

*Tatjana Tokareva*

## IMPACT OF CONSUMER EATING HABITS ON FOOD WASTE AMOUNT IN LATVIA

## WPŁYW NAWYKÓW ŻYWIENIOWYCH KONSUMENTÓW NA ILOŚĆ MARNOWANEJ ŻYWNOŚCI NA ŁOTWIE

Latvia University of Agriculture

Celtnieku street 2–17, Ane, Ozolnieku novads, Latvia, LV-3018, e-mail: tatjana.tokareva@inbox.lv

**Streszczenie.** Nawyki żywieniowe nie są praktyką niezmienną. Wręcz przeciwnie, zmieniają się one nieustannie wraz z rozwojem nowych technologii i nowych produktów spożywczych, wraz z procesami globalizacji, które pozwalają ludziom odkrywać nowe kultury i egzotyczne smaki, jak również w wyniku zmian wartości i postaw społecznych. W przeszłości nawyki żywieniowe odzwierciedlały konkretny wybór pożywienia do konsumpcji, podczas gdy w obecnych czasach, ze względu na ogólny dobrobyt, nawyki żywieniowe postrzegane są jako jedna z głównych przyczyn wzrostu ilości marnowanej żywności. Marnowanie żywności zaś wywiera dramatyczny wpływ na środowisko. Stąd też celem niniejszej pracy jest próba określenia jak tworzą się nawyki żywieniowe na różnych poziomach i jakie czynniki mają na nie wpływ, jak również próba analizy sytuacji na Łotwie na tym obszarze.

**Key words:** attitude, consumption style, economic impact, environment, spoilage.

**Słowa kluczowe:** odpady spożywcze, podejście, skutki gospodarcze, styl konsumpcji, środowisko.

### INTRODUCTION

Eighty thousand human generations were hunter-gatherers, followed by approximately 560 generations that depended on agriculture. Ten generations have lived since the beginning of the industrial age, and only two generations have experienced modern society. A generation is about 25 years, which means that human beings have had to fight for their food 99.9% of the time that has elapsed since the appearance of hunter-gatherers. During the last 100 years humans have enjoyed a relatively stable supply of nutrients, and only during the past 50 years some of us have had the benefit of an abundance of food (Aguilera 2012).

But it is calculated that by 2050 the world's population will increase by two or three billion, which will likely double the demand for food. Demand will also rise because many more people will have higher incomes, which means they will eat more, especially meat. Increasing use of cropland for biofuels will make meeting the doubling goal more difficult. So even if it is possible to solve today's problems of poverty and access, there will also be the need to produce twice as much to guarantee adequate supply worldwide, that could be only done by clearing tropical forests, farming marginal lands and intensifying industrial farming in sensitive landscapes and watersheds, humankind has made agriculture the planet's dominant environmental threat. Agriculture already consumes a large percentage of the earth's land surface and is destroying habitat, using up freshwater, polluting rivers and oceans, and emitting greenhouse gases more

extensively than almost any other human activity. To guarantee the globe's long-term health, the adverse impact on environment must be dramatically reduced. Therefore, the world's food system faces several incredible, interwoven challenges: it must guarantee that all seven billion people alive today are adequately fed and it must double food production in the next 40 years (Foley 2011).

Wasted food according to Soethoudt and Timmermans (2013) is defined as any food that is intended for human consumption removed from the food supply chain. It is also defined as food that is discarded and not fully consumed (Princeton University Dictionary 2006); it is closely related to attitudes and behaviors. Food gets 'lost' if it is affected by structural causes such as weak infrastructure, technological obsolescence, lack of refrigeration, etc. (Gustavsson et al. 2011). If the food loss problem in poor countries could be solved by investing money in infrastructure, processing and storage technologies and facilities, that is mostly by investments, then in rich countries to solve a food wasting problem, it is necessary to change people's attitude towards food, their habits and even laws.

Researchers also divide all wasted food in avoidable and unavoidable food waste. If unavoidable food waste is defined as a part of food products that got discarded because they couldn't possibly be used in the meal making (e.g. bones), then avoidable food is considered edible and defined as food and drink that some people eat and others do not (e.g. bread crusts), or that can be eaten when food is prepared in one way but not in another (e.g. potato skins, watermelon rinds) (Household Food... 2009).

A habit is a behaviour that is regularly repeated (Aguilera 2012). Eating habits consist of the types of foods you eat most often and how you eat them, which in turn are influenced by lifestyle as well as beliefs and traditions. According to Rodriguez (2011), eating habits determine not only the food we eat, but refer to why and how people eat, what food they eat, and with whom they eat it, as well as the ways people obtain, store, use, and **discard food**. Individual, social, cultural, economic, religious, environmental, and political factors influence people's eating habits. Thus, in this definition it is clearly stated that eating habits are the ones that affect food wasting.

Roughly one-third of the edible parts of food produced for human consumption, gets lost or wasted globally, which is about 1.3 billion ton per year. In medium- and high-income countries food is to a great extent wasted, meaning that it is thrown away even if it is still suitable for human consumption. In developing countries more than 40% of the food losses occur at post-harvest and processing levels, while in industrialized countries, more than 40% of the food losses occur at retail and consumer levels. Food waste at consumer level in industrialized countries (222 million ton) is almost as high as the total net food production in sub-Saharan Africa (230 million ton) (Gustavsson et al. 2011). That's why this article is also focused on food waste that occurs at consumption level.

**Hypothesis:** The food wasting problem at food consumption level is closely related to eating habits.

## RESULTS

The main goal of the article was to research how eating habits affect food waste in Latvian households. For this purpose, the results of a pilot research conducted from May till September

2013 were analyzed. An online survey comprised of 48 questions in the Latvian language regarding eating habits that influence food wastage. 610 respondents took part in the survey: 345 were women and 265 – men. The age distribution was as follows:

- 18–29 years: 135 respondents or 22%,
- 30–49 years: 243 respondents or 40%,
- 50–69 years: 196 respondents or 32%,
- 70 and more years: 36 respondents or 6%.

The theoretical discussion and the development of the pilot survey was inspired by scientific papers, monographs, reference documents and free Internet sources. Papers were selected by search terms and by references provided in subject studies.

Eating habits are affected on different levels by different factors. In the Tables 1–3 below these levels and factors are enumerated, along with examples how these factors can affect the formation of eating habits and also how these relate to food wasting.

Table 1. Factors that affect eating habits at micro level and their manifestations

Factors	Examples
Mentality Family Friends	A person can consider as a good/acceptable practice to cook more than he/she is able to eat and then discard the leftovers. A person might be too picky when it comes to food, encouraged by family or close friends, so the food the person doesn't find tasty is easily discarded.

Source: own compilation based on works by Gronow (1997), Randall (1999).

The formation of eating habits at micro level has been explained from the symbolic interaction theory perspective. The symbolic interaction theory helps to understand how people share interpretation of material and non-material symbols (Ballantine and Roberts 2009). The process of civilization is strictly connected with the learned behaviour, when people learn to base their actions not on what is biologically needed or what their instincts tell them, but on what is “right” in the given situation (Ashley 2004). Therefore when people exchange the meanings of symbols they as well set norms, values, beliefs, as well as laws.

As the symbolic interaction theory suggests, one's eating habits are closely connected to the behaviors and views of the people most close to a given individual. Therefore, people very often repeat actions that were considered a norm in their family. That is why it was important to see how food-obtaining habits correlate with the amount of spoiled food. As it can be seen from Figure 1, in a household where one person is in charge of buying food, food is the least wasted. But in a household where each member buys and eats his/her food separately, the spoilage of food is the greatest. It could be explained with the fact that one person when cooking, produces more leftovers which can't be used by another person for a different meal. They can also be more “desire” oriented. So in a way planning and shopping routines explain most of the variance in food waste, with the latter having the largest influence. And if planning routines have a negative effect on food waste, then shopping routines are positively associated with food waste.

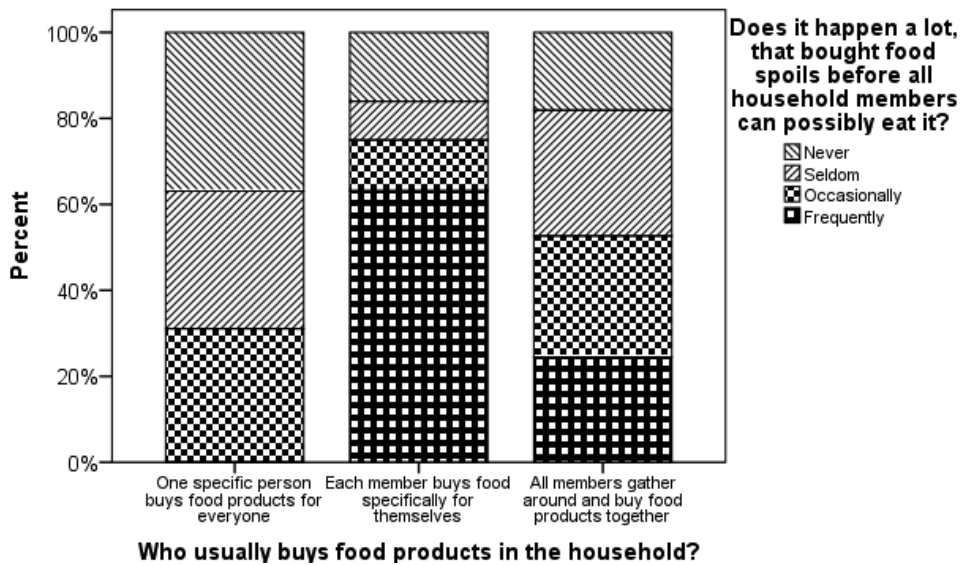


Fig. 1. Correlation between the possibility of spoiling food and shopping routine  
 Source: own work based on the results of the pilot research conducted by the author.

The answers provided in Figure 2 very strongly correlate with the answers in Figure 1. It becomes evident that the more actively all household members participate in the meal planning, the more often they also dine together. However, it can also be observed that if more people shop for meal ingredients together, there is a bigger possibility that in the end food will get wasted as it is harder to satisfy everyone's food desires and in the end bigger amount of food, that can't be easily combined in one meal, is bought. Therefore, it is possible that bigger amount of food will be wasted.

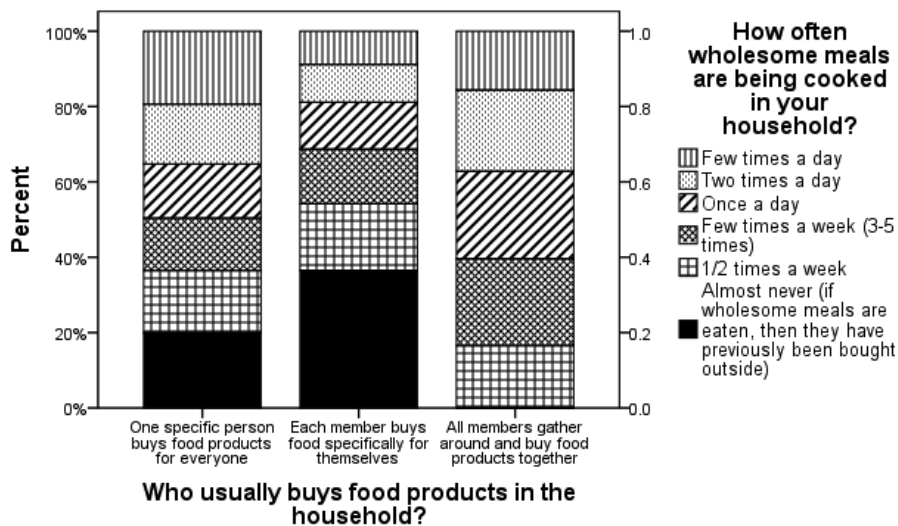


Fig. 2. Correlation between shopping routine and wholesome meal cooking  
 Source: own compilation based on results of the pilot research conducted by the author.

Contrary to what might be expected, that is a correlation between friends' positive example and food waste minimization, in case of this pilot research such correspondence has not been identified. People whose friends tried to waste less, were actually the ones that wasted the most irresponsibly. In the social and cultural context of Latvia, it could be possibly explained by lesser importance of friends' opinions and greater importance of family values and norms that shape people's eating habits.

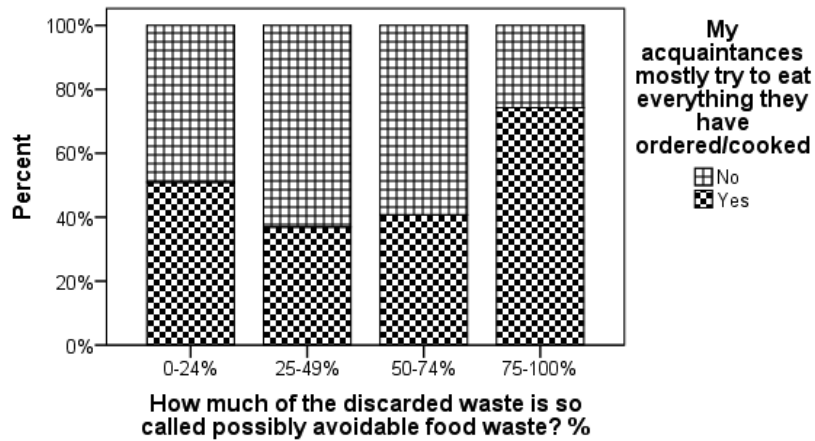


Fig. 3. Correlation between positive friends' example and amounts of avoidable food waste  
 Source: own compilation based on results of the pilot research conducted by the author.

Table 2. Factors that affect eating habits at meso level and their manifestations

Factors	Examples
Culture Style of living Place of residence Income Traditions	The more people buy food, the more they waste it. Meso level factors affect the way a person obtains, stores, uses and discards food. Like people who call themselves "Freegans" are the ones that choose to reclaim and eat food that has already been discarded.

Source: own compilation based on works by Hall et al. (2009), Beardsworth and Keil (1997), Randall (2002).

The formation of eating habits at meso level can be viewed from the developmentalism theory perspective. Simmel thought that all people need excuses to justify their eating habits and culture provides such justification (Gronow 1997). Taste and behavior change over time, and the base of those changes is the development of previous societies (Randall 2002).

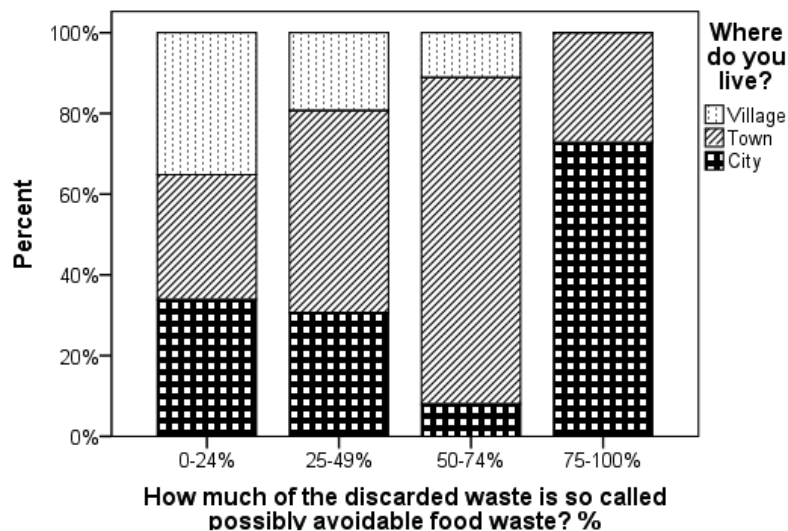


Fig. 4. Correlation between the place of residence and amounts of avoidable food waste  
 Source: own compilation based on results of the pilot research conducted by the author.

As it was expected and is in line with the developmentalism theory, the place of residence affects the amount of food waste. For example, villagers who live closer to food manufacturing plants and see how food is grown before it is processed, and also grow crops themselves, waste way less. And, in contrast to villagers, urban population wastes the most. That can be explained by easy accessibility of food products and by the fact that people don't raise/grow

their own food, so they don't appreciate the work behind that and don't really comprehend how serious is the negative impact of food production and food waste on the environment.

As it can be seen from Figure 5, there is a certain correlation between incomes, how much people spend on food and how much of the purchased food they discard in the end. One of the most interesting results are that people, with incomes below 256 euro who spend on food 0-24% of their income, are the ones that waste the most. One possible explanation could be that people buy less quality food products and that is why they get spoiled faster, and in the end discarded. In households with incomes above 685 euro, if approximately 75–100% of the income is spent on food, then 50–74% of the food gets discarded. This phenomenon can be explained by the possibilities these people have. They can afford to buy way more food products that they want on the spur of the moment, but in the end, because the amounts are too big it gets wasted. The latter has a greater impact on the environment since these households buy way more and waste way more.

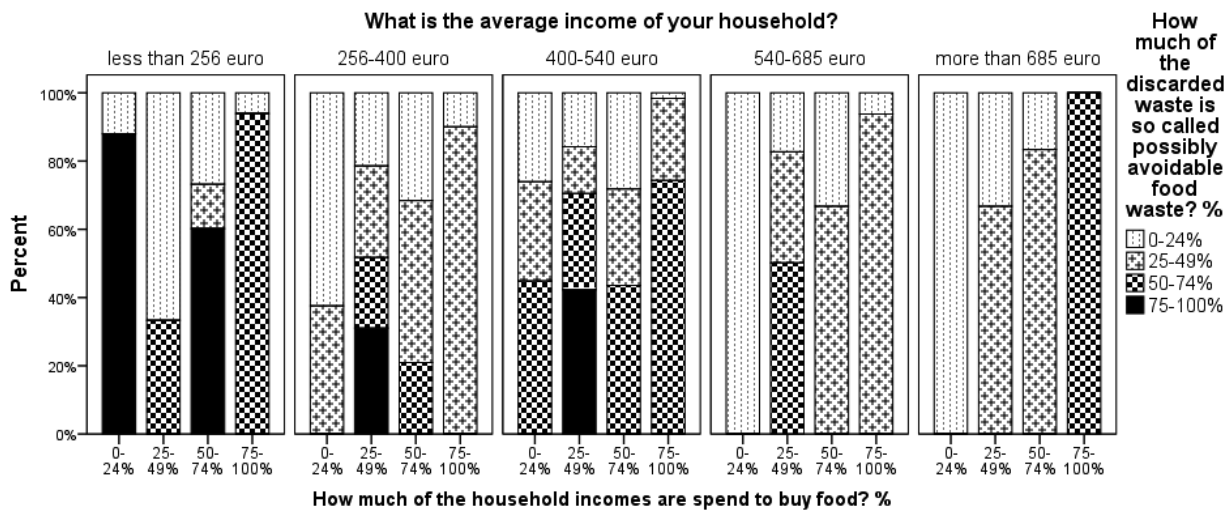


Fig. 5. Correlation between income, the percentage of incomes spend on food and food wasting  
Source: own compilation based on results of the pilot research conducted by the author.

Table 3. Factors that affect eating habits at macro level and their manifestations

Factors	Examples
Religion Mass media Country's economic situation	The factors mentioned can affect what kind of food and food parts are suitable for meals, and in this way indirectly influence food wasting (Hubbard 2007). Media has a great deal of influence on the masses; such things as asking for leftovers after a meal at a restaurant is a wasteful eating habit that can both be manipulated by the media and big corporations, some of which are often the sponsors of certain 'information' (Randall 1999)

Source: own compilation based on works by Hubbard (2007), Randall (1999).

The formation of eating habits at meso level can be also viewed from the social conflict theory perspective. From the social conflict theory point of view each individual in the society learns its values, norms, rules and laws, but all these culture formations do not have a uniform impacts each social group (ethical, religious, political etc.) wants to affect another groups, therefore they defend their interests and try to promote the features of their social group and make them part of the dominant culture elements (Ballantine and Roberts 2009). That can also work as a consolidating factor for the society.

This theory also points out that those with certain privileges tend to manipulate different institutions, so they can achieve their goals, like for example, the Muslim community who bans pig breeding within their territory.

It also tries to explain globalization trends. Globalization is connected with the rich society's ideology rooted in the cultures of the less rich societies, therefore forming "similar" societies, with common ideas about politics, economics, religion, and also eating habits (Ballantine and Roberts 2009).

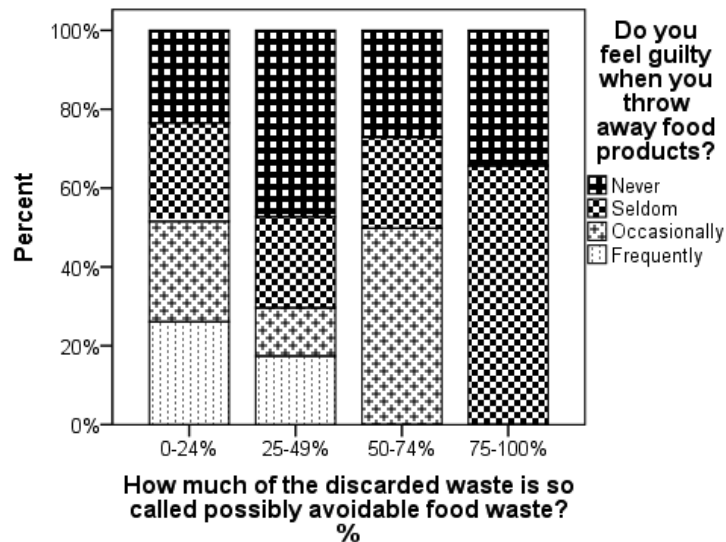


Fig. 6. Correlation between environmental concern and amounts of avoidable food waste  
Source: own compilation based on results of the pilot research conducted by the author.

Various non-governmental organizations using mass media try to bring to public attention the issue of hunger and food wasting, so it was important to research how Latvians feel about discarding food. As it was expected, households where people are aware of the issue and try to reduce food waste, and waste not more than 24% of all bought food, are also the ones that consider the environmental impact and tend to feel guilty about food waste. In stark contrast, people that now waste more than 74% of their food, do not tend to feel bad about that and do not understand the environmental consequences of their actions.

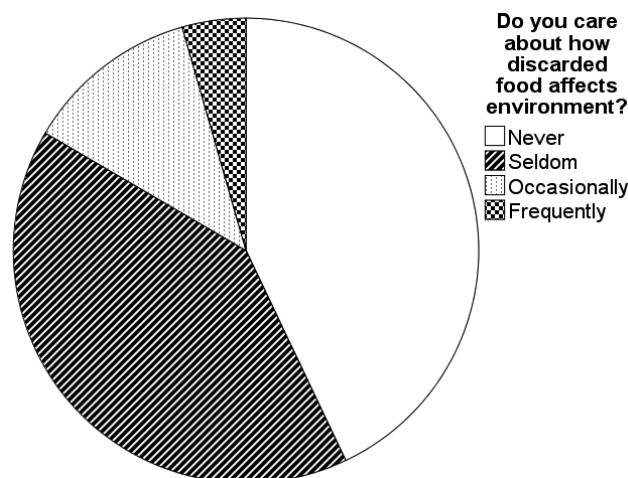


Fig. 7. Caring about food waste negative affect on the environment  
Source: own compilation based on results of the pilot research conducted by the author.

In general, people in Latvia seldom or never care about how their wasted food affects the environment they live in. That also explains the attitude towards the issue in general, namely why people easily waste unwanted food. This attitude can be also explained by the lack of mass media awareness campaigns and also by the fact that environmental situation in Latvia is more than satisfactory, so people do not link the negative impact on the environment with food wasting at their households.

## CONCLUSIONS

1. Eating habits have a great impact on how much food people waste and also how important they believe the food wasting problem really is.
2. Larger households waste more avoidable food than smaller households; certain types of households appear to waste more food but that is mainly because they contain more people. Single person households waste the most food on a per capita basis.
3. Close friends who are motivated to cut down on their food waste do not seem to have a positive effect on individuals by inspiring them to do the same. Family's example has the dominant and opposite effect. In Latvia, it could be possibly explained by lesser importance of friends' opinions and greater importance of family values and norms which shape individual eating habits.
4. Seeing how much work it takes to raise/grow food products, motivates people to waste food less and think about how they can integrate leftovers into other meals.
5. People that waste the most are also the ones that feel the least guilty about the environmental effects of their behaviour; they are also the ones that don't really comprehend how serious is the negative impact of food production and food waste on the environment. Mass media and non-governmental organizations should educate people more about the environmental impact of food waste.
6. The environmental situation in Latvia is more than satisfactory, so people do not link the negative impact on the environment with food waste in their households.

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