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# A social marketing perspective on road freight transportation of fresh fruits and vegetables: a Slovene case

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## ABSTRACT

With the large increase in transportation over the last decades and the associated negative impacts upon the environment and society, a more sustainable use of transport is a crucial policy issue. This analysis focuses on road freight transport of selected produce (carrots, cabbage, apples and pears) with the aim to appraise the sustainability of road freight transport of these for the Slovene market. To this end, we take into account self-sufficiency, import and export features, transport needs, produce origin and prices differences between domestic and non-domestic produce. The method used for obtaining transported quantities, exported from and imported to the county, was material flow accounts (MFA). Then we undertook an analysis of sustainability of road transport of produce where we considered the country's transport needs. The study finds that road freight transport for selected produce is not sustainable. Recognising the normative dimensions of sustainability, the role of social marketing in this context is explored and suggestions on how to promote more sustainable transport solutions advanced.

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## 1. Introduction

In the last few decades the transport sector has grown dramatically, with the main increase seen in transport by road (European Commission, 2012). This has contributed to an increase in negative impact on the environment and on society, including air pollution, climate change, noise, accidents, congestion, soil and water pollution, effects on nature and landscape, effects of up/downstream processes (Maibach et al., 2008) and infrastructural impacts on the environment (Beuthe, Degrandart, Geerts, & Jourquin, 2002; Forkenbrock, 1999; Marquez Diaz, 2009; Piecyk & Mckinnon, 2007). These impacts are generally known as negative externalities and represent external costs paid neither by the consumer nor the transport service provider, but are imposed on the environment and society. According to Banfi et al. (2000), road transport contributes up to 92% of all external costs when compared to other transport modes. Here, road transport of fresh fruits and vegetables is of

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special interest. Fresh fruits and vegetables are an important part of a healthy diet, regular consumption being widely supported by public health programmes (e.g., the 'Five-a-day' campaign in the United Kingdom). Yet, these are highly perishable, often requiring special transport conditions, particularly when transported over long distances (e.g., specialised refrigerated vehicles and packaging) adding to the 'externalities' issue.

At present, external costs of freight are not fully reflected in the market price of produce. Setting the right price for service (i.e., full cost price) is very important in freight transportation, as price setting has always been considered an important area of the marketing mix (Podnar, Molj, & Golob, 2007). As Grewal and Compeau (1999) point out, the fusion of price as a 'strategic marketing variable' and a 'public welfare concern' is long overdue in the market. To make freight transport better aligned with the principle of sustainability, 'full-costs pricing' would be required, through the internalising of 'external costs' (i.e., incorporating the negative external effects).

In recent years, interest in researching this internalisation has increased substantially (e.g., Baum, Geißler, Schneider, & Bühne, 2008; Cantillo & Marquez, 2010; Christidis & Brons, 2009; Janic, 2007, 2008; Macharis et al., 2010; Maibach et al., 2008; Marquez Diaz, 2009), but the method of calculating external costs has been very complex and remains incomplete (Nash, 2003; Quinet, 2004; Schreyer et al., 2004). Thus, we would like to emphasise that the monetary market regulations through transport policy are not the only policy instruments available and here we defend the position that transport could be made more sustainable also by means of social marketing. As McGovern (2005) mentions implementing social marketing programmes can be viewed as a policy option in fostering a sustainable transportation strategy. Likewise, Schwaab and Thielmann (2002) agree that the acceptance of policy measures can be improved through moral suasion and transport-related education. Social marketing has experienced substantial growth over the last 3 decades with its utilisation spreading into various areas of social and public life (Alves, 2010) and has been widely considered in more and more publications, but none of the studies we have found looks at freight transportation. For instance, McGovern (2005), Richardson, Harrison, and Parkhurst (2007) and Chkanikova (2009) take into account only private and public sustainable transportation, but Brennan and Binney (2008) expose only sustainability in connection with material wellbeing as an important issue for the social marketing. Previous studies use also social marketing in context of food (e.g., Young, Anderson, Beckstrom, Bellows, & Johnson, 2004). Nevertheless, some studies consider freight transport connecting with marketing and customer orientation (e.g., Jirsák & Kolář, 2012; Marr, 2006). Furthermore, to the best of our knowledge, no work has been done on the exploration of social marketing and fresh fruit and vegetable transportation. Thus, we tried to fill this gap by presenting the connection between social marketing and produce transportation. Due to this reason we have focused the study on how to promote more sustainable freight transport by social marketing application.

In this research, we were interested to analyse the Slovenian market for fresh fruits and vegetables by looking at sustainability of road freight transport. Recognising the normative dimension that is inherent in the concept of sustainability, we aim to reflect on the potential benefits that social marketing could make on the Slovenian fresh fruit and vegetable market, including its freight transport use.

In the following section, we provide a brief account of current literature on social marketing, after which we give methodological details of this study. Then, we present our results

and conclude with a discussion on the results obtained in terms of the social marketing perspective, based on sustainable freight transport. Finally, we offer some concluding remarks.

## 2. Social marketing

Social marketing is the application of commercial marketing technologies to the analysis, planning, execution and evaluation of programmes designed to influence the voluntary behaviour of target audiences to improve their personal welfare or that of the society of which they are a part (Andreasen, 2007). Likewise, Kotler and Lee (2008) define it as a process that applies marketing principles and techniques to create, communicate, and deliver value in order to influence target audiences' behaviours that benefit society (public health, safety, the environment and communities). Rothschild (2010) adds that social marketing is used to manage the environment in order that appropriate behaviour will result. It could enable the development of products, services and communications that fit people's needs and motivations (Hopwood & Merritt, 2011). It is common to all definitions of social marketing that there is a focus on the consumers, but also in-depth research and constant re-evaluation of *every* aspect of the marketing process (Weinreich, 2011).

As with commercial marketing, social marketing provides a framework for planning and integrating the marketing mix, known as the four Ps (product, price, place, promotion), but there are additional Ps in social marketing, namely publics, partnership, policy and purse strings (Weinreich, 2011). First, 'publics' refer to externals (i.e., the target audience, secondary audiences, policymakers, and gatekeepers) and internal publics (i.e., those involved in some way with either approval or implementation of the programme) where target audiences play a major role in developing and implementing a planned programme (Andreasen, 2002). Consumers should be divided in user segments with regard to their readiness to adopt the change (i.e., innovators, early adopters, early majority, late majority and laggards) as derived from diffusion of innovation theory, developed by Rogers (1995). Secondly, partnership could be cultivated with local or national groups, corporate sponsors, other organisations, service clubs or media outlets. Thirdly, policy must include clear goals for required actions/responses from the target audiences. Here, social marketing helps to ensure that policy is based on an understanding of people's lives, and thus making policy goals realistic and achievable (Hopwood & Merritt, 2011). Finally, 'purse strings' represent cooperation between organisations with similar goals and funds, provided by sources such as foundations, governmental grants or donations.

Kotler (1979) argues that the objective of social marketing 'is not to maximise consumption, consumer satisfaction or consumer choice. The objective is to maximise the quality of life'.

Social marketing has a wide domain of application because it can be applied in any situation in which a socially critical individual behaviour needs to be addressed for a target audience (Andreasen, 2002). Additionally, it can also support the occurrence of behavioural changes. As Kotler and Lee (2008) mention that for decades, practitioners in the health, environment and community-based fields have explored ways to persuade individuals to adopt a range of behaviours. Kassirer and Lagarde (2010) have learned that the information alone is usually unlikely to change behaviours. Some people change their behaviour just by providing information ('tell me/show me'), but it is only when the barriers to act are relatively low (Kassirer & Lagarde, 2010; Rothschild, 1999). More often than not, these barriers

outweigh the good intentions of those who might otherwise change their buying habits (Kassirer & Lagarde, 2010). Here, the 'help me' approach becomes necessary (Rothschild, 1999). In order to overcome these barriers and influences, and successfully engage all people involved, Kassirer and Lagarde (2010) suggest that learning more about these people is essential and to find out what is competing with our calls to action. At this point, a social marketing is a systematic approach which helps to research, design and then promote buying choices so that they are attractive, competitive, easy and popular (Smith, 1999).

Increasingly, the sustainability research field is turning to community-based social marketing (McKenzie-Mohr, 2015) for assistance in how to bring about more sustainable practices, behaviours and corresponding lifestyles. Kassirer and Lagarde (2010) state that community-based social marketing stresses overcoming structural and other barriers. Thus, community-based social marketing is a form of social marketing that emphasises direct contact among community members and the removal of structural barriers to action, using a set of 'tools' which have been identified as particularly effective in bringing about behavioural change; while each of these tools can promote behavioural change on its own under the right conditions, the tools are most effective when are used together (McKenzie-Mohr, 2015). On one hand, Kassirer and Lagarde (2010) emphasise that everyone is influenced by family members, neighbours and colleagues and that interpersonal communication is most powerful (e.g., family members, peers, supervisors, teachers and leaders). On the other hand, they add that mass media should be considered to reach a large number of people and be more cost-effective. A combination of both in a way that can address the specifics of a context appears thus the most appropriate.

As Kassirer and Lagarde (2010) reveal, the upfront planning of community-based social marketing can reduce implementation time and costs and so lead to better results. This is the reason why social marketing is gaining momentum with a growing constituency of professionals at all levels, many of whom are operating within small budgets (Deshpande & Lagarde, 2008). Kotler and Lee (2008) mention that there are four main arenas that social marketing efforts have focused on over the years: health promotion (e.g., tobacco use, heavy drinking, fruits and vegetables intake, eating disorders); injury prevention (e.g., drinking and driving, seatbelts usage, suicide, fires); environmental protection (e.g., waste reduction, recycling, air pollution from automobiles and other sources, water conservation); and community mobilisation (e.g., blood donation, voting).

There is a strong track record worldwide (e.g., Canada, the U.S.A., Europe and Australia) for the effectiveness of social marketing at influencing a wide range of behaviours for both personal (e.g., car trips, walking, cycling) and public good (Kassirer & Lagarde, 2010; Möser & Bamberg, 2008). For example, research has shown that local communities have decreased the modal share of participant car trips by 8% to 15% and overall vehicle kilometres travelled by up to 5% and have significantly increased walking, cycling and transit use (based on data from Kassirer & Lagarde, 2010; Möser & Bamberg, 2008). The current literature mainly deals with social marketing in the context of driving (e.g., Tapp, Pressley, Baugh, & White, 2013; Toy, Tapp, Mausselwhite, & Davis, 2014; Vertič, 2008), drinking alcohol (e.g., Blažič, 2014; Culiberg, 2004; Jones, 2014), health (Breznikar, 2002; Mirjanič, 2004; Zorman & Mesec, 2010), energy (e.g., Anda & Temmen, 2014; Menegaki, 2012; Muratović, 2008; Sheau-Ting, Mohammed, & Weng-Wai, 2013), environment regulation (e.g., Kennedy, 2010), environmental tourism (e.g., Perez-Mujica, Duncan, & Bossmaier, 2014), healthy eating (e.g., Young et al., 2004), retailing (e.g., Holweg & Linbacher, 2011) and transport

(e.g., Bomberg, 2011; Civitas, 2011; Kassirer & Lagarde, 2010; McGovern, 2007) which concern only private transport, and private and public sustainable transport (Chkanikova, 2009; McGovern, 2005); Richardson et al., 2007). Previous studies also include community based social marketing (e.g., Anda & Temmen, 2014; Kennedy, 2010).

### 3. Methods

We undertook an analysis of the fresh fruit and vegetable market in Slovenia, the geographical area of our interest. We selected four crops (apples, pears, carrots and cabbage); these play an important role in the Slovene diet, are grown locally in most parts of the country and can be stored for up to a few months.

First, we used material flow accounts and on this purposes we sought and obtained long-term data, from the Statistical Office of the Republic of Slovenia (S.O.R.S.), in respect of production and consumption of selected produce, along with data about volumes imported and exported. The quantities of produce being exported and imported were also the quantities transported to and from the county. We assumed that at national level only transport which is really necessary should be carried out, i.e., volume of net import or export of produce. This we called as sustainability paradigm. As such they represented 'current transport needs' (export plus import). Further, we compared this data with the 'real transport needs' which is understood as a country's net import or net export and represent physical trade balance. In this case the real transport needs of the country are sufficient. Also external impacts and external costs of the transport are the lowest and the difference between current and real transport needs represents any impacts on the environment. Every import and transport which is not the consequence of the deficit of the produce in the county and every export and transport which is not the consequence of the surplus we considered as unsustainable activity.

Building from the mentioned secondary source, we also obtained information concerning the place of origin of the crops (from 2005 to 2012).

Second, we collected data in retail markets ( $n = 8$ ) in Ljubljana, the Slovene capital city, in order to obtain short-term information about retail prices and the place of origin of crops. Two of these retailers have the biggest market share in Slovenia, three are discount retailers and three are small retailers, of which two sell only organic food and one sells both organic and conventional food. The five biggest retailers have outlets located throughout the country, and this selection enabled us to get a good overview of the supply of fresh fruits and vegetables in the Slovene market. We conducted data collection in February and March 2012, including information about (i) crop features, (ii) detailed crop origin and (iii) the retail prices for apples, pears, carrots and cabbage per kilogram. We also recorded information about the agricultural method of production (i.e., conventional or organic).

Third, we administered a questionnaire (transport modes, vehicle types, cost and retail price, purchasing strategy) in February 2012 to eight main players in the Slovenian market for fresh fruit and vegetables. Only two retailers answered (25%), but since the two have the biggest market share in Slovenia – around 50% in total (Kos, 2013), we considered the response rate suitable for our purposes.

Finally, we have conducted an online survey targeting Slovene consumers looking at awareness about types of negative impacts of road freight transport on fresh fruits and vegetables on the environment and the society. The survey running from June to September

2014, consisted of a self-administrated on-line questionnaire (at [www.1ka.si](http://www.1ka.si)) to which we have invited a range of popular Slovene forums and also sent to our personal Email contacts. Beside demographic data (i.e., gender, age, marital status, employment status, education) we asked the consumers about (i) what kind of produce they buy according to method of agricultural production, (ii) importance of factors of production (i.e., price, produce origin, transport duration, quality, method of agricultural production, packaging date, season component), (iii) knowledge of term external costs of transport, (iv) purchase aim in case information regarding distance in kilometres that produce has been transported was available at point of sale, (v) purchase aim in case the negative impact of freight transport on the environment and society in monetary values would be included in market price of the produce and (vi) opinion if the market prices of produce should include negative impacts of transport on the environment and society. We used four chi-square tests with 5% to find out if there was a connection between produce origin and transport length and between produce quality (i.e., appearance) and transport length in the purchasing of the respondents. Further, we also tested if there was a connection between respondents' gender and their opinion about the influence of the information of transport length on purchase decision and about the influence of transport length on produce quality.

### **3.1. Campaigns**

Food production is one of the most strategically important areas of the country. Slovenian government is aware of this fact as its agricultural policy has focused on the increase of local food production. It is interesting to note that in the past years the Slovene Ministry of Agriculture, Forestry and Food (M.A.F.F.S.) has sub-contracted several promotional campaigns focused on local food production and consumption which can be seen to take the form of social marketing (see M.A.F.F.S., 2015a). These included the following campaigns 'Traditional Slovenian Breakfast', 'Food from Your Vicinity', 'Local Quality', 'Be Aware of Local Origin' and 'Quality is Close to Us' (M.A.F.F.S., 2015b). We collected information from secondary sources about campaigns running from 2011 to 2015 and looked at these from a social marketing perspective.

## **4. Limitations of this study**

The limitations to this study relate to primary data collection in retail markets, as it was not repeated in different periods of time which would allow for a better overview of the current situation. We could have also obtained data about produce prices from S.O.R.S., but due to uncertainty as to what those prices included (this is not clarified in their methodology) we rather chose market prices currently available. Also if more retailers were included in data collection it could benefit in the same way. Further, limitations come from the low response rate when administrating questionnaires. Finally, the sample of consumers is rather small and it is not representative according to Slovene demographic characteristic. Due to these reasons generalisability is limited.

**Table 1.** Export and import coverage of produce for Slovenia.

Type of produce	Index of exported vs. imported quantities							
	2005	2006	2007	2008	2009	2010	2011	2012
Apples	3.67	2.11	4.04	1.36	1.27	1.6	1.84	1.41
Pears	.10	.30	.35	.46	.39	.46	.28	.26
Carrots	.06	.05	.09	.09	.11	.23	.27	.26
Cabbage	.02	.02	.05	.05	.02	.03	.05	.04

Source: Authors' own elaboration based on data from S.O.R.S. (2014a).

**Table 2.** Total transport needs of produce for Slovenia.

Type of produce	Index of current <sup>a</sup> vs. real <sup>b</sup> transported quantities							
	2005	2006	2007	2008	2009	2010	2011	2012
Apples	-1.75	-2.80	-1.66	-6.51	-8.44	-4.36	-3.37	-5.87
Pears	1.23	1.87	2.09	2.71	2.30	2.73	1.79	1.70
Carrots	1.12	1.11	1.20	1.20	1.25	1.58	1.75	1.71
Cabbage	1.03	1.04	1.10	1.11	1.04	1.05	1.11	1.09

<sup>a</sup>Export plus import.

<sup>b</sup>Consumption minus production.

Negative values represent export.

Source: Authors' own elaboration based on data from S.O.R.S. (2014a, 2014b).

## 5. Results of empirical case of the Slovenian fresh fruit and vegetable markets

### 5.1. Analysis of secondary data

The secondary data collected about volumes of apples, pears, carrots and cabbage produced, consumed, imported and exported from 2005 to 2012 suggest that Slovenia had a surplus in the production of apples, while the other three crops had a deficit. The average self-sufficiency in this period was 112.49% for apples, 87.88% for cabbage, 75.37% for pears and for carrots 35.75%. The data indicate that self-sufficiency for all crops decreased during that period.

Within each year all produce was exported and imported, but in the whole period the export of apples was 81.80% higher than import. In all other cases the imports exceeded export (i.e., pears 203.20%, carrots 513.21% and cabbage 2685.73% higher import vs. export). The highest level of export vs. import was for apples in 2007 and the lowest for cabbage in 2005, 2006 and 2009 (see Table 1).

As a consequence of export and import the total transported quantity of produce (export plus import) was 451,918 tonnes which represents 'current transport needs'. While the physical trade balance showed that net import was 184,692 tonnes of produce which would really have needed to be transported, i.e., 'real transport needs'. Thus, during the whole period, 59.13% of the transport was used 'unnecessarily'. The transportation usage for apples was 244.71% higher than necessary, followed by transport of pears at an excess of 98.42%, carrots at 38.97% and cabbage at 7.45%.

In Table 2 we present indexes of current transported quantities in comparison with real transport needs.

The highest transport need was for apples, as a consequence of high export and also high import. It is interesting to note that the imported quantity was more than a half (55.01%)



of exported for the same period. This share was the lowest in 2007 when it was 24.74% and the highest in 2009, at 78.82%.

Imports of the four selected crops come mainly from neighbouring countries (Italy, Austria, Croatia, etc.) while a minority come from more distant locations (The Netherlands, Spain, Belgium, Germany, Israel, etc.). However, 3,862 tonnes (1.7% of total imports) was imported from distant countries including; Israel, Egypt, South Africa, Argentina and Chile. It is of interest to note that, according to the data obtained from S.O.R.S., Slovenia exported the same types of produce to some countries (Austria, Bosnia and Herzegovina, Belgium, Czech Republic, Germany, Egypt, Spain, France, Croatia, Hungary, Italy, Macedonia, The Netherlands, Poland, Serbia and Montenegro, Serbia, Slovakia and Turkey) as are imported from those same countries. From 2005 to 2012, the share of Slovenia's net imports of the selected crops from those countries was 18% of total import (i.e., imported 223,031 tonnes, exported 182,867 tonnes). This rate would be even higher if we were not to include the 'surpluses', such as with apples, in this case.

### **5.2. Primary data analysis**

Primary data was gathered concerning 145 items (78 cases of apples, 21 of pears, 20 of carrots and 26 cases of cabbage) in eight retail markets, confirming place of origin from S.O.R.S., as mentioned above (see Appendix A). This data indicated that apples had Slovene origin in 60.26% cases while in 39.74% they were from countries of the European Union (E.U.). In 42.31% cases cabbage was from Slovenia while 57.7% was from E.U. countries. On the other hand pears were from Slovenia in only 19.05% of cases while 61.91% were from E.U. countries. In 19.05% of cases pears were from very distant countries, i.e., from the Republic of South Africa and China. Also, carrots are mostly imported from other E.U. countries with only 10% being of Slovene origin. Most of these crops were produced by conventional agriculture while about one third were organically produced.

As shown in Appendix B, imported produce was in all cases more expensive than Slovene, with the exception of organic pears (22.84% cheaper). On average the selected imported crops were 38.19% more expensive than domestic crops. The price for all produce was on average lower for produce from shorter distances and highest from the most distant locations. On average it was 0.86 EUR for produce transported distances of 128–393 km, 1.64 EUR on routes from 394 to 493 km and 2.13 EUR per kg on routes from 926 to 1275 km.

### **5.3. Questionnaire**

The data collected with the questionnaire administered to retailers confirmed that fresh fruits and vegetables are transported by road in refrigerated truck trailers, mostly with a maximum payload of 24 tonnes (i.e., 16 or 20 tonnes of net weight). Respondents stated that they set cost prices during negotiations, often depending on weather conditions and varying daily. They also affirmed that there was no difference between cost prices for domestic and non-domestic produce, and the same was indicated by retail prices, which they said depended on cost prices. The results show that retailers purchased crops in Slovenia first, but that in cases of shortage they had to buy from abroad. The respondents stated that the share of the transport price in the cost price depended on kilometres travelled, increasing for more distant locations. In general, retailers chose the place of purchase according to

the principle of least distance, seeking the shortest and quickest path from producer to final consumer.

#### **5.4. Survey**

Our survey sample consists of 135 persons, 68.1% women and 30.4% men (2 people refused to share this information). The average age of the respondents was 42.3 (the youngest 18, the oldest 77 years). The biggest share (28.89%) was the age group between 31 and 40 years, but more than a half (53.33%) were from 18 to 40 years. 62.6% of the respondents reported having children. Totally 64% of respondents were employed, 20.4% reported being unemployed and 9.7% students. 57.3% of this sample had finished a university level degree. According to the method of agricultural production, 32.6% of respondents bought half conventional and half organic, 25.2% mostly (more than 70% of their consumption) organic and 7.4% *only* organic fresh fruits and vegetables. As the sample is small it is not fully representative, but still offers some insight into the Slovene consumer and her preferences.

Therefore, the results collected suggest that for this group of respondents the most important factor influencing their purchasing decisions is the packaging date, followed by origin of produce, seasonality, quality, method of agricultural production and duration of transport. Respondents reported price being the least important.

35.6% of respondents stated that they knew the meaning of transport 'external costs', 41.5% of them knew approximately and 23% did not know this term.

In the case that information on 'the distance the produce had travelled' was available at point of sale, 37% of respondents stated that 'it will' affect their buying decisions and 44.4% reported that 'it might'.

If the negative impact of freight transport on the environment and society was to be monetarily valuated and included in the market price, 80% of respondents stated that this would affect their purchase decision. This information would help to make the purchase decision easier for 63% of respondents, of which 79.4% would choose a produce that had less impact on the environment and society and the rest (20.6%) would choose cheaper produce anyway. On the question as to whether the negative impact of freight transport on the environment and society should be internalised in the market price, 86.7% of respondents answered 'yes'.

We discovered that only the origin of the produce and transport length are not independent variables, all others tested variables are independent.

#### **5.5. Campaigns**

Promotional campaigns sub-contracted by the Slovene ministry during the period 2011 to 2015 targeted external (e.g., consumers, schools, media) and internal publics (e.g., food producers, agro-industry, retailers), but were directed mainly to the Slovene consumers. These focused on food quality and local production and consumption (Table 3). Nowhere, could we trace information about the specific methodology employed in these programmes. The campaigns were mostly subcontracted and the companies that won the tenders were all privately owned marketing business enterprises. We assume that these campaigns were designed as classic marketing campaigns and did not account for social marketing principles.

**Table 3.** Promotional campaigns in Slovenia from 2011 to 2015.

Campaign title	Focus	Time frame	Media or action	Public	
				External	Internal
Traditional Slovenian Breakfast	Increasing the importance of producing and consuming of Slovene food	18 November 2011	Event	Youth and children, schools and kindergartens, media	Food producers, cooperatives
Traditional Slovenian Breakfast	(1) Purchasing food from local area, (2) establishing contacts for direct collaboration between local producers and educational establishments	16 November 2012	Event	Youth and children, schools and kindergartens, media	Food producers, cooperatives
Local quality: Fresh food from your vicinity	Length of the transport (examples on: apples, bread, honey, meat, oil, tomato and wine) vs. quality (i.e., freshness)	July 2013	T.V. advertising, billboard, web	Consumers, media, institutional customers <sup>a</sup> , H.O.R.E.C.A. representatives, representatives of foreign countries in abroad	Food producers, cooperatives, agro-industry, retailers, governmental and non-governmental organisations, public agencies and organisations
Local quality	Local quality (examples on: apples, milk and tomato)	From September to November 2013	T.V. and printed advertising, direct mailing, web, packaging, events (i.e., doors open day)	Consumers, media, institutional customers <sup>a</sup> , H.O.R.E.C.A. representatives, schools	Food producers, cooperatives, agro-industry, retailers, governmental and non-governmental organisations, public agencies and organisations
Traditional Slovenian Breakfast	Encouraging local self-sufficiency of quality food from local area	15th November 2013	Event	Youth and children, schools and kindergartens, media	Food producers, cooperatives, retailers
Be Aware of Local Origin	(1) Increasing confidence in Slovene food, (2) reminding about wider social benefit of buying local food on existence of local agriculture and agro-industry, preservation of jobs and long-term development of Slovene economy, (3) the importance of checking a food origin in buying process (e.g., apples, milk and tomato)	From 23rd September to 19th October 2014	T.V. and radio advertising, events (doors open day)	Consumers, media, institutional customers <sup>a</sup> , H.O.R.E.C.A. representatives, representatives of foreign countries in abroad	Food producers, cooperatives, agro-industry, retailers, governmental and non-governmental organisations, public agencies and organisations
Traditional Slovenian Breakfast	Encouraging local self-sufficiency of quality food from local area	21 November 2014	Event	Youth and children, schools and kindergartens, media	Food producers, cooperatives, retailers
Quality is Close to Us	(1) Slovenia has one of the three best food safety control in Europe, (2) Agriculture in Slovenia is more sustainable because of features of Slovene ecosystem, (3) Food from the vicinity is more tasteful and more nutritional as it is consumed in the time of ripeness	From 20 October to 23 November 2014 and from 16th March to 19th April 2015	T.V., billboard, printed media and radio, events (i.e., doors open day)	Consumers, media, institutional customers <sup>a</sup> , H.O.R.E.C.A. representatives, representatives of foreign countries in abroad	Food producers, cooperatives, agro-industry, retailers, governmental and non-governmental organisations, public agencies and organisations

<sup>a</sup>Institutional customers are kindergartens, schools, hospitals, public institutions and catering companies. Source: Authors' own creation, data adopted from M.A.F.F.S. (2015a, 2015b, 2015c).

## 6. Discussion and policy implementation within social marketing

### 6.1. Sustainable freight transport

This study confirms that Slovenia is a net importer of pears, carrots and cabbage, a surplus only occurring in the case of apples. Self-sufficiency for all the other three selected produce is 75.91% from 2005 to 2012 which is higher than we expected before the study. Plut (2012) mentions food self-sufficiency in Slovenia may be around 50% and that was confirmed also by Pestotnik (2014). Our results, however, suggest a somewhat different situation and self-sufficiency for selected produce during the chosen period appears very high (i.e., 99.85%) which is explained by the high self-sufficiency of apples. In 2012 the self-sufficiency decreased for all selected produce in comparison with the year 2005 which arises from lower production and consumption, and higher import and export. Regarding this point, the transport needs of the country increased by 62.75% from 2005 to 2012.

Both primary and secondary data confirmed that the majority of imports are from E.U. countries (i.e., Italy, Austria, the Netherlands), which in general corresponds to what retailers stated as these seem to be purchasing produce from closer locations first. We showed that in some cases the same types of produce were exported from countries where the same category of produce was imported. It is difficult to identify reasons for this trend. One reason could be found in price differences for the same type of produce on the Slovene market and other markets, but we confirmed that the average market price increased relative to the distance over which the produce had been transported (i.e., higher for imported produce). It contradicts to what retailers stated (i.e., the prices were the same). A further reason could be sought within the free trade agreements (e.g., C.E.F.T.A.) between Slovenia and these countries, and thirdly it could be the best-before-date and avoiding expiration dates (e.g., putrefaction) that results in produce being exported and imported at different times. In our study we did not research these two issues. However, we have shown that within a given year the same type of produce was *exported* from the country as it was previously *imported* from, but we are not aware if this also happened within each month, week or even each day.

Concerning the sustainability paradigm, export and import of the same produce could be avoided. In this case the transport needs would not have been as high as they were according to the data we obtained. Thus, the county would export only their surpluses and import only deficits. In this case Slovenia would only export apples and only import pears, carrots and cabbage. On this basis 267,226 tonnes (i.e., difference between current and real transport needs) of produce transported appears to have been unnecessary. As we found refrigerated trucks with payload of 24 tonnes (i.e., 20 or 16 tonnes net cargo weight) were mostly used. This would equate to  $13,361 \times 20$  tonnes trucks or  $16,702 \times 16$  ton trucks between 2005 and 2012. On average it would represent 1670 or 2088 less trucks on the roads each year with the correspondingly lesser transport externalities.

According to the sustainability paradigm, road freight transport of fresh fruits and vegetables is unsustainable as it causes unnecessary external costs which could be avoided by following the sustainability concept. Thus, Slovenia could decrease the import of produce at the cost of lower export. Here, Slovenia has an opportunity to increase sustainability through an increase in self-sufficiency by promoting domestic production and consumption. As expert estimations show, the country has potential in agricultural land large enough for food security until 2,030 (Plut, 2012). Increased local, regional and country wide food production could lead to reduction of transport needs and imports. As retailers have stated,

they follow a purchasing strategy according to proximity of location and it could encourage domestic production. Increased consumer awareness as to the negative impact of transport on the environment and society could also increase local and regional consumption which would benefit though lower transport needs due to less export and import. To this end, the national agricultural policy is important and we suggest that social marketing could support current policy programmes.

## **6.2. Social marketing perspective**

Unsustainable road freight transport of fresh fruits and vegetables and the consequent market situation in Slovenia could be improved through the application of social marketing. Socially critical individual behaviour that arises from buying non-domestic food (i.e., import and export of the same type of produce from the same countries) is typical which, according to Andreasen (2002), needs to be addressed for a target audience. We suggest that there are potential benefits from social marketing for the subject matter given that policy and broader society have been interested in self-sufficiency.

Although the concept of social marketing has been well known internationally (MacFadyen, Stead, & Hastings, 1999), in Slovenia it still is somehow new. While some have exposed its benefits (Blažič, 2014; Mirjanič, 2004) application in practice is rare. Berčič (2003) and Muratović (2008) note that despite several writings there is still a confusion about it nationally which both see reflected in its poor implementation to actualise social change. The campaigns considered appear to confirm that viewpoint. In the following we discuss further these campaigns regarding against social marketing theory and offer some suggestions how to use this concept to promote more sustainable transport. The campaigns are part of the current public policy which appears to be successful. The Ministry reported that consumers' purchasing habits changed in the last four years. In 2011 only 30% of consumers were checking the origin and buying Slovene produce, while from March 2015 this share increased to almost 70% (M.A.F.F.S., 2015c), but there is no information as to whether there was also an increase in buying more local produce for the whole period. Our survey revealed that information availability about transport externalities could affect respondents' purchasing decisions, so further campaigns mirrored social marketing could benefit by bringing in an explicit focus on freight transport sustainability and in so doing influence target audience behaviours that benefit society and the environment (Kotler & Lee, 2008).

Instead of the same approach used for the whole county a localised orientation that integrates features of community-based social marketing and includes for instance interpersonal communications could be more successful. Slovenia, despite being small, has different local features and as such locally adjusted promotional campaigns could suit more than national due to the possibility of customisation. This is a good base for establishing good interpersonal communications as it is understood to be most powerful (Kassirer & Lagarde, 2010). Here, we can make a comparison with community-based social marketing that was applied to two regions in Australia for fruit and vegetable consumption of parents of school-aged children (see Glasson et al., 2013). The study found that community-based social marketing can increase the effects of mass-media campaigns on exposure, knowledge and fruit and vegetable consumption. Glasson et al. (2013) add that local programmes can engage the community on an ongoing basis to support and sustain the effects of larger mass-media

campaigns. To this end, we analysed already conducted campaigns from a social marketing perspective with consideration of their (i) focus, (ii) time frame, (iii) media and (iv) public.

First, campaigns did not emphasise many issues as their focus was mainly on food quality and local production and consumption. The reason for this arises from the fact that Slovenia has to follow the E.U. law on the subject matter which states that it is against current law to promote the purchase of domestic food when this is discriminatory towards free trade. Referring to the European Commission (2010), 'measures which encourage or give preference to the purchase of domestic products only are measures of equivalent effect under Article 34 TFEU' that are prohibited. Consequently, the campaign objectives have to be achieved more indirectly with setting out food characteristics (e.g., quality which has to be confirmed by independent quality assurance system) as suggested by M.A.F.F.S. (2015a) and Hojnik and Vlahsek (2011) because

Member States can permit organisations to encourage the purchase of specific types of fruits and vegetables, for example by mentioning their particular properties, even if the varieties are typical of national products, so long as consumers are not being advised to buy domestic goods solely by virtue of their national origin.

We suggest that the campaign orientation could be in emphasising the externalities of freight transport of food and focused on more local level. In fact, there has been one campaign ('Fresh Food from your Vicinity') that indirectly mentioned the duration of transport, but it was only in connection with the freshness of the produce which was presented as higher on shorter distances. Also, annual Slovene food imports, expressed in monetary value, has been mentioned in 'Be Aware of Local Origin' campaign, but the meaning of this data would be better if expressed as imported quantity per capita (e.g., per month) or kilometres that each kilogram of food had been transported on average. Thus, the campaign could have been created more directly and particularly with consideration of other impacts that transport has on the environment, society and the produce. Taking into account the results from our on-line survey where the consumers would have liked to have more information about the transport (i.e., distance travelled in kilometres, negative transport impacts expressed as costs in order to help in buying decision) and where consumers had reported awareness and being concerned about the impact of transport externalities, we could envisage this as an additional point to be included in such campaigns. Furthermore, we found a connection between produce origin and transport length but the differentiation by gender would not be necessary in any case of the campaign.

Second, all campaigns were in general larger mass-media campaigns (i.e., including T.V. and radio advertising mostly) and conducted on national level. This enabled the reaching of a large number of people at lower costs in comparison with interpersonal communication (see Kassirer & Lagarde, 2010). There were also some events at local level (e.g., Traditional Slovenian Breakfast, farm doors open days) where interpersonal communication was achieved. According to classic advertising in the mentioned campaigns, the message represents only the information, which is usually unlikely to change behaviours as Kassirer and Lagarde (2010) have stated. Here, a 'help me' approach is necessary, as suggested by Rothschild (1999). Kassirer and Lagarde (2010) have added that because everyone is influenced by others (e.g., family members, neighbours, colleagues, peers, supervisors, teachers and leaders), the interpersonal communication is most powerful. For future campaigns we propose a combination of both, but with bigger emphasise on interpersonal communication at local levels as these tools are most effective when used together (McKenzie-Mohr, 2015).

Third, the campaigns and their activities were repeated in time (i.e., each year, twice per year) which has contributed to their success. From a social marketing perspective, successful campaigns are a result of the right levels of frequency over time (Kassirer & Lagarde, 2010), as people vary in their timing and willingness to respond to a message (Kassirer & Lagarde, 2010). As they are more likely to hear/see the message when they are ready to attend to, it is important that the message is made available more times (Hornik, 2002). However, looking at the information we collected, the campaigns and activities have run over a quite a short period of time within each year (i.e., one day, one month, a few times per year). For future campaigns we suggest a higher and more constant frequency within the time frame of one year, especially for events where interpersonal communication is essential (e.g., Traditional Slovenian Breakfast every three months, farm open days every week, but at different locations).

Fourth, while mentioned campaigns have focused on additional Ps of the marketing mix, they considered only external and internal public, and these still represent a good base for future campaigns. In this, consumers and target audiences play a major role (Andreasen, 2002) and these need to be well understood (Kassirer & Lagarde, 2010). To this end, we suggest to follow the diffusion of innovation theory (Rogers, 1995) and to divide consumers into user segments with regard to their readiness to adopt the change, and then to design the campaign actions (e.g., advertising, events) which would be adjusted to each of these segments. It can also reduce implementation time, costs and lead to better results (Kassirer & Lagarde, 2010) as it presents upfront planning of community-based social marketing. Nevertheless, buying food from distant places involves also other public groups in this supply-consumption chain (e.g., distributors, retailers, transport and logistics companies) which should be considered as well. Here, we would like to point out the retailers. We should acknowledge that the decision where the produce is bought and what the supply is, or should be, depends mostly on retailers. Retailers represent a very important element in the supply chain in Slovenia due to only a few main retailers with shops throughout the country. In fact, consumers have very limited, if any, opportunity to choose the width of the supplied produce range and from where the fresh fruits and vegetables are supplied at the very early stage. We discovered that retailers supported domestic production of produce as they followed the principle of least distance in their purchasing, seeking the shortest and quickest path from producer to their locations. Thus, as retailers are important members they should be considered when designing social marketing campaigns in the country. A progress in this area has already been seen because lately retailers have improved their offer in significant way. Most of them have labelled their domestic offer in order to give customers exposed information about local food (e.g., slogans as (1) S.L.O., The quality from Slovenia, (2) 100% Slovenian, (3) Slovenian produce, (4) Slovenia, my country and (5) Slovenian delicacies).

In conclusion, also higher support of other agencies and organisations could have an important role in promoting more sustainable transport of fresh fruits and vegetables in Slovenia. For instance, it could involve non-governmental organisations (N.G.O.s) focused on sustainable development (e.g., local action groups, development agencies), or other civil society organisations (e.g., agricultural cooperatives, Union of Slovenian Organic Farmers Association, Demeter Slovenia, Ajda Vrzenec Society and Ajda Partnership) and local media outlets (e.g., publications, radio and T.V. channels, events).

## 7. Conclusions

This study focused on road freight transport of selected fresh fruits and vegetables and its market in Slovenia where we found issues with food self-insufficiency resulting in much of the selected produce being transported from abroad. We have taken the position that Slovenia would benefit in terms of sustainability from an increase of domestic production and consumption of fruits and vegetables to which end social marketing could help. Importantly, we established that community-based social marketing that includes mass-media campaigns with a combination of interpersonal communication on local level could contribute to awareness rising across publics of interest (i.e., consumers and retailers) about freight transport externalities on the environment and society. This combination could prove useful to reach out to retailers who usually are not part to a classical marketing campaign, but that according to the data collected have a fundamental role in the case at hand. There has already been a degree of positive change, but there is still the need to move along sustainability and from this study it emerges that retailers are a good point to take the task further. The present analysis unveiled some current trends in fresh fruits and vegetables market in Slovenia and offers empirical results which could help a range of organisations as are trade association representatives, public policymakers, marketing managers, analysts and marketers in their efforts to create campaigns and to achieve a more sustainable freight transport system. Part of the results that emerge might also inform social marketing campaigns in other country context which as Slovenia have experienced a transition from a planned to market economy as is Croatia, Serbia, Bosnia and Herzegovina, but also Czech Republic and Slovakia, taking into consideration their specific in terms of policy and agricultural production. We recognise challenges for broader generalisations, but the methodology used here can support future research in their own explorations. Keeping in line with previous researches where the use of social marketing in the context of freight transportation is lacking, we have presented its connection with road freight transportation of produce. We conclude that social marketing application could bring about benefits towards more sustainable freight transportation of fresh fruits and vegetables.

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**Appendix A.** Produce origin from primary data collection.

Produce origin	Share in total (%)			
	Apples	Pears	Carrots	Cabbage
Slovenia	60.26	19.05	10.00	42.31
Italy	16.67	47.62	35.00	23.08
Austria	17.95	/	40.00	7.69
European Union	2.56	14.29	5.00	11.54
Slovakia	1.28	/	/	/
Poland	/	/	/	3.85
France	1.28	/	/	/
Netherlands	/	/	10.00	11.54
Republic of South Africa	/	14.29	/	/
China	/	4.76	/	/

Source: Research results.

**Appendix B.** Average retail crops prices (in EUR) and the differences between imported and Slovenian produce price (in %).

Produce origin	Apples		Pears		Carrots		Cabbage	
	Conv. <sup>a</sup>	Org. <sup>b</sup>	Conv. <sup>a</sup>	Org. <sup>b</sup>	Conv. <sup>a</sup>	Org. <sup>b</sup>	Conv. <sup>a</sup>	Org. <sup>b</sup>
Slovenian	1.06	2.41	1.13	4.29	1.27	/	0.72	/
Imported	1.78	2.83	1.66	3.31	1.4	2.08	0.87	3.61
Difference	67.92	17.43	46.9	-22.84	10.24	/	20.83	/

<sup>a</sup>Conventional.<sup>b</sup>Organic.

Source: Research results.