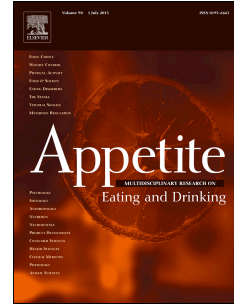


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When food governance matters to consumer food choice: Consumer perception of and preference for food quality certifications

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**WHEN FOOD GOVERNANCE MATTERS TO CONSUMER FOOD CHOICE:
CONSUMER PERCEPTION OF AND PREFERENCE FOR FOOD QUALITY
CERTIFICATIONS.**

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1 **When food governance matters to consumer food choice: Consumer perception of and**
2 **preference for food quality certifications.**

3 **Abstract**

4 Food quality certifications have been widely promoted for sustainable goals and
5 addressing consumers' increasing concern for food safety. However, these mechanisms
6 have achieved varied success in practice. Prior research notes the importance of
7 certification and certifying agencies in making tangible an invisible process to build
8 consumer trust in certified food. What we have yet to understand is if and how perceived
9 trustworthiness of food actors, such as growers and retailers in that process, influences
10 consumers' trust in food certification and their food choices. To extend the literature on
11 food certification in a complex network environment, we examined consumer trust in
12 three food certification schemes which represent two types (community-based versus
13 third-party), two certification origins (international versus domestic), and two
14 certification standards (organic versus Good Agricultural Practice or GAP). Data were
15 collected via in-depth interviews with 27 participants in Vietnam. These participants have
16 similar awareness of, access to and capability to afford organic food but differ in their
17 food choice. This is the first study exploring consumers' perceptions of community-based
18 certification in comparison with other third-party certifications in the same market. Our
19 study shows that the variation in consumer trust in certifications depends on their
20 perceived trustworthiness of the food system and its actors to deliver certified food.
21 Findings reveal that the higher the level of trust in the certification, the lower the need
22 for trust in food actors. Conversely, the lower the level of trust in the system, the higher
23 the need for trust in food actors. Importantly, food chain governance, the mechanisms
24 linking growers to retailers, increase consumers' trust in certified food. The study
25 proposes two food governance frameworks to improve consumer trust in certification
26 schemes in developing countries.

27 Key words: consumer trust, food chain governance, food certification, food choice

28

29 **1. Introduction**

30 Food certification is becoming more commonplace (Bailey & Garforth, 2014; Tran & Goto,
31 2019; Veldstra, Alexander, & Marshall, 2014). Organic certification, in particular, is not
32 only becoming increasingly important in industrialised nations (Janssen & Hamm, 2014;
33 Mosier & Thilmany, 2016; Sirieix, Delanchy, Remaud, Zepeda, & Gurviez, 2013) but also
34 in less developed countries where approximately 80% of the world's population, including
35 a growing number of middle-class consumers, is located (United Nations, 2019). Reasons
36 for increasing adoption of organic certification in developing countries include
37 consumers' concerns about climate change, social issues, and food safety (Mergenthaler,
38 Weinberger, & Qaim, 2009; Narrod et al., 2009; Tran & Goto, 2019). Despite this trend,
39 these mechanisms have achieved varied success in practice (Janssen & Hamm, 2012;
40 Thøgersen, Pedersen, & Aschemann-Witzel, 2019; Truong, Conroy, & Lang, 2021; Wu, Yin,
41 Xu, & Zhu, 2014). A better understanding of how consumers perceive different types of
42 food certification could help policymakers and the food industry identify determinants of
43 the success of the food certification.

44 Global modern food systems with long supply chains have increased the gap between
45 producers and consumers, and consequently, reduced consumers' knowledge and
46 control of food production (Kjærnes, 2012; Meyer, Coveney, Henderson, Ward, & Taylor,
47 2012). Based on the level of information available at the point of purchase, a quality can
48 be classified into search, experience, and credence attributes (P. Nelson, 1970). Process-
49 oriented quality such as in organic food, has been referred to as a credence attribute in
50 the literature (Caswell, Noelke, & Mojduszka, 2002; Grunert, Bredahl, & Brunsø, 2004),
51 which neither the buyer nor external institutions are able to verify through laboratory
52 analysis of the end product.

53 Certification schemes are designed to reverse this process by increasing consumers'
54 knowledge of the food production process. Certification is an explicit and formal process
55 to validate that a product has met certified standards (Starr & Brodie, 2016). It provides
56 visible and salient information enabling an invisible process to gain credibility (Darnall, Ji,
57 & Vázquez-Brust, 2018). In other words, certification is a symbol of intangible attributes.
58 As a result, certification schemes are gaining popularity as a food chain governance tool
59 (Hatanaka, Bain, & Busch, 2005; Veldstra et al., 2014) and a consumer policy tool (Golan,

60 Kuchler, Mitchell, Greene, & Jessup, 2001; Janssen & Hamm, 2011; Thøgersen et al.,
61 2019). There are different types of certifications that certify food based on different
62 standards. For example, organic certifications and GAP are granted to food produced
63 following organic and GAP standards, respectively. Certifications also are different in their
64 operational process (such as community-based versus third-party certifications) or origins
65 (such as domestic versus international certifications). Regardless of standards,
66 operational process and origins, the main purpose of certifications is to differentiate
67 certified food from conventional food, providing evidence for authentic products and
68 assisting consumer food choice. Therefore, the certification system assures the
69 functioning of organic food, as evidently shown in organic food market research
70 (Albersmeier, Schulze, Jahn, & Spiller, 2009; Deaton, 2004; Jahn, Schramm, & Spiller,
71 2005).

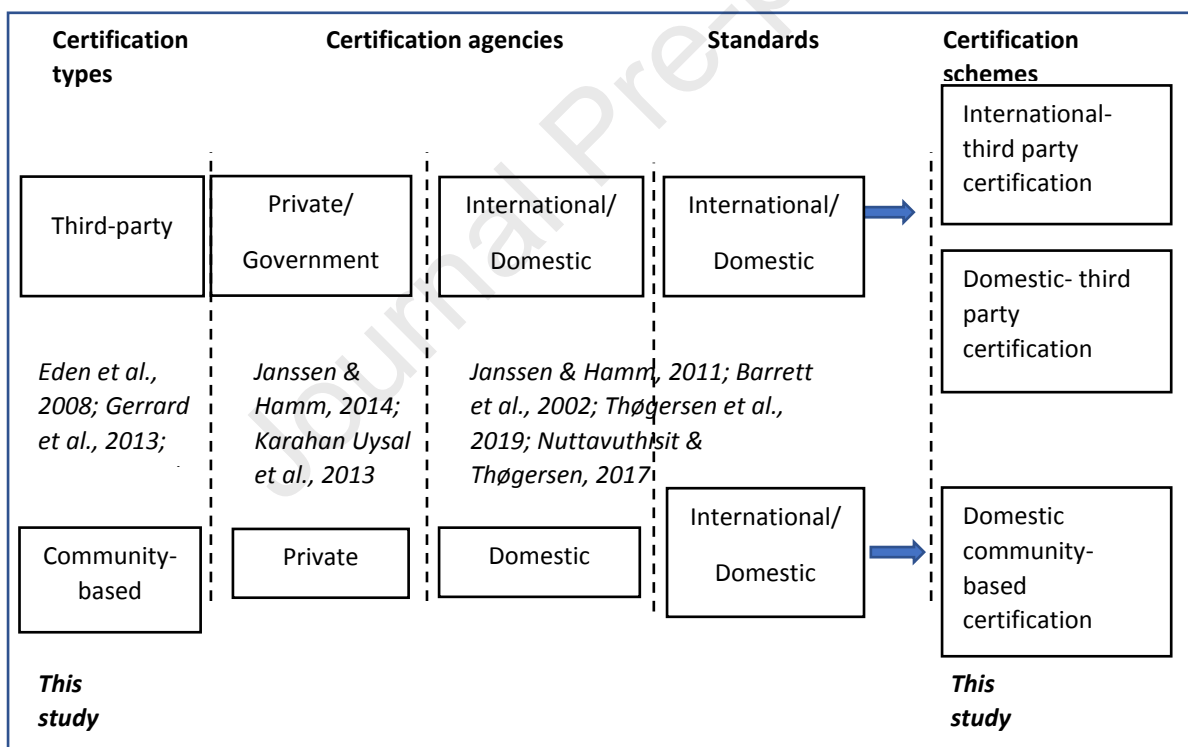
72 Much is known about the effects of certification schemes and the central importance of
73 trust. Several studies have found a positive relationship between consumer purchase
74 decisions and organic product labelling (Chang & Kinnucan, 1991; Yiridoe, Bonti-
75 Ankomah, & Martin, 2005). However, the influence of information provided through food
76 certification and labelling on consumers' choices largely depends on their knowledge of
77 the certification systems, and their trust in the certification process (Lassoued & Hobbs,
78 2015; Loebnitz & Aschemann-Witzel, 2016). A number of studies suggest consumers tend
79 to be sceptical towards green product claims (Bray, Johns, & Kilburn, 2011; D'Souza,
80 Taghian, Lamb, & Peretiatio, 2007), including organic food (Aarset et al., 2004; Janssen &
81 Hamm, 2012; Vermeir & Verbeke, 2006). Other studies suggest consumer trust in a
82 certification system influence their trust in organic food (Golan et al., 2001; Jahn et al.,
83 2005; Janssen & Hamm, 2011, 2012). Consumers' perceptions of different organic logos
84 has also featured in certain studies (Eden, Bear, & Walker, 2008; Gerrard, Janssen, Smith,
85 Hamm, & Padel, 2013; Van Loo, Caputo, Nayga Jr, & Verbeke, 2014). Others have
86 compared private and government certifications (Janssen & Hamm, 2014; Uysal et al.,
87 2013), and, international and domestic certifications (Barrett, Browne, Harris, & Cadoret,
88 2002; Janssen & Hamm, 2011; Nuttavuthisit & Thøgersen, 2017; Thøgersen et al., 2019)
89 to understand which type of certification is trusted more by consumers under which
90 circumstances. These findings provide useful and important insights into consumer
91 perception and trust in certifications.

92 However, there are two gaps in our understanding of how organic certifications work that
93 are worth exploring. First, most of the studies focus on the physical appearance of
94 certification logos, emphasising the role of certification agencies or overseeing
95 organisations (Gerrard et al., 2013; Janssen & Hamm, 2014; Uysal et al., 2013). Only a few
96 studies have considered labelling more broadly than as a direct message or logo such as
97 labelling forming judgement of food chain actors (Tonkin, Webb, Coveney, Meyer, &
98 Wilson, 2016), an impression of a food system (Van Rijswijk, Frewer, Menozzi, & Faioli,
99 2008) or a representation of a food system (Truong, Lang, & Conroy, 2021). Recent
100 research also shows that trust in certified food depends on the interaction between trust
101 in the whole food system and trust in actors in that system (Truong, Conroy, et al., 2021).
102 However, the roles of other food actors i.e., growers and retailers, particularly the
103 coordination among them in the delivery of certified food, have not been explored across
104 certification types. Their roles and responsibilities in the certification process might be
105 very different depending how the certification system operationalises. To better
106 understand the success of different certification types, it is important to understand
107 consumer trust in food more fully because these actors are directly involved in the food
108 production process and deliver certified food to consumers. While certification aims to
109 explicitly guarantee the standard, food production is a process and certification is a part
110 of that process. Therefore, it is essential to understand if and how perceived
111 trustworthiness of food actors and the way they operate in particular certification system
112 influences consumers trust in food certification.

113 The second gap this study addresses is that consumer trust studies have typically focused
114 on third-party certifications, leaving other alternative certification schemes such as
115 Participatory Guarantee System (PGS) unexplored. While third-party certification has
116 gained popularity in developed organic markets (Darnall et al., 2018; Hatanaka et al.,
117 2005), PGS is a more feasible certification scheme for smallholder farmers in developing
118 countries who own very small farms and are less able to afford the high cost of third-party
119 certifications (Kaufmann & Vogl, 2018; Sacchi, Caputo, & Nayga, 2015). A few exceptions
120 are studies investigating the demographic profile of buyers of PGS (Sacchi et al., 2015).
121 This lack of studies is surprising because PGS has been promoted and internationally
122 recognised by the International Federation of Organic Agriculture Movements (IFOAM)
123 and operates in more than 76 countries worldwide. Literature has investigated the

124 operation and benefits of PGS from institutional and production perspectives (Home,
 125 Bouagnimbeck, Ugas, Arbenz, & Stolze, 2017; Kaufmann & Vogl, 2018; E. Nelson, Tovar,
 126 Rindermann, & Cruz, 2010), however, little has been done to explore this emerging
 127 phenomenon from the consumer perspectives. The literature's current focus on third-
 128 party certification only allows a partial understanding of how consumers respond to
 129 certification schemes. Specifically, this creates three gaps in our understanding. First, we
 130 do not know how consumers perceive and respond to PGS certification schemes. Second,
 131 we do not know how consumers compare different certifications that operate in the same
 132 market. Third, it is unknown whether the existence of PGS may influence consumers'
 133 perceptions of certification in general and individual schemes in particular. Figure 1
 134 provides a summary of the relevant key literature and what gaps the present study fills.

135 **Figure 1. Literature on consumer perceptions of organic certifications**



136

137 As shown in Figure 1, the literature has studied third party certification systems which
 138 involve government and private agencies; international and domestic agencies; and
 139 international and domestic standards. This study adds to the extant literature by including
 140 community-based certification systems and directly compares international-third party
 141 certification; domestic third-party certification and domestic community-based
 142 certification. Comparing these different certification schemes is appropriate because this

143 study aims to investigate consumers' perceptions of the certification of a process, not the
144 certification of a product.

145 In summary, what the literature on food certification has not considered thus far is (i) if
146 and how perceived trustworthiness of food actors i.e., growers, retailers and their
147 coordination across different types of certifications, influence consumer trust in food
148 certification and (ii) consumers' perception of community-based certification in
149 comparison with other third-party certifications in the same market (Figure 1). To fill
150 these gaps, we conducted a qualitative study of consumer perceptions of three different
151 certification schemes, which leads to the following research questions:

- 152 **1. What is the level of consumer trust in three fundamentally different certification**
153 **schemes (international and domestic, third-party certification and community-**
154 **based) and their consumption behaviour of food products using these schemes?**
- 155 **2. What factors influence consumers trust in the three certification schemes and**
156 **their food choice?**

157 The remainder of this paper consists of four sections. The next section (Section 2)
158 presents the theoretical framework, which is followed by a description of the methods
159 and research context (Section 3) and reporting of the results (Section 4) of this study.
160 Section 5 discusses the variations in consumers' perceptions of the three different
161 certifications schemes. The discussion also presents indicators of trustworthiness of food
162 actors, particularly retailers such as food stores and supermarkets, that participants use
163 to form judgements on each certification. Finally, Section 6 discusses the practical
164 implications of our results for increasing consumer trust in food safety by proposing two
165 food chain governance frameworks to reconnect consumers with food production.

166 **2. Theoretical framework**

167 ***Social theory of trust***

168 This paper utilises the social theory of trust as a theoretical framework to understand
169 trust and the dimensions of trust in different certification schemes (Giddens, 1990; Lewis
170 & Weigert, 1985; Luhmann, 1979; Mollering, 2006). Sociologists classify trust into broad
171 categories such as institutional or system trust (e.g., trust in a regulatory system) and

172 generalised trust or interpersonal trust (trust in others) (Bachmann & Inkpen, 2011;
173 Giddens, 1990; Luhmann, 1979; McKnight & Chervany, 2006; Rousseau, Sitkin, Burt, &
174 Camerer, 1998). Trust is seen as multidimensional: “It has distinct cognitive, emotional
175 and behavioural dimensions which are merged into a unitary social experience” (Lewis &
176 Weigert, 1985, p. 969). This perspective emphasises trust as a social concept and
177 therefore it can be strengthened or weakened through social interaction. Trust at
178 different social levels (system, organisations, individuals) is interrelated (Giddens, 1990).
179 In the food context, trust depends on the functioning of complex interrelations and
180 interdependence between public regulations, civil society and public discourse (Kjaernes,
181 2006). Applying the social perspective of trust to the food consumption context, makes it
182 possible to examine trust in certification through trust indicators of the food system and
183 its actors (growers, retailers, etc.) because consumers interact directly with food
184 provision and indirectly with other food actors when they purchase food (Kjaernes, 2006).

185 ***Dimensions of trust***

186 Literature also provides insights into dimensions of trust which are indicators of
187 trustworthiness (Barber, 1983; Mollering, 2006). Two prominent dimensions of trust are
188 competence (Barber, 1983; Metlay, 1999) and the affective or honesty dimension (e.g.,
189 openness, reliability, integrity, credibility, and caring of trustees) (Metlay, 1999). The
190 affective dimension is also termed as fiduciary obligation (e.g., ethical and moral
191 character of social interactions) (Barber, 1983). Other scholars term competence and
192 honesty as general trust and add accountability as another dimension (Frewer, Howard,
193 Hedderley, & Shepherd, 1996; Poortinga & Pidgeon, 2003). Food research found
194 empirically that indicators of competence and affective dimensions (openness and care)
195 determine trust in food systems (De Jonge, Van Trijp, Jan Renes, & Frewer, 2007; Sapp et
196 al., 2009). This paper therefore uses two main dimensions, namely competence and
197 honesty (Metlay, 1999), as guiding concepts to explore trust dimensions in certification
198 schemes.

199 **3. Methodology**

200 **3.1 Research context**

201 We chose Vietnam, a developing country, as a research context for its emerging markets
202 for certified food, dynamic food market structure and particularly the presence of
203 different types of food certification in the fresh produce markets. The government and
204 the food industry has been adopted food certifications to address food safety which is
205 considered a major concern of Vietnamese people. Vietnam's Ministry of Health statistics
206 indicate that between 2011 and 2016, an average of 669,000 people per year were
207 impacted by foodborne diseases (National Assembly Supervision Delegation, 2017).
208 Foodborne diseases are estimated to cost Vietnam an annual productivity loss of US\$740
209 million and the medical costs of treating foodborne disease is an additional US\$200
210 million per year (World Bank, 2019). Unsurprisingly, "Vietnam is likely the only country in
211 the world where such a large number of citizens rank food safety the number one social
212 concern" (World Bank, 2019, p. 61). Despite high anxiety around food safety, consumers
213 are not able to measure food risks by themselves and have to rely on authority figures,
214 such as government agencies or expert organisations who can issue certifications, to
215 provide information. Certifications or labels therefore might work as a proxy for more
216 complex information such as production process and food safety assurance (Eden, 2011).

217 Another driver for the increasing adoption of organic certification in Vietnam is the
218 increasing demand for high quality food. This demand is rapidly growing as a result of (i)
219 food safety concerns associated with the long history of overusing agro-chemicals in
220 agricultural production (Mergenthaler et al., 2009; Nguyen, 2017), (ii) wealthier and
221 urbanised consumers (World Bank, 2019), and (iii) the rapid expansion of modern retail
222 markets in Vietnam (Wertheim-Heck & Raneri, 2019; Wertheim-Heck, Vellema, &
223 Spaargaren, 2015; World Bank, 2017, 2019). In urban areas, income gains have resulted
224 in dietary shifts from mainly rice consumption to mainly fresh food such as meat and
225 vegetables. Expenditure on fresh food now accounts for two thirds of consumer food
226 expenses (World Bank, 2019). These trends represent opportunities for Vietnamese high
227 quality fresh produce. The food industry, therefore, has used quality certifications as a
228 quality signal to attract consumers in this growing market. Certified fresh produce, once
229 found only in the margins of the food market, is becoming an increasingly visible element
230 in retailers' offerings. In Vietnamese domestic food markets, there are different
231 certification qualifications, such as international third-party certifications (EU, USDA),

232 domestic third-party certifications (VietGAP), and domestic community-based
233 certifications (PGS (Appendix 2)). While these certifications (EU, USDA, VietGAP, PGS) are
234 farming practice certifications, VietGAP certifies Good Agriculture Practice (GAP) and
235 differentiates itself from organic (EU, USDA and PGS) by allowing the use of chemical
236 inputs in production according to national standards.

237 Despite the increase in certification, certified foods only make up a small slice of the
238 Vietnamese market compared with conventional, uncertified food. Approximately 95%
239 of grocery retail sales nationwide took place in traditional outlets which sell conventional
240 fresh produces including meat, vegetables, meats and eggs (Wertheim-Heck et al., 2015;
241 World Bank, 2019). These facts present policymakers and the food industry with a
242 challenging issue: The supplying of food certified as safe and organic has so far failed to
243 match increasing demand for safe food among Vietnamese consumers. Literature has
244 documented the reluctance of consumers to switch to high quality food such as organic,
245 even if they have a positive attitude and intention to buy these foods. The barriers of
246 *actual purchasing behaviour* include lack of awareness and knowledge, lack of availability,
247 and high price (Bryła, 2016; Hasimu, Marchesini, & Canavari, 2017; Janssen, 2018).
248 However, these studies allow a partial understanding of how *general consumers* respond
249 to certification. Little is known about the influence of certification on consumer food
250 choice when these barriers of purchasing are relaxed. In other words, it is currently
251 unknown how a *specific* group of consumers who have demand for and are capable of
252 purchasing certified foods make a decision whether or not to purchase the food. We also
253 do not know what role certification plays in consumer decision making for different
254 groups of consumers. In this study, therefore, we purposely selected participants from
255 comparable backgrounds in terms of awareness of organic vegetables, and the
256 affordability and accessibility of organic vegetables. Importantly, their food choices vary,
257 with some participants switched to purchasing certified food, while others did not. This
258 allowed us to explore the influences on consumer perceptions of food certifications and
259 how these perceptions affect their actual food choice if direct barriers of purchasing are
260 not present. In doing so, we extend research on food certification by showing how food
261 certification does not transfer farming information to consumers in a linear way. Instead
262 the influences are different even among a group with comparable backgrounds. More

263 importantly, we identify different factors that positively and negatively affect consumer
264 perceptions of food certification and behaviour. Insights provided by this study will assist
265 policymakers and the food industry in improving the regulation and communication of
266 food certification schemes.

267 **3.1 Research design**

268 Given the large number of quantitative studies investigating influence of trust in
269 certification on consumer's willingness to pay for organic food (Ha, Shakur, & Pham Do,
270 2019; Teuber, Dolgoplova, & Nordström, 2016; Van Loo, Caputo, Nayga, Meullenet, &
271 Ricke, 2011; Yu, Gao, & Zeng, 2014) and the absence of prior research regarding
272 community-based certification, an exploratory, qualitative study was considered most
273 appropriate.

274 This study used three data collection methods, two preliminary and one main data
275 collection method (Table 1), which will be explained in more detail below. In-depth, semi-
276 structured interviews were used as the main data collection method. These were used to
277 understand participants' interpretation of their lived experience (Minichiello, Aroni, &
278 Hays, 2008).

279 **3.2 Sampling considerations**

280 As is typical with qualitative research, relevance was more important than randomness
281 and representativeness (Popay, Rogers, & Williams, 1998). Therefore, the aim of this
282 study was not to obtain a representative sample of the population but to find suitable
283 participants to answer the research questions. This study, therefore, used purposive
284 sampling techniques to attract participants who have knowledge of all three certification
285 schemes examined in order to identify information rich participants (Patton, 2002;
286 Sandelowski, 1995; Suri, 2011). Sampling via relevance is an important condition for this
287 study to ensure that participants have the type of knowledge needed to "understand the
288 structure and processes within which the individuals or situation are located" (Popay et
289 al., 1998, p. 348). To be selected for this study, participants had to fulfil the following
290 criteria (i): awareness of the different certification schemes, having access to purchase
291 food that is certified by the different certification schemes, and the ability to afford to
292 purchase vegetables certified with these schemes; and (ii) their current food choice:

293 buyers of certified food or non-buyers of certified food. Access to certified food is used
 294 as one of criterion because certified food is not available in all shopping locations (e.g.,
 295 supermarkets, special food stores, traditional wet markets).

296 3.3 Data collection

297 Data for all three stages of this study were collected by a female researcher who is a
 298 native speaker of Vietnamese to ensure cultural appropriateness (Patton, 1980; Twinn,
 299 1997) and the required understanding of the food context in Vietnam and its various
 300 certification schemes.

301 **Table 1. Data collection**

Tasks	Methods	Aim
Pilot study	Focus group (N=8)	Understand the complexity surrounding food choice, food labels available in the market. Findings were used to design interview guide.
Data collection	Online survey*(N=108)	Select participants for in-depth interviews
Data collection	In-depth Interviews (N=27)	Understand consumer perception of different certification schemes

302 *Survey questions are listed in Appendix 1

303 Firstly, a focus group was conducted with eight Vietnamese participants who are the
 304 primary grocery buyers in their households to discuss their current food choices and
 305 opinions about food in general. An online Facebook advertisement was used to recruit
 306 participants. Thematic-based framework analysis was used to analyse the data (Krueger
 307 & Casey, 2014; Rabiee, 2004). Findings from the focus group were used to inform the
 308 main data collection and to design the interview guide.

309 Secondly, in Vietnam we used an online screening survey to select participants for the in-
 310 depth interviews. The survey link was distributed through different organic food stores'
 311 Facebook pages. In addition, the first author contacted different organic food stores to
 312 get access to their regular organic buyers through customer lists in order to send out
 313 invitations. Among 108 participants who completed the screening survey, 27 participants
 314 were invited for personal interviews. To select the most relevant participants for the
 315 interviews, participants had to satisfy four conditions from the screening survey: (i) they

316 are the main grocery shoppers for their families, (ii) they are aware of different
 317 certification schemes, (iii) certified vegetables are affordable to them, and (iv) certified
 318 vegetables are accessible to them.

319 Next, in-depth, face to-face, semi-structured interviews were used to collect the main
 320 data for this study. Interviews were conducted in Hanoi, Vietnam and ranged from 60 to
 321 90 minutes. The sample was diverse in term of age (ranging from 22 to 58 years with an
 322 average age of 35 years), shopping channels (online, offline), shopping place (single store,
 323 multiple stores), shopping for children (yes/no), and purchasing frequency of certified
 324 food (regular, occasional and non- buyers of certified food).

325 Participants' basic demographic information is presented in Table 2, utilising pseudonyms
 326 to ensure anonymity. Most of the participants (25 out of 27) were female because of the
 327 cultural norm that women are the main grocery shoppers in Vietnam (Speece & Huong,
 328 2002). Also, most of the participants (23/27 participants) bought vegetables for
 329 household consumption. Participants' information on food choice (current baskets) and
 330 frequency of buying certified vegetables, were based on their responses during
 331 interviews.

332 **Table 2. Participant Characteristics**

Frequency of purchase certified vegetables	Type of certified vegetables	Participant	Age	Gender	Shopping location	Shop for children	Shop for family
Regular	GAP	Tung	39	M	Single store	N	N
		Thuy	34	F	Variety of stores	Y	Y
		Thuyen	30	F	Variety of stores	Y	Y
		Viet	33	F	Variety of stores	Y	Y
		Lananh	32	F	Variety of stores	Y	Y
Regular	PGS	May	47	F	Single store	Y	Y
	PGS	Na	40	F	Single online store	Y	Y
	USDA/EU	Lan	22	M	Single store	N	Y
	PGS	Tan	58	F	Single store	Y	Y
	PGS	Ngan	27	F	Single online store	N	Y
	PGS	Han	27	F	Single store	N	Y

	USDA/EU	Hanh	26	F	Variety of stores	N	Y
	USDA/EU	Anh	33	F	Variety of stores	Y	Y
	USDA/EU	Hoan	34	F	Variety of stores	Y	Y
	PGS	Hong	36	F	Variety of stores	Y	Y
Occasionally	GAP, USDA, PGS	Hoang	29	F	Variety of stores	Y	Y
	GAP, USDA, PGS	An	35	F	Variety of stores	Y	Y
	GAP, PGS	Thoa	56	F	Variety of stores	N	Y
	GAP, USDA, PGS	Huong	32	F	Single store	Y	Y
	GAP, USDA, PGS	Hang	23	F	Single store	N	N
	GAP, USDA, PGS	Thuong	26	F	Single store	N	N
Rarely	Non-certified	Tran	35	F	Variety of stores	N	N
	Non-certified	Oanh	43	F	Variety of stores	Y	Y
	Non-certified	Chien	39	F	Variety of stores	Y	Y
	Non-certified	Hien	36	F	Variety of stores	Y	Y
	Non-certified	Lien	37	F	Variety of stores	Y	Y
	Non-certified	Quynh	36	F	Variety of stores	Y	Y

333

334 To ensure relevance and realism in the interviews, eight real packages of different
 335 certified vegetables available in the market were used as prompts during the interviews.

336 These represented the key certification schemes: international third-party certification
 337 (EU, USDA), domestic third-party certification (VietGAP), domestic community-based
 338 certification (PGS) and non-certified vegetables (Table 3). When appropriate, interviews
 339 took place at participants' homes, and photos of food storages such as the fridge were
 340 taken with participants' permission as supporting context. Participants were reimbursed
 341 for their time through a grocery voucher with the equivalent value of approximately
 342 US\$15.00.

343

344

345

346

347

348 **Table 3. Certifications schemes for vegetable in Vietnam and real packages**

Real packages used in interviews	Certification schemes	Certifiers
<p>Packages with EU/USDA logo</p> 	International third-party certification	USDA/EU-accredited certifying agents
<p>Packages with VietGAP logo</p> 	Domestic third-party certification	Vietnamese government's accredited certifying agents
<p>Packages with PGS logo</p> 	Domestic community-based certification	PGS internal committee
<p>Packages with no certification</p> 	Vegetables with no certifications	No certification agency

349

350

351

352 **3.4 Data analysis**

353 All interviews were audio-taped, transcribed, translated into English (to allow for greater
354 participation of other members of the research team), and analysed using NVivo 11. Each
355 interview was summarised, content-coded and linked with guiding concepts: competence
356 and honesty (see 'Theoretical framework' section). In this way, empirical data were
357 integrated with theory and emerging themes were used to structure the results (Layder,
358 1998). Open-coding was used for initial coding to identify concepts and axial coding was
359 used later to link concepts (Strauss & Corbin, 1998). Codes were refined through
360 interrogating each individual code for uniqueness and merging, nesting as appropriate
361 (Saldaña, 2015). There was overall agreement on the coding and emerging themes among
362 the three authors. Major themes were trust in the food system and food chain actors i.e.
363 growers, retailers in delivering certified food, and indicators of competence and honesty
364 of the food system and food actors.

365 **4. Findings**

366 The findings are presented in two sections. First, we present similarities and differences
367 in consumer trust between international and domestic certifications and between third-
368 party and community-based certifications. Second, we identify factors that positively or
369 negatively affect trust in certification, i.e. dimensions of trust.

370 **4.1 RQ 1. Comparison of consumer trust among certification schemes**

371 When presented with real vegetable packages (Table 3), participants appeared to be
372 aware of all certification labels. Regardless of certification schemes, participants'
373 judgement of food certification was associated with their perceptions of standards, farm
374 inspections, management of counterfeits and prosecution for violation. In other words,
375 consumer perception of certification depends on how the system operates to deliver the
376 food with certified standards. The following section presents consumer trust in different
377 schemes, comparing international versus domestic and third-party versus community-
378 based certification.

379 **4.1.1 RQ 1a. Differences in consumer trust in certification schemes**

380 *International certification versus domestic certification*

381 Most participants perceived international certificates (e.g. EU or USDA) to have ‘higher’
382 standards due to country-of-origin effects particularly associated with economic
383 development and international recognition. Lan said: ‘USDA is hard to get because
384 organic standards are higher and stricter when it comes to the United States which is a
385 well-developed economy. Our domestic level of safe food would not be accepted in their
386 market’. Participants also linked the credibility of international certification with its
387 recognition by other countries because it indicates an objective and independent
388 reference, ‘their organic standards (EU and USDA) are recognised by other countries’
389 (Hoan).

390 However, this country-of-origin effect was diminished through another factor: inspection
391 procedures. Many participants were concerned about the frequency of inspections when
392 staff are from overseas: ‘international staff only come and perform inspections once a
393 year. I wonder how growers follow the standards during the remaining time’ (Than).
394 Conversely, domestic certification was perceived more favourably because ‘domestic
395 certifications such as PGS, they inspect more regularly because people are on-site’ (Han).

396 Most of the participants perceived international certification agencies, such as EU or
397 USDA as having more competence in term of expertise and experience. Tung expressed
398 that: ‘organic farming is still new in Vietnam while it has been developed in other more
399 developed countries. I suppose they should have more experience in doing organic than
400 us, so do their inspection procedure and staff’ (Tung). Some participants thought
401 international certification agencies might have higher profit incentives due to higher
402 certification costs. ‘There are certification agents actually enthusiastic about doing
403 organic farming, they only certify operations that meet USDA standard, they do a proper
404 job. However, a few agents work for benefits, the more they certified, the more fees they
405 get paid’ (Han).

406 Interestingly, high certification cost was perceived as an indicator of honesty of
407 growers/farm owners who are certified by international agencies because it indicates
408 incentives to comply: ‘I prefer USDA because I think certification cost is high, so only some
409 private companies can afford that. When they pay a large amount of money for the
410 certificate, they must control their production more strictly to not loss the certificate’
411 (Hoang).

412 Compared to international certifications, domestic certifications, particularly VietGAP,
413 was perceived as having a lack of integrity in issuing certificates by many participants.
414 They did not feel that VietGAP can honestly reflect a farm's activities being up to the
415 required standards due to a 'lax and weak management system':

416 'I think VietGAP management are weak and lax therefore I don't trust them.
417 During production procedure, growers can use chemical pesticide and fertiliser.
418 The accurate standard requires precise pre-harvest intervals; however, you will
419 never know if proper inspection is conducted. I think those certificates are
420 valueless in Vietnam' (Tran).

421 In addition, participants doubt the role certification plays in differentiating certified
422 vegetables from uncertified vegetables because of lack of integrity in obtaining VietGAP
423 certificates, 'because growers can pay money to get certificates without proper
424 inspection, uncertified and certified products are just the same' (Hien). As a result,
425 VietGAP was the least trusted certificate among the three certification schemes.

426 In summary, international certification is perceived as having higher standards, more
427 competent staff, and higher incentives to comply for growers. The only issue that
428 weakens consumers trust in international certifications is caused by less frequent
429 inspections compared with domestic certification schemes.

430 *Third-party certification versus community-based certification*

431 Approximately half of the participants preferred third-party certifications (e.g. EU, USDA,
432 VietGAP) for their independence and objectivity: 'I trust the third-party certification, they
433 are independent agencies monitor and verify information of the organization' (Na).
434 However, irregular inspections were seen as the main weakness of this system, because
435 normally certificates are renewed after one to two years. For example, An said:

436 'Perhaps third party-certification carry out more thorough inspection procedure,
437 however how they maintain certificates is what I concern the most. Growers may
438 follow standard strictly at the beginning, but it is hard to tell after getting
439 certificate. There is a time gap between the first and the second inspection.'

440 Many participants who currently buy community-based certification (PGS) certified
441 vegetables, reported they do so because they value the cross-check inspection process
442 within PGS. For example, 'PGS is more effective, particularly for seasonal fresh produce.
443 PGS guarantees cross-checking all the time during the season' (Viet). Other participants
444 highly valued the fact that on-site inspectors can supervise the farming activities on a
445 regular basis: 'It is impossible to have an external party to inspect all farm activities
446 regularly while PGS cross-check inspectors can inspect the farm weekly' (Na).

447 Compared with EU, USDA and VietGAP, consumers of PGS certified vegetables have more
448 direct communication with retailers and growers. PGS requires active involvement of
449 retailers and growers in the certification system through attending a regular meeting and
450 participating in the inspection process. This is perceived as increased competence of
451 retailers in controlling on-farm activities and therefore control quality. 'I learned from
452 their website that retailers are involved in the inspection process, which would make
453 them be more aware of production activities and product quality' (Thuyen). This
454 involvement is also perceived as honesty of the retailers, as expressed by Hoang: 'The fact
455 that they are in the (PGS) system means they want to do something good i.e. supporting
456 farmers, or to provide safe food, so I think they are reliable' (Hoang). In addition, PGS
457 demonstrates a short supply chain of fresh produce involving retailers as the only
458 middlemen. The target market for PGS vegetables is not far from production sites (around
459 40 to 100 km). This short distance allows consumers to have occasional farm visits, mostly
460 organised by retailers. Five participants considered their trust in producers as more
461 important than PGS certificates. One of them said:

462 'It is no use to show me tons of certificates, they are no more than papers. I bought
463 PGS because I visited the farm, talked to farmers and understood better how they
464 plant organic vegetable' (Ngan).

465 In short, although third-party certification provides objectivity and independence, buyers
466 of community-based certification highly value two mechanisms which build trust by
467 closing the gap between consumers and the food they purchase: 1) temporal distance
468 (e.g. high frequency of inspections) and 2) spatial by being physically close to farms with
469 community-based certification. This allows consumers to get involved and understand

470 production. Growers and retailers actively guarantee safe food in the process, rather than
471 just certifying agencies playing that role in third-party certification

472 **4.1.2 RQ1b. Similarity in consumer trust in certification schemes**

473 Concerns about counterfeit issues were shared by most participants, regardless of
474 certification scheme. This was associated with the way participants perceived food fraud
475 management in Vietnam. Chien said: 'there is no guarantee that certificates are genuine,
476 these logos and labels can be fraudulent'. Participants perceived that there is lack of
477 capacity in labelling management, as expressed by Viet in this statement: 'Many
478 organisations are not granted certificate still put that certificate on their label. As far as I
479 know, there is no institute that controls such problems strictly'.

480 Consequently, they feel uncertain of the truthfulness of the labels. It seems that
481 participants have little trust in the capacity of themselves and others to ascertain the
482 safety and quality of food, 'especially in Vietnam, I can't know what's real and what's
483 fake. There are chances that they may deceive even though they may have been doing it
484 right for a long time' (Anh). For some participants, the lack of capacity of the domestic
485 food system to manage certificate counterfeits negatively influences their perception of
486 international certification schemes:

487 Interviewer: 'What do you think about international certificates such as USDA like
488 this (showing the real package)?'

489 Hoan: 'I don't trust that because the seller might print it illegally. I buy certified
490 food at reliable stores only.'

491 One fourth of participants were concerned about insufficient capacity of certifying agents
492 to carry out regular farm inspections regardless of the origin (international or domestic)
493 or type (third-party or community-based). As a result, they doubted the capacity of these
494 certifying agencies to assure that farming activities are up to standard. To these
495 participants, growers and retailers play the key role in food quality control:

496 'It is not the issue of certification itself. It means that you can do enough to get a
497 certificate but much more works is needed to maintain that certification. If a

498 grower or retailer cannot maintain their system to deliver certified quality, then
499 certificate is just useless' (Quynh).

500 Regardless of certifications scheme, participants are dependent on their trust in retailers
501 to make their food choice decision, although the influence of trust in retailers varies
502 across certification schemes. This will be discussed in the next section.

503 **4.2 RQ2. Dimensions of trust in certification**

504 **4.2.1 Direct selling is perceived as an indicator of competence in quality control**

505 Six participants reported rarely buying certified vegetables due to their lack of trust in the
506 competence of the system to control food quality. As a result, these participants question
507 the credibility of food certification, and actively seek reliable retailers in their routine food
508 shopping. These participants mainly buy vegetables from someone they personally know
509 or who has been recommended by their friends or relatives and directly sells vegetables
510 to them, without any intermediaries. Personal relationships such as these also help to
511 build trust by closing of the gap between consumers and the food they purchase:

512 'I feel completely assured if I can buy vegetables from my friends or their relatives
513 who directly plant and deliver vegetables to me. That means the whole process is
514 under their control. Their vegetables are much more reliable than any certificate'
515 (Thuy).

516 Participants' concerns over the capacity to supervise farming activities and manage
517 counterfeit labelling disappeared if the person looking after the whole process is
518 someone they trust. They are well aware of the fact that no certification was granted to
519 these growers, 'I trusted my friend (who sold the vegetables), we were colleagues. I
520 visited her farm several times. Her vegetables are not certified but her vegetables are
521 safe for sure' (Lien).

522 Direct selling also proves its advantages as an indicator of competence in the case of
523 VietGAP certified vegetables sold in Vinmart stores — the largest supermarket store chain
524 in the country. This supermarket provides vegetables mainly from two sources:
525 vegetables labelled as VinEco from their own farms and vegetables from farmer
526 cooperatives. Regardless of the source, vegetables are supervised under the same

527 management and sold in the same stores. It is an interesting finding that most of the
528 participants who are frequent buyers at Vinmart stores clearly stated that they prefer
529 VinEco labelled vegetables to farmer cooperatives' vegetables. When presented with real
530 packages collected from the supermarkets, participants distinguished vegetables sourced
531 from VinEco's farms or from farmer cooperatives. 'VinEco labelled vegetables are always
532 my first choice over other vegetables sold in the supermarket. I only choose vegetables
533 from others when I can't find VinEco vegetables' (Thuong). Sourcing from its own farms
534 was perceived by participants to provide Vinmart better quality control as an indicator of
535 competence. 'I prefer their own farm products, i.e. VinEco, because they cannot fully
536 supervise other supplies from farmers as good as they supervise their own farms' (May).
537 In other words, direct selling serves as an indicator for retailers' competence. It works as
538 a mechanism to build trust by reconnecting consumers with food production.

539 **4.2.2 Certificate-based contracts alone are not sufficient to indicate competence** 540 **and honesty**

541 Participants were familiar with certificates being used as an essential condition for
542 farmers and cooperatives to sign a supplying contract with retailers such as supermarkets
543 and stores. Yet participants perceived certificates as an administrative procedure, not as
544 a quality assurance. Certificates were perceived as a 'ticket' to enter the market rather
545 than a proof of proper quality control and supervision processes. Participants questioned
546 how well the certificates reflect what happened on the farm in practice.

547 'They (retailers) sourced vegetables based on VietGAP certificate without their
548 direct control and supervision but I don't know if the farms actually obtain
549 VietGAP or not' (Tran).

550 The phrase 'they only follow the procedure on paper, not in practice' was consistently
551 shared by participants when offering their thoughts about the VietGAP certificate as a
552 basis for contract farming and market linkage. In other words, participants perceived
553 retailers as lacking competence in quality control if they manage their supply based on
554 certificates only. Interestingly, a participant who also owns a food store shared: 'As my
555 consumers require to provide certificates, we (retailers) just ask growers for that
556 (VietGAP). It is not our job to verify whether inspection is properly conducted or not. To

557 me, that makes the quality management so lax' (Oanh). Certificates in this case are used
558 as a necessary signal of a procedure so that vegetables are bought by consumers.

559 **4.2.3 Informal food chain governance is perceived as an indicator of competence** 560 **and the honesty of retailers**

561 Participants chose to buy certified vegetables at credible stores which do more than
562 signing certificate-based contracts. Retailers' expertise in agriculture, technical support
563 and training for farmers serve as indicators of the competence and honesty of such
564 retailers. 'I trust Vinmart stores because I had a chance to work with a farmer group who
565 supply vegetables to them. They assigned their staff to come and support producers to
566 make sure they follow the VietGAP standards' (Viet). Similarly, other participants who
567 had visited certified farms, such as PGS and USDA, shared that retailers' strong
568 commitment to support farmers indicated not only the level of quality control but also
569 'their caring'. 'I trust this store (Bac Tom), they are involved in the inspection process of
570 PGS, the owner has agricultural expertise and he motivated farmers, guaranteed the
571 outcome to make sure the farmers follow the standard' (Viet).

572 Interestingly, participants associated the small-scale of some retailers as an indicator of
573 quality control and integrity. To them, organic farming is small-scale with limited
574 availability. 'At the beginning, they were just a small-scale business. I trust their
575 vegetables. But then they expanded too fast and I no longer trust them. Organic vegetable
576 farmers are not able to supply too many organic stores at the same time. So it is hard for
577 me to feel trust in them' (Thuong). Thus, businesses that are deemed 'too big' may sell
578 untruthful organic vegetables, while the more modest nature of small-scale businesses
579 becomes an indicator of quality control ability and integrity

580 **4.2.4 Interaction through digital platforms increases perceived competence and** 581 **honesty of retailers and growers**

582 Traditionally, consumers preferred to shop at open markets and select fresh produce by
583 assessing the freshness, colour and size of produce. However, with the wide spread use
584 of the Internet and rapid growth of e-commerce, participants reported starting to rely on
585 digital platforms to make their food choice decisions. This was consistently mentioned as
586 a gradual but significant change in their grocery purchasing pattern during the last five

587 years. Half of the participants shared the importance of transparent information
588 published on certification websites as well as direct communication and interaction
589 through online platforms such as Facebook pages. In particular, participants rely on
590 Facebook pages to connect with other consumers who have a similar interest in
591 purchasing certified organic vegetables such as PGS or USDA. For example, participants
592 who buy USDA vegetables often look for store reviews as an indicator of their credibility
593 before purchase. Anh shared: 'I trust this Facebook group as its members care a lot about
594 food safety. I read a lot of useful information from them. If there is a new store selling
595 USDA certified vegetables, I have to look up reviews on the Facebook page about that
596 store. I believe USDA is a trustworthy certification, you know, but I want to hear from
597 others, to make sure the stores sell genuinely USDA vegetables'. A Facebook group is
598 sometimes used as a platform for farmers to sell their products to the groups, through
599 posting videos of their farms, farming practices and products. Participants shared, 'I feel
600 I know better after seeing her (farmer) farms and the way they plant vegetables without
601 chemicals. It is also convenient to read other buyers' feedback about the quality of her
602 vegetables to see if it is good enough. It is so convenient that I start to buy other fresh
603 produce in these groups as well' (Na).

604 **5. Discussion**

605 This research aims to provide an understanding of how consumer trust differs among
606 different types of certification schemes and to explore the dimensions of trust in these
607 schemes. The findings suggest that while consumer trust in certification varies across
608 schemes, participants place greater significance on how the food system and its actors
609 i.e., retailers and growers, operate to guarantee the certified food is up to standard. In
610 other words, the certification system, its standards, inspection procedures, and agencies
611 are all important, but the trustworthiness of the whole food system is an even bigger
612 determinant of consumers' trust in certification and their purchasing behaviour.

613 In this research, we focused on three previously unexplored areas. First, we extend the
614 literature on consumer trust in certification by showing how consumers have different
615 perceptions of international versus domestic certifications, and third-party versus
616 community-based certifications. Our findings are consistent with previous studies which
617 have shown that consumers prefer organic labels from more developed countries (Dekhili

618 & Achabou, 2014; Onozaka & McFadden, 2011; Schjøll, 2017; Thøgersen, Pedersen,
 619 Paternoga, Schwendel, & Aschemann-Witzel, 2017; Xie, Gao, Swisher, & Zhao, 2016). This
 620 finding also supports other studies which found the interpretation of country-of-origin
 621 labelling to have a broader meaning than the definition used by regulators and industry
 622 (Eden, 2011; Tonkin, Coveney, Meyer, Wilson, & Webb, 2016). Although low trust in
 623 domestic certifiers or controllers is the main reason cited in the literature (Grunert, Loose,
 624 Zhou, & Tinggaard, 2015; Nuttavuthisit & Thøgersen, 2017, 2019), we extend this
 625 literature by showing that the ‘country-of-origin argument’ is more nuanced. Regardless
 626 of current food choice, participants perceive international schemes to have stricter and
 627 more internationally accepted standards, and more experience and expertise in
 628 inspection than domestic certifiers. Yet, participants who do not buy international
 629 certifications, i.e. USDA, are concerned about the irregular inspection of international
 630 schemes, which might not ensure the adherence to certification standards across time
 631 (i.e. between temporally distant inspection dates). Although third-party certification is
 632 objective and independent, these participants put more importance on how quality is
 633 maintained after certificates are granted regardless of the certification types. The
 634 perceived compliance with standards after obtaining certificates is mainly dependent on
 635 growers’ and retailers’ credibility. Much literature has emphasised the role of certifying
 636 agencies to provide credibility of certification for consumers’ informed decisions (Dekhili,
 637 Sirieix, & Cohen, 2011; Hatanaka et al., 2005; Jahn et al., 2005; Janssen & Hamm, 2012).
 638 We argue that the variation in consumer perception of certification also depends on their
 639 perception of how well the system works and whether it is coordinated across food actors
 640 (i.e. growers, retailers) to deliver certified standards. Using two core dimensions of trust
 641 identified in previous research (De Jonge, Van Trijp, Van Der Lans, Renes, & Frewer, 2008;
 642 Sapp et al., 2009), our study found that different indicators of the competence and
 643 honesty of the food system and food actors influence trust in certifications positively or
 644 negatively, as summarised in Table 4.

645 **Table 4. Indicators of trustworthiness of food system and food actors**

International certification (USDA, EU)	third-party	Domestic third-party certification (VietGAP)	Domestic community- based certification (PGS)
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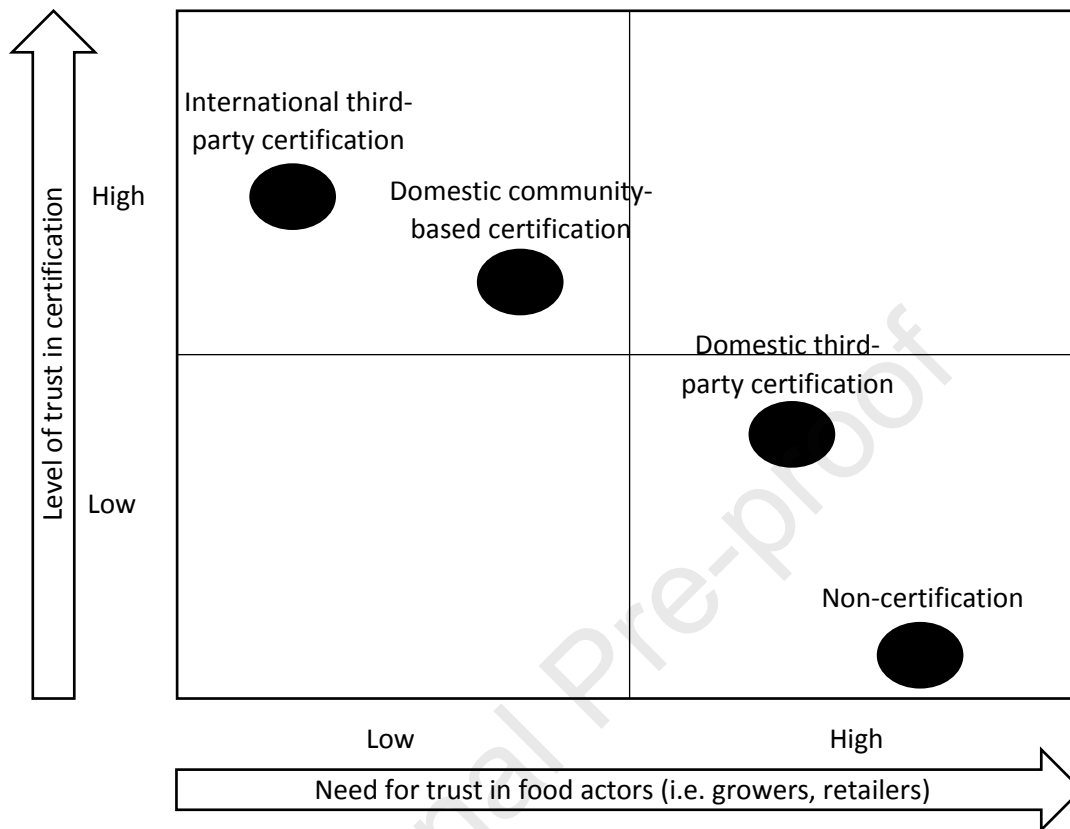
Indicators of competence of system	(+) Country of origin (+) Internationally recognised standards (+) Internationally recognised inspection process (-) Irregular inspection	(-) Irregular inspection (-) Lack of monitoring and testing (-) Lack of proper supervision of mislabelling	(+) Mutual agreement among farmer groups (+) Cross-checking inspection procedure
Indicators of competence of actors	(+) Financial resources to afford certification indicates sufficient capacity for quality control	(+) Reliable retailers participate in monitoring and quality control (+) Direct supply is perceived as better monitoring and quality control	(+) Retailers are committed to food safety (+) Retailers have agricultural expertise (+) Smaller shops can control food quality better (-) Farmer owners or retailers do not have enough capacity for daily farm management (-) Expansion is associated with lack of quality control
Indicators of honesty of system	(+) Country of origin (+) Transparency about violation (-) Lack of integrity (-) Lack of transparency -misconduct or violation	(-) Inspection process is not transparent	(+) Transparency about violation (-) Not independent and objective
Indicators of honesty of actors	(+) Commitment of farm owners (-) Certifier's incentives for profit	(+) Reliable retailers sell truthful VietGAP (+) Retailers provide technical support to farmers which shows retailers' commitment to guarantee food standards (-) Certifier's incentives for profit	(+) Direct communication with farmers

646 (+) positive influence on trust; (-) negative influence on trust

647 Second, our findings suggest consumers might utilise their personal relationships
648 differently in purchasing certified vegetables under different certification schemes. It is
649 likely that when consumers doubt the capacity of the food system including certification
650 systems to deliver safe and high-quality food, they prefer to use their relationships with
651 other specific actors in the food chain. This finding is novel. While other research has
652 found that institutional trust or trust in a system plays a more important role in forming

653 quality expectation (Grunert, 2002), particularly in the first purchase of organic food
654 (Nuttavuthisit & Thøgersen, 2017), in this study trust in individual food actors was
655 predominantly used to guide consumers' food choices, particularly in the case where
656 trust in the food system's honesty and competence was low. In this study, participants
657 relied on food actors, particularly retailers and growers, to reconnect them with food
658 production. The derived assurances from personal relationships (Telligman, Worosz, &
659 Bratcher, 2017) support other studies on social trust fostered by personal interactions
660 (Giampietri, Verneau, Del Giudice, Carfora, & Finco, 2018; Sapp et al., 2009) and studies
661 on embodied trust where consumers see themselves in a reciprocal network with food
662 chain actors who they have known for some time (Green, Draper, & Dowler, 2003). Our
663 finding extends other research on the active role of consumers in collaborating with
664 different actors in farmers' organic food markets (Schouten, Martin, Blakaj, & Botez,
665 2016; Thompson & Coskuner-Balli, 2007), through understanding their strategies to cope
666 with lack of trust in certification schemes used in official organic markets. It appears that
667 trust in growers or retailers can partly compensate for lack of trust in the certification
668 system. The higher the level of trust in the certification, the lower the need for trust in
669 food actors (i.e. growers, retailers). Conversely, the lower the level of trust in the system,
670 the higher the need for trust in food actors (Figure 2). Participants who have very little
671 trust in food certification, simply do not choose to buy certified food because certificates
672 do not guarantee adherence to food standards. Due to their distrust in food certification,
673 these participants require a comparatively high level of concrete, interpersonal trust —
674 mainly by buying vegetables from someone they personally know or from someone who
675 is recommended by someone they trust.

676 **Figure 2. The two-dimensional trust model: The need to trust food actors as a function**
 677 **of trust in certifications**



678

679 Third, this study sheds further light on the influence of consumer's judgement of food
 680 chain governance on their perception of certified food. In this context, food chain
 681 governance refers to the way retailers and growers collaborate to deliver safe food. From
 682 a supply chain perspective, certification can be used as a quality standard assurance or
 683 formal governance mechanism to link growers with retailers and consumers through
 684 contract farming (Narrod et al., 2009; Ogutu, Ochieng, & Qaim, 2020; Snider, Gutiérrez,
 685 Sibelet, & Faure, 2017; Tran & Goto, 2019; Veldstra et al., 2014). Nonetheless, without
 686 other mechanisms, certification, designed by the food system that lack of competence
 687 and honesty, is perceived as having a negative impact on consumer trust. In this study,
 688 participants perceived certification as a mechanism for retailers to bypass their
 689 responsibility of food quality monitoring to third-party certification agencies. Instead,
 690 other informal mechanisms, such as retailers providing technical training and support
 691 increased consumer trust in certified food. Our findings showed that participants have

692 more trust in retailers who (i) own farms and directly supply vegetables to consumers and
693 (ii) have different modes of coordination with farmers, such as technical support, rather
694 than just certification-based contracts.

695 **6. Practical implications**

696 This section discusses the practical application of our findings. We propose two food chain
697 governance frameworks to increase perceived competence and honesty of the food
698 system and its individual actors, and consequently, work towards increasing trust in food
699 certification and food safety.

700 Policymakers and the food industry have implemented a number of approaches to
701 address the problem of distrust in food. In terms of competence of the food system, these
702 include production methods, regulations, and standards, legitimising regulation and
703 assurance agencies, increasing auditing and inspecting production (Albersmeier et al.,
704 2009; Deaton, 2004; Hatanaka et al., 2005). In terms of the honesty of the food system,
705 these include increasing traceability and transparency of food production (Hall, 2010) and
706 increasing consumer knowledge of food production through communications (Vega-
707 Zamora, Torres-Ruiz, & Parras-Rosa, 2019). However, these solutions are system-oriented
708 and, therefore, do not acknowledge the role of individual food actors, particularly
709 retailers, in reconnecting consumers with the food production system. To date, few
710 studies consider solutions directly reconnecting consumers with producers to increase
711 trust, for example, through local food networks such as farmers markets and community
712 gardens (Meyer et al., 2012). Yet 'face-to-face' encounters between consumers and
713 producers might not be feasible because of geographic, time, and financial constraints.
714 Therefore, we suggest different solutions emphasising the role of retailers to reconnect
715 consumers in the production of food.

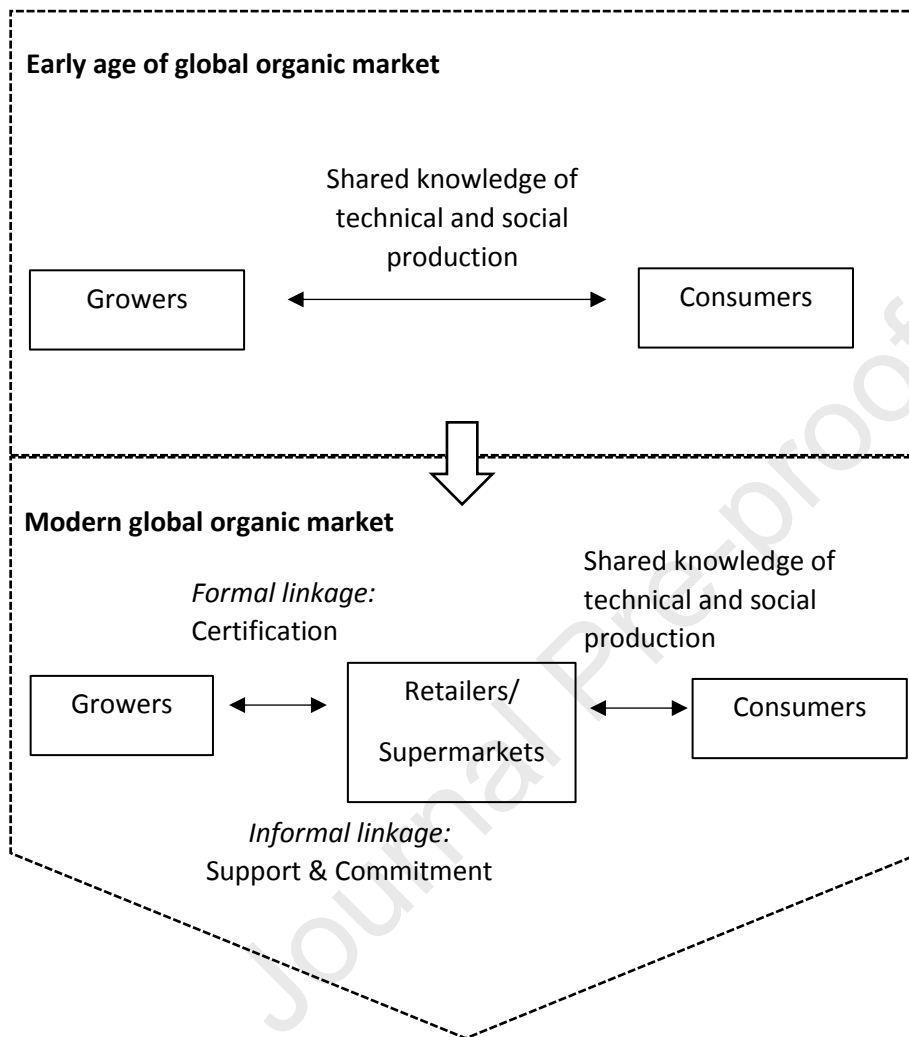
716 Based on the findings, this study proposes two frameworks to increase trust in food by
717 reconnecting consumers with food production. The first model focuses on coordination
718 between retailers and farmers. Retailers providing technical training and other support
719 signal the capacity of retailers in quality control and monitoring rather than simply
720 enacting purely certification-based mechanisms. Prior research has documented benefits

721 of governance tools such as direct selling and contract farming to growers and retailers,
722 thus focusing on the supply side of the food system (Hughes & Isengildina-Massa, 2015;
723 Ochieng, Veettil, & Qaim, 2017; Ogutu et al., 2020; Tran & Goto, 2019). However, little is
724 known about if and how consumers' perceptions of food chain structure and governance
725 influence their trust in food actors. This study provides empirical evidence for the role of
726 food governance mechanisms in building consumers' trust through signalling indicators
727 of competence and honesty of retailers. Retailers providing technical support to farmers
728 not only display their commitment and trust in their relationship with their suppliers i.e.
729 growers, but they also signal to consumers their involvement in production and their
730 commitment to quality control. Consumers' main concern is the uncertain ability of food
731 systems to deliver safe food. Therefore, consumers demand quality monitoring from
732 other food actors. Personal trust-based direct commercial relationships between
733 producers and consumers in the early age of organic markets have switched to intuitional
734 trust-based relationships provided by food regulation and certifications (Guthman, 2002;
735 Ochieng et al., 2017; Tovar, Martin, Cruz, & Mutersbaugh, 2005). However, if there is
736 insufficient institutional trust in the system, there is another approach to instil trust in
737 certified organic food, through retailers/supermarkets (Figure 3).

738

739 **Figure 3. Transitioning from personal trust based to institutional trust-based**
740 **commercial relations**

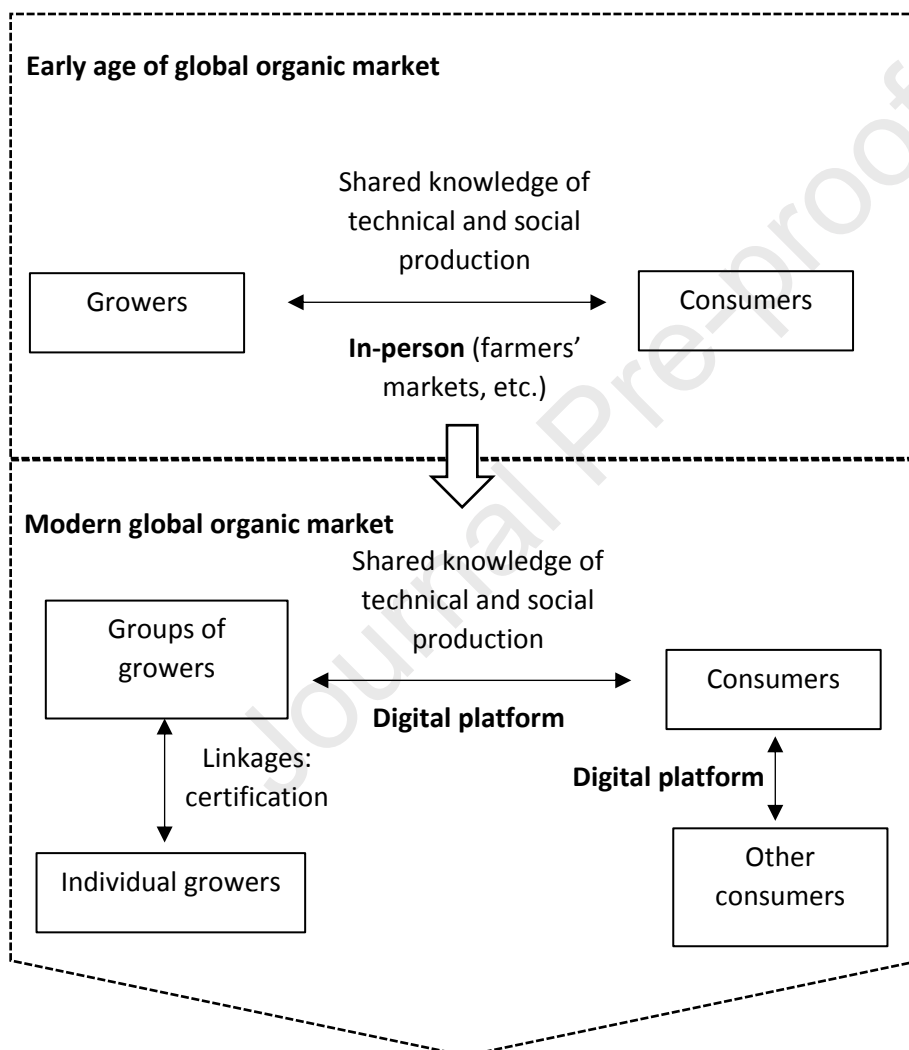
741



742 The second model is proposed in the context where consumers prefer to have direct
 743 linkage with growers, emphasising the 'direct interaction' feature between them. While
 744 real-life, face-to-face encounters between these two groups may be difficult to achieve
 745 due to geographic and time constraints, virtual encounters are completely feasible thanks
 746 to digital platforms (Figure 4).

747 **Figure 4. From farm to table digital platform**

748



749

750 This model can retain local network-based trust combined with digital platforms to help
 751 farmers, especially smallholder farmers, to direct sell vegetables to consumers. These
 752 farmers can be organised into groups to get group certifications, such as PGS, and directly
 753 market themselves to consumers. Preferably, target consumers are located within
 754 geographically local food networks to take advantage of local food knowledge, logistics,

755 and transportation. Digital platforms can be used to connect a group of consumers who
756 share a similar interest in certified food. Perceived honesty would increase through
757 regular interactions and perceived competence is guaranteed through 'direct' control of
758 the system or interpersonal trust. Digital platforms provide farmers with an opportunity
759 to virtually communicate their farming practices and how they control vegetable quality,
760 which is likely to help build trust in the absence of 'face-to face' encounters (Dixon &
761 Banwell, 2004; Giddens, 1990). The proposed model can compensate for a lack of
762 institutional trust in certified food systems by building trust through virtually
763 reconnecting consumers with the food network.

764 These two models will work particularly well with appropriate support structures, such as
765 incentive schemes to encourage retailers to not only actively participate in the monitoring
766 of farming activities but also to provide technical support, training, and other support to
767 farmers. Communicating the connection between retailers and farmers to consumers will
768 be essential to reap the benefits of such actions.

769 Such support mechanisms will enhance the supply of and the demand for certified food.
770 From a supply perspective, such actions tighten retailers' coordination with farmers,
771 enhancing trust in and commitment to follow production standards. From a demand and
772 marketing perspective, such actions increase the indicators of trustworthiness of
773 retailers, both competence and honesty, and thus trust in certified food. We envisage this
774 would convince consumers that retailers have control over food quality through close
775 coordination and monitoring between retailers and farmers. Meanwhile, direct selling of
776 vegetables from farmer groups to consumers through digital platforms could be another
777 potential mechanism if appropriate management tools are utilised. This could reconnect
778 consumers with food production through regular, direct interaction with producers. The
779 key to developing successful online 'farm to table' platforms is to bring a business mindset
780 which will help master aspects such as marketing, logistics, management and e-
781 commerce of such platforms.

782 **7. Conclusion**

783 This study employs the social theory of trust to explore variations in consumer trust in
784 three different certification schemes. The study is novel in providing an understanding of
785 how consumers form their judgements of certification schemes based on indicators of
786 competence and honesty of food actors, i.e., growers and retailers, and food chain

787 governance. Findings show the variation in perception of different certifications even
788 from a comparable group of participants and this variation drives their food choices.
789 Consumers largely rely on retailers and their coordination with farmers to build trust in
790 certified food. Two food governance frameworks are proposed to reconnect consumers
791 with food production. We propose that these frameworks will increase indicators of
792 trustworthiness of the food system and its individual actors, and consequently
793 consumers' trust in food and food certifications.

794

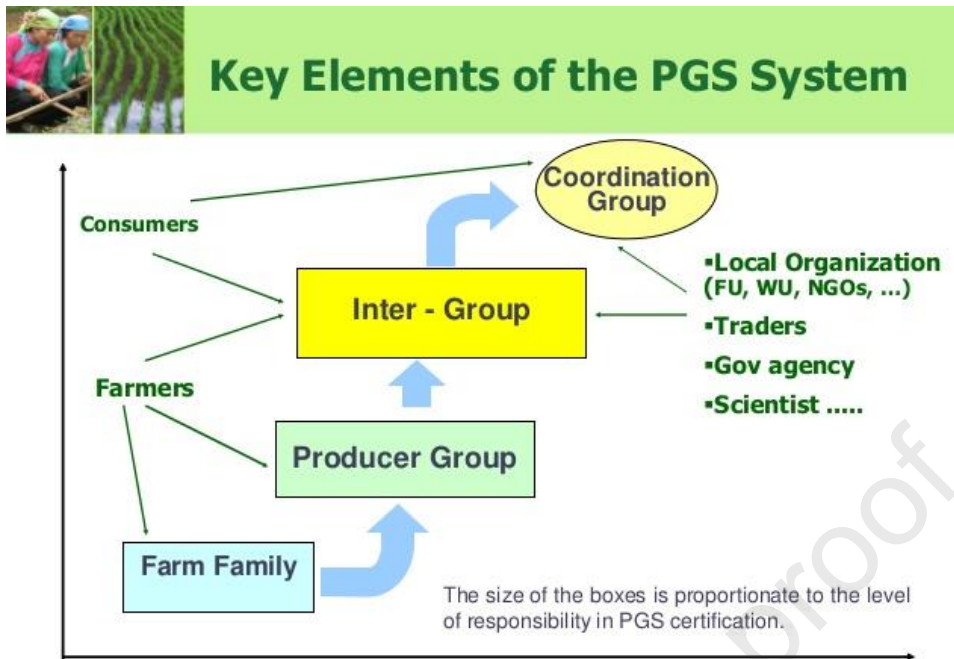
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796 **Appendix 1: List of questions asked in survey questionnaire**

Questions	Type	Response
Q1. Select types of vegetables that you have seen or heard about	Multiple choices	List different labels of organic vegetables and non-organic vegetables available in the market
Q2. Select types of vegetables that you have bought	Multiple choices	List different labels of organic vegetables and non-organic vegetables available in the market
Q3. Select types of vegetables that you often buy	Multiple choices	(i) conventional vegetables, (ii) safe vegetables*, (iii) organic vegetables, (iv) vegetables planted by someone you know
Q4. Select venues that you often shop	Multiple choices	(i) supermarkets, (ii) special/safe food stores, (iii) wet markets, (iv) others (open field)
Q5. Would the price of organic vegetables be affordable to you should you choose to buy?	Single choice	Yes/No/Maybe
Q6. Would organic vegetables be accessible to you should you choose to buy?	Single choice	Yes/No/Maybe
Q7. Are you the main shopper for vegetables in your family?	Single choice	Yes/No

797

798 **Appendix 2. Key elements of the Vietnamese Participatory Guarantee System (PGS)**

799 FU: Farmer Union, WU: Women Union, NGOs: Non-Governmental Organisations

800 Source: <http://www.fao.org/asiapacific/events/detail-events/en/c/1262/>

801

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Ethical statement

Ethics approval was granted by the University of Auckland Human Participants Ethics Committee (Reference number 020657).

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