



RESEARCH

Is safety valued in the Australian pony market?

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Abstract Horse-riding is a particularly dangerous activity for children especially before they have accrued significant riding experience. It is reasonable to suppose that children in this relatively naïve group would be riding ponies and, accordingly, they and their caregivers are the target market for ponies presented for sale. We examined whether there was a relationship between the use of descriptive terms associated with pony safety and the advertised price. This would indicate that vendors valued safety characteristics in their pricing decisions in the Australian pony market. We examined the Ponies and Pony Club sections in 6 consecutive 2009 editions of *Horse Deals*, the leading Australian horse trading magazine. A pilot analysis identified 66 descriptive terms and phrases that vendors used to describe their ponies. These descriptors were assigned to 4 categories based on the extent to which they communicated a behavioral or biological characteristic of the pony relevant to rider/handler safety. Of these 4 categories, 3 reflected degrees of perceived positive assurance and the fourth contained covert warning (negative) descriptors. Data on price, descriptors, and other characteristics (age, height, gender, color, breed, registration, experience) were gathered for 875 advertisements. A linear regression model analysis revealed that price significantly increased with factors such as height and stated experience in showing and dressage ($P < 0.001$). Positive descriptors were not associated with an increased asking price in the Ponies or in Pony Club markets. However, there was a significant decrease in asking price ($P < 0.05$) for every warning descriptor that appeared in advertisements. We concluded that safety descriptors do not contribute to pricing of ponies in the Australian horse market but warnings about possible unsafe aspects of the animal can have a deleterious effect on pricing decisions of pony vendors. Our findings concur with previous research carried out in other horse markets and may provide further evidence that vendors value characteristics that are different from those valued by buyers. We recommend that the potential purchasers in these markets become better informed of the importance of safety and predictability in animals bred and trained to be ridden by younger riders. © 2011 Elsevier Inc. All rights reserved.

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Introduction

Horse trading is almost as ancient as horse-riding itself. In the 21st century, horses are traded by auction (real and online), advertisement, and private sale. The horse trading magazine, *Horse Deals*, is a well established monthly publication in Australia that provides a print and online forum for vendors to advertise horses for sale. *Horse Deals* is

published by Fairfax Media and has a monthly readership of approximately 120,000. The associated Web site that carries the same advertisements records 215,000 hits per month (*Horse Deals website, 2011*). Previous research into horse sales has fixed hedonic pricing models to open horse auctions (*Neibergs, 2001; Taylor et al., 2006; Hennessy et al., 2008; Parsons and Smith, 2008*). These models decompose the price of a product into separate components that contribute to the final price. Each horse is advertised as an individual combination of characteristics that together describe both a tangible product and a potential usage capability (*Hennessy et al., 2008*).

Unlike the open auction system, selling the horse by advertisement requires the vendor to estimate the value of their horse in the market. Estimating too high a price may dissuade potential buyers, whereas undervaluing the horse will result in a loss of profit on the sale. The price set by the vendor reflects his/her estimate of the potential market value of the animal.

It is reasonable to suppose that children, given their smaller stature, would be riding ponies defined in this study as ≤ 144.3 cm or 14.2 hands high as imperial measurement is still entrenched in the Australian horse market. Therefore, we assumed that children and their caregivers are the principle target market for ponies presented for sale.

Horse-riding is a dangerous activity for children, especially while they are accruing the necessary skills to cope with unpredictable horse behavior. This is reflected by children in 10-14 years of age group being an over-represented cohort in horse-related injury data (*Hawson et al., 2010*) and suggests that a “safe mount” should be a high priority when purchasing a pony for a child.

Previous research has shown that behavioral and biological characteristics important to vendors may not be the same traits as those valued by purchasers (*Hennessy et al., 2008*). We used the advertisements for ponies in *Horse Deals* to investigate whether descriptors associated with “safer” riding ponies were valued by vendors in their pricing decisions. In doing so, we created a hedonic pricing model for ponies sold through *Horse Deals* (Australia) in the first half of 2009.

Materials and methods

We examined the “Ponies” and “Pony Club” sections in 6 consecutive 2009 editions of the leading Australian monthly horse trading magazine *Horse Deals* (between January and June). A pilot analysis identified 66 phrases used by the vendors to describe the behavioral characteristics of the advertised pony. These descriptors were assigned by the researchers to 4 categories. Of these, 3 reflected degrees of potential positive reassurance of behavioral characteristics associated with the safety for the rider and/or handler and the fourth reflected covert warning (negative) descriptors (*Table 1*). The advertisements were

analyzed against a set of criteria (see later in the text) and the resulting data were transferred to an Excel spreadsheet to facilitate analysis.

The details of an advertisement were included only if the advertisement specified the following:

A pony: Defined as a horse is <144.3 cm in height. All advertisements included in this study referred to “hands high”; thus, horses ≤ 14.2 hands were classified as ponies in accordance with the custom and practice of the industry in Australia. It was noted that this height was less than the 148 cm unshod height definition of pony in the current Fédération Equestre Internationale guidelines (*FEI, 2009*).

An animal that was foundation trained (“broken-in”) and rideable. This excluded horses that had not been backed, brood mares, and breeding stallions.

A specified price. Any advertisements that listed price on application were excluded. There were no advertisements with price ranges listed in this study.

Of the total pool of 1,264 advertisements studied, 875 (712 from the Ponies section and 163 from the Pony Club section) fulfilled these criteria. This represented a total perceived value of approximately \$A 4.2 million.

For each pony, the following details were recorded from the advertisements: price (Australian dollar), height (in hands, one hand is equivalent to 10.2 cm), age (years), gender (male, female, gelding), color (bay, brown, black, grey, chestnut, other [e.g., paint, dun, buckskin, appaloosa]), breed (stated or not stated), registration status (registered or not registered), state of origin (Queensland, New South Wales, Victoria, South Australia, Western Australia, Tasmania, Northern Territory), and athletic experience and/or achievements (trails, Pony Club, shows, dressage, jumping, horse trials, other). Height was recorded in hands because all advertisements included in the study defined the height of ponies in the nonmetric scale of hands. The descriptors set out in *Table 1* were assigned to 1 of the 4 categories according to the level of reassurance they offered about behavioral characteristics associated with safety for the rider and/or handler.

General descriptive statistics were identified for all factors. A linear regression analysis (Genstat 11th Edition, VSN International Ltd, Hemel Hempstead, UK) with residual mean squares was run to identify factors that significantly influenced nominated price for Pony advertisements, Pony Club advertisements, and pooled Pony and Pony Club advertisements (*Payne et al., 2009*).

Results

Initial analysis revealed that the two sections in the magazine do represent different segments within the Australian pony market. Animals advertised in the Pony Club section of *Horse Deals* were listed across a smaller range of prices and had a lower mean than the animals advertised in the Ponies section (*Figure 1*). Animals

Table 1 Behavioral descriptors allocated to level of reassurance inferred by statement from ponies and Pony Club sections of the first six editions *Horse Deals Magazine*, 2009

Very reassuring	Somewhat reassuring	Neutral	Warning
Bombproof	Baby sitter	Good conformation	Cheeky
Calm	Beautiful/good/kind temperament/nature	Good home required	Experienced home/rider required
Mother's dream/parent's delight	Catch/shoe/float/wash	Good movement/paces	Forward moving
Obedient	Delight to own	Intelligent	Girthy
Quiet	Easy to prepare/do anything with	Never foundered	Green
Reliable	Experienced/been there done that	Talented	Just broken/started
Safe	Gentle		Needs competent/confident rider
Safe/good in traffic	Good after a spell		No beginners
Suitable for beginner/nervous rider	Good ground manners/good to handle		Project pony
Suitable for first pony	Good in company		Reschooled
Trustworthy	Good with dogs, motorbikes, machinery		Sensitive
Unflappable	Handled by children		Suit capable child
	Hassle free		Suitable as second pony
	Honest		Teen/adult rider required
	Sensible		Timid/fearful
	Well educated		
	Willing		
	Drug free		
	Good brakes		
	Good health/sound		
	Good/snaffle mouthed		
	No buck rear, bolt, shy		
	No dirt		
	No fuss		
	No vices		
	Perfect gentleman		
	Perfect/excellent around children		
	Professionally schooled		
	Suitable for lead rein		
	All rounder		
	Taught children to ride		
	Well behaved		

advertised in the Pony Club section tended to be older (Figure 2) with a median age 9.5 years as compared with 7 years for animals advertised in the Ponies section.

Price distribution was skewed to lower values for both segments of the market. The price range \$2,000-4,000 was the most common for both the Ponies and Pony Club sections (Figures 3 and 4). The majority of the animals advertised came from New South Wales and Victoria, the most populous states in Australia (Figure 5).

The 13 > 14 hh height range had the highest number of advertisements advertised in both the Ponies and Pony Club sections (Figure 6). Gray was the most common color advertised in both the Ponies and Pony Club sections followed by chestnut. Black horses were the least commonly advertised. Breed was stated in 66% and registration status in 42% of the advertisements. Geldings (49.5% of pooled data) were more commonly represented than mares (43.4% of pooled data), 5.7% of the advertisements did

not state the gender, and stallions represented 0.1% of the advertisements in the Ponies section. No stallions were advertised in the Pony Club section.

The regression analysis demonstrated that both market segments used different models to arrive at the stated selling price. The constant in the Pony Club section of the magazine was estimated to be \$3,709 (range: \$2,889-\$4,529; $P < 0.05$) as compared with \$2,600 for the Ponies section (range: \$1,438-\$3,762; $P < 0.05$). Factors that further influenced the advertised price for Pony Club animals were the sum of experience (tally of experience listed in advertisements), age, warning descriptors, and whether the breed was stated (Table 2). In contrast, factors that influenced asking price in the Ponies section included show experience, height, dressage experience, warning descriptors, state of origin, and breed not stated (Table 3). Within the height parameter, heights ≥ 12 hh were significant influencers at $P < 0.001$, whereas the smaller heights

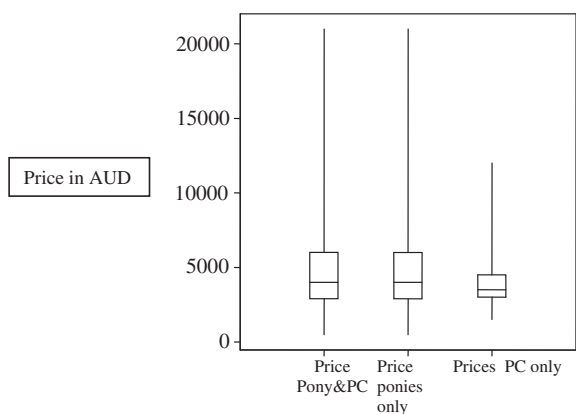


Figure 1 Box and Whisker plot of prices for ponies, Pony Club, and pooled (both ponies and pony club) advertisements in the first six editions of *Horse Deals Magazine*, 2009.

(<12 hh) did not have a significant influence. Each hand increase in height >12 hh commanded a significantly higher price (12 < 13 hh: \$2,016; 13 < 14 hh: \$2,111; 14 < 14.2 hh: \$2,654). State of origin only reached a significant level of influence for animals originating from Western Australian ($P < 0.001$) in the Ponies section. Breed not being stated had a detrimental influence on price (-\$808, $P < 0.001$).

Discussion

Care has to be taken in applying the model of pricing analysis, as our model investigated the main effects interactions only and the range of influence for any one parameter can be large. That said, to the authors’ knowledge, this is the first analysis of the pony market in Australia and it demonstrates that the safety behaviors and attributes that may be reassuring to buyers of children’s ponies are not factored into the pricing decisions of the pony vendors. This is despite the alarming incidence of injuries in junior riders (Hawson et al., 2010).

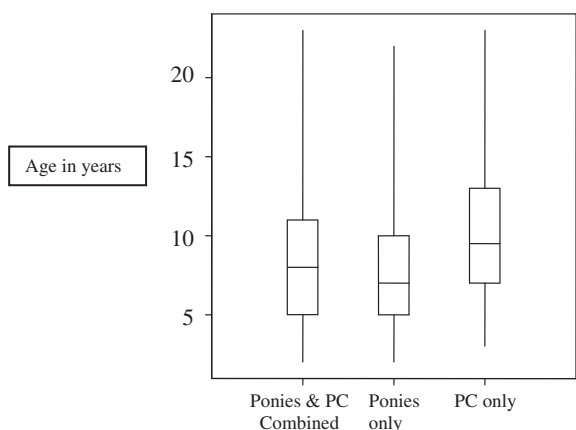


Figure 2 Box and Whisker plot for age distribution of ponies, Pony Club, and pooled (ponies and pony club combines) advertisements in the first six editions of *Horse Deals Magazine*, 2009.

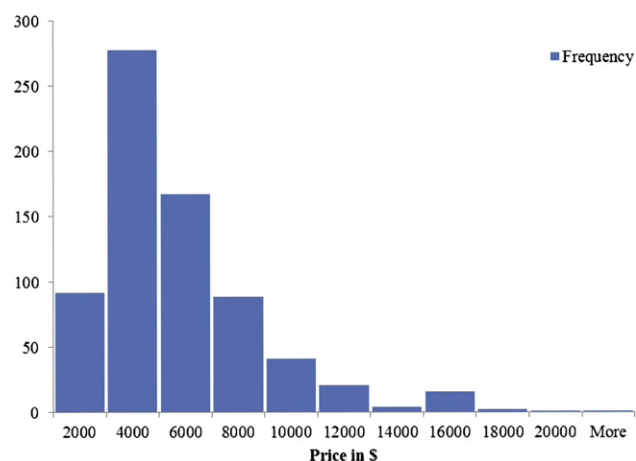


Figure 3 Distribution of prices for advertisements in Ponies section of first six editions of *Horse Deals Magazine*, 2009. For a colored version of this figure, the reader is referred to the Web version of this article.

The differences between the Pony Club and Ponies only market segments are quite insightful. The Pony Club segment comprised slightly older ponies with a smaller range of prices as reflected by the current data, and has a higher base price (estimate: \$3,709, $P < 0.001$) as compared with the Ponies segment (estimate: \$2,600, $P < 0.001$). The Pony Club pricings were subject to fewer influencers than the Ponies market segment. It is possible that the Ponies market segment, as labeled on this sale platform, can be broken down further into two separate market segments because some of the ponies in this section were advertised as specialist show animals. This further raises the question about who is riding these ponies and what happens to these specialist ponies once their show career is finished.

Increasing height of ponies corresponded to an increase in asking price. The range of height 12 < 14 hh is the most likely target for children riders who are either moving from their smaller first pony or have achieved an age at which their parents judge them ready for a pony and may therefore reflect the peak demand sector in the children’s pony market. Taller ponies may also be ridden by small adults so that there are more buyers creating price pressure in this segment. *Horse Deals* magazine may be perceived as the ideal advertising medium for this type of pony and therefore captures more of this market segment.

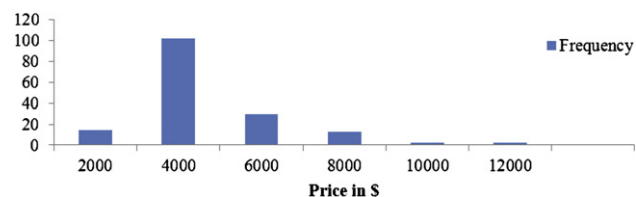


Figure 4 Distribution of prices for advertisements in Pony Club section of first six editions of *Horse Deals Magazine*, 2009. For a colored version of this figure, the reader is referred to the Web version of this article.

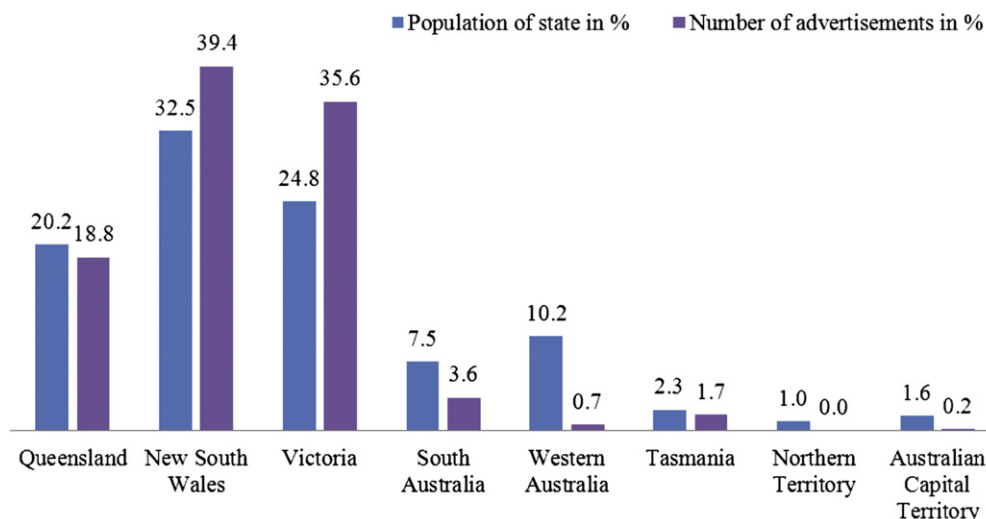


Figure 5 Distribution of pooled advertisements (Pony section and Pony Club section) as a percentage by state of origin as compared with distribution of population as a percentage by state of origin. For a colored version of this figure, the reader is referred to the Web version of this article.

Approximately 1 stallion per month was advertised in this sector. Although gender was not a significant influence on pricing decision, we suggest that stallions should not be viewed as suitable mounts for children. Stallions' higher androgen levels can make them more attendant to environment stimuli than mares or geldings (McGreevy, 2004). This could make them more unpredictable to ride. However, there was no interaction between gender and warning descriptors found in this study.

It appears that advertisement rates follow population distribution in the 4 eastern states (Queensland, New South Wales, Victoria, and South Australia) but this trend is not maintained for the other states. It is possible that this reflects the geographic bias of the magazine's distribution. Ponies originating from Western Australia appear to command a significant premium but this may be an artifact of

the vast geographical distance between the horse market in Western Australia and the East Coast of Australia. It may be that the only Western Australian ponies that are perceived to be of sufficient value to warrant the cost of transport to the larger markets are advertised in a medium that appears to focus on the eastern states.

If breed was stated in an advertisement, it incurred a positive influence in the pricing decision in the Pony Club segment, whereas lack of breed statement incurred a negative influence into the pricing decision in the Ponies segment. Color and registration status were often described in advertisements but seemed to have little influence on pricing decisions. The other positive influences on price were statements of show and dressage experience in the Ponies segment.

Sources of error in this study include the possibility that, in some cases, the same animal may have been advertised in more than 1 month. There is also the possibility of some error arising from our allocation of descriptors to reassuring and warning categories, based as it was on our expertise as riding instructors and veterinarians. In addition, some vendors seemed to contradict themselves. For example, occasionally there were advertisements that seemed to contain contradictory statements, such as a pony may be described as quiet and in the next line or so there would be a statement that it was not suitable for beginners. An explanation for this apparent conundrum would be that a vendor may want the animal to go to a knowledgeable home for welfare considerations rather than concern about the effect of the pony's behavior. A survey that asks vendors and potential purchasers to assign descriptors to ponies viewed in videos may test the validity of our approach but such an exercise was beyond the scope of the current research. Similarly, such an approach may serve to illuminate the links between height and demand.

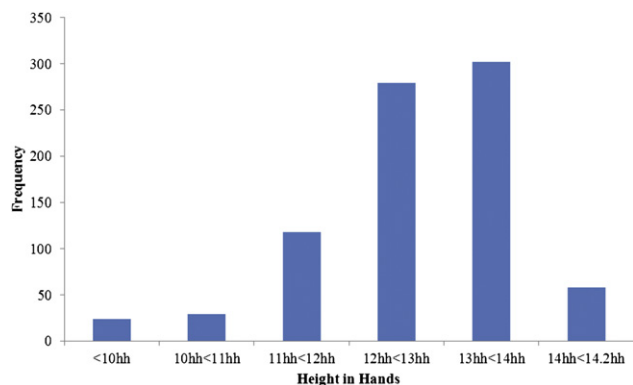


Figure 6 Frequency of heights of ponies advertised in pooled advertisements (Pony Section and Pony Club section) of first six editions of *Horse Deals Magazine*, 2009. For a colored version of this figure, the reader is referred to the Web version of this article.

Table 2 Values arising from regression model of factors contributing to pricing decisions by sellers of ponies in the Pony Club section of first six editions *Horse Deals Magazine*, 2009

Parameter	Estimate	SE	t(125)	P value	Range of influence of parameter on price applying at 95% confidence level (in \$)	
					Minimum	Maximum
Constant	3,709	410	9.04	<0.001	2,889	4,529
Sum of experience	382.7	87.8	4.36	<0.001	207.1	558.3
Age	-82.6	29.3	-2.82	0.006	-141.2	-24
Warning descriptors	-421	196	-2.14	0.034	-813	-29
Breed known	558	264	2.11	0.037	30	1,086

For each variable in this equation the value is predicted to be within the range listed in column 6 (Table 2) at $P < 0.05$. Reference factor: breed known.

Statements in advertisements that fell into the category of a warning had a negative effect on pricing decisions across both the Ponies and Pony Club sections. Arguably, requests for experienced homes may reflect the desire of some vendors to place the pony in a home that is well disposed to positive welfare husbandry. Alternatively, it is possible that legal or moral ramifications of not stating possible problems with the pony were part of the vendors' decision-making process. The costs associated with retraining a pony may far exceed the negative influence identified in this analysis. Selling ponies with behavioral problems may make good economic sense to vendors but does little to engender faith in the market's ability to address issues such as rider safety and animal welfare.

Many of these advertisements carry descriptive phrases from the reassuring categories and yet none of these positive phrases seem to influence the vendor's pricing decision. It is possible there is a general belief that safe ponies are typical but unsafe ponies are not. Print advertisements are charged on the basis of the amount of space they occupy on the page; thus, it behooves the vendor to be economical in their descriptions while at the same time promoting their product in such a way that potential buyers will contact them. The question then is: *Do buyers value safety in animals that are possible mounts for their children?* The dangers of horse-riding, particularly for children, have been elucidated in previously published data (Hawson et al., 2010) but may not be well communicated to the

Table 3 Values arising from regression model of factors contributing to pricing decisions by sellers of ponies in the Ponies section of first six editions *Horse Deals Magazine*, 2009

Parameter	Estimate	SE	t(592)	t pr.	Range of influence of parameter on price applying at 95% confidence level (in \$)	
					Minimum	Maximum
Constant	2,600	581	4.48	<0.001	1,438	3,762
Show 1	1,980	218	9.08	<0.001	1,544	2,416
Height						
10 < 11 hh	-439	760	-0.58	0.564	-1,959	1,081
11 < 12 hh	898	622	1.44	0.149	-346	2,142
12 < 13 hh	2,016	592	3.41	<0.001	832	3,200
13 < 14 hh	2,111	592	3.56	<0.001	927	3,295
14 < 14.2 hh	2,654	720	3.69	<0.001	1,214	4,094
Dressage 1	1,493	274	5.44	<0.001	945	2,041
Warning descriptors	-676	154	-4.39	<0.001	-984	-368
State of origin						
NSW	-442	291	-1.52	0.13	-1,024	140
VIC	-130	300	-0.43	0.665	-730	470
SA	761	549	1.39	0.167	-337	1,859
WA	3,686	1,069	3.45	<0.001	1,548	5,824
TAS	-229	842	-0.27	0.785	-1,913	1,455
NT	3,309	2,552	1.3	0.195	-1,795	8,413
Breed not known	-808	236	-3.42	<0.001	-1,280	-336

NSW, New South Wales; VIC, Victoria; SA, South Australia; WA, Western Australia; TAS, Tasmania; NT, Northern Territory.

For each variable in this equation the value is predicted to be within the range listed in column 6 (Table 3) at $P < 0.05$. Reference factors: show, height <10 hh, dressage, state of origin Queensland, breed known.

buying public. Recent research has shown that factors such as breed, temperament, and training experience can have profound influences on horse behavior (McGreevy and McLean, 2007; Lansade et al., 2008a, 2008b; Lloyd et al., 2008; Lansade and Simon, 2010). Presumably the positive phrases in the advertisements are perceived by the vendors as being attractive to their target audience otherwise they would not include (and therefore pay for) them in the advertisement. However, there appears to be a disconnection between the perception of value and its reflection in the asking price.

These findings are of some concern. The market does not show evidence of understanding the magnitude of risk associated with unpredictable horse behavior or the connection between horse behavior and attributes such as breed, temperament, and training. More efforts are needed so as to communicate the dangers presented by the unpredictable horse behavior to human beings and, in particular, children. The careful application and integration of the knowledge of how horses behave and learn, that has only recently begun to emerge (McGreevy and McLean, 2007), should reduce the numbers of human beings injured and the wastage in the horse industry (Ödberg and Bouissou, 1999). Equitation scientists and ethologists need to recognize that the knowledge that they are developing is applicable in the wider equine community and should work to share this knowledge with that community and decision makers within the broader society—including the growing number of first-time leisure horse owners.

Conclusion

This study produced separate hedonic pricing models for the Ponies and Pony Club market segments in Australia that showed different factors influencing pricing decisions for each market segment. It produced no evidence that pony vendors factor perceived positive safety-related attributes into their pricing calculations. The presence of behaviors that are potentially dangerous to riders did significantly moderate their pricing decisions. Vendors regularly included phrases in pony advertisements that did not appear to contribute to the calculated value of the animal. Perhaps vendors perceive that the target audience *do* value these attributes. The unknown factor is the buyers' perception of these phrases including safety.

An important implication of this work is that training ponies so that warnings are not necessary in advertisements is likely to bring pricing and safety dividends.

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