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Consumers' trust in vegetable supply chain members and their behavioural responses: A study based in Queensland, Australia

Anoma Ariyawardana ^{a,*}, Kumudini Ganegodage ^b, Miranda Y. Mortlock ^a

^a School of Agriculture and Food Sciences, Faculty of Science, The University of Queensland, Gatton, 4343, QLD, Australia

^b School of Economics, Faculty of Business, Economics and Law, The University of Queensland, St Lucia, 4072, QLD, Australia

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ABSTRACT

In the current era, food chains are becoming increasingly complex and consumer concerns about food safety are growing. As a result, consumers tend to rely heavily on chain actors to ensure the quality of the products they consume. Given this background, this study was conducted with a view to understanding the level of consumers' trust in vegetable supply chain members and how trust influences the consumers' behavioural responses. This paper is based on data obtained from 854 respondents in south-west Brisbane, Queensland, Australia. The results revealed that the level of trust placed in chain members varied across the chain. Respondents considered that domestic producers are more trustworthy in terms of producing safer vegetables and the lowest trust level was associated with imported vegetables. Gender, household size, years of stay in Australia, trust perceptions, and country of origin concerns had a significant influence on the respondents' intentions to pay a premium price for domestically produced vegetables. The study revealed that consumers respond to food safety concerns and this creates an opportunity for the vegetable industry to respond to these concerns.

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1. Introduction

Food safety is of paramount importance to Australian consumers and hence food safety protocols are well in place. The relevant food standards for Australia are developed and administered by Food Standards Australia New Zealand (FSANZ) and the respective states and territories take the responsibility for implementing and enforcing those standards. However, such food safety standards do not apply to primary production activities (FSANZ, 2011). Therefore, the Australian Government Department of Agriculture has developed protocols to ensure food safety and quality in the Australian agriculture sector (Department of Agriculture Fisheries and Forestry, 2004). In addition, Australian-based food safety certification systems such as industry driven on-farm quality assurance programs (Freshcare¹) or supermarket driven chain-

wide quality assurance programs (Woolworths Quality Assurance² and Coles Quality Assurance³) or other international quality assurance standards such as HACCP, and GLOBAL.G.A.P. are being used by growers to assure consumers about food safety. It has been found that more than 60% of Australian fruit and vegetable growers had at least one food safety program in place during 2008–09 (Crooks, 2010). Due to these protocols, Australia has been able to become one of the safest vegetable producers in the world (Department of Agriculture Fisheries and Forestry, 2011).

Despite these domestic protocols, the influx of imported vegetables to the domestic market has created a number of concerns among consumers and domestic producers (Ariyawardana &

* Corresponding author.

E-mail address: a.ariyawardana@uq.edu.au (A. Ariyawardana).

¹ Freshcare is an Australian horticultural industry owned, not-for-profit, on-farm assurance program to service the needs of the Australian industry. The Freshcare food safety and quality standard is an approved accredited standard by the Joint Accreditation System of Australia and New Zealand (JAS-ANZ).

² Woolworths Quality Assurance (WQA) is the quality assurance scheme of Woolworths which is the biggest chain store in Australia with a retail share of 36%. The WQA, program benchmarks against global product safety standards and international retailing best practices. (Woolworths Limited, 2013).

³ Coles Quality Assurance is the quality assurance scheme of Coles which is the second largest chain store in Australia with a retail share of 33%. Its standard matrix for whole fruit and vegetables specify that suppliers should have Coles supplier requirements and if they are sourcing products externally there should be evidence of second or third part certifications such as Freshcare, GLOBAL G.A.P., SQF1000, SQF2000 and BRC (Coles, 2011).

Collins, 2013). These concerns primarily revolve around food safety since unsafe food can have short- and long-term health implications. It has been estimated that on average, all unsafe food-related incidents could cause 2.1 million days of work loss per year with an estimated annual total cost of AUD1.25 billion to the Australian economy (Food Safety Information Council in Australia, 2013). However, a greater proportion of reported food safety incidents are associated with non-horticultural products. Several media campaigns have claimed that imported fruit and vegetables do not meet the stipulated food safety standards and have a greater potential to cause health risks to consumers. For example, the most recent incident associated with frozen berries has widened this public debate over food safety standards associated with imported fruit and vegetables and, packaging standards as well as on broader government policies on food safety standards (Carter, 2015; FSANZ, 2015; Marszalek, 2015).

Both fresh and processed vegetables reach consumers after passing through supply chains that may consist of producers and importers, to processors, wholesalers and retailers. Although fresh produce chains are less complicated, the processed vegetable chains are becoming increasingly complex as produce may be sourced from, or repacked in, a number of different countries. Hence, it has become increasingly difficult for consumers to assess food safety-related risks using traditional methods such as smell, taste or other physical attributes (Chen, 2008; Lobb, 2005). Consumers then have to rely more on the information provided on the package or the reputation of the store as an assurance of food safety. Therefore, many researchers argue that food safety is commonly associated with the credence property⁴ rather than search or experience (Goddard, Hobbs, Innes, Romanowska, & Uzwa, 2012; Grunert, 2005; Moser, Raffaelli, & Thilmany-McFadden, 2011; Röhr, Lüddecke, Drusch, Müller, & Alvensleben, 2005). As a credence attribute, consumers tend to rely heavily on chain actors to provide reliable information about the food they consume, or they depend on the trust they place in chain participants as an assurance for the quality of products (Castellini, Disegna, Mauracher, & Procidano, 2014; Chen, 2008; Hsu & Chen, 2014; Rampl, Eberhardt, Schütte, & Kenning, 2012). It is crucial to understand the level of trust placed in chain members as it will enable the specific chains to design the correct strategies in strengthening consumer confidence associated with food safety. Therefore, by taking Australian vegetables as an example, this study aimed to explore the level of trust placed in the chain members and stakeholders responsible for assuring food safety. As the second objective, this study aimed to analyse how the consumers' trust perceptions affected their intentions to pay a price premium for vegetables produced in Australia.

2. Literature review

2.1. Consumers' food safety risk perceptions and trust

Henson and Trail (1993) simply define food safety as the inverse of food risk. However, according to Standard 3.1.1 (Section 2) of the Federal Register of Legislation of the Australian Government:

'Food is not safe if it would be likely to cause physical harm to a person who might later consume it, assuming it was after that time and before being consumed by the person, properly subjected to all processes (if any) that are relevant to its reasonable

intended use; and consumed by the person according to its reasonable intended use (Australian Government, 2009).

Individuals could have different levels of food risk perceptions and these perceptions are framed around a number of attributes. Consumers make a choice based on their level of risk perceptions and the anticipated safety of each food item (Henson & Trail, 1993). Consumer risk perception on food is socially constructed and could be exaggerated by different attributes such as mass media campaigns, friends and family and personal experiences (De Jonge et al., 2004; Lobb, 2005; Nocella, Romano, & Stefani, 2014; Ward, Henderson, Coveney, & Meyer, 2011). Similarly, it is widely accepted that an individual's socio-demographic background (Rimal, Fletcher, McWatters, Misra, & Deodhar, 2001; Taylor et al., 2012; Tobin, Thomson, & LaBorde, 2012; Wilcock, Pun, Khanonax, & Aung, 2004), knowledge and experiences (Wilcock et al., 2004) and beliefs (Wilcock et al., 2004) influence an individual's food safety perceptions. Brewer and Rojas (2008) also highlighted that chemical, health, spoilage, regulatory, deceptive or ideal issues could dominate individual's attitudes towards the safety of food.

According to Morgan and Hunt (1994), trust – namely, the confidence in an exchange partner's reliability and integrity – plays a pivotal role in the relationship marketing of a business. As argued by Rampl et al. (2012), trust emerges only when the retailer fulfils the needs of the consumer. Therefore, the consumers' trust placed in food retailers and their relationships with them, could be considered to play a crucial role in influencing consumer buying behaviour. By extending the concept of trust, De Jonge et al. (2004) argued that an individual's trust in chain actors and regulators is vital in creating and sustaining confidence in food safety. Therefore, consumers would develop a general expectation that food does not harm their health or the environment. De Jonge et al. (2004; 2007; 2008a) conceptualised that consumer confidence in food safety is influenced by their trust in regulatory institutions, food safety incidents, media coverage of food risks, food recalls and consumers' safety perceptions of product and production technologies. The level of consumer confidence would then be assumed to be impacting on their behavioural responses such as information search, brand and retail choice, product substitution, or willingness to pay (WTP) for certain types of products.

2.2. Consumers' willingness to pay a premium price for food safety

The estimation of WTP could be considered as one of the most widely applied techniques in determining the consumer response to a price change or to a product attribute change (Accent & RAND Europe, 2010). However, according to Lee and Hatcher (2001), researchers have placed more emphasis on assessing the WTP for a price change than for a product attribute change. Price estimations through WTP techniques provide the crucial input required for the pricing strategies of a given product. Researchers adopt numerous approaches and conceptual frameworks in estimating the WTP, purchase behaviour and purchase intentions (Braidert, Hahsler, & Reutterer, 2006). According to the literature, it is evident that the WTP technique has been widely applied in different research settings. Similarly, by using different conceptual frameworks, this technique has been applied in previous studies that focused on the food safety concerns of consumers. For example, the WTP technique has been applied in more recent research on animal-based products (Lim, Wuyang, Maynard, & Goddard, 2014; Mørkbak, Christensen & Gyrd-Hansen, 2011; Owusu-Sekyere, Owusu, & Jordaan, 2014; Zhang, Bai, & Wahl, 2012), sea food (Wang, Zhang, Ortega, & Widmar, 2013; Xu, Zeng, Fong, Lone, & Liu, 2012) and fresh produce (Chelang'a, Obare, & Kimenju, 2013; Lagerkvist, Hess,

⁴ According to Darby and Karny (1973), any attribute that is worthwhile for consumers but cannot be evaluated in normal use is considered as a credence quality of a product.

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