Pricing Strategies in Pork-based Agribusinesses: Evidence from Zimbabwe

Saul Ngarava
https://orcid.org/0000-0002-8462-0287
University of Fort Hare
201501225@ufh.ac.za

Abyssinia Mushunje
https://orcid.org/0000-0002-2183-785X
University of Fort Hare
AMushunje@ufh.ac.za

Abstract

Agribusinesses utilise an array of pricing strategies and practices that may be effective under certain circumstances. Price dictates income, directs the quantity supplied and demanded, provides an indication to customers, and shifts ownership. The objective of the study was to evaluate the current pricing strategies being employed in the Zimbabwean pork industry. The study utilised a cross-sectional survey of 166 pig producers, six pork abattoirs and 24 pork butchers in Mashonaland Central Province of Zimbabwe. A standardised pre-coded questionnaire was the research instrument utilised. Descriptive statistics, MANOVA and multiple linear regression were utilised to analyse the data. The results indicated that agribusinesses were utilising break-even pricing, which is cost-oriented, through a formula price, pursuing profit-oriented pricing objectives, through a one-price policy, aiming for a low-penetration pricing policy, with no discount policy and managing a profit-to-cost ratio between 0% and 4%. The study recommends that the industry be flexible in its pricing mechanisms through utilising sales-oriented objectives and appropriate discount policies to induce "goodwill" within the industry. The industry is also recommended to vertically integrate in order to spread and dilute price risk to allow flexibility in pricing, and to utilise premium pricing.

Keywords: Zimbabwe; pricing strategy; pork industry; agribusiness

Introduction

Food is clearly one sector where pricing issues are very much to the fore. Understanding price formation is critical in explaining the dynamics of pricing efficiencies in the marketing of commodities. Price makes available income, directs the quantity supplied and demanded, signals to customers, and shifts possession (Uva 2009). Pricing mechanisms take a number of structures and forms, which relate to prices of substitutes, volume, base price, frequency and timing of exchanges, location of exchanges and measurement, as well as compensation for product quality. Pricing can also consider the levels of the market, information conveyed and management risks, while contributing to resource allocation (Mussell et al. 2003; Purcell 1997). While there has been a myriad of debates on the determinants of food prices, setting a price is, for the most part, an exigent undertaking when developing meat products (Bakucs, Falkowski, and Ferto 2013; Myers 2013).

The Zimbabwean meat sector has in recent times been facing major constraints and challenges concerning declining demand, unregulated imports, lack of finance for production and processing, rising costs of feed and rising costs of compliance (LMAC 2014). Livestock contributes 15% to 25% of total agricultural output in Zimbabwe, with the pork subsector accounting for 3.5% of the total livestock assets in the country, dominated by 88% of subsistence communal farmers (Chazovachii 2012; FAO 2014; Tawonezvi et al. 2004; WTO 2011). The agricultural sector employs 56.9% of the formal workforce in the country, with a 13.82% account of the GDP, growing at a 4.1% rate, accounting for 30.4% of exports (AfDB 2014; ZIMSTAT 2014a 2014b). It, therefore, makes the sector a key priority and any developments aimed at the pork industry have significant long-lasting impacts. Mutambara (2013a) highlighted the un-competitiveness of Zimbabwean pork products, especially on the international market. This was due to low quality standards, uncompetitive pricing and inadequate market access. Furthermore, competitiveness within the industry was affected by both endogenous and exogenous factors, where it was highlighted that price is one of the exogenous factors that influence the industry (Mutambara 2013b).

The overarching objective of this paper is to explore the pricing strategies employed by agribusinesses in the pork industry in Zimbabwe. Such highlights will provide an overview of industry practice, especially after the land reform and indigenisation policies which resulted in noteworthy changes in possession, utilisation, management, marketing and production (Sayila 2008; WTO 2011). Understanding of price formation is vital in elucidating the dynamics of pricing ineptitude in commodity marketing (Pascucci, Capitanio, and Del Giudice 2010). Equally, understanding pricing strategy leads to sustainable profits and growth of the industry. Major yesteryear transformations in the livestock sector—brought about by land reform in terms of producer base, livestock possession, figures and marketing structures—call for an assessment of the current production and marketing systems. The major problem in the pork industry is that price modelling has been based on historic economic circumstances, and the players

have knowingly or naïvely integrated this into a new dispensation (Ngarava 2016). This has, however, reduced competitiveness due to reluctance in inducing good strategic and sustainable agribusiness practice and economic objectives.

Literature Review: Pricing

Price is the amount of currency that is charged for something valuable (Perreault Jnr. and McCarthy 2002). Agribusinesses utilise an array of pricing strategies and practices that may be effective under certain circumstances (Ingenbleek, Frambach, and Verhallen 2010), especially given that pricing has an enormous effect on quantities sold, profits and financial results, further influencing revenue generated (Barnard et al. 2012; Hinterhuber 2004; Indounas 2006; Jobber and Shipley 2012). Additionally, decisions on pricing are flexible, with the choice to increase or decrease the price of a product being executed reasonably quickly and result realisation in a much shorter phase than other managerial decisions (Indounas 2006).

There are six major pricing strategies: skimming, penetration, opportunistic, leader, neutral and cost plus, as well as the price and the product line structure (Carricano 2014). Ingenbleek (2015) and Graham (2015) identified four strategies that occur in the practice of sustainable agro-food production, namely competitive, new product, product line, and cost-based pricing. Rhodes, Dauve, and Parcell (2007) and Peterson (2014) state that in agriculture, there exist mainly two classifications to pricing systems: price discovery and price setting.

Purcell (1997) contends that it is costly to discover prices through a process of price reporting and establishing value. Mussell et al. (2003) identified the following types of pricing mechanisms in agriculture: direct negotiation, formula pricing, market price plus premium contracts, cost-plus pricing, pricing dependent upon quality attributes, and spot market pricing plus premium dependent on retail value. Peterson (2014) found out that in the US hog market, only 4% of all product sales accounted for discovering the price utilised by the other 96% of the industry. Thus the majority tends to just follow prices set by others. This aptly disregards the objectives of the minority price setters and can have devastating effects on the majority of the industry.

Pricing objectives can be grouped into status quo, sales and profit-oriented pricing objectives (Kotler 2002). Jumah (2000) identified the use of mark-up pricing strategy for profit maximisation in the pork industry, which is dependent on market share. Buhr (2004) found that pig industry organisations utilised competitive pricing objectives. However, Volpe, Risch, and Boland (2015) found that pork price increases and decreases were highly dependent on supplier prices and promotional prices, with least influence from competitor prices, indicating that pricing objectives were mainly swayed towards profit and sales orientation.

Price fluctuations and the quick price movement response make it difficult to institute steady long-term pricing policies (Smith et al. 1999). Pricing policies include price flexibility, price level, discount and allowance policies. Mbogoh (1992) states that flexibility in pricing for livestock is more probable in informal marketing systems, whereas it will be rigid in the formal marketing system. However, informal marketing systems' geographical price patterns will be affected by formal market pricing structure. Kunkel and Buhr (1999) and Kenyon and Purcell (1999) identified "a price window" where a maximum and minimum price is set and the price fluctuations between these extremities are accepted as market prices. If the price exceeds these extremities, the actual price is the midpoint between the maximum (or minimum) and the market price. Shao and Roe (2003) went even further to differentiate the fixed and moving window contracts. In this case, the final price is constrained by a price ceiling and a price floor, where the final price is determined by feed prices. Purcell (1997) contends that this type of pricing aids in reducing extremely high and low market price impacts. Kunkel and Buhr (1999) further highlight the existence of fixed price contracts.

Brorsen et al. (1998) and Buhr (2004) identified premium pork pricing, mainly based on the superior quality of the pork meat, based on its fat content. They identified that proportions of a pig carcass would be priced differently based on the perceived quality. However, Li and Sexton (2013) contend that the two price levels of high and low can actually be alternated rather than taking a single position. Such a proposition was highlighted by Chamhuri and Batt (2013) who identified that unlike retail outlet pricing, composed mainly of modern supermarkets, traditional markets allow price bargaining where prices tend to be higher at certain times of the day—especially in the morning—and reduced in the latter part of the day. Kunkel and Buhr (1999) identified a price floor being set in the pork industry where a minimum price is set to protect producers. Marian et al. (2014) contended that a high price is less desirable in establishing repeat purchase than a low price, especially for organic products, whereas the reverse was true for conventionally produced products which established repeated purchases at higher prices.

Discounts, especially for low-quality pork products, are an important part of the pricing systems (Brorsen et al. 1998; Buhr 2004). Reaching a particular discount, however, proves a challenge, as quality description is somehow subjective. Customer bargaining and time of trading period, especially in traditional fresh meat markets, influence the attainment of a discount price (Chamhuri and Batt 2013). Furthermore, there is congruence between the length of day and the discount amount for fresh meat. Chung and Li (2013) identified the use of "present discounting strategy" and referred this to price discounts when the expiry date is looming. They, however, proposed (and were supported by their study) the use of a multi-period discounting pricing strategy, where instead of a one-time discount close to the expiry date of a perishable, discounts are enacted each day of shelf-life remaining.

Prices should be set by appraising the price decision effect on profit margin, demand, sales volumes, costs and total profit. Two approaches exist to set list prices: demand-oriented and cost-oriented price setting (Piercy, Cravens, and Lane 2010). It is very difficult to set a price for meat products (Myers 2013). Dhuyvetter (2004) identified the use of negotiated prices by pig producers and buyers, especially where market information is unavailable for use in negotiated pricing. In addition, the absence of spot prices can be overcome by using formula pricing. Moreover, such a method is also appropriate, especially when utilising contract farming. However, costs of collecting and analysing information and then negotiating, tend to be high, and questions are raised as to whether such prices could be consistent with spot prices. McEwan and Duffy (2000) supported the notion of formula pricing of feeder pigs by combining various factors such as the expected pig market revenue, estimated feed costs, estimated margin after costs, feeder pig price as a percentage of margin and feeder pig price in formulating the price. Uva (2009) contends that farmers usually utilise direct marketing, which offers opportunities for them to gain control over prices they charge. However, this offers an opportunity for price cutting when determining prices. Nagler et al. (2015) identified livestock price determination through livestock auctions and identified the increased reliance on negotiated contracts (Kenyon and Purcell 1999). Kunkel and Buhr (1999) realised the use of cost-plus pricing, where prices were set based on immediate period feed cost plus fixed costs, and the price is regularly adjusted for the basis of attaining pricing objectives. They also identified formula pricing, where a trans-jurisdictional price is used in establishing value, and mathematically this value adjusts local value and thus pricing. Hayenga and Schrader (1980) identified the use of formula, negotiated and offer-acceptance pricing in fresh meat transactions. In the pork processing sector, they identified the use of formula, cost-plus and negotiated pricing. Negotiated pricing was also observed by Ajala and Adesehinwa (2007) where it was shown that it contributed to time wasting and marketing inefficiency.

There has been comprehensive research on pricing (Ingenbleek 2007). Notable contributions involve research on the cost-principle theory (Blinder et al. 1998; Hall, Walsh, and Yates 2000; Plinke 1985), decision making (Dutta, Zbaracki, and Bergen 2003; Shipley 1981, 1983) and marketing strategy (Carson et al. 1998; Cavusgil, Chan, and Zhang 2003; Solberg, Stottinger, and Yaprak 2006). Studies based on the cost theory indicate that most organisations tend to set prices based on the cost structure and thus utilise cost-oriented price-setting alternatives. Studies based on the process of decision making indicate that organisations make pricing decisions such as setting pricing objectives. Marketing strategy research identifies pricing giving secondary consideration to other elements of a marketing strategy. Most research on pricing is descriptive and non-cumulative (Ingenbleek 2007). Hinterhuber (2004) attests that pricing has received less attention than other marketing aspects. Indounas (2006) supports this notion based on the complexity of price decisions and confusion regarding fundamental aspects of the pricing process. Most research has focused on price transmission within the supply chain. There has been much research on pricing, mainly

in the economics and business field (Aldrich et al. 2017; Baker, Collier, and Jayaraman 2017; Gu et al. 2018; Nagle and Muller 2010) but less research in the agricultural field and lesser still in the livestock industry, not to mention the pork subsector. There has been little definitive research that addresses pricing, its strategies, objectives and policies thereof, especially in the pork sector and in Zimbabwe. This is an area worth evaluating, especially because price as a business component is the only one that adds to revenue, while other components tend to reduce it.

Methodology

Description of study area

The study was carried out in Mashonaland Central Province of Zimbabwe (Figure 1). Mashonaland Central province is agro-based, lying in the north-eastern part of the country with an area of 28 347 km^2 and a population of 1 152 520, representing 8.23% of the total Zimbabwean population (ZIMSTAT 2014a).

Figure 1: Geographical location of Mashonaland Central Province

Source: www.en.wikipedia.org/wiki/Mashonaland_Central_Province-constituency2008.gif ; http://www.nationsonline.org/oneworld/zimbabwe.htm . Accessed 27/4/2017.

Agriculture is the main economic activity in Mashonaland Central Province, playing a key part in the social and economic development through the provision of affordable food and employment, contributing to poverty reduction (Musemwa 2011). Relative to its agro-ecological location, the province is suited for crop production because of the average to above average rainfall (750 mm to 1000 mm annually) contained therein, making pig production a secondary enterprise mainly at the smallholder level and also being enticing because of the proximity to input production of soya bean and maize. The Land Reform Programme in Zimbabwe has influenced land ownership, having a direct bearing on agro-based activities through the influence of security and investment in infrastructure (Chisango 2010). The programme resulted in 152 A_1 pig producers with temporary production licences on less than 10 hectares; 193 A_2 pig producers having 99-year lease agreements with more than 30 hectares of land; 92 small-scale commercial producers; 14 large-scale commercial producers; and 8354 communal farmers. Mashonaland Central Province has 14 registered abattoirs, 11.38% of the country's total. The province has 50 registered butchers, potentially higher because of the existence of unregistered butchers (Njaya 2014; Scoones 2014). The power shortages bedevilling the country, ultimately affecting butchery operations, have relegated most of the butcheries to peri-urban and urban areas. The study units were pig producers, pork abattoirs and pork butcheries.

Sampling technique

The study used a cross-sectional, descriptive and quantitative survey of pig producers, pork abattoirs and pork butcheries. Purposive sampling was used to select Mashonaland Central Province because of the high number of pig producers, pork abattoirs and butchers. The total population of the study was 518, consisting of 152 A_1 producers; 193 A_2 producers; 92 small-scale commercial producers; 14 large-scale commercial producers; 14 abattoirs; and 53 retailers. Random sampling was used to select 226 respondents through Yamane's (1967) method, as shown below:

$$n = \frac{N}{1 + N(e)^2}$$

Where n = sample size; N = population size, 518 in this case and e = degree of precision (95%)

$$n = \frac{518}{1 + 518(0.05)^2}$$
$$n = 226$$

The breakdown of the sample was proportional to the population, as shown in table 1.

Table 1: Sample size

Industry player	Population	Sought after responses (Sample)	Actual responses (Sample)	% Variance
Producers:				
A_1	152	66	56	-15.15%
A_2	193	84	66	-21.43%
Small scale	92	40	38	-5%
Large scale	14	6	6	-
Processors	14	6	6	-
Retailers	53	24	24	-
Total	**518**	**226**	**196**	**-13.27%**

The sample consisted of 66 A_1 producers; 84 A_2 producers; 40 small scale commercial producers; 6 large scale commercial producers; 6 abattoirs; and 24 retailers. A structured, standardised and pre-coded questionnaire was utilised to collect data pertaining to pricing strategies considered by agribusinesses, as well as the socio-economic and demographic statistics. Data analysis methods used were descriptive statistics, correlation, multiple linear regression and MANOVA analysis. SPSS version 23 was the analytical software used. Correlations were utilised for an insight into the association between enterprise margins and the various pricing objectives, policies and mechanisms. Multiple regression inferred the influence that various socio-economic and pricing factors had on pricing objectives and policies. MANOVA analysis was utilised to assess if any differences exist in the usage of the various pricing mechanisms.

Results

Table 2 shows that pricing objectives and policies have a significant association with the margin at:

$$P_{values} < 0.05$$

Price discount policies have the highest association (30.8%), followed by price flexibility policies (25.6%), price level policies (25.2%) and finally pricing objectives (19.9%). Price flexibility was the only pricing policy that had a positive influence on margin.

Table 2: Multiple regression, chi-square and correlation analysis of pricing factors influencing value creation

	R^2	ADJUSTED R^2	P_{VALUE}	Most Influential Coefficient			
				COEFFICIENT	B VALUE	BETA VALUE	P_{VALUE}
Profit to cost ratio (Margin)	0.265	0.250	0.00	Pricing objectives pursued by agribusiness	-0.165	-0.199	0.012
				Price flexibility policy pursued by agribusiness	0.605	0.256	0.002
				Price level policy pursued by agribusiness	-2.955	-0.252	0.000
				Price discount policy pursued by agribusiness	-0.335	-0.308	0.000

Figure 2 supports Mussell et al. (2003) and Dhuyvetter's (2004) use of formula pricing in pork industries, where 67.3% of the agribusinesses utilised formulas when setting their prices. This was followed by 31.6% utilising decentralised negotiations and 1% using centralised spot markets. However, the findings fall contrary to Hayenga and Schrader's (1980) findings of most of the transactions within pork agribusinesses utilising price lists and negotiation pricing at the expense of formula pricing.
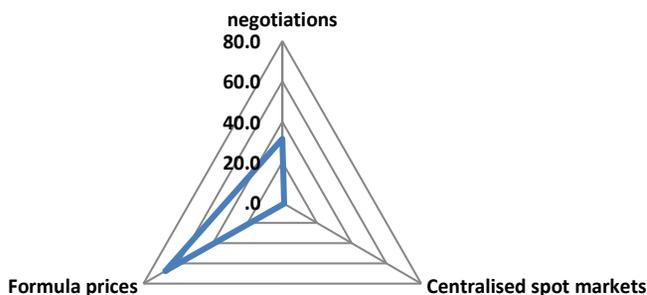
Figure 2: Price-setting mechanisms used by agribusinesses

Figure 3 shows that 53.6% of A_1 producers used formulas in setting their price. This was supported by 75.8% of A_2 producers, 66.7% of large-scale commercial producers and all registered abattoirs, as well as registered and unregistered butchers, respectively. However, 52.6% small-scale commercial producers used decentralised negotiations in setting the price. Thirty-three per cent of large-scale commercial producers used centralised spot markets in setting their price. Formula pricing is gainful in assuring market outlets or supply sources, greater quality assurance associated with continuing buyer-seller relationships, and improved physical marketing and transaction efficiency (Hayenga and Schrader 1980). It was mainly used as the agribusinesses were operating in cognisance of their costing structure and to stay afloat, the pricing method should operate vis-à-vis cost. The agribusinesses indicated that this formula template, which contemplates the costs, was quite easy to implement and, relative to decentralised negotiations, it guaranteed a return. This was augmented by stability in formula pricing, unlike decentralised negotiations which tended to fluctuate and thus are regarded as horrendous to use as a planning tool. Decentralised negotiations and centralised spot markets had the possibility of offering prices lower than the agribusinesses' cost of production, hence most opted for formula prices.
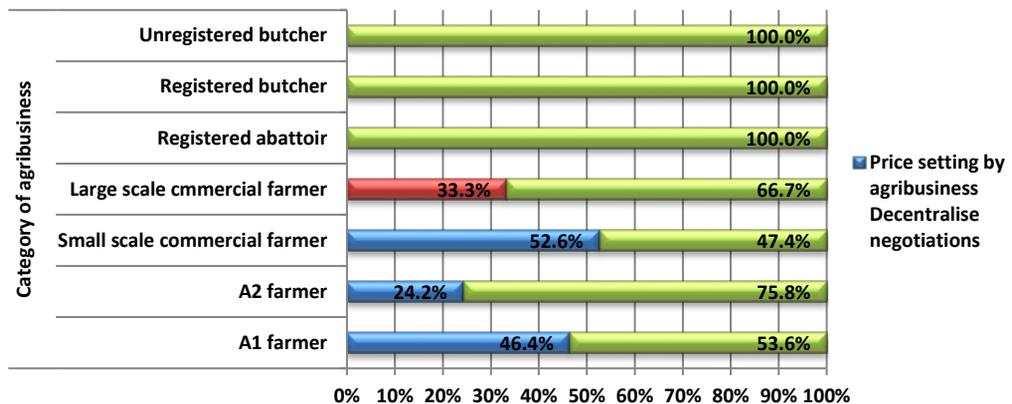
Figure 3: Price-setting mechanisms by agribusinesses

Fifty-six per cent of the agribusinesses were pursuing profit-oriented objectives, relative to 6.1% following sales-oriented objectives, 1% comparing with the competition and 36% were focusing on survival. This tallies with Shipley's (1981) findings of profit-oriented objectives dominating other objectives. Figure 4 shows that all the registered and unregistered butcheries, large-scale commercial producers and 66.7% of registered abattoirs aim for profit-oriented objectives. However, half of A_1 producers and 52.6% of A_2 small-scale commercial producers want to survive. Eighteen per cent of A_2 producers were pushing for sales, while 3.6% of A_1 producers were doing so to compare with the competition. As much as objectives are the end results of planned activities, a worrying trend, however, was the emergence of unplanned objectives such as survival

due to viability constraints. Unsustainable credit facilities, low demand and productivity constraints due to intermittent electricity supply (Mutambara 2013b) have contributed immensely to agribusinesses intending to just survive at the expense of growth. Further worrying is that 97.3% of agribusinesses that were intending to survive were producers. This is quite debilitating to the industry, especially since they provide the raw material in the industry value chain. Any subdued growth from this value chain level will ultimately have a multiplier in suppressing the growth of the entire industry.
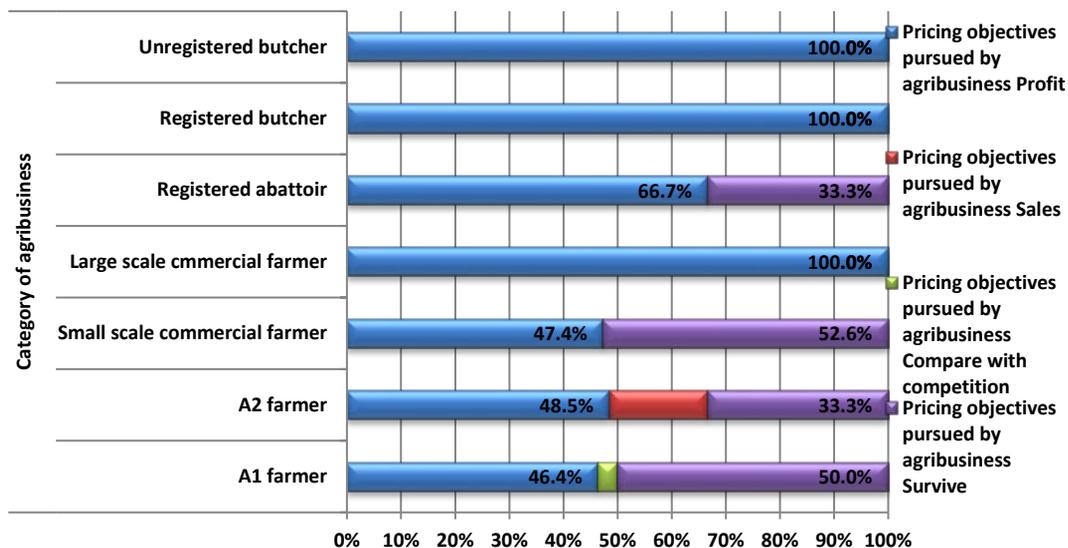
Figure 4: Pricing objectives by agribusinesses

Figure 5 shows that out of all agribusinesses that were making a loss, 10.9%, 33.3% and 36.1% were pursuing profit, sales and survival oriented pricing objectives. Thirty-one per cent and 13.2% were utilising price flexibility and one-price policy, respectively. None were pursuing a skimming-price-level policy, while 21.6% were utilising price-penetration-level policy. Seven per cent, 6.7% and 28.4% were utilising quantity discounts, sale price and no-discount policy, respectively. Worryingly, all respondents that fell within this bracket were the A_1, A_2 and small-scale commercial producers with 71.4% having been in existence for less than nine years. There have been many suggestions as to the causes of such inefficiencies, and the notable ones include lack of training and scarcity of investment (Anseeuw, Kapuya, and Saruchera 2012). Inadequate farmer-training programmes, especially in business aspects, have resulted in myopic perspectives, with lack of utilisation of sound agribusiness strategies to fulfilling their agro-organisational objectives. Lack of investment has equally affected agribusinesses' flexibility in strategising to meet their objectives. This has resulted in a

large number of producers just wanting to survive, utilising low, flexible pricing, limiting their discount options and consequently, not earning a return.
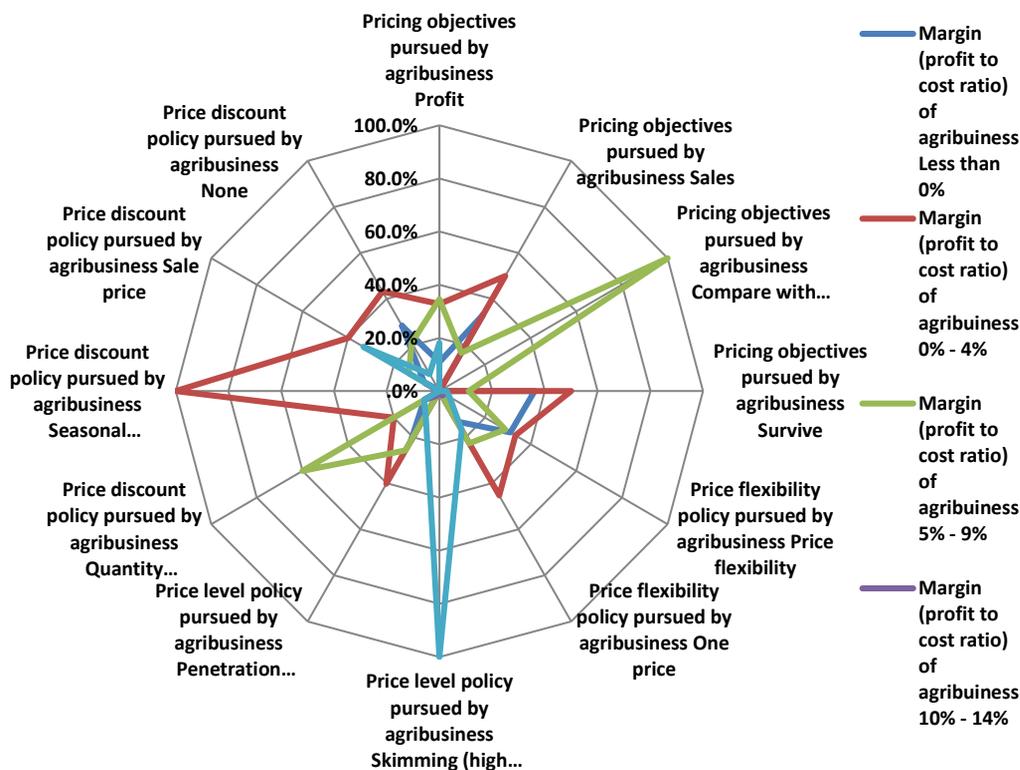
Figure 5: Pricing objectives, policies and margins

Alternatively, agribusinesses making a very high return of a profit-to-cost ratio of more than 14% were characterised by 18.2% and 2.8% pursuing profit-oriented and survival-oriented pricing objectives. It also included 4.4% and 17% pursuing price flexibility and one-price policy respectively; all that were utilising skimming-price-level policy and 10.3% utilising penetration-price-level policy. In this bracket also fell 6.7%, 33.3% and 7.5% of agribusinesses pursuing quantity discounts, sale-price and no-discount policies, respectively. Not surprisingly, all agribusinesses making very high returns consist of registered abattoirs, as well as the registered and unregistered butcheries, with the period of existence not having much of an influence. These findings were consistent with those by Davids, Jooste, and Meyer (2014) of higher returns down the value chain. Various reasons have been put forth to account for these high returns down the value chain, and the most notable is asymmetric information (Bakucs and Fertő 2005). Most of the registered abattoirs and butchers were in towns, with easier access to information regarding prices. They take advantage associated with search costs in quickly changing

prices relative to other industry players up the value chain. They are thus at liberty of making very high returns. This is also reflected in their strategies where most were pursuing a profit, utilising a high, single price and a sale in some instances.

Table 3 highlights that Pillai's Trace, Wilk's Lambda, Hotelling's Trace as well as Roy's Largest Root were all significant with $P_{values} < 0.05$. This indicates significant differences in the use of cost-oriented versus demand-oriented pricing mechanisms.

Table 3: Mean differences in price-setting mechanisms

	Cost-oriented		Demand-oriented	
	F	Sig.	F	Sig.
Pillai's Trace	3.657	0.002	18.453	0.000
Wilk's Lambda	3.639	0.002	18.453	0.000
Hotelling's Trace	3.621	0.002	18.453	0.000
Roy's Largest Root	4.726	0.004	18.453	0.000

Between-subject effects show that there were significant average differences ($P_{values} < 0.05$) for cost as well as demand-oriented price-setting mechanism with reference to margin and category of agribusiness. However, table 4 highlights that there are higher F values for demand-oriented price-setting mechanisms than cost-oriented, which have smaller value. This depicts greater variability within the demand mechanisms themselves.

Table 4: Mean variability difference in price-setting mechanisms

Source	Dependent Variable	F	Sig.
Cost oriented	Margin (profit to cost ratio)	3.746	0.013
	Category of agribusiness	2.726	0.047
Demand oriented	Margin (profit to cost ratio)	26.817	0.000
	Category of agribusiness	13.765	0.000

From the Post Hoc tests for cost-oriented pricing strategies, there were significant differences between the use of break-even pricing and target return to cost at $P_{values} <$

0.05. Table 5 below shows that no significant differences exist between break-even and mark-up on cost as well as with marginal pricing.

Table 5: Mean difference in cost-oriented pricing mechanisms

		Mean difference	P_{VALUE}
Break-even	Target return to cost	1.0914	0.010
	Mark-up on cost	0.5200	0.733
	Marginal pricing	0.5200	0.733

However, Post Hoc analysis of demand-oriented price mechanisms could not be performed because there are fewer than three categories for which the industry players identified, which were negotiated pricing and pricing the same as the competition.

Figure 6 confirms that the most utilised price-setting mechanism at 51% is break-even pricing which is cost-oriented. Thirty-three per cent of the industry utilised negotiated pricing followed by 7.1% utilising target return on cost, 2% pricing the same as the competition, and 3.1% for marginal pricing and mark-up on cost respectively. This falls contrary to the findings of Li and Sexton (2013) and Kunkel and Buhr (1999) of the most utilised mechanism of mark-up pricing in pork industries and any variance thereof exacerbating price volatility. Buhr (2004) goes even further to indicate that demand-oriented pricing mechanisms were utilised in pork industries at the expense of cost-oriented pricing mechanisms. The findings, however, support Carson et al. (1998) that cost-oriented approaches were the most utilised price-setting mechanisms. In as much as other pricing mechanisms such as mark-up on cost and target-return on cost, being relatively simpler in implementing, they do not take cognisance of the demand side or profit side of the business. Further to that, mechanisms such as negotiated pricing as well as pricing the same as the competition work as a mirror reflection, in this case proffering lip service to the cost side of the agribusiness. This shortfall is addressed by break-even pricing. Through the Cost Volume Profit (CVP) price-setting mechanism, which is a derivative of break-even pricing, various aspects of the pricing mechanism, such as costs and demand, are taken into consideration. In essence, break-even pricing allows for a trade-off between costs which establishes the volume at a certain price to determine the returns for an agribusiness. This makes break-even an ideal pricing mechanism.
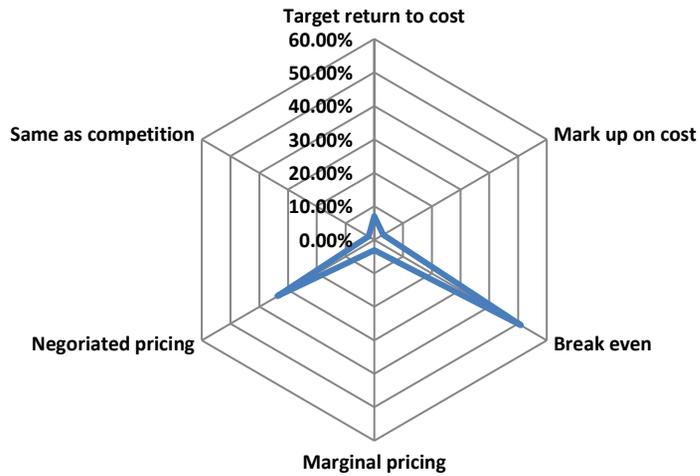
Figure 6: Price-setting methods by agribusinesses

Table 6 below shows the varying factors that have a significant influence on the pricing strategies at the $P_{values} < 0.05$ level of significance. Insignificant variables were excluded from the table.

Table 6: Factors affecting pricing strategies (excluding the insignificant factors)

	R^2	ADJUSTED R^2	P_{VALUE}	Most Influential Coefficient			
				COEFFICIENT	B VALUE	BETA VALUE	P_{VALUE}
Pricing objectives	0.379	0.324	0.000	Margin	-0.454	-0.377	0.000
				Position of respondent in agribusiness	-0.286	-0.172	0.310
				Agribusiness location	0.590	0.247	0.024
				Avg. weight of pigs handled	-0.1000	-0.287	0.000
				Quality of pig/carcass consideration when selling	-0.816	-0.233	0.000
				Time of year consideration when selling	0.289	0.172	0.011
Price flexibility policies	0.224	0.155	0.000	Avg. number of pig/carcasses handled	-0.102	-0.209	0.017
				Avg. weight of pork/pigs handles	0.217	0.177	0.017
				Price of other industry players consideration when selling pork/pig	-0.099	-0.162	0.030
Price level policy	0.483	0.437	0.000	Age of respondent	0.021	0.214	0.003
				Avg. weight of pig/pork handled	-0.045	-0.183	0.003
				Distance furthest buyer travels	-0.029	-0.239	0.046
				Size of pig/carcass consideration when selling	-0.076	-0.535	0.000
				Price of other industry players consideration when selling	0.034	0.274	0.000
				Quality of pig/carcass consideration when selling	0.031	0.125	0.038
				Time of year consideration when selling	-0.017	-0.145	0.018
Price discount policy	0.300	0.238	0.000	Category of agribusiness	0.245	0.446	0.003
				Margin	-0.335	-0.365	0.001
				Avg. number of pig/carcass handled	-0.378	-0.356	0.000
				Distance furthest buyer travels	0.378	0.288	0.039
				Size of pig/carcass consideration when selling	0.312	0.205	0.014

Pricing objectives were mainly influenced by profit-to-cost ratio (margin), the average weight of pigs/carcasses handled and location of the agribusiness. Price-flexibility policies were influenced by the average number of pigs/carcasses handled, average weight of pig/pork handled and prices set by other industry players. Factors having a bearing on price-level policies included the size of pig/carcass consideration when selling the pork product, the price of other industry players' consideration when setting a price, and the distance that buyers travel. Price-discount policy tended to be impacted by the category of agribusiness, margin and the average number of pigs/carcasses handled.

Discussion

Most agribusinesses were utilising price-setting systems as proposed by Rhodes, Dauve, and Parcell (2007) instead of price-discovery systems. Price-setting mechanisms were more preferable because, even though market information was available, it is hard to generalise or summarise (Hayenga and Schrader 1980). Furthermore, it secures better quality hogs, leaving lower quality hogs in the spot markets (Mussell et al. 2003). However, Mussell et al. (2003) highlight that price-setting tends to remove volume from spot markets, resulting in volatile spot markets. The study supports the findings by Mussell et al. (2003) and Dhuyvetter (2004) of the use of both negotiated and formula prices in pork industries. Negotiated pricing is costly in terms of collecting and analysing information and negotiating individual transactions, as well as lack of useable public information (Dhuyvetter 2004). However, there is a disparity in the use of negotiated pricing as identified by Nagler et al. (2015), Kenyon and Purcell (1999), Ajala and Adesehinwa (2007) and McEwan and Duffy (2000). The study also supports the findings by Volpe, Risch, and Boland (2015) and Jumah (2000) of the use of profit orientation in pork industries. However, it falls contrary to Buhr's (2004) findings of competitiveness objectives in pork industries. Formula prices were mainly precipitated by high information asymmetry in the value chain (Mutambara 2013a).

The study supports Kunkel and Buhr's (1999) findings of fixed prices in pork industries, falling contrary, however, to Kenyon and Purcell (1999) as well as Shao and Roe's (2003) flexible pricing policies through the price window system. Hinterhuber (2004) avers that inflexible prices tend to generate higher gross margin levels. Contrary to Brorsen et al. (1998) and Buhr (2004) were findings of skimming-price-level policies that are mainly attributable to premium pork pricing in pork industries. It supports Chamhuri and Batt's (2013) notion of reduced prices. Reduced prices through penetration-price-level policies were necessitated by the reduced demand and consumption of pork products (Mutambara 2013b), unfair trade practices through illegal imports, import of GMO-finished products and dumping (Mutambara and Chingozho 2011), substitute competition (Mutambara 2013a) and the liquidity crisis bedevilling Zimbabwe (Mutambara 2013b).

Break-even pricing falls contrary to Kunkel and Buhr's (1999) findings of cost-plus pricing. This was mainly attributable to reduced demand, costly environmental

management and compliance regulations, and costly inputs such as stock feeds (Mutambara and Chingozho 2011; Mutambara 2013a, 2013b). Break-even pricing has been utilised within the industry because of the ease of its practical implementation. However, cost-based pricing mechanisms were misleading since they cannot themselves be determined without price itself (Hinterhuber 2004).

Conclusion

Break-even pricing was the most utilised price-setting mechanism, which is cost-oriented, followed by negotiated pricing, which is demand-oriented. Most industry players' utilise formula prices, pursuing profit-oriented pricing objectives through a one-price policy, aiming for a low penetration pricing policy with no discount policy, and managing a profit-to-cost ratio of between 0% and 4%. The study concludes that the agribusinesses are pursuing profit-oriented objectives, but due to the nature of the product itself (seasonality and perishability in production), there is alternating between negotiated pricing, especially when there is a shortage in the market, and formula pricing when there is a glut. This is also reflective of the price-level policies which also alternated between penetration pricing when there is a glut in the production, and skimming in shortage periods. However, this is also dependent on the level in the value chain, with producers being more flexible in their pricing strategies and retailers being less flexible.

Recommendations

The internal pricing analysis of industry players has revealed strengths, weaknesses, opportunities and threats, aiding stakeholders and policymakers in marking out remedial measures, facilitating industry players in making good, reasonable and sound agribusiness strategies, to unleash the full industry potential and make the industry more competitive. The industry requires flexibility in its pricing mechanisms, based on the pricing objectives, levels, policies and setting, especially in a dynamic market. Instead of concentrating on profit-oriented objectives exclusively, sales-oriented pricing objectives can be incorporated, especially in glut seasons, to push sales and remain viable. The time frame for such initiatives should be taken into consideration lest the objective results in survival. This will likely initiate and maintain "goodwill" between pork agribusinesses and their customers. Goodwill can also be realised through an appropriate discount policy, which should also be of a short time frame. Vertically integrating is also opined, especially given that various pricing strategies were utilised at the different value chain levels, thus spreading price decision risk. The industry is also advised to utilise premium pricing with major influence on margin. Conforming to high quality product can have a tier effect of achieving this, and in the long run, compete with substitutes, international products, with eventual venturing onto the international trade market.

Policymakers can also incorporate training in terms of pricing strategies, especially at the producer level. The producers can be trained and advised on the available pricing

mechanisms and strategies at their disposal, as well as their consequences. Further research is required into bridging the information asymmetry gap between the two ends of the value chain (producer and retailer). Information asymmetry has been identified as a reason for the differentiated and myopic pricing strategies within the pork industry players. Further research into the introduction of the price moving window mechanism can also be carried out, as it has been shown to improve planning and forecasting.

References

AfDB. 2014. "African Statistics Yearbook." Belvédère Tunis, Tunisia.

Ajala, M. K., and A. O. K. Adesehinwa. 2007. "Roles and Efficiency of Participants in Pig Marketing in the Northern Part of Nigeria." *Journal of Central European Agriculture* 8 (3): 311–26.

Aldrich, Benjamin Russell, Gregory Pelland, Jonathan Thomas Toomey, and Jonathan Toomey. 2017. *Developing a Sustainable Pricing Strategy for the Worcester Regional Food Hub.* Worcester, MA.

Anseeuw, Ward, Tinashe Kapuya, and Davies Saruchera. 2012. "Zimbabwe's Agricultural Reconstruction : Present State. Ongoing Projects and Prospects for Reinvestment," no. 32: 1–165.

Baker, Timothy, David Collier, and Vaidy Jayaraman. 2017. "A New Pricing Strategy Evaluation Model." *International Journal of Operational Research* 29 (3): 295. https://doi.org/10.1504/IJOR.2017.084357.

Bakucs, Lajos Zoltán, and Imre Fertő. 2005. "Marketing Margins and Price Transmission on the Hungarian Beef Market." *Agribusiness* 3 (3–4): 151–60. https://doi.org/10.1080/16507540601176075.

Bakucs, Zoltán, Jan Falkowski, and Imre Ferto. 2013. "Does Market Structure Influence Price Transmission in the Agro-Food Sector? A Meta-Analysis Perspective." *Journal of Agricultural Economics* 65 (1): 1–25. https://doi.org/10.1111/1477-9552.12042.

Barnard, F., J. Akridge, F. Dooley, and J. Foltz. 2012. *Agribusiness Management*, 4th edition. London, UK: Taylor & Francis.

Blinder, A. S., E. R. D. Canetti, D. E. Lebow, and J. B. Rudd. 1998. *Asking About Prices: A New Approach to Understand Price Stickiness*. New York, USA: Russell Sage Foundation.

Brorsen, B. Wade, Jay T. Akridge, Michael A. Boland, Sean Mauney, and John C. Forrest. 1998. "Performance of Alternative Component Pricing Systems for Pork." *Journal of Agricultural and Applied Economics* 30 (2): 313–24.

Buhr, Brian L. 2004. "Case Studies of Direct Marketing Value-Added Pork Products in a Commodity Market." *Review of Agricultural Economics* 26 (2): 266–79. https://doi.org/10.1111/j.1467-9353.2004.00175.x.

Carricano, Manu. 2014. "Pricing Myopia: Do Leading Companies Capture the Full Value of Their Pricing Strategies?" *Management Decision* 52 (1): 159–78. https://doi.org/10.1108/MD-03-2013-0184.

Carson, D., A. Gilmore, D. Cummins, A. O'Donnel, and K. Grant. 1998. "Price Setting in SMEs: Some Empirical Findings." *Journal of Product and Brand Management* 7 (1): 76–86.

Cavusgil, S. T., K. Chan, and C. Zhang. 2003. "Strategic Orientations in Export Pricing of Clustering Approach to Create Firm Taxonomies." *Journal of International Marketing* 11 (1): 47–72.

Chamhuri, Norshamliza, and Peter J. Batt. 2013. "Exploring the Factors Influencing Consumers' Choice of Retail Store When Purchasing Fresh Meat in Malaysia." *International Food and Agribusiness Management Review* 16 (3): 99–122.

Chazovachii, B. 2012. "Piggery Production and the Empowerment of Rural People in Ward 21 of Gutu District, Masvingo Province, Zimbabwe." *Journal of Sustainable Development in Africa* 14 (3): 164–79.

Chisango, Future F T. 2010. "Agricultural Mechanization for Sustainable Agriculture and Food Security in Zimbabwe : A Case of Bindura District in Mashonaland Central Province." University of Fort Hare.

Chung, J, and D. Li. 2013. "The Prospective Impact of a Multi-Period Pricing Strategy on Consumer Perceptions for Perishable Foods." *British Food Journal* 115 (3): 377–93. https://doi.org/10.1108/00070701311314200.

Davids, P., A. Jooste, and H. H. Meyer. 2014. "Evaluating the South African Pork Value Chain." In *International Food and Agribusiness Management Association (IFAMA) Conference Paper*. www.ifama.org/files/conf/papers/1008.

Dhuyvetter, Kevin C. 2004. "Using Formula Prices in the Absence of Publicly Reported Prices: An Application for Segregated Early Weaned Pigs." *Review of Agricultural Economics* 26 (4): 539–51. https://doi.org/10.1111/j.1467-9353.2004.00198.x.

Dutta, S., M. Zbaracki, and M. Bergen. 2003. "Pricing Process as a Capability: A Case Study." *Strategic Management Journal* 24: 615–30.

FAO. 2014. *Zimbabwe FAO STAT – Economic Indicators*. Rome, Italy.

Graham, C. 2015. "Putting a Price on Sustainability." *Strategic Direction* 31 (7): 8–10.

Gu, Xiaoyu, Petros Ieromonachou, Li Zhou, and Ming Lang Tseng. 2018. "Developing Pricing Strategy to Optimise Total Profits in an Electric Vehicle Battery Closed Loop Supply Chain." *Journal of Cleaner Production* 203: 376–85. https://doi.org/10.1016/j.jclepro.2018.08.209.

Hall, S., M. Walsh, and A. Yates. 2000. "Are UK Companies' Price Sticky." *Oxford Economic Papers* 52: 425–46.

Hayenga, Marvin L, and Lee F. Schrader. 1980. "Formula Pricing in Five Commodity Marketing Systems." *American Journal of Agricultural Economics* 62 (4): 753–59. https://doi.org/10.2307/1239776.

Hinterhuber, Andreas. 2004. "Towards Value-Based Pricing: An Integrative Framework for Decision Making." *Industrial Marketing Management* 33 (8): 765–78. https://doi.org/10.1016/j.indmarman.2003.10.006.

Indounas, Kostis. 2006. "Making Effective Pricing Decisions." *Business Horizons* 49 (5): 415–24. https://doi.org/10.1016/j.bushor.2006.02.003.

Ingenbleek, Paul. 2007. "Value-Informed Pricing in Its Organizational Context: Literature Review, Conceptual Framework, and Directions for Future Research." *Journal of Product and Brand Management* 16 (7): 441–58. https://doi.org/10.1108/10610420710834904.

Ingenbleek, Paul, Ruud T. Frambach, and Theo M. M. Verhallen. 2010. "The Role of Value-Informed Pricing in Market-Oriented Product Innovation Management." *Journal of Product Innovation Management* 27 (7): 1032–46.

Ingenbleek, Paul T. M. 2015. "Price Strategies for Sustainable Food Products." *British Food Journal* 117 (2): 915–28. https://doi.org/10.1108/BFJ-02-2014-0066.

Jobber, David, and David Shipley. 2012. "Marketing-orientated Pricing." *European Journal of Marketing* 46 (11/12): 1647–70. https://doi.org/10.1108/03090561211260022.

Jumah, A. 2000. *The Long Run, Market Power and Retail Pricing*, edited by R. M. Kunst, W. Fisher, and K. Ritzberger. Vienna, Italy.

Kenyon, David, and Wayne Purcell. 1999. *Price Discovery and Risk Management in an Industrialized Pork Sector*. Virginia, USA.

Kotler, P. 2002. *Marketing Management: Millennium Edition*. Pearson's Custom Publishing.

Kunkel, P. L., and B. L. Buhr. 1999. "A Guide to Swine Marketing Contracts." In *Marketing, Production and Manure Contracts in Today's Pork Industry; Minnesota Pork Producers Association Conference*. Minnesota: University of Minnesota Extension Services.

Li, Chenguang, and Richard J. Sexton. 2013. "Grocery-Retailer Pricing Behavior with Implications for Farmer Welfare." *Journal of Agricultural and Resource Economics* 38 (2): 141–58.

LMAC. 2014. *Livestock Sector Review (2013–2014).* Belvedere, Harare.

Marian, Livia, Polymeros Chrysochou, Athanasios Krystallis, and John Thøgersen. 2014. "The Role of Price as a Product Attribute in the Organic Food Context: An Exploration Based on Actual Purchase Data." *Food Quality and Preference* 37: 52–60. https://doi.org/10.1016/j.foodqual.2014.05.001.

Mbogoh, S. G. 1992. "Marketing Options for Livestock Products: A Total Systems Cum-Managerial Perspective." In *Future of Livestock Industries in East and Southern Africa: Proceedings of the Workshop*, edited by J. A. Kategile and S. Mubi, 88–95. Kadoma, Zimbabwe, 20–23 July.

McEwan, K, and R. Duffy. 2000. *Ontario Industry Feeder Pig Formula.* Ontario, Canada.

Musemwa, L. 2011. *Economics of Land Reform Models Used in Mashonaland Central Province of Zimbabwe*. University of Fort Hare.

Mussell, Al, Holly Mayer, Larry Martin, Kevin Grier, and Randy Westgren. 2003. *Price Discovery Mechanisms and Alternatives for Canadian Agriculture Part I: A Review of Pricing Mechanisms in Agriculture.* George Morris Centre.

Mutambara, J. 2013a. "A Preliminary Review of Regulatory Constraints Affecting Pig Industry in Zimbabwe." *Livestock Research for Rural Development* 25 (3).

Mutambara, J. 2013b. "Non Regulatory Constraints Affecting Pig Industry in Zimbabwe." *Online Journal of Animal and Feed Research* 3 (1): 62–67.

Mutambara, J., and D. Chingozho. 2011. *Pig Sector Issues Paper: Constraints Affecting Pig Competitiveness.*

Myers, G. S. 2013. *Meat Marketing Planner : Strategic Marketing for Farm-to-Table Meat Enterprises*. Maryland.

Nagle, Thomas T., and Georg Muller. 2010. *The Strategy and Tactics of Pricing: A Guide to Growing More Profitably*, 6th edition. New York, USA: Routledge.

Nagler, Amy M., Christopher T. Bastian, Dale J. Menkhaus, and Bridger Feuz. 2015. "Managing Marketing and Pricing Risks in Evolving Agricultural Markets." *CHOICES Magazine* 30 (1).

Ngarava, S. 2016. *Effectives of Commodity Pricing along the Pork Value Chain in Zimbabwe: A Case of Mashonaland Central Province.* University of Fort Hare.

Njaya, Tavonga. 2014. "Operations of Street Food Vendors and their Impact on Sustainable Urban Life in High Density Suburbs of Harare, in Zimbabwe." *Asian Journal of Economic Modelling* 2 (1): 18–31.

Pascucci, Stefano, Fabian Capitanio, and Teresa Del Giudice. 2010. "Value Creation Strategies in Credence Food Productions: The Case of Organic Farming in Italy." In *4th International European Forum on System Dynamics and Innovation in Food Networks*, edited by M. Fritz, U. Rickert, and G. Schiefer, 265–73. Innsbruck-Igls, Austria, 8 February.

Perreault Jnr., N. D., and F. J. McCarthy. 2002. *Basic Marketing: A Global Managerial Approach*. McGraw-Hill.

Peterson, Paul. 2014. "Pricing Issues in Agricultural Markets," 1–3.

Piercy, N. F., D. W. Cravens, and N. Lane. 2010. "Thinking Strategically about Pricing Decisions." *Journal of Business Strategy* 31 (5): 38–48.

Plinke, W. 1985. "Cost Based Pricing, Behaviour Aspects of Price Decisions for Capital Goods." *Journal of Business Research* 57 (1): 39–60.

Purcell, Wayne. 1997. *Price Discovery in Concentrated Livestock Markets: Issues, Answers, Future Directions Price Discovery in Concentrated Livestock Markets: Issues, Answers, Future Directions*, edited by Wayne Purcell. Virginia, USA: Research Institute on Livestock Pricing.

Rhodes, V. J., J. L. Dauve, and J. L. Parcell. 2007. *The Agricultural Marketing System*, 6th edition. Arizona, USA: Holcomb Hathaways Publisher.

Sayila, Alfred. 2008. "Epidemiological Measures to Aid African Pig Industry." *Pig Progress* 24 (9): 30–31.

Scoones, I. 2014. "Retail Revolutions and the Rise of Butcheries and Informal Selling in Zimbabwe." In *Debating Zimbabwe's Land Reform*. Brighton: Institute of Development Studies.

Shao, Renyuan, and Brian Roe. 2003. "The Design and Pricing of Fixed- and Moving-Window Contracts: An Application of Asian-Basket Option Pricing Methods to the Hog-Finishing Sector." In *2002 American Agricultural Economics Association Annual Meetings J*, 23:1047–73. California, USA, July 28–31. https://doi.org/10.1002/fut.10090.

Shipley, D. D. 1981. "Pricing Objectives in British Manufacturing Industry." *Journal of Industrial Economics* 29: 429–43.

Shipley, D. D. 1983. "Pricing Flexibility in British Manufacturing Industry." *Managerial and Decision Economics* 4 (4): 224–33.

Smith, Michael F, Indrajit Sinha, Richard Lancioni, and Howard Forman. 1999. "Role of Market Turbulence in Shaping Pricing Strategy." *Industrial Marketing Management* 28: 637–49. https://doi.org/http://dx.doi.org/10.1016/S0019-8501(98)00037-6.

Solberg, C. A., B. Stottinger, and A. Yaprak. 2006. "A Taxonomy of the Pricing Practices of Exporting Organizations: Evidence from Austria, Norway, and the United States." *Journal of International Marketing* 14 (1): 23–48.

Tawonezvi, P., Makuza, Moyo, and Nengomasha. 2004. *Country Report on the State of Animal Genetic Resources. 2004.*

Uva, Wen-fei L. 2009. "Smart Pricing Strategies." *Virginia Cooperative Extension*. Virginia, USA. https://pubs.ext.vt.edu/2906/2906-1324/2906-1324_pdf.pdf.

Volpe, R., C. Risch, and M. Boland. 2015. *The Determinants of Price Adjustments in Retail Supermarkets. Managerial and Decision Economics*. Wiley Online Library. https://doi.org/10.1002/mde.2737.

WTO. 2011. *Trade Policy Review: Zimbabwe, October 19 and 21*. WT/PR/S/252. 2011.

Yamane, T. 1967. *Statistics: An Introductory Analysis*. 2nd edition. New York, USA: Harper and Row.

ZIMSTAT. 2014a. *Agriculture and Livestock Survey: Small Scale Commercial Farms: Large Scale Commercial Farms: Communal Lands: A2 Farms: A1 Farms, 2012*. Harare, Zimbabwe.

ZIMSTAT. 2014b. *Census 2012: Provincial Report: Mashonaland Central.* Harare, Zimbabwe.