactions judged similar: references are provided from different situations such as direct transactions (Hendel et al., 2009). Indeed, similar transactions are achieved successfully without a brokerage service. This perceived similarity leads to an assimilation effect (Mussweiler, 2003; Xia et al. 2004) which enhances outcome differences and leads to a strong feeling of entitlement (Major 1994; Major and Testa, 1989). We suggest that consumers

are not able to really explain a price discrepancy between direct transactions (FSBO) and brokers, i.e., two transactions with different costs leading to similar outputs. As a result they may judge the unfairness of the commission because as the assimilation-contrast theory stands, consumers construct reference payments and integrate information into their own reference payment (Lichtenstein and Bearden, 1989): for a given quality level, a consumer has a distribution of prices that are considered acceptable. Since the commission depends on the nominal price of the house and not a priori on the intensity of work (Anglin and Arnott, 1991), consumers may perceive the commission as unfair: similar transactions are achieved successfully without a brokerage service. These contextual elements may cause the focus to be on monetary losses without an equivalent counterpart (Oliver and Swan, 1989) and the more consumers believe that paying a commission does not provide a significant counterpart or that services used are worth less than the amount paid, the higher the commission inequity (Bolton and Lemon, 1999).

In sum, commission inequity is a general cognitive and affective assessment of a commercial situation for which consumers think that they pay for a service irrespective to its cost.

2. Conceptual model and hypotheses

We suggest that information asymmetries prevent consumers of brokerage services from monitoring the intensity of a broker's effort and skill, which leads them to form fairness judgments that alter their perception of the deal. The judgment on commission inequity is formed in general via the effort heuristic and comparative transactions and likely to influence negatively price satisfaction and broker reputation. We argue that commission inequity is a bias that may lead to unjustified perceptions of having made a "bad deal" when using brokerage services.

The perception of inequity creates dissatisfaction since distributive justice measures the difference between the ratios of outcome to input when compared with that of another situation, used as a referent. When either ratio is considered to be high, then individuals may feel unfairness and dissatisfaction (Yoda and Kumakura, 2007): "He doesn't work much (input), but gets an outrageously high salary (outcome). Isn't this situation unfair? I am dissatisfied".

Scherer (1984) has proposed an explanation to unveil the process of attitudinal transition: ‘it is unfair; therefore, I am not satisfied’ using the components process model from the perspective of temporal mutation of emotions and Yoda and Komakura (2007) empirically show that, in the case of medical services, unfairness influence negatively customer satisfaction.

We propose to explore the effect of commission inequity on total selling price satisfaction (i.e. including commission for brokerage services) in a context of housing transaction. Prior research provides evidence that perceptions of fairness influence customer satisfaction and behavioral intentions (Oliver and Swan 1989; Campbell 1999). The consequences of negative feelings for firms may include a bad reputation via complaints and negative word-of-mouth (Campbell 1999; Martins 1995), i.e. they may create a bad reputation for brokers. Indeed, the more consumers believe in the unfairness of the price, the less likely they are to recommend and do business with the broker (Folkes et al., 1987). Spreading negative reports by word-of-mouth is an easy action that helps buyers cope with their negative feelings (Xia et al., 2004), and in the end, damages a broker’s reputation.

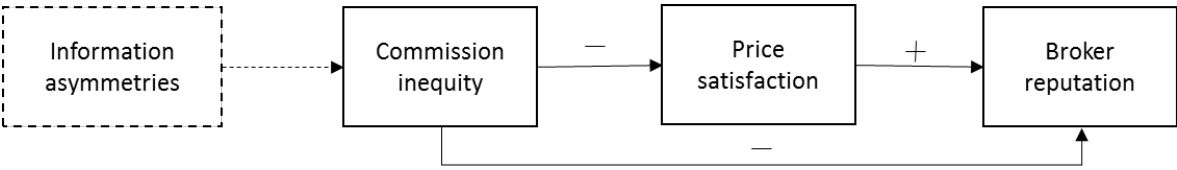


Figure 1 – conceptual model

Finally, our model suggests that, all things being equal, for consumers who have used brokerage services, either as buyers or sellers, commission inequity significantly decreases the transaction’s price (including commission) satisfaction, which in turn should decrease the broker’s reputation. In other words, we suggest that commission inequity has a direct effect on a broker’s reputation and that price satisfaction has a mediating effect, not only for buyers but also for sellers who do not pay the broker fees.

H1. The satisfaction of the price paid by house buyers is significantly decreased by commission inequity and influences broker reputation positively

H2. The satisfaction of the amount of money received by house sellers is significantly decreased by commission inequity and influences broker reputation positively

2.2 From consumer beliefs in commission inequity to the illusion of a bad deal

Since commission inequity is a subjective judgement, this belief tends to be biased by the consumer's self-interest and maximization of the outcome (Oliver and Swan, 1989). As shown in the literature, although perceived effort is generally a valid cue for assessing quality, the effort heuristic can occasionally lead to mistakes and illusions (cf. Gilovich et al. 2002; Slovic et al. 2002). Indeed, we suggest that consumer belief in commission inequity leads consumers to think they have made a "bad deal." However, by comparing with direct transactions, we suggest that this is not the case. One main reason is that brokers are in competition and under pressure to sell houses, so that the selling price is not different from the FSBO average price. Moreover, sellers via FSBO may want to keep the commission and adjust the selling price to the market. We argue that commission inequity induces the perception of a "bad deal," which is in fact an illusion.

H3. There is no difference in purchasing price between broker and FSBO, but buyers using FSBO are significantly more satisfied with the price paid than are buyers with brokers.

H4. There is no difference in selling price between broker and FSBO, but sellers using FSBO are significantly more satisfied with the price paid than are buyers with brokers.

In a first study, we test our model with buyers who have made a transaction using brokerage services. We show that the perception of commission inequity has a direct impact on broker reputation and an indirect effect via the price satisfaction. Then, comparing with buyers in FSBO, we find that this perception that leads to the perception of a "bad deal" is more of an illusion than a reality. In a second study, we replicate our model with sellers who have made a sale using brokerage services. We show that commission inequity again has a negative direct effect and indirect effect on broker reputation even though sellers do not pay the fees charged to the buyer. Yet again, we show that this perception is more of an illusion than a reality.

3. Methodology

In order to capture the commission inequity individuals perceived in general, we use first two items: one direct question on a 7-point Likert scale similar as the one used by Bolton and Lemon (1999) (*in general, paying fees for brokerage services is like paying a commission for nothing*) and, in addition to the cognitive aspects, Xia et al (2004) argue that strong negative emotions can distinguish unfairness from either fairness or less fairness so we add an emotional item, so we add the following (*I hate the idea that the brokerage services are worth less than the amount I have paid*). Moreover, social comparison research has reported a similarity bias, i.e., consumers tend to pay attention to the similarity between two transactions being compared. Thus, compared with the direct transaction that provides the same output, we use three items based on potential advantages that consumers may—or may not—perceive in using brokers. Larceneux et al. (2015) show that potential benefits of using brokerage services include time savings fewer constraints and easier negotiations. Thus, we measure these beliefs with the following perceptions: *In general, compared with direct transactions, paying for brokerage services _ allows to gain time significantly (inv)*, *_ means fewer constraints (inv)*, *_ means easier negotiations with the other party (inv)*. The mean of these five measurements exhibits a 7-point scale with a good level of internal consistency (Cronbach's alpha=.80).

As dependent variables, following Matzler et al. (2006), we measure the net selling price satisfaction from the last transaction with a direct measure (*how satisfied are you with the amount of money you received after the transaction?*) on a 3-point scale (*Not satisfied / Satisfied / Very Satisfied*), and broker reputation through consumers' behavioral intentions with the two following items (*I would say to others that I'm satisfied* and *I would recommend friends and relatives to use the broker to buy / sell a home*) on a 7-point scale from *not agree at all* to *definitely agree*.

Moreover, the model contains various control variables. First, we include the output satisfaction (*A broker allowed me to find _the house which matched my requirements / _creditworthy buyers*) which is likely to influence broker reputation; second, we include the time on market, i.e., the length of time the buyers have been looking for a house and the length of time the house being sold has been on the market (*less/more than 3 months*) and we added situational variables likely to influence attitudes of brokerage service consumers, such as perceived time pressure (*Were you in a hurry to buy/sell the house?*) and self-expertise (*Can you be considered an expert in the real estate market?*) measured on 7-point Likert scales; third, we recorded the

usual socio-demographic variables (*age, household monthly income*); fourth, we asked for characteristics related to the property, such as the *purchasing price* for buyers and the *net selling price* (only goods priced above €100,000 and below €1,000,000 were used to avoid atypical properties) along with *the discount* between the first listed price and the final net price for sellers, the type of property (*apartment or house*), number of rooms (*1/2 room(s), 3 rooms, 4 rooms, 5 rooms or more*), distance from Paris (*central Paris, inner Paris area, outer Paris area, regions of France*), and distance from the city center (*city center, suburbs, rural area*).

In a first part of the study 1, data have been collected directly from buyers who bought housing using brokerage services in France (within the last two years from the moment they received the questionnaire). In France, the commission is not split between buyers and sellers and often, buyers pay the broker directly at the moment the official contract is signed. A questionnaire was sent to individuals who looked online for real estate property information on the French website *meilleursagents.com* which gives general information on the housing market. Both the direct effect of commission inequity on broker reputation and the indirect effects via price satisfaction are explored via a mediation model (Study 1.1). In the second part, buyers doing the transaction directly were interviewed through the same process and compared with the buyers using brokers. Regressions models allow us to assess the differentiated effects of using a broker (vs. FSBO) on both purchasing price and price satisfaction (Study 1.2).

In a second study, same analyses are run with sellers. In the first part, homeowners were in addition asked about the first listed price of the house and the final selling price in order to control for the discount effect on price satisfaction (Study 2.1). In a second part, regressions models are run as a replication of the previous study to assess the effect of the brokers (vs. FSBO) on both declared net selling price and price satisfaction.

4. Results

4.1 Commission inequity analytics

The first analyses of descriptive analytics show that commission inequity has an average of 4.5 out of 7 for the total of 2,675 consumers interviewed. However, this belief is significantly higher for buyers ($m=4.75$) than sellers ($m=4.3$, $t=11.3$, $p<.001$), in accordance with the popular knowledge that the buyer is the one who pays the commission, and is thus the one who will

normally form the more negative attitudes. The following table presents the means comparison for commission inequity in different categories.

		Buyers					Sellers				
		N	m	sd	F	p-value	N	m	sd	F	p-value
Time on market	less than 3 months	585	4.49	1.06	8.1	.004	787	3.79	1.21	13.1	.000
	more than 3 months	819	4.65	1			484	4.04	1.13		
Age	under 30 years old	338	4.72	1.02	11.9	.000	49	4.1	1.18	2.207	.086
	30-40*	621	4.68	1.01			354	3.98	1.21		
	40-60	369	4.37	1.01			569	3.83	1.13		
	over 60	76	4.24	1.1			298	3.79	1.22		
Monthly income	less than 3K€	251	4.67	1.03	0.87	.450	216	4.08	1.17	2.922	.033
	3-6K€*	763	4.56	1.03			598	3.81	1.18		
	6-9K€	261	4.59	0.98			280	3.9	1.18		
	more than 9K€	129	4.52	1.12			176	3.8	1.16		
Time pressure	low time pressure	642	4.6	1.04	0.369	.544	568	3.81	1.21	3.504	.061
	Medium time pressure	762	4.57	1.02			702	3.94	1.16		
Self expertise	low expertise	95	4.49	1.05	0.924	.337	88	3.65	1.22	3.75	.053
	high expertise	1309	4.59	1.03			1182	3.9	1.18		
Housing type	Apartment	1105	4.57	1.01	0.489	.485	837	3.87	1.15	0.342	.559
	House	299	4.62	1.1			433	3.91	1.25		
Rooms	1-2 room	471	4.54	1.04	1.2	.286	321	3.87	1.13	0.553	.646
	3 room*	450	4.63	0.94			282	3.96	1.17		
	4 room	267	4.53	1.08			250	3.86	1.17		
	5 room and more	216	4.66	1.1			417	3.86	1.26		
Distance from city center	City center	903	4.59	1.01	0.208	.890	674	3.87	1.14	1.184	.314
	Suburbs*	368	4.57	1.03			405	3.86	1.22		
	Rural area	133	4.56	1.15			191	3.985	1.29		
Distance from Paris	Central Paris	525	4.55	1.01	0.732	.533	311	3.84	1.2	1.184	.316
	Inner Paris area	403	4.58	1.04			307	3.93	1.15		
	Outer Paris area	214	4.59	0.99			253	4.00	1.19		
	Regions of France	262	4.66	1.07			399	3.81	1.2		
Price satisfaction	Low satisfaction	201	5.05	0.97	30.349	.000	197	4.53	1.02	55.1	.000
	Medium satisfaction	860	4.57	0.99			640	3.91	1.05		
	High satisfaction	343	4.35	1.06			406	3.49	1.31		
Total		1404	4.75				1271	4.30			

*reference categories in the following regression models

Table 1 – Values and mean comparisons of *commission inequity* for buyers and sellers using brokerage services

Commission inequity turns out to be similar to the clusters regarding the type of housing (apartment vs. house, number of rooms), the location (center vs. suburb and countryside, Paris vs. other areas) or people's psychological situations (time pressure, perceived self-expertise)

revealing a stability of this general perception among individuals. However, buyers who have searched for more than 3 months perceive a higher commission inequity ($m=4.65$) than for less than 3 months ($m=4.48$, $p=.002$). Similarly, sellers who have seen their housing remain on the market for more than 3 months feel higher inequity ($m=4.04$) than for less than 3 months ($m=3.78$, $p<.000$) and the less money they earn, the higher their perception of commission inequity.

Moreover, while price satisfaction does not differ significantly between buyers and sellers, broker reputation is higher for sellers ($m=4.79$) than for buyers ($m=4.47$, $t=7.5$, $p<.001$).

4.2 Study I.1 – The effect of the commission inequity on buyers’ attitudes

4.2.1 The effect of commission inequity on broker reputation via price satisfaction: mediation test

Our main objective is to test the effect of commission inequity on broker reputation using the mediation model of price satisfaction to explain the main effect. To do this, following the Hays procedure (2013), we conduct a mediation test by fitting a series of three regressions.

$$Y = \alpha_1 + \beta_{\beta_1}X \quad (1)$$

$$M = \alpha_2 + \beta_2X \quad (2)$$

$$Y = \alpha_3 + \beta_4X + \beta_3M \quad (3)$$

With:

- X represents *commission inequity*
- Y represents *broker reputation*
- M represents *price satisfaction*

Equations (1) and (3) are tested via OLS regression models whereas equation (2) is tested via an ordinal logistic regression. To test the mediation effect, we collect the parameter estimate β_2 and its standard error s_2 from the equation (2). Then, we collect the parameter estimate β_3 , and its standard error s_3 from the equation (3). We use the parameter estimates β_2 and β_3 and their standard errors to compute the following elements as recommended by Iacobucci (2012).

$$z_{\beta_2} = \frac{\beta_2}{s_2}$$

$$z_{\beta_3} = \frac{\beta_3}{s_3}$$

$$\partial = \sqrt{z_{\beta_2}^2 + z_{\beta_3}^2 + 1}$$

Finally, we compute the z-test that combines results from OLS and ordinal logistic regressions to test the significance of the mediation effect.

$$z_{mediation} = \frac{z_{\beta_2} z_{\beta_3}}{\partial}$$

This mediation test is considered significant at the 5% level if the value exceeds |1.96|. The following table shows the results of the ordinal regression on *price satisfaction* and OLS regression on *broker reputation*.

The first equation results show that commission inequity has a direct effect on broker reputation ($\beta = -.065$, $p < .000$). Results shown in table 2 confirm that the commission inequity has a direct significant negative impact on price satisfaction ($\beta = -.450$, $p < .000$) and broker reputation ($\beta = -.47$, $t = 13.1$, $p < .000$).

	Equation 2 <i>Price satisfaction</i>			Equation 3 <i>Broker reputation</i>			
	Coeff	error	<i>p-value</i>	Coeff	Error	t	<i>p-value</i>
Commission inequity	-0.450	0.063	.000	-0.471	0.041	-11.594	.000
Price satisfaction	ni	ni	ni	0.154	0.06	2.575	.010
Purchasing Price	-0.15 E-5	0.000	.020	-0.000	0.18E-6	0.604	.546
House purchase satisfaction	-0.036	0.039	.035	0.199	0.025	7.963	.000
Time on market	-0.008	0.038	.830	-0.030	0.024	-1.227	.220
Self-expertise	0.661	0.219	.000	0.048	0.142	0.34	.734
Time pressure	-0.12	0.111	.278	0.039	0.072	0.547	.585
Under 30 years old	0.171	0.142	.229	0.09	0.092	0.979	.328
40_60 yo	-0.233	0.14	.095	-0.059	0.09	-0.649	.517
Over 60 years old	-0.133	0.252	.598	0.094	0.163	0.574	.566
Income: below 3K€	-0.087	0.156	.577	0.013	0.1	0.125	.901
Income: between 6K and 9K€	0.027	0.153	.861	-0.107	0.099	-1.081	.280
Income: above 9K€	-0.113	0.217	.605	-0.262	0.141	-1.861	.063
Apartment vs. House	0.035	0.191	.856	0.027	0.123	0.22	.826
1-2 room	-0.533	0.149	.000	0.057	0.097	0.589	.556
4 room	0.144	0.173	.400	0.170	0.112	1.521	.128
5 room and more	0.379	0.212	.070	0.028	0.137	0.202	.840
City center	0.01	0.141	.940	-0.194	0.091	-2.129	.033
Rural area	-0.362	0.225	.110	-0.171	0.145	-1.180	.238
Central Paris	0.996	0.199	.000	0.085	0.128	0.661	.509
Inner Paris area	0.405	0.18	.030	0.128	0.116	1.108	.268
Regions of France	0.176	0.194	.360	-0.110	0.125	-0.876	.381
Constant 1	-2.278	1.174	.052	5.562	0.768	7.246	.000
Constant 2	0.871	1.172	.458	na	na	na	na

ni: not included; na: not applicable; Ref.: age 30-40 y.o., income 3K€-6k€, size 3-room, suburbs, outer Paris area.

Table 2 – Effect of commission inequity and price satisfaction and broker reputation from buyers (study 1.1)

Results shown in table 2 confirm that commission inequity has a direct significant negative impact on price satisfaction ($\beta = -.450$, $p < .000$) and broker reputation ($\beta = -.47$, $t = 13.1$, $p < .000$). Other results show that the more consumers think of themselves as experts, the more they are satisfied with the price. Buyers of 1-2 room apartments are less satisfied with the price compared to buyers of larger size housing and buyers from Paris and close suburbs are more satisfied than buyers far from Paris.

As expected, broker reputation is significantly influenced by price satisfaction ($\beta = .154$, $p < .010$). A small negative effect can be noted from city centers ($\beta = -.091$, $p < .033$) relative to the suburbs. One suggestion might be the fewer number of real estate agencies in the suburbs, which suggests that the referent agent has developed more ties with buyers in a less competitive environment.

Path analysis allows for the quantification and interpretation of the causal link. As expected, the results of the mediation analysis show that the buyers' perception of commission inequity decreases broker reputation significantly through a decrease in price satisfaction, which in turn impacts buyers' word-of-mouth and broker reputation ($z_{mediation} = -2.4$). H1 is validated.

Parameters	Estimates
β_2	-0.45
s_2	0.063
β_3	0.154
s_3	0.06
$Z\beta_2$	-7.2
$Z\beta_3$	2.6
$Z_{mediation}$	-2.4

Table 3 – Mediation test analysis following Iacobucci (2012)

4.2.2 Study I.2 – Commission inequity from buyers: a real “bad deal” or an illusion?

An interesting question is to figure out whether it is correct or biased for buyers to have attitudes influenced by the perception of commission inequity. In this section, the objective is to explore to what extent this decrease in price satisfaction is justified or not. To address this issue, a

similar questionnaire was sent to buyers who bought their housing via FSBO, i.e., without brokerage services. 383 questionnaires were fully completed and matched the initial conditions. First, results show that the perception of commission inequity is significantly higher for buyers using direct transactions ($m=5.3$) compared with buyers with brokers ($m=4.5$, $F=132.7$, $p<.000$). The more people believe in commission inequity, the less they use brokerage services. Second, we include the type of transaction (broker vs. FSBO) in the OLS model to explain the price paid to buy housing and in the ordinal regression to explain price satisfaction. This variable is intended to highlight potential differences among the 1,787 consumers interviewed. The results of the regressions are in the table 4.

	Purchasing price			Price satisfaction		
	Coeff	t-value	<i>p-value</i>	Coeff	erreur	<i>p-value</i>
FSBO vs Broker	0.011	0.552	.604	- 0.636	0.123	.000
Commission inequity	ni	ni	<i>ni</i>	-0.282	0.055	.000
Price satisfaction	ni	ni	<i>ni</i>	na	na	<i>na</i>
Price	ni	ni	<i>ni</i>	0.164 ^{E-5}	0.000	.000
House purchase satisfaction	ni	ni	<i>ni</i>	-0.023	0.034	.485
Time on market	0.051	2.651	.008	-0.034	0.033	.309
Self expertise	ni	ni	<i>ni</i>	0.643	0.196	.001
Time pressure	ni	ni	<i>ni</i>	-0.095	0.099	.337
Under 30 years old	ni	ni	<i>ni</i>	0.096	0.125	.444
40_60 yo	ni	ni	<i>ni</i>	-0.206	0.123	.092
Over 60 years old	ni	ni	<i>ni</i>	-0.078	0.228	.734
Income: below 3K€	ni	ni	<i>ni</i>	-0.225	0.139	.105
Income: between 6K and 9K€	ni	ni	<i>ni</i>	0.048	0.134	.723
Income: more 9K€	ni	ni	<i>ni</i>	0.034	0.188	.856
Apartment vs. House	0.030	1.104	.270	0.200	0.17	.238
1-2 room	-0.327	-14.376	.000	-0.400	0.131	.002
4 room	0.196	8.496	.000	0.181	0.153	.238
5 room and more	0.337	13.135	.000	0.510	0.188	.007
City center	0.049	2.084	.037	-0.099	0.125	.427
Rural area	-0.098	-4.307	.000	-0.265	0.199	.184
Central Paris	0.430	13.488	.000	0.848	0.176	.000
Inner Paris area	0.172	6.044	.000	0.325	0.158	.040
Regions of France	-0.094	-3.630	.001	0.148	0.175	.397

ni: not included; na: not applicable; Ref.: age 30-40 y.o., income 3K€-6k€, size 3-room, suburbs, outer Paris area.

Table 4 – Effects of the type of transaction (FSBO vs. Brokers) on purchasing price and price satisfaction for buyers (Study1.2)

Interestingly, the first OLS model shows that using a broker (vs. FSBO) does not have a significant effect on the amount of money buyers have to pay for the transaction, i.e. price including commission fees: according to what consumers have stated, with all elements being controlled, purchasing prices are not lower using FSBO than using a broker.

The second model shows that using brokerage services (vs. FSBO) significantly decreases price satisfaction ($\beta=-.636$, $p<.000$): if buyers spend an equivalent amount of money to purchase their housing directly or via a broker, they are significantly less satisfied with the price paid. This result highlights the consequences of information asymmetries and allows us to suggest that commission inequity creates a perception of a “bad deal” which turns out to be just an illusion. H3 is validated.

4.2.3 Study II.1 – The effect of commission inequity on sellers’ attitudes

Similar analyses from Study I.1 are run. The first equation results show that commission inequity has a direct effect on broker reputation ($\beta= -.065$, $p<.000$). Second, table 5 shows the results on regression models 2’ and 3’ on price satisfaction and broker reputation for sellers.

	Equation 2’ <i>Price satisfaction</i>			Equation 3’ <i>Broker reputation</i>			
	Coeff	Error	<i>p-value</i>	Coeff	error	t	<i>p-value</i>
Commission inequity	-0.442	0.061	.000	-0.325	0.044	-7.454	.000
Price satisfaction	ni	ni	ni	0.441	0.077	5.76	.000
House sell satisfaction	0.025	0.043	.565	0.108	0.031	3.483	.001
Price	0.094E-6	0.000	.019	-0.064E-7	0.000	-0.221	.825
Discount price	-0.152	0.012	.000	0.001	0.007	0.099	.921
Time on market	-0.231	0.046	.000	0.028	0.032	0.871	.384
Self-expertise	-0.089	0.244	.717	0.143	0.17	0.842	.400
Time pressure	-0.367	0.123	.003	0.027	0.088	0.309	.757
Under 30 years old	0.053	0.349	.880	-0.177	0.252	-0.701	.483
40_60 yo	-0.138	0.148	.352	0.024	0.107	0.221	.825
Over 60 years old	-0.396	0.176	.024	0.057	0.127	0.447	.655
Income: below 3K€	-0.255	0.172	.138	0.044	0.124	0.351	.726
Income: between 6K and 9K€	0.109	0.156	.486	0.062	0.113	0.543	.587
Income: above 9K€	0.504	0.193	.009	0.001	0.138	0.007	.994
Apartment vs. House	0.094	0.188	.617	-0.165	0.136	-1.219	.223
1-2 room	0.311	0.182	.088	0.064	0.132	0.483	.629
4 room	-0.048	0.191	.803	0.132	0.138	0.952	.341
5 room and more	-0.009	0.218	.968	-0.062	0.157	-0.398	.691
City center	0.068	0.148	.644	0.196	0.106	1.845	.065
Rural area	0.465	0.202	.021	0.12	0.145	0.828	.408
Central Paris	-0.022	0.219	.919	-0.188	0.159	-1.182	.237

Inner Paris area	0.025	0.19	.897	-0.264	0.138	-1.913	.056
Regions of France	0.027	0.176	.879	-0.125	0.127	-0.978	.328
Constant 1	-4.802	1.29	.000	4.586	0.95	4.825	.000
Constant 2	-1.522	1.28	.235	na	na	na	na

ni: not included; na: not applicable; Ref.: age 30-40 y.o., income 3K€-6k€, size 3-room, suburbs, outer Paris area.

Table 5 – Effect of commission inequity on price satisfaction and broker reputation for sellers (Study 2.1)

The results shown in table 5 confirm that commission inequity has a direct significant negative impact on price satisfaction ($\beta=-.442$, $p<.000$). Other results show that the higher the selling price ($\beta=.094$ E-6, $p=.019$) and the lower the discount ($\beta=-.152$, $p<.000$) and the less time the property remains on the market ($\beta=-.231$, $p<.000$), the more satisfied are the sellers. Regarding individual characteristics, when sellers are under pressure to sell ($\beta=-.357$, $p=.003$), and when they are over 60 years old ($\beta=-.396$, $p<.024$), they are less satisfied. But the richest ($\beta=.504$, $p=.009$) and sellers of a house in the countryside ($\beta=.445$, $p<.000$) are more satisfied with the price than others sellers.

Broker reputation is mainly negatively influenced by commission inequity ($\beta=-.325$, $p<.000$), but positively by satisfaction with the price ($\beta=.441$, $p<.000$) and satisfaction with finding creditworthy buyers ($\beta=.108$, $p=.001$).

As expected, the results of the mediation analysis show that the seller's perception of commission inequity decreases broker reputation significantly via a decrease in price satisfaction, which in turn impacts buyer word-of-mouth and broker reputation ($z_{mediation} = -4.46$). H2 is validated.

Parameters	Estimation
β_2	-0.442
s_2	0.061
β_3	0.441
s_3	0.077
$Z\beta_2$	-7.24
$Z\beta_3$	5.72
$Z_{mediation}$	-4.46

Table 6 – Mediation test Analysis for sellers

4.2.4 Study II.2 – Commission inequity from sellers: a real bad deal or an illusion?

In order to replicate results obtained from buyers, we explore whether sellers are right to think they have made a “bad deal” using brokerage services, i.e., to what extent this decrease in price satisfaction is or not correct. Similar questionnaires were sent to sellers having sold housing directly (FSBO) in the past two years. 425 questionnaires were fully completed to reach a total of 1,696 for this analysis. In addition to study one, we include the discount price, i.e., the difference between the first price of the listing and the final price, because it is likely that this negatively influenced price satisfaction. A first result confirms that the perception of commission inequity is significantly higher for sellers using direct transactions ($m=5.3$) compared to sellers with brokers ($m=3.8$, $F=471.0$, $p<.000$).

	Net selling price			Price satisfaction		
	Coeff (1)	t-value	<i>p-value</i>	coeff	Erreur	<i>p-value</i>
FSBO vs Broker	0.054	2.739	.006	- 0.896	0.139	.000
Commission inequity	ni	Ni	<i>ni</i>	-0.260	0.051	.000
Price	na	na	<i>na</i>	0.967 ^{E-10}	0.000	.007
Discount price	na	na	<i>na</i>	-0.156	0.011	.000
Price satisfaction	ni	Ni	<i>ni</i>	na	na	<i>na</i>
House sell satisfaction	ni	Ni	<i>ni</i>	-0.021	0.036	.553
Time on market	0.011	.517	.605	-0.252	0.039	.000
Self expertise	ni	Ni	<i>ni</i>	-0.031	0.218	.886
Time pressure	ni	Ni	<i>ni</i>	-0.339	0.105	.001
Under 30 years old	ni	Ni	<i>ni</i>	0.18	0.28	.521
40_60 yo	ni	Ni	<i>ni</i>	-0.189	0.124	.130
Over 60 years old	ni	Ni	<i>ni</i>	-0.381	0.152	.012
Income: below 3K€	ni	Ni	<i>ni</i>	-0.235	0.149	.114
Income: between 6K and 9K€	ni	Ni	<i>ni</i>	0.043	0.132	.745
Income: above 9K€	ni	Ni	<i>ni</i>	0.406	0.17	.017
Apartment vs. House	0.046	1.554	.120	0.024	0.162	.881
1-2 room	-0.280	-10.962	.000	0.269	0.156	.085
4 room	0.145	5.847	.000	-0.139	0.163	.395
5 room and more	0.451	14.289	.000	-0.051	0.186	.785
City center	0.020	0.820	.423	0.027	0.125	.830
Rural area	-0.077	-3.268	.001	0.273	0.174	.117
Central Paris	0.459	15.472	.000	0.163	0.187	.381
Inner Paris area	0.208	7.762	.000	0.217	0.162	.180
Regions of France	-0.079	-2.928	.003	0.249	0.151	.099

ni: not included; na: not applicable; Ref.: age 30-40 y.o., income 3K€-6k€, size 3-room, suburbs, outer Paris area.

Table 7 – Effects of commission inequity on net selling price and price satisfaction from sellers (Study 2.2)

The first OLS model shows that using a broker (vs. FSBO) has a significant effect ($\beta=.054$, $p=.006$) on the net amount of money sellers receive from the transaction: according to what consumers state, a transaction via a broker tends to be more beneficial for sellers than a FSBO transaction. And interestingly, for the same sellers, the second model shows that using brokerage services (for free) negatively influences price satisfaction ($\beta=-.896$, $p<.000$): on average, sellers receive more money from the transaction via a broker than via FSBO, but they are significantly less satisfied with the selling price. Again, this result highlights the effect of information asymmetries and allows us to suggest that a belief in commission inequity creates the perception of a “bad deal,” which turns out to be just an illusion for sellers.

5. Conclusion and discussion

Some price fairness judgments stem from consumer perceptions of how brokers set fees and whether the price is fair and affordable, i.e., in terms of effort and skill (Maxwell, 1995). However, in the real estate industry, brokers suffer systematically from a bad image. On a regular basis, the *Harris interactive poll* (2016), which looks at prestigious occupations, rates “doctor” as the most prestigious occupation (90%) and “real estate agents” among the least prestigious (32%). Indeed, real estate intermediaries used to be considered as profiteers in the economic literature because they can take advantage of informational rent (Lewitt and Syverson, 2008), network size (Hendel et al., 2009) and specific market conditions (Dale-Johnson and Hamilton, 1998) without intrinsic added value. The literature argues that intermediaries tend to increase sale prices (Bajtelsmit and Worzola, 1997) and the time taken to find a suitable property or buyer (Elder et al., 2000). As a result, with better access to technology and information, some scholars have even predicted the end of such intermediaries (Tuccillo, 1997). In the popular mind, compared to FSBO, people are supposed to think that real estate commissions are not justified and fair.

In order to better understand in what extent this perception influences consumer attitudes, we proposed the concept of commission inequity to refer to the belief people may have that the amount of money paid for brokerage services is not fair. This judgment is made from a comparison with the work they supposed brokers do, as well as compared with similar direct transactions. Indeed, fees do not depend on effort but on the selling price of the house.

Our study showed that commission inequity beliefs influence negatively consumer attitudes even in successful transactions with a broker. The 3,483 questionnaires sent to housing buyers and sellers allowed us to demonstrate that the higher the perception of commission inequity, the more negative is the word-of-mouth and the lower the broker reputation. This negative effect can be partially explained by a decrease in price satisfaction. Moreover, these negative effects have been found with both buyers and sellers, potentially leading them to think they have made a bad deal. However, our study shows a bias of their analyses. Indeed by comparison, controlling for the characteristics of the property, the amount of money paid to obtain housing is not significantly different regardless of the way it is purchased, i.e., with or without a broker. However, price satisfaction is much higher for direct buyers. And the net selling price the sellers receive is significantly higher with a broker than without a broker, but the sellers' satisfaction with this price is significantly lower than the price satisfaction of direct sellers. This result suggests to us that consumers of brokerage services are left with the belief that they have made a bad deal.

Commission inequity is a bias that comes from information asymmetries. We argue that these beliefs are structural, fundamental characteristics of the perception of brokers, fed by equity theory and comparisons with other references. Consumers draw on their general knowledge about the marketplace and judge fairness at an aggregate level across a transaction space that consists of multiple dimensions (Bolton et al., 2003). Indeed, consumers' perception of commission equity stems both from economic comparisons and from social norm comparisons, i.e., the implicit rules of behavior of economic partners that are used as guides (Maxwell, 1999). These norms are for instance the link between education/skills, effort and commission. However, meta-knowledge of these occupations feeds the idea of commission inequity through two main problems: first, various non-professional practices that disadvantage consumers are denounced by consumer reports on a regular basis; second, the trend toward the "uberization" of real estate brokers feeds the idea that everyone without specific skills can very quickly become a real estate broker (new major networks of French brokers are set up on this basis). This type of meta-knowledge, whether accurate or not, guides the judgments of fairness consumers make (Bolton et al., 2003). Moreover, the perception of inequity can also be explained by the theoretical context of co-creation, showing that a "do-it-yourself" attitude strongly influences individuals and leads them to ascribe more value to actions in which they take part (Wolf and McQuitty, 2011).

One limitation of the study concerns the potential effect of reverse causality: price satisfaction may influence the general belief about commission inequity. The same questionnaire was sent to people who stated having no experience in either buying or selling a house (443 respondents). A mean comparison reveals that inexperienced individuals show a commission inequity ($m=4.33$) significantly higher than sellers using brokerage services ($m=3.89$, $t=7.0$ $p = .000$): the perception of commission inequity could decrease after dealing with a broker. One avenue of research could be a longitudinal study before and after using brokerage services. But still after, this belief influences price satisfaction.

One way to decrease the biased belief is to inform consumers about costs and gains. This means that additional information would be helpful for consumers to sort out whether the price differences between brokers and FSBO are justified. Anticipating that consumers will find fee discrepancies based on broker commission strategies, brokers could provide relevant information to communicate the advantage of using brokerage services and influence consumer perception. Brokers usually calculate their costs or inputs in the exchange relationship in several ways. Consumers have little knowledge of a firm's actual costs and profit margins (Bolton, et al., 2003). Therefore, for brokers to make the relevant cost and quality information transparent would be helpful. Some articles have published the average annual income as between €30,000 and €50,000, which limits any potential over-estimation of broker salaries. In addition, although sellers may be unwilling to open their cost structures to consumers, they could move buyers' attention away from prices to focus on the value they provide and the decrease in risk. Thus, the cost of having a broker could be shown to be less than the cost of not having a broker and that there would be a greater risk of going on FSBO and not completing a final transaction successfully. Indeed, brokerage services could be presented as insurance for a successful transaction.

It is essential to control the damage when perceptions of inequity occur. Brokers need to make provisions for consumers to express any negative emotions, in order, for example, to prevent a negative client experience. Negative word-of-mouth reports are the usual way that consumers express their disappointment or question a transaction. Instead of letting consumers spread such negative reports to their social network or beyond, brokers could organize a final ceremony with rewards and a history of the process. Marketers could set up a forum, such as an online discussion board monitored by the firm, to redirect such feelings and give the firm an opportunity to explain and offer compensation. It could promote brokers through a patronage program, offering rewards for actual customers and special offers for new consumers. When

treated appropriately, dissatisfied consumers may return to a positive emotional state (Bowman and Narayandas 2001; Smith et al., 1999). Finally this research highlighted the importance to focus on consumer satisfaction and broker reputation aside the ability to complete a transaction, i.e. to move from a solely transactional world to a more relational way of doing business including not only an evaluation of the results but how consumers feel about the results, and consequently the brokers' image.

References

- Adams, J.S. (1965). Inequity in social exchange. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 2) (pp. 267-299). New York: Academic Press.
- Anglin, P. M., and Arnott, R. (1991). Residential real estate brokerage as a principal-agent problem. *The Journal of Real Estate Finance and Economics*, 4(2), 99-125.
- Austin, W., McGinn, N. C., and Susmilch, C. (1980). Internal standards revisited: Effects of social comparisons and expectancies on judgments of fairness and satisfaction. *Journal of Experimental Social Psychology*, 16(5), 426-441.
- Bajtelsmit VL, and Worzola E. (1997), Adversarial Brokerage in Residential Real Estate Transactions: The Impact of Separate Buyer Representation. *Journal of Real Estate Research*. 14, 1, 65-75.
- Baryla EA, Elder HW, Zumpano LV, (2000), Buyer Brokers: Do they make a Difference, Their Influence on Selling Price and Search Duration. *Real Estate Economics*, 28, 337-362.
- Bolton, L. E., Warlop, L., and Alba, J. W. (2003). Consumer perceptions of price (un) fairness. *Journal of consumer research*, 29(4), 474-491.
- Bolton, R. N., and Lemon, K. N. (1999). A dynamic model of customers' usage of services: Usage as an antecedent and consequence of satisfaction. *Journal of marketing research*, 171-186.
- Campbell, J. Y. (1999). Asset prices, consumption, and the business cycle. *Handbook of macroeconomics*, 1, 1231-1303.
- Carroll, W. (1989). Fixed-percentage commissions and moral hazard in residential real estate brokerage. *The Journal of Real Estate Finance and Economics*, 2(4), 349-365.
- Dale-Johnson, D., and Hamilton, S. W. (1998). Housing market conditions, listing choice and MLS market share. *Real Estate Economics*, 26(2), 275-307.
- Finkel, N. J., Harre, R., and Lopez, J. L. R. (2001). Commonsense morality across cultures: Notions of fairness, justice, honor and equity. *Discourse Studies*, 3(1), 5-27.
- Folkes, V. S., Koletsky, S., and Graham, J. L. (1987). A field study of causal inferences and consumer reaction: the view from the airport. *Journal of consumer research*, 13(4), 534-539.
- Frey, B. S., and Pommerehne, W. W. (1993). On the fairness of pricing—an empirical survey among the general population. *Journal of Economic Behavior and Organization*, 20(3), 295-307.

- Gilovich, T., Griffin, D., and Kahneman, D. (2002). *Heuristics and biases: The psychology of intuitive judgment*. Cambridge university press.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.
- Hendel, I., Nevo, A., and Ortalo-Magne, F. (2009). The relative performance of real estate marketing platforms: MLS versus FSBOMadison.com. *The American Economic Review*, 99(5), 1878-1898.
- Hölmstrom, B. (1979). Moral hazard and observability. *The Bell journal of economics*, 74-91.
- Iacobucci, D. (2012). Mediation analysis and categorical variables: The final frontier. *Journal of Consumer Psychology*, 22, 582–594.
- Jensen, M. C., and Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics*, 3(4), 305-360.
- Jia, P., and Pathak, P. A. (2010). The impact of commissions on home sales in greater boston. *The American Economic Review*, 100(2), 475-479.
- Kahneman, D., Knetsch, J. L., and Thaler, R. (1986). Fairness as a constraint on profit seeking: Entitlements in the market. *The American economic review*, 728-741.
- Knoll, M. (1988), Uncertainty, Efficiency and the Brokerage Industry, *Journal of Law and Economics*, 31, 249–263.
- Kruger, J., Wirtz, D., Van Boven, L., and Altermatt, T. W. (2004). The effort heuristic. *Journal of Experimental Social Psychology*, 40(1), 91-98.
- Larceneux, F., Lefebvre, T., and Simon, A. (2015). What added value do estate agents offer compared to FSBO transactions? Explanation from a perceived advantages model. *Journal of Housing Economics*, 29, 72-82.
- Levitt, S. D., and Syverson, C. (2008). Market distortions when agents are better informed: The value of information in real estate transactions. *The Review of Economics and Statistics*, 90(4), 599-611.
- Levitt, T. (1981). Marketing intangible products and product intangibles. *Cornell Hotel and Restaurant Administration Quarterly*, 22(2), 37-44.
- Lichtenstein, D. R., and Bearden, W. O. (1989). Contextual influences on perceptions of merchant-supplied reference prices. *Journal of Consumer Research*, 16(1), 55-66.
- Major, B. (1994). From social inequality to personal entitlement: The role of social comparisons, legitimacy appraisals, and group membership. *Advances in experimental social psychology*, 26, 293-355.

- Major, B., and Testa, M. (1989). Social comparison processes and judgments of entitlement and satisfaction. *Journal of Experimental Social Psychology*, 25(2), 101-120
- Matzler, K., Würtele, A., and Renzl, B. (2006). Dimensions of price satisfaction: a study in the retail banking industry. *International Journal of Bank Marketing*, 24(4), 216-231.
- Maxwell, S. (1995). What makes a price increase seem 'fair'?. *Pricing Strategy and Practice*, 3(4), 21-27.
- Mazumdar, T., Raj, S. P., and Sinha, I. (2005). Reference price research: Review and propositions. *Journal of marketing*, 69(4), 84-102.
- Mussweiler, T. (2003). Comparison processes in social judgment: mechanisms and consequences. *Psychological review*, 110(3), 472.
- Oliver, R. L., and Swan, J. E. (1989). Equity and disconfirmation perceptions as influences on merchant and product satisfaction. *Journal of consumer research*, 16(3), 372-383.
- Onkvisit, S., and Shaw, J. J. (1991). Marketing theories, models and general issues: Is Services Marketing" Really" Different?. *Journal of Professional Services Marketing*, 7(2), 3-17.
- Ordóñez, L. D., Connolly, T., and Coughlan, R. (2000). Multiple reference points in satisfaction and fairness assessment. *Journal of Behavioral Decision Making*, 13(3), 329.
- Parasuraman, A., Zeithaml, V. A., and Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 41-50.
- Rozin, P., and Royzman, E. B. (2001). Negativity bias, negativity dominance, and contagion. *Personality and social psychology review*, 5(4), 296-320.
- Schroeter, J. (1987) Competition and Value of Service Pricing in the Residential Real Estate Brokerage Market, *Quarterly Review of Economics and Business*, 27, 29–40.
- Slovic, P., Finucane, M., Peters, E., and MacGregor, D. G. (2002). Rational Actors or Rational Fools: Implications of the affect heuristic for behavioral economics. *The Journal of Socio-Economics*, 31(4), 329-342.
- Tuccillo, J. A. (1997). Technology and the housing markets. *Business Economics*, 17-20.
- Urbany, J. E., Madden, T. J., and Dickson, P. R. (1989). All's not fair in pricing: an initial look at the dual entitlement principle. *Marketing Letters*, 1(1), 17-25.
- Wolf, M., and McQuitty, S. (2011). Understanding the do-it-yourself consumer: DIY motivations and outcomes. *AMS review*, 1(3-4), 154-170.
- Wood, J. V. (1989). Theory and research concerning social comparisons of personal attributes. *Psychological bulletin*, 106(2), 231.
- Wu, C., and Colwell, P. F. (1986). Equilibrium of housing and real estate brokerage markets under uncertainty. *Real Estate Economics*, 14(1), 1-23.

- Xia, L., Monroe, K. B., and Cox, J. L. (2004). The price is unfair! A conceptual framework of price fairness perceptions. *Journal of marketing*, 68(4), 1-15.
- Yinger, J. (1981). A search model of real estate broker behavior. *The American Economic Review*, 71(4), 591-605.
- Yoda, T., & Kumakura, T. (2007). Effect of unfairness on customer satisfaction: New insights into customer retention. *Innovative Marketing*, 3(1), 44.
- Zorn, T. S., and Larsen, J. E. (1986). The incentive effects of flat-fee and percentage commissions for real estate brokers. *Real Estate Economics*, 14(1), 24-47.