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High Value Nutrition: Country of Origin Literature Review

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Client Report
2016

Lincoln University
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Suggested citation for this report:

Miller, Sini, Tim Driver, Caroline Saunders and Paul Dalziel (2016). *High Value Nutrition: Country of Origin Literature Review*. AERU Client Report, prepared for the High Value Nutrition National Science Challenge. Lincoln University: Agribusiness and Economics Research Unit.

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ISSN 1170-7682 (Print)
ISSN 2230-3197 (Online)
ISBN 978-1-877519-41-3

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Chapter 1
Introduction

This report focuses on country-of-origin (COO) literature in the context of high value nutrition (HVN) or health enhancing food products. The COO is an important consideration in these and other products as it can serve as a proxy for other attributes such as food safety or quality, and hence influence consumer preferences and purchase choices. The concept of COO and its effect on consumer product evaluations and purchase choices is not new; it is an extensively researched topic in both food and non-food commodities (Durand 2016, Samiee 2010).

1.1 Definition of country-of-origin

A recent New Zealand study analysing 26 product categories sold in supermarkets found that 47 per cent of brands used the phrase "Made in New Zealand" (Insch and Florek 2009). This emphasises the importance of the COO concept. Nagashima (1970 p. 68) was an early study that defined the phrase "Made in __" as an appeal to "the picture, the reputation, the stereotype that businessmen and consumers attach to products of a specific country". Zhang (1996, p. 51) similarly defines COO as "information pertaining to where a product is made" while more recently Durand (2016) defines COO as an "objective location" that nevertheless may have *subjective effects*.

COO can therefore be a complex concept with different facets or levels of origin, such as origin of production, origin of manufacturing, origin of design, origin of ingredients or origin of brand (Baker and Ballington 2002, Hamzaoui-Essoussi et al. 2011, Insch and Florek 2009, Josiassen and Assaf 2010, Samiee 2010, Wong et al. 2008). Thus the phrase "Made in New Zealand" is not necessarily the same as "New Zealand made"; the former can be considered a type of "hybrid product" with potentially multiple origins (Wong et al. 2008), while the latter suggests the whole production process would have been in New Zealand with domestic protocols.

In the literature, a product's COO is also defined as a type of credence attribute (or credence cue), which is an attribute that cannot be immediately observed by consumers when inspecting the products unless presented (e.g. with a label) in the product (Ehmke 2006, Moser et al. 2011, Wirth et al. 2011, Zanoli et al. 2013). An alternative term, extrinsic cue in products, is also used in the literature (Baba et al. 2016, Bernués et al. 2012, 2003, Bloemer et al. 2009, Veale and Quester 2008, Verbeke and Roosen 2009).

In increasingly globalised markets, COO can create a competitive advantage that cannot be easily copied (Baker and Ballington 2002, FutureBrand, n.d.). It is therefore a potential tool for product differentiation (Carter et al. 2006), including for the purpose to compete in domestic markets against imported products (Puduri et al. 2009).

1.2 Definition of health enhancing foods

A key element in this report is HVN and health enhancing foods, also referred to as functional foods. Functional foods, although not having a universal definition, are generally considered to be food products that include elements providing health, wellbeing or performance benefits

beyond ordinary nutritional benefits (Kotilainen et al. 2006, Teravanat et al. 2006). The term was first used by Japanese scientists in 1980 as a result of research on food nutritional, sensory and fortification connections (Arai et al. 2001, Bigliardi and Galati 2013, Dobrenova et al. 2015, Shimizu 2003, Siró et al. 2008). Often defined as *Foods for Specified Health Use* (FOSHU) in Japan, functional foods include three elements: nutritional, sensory and tertiary (psychological) functions (Arai et al. 2001, Shimizu 2003, Siró et al. 2008). In some countries functional foods have also been used as a means to deal with costs of health care (Ares et al. 2008). By EU regulations, the health and nutritional claims in food products should be objective and based on scientific evidence to reduce possibility of consumer delusion (Hartmann et al. 2008). Similar guidelines toward product health claim criteria exists in New Zealand (FSANZ 2013).

Functional foods included vitamin or mineral fortified foods and foods that are considered to aid health promotion or disease prevention (Baba et al. 2016, Teratanavat and Hooker 2006). Examples of specific products with added health benefits or functional ingredients include breakfast cereals, sport drinks, fish, dairy products (Williams et al. 2006), vitamin or Omega-3 enriched oil products (Hu et al. 2006, Ding et al. 2015), wine (Yoo et al. 2013), cholesterol reducing spreads and high-in fibre grains (Kotilainen et al. 2016). Besides the health benefits for humans, these functional foods provide a potential for economic opportunities as typically they are attached with price premiums compared to standard product alternatives.

1.3 Country-of-origin labelling and reputation

One way to communicate COO to consumers is labelling. Country-of-origin labelling (COOL) offers the potential to provide product cues that can directly impact on consumers' product evaluations (Verbeke and Ward 2006). For consumers, COOL can be: an important indicator for a product's quality, safety and source (the distance); a tool to inform and protect consumers; or simply something they have a right to know (Kuchler et al. 2010, Przyrembel 2004). Hence, "COOL makes it relatively easy for consumers to know where most of their food products are produced" (Xie et al. 2016 p. 182).

While COOL is mandatory in some countries for food products (United States of America, for example), it is voluntary in others (Insch and Jackson 2014, CCNZ 2012, Samiee 2010), and can vary by country or by product. In New Zealand, for example, COOL is mostly voluntary, with some exceptions such as wine sold in supermarkets (Insch and Florek 2009) and always subject to labelling principles for consumer goods outlined in the Fair Trading Act (1986):

> "No person shall, in trade, in connection with the supply or possible supply of goods or services or with the promotion by any means of the supply or use of goods or services, make a false or misleading representation concerning the place of origin of goods".

This applies to domestically-produced goods and prohibits misleading product origin claims on a product. To illustrate, it would be considered misleading to include a food product label stating that it was "made in New Zealand" if it used mostly imported ingredients (CCNZ 2012). Similarly, under the Customs and Excise Act (1996) it is prohibited to import goods into New Zealand which are falsely or misleadingly labelled. More generally, food labelling standards in relation to COO are regulated by the New Zealand Food Standards Authority (NZFSA) as outlined by the Australia New Zealand Food Standards Code (ANZFSC). In alignment with this code, suppliers may choose to display COOL on their products, but if displayed the label must be accurate (FSANZ 2016).

In contrast, COOL is mandatory in Australia for most food products (there are limited exceptions, such as food sold for immediate consumption) including both packaged and unpackaged food products. The same code (ANZFSC) is used as in New Zealand. Retailers must present the relevant COOL on their products stating where a particular product is made, produced or grown, as well as manufactured or packaged. It must show if a product has used local or imported ingredients, or a mixture of both (FSANZ 2016).

In China, COOL is mandatory under the Regulations of the People's Republic of China on the Origin of Import and Export Goods (2004). These regulations include under the China-New Zealand Free Trade Agreement that exporters must provide a Certificate of Origin outlining production, transport and other details for acceptance through Chinese customs (NZCS 2015).

In the United States, COOL in agricultural commodities was introduced in the Farm Bill 2002, firstly as a voluntary and then as a mandatory programme. This was introduced in a step-by-step implementation process on different agricultural commodities (more details can be found in Awada and Yiannaka 2012, Joseph et al. 2014, Lewis and Grebitus 2016, Umberger et al. 2003, and in Section 3.2.1 in this report).

In Europe food product labelling is defined by European Parliament directives including inter-related rules helping consumer decision making and facilitating free trade (Przyrembel 2004). Unlike some nutrition labelling for food products, there was previously no requirements for COOL by the European Community (Przyrembel 2004). This has changed more recently, and according to the Regulation EU No 1169/2011 origin labelling has become progressively mandatory for some food products such as fresh meat (European Commission, 2016).

1.3.1 Country reputation and rankings

There are a number of international organisations and studies which assess the image and reputation of country, potentially relevant when looking at COO in the high value nutrition context. A number of selected international country listings are reported in Table 1-1.

First, the global Reputation Institute attempts to rank countries by reputation, combining factors such as gross domestic product, "good feelings" about the country, admiration and respect, trust, physical beauty, sport and entertainment achievements, product and service quality, transparency and corruption, and desire to visit, live or invest in the country (Forbes 2015, Reputation Institute 2016). This illustrates the concept of reputation is not a one-dimensional concept. Based on this listing, New Zealand was among the top ten most reputable countries in 2015, after Canada, four European countries and neighbouring Australia.

Another way to rank countries focuses on nation branding. FutureBrand (n.d.), for example, ranked 118 countries in their Country Brand Index on the understanding that links such as COO and country branding have become important, particular due to their influence on consumer choice making. The top ten countries were similar in the reputation ranking, Japan being the first and New Zealand being eleventh. Key findings from that study included the suggestions that: country awareness may increase positive perceptions but not necessarily influence the strength of branding; nation branding is linked to a number of familiar consumer brands spread over multiple product categories; and nation branding can benefit from associations with technology, innovation and sustainability advances as well as a country's influential cities (FutureBrand n.d.).

A third international ranking measure evaluates a country's contribution to the greater good of humanity and wellbeing based on the range of data sources, such as the United Nations (The Good Country n.d). Based on this listing, New Zealand is ranked tenth in the world. Indeed New Zealand was listed relatively highly in all three reports cited in this section.

Table 1-1: Country Rankings by Reputation, Branding and Good Country

	Most reputable countries (RepTrak®) 2015	Country Brand Index 2014/15	Good Country Index Year not available
	2015	2014/2015	n/a
1	Canada	Japan	Sweden
2	Norway	Switzerland	Denmark
3	Sweden	Germany	Netherlands
4	Switzerland	Sweden	United Kingdom
5	Australia	Canada	Germany
6	Finland	Norway	Finland
7	New Zealand	United States	Canada
8	Denmark	Australia	Franca
9	Netherlands	Denmark	Austria
10	Belgium	Austria	New Zealand
11		New Zealand	

Sources: FutureBrand (n.d.), Reputation Institute (2016), The Good Country (n.d)

1.4 Scope of the report

This report focuses on the country-of-origin literature in the context of high value nutrition or health enhancing food products in order to facilitate and guide the development of an upcoming survey on HVN. The objective of this review is to answer to the following research question:

> ***What is important in COO effects on high value nutrition or health claims of different food and beverage products?***

As the COO literature is substantial, this review concentrates on COO effects that are specific to food products from a consumer perspective. It is generally restricted to papers published in the last ten years. Thus, non-food product relates studies were not considered unless seminal or otherwise highly relevant. Also related to COO, the pure region of origin studies about Protected Designation of Origin and Protected Geographical Indications, although common in Europe, were considered outside of scope since they are more specific relating to, for example, authenticity (Verbeke and Roosen 2009) and property rights (Menapace et al. 2011). Finally, the conclusions focus on the connection between COO and HVN to facilitate the next stage of this research programme.

This report is structured as follows. Chapter 2 describes the method used in the literature search, which is then reviewed in Chapter 3, focusing on domestic food preferences, country reputations and nutritional related aspects. Findings from the literature are synthesised in the concluding Chapter 4.

Chapter 2
Method

Overall, there is a considerable literature on COO research; Durand (2016 p. 50), for example, observed that "As a preliminary step, a query on the term country of origin effect in Google Scholar resulted in over 2,000,000 hits." The first instances of academic work testing COO effects on product success occurred in the early 1960s (Verlegh and Steenkamp 1999) including Schooler's (1965) seminal paper looking at consumer evaluations on country appearance in juice and fabric product labels in Central America. Looking at long-term trends, peaks in the academic COO literature occurred due to different trade agreements (e.g. North American Free Trade Agreement 1994; World Trade Organisation [WTO]), growth of European Union (2004-2007), changes in markets (e.g. Internet use), as well as the development of new brands, food products or policies (Durand et al. 2016, Lusk and Briggeman 2009, Pharr 2005).

An online search of this literature was carried out by the research team in May 2016. This process covered three databases: Google Scholar, AgEcon literature and the Lincoln University Research Archive (LURA). Google Scholar was selected as a broad overview to cover papers across most academic publishers.[1] The AgEcon database was included to cover literature specific to agricultural and applied economics, including working papers and conference papers.[2] The LURA was included in order to cover the local (i.e. to Lincoln University) research outputs on this topic.[3]

As an initial query, the generic term of *"country of origin"* was searched in all three databases. This returned a large number of results: 238 results in AgEcon, 182 results in LURA and 346,000 results (of which 158,000 were dated from year 2000 or later) in Google Scholar. Consequently, a variety of accompanying keywords were introduced into the search process (alongside "country of origin") to focus the literature search on the context for this study.

The review used a two-step process (following Feldmann and Hamm 2015). In the first step, the research team searched a large list of keywords associated with country-of-origin term across all three online databases. For each database we used the same, or slightly modified, key words to match with the database functions.[4] The inclusion criteria in this process were:

- Articles had to focus on country-of-origin;
- Peer-reviewed and published scientific articles (some conference papers from AgEcon were included if highly relevant and no published version was found); and
- Were available and written in English

[1] Google Scholar: *Search, Search Tips: Coverage*. Retrieved 23 May 2016 from https://scholar.google.co.nz/intl/en/scholar/help.html.

[2] About EgEcon Search. Retrieved 23 May 2016 from http://ageconsearch.umn.edu/.

[3] Accessed at http://researcharchive.lincoln.ac.nz.

[4] For example, Google Scholar search allows the use of "+" search functions whereas LURA works with subject filters.

This produced a list of 257 abstracts to be considered in the review. Duplicates, such as multiple journal papers from one unique research project, were excluded. In the second stage, these abstracts were reviewed for relevance. Based on expert judgement, the inclusion criteria were as follows:

- Published in the last ten years (unless identified as a seminal paper);
- Analysis at a country, not company, level;
- Relevance to food products (including wine products if health claims included); and
- Not a duplicate of an already reported project.

This resulted in 134 articles. In order to focus on the project's high value nutrition context, the research team then searched for the keywords "health" and "claims" across the abstracts and titles. Based on this search, this left 35 articles, of which 21 were considered most *relevant* to HVN (Appendix A). The other twelve articles were useful as background literature of the COO effect on food and beverage commodities.

Chapter 3
Generic Consumer Perceptions and Preferences

It is generally understood that COO can impact on consumer food and beverage product choices. Empirical evidence has been found to suggest that COO is the most important factor in purchasing decision in some contexts (Claret et al. 2012, Ding et al. 2015, Font i Furnols et al. 2011, Zanoli et al. 2013), but not in others (Ares and Gambaro 2007, Gellynck et al. 2006, Loureiro and Umberger 2007, Moser et al. 2012, Samiee 2011, Tait et al. 2016, Wirth et al. 2011, Van Loo et al. 2010). The cases where COO was not the most important can often be explained by what it is compared against (Schnettler et al. 2013). In a Belgium study, for example, COO was less important when compared against meat freshness, type and price (Gellynck et al. 2006). In another example, food product familiarity (covering *Made in Uruguay*) was the least important factor, whereas the most important factors were "feeling good and safety", followed by products' "sensory appeal" and "health and nutrition" factors (Ares and Gambaro 2007). In a cross-country study, Tait et al. (2016) found that consumers in the United Kingdom, China and India were willing to pay higher premiums for certified food safety compared to the COO information. Likewise, a range of examples from the United States in different contexts have found that COO is ranked in importance only after driving factors such as: food safety in beef steak (Loureiro and Umberger 2007); taste and appearance, health and nutrition, safety and price of chicken (Van Loo et al. 2010); and quality, taste and price of apples (Wirth et al. 2011). In a European context, Verbeke and Roosen (2009) summarised the findings from four separate studies where the amount of attention paid to COO information on labels fell behind the expiry-date and quality marks. In Spain, Baba et al. (2016) found that origin of beef was important but to a lesser extent than added health benefits. An Indian study found that the origin of bananas (within country) was preferred over no information, yet this was lower in importance compared to pesticide use, producer characteristics, environmental impact and price (Moser et al. 2012). Finally, a study from China found that certified organic and non-genetically modified (GM) attributes were valued higher than domestic origin in soybean milk (Zheng et al. 2013).

Some studies have explored under what circumstances the importance of COO (relative to other attributes) would change. Van Loo et al. (2010), for example, found that the importance of COO as a quality indicator increased when the consumer's organic products purchasing habits were taken into account. Verbeke and Roosen (2009) summarised that people who are health oriented could potentially pay more attention to COO on product labels and that this level of interest can change as a result of information campaigns. Tonsor (2011) found that willingness to pay (WTP) for imported products increased slightly when food safety and quality were included alongside the pork origin and welfare attributes.

COO effects in consumer product evaluations can have different cognitive or emotional processes (e.g. Chattalas et al. 2008, Dobrenova et al. 2015, Verlegh and Steenkamp 1999, Xie et al. 2016). First, a halo effect means that COO can lead to indirect connotations in a consumer's mind about product elements while additional product information is potentially overlooked (Ahmed et al. 2004, Bloemer et al. 2009, Josiassen et al. 2008, Balabanis and

Diamantopoulos 2011). Another possible effect is known as 'summary construct', which, in contrast to the halo effect, is typical with more familiar goods and is a more direct cognitive process considering COO as a summarised cue developed over time (Ahmed et al. 2004, Balabanis and Diamantopoulos 2011, Bloemer et al. 2009).

Other additional effects has been discussed in the literature. The first possibility is that COO interacts with other simultaneous mechanisms such as additional information (Bloemer et al. 2009). A second possibility is a "product attribute effect" where the presence of COO encourages consumers to think more extensively about other product attributes (Ashill and Sinha 2004, Bloemer et al. (2009). Finally, different authors (e.g. Ahmed et al. 2004, Arnoult et al. 2010, Ashill and Sinha 2004, Baker and Ballington 2002, Chattalas et al. 2008) have noted that these, and other, COO-specific associations can matter in different ways to different consumers, such as providing a quality or overall perception, being an independent attribute (one of many), or providing simplifying heuristics to mitigate information overload or unfamiliarity in a product.

None of this guarantees, however, that consumers always pay attention to COO, nutritional or other label information in products (Ares et al. 2008, Insch and Jackson 2014, Kaye-Blake et al. 2009, Puduri et al. 2009), or that they would understand the notion of product origin. In a study of specialising on region of origin, for example, almost every second participant understood that "origin" referred to country instead of region, which could be attributed to the country-level promotional campaigns, quality-related associations or unfamiliarity with the product (Henchion and McIntyre 2000). In another example, Kaye-Blake et al. (2009) used a choice experiment application in a potato context to demonstrate that the attention paid by consumers to COO was between the attention paid to price (the most) and colour (the least).

3.1 Previous reviews and work

Some previous studies have attempted to review and synthesise COO effects from the consumer point of view. An early meta-analysis of COO by Verlegh and Steenkamp (1999) focused on three separate but interrelated aspects in consumer behaviour broader than a food context. These aspects were *cognitive* (e.g. as a quality cue), *affective* (symbolic or emotional values) and *normative* (social and personal values; such as a norm to buy domestic). Their meta-analysis included published academic articles from 1980 to 1996. Overall, they found that COO is a substantial factor in product evaluations, being significantly larger in more developed countries compared to less developed ones. They also found that the COO effect was not affected if the manufacturing country differed from the COO (which could have been due to the lack of awareness of the place of manufacturing). Their suggestions for future research emphasised the importance of not treating COO as a quality cue only, but including a broader range of connotations.

Ehmke (2006) noted that a number of COO studies have been conducted in particular response to the introduction of COO legislation as well as food safety scares (e.g. Bovine Spongiform Encephalopathy [BSE]). The majority of these studies were from Western countries. More specifically, this meta-analysis covered 13 consumer willingness to pay studies for domestic products. It found that many attributes can impact on the WTP of domestic COO, such as location (e.g. whether the study is from the United States or Northern Europe) but not type of food product. It also discussed the use of COO as a proxy for traceability and that COO may become important when the number of other attributes increase.

Cicia and Colantuoni (2010) focused on the WTP for meat traceability as a synthesis of 23 stated and revealed preference studies from 2000 to 2008, both being common benefit estimation methods. In the reviewed studies, *some* included COO as one of the attributes declared in product labels. The results showed that COO was not a statistically significant variable in their multiple regression model to explain impacts on WTP for traceability (the dependent variable). Possible reasons for this result were suggested, including the observation that the inclusion of "on-farm traceability" and "animal welfare" variables could have compensated for the origin importance.

Also looking at impacts on consumer WTP, Moser et al. (2011) reviewed and summarised key factors for fresh and fruit products. Their review included 24 quantitative economic valuation studies and another 16 studies from USA, Canada, Argentina, Australia, Europe, China and Thailand (from 1998-2007). Of these, eight considered the COO attribute which was overall found either as important or somewhat important, where the importance were product specific. Looking at the identified key factors, in all countries considered, health factor was a strong determinant on relevancy on purchase choices and WTP, whereas COO was located in the mid-range of importance. In USA, Canada, Argentina and Australia, origin was less determinant on relevancy and had a lower importance than price on WTP; whereas in Europe, origin was more important than price. In China and Thailand COO was not investigated.

The first part of the review by Schnettler et al. (2013) concerned the impact of COO on product assessments (e.g. as a quality cue or as a risk reduction cue). Although COO is important in these choices, it is not necessarily the strongest factor and may vary by country, product and familiarity, and consumer type – thus no generalisation is possible in that sense. This also links to ethnocentrism since people often prefer not only domestic products, but also products from countries at a similar level of development. The second part focused specifically on ethnocentrism, including emotional elements. Again, this varies by country and important factors might include loyalty or relation to traditional products, amongst others. Specific to ethnocentrism, the review encompassed the Consumer Ethnocentric Tendencies Scale (CETSCALE) developed by Shimp and Sharma (1987) that is used by many (e.g. Lewis and Grebitus 2016). The last part of the review looked at COO and ethnocentrism in Chile as a special case. This included a review of a number of studies from 2004 to 2011. These case studies demonstrate that while a majority of consumers preferred domestic alternatives, it does not always mean a positive premium; and COO is not always the most important factor in product evaluations (which is consistent with the first part of the review). They also found that it is possible to identify some consumer segments with varying preferences on COO, based on gender, age, lifestyle or area of residence amongst others. Overall this review highlights how COO is a concept that cannot be easily generalised in a food product context since many other factors have an influence.

Most recently, Feldmann and Hamm (2015) reviewed 73 articles (from 2000 to 2014) on consumer demand and attitudes to local food. Their review covered a mix of qualitative (e.g. in-depth interviews or focus groups) and quantitative analysis (e.g. stated preference methods or auction experiments); around half of the studies were not product specific while specified products (e.g., apple, milk or meat) were more commonly used in quantitative studies. In this context, COO was considered in relation to distances (e.g. food miles) but this analysis found no relation between COO and consumers acceptance on the distance of local food, a results which could be more context specific.

3.1.1 Previous work by Agribusiness and Economics Research Unit (AERU)

Prior to this literature review report, AERU has completed some research related to the country of origin of food products. In order to better understand the New Zealand venison industry, for example, Shadbolt et al. (2008) conducted a set of interviews with key industry people and collected secondary data from various sources. In this framework, COO was identified as a critical success factor, with a clear emphasis on COOL on products from the venison industry. In contrast, the COO was not included in the identified key success factors in a similar exercise for dairy products (Conforte et al. 2008).

Saunders et al. (2010) concentrated on consumers concerns in relation to sustainability of agricultural exports from New Zealand. The review covered a number of issues that may impact on export products, including concerns was about a product's origin, since buying local has been a growing trend in the United Kingdom (one of New Zealand's historical export markets), Australia and USA. In USA, specific attention is needed due to the mandatory COOL required on products from New Zealand.

A choice experiment (CE) survey targeting overseas consumers in China, India and UK was conducted in 2012 (Saunders et al. 2013, Tait et al. 2016). This involved asking people to choose between two hypothetical lamb or dairy alternatives, or to opt-out, which were described as a bundle of COO, food safety, animal welfare and different environmental impacts in the meat production process. The general attitudinal questions revealed that the COO was considered more important by Chinese consumers (very important by 54%) than the Indian (40%) and UK (29%) participants, which may be due to experienced food safety scares in developing countries and potentially safer supply chain in the developed countries like UK. The WTP estimation revealed that while consumers in all countries were willing to pay relatively more for certified food safety, the WTP for origin was also positive for domestic products in UK, and imported NZ products. Other than that, foreign origins were not preferred by consumers apart from China.

Building on this work, another consumer survey was conducted in UK, China, India, Indonesia, Japan and Korea (Saunders et al. 2015). This survey was part of a programme "Maximising Export Returns (MER)", funded by the Ministry of Business, Innovation and Employment (MBIE) over three years. The first part of the survey assessed the importance of key attributes in food products, and expanded the previous work on UK, China and India. The survey also added questions on how consumers use new and developing 'smart' technologies in relation to food information and purchase intentions. The sample size for this pilot survey was 100 per each country. In this context, COO was explored in relation to food safety and health food. In particular, the latter results show that the Indonesian participants rated COO as a factor for health foods highest of all countries (75% considered this as important or very important: Korea 71%, Japan 70%, and UK less than 50%).

Based on the pilot study (Saunders et al. 2015), a large scale survey of the same MER project, with 1,000 participants/country, was conducted in China, India, Indonesia, Japan and UK (Guenther et al. 2015, Driver et al. 2015). In regards to COO, the survey respondents were asked, for instance, about the importance of different produce attributes, certification schemes were as well as how they rank products from different countries. Firstly, the top five attributes in all five countries included quality, food safety and nutritional values whereas other attributes were more diverse across countries (Guenther et al. 2015 p. 9 Table 3-1). In China, the other

top attributes were environmental condition and animal health; in India and Indonesia these were environmental condition and health enhancing foods; in Japan these were price and environmental condition; and in UK these included price and animal welfare. Of these, the most important sub-attributes of human health enhancing foods included digestive health, energy and endurance, weight management (Guenther et al. 2015). Yet, overall, these preferences differ across while in generally, the importance for all sub-attributes was higher for respondents from developing (China, India and Indonesia). Regards to different product certification schemes, Chinese participants rated globally recognised certification as the most important, while UK, Indian and Indonesian ranked their own country's government certification highest. Different to these, was the most important authentication type. In contrast, Japanese participants stated that country of origin as was the most important verification type. Finally, looking at how consumers ranked different COO in food and beverage products, consumers in UK, Japan and Indian preferred domestic products in contrast to Chinese and Indonesian who ranked New Zealand first (Guenther et al. 2015 p. 34 Table 5-2).

3.2 Local and domestic food preferences

A common finding in the COO literature concludes that consumers around the world tend to prefer domestic food over imported alternatives, or in some cases local food over non-local or imported food products (Bernués et al. 2012, Denver and Jensen 2014, Font i Furnols et al. 2011, Mennecke et al. 2009, Onozaka and Thilmany Mcfadden 2011, Revoredo-Giha and Fletcher 2005, Xie et al. 2013). The local products can be preferred because of the perceptions of quality, safety, freshness, taste, personal health, environmental quality, ethical values and to support the local community (Feldmann and Hamm 2015, Mäkiniemi et al. 2011, Wirth et al. 2011).

Sometime local food is confounded with COO depending how "local is local", for example, in some instances locality could be considered as within country or nearby countries whereas in other instances this is limited to the region (Wirth et al. 2011). Preferences toward locality can also vary significantly across consumer segments, as found in the cross-country fruit study by Onwezen and Bartels (2011). In this study, "*Naturally conscious consumers*" ranked local origin relatively high alongside the (most) important product's naturalness, healthiness and safety. Other identified segments were labelled as "*Average Joe*" and "*Health-orientated consumer*".

Another common finding is that consumers in developed countries typically prefer products, after domestic alternatives, from those countries that similar in the level of development or which are geographically close (Font i Furnols et al. 2011, Pouta et al. 2010, Schnettler et al. 2013, Tonsor 2011) or which have not suffered from food safety incidents (Lee et al. 2014). On the other hand, in some developing countries, imported products might be preferred over domestic due to quality and safety factors (see e.g. Jeong et al. 2012, Wu et al. 2014) or consumer ethnic backgrounds (Puduri et al. 2010) while others have found that negative preferences towards imported products may differ across source countries (Onozaka and Thilmany Mcfadden 2011, Ortega et al. 2014, Xie et al. 2016).

Furthermore, consumers can make stronger place-based associations for particular products and therefore prefer to purchase products with specific origin associations (Chryssochoidis et al. 2007). This includes cases where imported products are preferred due to a perception of product authenticity, such as Heineken beer brewed in Holland (Josiassen and Assaf 2010) or Lindt

chocolate from Switzerland (Miranda and Kónya 2006). Finally, in some instances strong preferences towards own county can be seen negative, or "xenophobic", and consumers value opportunities for freedom of choice (Baker and Ballington 2002).

3.2.1 A case study: Origin labelling in the United States

United States of America (USA) is an example of a country where several studies have discussed mandatory COOL in agricultural commodities. In 2002, USA introduced COOL for some agricultural commodities such as beef, lamb, pork, poultry and fish (Hanselka et al. 2004, Lewis and Grebitus 2016, Loureiro and Umberger 2005, Taylor and Tonsor 2013, Umberger et al. 2003). The first product category to implement COOL was seafood in 2005 (Joseph et al. 2014, Kuhcler et al. 2010) and by 2009 this convention had been implement widely with the U.S. Department of Agriculture (USDA) labelling rules (Awada and Yiannaka 2012, Taylor and Tonsor 2013, Xie et al. 2016). The underlying idea for mandatory COOL was that "U.S. consumers deserve full information about the foods that they purchase and eat" (Meyer 2008 p. 39). In 2013, however, USA policy in regards to COOL was partially changed due to violations on WTO agreement on Trade Barriers (cattle and hogs products) (Pouliot and Sumner 2014).

Prior to the implementation process of COOL, a number of bodies elaborated challenges involved in the move towards mandatory COOL, such as who would be responsible for the implementation costs, record keeping and processes in practice, which could be burdensome, and whether there would be consumer support for such labelling (Anderson and Capps 2004, Awada and Yiannaka 2012, Hanselka et al. 2004, Taylor and Tonsor 2013). Furthermore, it was considered that these challenges could be product specific (Meyer 2008) hence not directly generalizable.

In the early days there was only limited information and evidence of benefits and any consumer willingness to pay premiums for labelling (Anderson and Capps 2004, Loureiro and Umberger 2005). For example, Umberger et al. (2003) conducted a WTP survey amongst 237 US consumers from Chigaco and Denver. Their results show that majority of the participants (over 70%) were willing to pay a premium of between 11 and 24 per cent for domestic products mostly reasoned by higher food safety and quality standards. Similar evidence for positive WTP for premiums on domestic origin labels in products have been found across different food product categories, such as beef steaks (Abidoye et al. 2011, Lim et al. 2013, 2014, Loureiro and Umberger 2007), pork products (Tonsor 2011), seafood (Ortega et al. 2014) and vegetables (Ehmke et al. 2008, Xie et al. 2016).

A survey about important factors and WTP for beef products by Thilmany et al. (2006) revealed different beef consumer segments motivated by four identified factors, the most important of which related to production methods (e.g. use of antibiotics, hormones and environmental friendliness). Two noteworthy consumer segments relevant to this review were "*Quality seekers*" (12.5% of sample) and "*Health and Natural consumers*" (13%). Quality Seekers were willing to pay premiums for natural and local beef steaks; and this segment could be characterised as young male with higher income and potentially shopping at a farmers markets. Health and Natural Consumers, in contrast, valued alternative production methods; these consumers could be characterised as young female who are likely to shop in health stores and have experience of buying natural beef products. Hence this study illustrated heterogeneity amongst the US consumers when looking at general concept in food choices, such as importance of quality which is often related to origin.

In two more recent studies, consumer attitudes toward strong COOL preferences appear to be less obvious. Taylor and Tonsor (2013), for example, used market (scanner) data of grocery-store sales to find that between 2007 and 2011 there was no evidence of changes in demand after implementing the mandatory COOL. The other study, by Lewis and Grebitus (2016), looked at a product which yet is to be regulated with mandatory COOL. It explored *why* consumers want COOL in sugar and soft drinks, which currently is not required in the USA. Using the CETSCALE of consumer ethnocentrism, the study identified two factors: "*Buy American*" and "*No Imports Allowed*". Overall, 64 per cent and 70 per cent of respondents agreed or strongly agreed with having COOL in soft drinks and sugar, respectively. The strongest predictor to support the labelling was based on ethnocentrism (the Buy American factor).

Finally, while the literature has demonstrated some consumer support for COOL in USA, the more recent literature has also elaborated another issue with COOL in relation to international relations. The mandatory COOL can be seen as an issue for countries exporting commodities to the USA, such as New Zealand, and hence is a form of non-tariff trade barriers (Carter 2014, Puduri et al. 2009, Umberger et al. 2003). Pouliot and Sumner (2014) in their study show the changes applied based on the violations to WTO agreements could impact on COOL quantity and prices depending on the supply elasticity of the exporting country (Canada in that study).

3.2.2 Willingness to pay for domestic product alternatives

One approach to look at consumer preferences towards COO is assessment of their willingness to pay since, in principle, if you are willing to pay for something you would also prefer it. A common method is choice experiment (CE), which has been applied in food contexts in both developed and developing countries (Miller et al. 2014). One advantage of the choice experiment method is its capability to explore consumer preferences for attributes that may not currently exists in products or markets, such as functional foods (Teratanavat and Hooker 2006).

Several CE studies have demonstrated that consumers are willing to pay premiums for domestic attributes over imported in a variety of contexts. The premium values below (see Appendix B) are based on a standardised approach to facilitate comparison between products and countries. In this standardisation, the estimated marginal WTP is divided by the reported base price in each study (e.g. actual retail price or average of the applied price vector). The premiums for domestic products in different contexts range from 5 per cent to over 200 per cent as follows:

- 5% premium for domestic lamb in UK (Tait et al. 2016)
- 27% premium for salmon in Japan (Uchida et al. (2014)
- 29% for functional canola oil in Canada (Ding et al. 2015)
- 32% to 118% for safe and environmental friendly seafood (shrimps) in USA (Ortega et al. 2014)
- 34% premium for Ginseng products in Canada (Lilavanichakul, and Boecker 2013).
- 56% for Soybean milk with domestic ingredients in China (Zheng et al. 2013)
- 50% to 130% for domestic onions in different countries (Ehmke et al. 2008)
- 96% premium for pork product in Denmark (Mørkbak et al. 2010)
- 95% for domestic beef in Korea (Lee et al. 2014)
- 96% to 145% for domestic pork or chicken in Denmark (Mørkbak et al. 2011)

- 115% to 208% for domestic beef in Japan, in particular if tested for BSE-food safety (Aizaki et al. 2012)
- 206% premium for beef steak in Italy (Zanoli et al. 2013)

In addition, there is evidence that consumers across Europe, USA and Japan are willing to pay higher premiums for domestic apples, and some consumers prefer imported apples from New Zealand over Chinese apples (Xie et al. 2013). Meanwhile, another European cross-country study failed to find statistically significant WTP estimates for COO when traded off with label information of certified hormone free, GM-free and type of certification entities (Tonsor et al. 2005).

Other studies have found that consumers are *not* willing to pay a premium, or require a discount, for imported products in other contexts such as: imported potatoes in New Zealand (Kaye-Blake et al. 2009); imported dairy product, lamb, chicken, strawberries and apples in the Western and North European countries (Arnoult et al. 2010, Pouta et al. 2010, Saunders et al. 2013, Tait et al. 2016, Xie et al. 2013); imported beef steak, pork and broccoli in USA (Abidoye et al. 2011, Lim et al. 2014, Tonsor 2011, Xie et al. 2016); and imported dairy products, beef, oil and apples in India, Japan and Korea (Chung et al. 2009, Hu et al. 2006, Saunders et al. 2013, Xie et al. 2013).

In contrast, some exceptions with higher WTP for imported products, mostly by consumers from developing countries, include imported infant formula in China (Wu et al. 2014) and imported dairy and lamb in China and India (Saunders et al. 2013, Tait et al. 2016). On the other hand, there is a possibility that consumers in developed countries could prefer imported alternatives in order to support developing countries (Onozaka and Thilmany Mcfadden 2011).

Some of the reviewed studies using CE have shown that people are willing to pay more for local products (Arnoult et al. 2010, Baba et al. 2016, Zanoli et al. 2013), up to 200 to 300 per cent premiums for local apples in Denmark (Denver and Jensen 2014). Another study showed that local brands and national level origins could be joint-valued by consumers (Lilavanichakul and Boecker 2013).

A limited number of these CE studies also included nutritional, functional food, or health related functions in food as one of the product attributes to consider; hence it was considered in product choice trade-offs alongside COO and price. These studies have found mixed evidence on positive preferences or WTP toward both origin information and Omega-3 enriched meat or vegetables (Baba et al. 2016, Kaye-Blake et al. (2009), fortified oil products of domestic origin (Hu et al. 2006). Other studies found that compared to other effects, such as COO, an attribute promoting consumer health or added functional ingredients was valued relatively low (Pouta et al. 2010, Hu et al. 2006). Finally, the estimated WTP for COO and health benefits attributes can vary across countries and products (e.g. Zanoli et al. 2013), place of purchase (Chung et al. 2009) or by respondent's place of residence (e.g. urban vs. rural), age or occupation (Chung et al. 2009, Ding et al. 2015). These are often context specific but worth exploring for better understanding of preferences.

Overall, strong preferences for domestic products in these experiments can be considered an indication of bias favouring the respondent's home country rather than being against specific importing countries (Balabanis and Diamantopoulos 2004). Some cases of such biases can also be due to product availability, such as entry barriers (Kawashima and Sari 2010) or information

provided in the study (Mørkbak et al. 2011), or can be subject to consumer characteristics (Lopez and Matschke 2012). Although evidence exits on these WTP, more research would be valuable on particular issues such as if consumers would be willing to pay for *mandatory* COOL (Joseph et al. 2014), including in relation to high value nutrition attributes.

3.3 Nation branding, country images and reputation issues

A country's image and reputation can be considered to be multi-dimensional rather than a single factor construct. Hence, different elements in combination could be used to assess a country's reputation over time (Forbes 2015, FutureBrand n.d., Reputation Institute 2016, The Good Country n.d.).

Country of origin has also been utilised in product marketing campaigns. This can include "country-branding" or "nation-branding" aimed, for example, to encourage consumers to purchase more products from a particular country (Jansen 2008). Country or nation-branding often uses symbols, colours, flags and other strongly-related associations with the qualities of a product with a particular country of origin (Baker and Ballington 2002). An example of such a campaign is 'Australian Made', initiated by the Advance Australia Company in 1986. The campaign urged Australian consumers to purchase a higher proportion of Australia-made products, resulting in reduced need to buy imported products, leading to higher domestic economic gains, as well as emphasising that the quality of Australia-made products matched those that were imported (Baker and Ballington 2002). Similar nation branding campaigns have been launched in other countries, such as 'Cool Britannia', 'Enterprise Ireland', 'Incredible India', 'Italian Made', 'Malaysia: Truly Asia', 'The New Zealand Way', 'Singapore: Synergy for Success' and 'Thailand: Land of Diversity and Refinement' (listed in Chattalas et al. 2008). Specific to New Zealand, many factors have contributed to its historical country image. In particular, perceptions of a nation with a relatively low incidence of pathogenic diseases in meat products, good animal welfare practices, high quality products, as well astogether with "clean and green" branding, have assisted the image of New Zealand lamb exports to be preferred in many markets (Clemens and Babcock 2004). These images, however, may change over time. Another example of New Zealand branding is "The New Zealand story" which is a collaborative initiative by a range of industries and services to communicate unique attributes and their value in order to distinguish New Zealand exports in different markets (The New Zealand Story Group 2015).

These campaigns have emerged partially as a response to consumer perceptions of a nation's image in relation to its consumer goods. The presentation of a positive image of a country may improve attitudes towards the target country, potentially facilitating a higher degree of consumption of products from that country (Chattalas et al. 2008). Nevertheless, the concept of nation branding can be contested and considered as a good idea by some but not others (Kaefer 2014). One potential challenge can be dealing with the country related associations that already exist in consumers' minds (Luomala 2007), in particular if these are negative.

3.3.1 Reputation issues

Countries can be associated with different influences on people's COO perceptions, such as country stereotypes (Baker and Ballington 2002, Chattalas et al. 2008, Luomala 2007, Nagashima 1970), country image (Chan 2000), similarity of cultural values (Ahmed et al. 2004, Ozretic-Dosen et al. 2007), country reputation (Amujo and Otubanjo 2012, Hong and Kang

2006, Taghouti et al. 2015) or familiarity of product brands (Phau and Suntornnond 2006). Stereotypes could involve national characteristics, socio-political circumstances, and history and traditions (Baker and Ballington 2002). Some cases these country-specific reputation or images are sometimes positive and sometimes negative.

Examples of positive country associations include environmental quality or eco-friendliness (Chan 2000, Clemens and Babcock 2004, Ortega et al. 2014). In contrast, negative examples of nation images include military, socio-political, or economic actions or incidents (Hong and Kang 2006) such as holocaust, genocide and torture camps (Amujo and Otubanjo 2012) or animosity from historical and other relations (Anime et al. 2008, Lewis and Grebitus 2016). Some examples of implications of such negative socio-political factors are outlined by Verlegh and Steenkamp (1999), including Jewish consumers' refusal to purchase German products following the Holocaust, Australian consumers' refusal to purchase French products in response to Pacific islands nuclear testing, or Chinese consumers' reduced willingness to purchase Japanese products due to historic political rivalries between the two nations.

Another type of negative associations is natural disasters which can impact on tourism and other industries (Amujo and Otubanjo 2012). A recent example is the tsunami followed-on the earthquake in Fukushima (Japan) in 2011. This disaster had some significant negative short-term impacts on agriculture and the food industry in Japan, including lost sales due to contaminated products as well as "harmful rumours"; judged by expert panels these impacts could potentially continue long-term within the affected region but not necessarily nationwide (Bachev and Ito 2014).

Other examples include different global food safety scares (Kawashima and Sari 2010, Van Loo et al. 2010, Verbeke and Ward 2006) for example due agro-terrorism (Puduri et al. 2010), animal diseases (Aizaki et al. 2012) or food frauds (Barnett et al. 2016, Sentandre and Sentandreu 2014, Spink and Moyer 2011). Examples of food safety scares include BSE-infection on beef cattle (Aizaki et al. 2012); safety scares on infant milk powder due to melamine incident in China 2008 (Wu et al. 2014); the botulism scare in 2013 on New Zealand dairy exports (Stojkov et al. 2016); and the 'horsemeat scandal' in 2013 where beef products were substituted with horsemeat and then mislabelled in Europe (Barnett et al. 2016). Such incidents can impact on consumers' trust and preferences, as well as on exporting and importing processes.

Responses to these incidences include the food protection concepts that can be used to deal with food frauds at different levels, from unintentional quality issues to intentional acts (e.g. malicious tampering or terrorism) to cause risk for public health (Spink and Moyer 2011). In this context, COO is related via mislabelling or misrepresentation, and generally could be motivated due to cost-avoidance and/or aiming increased profits, also known as "technical food fraud risk" (Spink and Moyer 2011), such as the above mentioned 'horsemeat scandal'.

These types of market disturbances and negative reputation issues could impact adversely on consumer product choices as well as on the image of importing countries, and recovery may take a long time (Aizaki et al. 2012) or it may not be straightforward to improve the country's image after an incident due to multiple factors involved (Amujo and Otubanjo 2012). It may also be overly simplifying to say some country has either a good or a bad image; it may rather be multidimensional (Anime 2008).

3.4 COO and links to other attributes ("generic")

Besides cognitive and emotional factors, home country bias, and reputation issues, the question of how consumers think about country-of-origin also includes associations with other product attributes, such as quality, food safety and nutritional or health values. These associations are discussed in this section, including the COO links to other product attributes, in particular looking at what has been done in relation to food health values, benefits and claims.

3.4.1 Quality

COO is often considered to provide a cue of a product's quality, either overall or in some specific element (Ahmed et al. 2004, Claret et al. 2012, Dentoni et al. 2009, Loureiro and Umberger 2007, Insch et al. 2015, Umberger et al. 2003). A study by Insch et al. (2015), for example, which involved 16 industry informants in New Zealand, supported this concept as the informants indicated that agri-food products with New Zealand COO information leads to a premium in markets in relation to quality aspects valued by consumers.

Internationally, Berry et al. (2015), in two separate experiments, explored direct and indirect effects across COOL, taste and freshness attributes, and purchase intentions for a meat products from USA and Mexico. In the first experiment, where participants (US consumers) had been given limited information on the production systems, COOL was found to influence the inference on taste and freshness of product, and consequently, on purchase intentions. In the second experiment while the US products were initially preferred by the participants, when information of meat processing systems (i.e., being similar for US and Mexican products) was provided, then the differences in attribute-related inferences, as well as purchase intentions between the products from different countries, diminished.

A possible reason for why quality and taste on meat products vary by COO could be due to different animal feed sources (Chung et al, 2009, Baba et al. 2016). Bernués et al. (2003) studied cross-country effects in Europe (UK, Italy, France, Scotland and Spain) and found that in regards to beef and lamb products, the two most important items in terms of high quality products were animal feeding and origin (80-86% of respondents rated these as important or very important). Other important attributes were animal welfare, environmentally friendly production and storage; less important were the processing/packaging and type of animal breed. These items were reduced into three factors that consumers may associate with quality beef and lamb products: ethical issues (i.e., environment and animal welfare), origin and animal feeding. Furthermore, a cluster analysis identified four consumer types with more alike attitudes where preferences for the factors differ by consumer type. For example, one segment considered the nutritional/health aspects important but not necessarily origin. Finally, no relationship between meat origin and safety was observed as the origin seemed to be linked to 'locality'. Other studies from different cultural contexts have also demonstrated the importance of origin's locality alongside organic, certification, and COO attributes (e.g. Moser et al. 2011).

3.4.2 Food safety

Consumers are concerned about food safety due to several global food safety scares. Although COO may not be the strongest indicator of a product's food safety compared to other food safety measures (as reviewed in Awada and Yiannaka 2012), it is well established that COO can have strong links to the perceived product safety by consumers (Cicia et al. 2011, Insch et

al. 2015, Kawashima and Sari 2010, Loureiro and Umberger 2007, Ortega et al. 2014, Umberger et al. 2003).

Berry et al. (2015), for example, included food safety as a COO related attribute in their study of meat and poultry products. A pilot study of meat safety perceptions in products from ten countries was conducted amongst 50 US consumers; this revealed that meat from USA, Canada or New Zealand were perceived safest, in that order, compared to other countries (i.e., Mexico, Brazil, Nicaragua, Russia, India, Thailand, and China). The two experiments in Berry et al. (2015) study shed more light on these findings comparing meat products from USA and Mexico. These findings were similar to the quality indicators (see Section 3.4.1), although in the first experiment, the impacts of safety on the purchase intentions was relatively stronger. In the second experiment, with more information, the differences in safety perceptions and purchase intentions between the two COO were again reduced.

Lim et al. (2014) found that consumers' perceived food safety and level of risk differ across countries which impact on their WTP for beef product attributes. In this USA based survey of beef products, a large proportion of participants perceived the level of food safety higher in domestic (approximately 60% of respondents considered safety as high/very high) than foreign origins (Australian and Canada; approximately 30% of respondents considered safety as high/very high) but also that a substantial proportion of people had no opinion related to food safety perception for the foreign countries (35%, 31% and 11% had no opinion in regards to risk level of Australia, Canada and USA, respectively). Furthermore COOL was influenced by the consumers' attitudes on risk taking and their perceptions of a higher food safety of the country. The WTP for imported beef was higher for those who were less risk averse and for those whose level of perceived safety in COO was higher; the WTP for imported beef was if there was a distrust on a country's capability to produce a safe product and if respondents had no opinion in regards to the level of safety by COO.

Lewis and Grebitus (2016) explored US consumers attitudes toward introducing mandatory COOL in sugar and soft drinks where, besides ethnocentrism (see Section 3.2.1), they explored how consumers' self-stated confidence in food safety (i.e., food safety optimism and pessimism) relates to preference for COOL. The study found that if consumers, in general, were more pessimistic than optimistic about food safety, they were more likely to support COOL, and vice versa. As cited in Berry et al. (2015), US consumers tend to trust the domestic health and safety standards and regulation more than those from other countries.

Puduri et al. (2009) explored preferences of 321 New Jersey residents' preferences on COOL for fresh produce in USA where there is a chance of food safety risks, for example via agri-terrorism. Overall, 83 per cent of the respondents indicated a desire to have COO information on these products. Consumers who were more likely to favour COO information included those who would spend an extra dollar on fresh produces, had children under 17, had a college degree and/or were homemakers, latter typically spending more time in preparing meals and doing grocery shopping. In contrast, consumers who purchase fresh produce from farmers markets (potentially assumed to be of local origin), had a larger family unit size and/or lived in urban area, and were less likely to look into the COO information. Hence the overall support on COOL can be impacted, positively or negatively, by lifestyle and situation as well as by how likely consumers are to seek this information for their purchasing decisions.

3.4.3 Environmental quality

COO can be related to the perceived environmental friendliness of a product based on the image of its source country. Consider New Zealand for example; it is possible that the COO image of its agricultural products could be linked to "a clean and green" image, including elements of good animal welfare and products which are considered contributing to a healthy and nutritious diet (Clemens and Babcock 2004).

In other contexts, Chan (2000) surveyed Chinese consumers and found that if the source country (USA or Japan) is considered "eco-friendly", then the product claims in general are more effective. More recently, Cicia et al. (2011) found that, in general, German consumers ranked hedonistic attributes (e.g. taste and appearance) and the price of tomato products as the most desirable qualities and higher than COO. However, tomatoes from different origins were associated with different values; for example, countries considered as *superior* for quality products were associated with environmental friendliness (via an organic production attribute). This was the case for the domestic country and for Italian products, but necessarily for products originating from Turkey, Spain, France and Holland.

Similarly, a study from USA showed that environmental values were related to COO since consumers were willing to pay for eco-claims only on products from their home country (Ortega et al. 2014). Another US-based study, in the context of tomatoes and apples, explored the relationship between carbon footprint labelling and origin (local and imported products) and found that this interaction effect was negative; implying that the local product's higher carbon footprint might be less preferred over the imported products with a higher carbon footprint (Onozaka and Thilmany Mcfadden 2011). In contrast, the same study found complementary effects with a Fair Trade label and an origin attribute; that is a positive interaction effect with Fair Trade and both origins (local and imported).

Other relationships between environmental impacts and COO have been found in Italy where consumers were willing to pay for lower food miles (that is, the domestic option was preferred over imported) (Zanoli et al. 2013) which relates to the environment via energy use. In another context, informing respondents on environmental benefits, due to biotechnical advances and reduced need for use of pesticides, increased consumers WTP on domestic as well as imported apples (from New Zealand) in Belgium, France, Spain, Japan and USA (Xie et al. 2013). Similar results were also found in this study when they informed respondents about consumer (i.e. longer freshness) and producer benefits (i.e. reduced risk of plant diseases) as a result of using biotechnology.

3.4.4 Organic products

Often related to environmental values (e.g. Cicia et al. 2011), an organic attribute could be associated with COO, in particular with fresh produce. Wirth et al. (2011), for example, explored trade-offs across high quality, local (vs. imported) and organic apples in a US based conjoint study. An online survey included 1,218 completed responses where the results showed strong preferences for quality followed by price and local origin; in contrast organic production did not have a significant effect. With this unexpected result toward organic attribute, it is possible that future research could consider familiarity with different credence attributes, as suggested by others (e.g. Ares and Gambaro 2007, Dentoni et al. 2009).

Xie et al. (2016), in USA, estimated consumer WTP when the COO and organic labels co-exist on vegetables. They found that while consumers preferred domestic produce and were willing to pay premiums for this, having a USDA organic standard mitigated the negative preferences toward imported products. Similar results were found by (Onozaka and Thilmany Mcfadden 2011). Furthermore, providing extra information of certification schemes like USDA could increase WTP for products from some countries but not necessarily others (Xie et al. 2016). Lastly, higher frequency of purchase habits of organic products have also been found to increase the importance of COO in relation to other possible product attributes in the context of organic chicken (Van Loo et al. 2010).

3.4.5 Traceability

A related concept to COO is traceability which could potentially serve as a link between COO and other credence attributes or type of verification (e.g. Loureiro and Umberger 2007). A study by van Rijswijk et al. (2008) looked at linkages on food products and ingredients traceability. European consumers (40 each from Germany, Italy and Spain; and another 43 from France) were asked to rate the importance of different traceability related concepts. The authors' analysis, using hierarchical value maps, suggested that links could exist between traceability and the health, quality and food safety factors, where origin was considered as way to verify or guarantee these for products. Consistent with other evidence on the heterogeneity of consumer preferences and attitudes in the COO literature, the study observed some noticeable cross-country differences. For example, quality was the important element for all consumers, particularly for the French and Spanish where the latter linked quality to knowledge of origin, price and reputation. Next, considering origin, French consumers associated this information with support for local regions whereas German consumers considered traceability to origin in relation to environmental impacts via transportation distances. Looking at health values specifically, German and Italian consumers considered traceability as an important link between production method (e.g. organic methods) and having natural or healthy products. Italian and Spanish consumers also linked health with a concept of controlled production, which was then associated with trust and confidence. Finally, Italians rated security (i.e. traceability and recall option) as the highest importance of all. Another study from Canada has shown that COO was valued highest of three alternative traceability attributes (vs. brand and internal tag) (Lilavanichakul and Boecker 2013). Overall, these results indicate that there are potentially multiple important factors to consider when thinking of tracing products back to their origin.

3.4.6 Traditional cultures

Country of origin can be linked to traditional cultures in relation to food production. One study looked at how such traditional food products could maintain and expand their market shares by different innovative approaches. In order to do this Guerrero et al. (2009) conducted an array of focus groups (total of 95 consumers) across Europe (Belgium France, Italy, Norway, Poland and Spain) and identified four dimensions related to traditional food products where traditional food products were defined in the context of group of people, location, time, culture and production methods. The identified dimensions were: habits and natural (where naturalness was associated with healthiness etc.); origin and locality (as these cannot be exported); processing and elaboration (a possible difference between traditional and non-traditional products); and sensory properties (e.g. taste) for an easy identification of products' authenticity.

3.4.7 Health standards and high value nutrition

In an early study, Prescott et al. (2002) looked at cross-cultural differences in Japan, Taiwan, Malaysia and New Zealand in regards to consumer food choices. They applied a Food Choice Questionnaire (FCQ) including 36 statements (Steptoe et al. 1995) and a Food Neophobia Scale (FNS) including 10 statements looking at the acceptance of novel foods (Pliner and Hobdem 1992). While the FCQ was included in all surveys, the FNS was used only in Japan, Taiwan and New Zealand. It should also be noted that the survey recruitment and modes varied across countries reflecting the cultural differences; the New Zealand participants answered the survey using computer aided facilities, for example, but the Japanese and Taiwanese respondents received a survey booklet and Malaysian participants were interviewed face-to-face. In the analysis, the FCQ scale was reduced to nine factors, one being about ethical concerns (covering "comes from countries I approve of politically", clearly marked COO and environmentally friendly packaging), three relating to health and nutrition factors, and the remaining five being about convenience, mood, sensory, price and familiarity.

The results showed that based on FCQ, the top three factors in New Zealand were health, price and sensory appeal (e.g. smell and taste). The top three factors in other countries were health and natural contents (in all), price (in Japan) and weight control (in Taiwan and Malaysia). Familiarity was considered uniformly the least important factor. In regards to COO, ethical concerns were rated of low importance in all but Japan. The results of the FNS were translated to scores from 10 (low) to 70 (high). The higher is the neophobia, the less likely people are to accept novel foods. These ratings differed across countries, being highest in New Zealand (average 41.5 score) followed by Taiwan and Japan. Older people had higher scores compared to younger consumers. Overall, this early study indicated a possibility of cross-cultural differences when looking at food choices or the willingness to try novel food items.

In another cross-country study from Europe (Bernués et al. 2003), the survey respondents were asked to rate the importance of seven extrinsic quality attributes in beef and lamb products (origin, environmentally friendliness, animal welfare, animal feeding, animal breed, processing and packaging, and storage), as well as different purchasing motives (nutrition/health, food safety, knowledge of preparation and label/brand cues). Overall, the two most important items in terms of high quality products for both products were animal feeding and origin with over 80 per cent of respondents rated these as important or very important. Other important attributes were animal welfare, environmentally friendly production and storage, and less so the processing/packaging and animal breed. Cross-country differences involved for example that in Spain, animal feeding was more important than origin. These results were combined into three key factors that consumers associated with quality beef and lamb products: an ethical factor (i.e., environmental friendliness and animal welfare); an origin factor; and an animal feeding factor. In regards to purchasing motives, if a consumer was concerned about the safety and nutritional/health aspects of meat products they also rated many extrinsic quality attributes as highly important apart from the origin. In contrast, those who rated origin of high importance were less motivated by the safety and nutritional/health factors. In addition, no relationship between COO and food safety was established in this study. Thus this study provided contrasting evidence in this beef and lamb context of origin not necessarily being a good proxy for safety and health/nutritious food products; however, the study established that there are differences between consumer within and across countries, which again adds to the evidence of heterogeneous preferences in the COO related literature.

In the context of looking at nutritional label requirements in European Union, Przyrembel (2004 p. 360) identified some potential research questions looking at labelling effectiveness, including consumers' knowledge, understating and trust on food labels and nutritional information as well as do they use the information provided to make healthy choices. These questions could be useful when extended in the health and/or nutritional labels in the COO context.

Although not considering COO directly, Carter et al. (2006) review three case studies from USA and synthesised criteria for successful geographic branding. The first of their case studies, Vidalia label onions from Georgia, was identified as a success story of labelling and product differentiation, supported by controlled supply including elements of: designated growers; established prosecution processes for possible mislabelling incidents; and limited volume on markets. In contrast, the second and third case studies (apples and orange juice) were identified as not successful in their origin labelling due to a lack of supply controls and limited differentiation possibilities with consumers having opportunities to shop around. Hence in order for product origin information to be successful, this needs to be supported by other promotional efforts.

As mentioned earlier, Hu et al. (2006) applied the CE method to explore consumer preferences for domestic oil product in Japan. Functional food claims were included as one of the attributes considered in product choices. The majority of the consumers (approximately 80% of the sample) considered GM-info, product type and oil important in their purchase choices; whereas the domestic COO was considered important by over 70 per cent of respondents and the different functional ingredients (high in oleic acid, vitamin-E and alpha-linoleic acids) by over 60 per cent of respondents. In contrast, over 70 per cent of respondents also considered that food additives, generally, can be risky for human health but not as much as food safety scares, GM-food or use of hormones. Recalling the WTP values (Section 3.2.2) on oil attributes, Japanese consumer overall were willing to pay less for functional ingredients in oil than for domestic products, however, it was the GM-food that consumers preferred least.

In a survey of five food products (honey yoghurt, cream soup, Dulce de leche and marmalade) from Uruguay, Ares and Gambarro (2007) found that health and nutrient content, although less important than factors such as feeling good and food safety, were considered more important by consumers than domestic origin. This implies the potential for a health food markets in Uruguay, where different carriers (i.e. the basic product which is carrier for some functional ingredient) can have different perceived healthiness. Further, consumers had different willingness to try these products. Of the same research Ares et al. (2008), reported that the three most preferred health attributes that consumers would prioritise functional food were: cancer prevention; cardiovascular diseases; and enhancing immune systems. This study also reported the frequency of participants reading label information. The majority of participants (77% of sample) read the "self-life" information always; the COO information always (41%) or sometimes (43%); whereas nutritional information was read less frequently (always by 21% and sometimes by 43%). Therefore, without generalising too much, there is a chance that certain nutritional or health claims could be noticed less regularly by consumers than, for example, COO information.

In the context of a product with negative nutritional associations (candy), Hartmann et al. (2008) carried out a survey in Germany to explore 814 adult consumer perceptions of nutrition and health claims. At a broad level, the claims were important in purchase decisions when approved

(at government level) as these claims could prevent delusions and help build trust. The empirical results also showed that nearly half of the respondents used the NHC claims while almost a third of respondents "forget" the negative nutritional profile due to these claims.

Another European cross-country study explored the role of COO and health aspects linked to traditional food products and innovation (Guerrero et al. 2009). In this context, health was related to interlinked concepts of naturalness, home or farm made and artisan, excluding industrial processing and additives, some of which were more emotional connotations. In a qualitative focus group, the study looked at associations between a traditional food concept and different food related words. Looking specifically at the results on 'origin' and 'health', food origin was mentioned by participants in all countries. While Belgian, Norwegian and Polish consumers related the word 'health' to traditional foods, this was not the case in France. Furthermore, innovation was connected with the idea of nutritional improvements (e.g. reduced salt or added Omega-3) in Spain and Belgium. These qualitative results thus provide further evidence on how associations between COO and HVN in product claims vary by county. Verbeke and Roosen (2009) concluded that a common finding in European studies is that COO was of lower importance compared to expiry-date labelling and quality marks, where the latter could be considered as more clear, uniform and offering familiar information to consumers, but also that people who are health oriented or exposed to promotional campaigns pay more attention to COO on product labels.

In a context of organic production, Van Loo et al. (2010) considered what is important for consumers when purchasing organic chicken. Out of the 14 quality attributes, the top five were taste, appearance, health, price and nutrition. These egoistic type motives were followed by altruistic motives like environment and animal welfare. However, it is not clear what role COO plays on health and nutritional values, other than that organic purchase habit increase the overall importance of COO. Similarly, Moser et al. (2011) conclude their review of fruit and vegetable attributes by noting that locality is an increasing trend alongside typical food safety and nutritional elements. The review suggested that more research should look into the challenges of how origin (here local) attribute interacts with other attributes, in real and hypothetical markets, and how to communicate these to consumers.

In USA, Lusk and Briggeman (2009) asked consumers to rank different attributes when considering their food purchase situations in general. The results showed that when compared to product origin, on average food safety was the driving factor in these situations and significantly higher than the origin information. Similarly, nutrition (i.e. fat, protein and vitamin information), taste and price, as well convenience and appearance, in that order, were significantly higher in importance compared to origin. Some weak or no significant differences were found in terms of other purchase attributes including fairness (parties involved in production), convenience and traditional foods. Furthermore, these relative preferences had significant heterogeneity across the sampled consumers.

Also considering organic production, Pouta et al. (2010) used a choice experiment to explore attribute trade-offs consumers in Finland make when choosing broilers, including product type (type of seasoning), COO, production method and price. Related to nutrition and health, this study looked at preferences across organic, health-oriented (e.g. with nutrients added to animal feed) and animal welfare orientated production which may not have overall great variations in processes but might be valued differently by consumers. Half of the respondents saw attributes

as text only, while others saw logos such as a Finland Swan Flag (a visual COO logo). The results show strong preferences toward domestic products, but also towards Danish broilers, geographically the closest substitute. Of the different production methods, the one specifying consumer-health had a statistically significant and positive effect on product choices; however, this effect was relatively minor compared to organic and enhanced animal welfare. A further analysis show that these preferences can vary by consumer segments, for example, towards the importance of domestic origin. Lastly, the presentation format of the attributes (i.e., text vs. logo) show only differences on the COO information. Thus different visual cues could be considered as important to communicate COO information on labels.

Zou and Hobbs (2010) used a sample of 740 consumers to explore their preferences toward functional food choices and any labelling effect in the context of Omega-3 enriched milk in Canada. The different health claims covered reduced risk or prevention of diseases. The authors separated these claims from visual cues (a red heart symbol) and called them full and partial functional food attributes, respectively. COO was not included in this study as all liquid milk sold in Canada is of domestic origin (Forbes-Brown et al. 2016). These initial results (as acknowledged by the authors) suggest that consumers on average respond positively to health claim labels, as well as the verification entities for these claims. Consumers were willing to pay, on average, between $0.12 and $0.51 premium (or 6%-26% of the conventional milk price) for different health claims, the highest valued being the risk reduction claim. They were also willing to pay for verification where the preferences were mainly indifferent across the types of verification entity. Furthermore, these preferences were found to be consumer group-specific; for example the full health claims seemed to have a higher absolute WTP (over no claim) when compared to the WTP value of the visual claim apart from the minor *Health Claim challengers* group (7% of sample). It was found that higher income and positive attitudes toward functional food in general could potentially increase WTP for the Omega-3 enriched milk over regular milk.

Mäkiniemi et al. (2011) applied a word association task to the context of ethical and unethical food in three European countries. In this experiment, different stimulus words were used to prompt discussion, including "food", "ethical/unethical food", "organic food", "functional food" and "GM food". As a result, examples of ethical food named by the participants were fruit and vegetables as well as milk and fish; different examples occurred in relation to unethical food including fast, sugary and fatty food. Meat products were mentioned in both food types. In regards to product origin, local food was associated with ethical food produced near to the consumer's location whereas unethical food related more to mass production and overseas multinational corporations. In regards to the healthiness concept, this was often associated with ethical food as well as nourishment, wellbeing and weight control. Vice versa, unhealthy foods were also associated with unethical food. Overall, some of the identified categories (e.g. naturality) had varying sub-meanings in different countries. Moreover, COO was considered only relevant in the unethical food and only by some participants (mainly in the Finnish sample). Hence, although standardised scales are useful to provide consensus in relation to the wider literature, specificity should be taken into careful consideration when looking at different sub-attributes in relation to COO and HVN elements.

Changes in the Chinese economy, such as higher incomes and greater urbanisation, has led to changes of dietary patterns but also potential growth in demand for dietary supplements. In this context, Jeong et al. (2012) investigated the role of consumer attitudes, store type importance,

and product familiarity (amongst others) in the context of soy based dietary supplement. Some of the findings include that in relation to health enhancing products, while COO was not significant, retailer type was. Furthermore, distrust and product familiarity were found to be statistically significant covariates which could be due to fake product information being a potential risk in China or that COO information could inform halo effects on product familiarity.

In a context of wine, Yoo et al. (2013) explored Australian and Korean consumer attitudes in relation to perceived healthiness, amongst other factors. In both consumer groups, the top three factors were taste/flavour, value of money and price (Yoo et al. 2013 p. 534 Table 2). The relative importance of health enhancing benefits and COO, on the other hand, varied by country. In Korea, these were ranked fourth and seventh out of eleven, respectively; and in Australia, COO was ranked higher than health enhancement. Thus while COO and healthiness might be important influences on wine choice, they may not be the most important factors.

Comparison of GM products and associated health enhancing (or functional food) benefits were explored in Canada by Ding et al. (2015). In this study, the assessment of consumer preferences for GM-food were linked to consumer trust (in general and in the food system) and health-related beliefs. In the context of canola oil product, the selected attributes covered GM information, Omega-3 content, COO as well as price – all presented as part of product labels. In total 1,009 consumers nationwide answered the online survey. The results indicated strong support for domestic origin which had a WTP of about 40 per cent and 50 per cent higher than WTP for the non-GM and Omega-3 labels, respectively. In fact, over one-third of respondents stated they would buy only Canadian oil. Furthermore, the study found that consumers' stronger health-related beliefs will increase their WTP for functional Omega-3 attribute; and that negative preferences of GM-food can be offset or linked to the level of trust.

A recent study on COO associations with functional foods and ingredients by Dobrenova et al. (2015) explored whether a COO effect exists with purchase intentions in the case of probiotic Shirota-fortified products. Four hypothetical products were presented (verbally) to the survey participants: Shirota-fortified dairy drinks, cheese, and fruit juice and meat products. Two items (familiarity and health perception) were measured on 5-point attitudinal scales; the COO-effects were measures applying a constructed scale measure (perceptions of Japanese functional food products and purchase intentions). The 251 survey participants were from 13 European countries of mainly young educated consumers. The results show that, generally, the ingredient familiarity and purchase intention were relatively low while perception of healthiness and COO of Japan related functional food were higher (measured as mean scores). Positive COO-related effects were found with healthiness evaluations and purchase intentions. In particular, a positive health halo was observed in relation to Japanese products; as the familiarity of Shirota fortification generally was lower. This could have resulted in some respondents made their health inferences based on the COO-cue. The results were consistent with the COO literature that purchase intentions are product or brand related (see, for example, Diamantopoulos et al. 2011) which thus should be considered collectively. Finally, the authors note the possibility that the recent natural disaster in Fukushima could have influenced respondents' food safety related COO perceptions; however this impact was not tested in the survey.

In addition, although not a COO study, Baba et al. (2016) looked at consumer preferences in Spain for meat products with added health benefits (animal diet enriched with n-3 and CLA

fatty acids) alongside other product attributes of local origin, animal diet, fat content and price. As consumer preferences evolve when they experience a product with such added health benefits, this paper analysed changes in consumer preferences before and after a hedonic tasting experience. This was tested by a choice experiment, repeated before and after a blind testing. Furthermore, the sample was split so that half of the respondents received extra information of the health benefits while the others did not. In total 647 participants took part on the experiment where 325 received extra information. The results show firstly, that intitially there were minor information effects observed on the preferences between the two groups. After testing, however, more changes occurred within the uninformed consumers in particular towards the dietary attribute (i.e. beef with enrichements) changing from an insignificant attribute in choices to be the most important one. In the informed group, the dietary enrichments were already significant before the tasting.

Chapter 4
Conclusion

This report has reviewed the country-of-origin literature in the context of high value nutrition and/or health enhancing food products. The COO is an important consideration in these products as it can serve as a proxy for, or to encourage consumers to think about, other product attributes, such as food safety or quality. Hence COO can influence consumer preferences and purchase choices. The main objective of this review was to explore what are identified as important factors in the COO effect on the context of high value nutrition and/or health claims on different food and beverage products.

Overall, the concepts of COO and the COO effect on consumers have been extensively researched topics, as this review has shown, although Dobrenova et al. (2015 p. 315) have recently commented that "although COO-effects have previously been examined in relation to food purchase … these have not yet been explored in the context of functional foods and functional ingredients".

COO itself has been recognised as a complex element in food products with multiple layers and associations, positive and negative, which can be an important part of consumer perceptions. For example, there are range of measures for countries' image or overall reputation (e.g. Most reputable Country, The Good Country Index). In general, New Zealand scores relatively high on these. However, it is not a simple concept to think how to measure the brand, image or reputation of a country and multiple concepts need to be considered. For consumers, the COO is a way of obtaining direct, simplifying or halo effects about product quality, or being simply something they have a right to know. For producers, the COO can potentially provide economic incentives, competitive and branding advantages linked to their country, or enhance trust of other product claims such as health and nutrition.

A common finding from the literature is that there are strong connections between COO and other product attributes. Traditionally, origin is associated with product quality and food safety; however, there is some links with other attributes such as environmental quality, higher standards of animal welfare, or links to traditional food products. Of specific interest, this review found only a limited amount of previous research looking directly at links between COO and health or nutrition. It is possible that added health values, COO and other product attributes also act together in the consumers' product evaluations (i.e. there are important interactive effects).

Among factors influencing consumers' preferences, attitudes and purchase choices, COO plays an important role. However, the evidence is mixed whether COO is the most important factor, or just one of many. The relative importance may also change rankings of attributes under different circumstances such as, a tendency to purchase organic products, the level of health orientation, information campaigns or adding other attributes in the research valuation context. It is thus not feasible to generalise the impact of COO effect across different products, markets and/or consumer types. In order to generate deeper understanding of consumer preferences, contextual factors should be taken into account, including for example consumer socio-economic characteristics, cultural differences, lifestyle, and product and country knowledge

and familiarity. Some attempts to use standardised scales exist in the literature, such as the CETSCALE about consumer ethnocentrism, which could potentially be useful for comparing results over time and in difference contexts.

Questions arise about which high value nutritional elements should be the focus for different products and countries to best capture what the market wants, as well to know where more information and promotional effort would be valuable. In fact, familiarity is often mentioned in the COO literature as an important factor for consumers' product related evaluations. This may be important to consider in different parts of value chains of HVN products from food producers, to exporters and marketers and retailers.

Overall, country-of-origin and high value nutrition product are positive attributes that consumers value, and New Zealand generally has a positive reputation and image overseas. Further research is therefore needed to assess how New Zealand image is associated with nigh value nutrition products.

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Appendix A
Origin studies about "health" or "claim"

Literature search of COO studies with either "health" or "claim" in the abstract and title

Total *	Reference and title	**Keyword search** (reason for exclusion)	**Context**	**Method**	**Sample**
1	Ares and Gambaro (2007). Influence of gender, age and motives underlying food choice on perceived healthiness and willingness to try functional foods.	**Health** √	honey, yogurt, vegetable soup, dulce de leche (a sweetened condensed milk), marmalade; Uruguay	Attitudinal scales and conjoint analysis	200 intercept surveys at shopping areas, universities and public places
2	Ares et al. (2008). Uruguayan consumers' perception of functional foods.	**Health** √ **Claim** √			
	Barnett et al. (2016). Consumers' confidence, reflections and response strategies following the horsemeat incident.	**Claim** √ (about what respondents 'claim' re food safety, not claims)	-	-	-
3	Bernués et al. (2003). Extrinsic attributes of red meat as indicators of quality in Europe: An application for market segmentation.	**Health** √	Meat, in England, Italy, France, Scotland and Spain	Attitudinal statements and PCA	2,288 interviews at the place of purchase
4	Carter et al. (2006). Can country of origin labelling succeed as a marketing tool for produce? Lessons from three case studies.	**Claim** √	Onions, apples, orange juice in USA	Analysing secondary data	-
	Chan (2000). The effectiveness of environmental advertising: the role of claim type and the source country green image.	**Claim** √ (about environmental claims and not health/nutritional claims)	-	-	-
	Cicia et al. (2011). The Impact of Country-of-Origin Information on Consumer Perception of Environment-Friendly characteristics.	**Health** √ (about food safety and environment, and health is just briefly mentioned as an example)	-	-	-
5	Ding et al. (2015). Functional food choices: Impacts of trust and health control beliefs on Canadian consumers' choices of canola oil.	**Health** √	(functional) Canola oil, Canada	CE	1,009 responses (18 years old or older) collected by a marketing firm
	Ding et al. (2012). The influence of attribute cutoffs on consumers' choices of a functional food.	**Health** √ (Duplicate of Ding et al. 2015)	-	-	-
6	Dobrenova et al. (2015). Country-of-origin (COO) effects in the promotion of functional ingredients and functional foods.	**Health** √	Shirota-fortified dairy drinks , cheese, fruit juice and meat products in European Union	Attitudinal scales and purchase intentions	Online survey
7	Guerrero et al. (2009). Consumer-driven definition of traditional food products and innovation in traditional foods. A qualitative cross-cultural study.	**Health** √	Traditional foods, in Belgium, France, Italy, Norway, Poland and Spain	Qualitative study	Total 95 focus group participants

8	Hartmann et al. (2008). Nutrition and health claims – call for and justification of governmental intervention from the consumers' perspective.	**Health** √ **Claim** √	Candy, Germany	Attitudinal scales and willingness to buy	814 interviews at public places
9	Hoffman, R. (2000). Country of origin – a consumer perception perspective of fresh meat.	**Health** √ (about health concerns due to food safety concerns, not HVN; dated study)	-	-	-
	Hu et al. (2006). Japanese consumers' perceptions on and willingness to pay for credence attributes associated with Canola oil.	**Health** √ **Claim** √	Canola oil, Japan	Attitudinal scales and CE	403 households, Tokyo area
	Hui, M.L. and Zhou, L. (2002). Linking product evaluations and purchase intention for country of origin effects.	**Claim** √ (non-food context)	-	-	-
10	Jeong et al. (2012). Impacts of store type importance and country of origin: Exploring the case of dietary supplements in the Chinese market.	**Health** √	Dietary supplements, China	Attitudinal scales and PCA	444 intercept surveys (on-street) in Shanghai
11	Moser et al. (2011). Consumer preferences for fruit and vegetables with credence-based attributes: A review.	**Claim** √	Fruit and vegetables, multi-country	Review	Studies from 1998- 2007
12	Mäkiniemi et al. (2011). Ethical and unethical food. Social representations among Finnish, Danish and Italian students.	**Health** √	Ethical/ unethical food, Finland, Denmark and Italy	Word association task	Total 403 University students during a lecture
	Onozaka and Thilmany Mcfadden (2011). Does local labeling complement or compete with other sustainable labels? A conjoint analysis of direct and joint values for fresh produce claims.	**Claim** √ -excluded since not about HVN	-	-	-
	Onwezen and Bartels (2011). Which perceived characteristics make product innovations appealing to the consumer? A study on the acceptance of fruit innovations using cross-cultural consumer segmentation.	**Health** √ (about respondents country, not product COO)	-	-	-
13	Pouta et al. (2010). Consumer choice of broiler meat: The effects of country of origin and production methods.	**Health** √	Broiler meat, Finland	CE	1,312 respondents, online survey
14	Prescott et al. (2002). Motives for food choice: A comparison of consumers from Japan, Taiwan, Malaysia and New Zealand.	**Health** √ **Claim** √	Food, Japan, Taiwan, Malaysia, NZ	FCQ and FNS	Total 654 responses using mixed data collection modes in urban centres
15	Przyrembel, H. (2004). Food labelling legislation in the EU and consumers information.	**Health** √ **Claim** √	About labelling requirement in EU	Review	-
	Puduri et al. (2009). Country of origin labelling of fresh produce: a consumer preference analysis.	**Health** √ (about food safety risk/scares)	-	-	-
	Spink and Moyer (2011). Defining the public health threat of food fraud.	**Health** √ (health is in relation to food safety risk/scares)	-	-	-

	Teratanavat and Hooker (2006). Consumer valuations and preference heterogeneity for a novel functional food.	**Health** √ (not about COO)	-	-	-
16	Van Loo et al. (2010). Effect of organic poultry purchase frequency on consumer attitudes toward organic poultry meat.	**Health** √	Poultry, United States	Attitudinal scales	979 responses, online survey
17	van Rijswijk et al. (2008). Consumer perceptions of traceability: A cross-national comparison of the associated benefits.	**Health** √	Food traceability in Germany, France, Italy and Spain	Laddering technique	Total 163 interviews recruited by variety of advertising
18	Verbeke and Roosen (2009). Market differentiation potential of country-of-origin, quality and traceability labeling.	**Health** √	Meat and seafood, in Belgium, Denmark, the Netherlands, Poland and Spain	Detailed review	Four studies from 2000-2005, three from Belgium and one cross-country
	Verlegh et al. (2005). Country-of-origin effects in consumer processing of advertising claims.	**Claim** √ (non-food context)	-	-	-
	Williams et al. (2006). Nutrition function, health and related claims on packaged Australian food products – prevalence and compliance with regulations.	**Health** √ **Claim** √ (not about COO)	-	-	-
	Wirth et al. (2011). The relative importance of search versus credence product attributes: Organic and locally grown.	**Health** √ (nutritional value was omitted in the analysis due to the context-specificity)	-	-	-
19	Yoo et al. (2013). A cross-cultural study of wine consumers with respect to health benefits of wine.	**Health** √	Wine, in Australia and Korea	Attitudinal scales	Total 669 responses, online survey
20	Zou and Hobbs (2010). The role of labelling in consumers' functional food choices. Paper prepared for the EAAE/AAEA Seminar	**Health** √ **Claim** √	(functional food) Milk, Canada	CE	740 responses, online survey
Total 34					

*Total included refers to the total number of articles reviewed in Section 3.2 after excluding the non-relevant ones.

CE = Choice Experiment; FCQ = Food Choice Questionnaire; FNS = Food Neophobia Scale; PCA = Principal Component Analysis

Appendix B
Willingness to pay for origin

Willingness to pay for origin attributes in food choice experiments

Reference	Context	WTP premium (%) for the COO attribute	Premium = WTP/base price	Price unit	Other non-price attributes
Abidoye et al. 2011.	Beef steak, USA	20% lower for non-US producer (vs. US)	-2.01/10.00**	US$ per steak	Traceability, Growth promotants, Feed type
Aizaki et al. (2012)	BSE-tested beef, Japan	131% for domestic Wagyu if prefer Wagyu	951/698*	Yen per 100g	
		133% for domestic Wagyu if prefer BSE-tested	927/698*		
		115% for domestic Wagyu if does not prefer Wagyu	800/698*		
		208% for domestic dairy beef if prefer dairy beef	1036/498*		
		213% for domestic dairy beef if prefer BSE-tested	1062/498*		
		162% for domestic dairy beef if does not prefer dairy beef	805/498*		
		264% for Australian beef if prefer Australia	682/258*		
		215% for Australian beef if prefer BSE-tested	554/258*		
		-133% for Australian beef if not prefer Australia	-343/258*		
		197% for US beef if prefer USA	391/198*		
		97% for US beef if prefer BSE-tested	193/198*		
		-411% for US beef if not prefer USA	-814/198*		
	Beef not tested for BSE, Japan	72% for domestic Wagyu if prefer Wagyu	502/698*	Yen per 100g	
		-33% for domestic Wagyu if prefer BSE-tested	-229/698*		
		-19% for domestic Wagyu if does not prefer Wagyu	-130/698*		
		83% for domestic dairy beef if prefer dairy beef	411/498*		
		-73% for domestic dairy beef if prefer BSE-tested	-364/498*		
		-122% for domestic dairy beef if does not prefer dairy beef	-607/498*		
		71% for Australian beef if prefer Australia	184/258*		
		-381% for Australian beef if prefer BSE-tested	-983/258*		

		-231% for Australian beef if not prefer Australia	-595/258*		
		-6% for US beef if prefer USA	-11/198*		
		-415% for US beef if prefer BSE-tested	-821/198*		
		-1066% for US beef if not prefer USA	-2110/198*		
Arnoult et al. (2010)	Lamb, UK	37% Local (vs. Rest of the world)	1.75/4.74*	£ per kg	Seasonality, GM-free, organic
		-22% European Union (vs. Rest of the world)	-1.06/4.74*		
	Strawberries, UK	60% Local (vs. Rest of the world)	1.94/3.24*		
		-34% European Union (vs. Rest of the world)	-1.11/3.24*		
Baba et al. (2016)	Beef, Spain	N/a – no WTP reported for origins	-	-	Animal diet (enriched Omega-3 and CLA acids), Fat content
Chung, et al. (2009)	Beef, Korea	-28% for US import (vs. domestic) if age is 60	-6.26/22.5*	US$ per lb	Marbling, Freshness, Frozen product, Antibiotics, GM feed
		-26% for other import (vs. domestic) if age is 60	-5.96/22.5*		
		-43% for US import (vs. domestic) if occupation is homemaker	-9.58/22.5*		
		-40% for other import (vs. domestic) if occupation is homemaker	-8.96/22.5*		
Denver, and Jensen, (2014).	Apples, Denmark	271% for Local (Danish) (vs. outside of EU)	19.00/7.00**	DKK per kg	Production method, colour, taste & texture
		323% for Local (Danish) (vs. outside of EU)by those with maximum perception of the organic attributes:	22.60/7.00**		
Ding et al. (2015).	Canola oil, Canada	29% for domestic (vs. imported) product	1.45/5.00*	CAN$ per litre	GM, Pesticide use
Ehmke et al. (2008)	Onions, China	50% for domestic onions (vs. imported)	0.33/0.66**	US$ per 1 lb bag	GM, Pesticide use
	Onions, France	62% for domestic onions (vs. imported)	0.41/0.66**		
	Onions, USA	53% to 77% for domestic onions (vs. imported)	0.35/0.66** to 0.51/0.66**		
	Onions, Niger	86% for domestic onions (vs. imported)	0.86/0.66**		
Hu et al. (2006)	Oil products, Japan	-100% for imported product (vs. domestic)	-700.25/698***	Yen per bottle	Nutrition (low in saturated fat, rich in oleic acid, rich in alpha-oleic acid, rich in Vitamin E), GM, certification

Kaye-Blake et al. (2009)	Potatoes, New Zealand	-72% to -59% for imported origin (vs. domestic)	-1.26/1.75* to -0.38/1.75*	NZ$ for potatoes	Texture, Colour, Production method, Nutrition
Lee et al. (2014)	Beef steak, Korea	95% for domestic beef (vs. USA origin)	19864/21000*	won per kg	BSE-testing
		52% for imported (Australian) beef (vs. USA origin)	11006/21000*		
		28% won per kg for imported (Canada) beef (vs. USA origin)	-5868/21000*		
Lim et al. (2014)	Beef, USA	-53% for Canada (vs. USA)	-5.75/10.75*	US$ per lb	Production method, Food Safety, Tenderness
		-68% for Canada (vs. USA)	-7.33/10.75*		
Lilavanichakul and Boecker (2013)	Ginseng product, Canada	34% for product of Canada (vs. not a product of Canada)	5.74/16.99*	CAN$ per bottle	Traceability, Manufacturer, Canadian Ginseng Guaranteed
Loureiro and Umberger (2007)	Beef steak, USA	38% for Country of origin label (vs. no label)	2.57/6.57**	US$ per lb	Tenderness, Food safety, Traceability
Mørkbak et al. (2010)	minced pork, Denmark	96% for domestic pork (vs. imported)	23.93/25.00**	DKK per kg	Production method, Fat content, Food safety, Antibiotic use
Mørkbak et al. (2011)	Pork, Denmark Chicken, Denmark	124% for domestic pork (vs. imported)	30.94/25.00**	DKK per kg	Outdoor production, Food safety (salmonella + antibiotics), Fat content
		96% for domestic pork (vs. imported) when added food safety indicator	23.93/25.00**		
		142% for domestic chicken (vs. imported)	5.54/25.00**		Outdoor production, Food safety (campylobacter, salmonella)
		145% for domestic chicken (vs. imported) when added food safety indicator	36.21/25.00**		
Moser et al. (2012)	Bananas, India	5% Local (vs. no information)	0.75/15.00**	RS per bananas	Pesticide use, Producer characteristics, Environmental impact
		-1% to 8% for other region origin (vs. no information)	-0.13/15.00** to 1.21/15.00**		
		4% India (vs. no information)	0.59/15.00**		
Ortega et al. (2014).	Shrimps, USA	118% for domestic, enhanced food safety (vs. no claim)	10.65/9.00*	US per lb	Verification entity
		41% for Chinese, enhanced food safety (vs. no claim)	3.71/9.00*		
		46% for Thai, enhanced food safety (vs. no claim)	4.12/9.00*		
		109% for domestic, antibiotics forbidden (vs. no claim)	9.83/9.00*		
		32% for Thai, antibiotics forbidden (vs. no claim)	2.84/9.00*		
		60% for domestic, eco-friendly (vs. conventional product)	5.40/9.00*		

Pouta et al. (2010)	Broiler chicken, Finland	20% to 92% for imported product (vs. domestic)	reported in the study	%	Production method, Product type (seasoning)
Saunders et al. (2013)	Dairy, China	26% for imported (vs. domestic)	reported in the study	%	Food safety, Animal Welfare, Water, Greenhouse gas, Biodiversity
		49% for imported (NZ vs. domestic)			
	Dairy, India	-20% for imported (vs. domestic)			
		10% for imported (NZ vs. domestic)			
	Dairy, UK	-4% for imported (vs. domestic)			
		3% for imported (NZ vs. domestic)			
	Lamb, China	10% for imported (vs. domestic)	reported in the study	%	
		24% for imported (NZ vs. domestic)			
	Lamb, India	21% for imported (NZ vs. domestic)			
	Lamb, UK	-5% for imported (vs. domestic)			
		6% for imported (NZ vs. domestic)			
Tait et al. 2016	Lamb, China	-27% for domestic (vs. no label)	reported in the study	%	Food safety, Animal welfare, Water management, Greenhouse Gas, Biodiversity
	Lamb, India	13% for foreign (vs. no label)			
	Lamb, UK	5% for domestic (vs. no label)			
		-5% for foreign (vs. no label)			
Tonsor (2011)	Pork, USA	0.6% for Canadian pork (vs. domestic) when additional food safety and quality considered	0.03/4.99*	US$ per lb	Production method, Organisation (farm), Certification, Quality assured, Food safety
		-1% for Canadian pork (vs. domestic) when safety and quality not considered	-0.05/4.99*		
		-36% for Brazilian pork (vs. domestic) when additional food safety and quality considered	-1.78/4.99*		
		-92% for Brazilian pork (vs. domestic) when safety and quality not considered	-4.59/4.99*		
Tonsor et al. (2005)	Beef steak, UK	Not statistically significant	-	-	Certified hormone free (by USDA), Certified GM-free (by USDA), Certification source
	Beef steak, Germany	n/a (neither a base price nor a price levels were reported)	$3.74 for domestic steak (vs. USDA certified)	$US per lb	
	Beef steak, France		5.75 for domestic steak (vs. USDA certified)		
Uchida et al. (2014).	Seafood, Japan	27% for domestic salmon (vs. Chile)	90/337.5*	Yen per package	Production, Ecolabel
		8% for Alaska salmon (vs. Chile)	27/337.5*		
		7% for Norway salmon (vs. Chile)	24/337.5*		
Wu et al. (2014)	infant formula, China	-16% for domestic (vs. Germany)	-2.42/15*	US$ per 400g	Organic, Brand
		24% for US (vs. Germany)	3.53/15*		

Xie et al. (2016)	Broccoli, USA	-19% to -97% for organic imported (vs. organic domestic)	-0.321/1.65** to -1.594/1.65**	$US per lb	Organic
		-12% to -89% for organic imported (vs. conventional domestic)	-0.192/1.65** to -1.465/1.65**		
		-19% to -85% for organic imported (vs. organic domestic) with information	-0.314/1.65** to -1.406/1.65**		
		-13% to -79% for organic imported (vs. conventional domestic) with information	-0.217/1.65** to -1.309/1.65**		
Zanoli, et al. (2013)	beef, Italy	206% for Italian place of production (vs. abroad)	24.96/12.00**	EUR per kg	Color, Visible fat, Production method, Animal welfare
		53% for local breed origin (vs. non-local)	6.40/ 12.00**		
Zheng et al. (2013)	Soybean milk, China	41% for US ingredients (vs. no claim)	0.33/0.80**	RMB per 250ml	Production method, Certification
		56% for Chinese ingredients (vs. no claim)	0.45/0.80**		

Note: WTP only if statistically significant in the study

* Compared to average of the applied price vector in a study

** Compared to the average or median market/retail price, or other reported standard product price in a study

*** Compared to the highest price in the applied price vector