

UNDERSTANDING INDIVIDUAL BEHAVIOR AND MORAL JUDGMENTS  
ON FOOD WASTE IN A UNIVERSITY CAFETERIA

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**I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.**

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## **ABSTRACT**

### **UNDERSTANDING INDIVIDUAL BEHAVIOR AND MORAL JUDGMENTS ON FOOD WASTE IN A UNIVERSITY CAFETERIA**

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Along with the global food crisis, climate change, population growth, urbanization, enlarging middle class, and shifts in consumption patterns, food waste became a severe problem to tackle. Around one-third of produced food, which approximates to 1.3 billion tonnes per year, has been globally wasted throughout the food supply chain. A considerable literature has proliferated around the theme of food waste; and yet the drivers of consumer-level food waste in emerging economies remains unattended. This dissertation aims to understand why and how students produce plate leftovers in the university cafeteria and justify their food wasting practices by applying two approaches. First, apart from the traditional variables of the Theory of Planned Behavior framework, it tests the effects of perceived portion size, taste and palatability, perceived value for money, and self-reported environmental behavior on students' behavior of leaving plate waste by surveying 479 students in the METU Cafeteria. Confirmatory Factor Analysis and Structural Equation Modeling results revealed that all factors, except attitudes and subjective norms, significantly affected the students' behavior regarding food waste in the university cafeteria. Moreover, a

follow-up study is conducted to understand students' food wasting practice and justifications by interviewing 15 students. At this stage, Boltanski and Thévenot's Economies of Worth framework is adopted to uncover the moral complexity of wasting food practices. Findings elucidate that the students employed various moral regimes to justify their food wasting practice and developed strategies to eliminate food waste. Overall, the present research contributes to understanding the complex issue of wasting food in the METU Cafeteria from two different theoretical and methodological perspectives.

Keywords: Food Waste, Theory of Planned Behavior, Consumer Behavior, Morality of Consumption, Economies of Worth

## ÖZ

### ÜNİVERSİTE KAFETERYASINDA YEMEK ATIKLARINA İLİŞKİN BİREYSEL DAVRANIŞLARIN VE AHLAKİ YARGILARIN İNCELENMESİ

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Küresel gıda krizinin, iklim değişikliğinin, nüfus artışının, kentleşmenin, genişleyen orta sınıfın ve tüketim kalıplarındaki değişimlerin yanı sıra, gıda atığı son yıllarda üstesinden gelinmesi gereken ciddi bir sorun haline gelmiştir. Küresel çapta üretilen gıdanın üçte biri, yaklaşık olarak yıllık 1.3 milyar ton gıda, küresel olarak gıda tedarik zinciri boyunca boşa harcanmaktadır. Gıda atığı teması üzerine yapılan araştırmaların sayısı giderek artıyor olsa da gelişmekte olan ekonomilerde tüketici düzeyinde gıda atığının etmenleri akademik düzeyde halen yeterli ilgiyi görmemektedir. Bu tez çalışması, üniversite yemekhanelerinde öğrencilerin neden ve nasıl tabaklarında yemek bıraktıklarını ve bu pratiklerini nasıl savunduklarını iki yaklaşımla ele almayı amaçlamaktadır. İlk olarak, Planlanmış Davranış Teorisi çerçevesinin geleneksel değişkenlerinin dışında, algılanan porsiyon büyüklüğü, tat ve lezzetlilik, para karşılığında algılanan değer ve beyan edilen çevresel davranışın öğrencilerin tabaklarında yemek bırakma davranışı üzerindeki etkilerini ODTÜ Kafeteryası'nda 479 öğrenciye anket uygulayarak test edilmiştir. Doğrulamalı Faktör Analizi ve Yapısal Eşitlik Modellemesi sonuçları, davranışa karşı tutum ve öznel

normlar dıřındaki tm faktrlerin, đrencilerin niversite yemekhanesinde tabaklarında yemek bırakmaya iliřkin davranıřlarını istatistiksel olarak nemli lde etkilediđini ortaya koymuřtur. Ayrıca, takip eden ikinci alıřmada đrencilerin gıda atıđı pratiklerini ve gerekelerini anlamak iin 15 đrenciyle derinlemesine mlakatlar gerekleřtirilmiřtir. Gıda atıđının ahlaki aıdan ok ynl yapısını ortaya koyabilmek iin Boltanski ve Thvenot'un Deđer Ekonomileri erevesi benimsenmiřtir. Bulgular, đrencilerin gıda atıđı pratiklerini haklı ıkarmak iin eřitli ahlaki rejimler kullandıklarını ve gıda atıđını ortadan kaldırmak iin stratejiler geliřtirdiklerini ortaya koymaktadır. Genel olarak, bu arařtırma, ODT Kafeteryası'nda gıda atıđı gibi karmařık bir konunun iki farklı teorik ve metodolojik perspektiften anlařılmasına katkıda bulunmaktadır.

Anahtar Kelimeler: Gıda Atıđı, Planlanmıř Davranıř Teorisi, Tketic Davranıřları, Tketimin Ahlakı, Deđerler Ekonomisi.



*To the mother earth...*

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## **LIST OF ABBREVIATIONS**

### **ABBREVIATIONS**

AVE: Average Variance Extracted

CFA: Confirmatory Factor Analysis

CFI: The Comparative Fit Index

CR: Composite Reliability

FAO: Food and Agricultural Organization of United Nations

GHG: Greenhouse Gas

HLPE: High Level Panel of Experts

IFPRI: International Food Policy Research Institute

IPCC: International Panel on Climate Change

RMSEA: Root Mean Square Error of Approximation

SDG: Sustainable Development Goal

SEM: Structural Equation Modeling

SRMR: Standardized Root Mean Square Residual

TLI: Tucker-Lewis Index

TMO: The Turkish Grain Board

TPB: Theory of Planned Behavior

UN: United Nations

UNEP: United Nations Environment Programme

US EPA: The United States Environmental Protection Agency



## **CHAPTER 1**

### **INTRODUCTION**

With the pressure from the climate crisis and population growth, there is no doubt that food will begin to be scarcer. While in a dispute between the insufficiency and the inequality of food distribution, the recent global food crisis has led us to look for possible ways to increase food abundance. The debate about food has gained fresh prominence, arguing that food waste has also become a serious problem to tackle. The report of FAO (2011) asserts that around one-third of produced food, which annually approximates to 1.3 billion tonnes, has been globally wasted throughout the food supply chain. Considering social, environmental, and economic drawbacks of wasting food caused by the inefficient use of resources such as land, water, energy, fertilizers, and labor in the food productions throughout the food supply chain (Katajajuuri et al., 2014), the food waste undoubtedly became a sign of the inefficiency, unfairness and unsustainability of food systems (High Level Panel of Experts (HLPE), 2014). Thus, it is inevitable that the will to reduce food waste has been gaining more attention in the international arena. Drivers and causes of food waste at different levels of the food supply chain need to be determined to achieve this purpose.

A growing body of literature recognizes the importance of food waste, particularly associated with sustainable food production and consumption. The most recent and ubiquitous goal to reduce food waste is undoubtedly set by “the United Nations (UN) Sustainable Development Goal (SDG) 12.3, which aims to “halve the per capita global food waste at the retail and consume levels” by 2030 (UN, 2015). This target induces to proliferate the literature on food waste at all levels of the food supply chain that show that the consumption stage is the largest waste generator compared

to the harvesting, processing and distributing stages of food, especially in developed countries (Griffin et al., 2009; Parfitt et al., 2010).

Moreover, the waste hierarchy for food (Sanchez Lopez et al., 2020) or food recovery hierarchy (The United States Environmental Protection Agency (US EPA), 2020b) suggested that prevention of food waste before occurring is the most preferred action to reduce food waste, and arguably to reach the ambitious target of SDG 12.3. While the consumption stage, encompassing both households and the food service sector, is the biggest food waste generator compared to other parts of the food supply chain (Griffin et al., 2009; Neff et al., 2015; Williams & Wikström, 2011), the waste at the late stage of the food supply chain is more destructive as the resources used to bring food to one stage further accumulate (Wunderlich & Martinez, 2018). Hence, I put emphasis on consumer-level food waste, specifically in the food service sector in this study.

The food services sector is demarcated as any food or meal prepared and served in an out-of-home context (Silvennoinen et al., 2015). To date, little is known about food waste in the food service sector (Filimonau & de Coteau, 2019; Principato et al., 2018), even though roughly 26% of the annual global food waste is produced in the food service industry (United Nations Environment Programme (UNEP), 2021). Regarding people are inclined to have their food in the food service sector than before (Lorenz, Hartmann & Langen, 2017) and plate waste has a fair share in avoidable food waste in service settings (Filimonau, Todorova, et al., 2020; Lorenz-Walther et al., 2019), consumers' food waste behavior and practices in the food service sector become more significant.

This dissertation aims to contribute to this growing area of research by exploring the reasons behind food waste in the food service sector, specifically unraveling why and how students waste food in a university cafeteria setting. I strategically define the university cafeteria as a context because educational institutions provide a tremendous number of meals at a single place that potentially generates food waste (Painter et al., 2016). In the present study, I adopted both quantitative and qualitative

research designs to address food waste behavior and practices of students in a university cafeteria by conducting two studies. Understanding food waste practices and behavior of the young population in the food service sector may provide new insights into developing useful and effective policy applications to reduce food waste.

The dissertation adopts the following structure and consists of four chapters. In this chapter, the concept of food waste will be clarified, and the relevance of the subject matter will be discussed. The theoretical background for the behavioral approach along with the research hypotheses will be introduced in Chapter 2. After that, the methodological approach, analyses, results, and discussions will be covered in the same chapter. Results show that the intention may have a minor role in predicting students' plate leftover behavior than some other variables, unlike the expectations. Chapter 3 will lay out the theoretical approach of the follow-up research and look at the specific ways in which students produce plate waste in the cafeteria. Methodology, context, and findings will be detailed in this part as well. Main findings reveal students to utilize multiple moral regimes to justify their food waste practices. Finally, the last chapter of the dissertation entitles general conclusions and contributions of the research and recommendations to reduce food waste in a food service sector context.

### **1.1. Background for Food Waste**

In this part of the study, an overview of the issue of food waste will be presented. The food system, the definition of food waste, the food loss and waste in numbers with quantification studies, food waste in global discourse, various impacts of food waste, and the rationale of the dissertation will be explained in the following sections.

### **1.1.1. The Food System**

Intergovernmental Panel on Climate Change (IPCC) (2021) declared that: “It is unequivocal that human influence has warmed the atmosphere, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred.” (p.6). Due to the increase in the concentrations of greenhouse gases (GHGs) in the atmosphere, which is mainly released by the combustion of fossil fuels, deforestation, and agriculture, the average surface temperature, i.e., warming the planet has been increasing (IPCC, 2021). As a result, the snow and ice coverage on earth have been shrinking, the sea level has been steadily rising, and the ocean surface temperature has been swiftly climbing up. This phenomenon is called climate change. The planet earth has experienced climate change many times so far, and yet this particular phenomenon is unique in the sense that it is human-induced. IPCC (2021) stated that the climate has surely changed since the pre-industrial era, and it is not inherently wrong to state that human activities are responsible for the current global climate change. That is why the current epoch is even named Anthropocene, underlying the effects of humans and our societies on the Earth System began around 1800 with the starting of industrialization (Steffen et al., 2007). Additionally, the recent arguments on using the term climate crisis demonstrate the urgency of the problem that needs to be tackled (Ripple et al., 2020). Hereafter, I will also embrace the term “climate crisis” to accentuate the urgency of global climate change.

Impacts of the anthropogenic climate crisis on agriculture and the food system are evident owing to the very nature of agriculture itself. The food system: “encompasses all the activities and actors in the production, transport, manufacturing, retailing, consumption, and waste of food, and their impacts on nutrition, health and well-being, and the environment” (Mbow et al., 2019, p.442). As the global climate crisis disturbs weather conditions, agricultural production has been biophysically affected by changes in weather inputs such as temperatures, precipitation patterns and frequency of some extreme weather events (Mbow et al., 2019; Nelson et al., 2014). Higher temperatures not only decrease yields of desirable crops but also proliferate



weed and pest generation, while changes in precipitation patterns boost the long-run crop production declines and short-run crop failures (International Food Policy Research Institute (IFPRI), 2009). Even though some crop yields will increase in some parts of the world, the overall effects of the climate crisis on agriculture will not be positive, will be hazardous to global food security (IFPRI, 2009).

The current food system is already dysfunctional and aggressively exploiting the scarce resources of our planet earth by land degradation and depleting aquifers (World Bank, 2020). The efficient allocation of planet earth's scarce resources such as land, freshwater, and energy, which are fundamentals for food production, is a severe challenge (Beretta et al., 2013). Additionally, conventional food production brings negative externalities within. The entire food system, including agriculture and land use, storage, transport, packaging, processing, retail, and consumption, generates around 21– to 37% of total GHG emissions (Mbow et al., 2019). The most recent estimation revealed that in 2015, global food systems emitted 18 Gt CO<sub>2</sub> equivalent each year, depicting 34% of total GHG emissions (Crippa et al., 2021). Godfray et al. (2010) remarked that any further expansion of agriculture into natural habitat would threaten biodiversity. Ecotoxicity and eutrophication of surface water, biodiversity loss, soil erosion because of land degradation via opening new agricultural lands, and intense pesticide usage for improving efficiency are some of them (Pretty et al., 2005). In short, the current food system has directly contributed to transgressing the planetary boundaries by creating irreversible environmental drawbacks (World Bank, 2020).

The planetary boundaries framework, which was introduced by Rockström et al. (2009), defines nine biophysical boundaries that denote a safe operating space for humanity. The authors identified key earth system processes regulating the resilience of the earth system then quantified for each process the boundary level that should not be exceeded to refrain from global environmental change and to preserve Holocene-state, which is a desirable planetary state (Rockström et al., 2009; Steffen et al., 2015). These boundaries with assigned limits: stratospheric ozone depletion,

atmospheric aerosol loading, ocean acidification, biogeochemical flows (interference with P and N cycles), chemical pollution, freshwater use, land system change, biosphere integrity, and climate change (Rockström et al., 2009). The current food system drives the transgression of at least five of these boundaries; biosphere integrity, biogeochemical flows, land-system change, freshwater use, and climate change (Campbell et al., 2017). Therefore, any transformation in the global food system is crucial for the planet.

On the other hand, before the Covid-19 pandemic, about 690 million people, corresponding to 8.9% of the total world population, were undernourished, and if the same trend continues, this number will surpass 840 million by 2030 (FAO et al., 2020). Yet, the latest projections revealed that from 720 to 811 million people in the world go hungry every day in 2020, around 161 million people more than in 2019, regarding the upper bound of the range and corresponds to 9.9% of the population (FAO et al., 2021). In addition to the undernourished people, 12% of the global population, representing 928 million people, which is 148 million more than in 2019, encountered severe food insecurity in 2020. Approximately 2.37 billion people, almost one in every three people, around the globe did not even have access to adequate food in the same year, with an enormous increase of 320 million people in one single year, while 3 billion people in the world could not reach healthy diets (FAO et al., 2021). Regarding these current situations, how we can pave the way for achieving zero hunger by 2030, which is Goal 2 of SDG (UN, 2015), is a rather tricky question to be addressed.

The growing global population may have played a vital role in creating more stress on the food systems. According to the 2019 prospects by the UN (2019), the world population was approximately 7.7 billion in 2019. Even though the fertility rate has been decreasing, the global population is expected to continue growing. Concerning the same projections, the world's population will be around 8.5 billion in 2030, 9.7 billion in 2050, and 10.9 billion in 2100, with a 95% probability. These projections can be clearly seen in Figure 1.1 below. Ostensibly, the accelerated population

growth will increase the pressure on available resources and push the planetary boundaries (Rockström et al., 2009) even further by threatening the earth's carrying capacity.

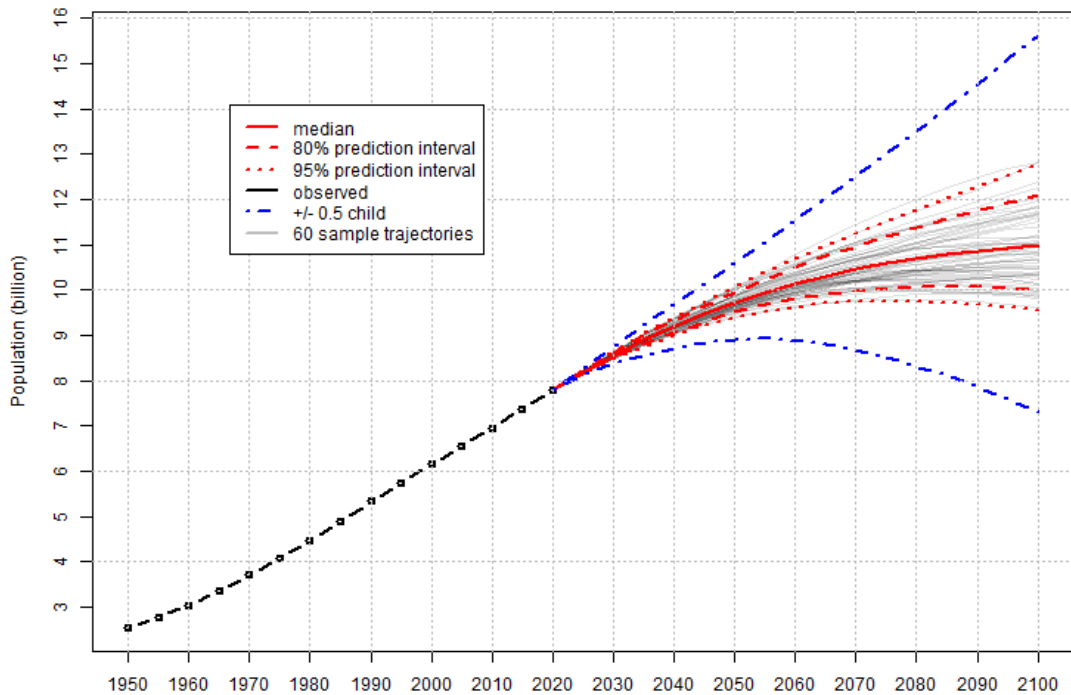


Figure 1.1: The Projections of World Total Population in 2019 (United Nations - Population Division, n.d.)

Consequently, the anthropogenic climate crisis and non-climate stressors, such as the proportion of people with malnourishment and food insecurity, and the latest population projections, threaten the currently available food system by affecting all pillars of food security, such as accessing the available food, utilizing the food, and the stability on food prices (Porter et al., 2014). Moving forward, concerning these impacts, how to feed 10 billion people by 2050 needs to be inquired. Providing food for 10 billion people sustainably by 2050 involves closing gaps related to the food supply, land use, and GHG emissions (Searchinger et al., 2019).

One of the critical approaches to feed 9 billion (or, possibly, 10 billion) people equitably and sustainably by 2050 is to enhance the primary production of food (Waste & Resources Action Programme (WRAP), 2011). Several lines of evidence suggested that to increase the available food supply for meeting increased demand in the future, increasing agriculture yield by opening new agricultural lands or increasing efficiency and productivity in agrarian production seems inevitable. Foley et al. (2011) underlined that crop production should be nearly doubled to match the projected demands, mainly from population growth and dietary changes. Ray et al. (2013) claimed that a 60% - 110% increase in agricultural production is required to meet the projected demand in 2050 to be globally food secure. According to business as usual growth in consumption trends, 56% more food supply will be needed to feed almost 10 billion people in 2050 than in 2010 (Searchinger et al., 2019). FAO (2019) estimated this amount as 35–50% more demand for agricultural products in 2050 compared to 2021.

Unless some action is taken, it is projected that nearly 600 million hectares of land, which is an area almost twice the size of India, will be in need in 2050 compared to 2010. For centuries, more agricultural land has been opened as a response to increased demand for food (Godfray et al., 2010). Again, food can be supplied by widening the agricultural land, yet the expense of damaging the ecosystem. Coupled with global population growth, how far should we continue to increase food supply by opening new agricultural lands, improving productivity through utilizing more fertilizers and pesticides, and ignoring the consequences of these actions on the environment? Increasing agricultural yield to meet the projected food demand is not a shortcut that can be engaged with carelessly as negative environmental consequences are clear. Instead of increasing agricultural yield with all costs, seeking no harmful strategies is necessary to tackle the challenge of feeding 10 billion people by 2050. Thus far, four planetary boundaries have already been transgressed: climate change, loss of biosphere integrity, land-system change, and biogeochemical cycles (Steffen et al., 2015). Feeding 10 billion people sustainably by 2050 without more transgressing planetary boundaries requires adopting a more inclusive approach to

make the entire food system, from farm to fork to landfill, more efficient (World Bank, 2020).

Around one-third of produced food has been globally wasted throughout the food supply chain (FAO, 2011) that verifies the magnitude of global food loss and waste. When this amount is converted into calories, it is tantamount to 24% of the world's food supply lost in between farm and fork (Searchinger, 2019). Reducing food loss and waste appears a promising strategy for increasing the available food supply while lowering the environmental footprint by relieving from required resources for food production (Hodges et al., 2011; Kummu et al., 2012; Mbow et al., 2019; World Bank, 2020). Ostensibly, increasing the amount of available food by reducing food waste does not necessarily mean directly transferring it to people suffering from malnutrition. However, the connection between food waste and available food supply along with food affluence and food poverty is “nevertheless real” (Stuart, 2009, p. xvi). Therefore, reducing food waste is critical to efficiently allocating scarce resources of planet earth and overcoming the challenge of feeding sustainably 10 billion by 2050.

In this part, I have tried to elucidate how the climate, food, ecosystems, and socio-economic systems are intertwined and how food loss and waste are connected to them. Let us now turn to the definition of food waste to clarify the terminology I have been using throughout the present study.

### **1.1.2. The Definition of Food Waste**

Before proceeding to examine the reduction of food waste, it is necessary to explicate what food waste means. However, in the literature, there is no agreed definition of food waste yet. As a result, I overview various accepted food waste definitions in this part. Then I will represent the accepted definition of food waste for the present study.

The very first definition of food waste suggested by FAO (1981) (as cited in Parfitt et al., 2010, p. 3065): “Wholesome edible material intended for human consumption, arising at any point in the FSC that is instead discarded, lost, degraded or consumed by pests”

In this initial food waste definition of FAO, only the edible part of the food, which is produced for human consumption, is covered, where the inedible part was not mentioned at all. Later, WRAP (2008) introduced different categorizations of household food waste such as avoidable, possibly avoidable and unavoidable. Inedible part of the food also appeared in this categorization. This classification is schematically demonstrated in Figure 1.2 below.

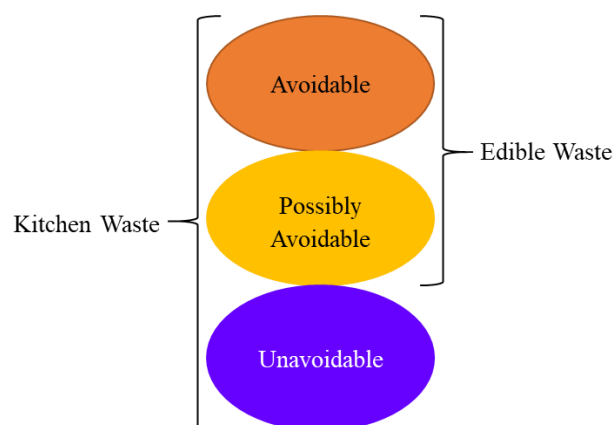


Figure 1.2: Schematic Illustration of WRAP’s Food Waste Categorization (WRAP, 2009, p.15)

Accordingly, unavoidable food waste means an inedible part of food such as meat bones and eggshells. Meanwhile, discarded food, which is perfectly convenient for human consumption, is in the avoidable food waste category, while possibly avoidable food waste encompasses food that some people consume as opposed to others do not, such as potato skins and bread crusts. This categorization can be different depending on the cultural contexts (Dhir et al., 2020).

Parfitt et al. (2010) differentiated food waste from food loss by focusing on food directed to human consumption, excluding inedible parts. Food losses, a decrease in

edible food mass, occur at the earlier stages of the food supply chain, which covers producing, post-harvesting and processing stages (FAO, 2011), whereas food waste arises from the end of the food supply chain, which is more about retailers' and consumers' behavior (Parfitt et al., 2010), which may be resulted from their negligence or a conscious decision to discard food (Lipinski et al., 2013). Regarding stages of the food supply chain, represented in Figure 1.3 below, the proposed division between food loss and food waste can be better understood.

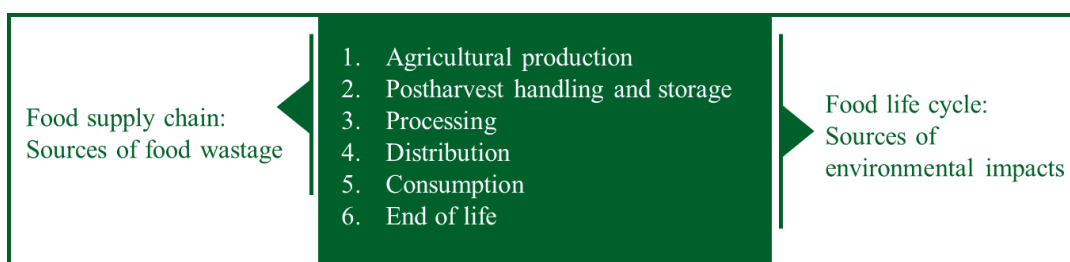


Figure 1.3: Sources of Food Waste and Sources of Environmental Impact in the Food Life Cycle (FAO, 2013)

Moreover, depending on the purpose of the research, using a sectoral approach to the food supply chain can be more convenient. European Commission divided the entire supply chain of food into five different sectors: the agricultural sector, manufacturing sector, wholesale/retail sector, food service sector, and household sector (Monier et al., 2010).

On the other hand, removing inedible parts of the food from the supply chain has been no longer accepted in the newer definitions of food waste because of resource efficiency concerns in waste management. For instance, in the project, the Food Use for Social Innovation by Optimising Waste Prevention Strategies (FUSION), funded by the European Commission, food waste was defined as such (Östergren et al., 2014):

Food waste is any food, and inedible parts of food, removed from the food supply chain to be recovered or disposed (including composted, crops ploughed in/not harvested, anaerobic digestion, bio-energy production, co-

generation, incineration, disposal to sewer, landfill or discarded to sea). (p. 6)

The US EPA (2009) also defined food waste as “Uneaten food and food preparation wastes from residences and commercial establishments such as grocery stores, restaurants, and produce stands, institutional cafeterias and kitchens, and industrial sources like employee lunchrooms”

Recently, the US EPA embraced the term “wasted food” in place of “food waste” as “food waste” suggests that the food no longer has value and needs to be handled as waste. In contrast, the term “wasted food” accentuates that a valuable resource is being wasted (US EPA, 2021).

Additionally, The High Level Panel of Experts (HLPE, 2014) on food security and nutrition focused on the edible part of raw production planned for human food uses and referred to food waste as “food appropriate for human consumption being discarded or left to spoil at consumer level – regardless of the cause.” (p. 22)

Lasly, FAO (2019b) recently defined food loss and waste as:

Food loss is the decrease in the quantity or quality of food resulting from decisions and actions by food suppliers in the chain, excluding retail, food service providers and consumers. Food waste is the decrease in the quantity or quality of food resulting from decisions and actions by retailers, food services and consumers. (p. 5)

To sum up, there is not one single definition of food waste. Adopting different terminologies for food waste and focusing on the edible part of the food or the inedible part of the food usually depend on the study’s purpose because measurement of food waste can be both burdensome and critical. In this study, similar to HLPE’s (2014) approach, I accepted food waste as discarded food, which is perfectly suitable for human consumption, as my primary focus is on consumer behavior and practices in the present study. To be more specific, I have treated meal leftovers on the plate, i.e., plate waste, such as rice or pasta remaining, as food waste, not necessarily



inedible parts, such as bones and fruit peels. According to Buzby & Guthrie (2002): “Plate waste is generally defined as the quantity of edible portions of food served that is uneaten” (p. iii). Therefore, I have embraced plate waste or plate leftover notions interchangeably throughout this study to refer to meal leftovers on the plate that people can consume.

### **1.1.3. Food Loss and Waste in Numbers**

On the global level, many governments, institutions, organizations, and initiatives started to address the food waste problem, especially after the influential report of FAO (2011) indicating how vital the quantification of food loss and waste is to express the magnitude of the current food waste level. In addition to the prominent report of FAO (2011) on the issue of global food waste, the literature has been growing for quantifying the amount of wasted food through the whole food supply chain in various geographical ranges.

In fact, one of the earliest studies on the quantification of food waste was conducted in Turkey. Pekcan et al. (2006) conducted a household food consumption survey to 500 households in Ankara, Turkey. Their sampling technique depends on grouping households into three socioeconomic statuses according to their average income level. They found that 318.8 g of food was discarded per person daily, corresponding to 215.7 kcal daily energy loss. Despite the earliest attempt at the quantification of food waste in Turkey, the latest information on the amount of food waste in Turkey was rather confusing. While Turkey Waste Prevention Foundation of Turkey (2019), stated that Turkey has annually been producing a total of 26 million tonnes of food waste, it was declared as 18.8 million tonnes of annual food waste in Turkey (UN, 2021), which did not particularly reveal neither the quantification methodology nor the source of this information.

Later, Lundqvist et al. (2008) pointed out the problem beneath the food crisis as food waste because half of the food grown is globally wasted even before reaching

consumers. Monier et al. (2010) also estimated that the annual amount of food waste ranges from 50 kg per capita to more than 500 kg per capita with a mean of 180 kg per capita in EU-27 countries for overall food value chain excluding agricultural production. This annual amount, according to the 2012 data at the EU-28 level, was predicted as a total of 88 million tonnes of food waste (Stenmarck et al., 2016). On average, one person in EU-28 countries wastes 173 kg of food waste per year. However, Koivupuro et al. (2012) previously calculated that the annual food waste amount per person was drastically lower than the estimated EU average, which was 23 kg in Finland.

In 2019, the Federal Cabinet of Germany adopted the National Strategy for Food Waste Reduction by referring to around 11 million tonnes of annual food waste in Germany depending on the calculations in 2012 (Germany Federal Ministry of Food and Agriculture, 2019). Then they revised this amount to about 11 million tonnes of annual food waste as of 2015 (Germany Federal Ministry of Food and Agriculture, 2021). This amount is somewhat comparable to the UK. According to the latest estimations by WRAP (2020b), annual food waste in 2018 generated by the UK households, food service sector, food manufacturing sector, the retail and wholesale sector is about 9.5 million tonnes in total, of which 70% comprised of edible parts of food. On the other hand, Neff et al. (2015) specified that 31 to 40% of the US post-harvest food supply was wasted. Roughly 103 million tonnes of wasted food were generated in the US's residential, commercial, institutional, and industrial sectors in 2018 (US EPA, 2020a). However, when the industrial sector was excluded, this amount approximated to 63 million tonnes of wasted food.

In parallel to the findings of FAO (2011), the Institution of Mechanical Engineers (2013) also estimated that every year %30 to 50% of the food produced globally was either lost or wasted, corresponding to between 1.2 and 2 billion tonnes of food waste. Recently, two indices have been improved to measure global food loss and waste: the Global Food Loss Index (FAO, 2018) and the Food Waste Index (UNEP, 2021). Global Food Loss Index monitors food losses occurring on the supply side,

covering production, storing, processing, and packaging level for a basket of ten key commodities in five main food groups in the food systems, including crops, livestock, and fisheries products (FAO, 2018). As it demonstrates changes in percentage losses compared to a baseline year, positive and negative trends in food loss can be observed to make the food supply system more efficient.

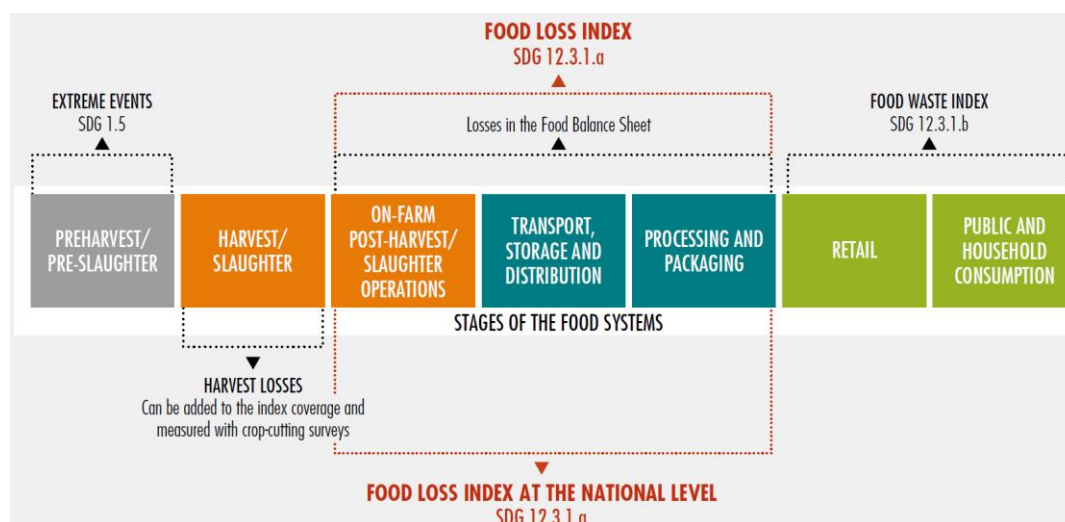


Figure 1.4: Scope of the Global Food Loss Index and the Food Waste Index along the Food Supply Chain (FAO, 2019b)

The Food Waste Index aims to measure food waste generated at the retail and consumer level, i.e., households and food services (UNEP, 2021). How the Global Food Loss Index and the Food Waste Index cover loss and waste generated along the whole food supply chain is exhibited in Figure 1.4 above. The estimation based on the Food Waste Index revealed that 931 million tonnes of waste were produced in retailers and consumption levels, corresponding to that the global average of 74 kg per capita of food waste (UNEP, 2021). In proportionate wise, 61% of this amount from households, 26% from the food service sector and 13% from retail. Jointly these two indicators could account for two components of SDG target 12.3, which will be detailed in the following part (FAO, 2021a).

This immense amount has pointed out the severity of the global food waste problem, specifically on the consumer level, although various actions on the global level started to address the food waste problem over a decade. In the following section, some of these actions to reduce food waste will be explained.

## **1.2. Impacts of Food Waste**

The problem of food waste can be associated with social, environmental, and economic ramifications. The social aspect is related to global food insecurity, while the environmental and ecological concerns are about the inefficient use of natural resources, GHG emissions and generating waste to landfills. Additionally, the economic outcome of food waste is a loss of economic value. These impacts of food waste will be discussed further in the following sections to accentuate the complexity of the problem.

### **1.2.1. Environmental Impact**

Food loss and waste are all alone an environmental problem through the waste of resources and generator of GHG emissions and having a share in total urban waste (HLPE, 2014). A gargantuan amount of resources such as land, water, energy, and fertilizers throughout the food supply chain is required to produce, distribute, store, and transport food (FAO, 2019b; Katajajuuri et al., 2014; Schanes et al., 2018; Williams et al., 2012; Wunderlich & Martinez, 2018). Undoubtedly, using all these resources brings environmental drawbacks such as soil erosion, air and water pollution, deforestation (Schanes et al., 2018), and the release of GHG emissions at every phase of food production (Wunderlich & Martinez, 2018).

Food loss and waste accounts for around 173 billion cubic meters of water consumption per year, representing 24% of all water used in agriculture, and 1.4 billion hectares of cropland per year, cultivated to grow this amount of lost and wasted food (World Bank, 2020). While energy is used throughout the food life

cycle, the whole US food system uses 12.5% of the total national energy budget (Heller, 2019) that refers to embedded environmental, social and economic drawbacks of wasting food. IPBES (2018) reported that croplands and grazing lands cover more than one-third of the Earth's land surface. Apparently, around 28% of the agricultural area is dedicated to producing lost or wasted food (FAO, 2019b). Further, 28 million tonnes of fertilizer, corresponding to 23% of total global fertilizer use, are used to grow this lost and wasted food per year (World Bank, 2020). Impacts on the environment in terms of fertilizer use are more complex, not limited to the consumption of scarce resources in the form of nitrogen and phosphorus as it also generates GHG and seriously damages water quality (World Bank, 2020).

Furthermore, IPCC reported that while around 21–37% of total GHG emissions come from the food system (Mbow et al., 2019), 8–10% of total anthropogenic GHG emissions are attributable to global food loss and waste (IPCC, 2019). With this immense amount of emission, if food waste is accepted as a country, it can be globally ranked as the third most emitter, following the US and China (FAO, 2015). Evidently, food waste worsens efforts to mitigate the global climate crisis.

Additionally, food waste, as organic waste, cannot be appropriately decomposed in the anaerobic environment as well as methane is produced by so when it is buried. In other words, food waste leads to generating more GHG emissions at the disposal stage, although GHG is continuously being released along the food life cycle. For instance, food waste is the most damaging component of the US municipal solid waste streams, making up more than 24% of municipal solid waste sent to landfills (US EPA, 2020a). Hence, the negative externality of food waste in landfills as an organic material is an issue not to be ignored.

### **1.2.2. Economic Impacts**

In addition to the environmental drawbacks, food waste has an economic outcome, i.e., loss of economic value. According to FAO (2013), depending on 2009 producer

prices, the total amount of food waste in the year 2007 costs about 750 \$ billion, corresponding to the GDP of Turkey in 2011. Overall, the estimated amount of food waste will globally reach 2.1 billion tonnes by 2030, which corresponds to \$1.5 trillion (Boston Consulting Group, 2018). For EU-28 countries, the costs associated with food waste in 2012 were estimated at about €143 billion (Stenmarck et al., 2016). Rutten et al. (2013) also estimated that annual savings would range between €56.6 and €94.4 billion for the whole EU if 30% and 50% waste reduction scenarios could be achieved by 2020, respectively. In the US, the total value of food waste at the retail and consumer levels was estimated at \$161.6 billion in 2010 (Buzby et al., 2014). IPCC estimated that global food loss and waste cost about \$1 trillion per year (Mbow et al., 2019). The value of wasted food is approximately €36 billion (Waste Prevention Foundation of Turkey, 2019).

Several studies also reported calculation on a per capita basis that the mean economic value of discarded food per household is \$616 in Australia (Koivupuro et al., 2012), £700 in the UK (WRAP, 2020a), and €150-220 in Finland (Katajajuuri et al., 2014), €155 in the Netherlands (Rutten et al., 2013). These calculations reveal the potential economic gain by reducing food waste on the consumer level.

### **1.2.3. Social Impacts**

The aforementioned, when the amount of wasted food is converted into calories, it matches up with 24% of the world's food supply, which is lost along the food supply chain (Searchinger, 2019). Reducing food loss and waste is a way to boost the available food supply (Mbow et al., 2019; World Bank, 2020), whilst increasing the food supply does not automatically solve the problem of malnutrition as the real impacts are more complex (FAO, 2019b). Nevertheless, this connection inherently reflects the moral aspect of the food waste issue that I reserve an entire chapter to explicate. In addition to dealing with food security, Mourad (2016) accentuated various social aspects of food waste in relation to food redistribution, public health, and political issue of the food system. Besides, concerning a recent increase in global

food prices (Gustafson et al., 2021), which creates a potential threat for food security in primarily low-income countries, the social aspect of food waste is expected to draw even more attention. Regarding many actors along the food supply chain, the issue of food waste unequivocally is a social problem.

#### **1.2.4. International Efforts to Address Food Loss and Waste**

While the UN adopted the SDGs in 2015 as part of the 2030 Agenda for Sustainable Development, SDG 12 aims to “ensure sustainable consumption and production patterns” (UN, 2015), together with a specific target on food waste. The target 3 of SDG 12 is as follows: “By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.” (UN, 2015). This statement definitely is a major step for the issue of food waste as it put food loss and waste in its righteous place on the global level.

Likely, previous actions in the global context prepared the ground for this step of the UN. In 2011, FAO and Messe Düsseldorf launched SAVE FOOD – Global Initiative on Food Loss and Waste Reduction, to raise awareness about the effects of food waste by integrating related public and private sectors (FAO, 2021b). In 2012, The European Parliament decided on halving food wastage in the EU by 2025 (European Parliament, 2012), then funded the project FUSIONS took part in the EU between 2012-2016 to develop a common food waste policy for the EU and aim for a more resource-efficient Europe by substantially lowering food waste (FUSIONS, 2016).

Food loss and waste have also been on the agenda of the G20 under past and current presidencies. In 2015, under the Turkey Presidency, the Republic of Turkey the Ministry of Agriculture and Forestry organized the meeting of the G20 Ministers of Agriculture to underline the food loss and waste problem as “a global problem of enormous economic, environmental and societal significance” (FAO, 2021c) and to call for collective efforts to reduce food waste. Upon their demand from FAO and

IFPRI to measure food loss and food waste in this meeting, the Technical Platform on the Measurement and Reduction of Food Loss and Waste was launched in December 2015 (FAO, 2021c). In July 2018, G20 Meeting of Agriculture Ministers in Buenos Aires, Argentina, reduction of food loss and waste was featured as a “triple win” due to its influences on increasing food security; alleviating pressure on climate, water and land resources; and improving income for farmers, agri-food businesses and the household economy (G20, 2018). The most recent G20 Agriculture Ministers’ meeting in September 2021 also remarked on the significance of dealing with the food loss and waste challenge and renewed their commitment to reduce 50% food loss and waste along the food supply chain (G20, 2021), proving the increasing attention of developed economies on the issue.

In 2015, the United States Department of Agriculture (USDA) and Environmental Protection Agency (US EPA) set their goal to reduce food loss and waste in half as of 2030. Since then, the US EPA, Environment and Climate Change Canada and Mexico’s Department of Environmental and Natural Resources have cooperated to prevent and reduce food loss and waste as an issue of continental concern, North America, under the North American Commission for Environmental Cooperation (CEC) (CEC, 2017).

The EU has been fiercely paving its way to meet its commitment to SDG 12.3 since its announcement. The EU and EU countries made food loss and waste a priority by setting up a platform on Food Losses and Food Waste (European Commission, 2015a) and adding an Amending Directive 2008/98/EC on waste (European Commission, 2015b) in line with their commitment to meet SDG 12.3. Right after that, the EU also funded the Resource Efficient dRink for the Entire Supply cHain (REFRESH) project, focusing on reducing food waste and valorizing it (Wunder, 2019). Recently, the European Commission outlined the Green Deal Programme to make Europe the first climate-neutral continent by 2050 (Erbach, 2019) and proposed “A Farm to Fork Strategy for a fair, healthy and environmentally-friendly food system” (European Commission, 2020). As the European Commission



committed to meeting the SDG Target 12.3 by halving EU-wide per capita food waste at consumer and retail levels, member states are expected to measure food waste in 2022 to set a baseline for proposing a legally binding target (European Commission, 2020).

Apart from the efforts of the EU for reducing food loss and waste, several non-governmental and civil society organizations (NGOs) have engaged in food waste prevention and reduction endeavors. For instance, the WRAP published The Food We Waste research report revealing the true extent of food waste back in 2008 (WRAP, 2008) and became one of the trusted voices on food waste issues (WWF-WRAP, 2020). Additionally, other international agencies such as World Bank started to pay more attention to the food loss and waste challenge (World Bank, 2020). Additionally, the private sector puts an effort to tackle food loss and waste, 30 of the world's 50 largest food companies by revenue set targets in keeping with SDG 12.3 (Flanagan, 2018).

Ostensibly, more grounded efforts put by various organizations to address the food waste problem on a global and regional level. However, when there is even no agreed definition of food waste, how do we tackle this problem is the fundamental question that should be inquired. Therefore, more research is particularly required to promote practical knowledge to reduce food waste.

### **1.2.5. Food Waste Hierarchy**

Although historically, waste management means removing harmful materials away from humans, food waste management has evolved as food waste generation recently became more visible (Papargyropoulou et al., 2014). Source reduction is the most fundamental approach to the issue of food waste (Monier et al., 2010). The food waste hierarchy of the European Court Auditors (2016) sorted waste treatment actions from the most preferred to least preferred in the hierarchical structure, as seen from Figure 1.5. The most preferred approach is to prevent food waste as produced

food should not be wasted before moving to save it from going to landfills as waste. The production step is among the most resource-intensive phases of the whole food supply chain, so the US EPA defined the reduction of produced surplus food as the baseline strategy in their food recovery hierarchy in favor of environmental benefit (US EPA, 2020b; Wunderlich & Martinez, 2018).

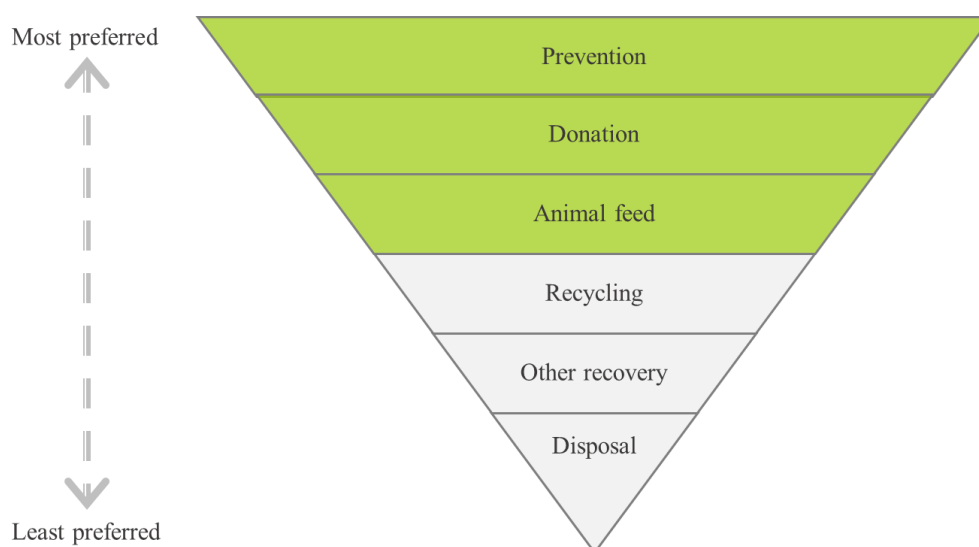


Figure 1.5: Food Waste Hierarchy (European Court Auditors, 2016, p.10)

Additionally, waste prevention is prioritized over other alternatives for reducing food waste because most of the listed options require food waste separation, such as home composting (Matsuda et al., 2012). Hence, food waste prevention is the most preferred and desired way to achieve environmental sustainability and social justice according to the waste hierarchy for food (Sanchez Lopez et al., 2020) or food recovery hierarchy (US EPA, 2020b).

### 1.3. Food Service Sector

Previous studies on food waste showed that the consumption stage, which covers both the food service sector and households, is the largest waste generator compared

to the harvesting, processing, and distributing stages of food, especially in developed countries (Griffin et al., 2009; Neff et al., 2015; Williams & Wikström, 2011). Kummu et al. (2012) also stated that waste at the consumer level can be globally reduced by 86% compared to the baseline, revealing the untapped potential of waste reduction to ensure more sustainable and efficient food systems (Beretta & Hellweg, 2019). Additionally, as food moves through the food supply chain, the resources utilized to bring it to one stage further accumulate, making the waste occurring at the late stage of the food supply chain more destructive (Wunderlich & Martinez, 2018). It means consumer-level food waste is more significant due to the accumulation of resources.

The food services sector can be defined as: “The food service sector as one part of the food system, business or institutional activities responsible for any food or meal prepared and served outside the home.” (Silvennoinen et al., 2015, p.140). In other words, the food service sector, as a part of the food system, includes the hospitality industry covering both catering and restaurant activities, hospitals, businesses, and schools. Betz et al. (2015) divided the eating out-of-home market into three main areas: commercial, non-commercial, and other food service activities. Further, the non-commercial food service sector can be subdivided into four sectors, which are health, education, care and business (Betz et al., 2015). Also, the food service sector can be categorized as profit and cost sectors (Dhir et al., 2020). Whilst the profit sector comprises restaurants, hotels, cafes, canteens, and catering, where profit from hospitality services is the primary consideration, the cost sector encompasses accommodation and food service in establishments like schools, universities, health care, where the profit is not the primary consideration (Dhir et al., 2020).

Quantification of food waste studies indicated the magnitude of food waste in the food service sector is not negligible. The most recent study reported that approximately 26% of the annual global food waste is generated in the food service industry (UNEP, 2021). So far, very little attention has been paid to food waste in the food service sector (Filimonau & de Coteau, 2019; Principato et al., 2018) and

available studies about the food services sector concentrated more on quantification of food waste (Heikkilä et al., 2016) or the investigation of plate waste due to nutritional intake concerns about mostly children and elderly people (Engström & Carlsson-Kanyama, 2004; Kaur et al., 2020). As people tend to eat out of home even more than before (Lorenz, Hartmann & Langen, 2017) and plate waste incorporates a very big proportion of avoidable food waste in service settings (Ferreira et al., 2013; Filimonau, Todorova, et al., 2020; Lorenz-Walther et al., 2019; Pinto et al., 2018), food waste in the food service sector would be even more critical in the future to diminish the environmental externalities of food consumption (Lorenz, Hartmann, Hirsh et al., 2017) and to achieve food security (Engström and Carlsson-Kanyama, 2004). Hence, revealing the reasons behind food waste in the food service sector will gain more attention.

#### **1.4. The Rationale of the Study**

Research exploring food waste in the food service industry has been growing, perspectives of consumers are often not scrutinized (Betz et al., 2015) even though behavioral factors are seen as the main antecedents of food waste in the food service sector (Bhattacharya et al., 2021). The latest research also underlined the “paradoxical behavior of consumers” (Dhir et al., 2020, p.8), which clearly necessitates more research on the behavior and practice of consumers in the food service context.

Moreover, most of the food waste studies have been conducted in relation to developed countries, while very few studies are currently known about consumer-level food waste in emerging economies, such as Turkey (Aschemann-Witzel et al., 2019, 2020; Aydin & Yildirim, 2021; Coşkun & Yetkin Özbük, 2020; Filimonau et al., 2022; Xue et al., 2017). Turkey has been producing a total of 26 million tonnes of food waste annually (Waste Prevention Foundation of Turkey, 2019), which is comparable with the waste amount in the EU, the UK, or the US. Even though the accurate proportion of the consumption level of food waste is not clear, it is expected

to increase as an emerging economy due to an enlarging middle-class, increasing urbanization, and probable changes in consumer behavior (Aschemann-Witzel et al., 2018). Further, UNEP (2021) reported that the global average of 74 kg per capita of food waste is unexpectedly similar from lower-middle-income to high-income countries, signifying that almost every country can decrease. That makes it worthwhile to understand consumer perceptions regarding food waste in Turkey to develop policies and precautions to prevent waste.

Previous studies suggested that people tend towards wasteful behavior during young adulthood (Ellison & Lusk, 2018; Mondéjar-Jiménez et al., 2016; Stancu et al., 2016). As The Turkish Statistical Institute (2019) disclosed, the young population, aged between 15 and 29, was around 19 million people in 2018, which is the highest proportion of young people compared to the EU-28 countries. Besides, people tend to eat out of home even more than before (Lorenz, Hartmann & Langen, 2017), which is particularly valid for young people who are used to eating outside their homes since kindergarten (Engström & Carlsson-Kanyama, 2004). Establishing a more thorough understanding of what motivates young people to engage in pro-environmental behavior can result in practical implications for creating a sustainable future (de Leeuw et al., 2015). Consequently, to understand the young population's food waste behavior, directing attention to the out-of-home context is crucial, specifically for countries like Turkey, which hosts a high proportion of the young population.

Understanding food waste practices and behavior of the young population in the food service sector may offer some important insights into diminishing the environmental externalities of food waste, achieving food security, and determining effective policy applications to reduce food waste (Thyberg & Tonjes, 2016). Selecting specifically educational setting as a food service place, the university cafeteria in the present study's context, is critical as educational institutions offer an immense volume of meals at a single place that creates a potential source of food waste (Painter et al., 2016) and has a higher potential to transform people to be more aware of the

ecological side of the food system (Kaur et al., 2020). Therefore, I delineated the context of the present study as the university cafeteria.

Thus far, several studies have adopted the qualitative approach to understanding the plate waste practice of students (Lazell, 2016; Nikolaus et al., 2018; Yui & Biltekoff, 2020), behavioral approach to unveil students plate waste behavior (Lorenz, Hartmann & Langen, 2017), and interventions and nudges to reduce plate waste (Ellison et al., 2019; Pinto et al., 2018; Richardson et al., 2020; Visschers et al., 2020) in the university cafeteria context. However, none of these studies was conducted in university cafeteria settings in a non-Western context. Hence, this dissertation aims to unravel why and how university students waste food in the food service sector, specifically in the university cafeteria context in a non-Western country, Turkey. The research questions are: (1) What are the main factors of students' plate waste behavior in the Middle East Technical University (METU) Cafeteria?; (2) How do students justify their plate waste practices in the METU Cafeteria?; and (3) Which strategies do students develop to prevent food waste in the METU Cafeteria?

## **1.5. Food Waste in Turkey**

Before proceeding to examine plate waste in a university cafeteria context in Turkey, it is necessary to understand food waste in Turkey. After the issue of food waste started to become visible again with the policy shifts in national and international governance (Evans et al., 2013), many countries, especially developed ones, began to pay more attention to the reduction of food waste. Turkey has been relatively late on this trend. In other words, the issue of food waste is historically overlooked. In 2013, the Turkish Grain Board (TMO) (2013) started a campaign to reduce bread waste as it is a culturally relevant food for the people of Turkey. They calculated the amount of bread consumption and waste in Turkey. According to their findings, 333gr of bread per person has been consumed daily, which makes Turkey above the world average for bread consumption (Republic of Turkey-The Ministry of Trade, 2018), while almost 5% of bread has been wasted. After releasing this report, the

TMO led the “Prevention of Bread Waste Campaign” to raise awareness on the national level with flyers and receipts to consumers remaining bread (TMO, 2013).

As mentioned above, in 2015, Turkey led to set up the Technical Platform on the Measurement and Reduction of Food Loss and Waste in its G20 presidency that was, in fact, a pioneering step for reducing food waste in the international arena. Furthermore, the Republic of Turkey, the Ministry of Trade released Turkey Waste Report in 2017 and 2018 to draw attention to the subject of waste by forming the definition of waste and determining the magnitude of waste to prepare a background analysis for further researches and intervention studies (Republic of Turkey-The Ministry of Trade, 2017, 2018). Although these reports are somewhat elaborative, they are comprehensive waste reports, and food waste is only a part of them. In 2019, the FAO and the Republic of Turkey, the Ministry of Agriculture and Forestry started a project named “Zero Waste, Zero Hunger Project: Support to Reduce Food Loss and Food Waste in Turkey” (FAO, 2019a). Within the scope of the project, there are ongoing technical workshops on how to raise awareness about food waste.

Finally, FAO and the Republic of Turkey, the Ministry of Agriculture and Forestry launched the “Save Your Food” campaign in 2020 and announced Turkey’s national strategy and action plan on reducing food loss and waste (Republic of Turkey Ministry of Agriculture and Forestry & FAO, 2020). Target 1.7 of this action plan explicitly stated preventing and reducing waste in food services. While addressing strategies for consumers to reduce food waste, the campaign has been actively using social media to reach consumers. Recently, FAO brought the Ministry of Agriculture and Forestry of Turkey and Metro Turkey, an international wholesale food company, together to collaborate to tackle food waste in food services and hospitality sectors (UN, 2021), revealing the importance of the food service sector in Turkey. Therefore, this part has reviewed that reducing food waste, specifically in the food service sector, in Turkey has recently been gaining a lot more attention.

## **1.6. Approaches to Food Waste**

As in other areas of studies, policy making is vital to reduce food waste as well; however, defining necessary changes in legislation and policies depends on assessing the causes of the problem. Eliciting factors behind the issue of food waste is necessary to understand the problem thoroughly and detect ways to reduce it. All the reasons for creating the food waste problem are interrelated due to its complex nature. Yet, the causes of food waste can be assessed at different levels, such as macro, meso, and micro. This leveling helps both to disintegrate causes to overcome the complexity of the problem and recommend solutions related to different actors (HLPE, 2014). Macro-level causes can be listed as global key reasons of the problem of food waste, more related to policies and regulatory implications, whereas meso-level causes are associated with a structural problem, such as lack of adequate infrastructure and coordination among actors along the food supply chain, and micro-level factors are causes occurring at a particular stage of the food supply chain (HLPE, 2014). Even though this study aims to detect factors affecting food waste at one particular stage of the food supply chain, consumption, it is crucial to note macro, meso, and micro-level causes are intertwined. As a result, how to approach food waste at the consumer level becomes more significant.

To begin with, review articles uncovered that most of the studies on food waste in the literature, specifically in the food service sector, do not employ any theoretical foundation (Dhir et al., 2020; Lorenz & Langen, 2018), which necessitates a more structured approach to this sector. Hence, I deliberately concentrated on defining appropriate theoretical frameworks for the present study.

For studies aim to reduce or minimize food waste at the consumption level, the key point is how to change the behavior or practice of people. Two prominent social ontologies have been adopted in the consumer food waste literature: psychology-oriented and sociology-oriented (Schanes et al., 2018). The field of consumer behavior and environmental psychology often adopt a so-called psychology-oriented



perspective through measuring the role of cognitive, intrapersonal, motivational and structural determinants and processes of a specific behavior (Principato et al., 2020; Schanes et al., 2018). On the other hand, studies that embraced the sociological perspective focus more on the conceptual approach to understanding the socio-temporal nature of mundane practices in social and material context, mostly through social practice theory (Schanes et al., 2018). Instead of focusing solely on individual behavior, they consider broader perspectives and how individuals interact with their cultural and material surroundings.

### **1.7. Structure of the Dissertation**

This dissertation has been divided into four chapters. The first Chapter gives a brief overview of the issue of food waste and its importance in relation to the current food system and the overall context of the present study. In order to explicate thoroughly why and how students generate plate waste in the cafeteria, I conducted two studies. The following two chapters describe these two separate but interrelated studies adopting psychology-oriented and sociology-oriented approaches. Thus, I will show the shortcomings and advantages of both perspectives through two specific studies conducted in the METU Cafeteria.

In Chapter 2, I have examined the factors affecting university students to perform plate waste behavior in the METU Cafeteria by extending the TPB theoretical framework (Ajzen, 1985, 1987). In this chapter, I have used a psychology-oriented approach by focusing on individual plate waste behavior and surveying individuals. After that, in Chapter 3, I have explored the moral justifications of students for their plate waste practices in the METU Cafeteria by employing the Economies of Worth framework (Boltanski & Thévenot, 2006). In this chapter, I have conducted a sociology-oriented study with a qualitative approach. It is significant to note that there is no rigid demarcation between these two studies, which are to some extent complementary to each other. Yet, every study is also presented with its introduction and discussion parts. Finally, Chapter 4 summarizes these two interrelated studies

with the overall conclusions, contributions, implications, limitations, and recommendations for future research.

## **CHAPTER 2**

### **BEHAVIORAL APPROACH**

#### **2.1. Introduction**

The present chapter investigates the factors affecting university students' food waste behavior in the university cafeteria of one of Turkey's most populated universities by extending the most frequently used theoretical framework, the Theory of Planned Behavior (TPB). The TPB has been broadly used in the literature for investigating pro-environmental behavior (Al-Swidi et al., 2014; Arvola et al., 2008; Tarkiainen & Sundqvist, 2005; Yazdanpanah & Forouzani, 2015). Although the theoretical framework has been empirically tested in several outlets, there is a call for more research on pro-environmental consumer choices regarding food consumption and waste, specifically in the food service sector (Filimonau, Matute et al., 2020). The current study elucidates students' plate waste behavior in the context of a university cafeteria. At the same time, it also extends the traditional TPB by adding self-reported environmental behavior, perceived value for money, taste and palatability, and perceived portion size.

There are contradictory findings regarding the effect of environmental concern on food waste. Some studies have revealed that environmental perspective is weakly related to food waste in the eyes of consumers (Graham-Rowe et al., 2014; Neff et al., 2015; Parizeau et al., 2015; Principato et al., 2015; Quested et al., 2013; Watson & Meah, 2013), while others reported the importance of environmental consciousness on reducing food waste (Betz et al., 2015). Hence, the effect of environmental behavior on food waste remains to be questionable.

Further, according to the discussion on value for money by Graham-Rowe et al. (2014), when individuals pay more for their meal, they tend to have lower amounts of plate leftovers. As the price is relatively lower in the METU Cafeteria, how consumers perceive the value for money is expected to affect their food waste. This determinant has not been studied in the context of TPB before. Apart from these two new determinants, the variables of taste and palatability and portion size are inevitably included in the model for food, which is an accountable contribution to the TPB literature in the context of food waste.

Different from previous studies on food waste in relation to developing countries, including Turkey, the current study utilized not only a questionnaire, which was designed based on the extended TPB, aimed to investigate the participants' intention, but also the visual estimation method to measure plate waste by adopting the scale developed by Comstock et al. (1981) because self-reported plate waste is misleading as people tend to underestimate their food waste amount (Hebrok & Boks, 2017).

This chapter is organized as follows. I will give a more detailed account of TPB and literature in relation to food waste behaviors in the following sections. Next, I will present developed hypotheses to test the TPB and additional variables that the methodology will follow. Finally, I will enclose the results of the Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) with a brief discussion section.

## **2.2. Theoretical Background and Literature**

### **2.2.1. The Theory of Planned Behavior**

Although different psychological models can be applied to explain consumer behavior towards the issue of food waste, the TPB (Ajzen, 1985, 1987, 1991) is the most commonly used model to define the underlying drivers of consumer food waste behavior (Schanes et al., 2018). The TPB is the extended version of the theory of

reasoned action (TRA), which is originated from Fishbein and Ajzen (1975) and Ajzen and Fishbein (1980). The TRA summarizes psychological processes as the intention, which is independently determined by attitudes toward the behavior and subjective norms, triggering the behavior in question (Ajzen & Madden, 1986). Intentions, the immediate antecedent of specific behavior, are representations of one's motivation to engage in the behavior. As the intention gets stronger, the behavior is more likely to be performed. Attitudes towards a particular behavior reveal a personal evaluation of the behavior, favorableness or unfavorableness (Fishbein & Ajzen, 2015). Subjective norms (or social norms) show impacts of other people regarding whether or not that specific behavior would be displayed (Ajzen, 1991; Fishbein & Ajzen, 2009).

In short, the TRA proposes that behaviors are controlled by only intentions, which depend on attitudes towards the behavior and subjective norms, and people have volitional control over it (Ajzen, 1991). By accentuating the volitional control, the claim is that people could perform a specific behavior or not depending on their decisions to do so or not (Ajzen, 2020). Therefore, the TRA lacks prediction power, especially for behaviors that require resources, skills, time, and the cooperation of others (Ajzen, 1991).

To overcome this issue and apply the model to non-volitional behavior, Ajzen (1985, 1987) came up with the TPB by introducing the third dimension, perceived behavioral control (PBC), to the TRA framework. The PBC incorporates two elements: the person's self-confidence to perform the behavior (Ajzen, 1991; Kalafatis et al., 1999; Mahon et al., 2006) and the availability of resources, such as time and money (Ajzen, 1991; Mahon et al., 2006). As a result, the TPB has been developed and turned out to be one of the most popular and influential frameworks in order to study human action (Ajzen, 2002). The TPB is fundamentally used to predict the intention to perform the specific behavior in question with the help of predictors, which are attitudes toward the behavior, subjective norms, and the PBC. The schematic representation of the model can be seen in Figure 2.1.

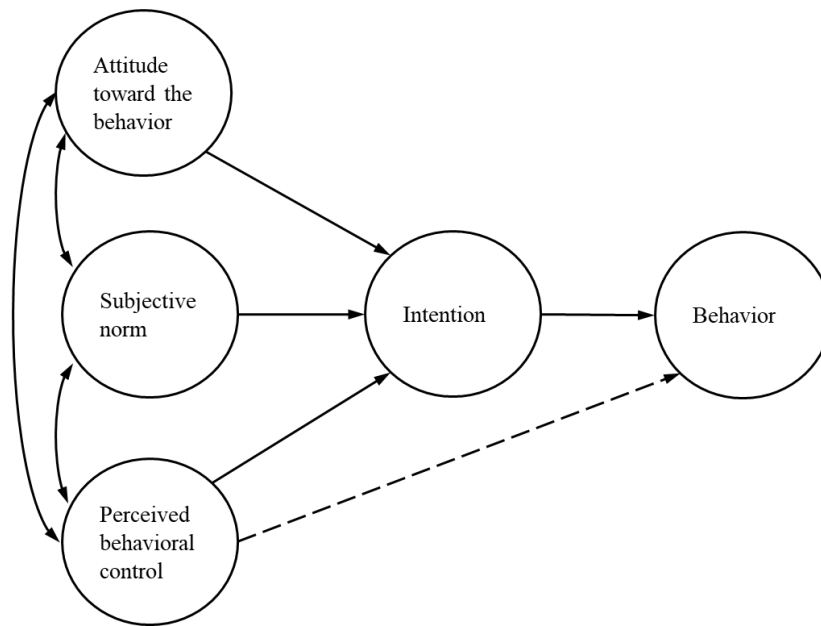


Figure 2.1: The Theory of Planned Behavior (Ajzen, 1991, p. 182)

As the relationship between the PBC and the behavior is more compound compared to attitude and subjective norm (Conner & Armitage, 1998), the PBC can be used to predict the behavior directly unlikely to attitude towards the behavior and subjective norm, which show their impacts only through the intention. The indirect effect of the PBC on behavior through the intentions depends on that the PBC has motivational implications for the intentions (Madden et al., 1992). As the PBC increases, the behavior would be more likely to be performed when intentions are held constant (Conner & Armitage, 1998). Recent empirical research also revealed the PBC as a direct determinant of the behavior (Ajzen, 2020) that is resulted from the actual control that the person possesses over performing the behavior (Madden et al., 1992).

Moreover, the theory suggests that behavior is perceived as a function of salient information or beliefs relevant to that behavior (Ajzen, 1987); beliefs indirectly guide human behavior (Ajzen, 2002). The TPB embodies the antecedents of attitudes toward behavior, subjective norms, and the PBC, which eventually determine intentions and then actions (Ajzen, 1987). Three kinds of beliefs are distinguished: While normative beliefs are assumed to influence subjective norms as perceived

social pressure, behavioral beliefs constitute the underlying determinants of attitudes as a favorable or unfavorable attitude towards the behavior, and control beliefs provide the ground for the PBC as the perceived ease or difficulty of performing the behavior (Ajzen, 1987, 2002). Each belief ties the behavior to an outcome which can also be the cost of engaging that specific behavior (Ajzen, 1987). The role of beliefs in predicting human behavior can be schematically seen in Figure 2.2.

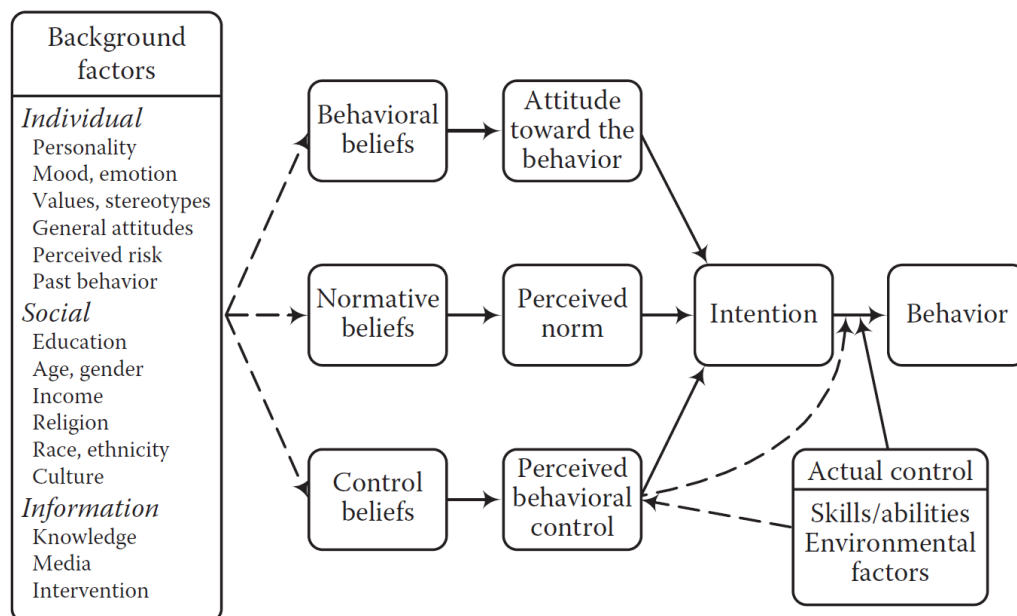


Figure 2.2: The Role of Beliefs in Human Behavior (Fishbein & Ajzen, 2009, p.22)

Since its development more than three decades ago, the TPB has become both influential and popular in environmental psychology and consumer behavior literature. For instance, around 40% of studies in the field of environmental psychology adopted the TPB as a theoretical foundation (Klößner, 2013) that indicates how extensive the literature on the TPB is.

The TPB has been broadly applied to predicting private-sphere pro-environmental behavior (Gkargkavouzi et al., 2019; Yuriev et al., 2020): the use of alternative transportation (Muñoz et al., 2016), purchasing organic food behavior (Arvola et al.,

2008; Tarkiainen & Sundqvist, 2005; Yazdanpanah & Forouzani, 2015), purchasing green products behavior (Moser, 2015; Yadav & Pathak, 2016), recycling behavior (Chan & Bishop, 2013; Tonglet et al., 2004), electronic waste recycling behavior (Echegaray & Hansstein, 2017), energy conservation behavior (Allen & Marquart-Pyatt, 2018; Gao et al., 2017), sustainable food consumption behavior (Aertsens et al., 2009; Al-Swidi et al., 2013; Vermeir & Verbeke, 2006, 2008), household food waste behavior (Graham-Rowe et al., 2015; Stancu et al., 2016; Stefan et al., 2013; Visschers et al., 2016) and individual food waste behavior in the food service sector (Coşkun & Yetkin Özbük, 2020; Lorenz, Hartmann, Hirsh et al., 2017; Lorenz, Hartmann & Langen., 2017). Despite of the validity of the TPB as a conceptual model, there is a call for more research, specifically in the out-of-home food consumption context in terms of food waste mitigation, to enhance the available frameworks (Filimonau, Matute, et al., 2020).

Furthermore, the TPB has a flexible structure (Yuriev et al., 2020). Adding related variables into the model is particularly encouraged to increase the prediction power of the model as the TPB is an extended version of the TRA through the addition of the PBC (Ajzen, 1991). For instance, personal (moral) norms, portion size, food choice, taste and preference, etc., are some of the variables added to the classic TPB model in the literature to investigate factors causing consumer-level food waste.

### **2.2.2. Empirical Literature on Food Waste**

In the literature, empirical studies are applied to every step of the food supply chain; however, consumption level studies, more specifically the food service sector, are my primary concerns in this study. On the other hand, skimming through the literature about household-level food waste may help grasp how to apply theories and understand consumer food waste behavior in different contexts. As a result, some selected studies on food waste in households and food sectors adopting the TPB are summarized in this section.



Stefan et al. (2013) looked for possible drivers for food waste in the household in Romania by surveying 244 participants. They investigated the impacts of planning and shopping routines, moral attitudes and lack of concerns towards wasting food apart from predictors of the original TPB in their study. Their findings showed that subjective norms and perceived behavioral control were not significant predictors of the intention not to waste food, unlikely the TPB suggested. Additionally, people clearly could not turn the intention not to waste food into behavior. The predictors of the TPB could not predict the food waste behavior. On the other hand, the study revealed that people's planning and shopping routines are crucial determinants of households' food waste behavior.

Graham-Rowe et al. (2015) investigated household fruit and vegetable waste reductions in the UK by adding self-identity, anticipated regret, moral norm, and descriptive norm to the TPB. Their ultimate purpose was to observe whether or not households reduced their fruit and vegetable waste during a week and try to predict this with their extended TPB model. While 279 people participated in the study to measure the constructs derived from the TPB together with additional variables, 204 participants completed the follow-up measures seven days after completing the baseline survey. The moral norm was excluded from the further analysis due to the high correlations between moral norm, anticipated regret and self-identity. According to hierarchical multiple regression analysis, attitudes, subjective norms, PBC, self-identity, and anticipated regret were significant to predict the intention, while the descriptive norm was not statistically significant. Therefore, extending the TPB with the addition of self-identity and anticipated regret increased the prediction power of the model. After that, a hierarchical multiple logistic regression was again run to analyze the follow-up measures for reducing fruit and vegetable waste behavior. Findings revealed that even though the intention was a statistically significant determinant to explain the fruit and vegetables waste reduction behavior, while the PBC was not, the amount of variance explained in behavior by intention was pretty small, pointing at the intention-behavior gap.

Stancu et al. (2016) examined the impacts of psycho-social factors, food-related routines, and household perceived capabilities on households' self-reported food waste in the context of the TPB by surveying 1062 participants in Denmark. Firstly, depending on the TPB, consumers' intention not to waste food was measured by attitudes, injunctive and moral norms, and the PBC. Results revealed that attitudes and injunctive norms were significant predictors of intention not to waste, but the moral norm and the PBC were not. After that, planning, shopping, reuse of leftovers routines and household capabilities for food-related activities were added to the model as drivers of food waste. Results of this extended model showed that the intention not to waste food, the PBC, shopping and reuse of food leftovers routines were the main factors of food waste behavior; simultaneously, planning routine and household food-related skills affected food waste indirectly. Overall, adding food-related routines to the TPB model helped improve the model's explanatory power as the combined model explained more variance than the original TPB model.

Visschers et al. (2016) investigated drivers of self-reported food waste in Switzerland with determinants from the TPB. They also included personal norms, knowledge, household planning habits and good provider identity in the model. They conducted Tobit analysis to a total of 796 cases and ran three models. The first model showed that some demographic variables such as a lower age, households having children, households with more than two adults, and households not using a bio-waste container were significantly related to generating more food waste. The second model included the TPB constructs, except the intention to avoid food waste, personal norms, and knowledge apart from the demographic variables. While all variables were statistically significant, subjective norms and knowledge were not. Finally, the third model included the intention to avoid food waste, the good provider identity, and household planning habits in addition to the determinants in the second model. The final model displayed that the PBC, the intention to avoid food waste, the good provider identity, personal norms and attitudes were significant determinants to predict the amount of food waste, whereas household planning habits, knowledge and subjective norms were not statistically significant. Overall,

they reported that intention to avoid food waste was the most significant predictor of self-reported food waste.

Russell et al. (2017) combined the TPB with habits and emotions by obtaining from the Theory of Interpersonal Behavior (Triandis, 1977) to examine the self-reported food waste behavior. They applied the four-phased questionnaire to 172 individuals via Asda's online customer panel and analyzed the data with hierarchical multiple regression analysis and path analysis. Results pointed out that, in line with the TPB, the intention to reduce food waste, subjective norm and the PBC were statistically significant, whilst attitudes were not. As expected, habitual food waste behavior had a significant positive relationship with the current food waste behavior. While negative emotions were statistically significant to predict the intention to reduce food waste, there was no statistically significant relationship between positive emotions and the intention. They underscored that the intention to reduce food waste explained a very smaller portion of the variances in food waste behavior compared to habits.

Lorenz, Hartmann, Hirsh, et al. (2017) used the TPB in their study to understand consumer food waste behavior in a company canteen in Germany. They collected the data from 184 consumers, but they downsampled the sample as 158 according to their relevance. Apart from the TPB variables, they added personal norms as a behavioral determinant and perceived taste as a situational variable into their model. According to results, the PBC was not statistically significant to predict the intention to eat food served completely, while other TPB based determinants, namely attitudes and subjective norms, were statistically significant to estimate intention. Besides, the intention was a significant determinant to measure plate leftovers. Results also supported that the personal norms were significant to predict attitudes, subjective norms, and intention. Finally, the impact of situational perception of taste was not only statistically significant but also the highest to estimate plate leftover behavior. In conclusion, the addition of behavioral variable, personal norm, and especially the situational variable, perceived taste, into the original TPB model increases the

overall goodness of fit of the model, as the intention could explain a part of the plate leftover behavior.

In their other study, Lorenz, Hartmann, and Langen (2017) again extended the classical TPB with the addition of personal, social, and environmental determinants to analyze the individual food leftover behavior in a university canteen by surveying 343 students. As well as they added personal norms as a personal determinant, presence of others during lunch as a social determinant, portion size, palatability of food, food choice, and time pressure as environmental determinants to enhance the prediction power of their model, they adopted the visual estimation to measure plate waste in the canteen. They omitted the personal norms and the presence of others to proceed with further analysis. Results demonstrated that portion size, food choice, and palatability were statistically significant along with all TPB constructs, whereas time pressure was not. Therefore, they empirically proved that the interplay of personal and environmental drivers might affect the food leftover behavior of university students in a university canteen setting.

Barone et al. (2019) enriched the TPB by adding goals conflicting with attitude towards food waste. To begin with, these inhibiting goals, which are a good provider, concerns over possible health risks, healthy diet, and saving money, were determined through a semi-structured interview conducted with 110 adult consumers in Italy. Then the extended TPB model was tested, surveying 163 participants and food waste behavior was measured by a daily-based diary filled for one week by participants. The SEM results revealed that attitude, subjective norms, being a good provider, concerns over possible health risks, and a healthy diet were significant predictors of the intention to reduce food waste while the PBC and saving money were not. Then, the intention to reduce food waste had a negative impact on food waste behavior as anticipated. As a result, including these additional variables in the TPB framework strengthened to predict intention to reduce food waste.

Filimonau, Matute, et al. (2020) tested the role of public environmental knowledge, environmental concern, and pro-environmental behavior at home in determining

attitudes towards the need for restaurant food waste mitigation with the following driver of behavioral intention to perform the mitigation during anticipated regret as a direct determinant of intention. They conducted a self-completion, but researcher-observed, survey to 454 people in Poland. Upon their relatively complex model, the Partial Least Square analysis revealed that environmental concern and environmental knowledge positively influenced both pro-environmental behavior at home and consumer knowledge on restaurant food waste. Then, pro-environmental behavior at home and consumer knowledge on restaurant food waste were statistically significant to predict attitudes and behavioral intentions. Anticipated regret also was statistically significant to predict behavioral intentions. Overall, the indicated correlation between pro-environmental behavior at home and attitudes towards mitigating restaurant food waste is an essential finding as opposed to mixed results in the literature.

### **2.2.3. Empirical Literature on Food Waste in Turkey**

To date, very few studies in the related literature aim to reveal the determinants of consumer-level food waste in Turkey. Yildirim et al. (2016) conducted an online survey to 150 participants to search for demographic, social, and economic factors that impact household food waste behavior in Turkey. Participants declared that buying larger quantities of food, labeling confusion, and preparing then wasting more food during Ramadan were the main drivers of food waste in households in Turkey. However, it really was a small sample, so that survey results should be evaluated with caution.

Coşkun and Yetkin Özbük (2020) focused on food waste behavior in restaurants in Turkey by adopting the TPB as a theoretical background in their study. They combined price consciousness and food taste with the constructs of the TPB and surveyed 329 participants to measure how they affected food waste behavior. They embedded the self-reported food waste method into their questionnaire to measure the food waste behavior of consumers. They found out that all TPB constructs, except

the subjective norms, were significant. Additionally, food taste was a significant factor in estimating both the intention to reduce food waste and food waste behavior. However, according to results, price consciousness was only significant in predicting intention, not food waste behavior. Overall, adding price consciousness and taste to the TPB improved the prediction power of the model, the food waste behavior in restaurants in Turkey.

Aydin and Yildirim (2021) investigated how moral attitudes, knowledge of food conservation, eating, and shopping habits impact food waste behavior in a household-level survey study. They collected data from 339 students in Turkey with a 61% response rate through a web-based survey; hence, the food waste behavior of students was inevitably self-reported. Results showed that moral attitudes are significantly related to all factors, food waste behavior, knowledge of food conservation, shopping and eating habits. While shopping habits was statistically significant to predict food waste behavior, eating habit was not. Besides, there was a significant relationship between knowledge of food conservation and shopping habits, whereas there was no significant relationship between knowledge of food conservation and food waste behavior. They revealed the importance of moral attitudes for predicting food waste behavior in households in Turkey.

Finally, Börühan & Ozbiltekin-Pala (2021) examined the plate waste in a university cafeteria in İzmir within the context of a circular economy to find sustainable solutions for minimizing food waste. They applied semi-structured interviews to 150 participants who eat at the university cafeteria to understand their awareness regarding food waste. Apart from content analysis, they calculated the economic loss of food waste and its environmental impact in terms of CO<sub>2</sub> emissions by employing the Food Waste Calculation tool. According to findings, participants had low awareness about plate waste. Also, they calculated that the university discarded 580 kg of main dishes every week as waste at an average cost of €1070 per ton. This plate waste is almost equal to 50870.6 kg CO<sub>2</sub> per month that costs around €50634. In total, the monthly plate waste cost of the university was €14324. Therefore, they

emphasized the importance of plate waste in a university cafeteria context by calculating the environmental and economic costs.

### **2.3. Derivation of Research Hypotheses**

This study aims to find out what drives students to consume or leave behind the food they are provided in the university cafeteria and the factors influencing their decisions to do so. In other words, plate waste, which is the residue left on students' plates discarded after the meal, is the source of food waste in this study (Betz et al., 2015). The determining variable of the food waste behavior was the plate leftover in the university cafeteria. More details on how to measure the plate leftovers will be provided in the following part.

The present study adopts the TPB by adding various variables to predict students' plate waste behavior. Consumers are typically expected to be waste averse, which is a good reason to claim that their intentional processes may elicit food waste behavior (Stancu et al., 2016). The perceived value for money and self-reported environmental behavior are two new variables, which I added to the original model. In addition, I have integrated personal norms as personal determinants, perceived portion size, and taste and palatability as relevant situational variables, depending on the literature mentioned above. The proposed extended TPB model is demonstrated below in Figure 2.3.

The first two hypotheses of the present study are based on the traditional TPB framework. The intention was taken as a negative predictor of having plate leftovers: the intention of finishing all the food on one's plate or the intention of not wasting any food served to individuals in the university cafeteria. Hence, the first hypothesis was as follows:

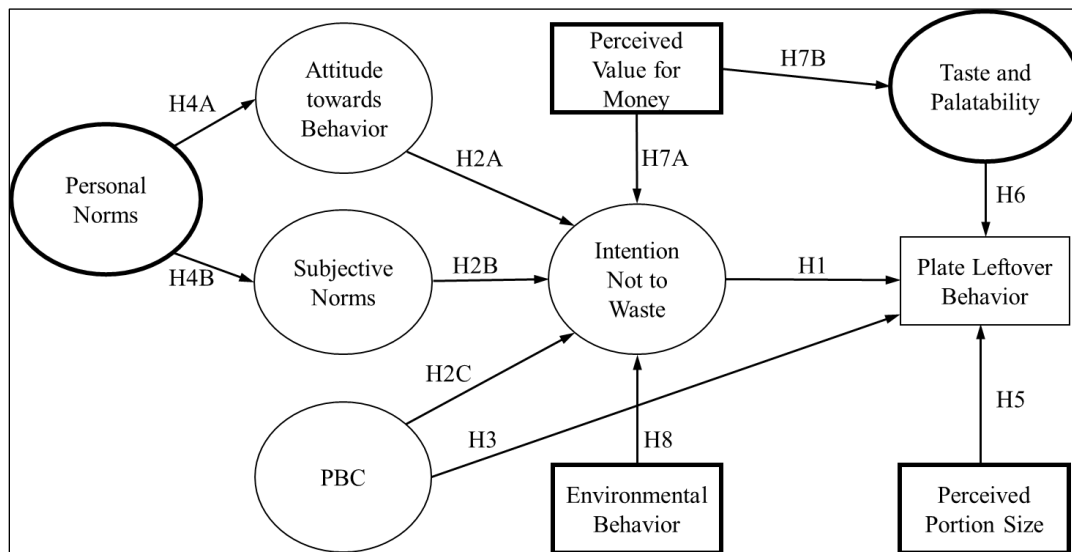


Figure 2.3: The Extended TPB – Proposed Conceptual Model (with the added variables displayed in bold frame)

**H1:** The amount of individual plate leftovers in the university cafeteria is negatively affected by the behavioral intention of not to waste food.

As mentioned above, the TPB suggests that attitudes towards behavior, subjective norms, and the PBC are predictors of the intention. In line with the classical TPB framework, attitudes toward plate leftover behavior, subjective norms, and the PBC positively determine this intention of not wasting any food in the university cafeteria. These factors are embedded in Hypothesis 2.

**H2:** The behavioral intention not to waste food served in the university cafeteria is positively affected by:

- A. a positive attitude towards finishing the meal in the university cafeteria,
- B. subjective norms, supporting finishing the meal in the university cafeteria,
- C. high perceived personal control over finishing the meal in the university cafeteria.

As Ajzen (1991) added, the PBC to predict non-volitional behavior may help predict food waste behavior directly through food-related routines (Stancu et al., 2016) apart



from indirectly through the intention. As a result, I have incorporated the PBC as a direct predictor of plate leftover behavior in Hypothesis 3, which is as follows:

**H3:** A high level of perceived personal control over finishing the meal in the university cafeteria negatively affects the amount of individual plate leftovers.

One of the measurements that The TPB neglects is moral influences on behavior (Arvola et al., 2008). Ravis et al. (2009) assessed moral norms as a significant predictor of intention in a meta-analysis, and Klöckner (2013) supported the role of the measurement in the environmental domain. Schwartz's (1977) concept of personal (moral) norm, referring to personal perception of right and wrong, implies self-expectations for the action in a specific situation, which the individual constructs. In the literature, personal norms, moral norms, and moral obligations are interchangeably used concepts (Arvola et al., 2008). I have preferred using the concept of personal norms through this study.

Ajzen (1991) also previously admitted that adding personal norms into the TPB remarkably contributes to predicting intentions at least in certain contexts because personal feelings of responsibility or moral obligation to engage in, or decline to engage in a specific behavior, not just the perceived social pressures. Fishbein and Ajzen (2009) emphasized that integrating personal norms as a measurement in the TPB model might be even necessary when the behavior in question has a clear moral element. Personal norms or moral aspects is highly related to food waste behavior since feeling guilty or bothered to a certain level is a common sensation when consumers leave food on their plate or perform food waste behavior (Dhir et al., 2020; Evans, 2014; Stancu et al., 2016; Stefan et al., 2013). Personal norms exert a critical aspect because people perform and evaluate behavior concerning their own values and self-identity, as mentioned above. Hence, I included personal norms in the modified model of the TPB. Hypothesis 4 refers that personal norms influence both attitudes and subjective norms.

**H4:** Personal norms in favor of finishing all food on a plate in the university cafeteria;

**A.** Strengthens consumers' positive attitude towards finishing all food on a plate in the university cafeteria

**B.** Are positively correlated with subjective norms supporting eating all food on a plate in the university cafeteria

Naturally, portion size is one of the crucial elements leading consumers to engage in food waste-related behavior, especially in the food service sector (Buzby & Guthrie, 2002; Kaur et al., 2020; Lorenz & Langen, 2018; Nikolaus et al., 2018). There is a considerable amount of increase in outside of home food consumption, so the European Commission (n.d.) listed the standardized portion sizes in canteens and restaurants as one of the factors generating food waste. Wansink & van Ittersum (2013) revealed that self-served dinner with larger plates caused guests to not only serve themselves 52% more food but also made them eat 45% more; thus, they ended up wasting 135% more food. In a study by Berkowitz et al. (2016), it was displayed that when there were both full and reduced-size entrees in the canteen, there were lower amounts of plate leftovers compared with when only full-size entrees were available.

In the school canteens or cafeterias, large portion size is one of the main reasons students have plate leftovers (Abe & Akamatsu, 2015; Guthrie & Buzby, 2002; Steen et al., 2018). This is also valid for students served lunch in a university cafeteria context as the portion size was reported as a factor for plate waste (Lorenz, Hartmann & Langen, 2017; Lorenz-Walther et al., 2019; Painter et al., 2016). Hence, portion size seems to be a significant determinant for plate leftover behavior of students in the university cafeteria, which is indicated in Hypothesis 5 as follows:

**H5:** The amount of plate leftovers in the university cafeteria are positively related to perceived larger portion sizes of food.

Taste is the most crucial factor for people when they are buying food not only from a restaurant but also from a supermarket, according to the survey conducted by Harnack et al. (2008), because people consume or waste food depending on their

taste perception (Nikolaus et al., 2018). When the appearance and taste of food do not match with their expectations, individuals tend to generate food waste (Heikkilä et al., 2016). On the contrary, people do not tend to engage in food waste behavior in various food service settings, such as schools (Guthrie & Buzby, 2002), university cafeterias (Lazell, 2016; Lorenz, Hartmann & Langen, 2017), workplace canteens (Lorenz, Hartmann, Hirsh et al., 2017), and restaurants (Coşkun & Yetkin Özbük, 2020) when the taste of food perceived as good.

However, the taste is a very complex notion. The perceived taste of food can be determined by various elements such as disliking specific ingredients (Betz et al., 2015; Lorenz, Hartmann, Hirsh et al., 2017), availability of choice (Lorenz et al., 2018), visceral standards (Lazell, 2016) and culture (Coşkun & Yetkin Özbük, 2020). Regarding individual consumers, I deliberately focused on the visceral standards of food. On the other hand, the palatability of food depends not only on the taste of food but also on appearance and smell (Lorenz, Hartmann & Langen, 2017; Lorenz-Walther et al., 2019), denoting visceral standards as such. In the food service sector (Betz et al., 2015) and precisely in the university context (Lazell, 2016; Lorenz, Hartmann & Langen, 2017), palatability is a significant factor for food waste. Therefore, I added this notion as taste and palatability to the model regarding taste, smell, and visual aspects or appearance of food, which are essential determinants for plate waste (Lazell, 2016; Lorenz, Hartmann & Langen, 2017), and expected that the plate leftovers would be less when the perceived taste and palatability is high. The hypothesis to test this was stated as follows:

**H6:** The amount of individual plate leftovers in the university cafeteria is negatively affected by the higher taste and palatability of food.

Value for money influences people's decisions regarding their everyday food consumption practices (Brunner et al., 2010; Buckley et al., 2007; Mahon et al., 2006; Vermeir & Verbeke, 2006). Graham-Rowe et al. (2014) referred to the concept of value for money in specific relation to buying in bulk owing to promotions by retailers, which might ultimately induce households to waste more. Bhattacharya et

al. (2021) also supported this argument by stating the low price of food pushes consumers to bulk buying and then wasting. On the contrary, Melbye et al. (2017) claimed that consumers who purchase food at a discounted price also value food and waste less food. Consequently, wasting food may not only be related to price but also to how people value food.

In the literature, price consciousness was associated with wasting less food (Aschemann-Witzel et al., 2017; Coşkun & Yetkin Özbük, 2020; Visschers et al., 2016) as consumers perceive food waste as a waste of money (Graham-Rowe et al., 2014). Regarding this perception, when one pays more for the meal, fewer plate leftovers could be expected. In the context of the present study, the price of the meal was 1.95 Turkish Lira (or 0.38 USD). As METU is a public university, the state subsidizes a high proportion of the meal price; hence, it is cheaper than other alternative restaurants on the university campus. Regarding the mentioned financial concerns of people, students may tend to produce plate leftovers in the university cafeteria based on the fact that they do not have to pay much.

However, the acquired value for money does not necessarily equate to paying more or less. In fact, financial concerns about food waste may differ with respect to the context of the study. For instance, people tend to value less the food prepared by others as such, and they waste (Monteiro et al., 2020). From this point of view, combining price and value concepts in the notion of value for money appears to be more relevant and consistent. Acquiring good value for money may cause students to consume more and waste less (Brunner et al., 2010). Besides, they could associate this concept of value with the taste of the food. That is, the balance between the price and quality of the food may influence taste and palatability as price may change the consumers' subjective liking of foods, particularly in out-of-home settings (Lorenz & Langen, 2018). To date, at least until conducting the survey, this element was not investigated yet in the food waste literature, even though it has been widely used in the food consumption literature. Therefore, perceived value for money was added to the model to measure its impact on students' intention of finishing all the

food served on their plates in the university cafeteria. The related hypotheses were stated as follows:

**H7A:** The higher perceived value for money for the meal served in the university cafeteria positively affects the intention to finish the meal.

**H7B:** The higher perceived value for money for the meal served in the university cafeteria positively affects the taste and palatability of the food.

Lastly, environmental consciousness or environmental responsibility can be considered to affect food waste behavior as food waste has detrimental ecological impacts. In this context, environmental responsibility means discarding less food (Watson & Meah, 2013). However, people could not perceive the explicit relationship between food waste and its environmental drawbacks when taking into consideration their consuming and discarding food behavior (Watson & Meah, 2013). Many studies also demonstrate that consumers are less motivated by environmental concerns to reduce food waste compared to economic and social motives (Graham-Rowe et al., 2014; Neff et al., 2015; Parizeau et al., 2015; Principato et al., 2015; Quested et al., 2013).

On the other hand, some studies revealed otherwise. In an investigation into environmental consciousness, Williams et al., (2012) reported people who have a high environmental consciousness waste less food, and Betz et al. (2015) pointed out that people were aware of the food waste problem as well as social and ecological reasons behind it even prior to the economic reasons. Sirieix et al. (2017) uncovered environmental concerns as motivations for people to waste less food and ask for doggy bags in out-of-home settings in their qualitative study. Lorenz-Walther et al. (2019) also remarked that the general environmental norms influenced the food leftover-related attitudes. Due to these contradictory findings in the literature, more research is required to understand the effects of ecological consciousness on the food waste behavior of individuals.

Environmental consciousness or environmental responsibility can be measured by self-reported environmental behavior (Parizeau et al., 2015). Stern (2000) broadly defined environmental behavior as the positive influence of human behavior on natural resources and the biosphere as a whole. Adopting self-reported environmental behavior as a measurement for environmental responsibility was more suitable for the purposes of the present study because it was the practice that people performed in their observable, mundane daily life, not necessarily concerned about the environment, which not often leads to action (Neff et al., 2015).

Therefore, the self-reported environmental behavior scale developed by Schultz et al. (2005) was adopted in the present study. This scale measured how often respondents performed the listed twelve behaviors in the previous year. It covered different environmental fields, such as reusing things, recycling papers and bottles and volunteering in an environmental group (Schultz et al., 2005).

One of the items on the scale, which was purchasing products in reusable containers, was revised as it was not an available option in Turkey. Instead of this item, the participants were asked whether they bought second-hand clothes or not as this practice also accentuates the concept of reuse. Additionally, it is essential to mention that reuse is a relatively common practice in this university as there is even a Facebook group called “*ODTÜLÜ'DEN*” (ODTÜLÜ'DEN, nd). Students communicate to exchange clothes, furniture, and stationary equipment, which are second-hand items, through this online platform. As a result, the question above related to reusable containers in the scale was replaced with a question that asked about the students' practices of purchasing second-hand clothes, which also denotes reusing.

As in the literature, I expected that young people might be more environmentally responsible, advocate environmental protection (Lee, 2008), embrace a sustainable lifestyle (Diddi et al., 2019), and might tend to associate food waste with its environmental impacts. As a result, I assumed that more environmentally responsible students would be less prone to have plate leftovers in the university cafeteria. I

integrated the self-reported environmental behavior scale and stated the last hypothesis as follows:

**H8:** Individual's environmental concern positively affects the intention to finish the meal.

## **2.4. Methodology**

In this part, I presented the methodology of the present study. The part included five main sections which were the research design, the questionnaire design, sampling and characteristics of the participants, data collection procedure, and data analysis.

### **2.4.1. Research Design**

The objective of this study is to find out what drives students to consume or leave behind the food they are provided in the university cafeteria and factors influencing their decisions to do so. In other words, plate waste, which is the residue left on students' plates discarded after the meal, is the source of food waste in this study. Defining factors leading students to have plate leftovers in the METU cafeteria, which is the university's lunch and dining hall, may contribute to proposing interventions leading to behavior change and food waste reduction. Therefore, proposing feasible and applicable recommendations for reducing food waste in university cafeterias to university administration may be one of the outcomes of this study. That is one of the reasons why the university cafeteria is chosen as a context in this study.

In the present study, CFA followed by an SEM were conducted to test the conceptual model depending on the TPB framework. CFA and SEM are extensions of path analysis. In CFA, relations among the variables are specified based on theory before; in that way, it enables more powerful tests of construct validity for scales and differentiates itself from the traditional exploratory factor analysis (Streiner, 2006).

SEM is a statistical methodology based on a confirmatory approach that permits testing the hypothesized model in simultaneous analysis of the entire system of variables (Byrne, 2013). While SEM is an extension of path analysis which allows drawing paths between latent variables (Streiner, 2006), it shows causal processes by regression equations (Byrne, 2013). Here, latent variables, which are named as hypothetical constructs or factors, cannot be directly seen, yet they are linked to observed or manifest variables, which enables the measurement possible (Byrne, 2013; Streiner, 2006). Thus, SEM is an appropriate technique for the present study to understand multivariate relations among variables.

#### **2.4.2. The Questionnaire**

To test the hypotheses developed based on the extended TPB model, six latent constructs were derived from previous studies in the literature: intention, attitudes toward behavior, PBC, subjective norms, personal norms and taste and palatability. All the latent constructs had three indicators and were scored on a 7-point Likert scale. In addition to the latent constructs, several manifest variables were directly integrated into the TPB model. The measurements of value for money and portion size were considered continuous variables, scored on a 7-point Likert scale. As mentioned earlier, the self-reported environmental scale (Schultz et al., 2005), scored on a scale of 0 (never) to 5 (very often) Likert scale for twelve indicators, was incorporated into the model. This scale was treated as a composite score in the analysis. The measurement of each variable in the model used for the questionnaire design is summarized in Table 2.1.



Table 2.1: Measurement of Constructs

<b>Measurement of Constructs</b>
<p><b>Intention</b> (Ajzen, 2006)</p> <p>I intend to finish everything on my plate at lunch in the university cafeteria.            I try very hard to finish everything on my plate at lunch in the university cafeteria,            I plan to finish everything on my plate at lunch in the university cafeteria.</p> <p><i>Scale: strongly disagree (1) to strongly agree (7)</i></p>
<p><b>Attitude</b> (Kim &amp; Han, 2010; Lorenz, Hartmann, Hirsh et al. 2017; Stancu et al., 2016)</p> <p>In my opinion, leaving plate leftover is ...  <i>Scale: extremely bad (1) to extremely good (7)</i></p> <p>In my opinion, leaving plate leftover is ...  <i>Scale: extremely unacceptable (1) to extremely acceptable (7)</i></p> <p>In my opinion, loading the environment with my plate leftover is ...  <i>Scale: extremely harmful (1) to not at all harmful (7)</i></p>
<p><b>Perceived Behavioral Control</b> (Ajzen, 2006)</p> <p>For me to finish everything on my plate at lunch in the university cafeteria.  <i>Scale: impossible (1) to possible (7)</i></p> <p>If I wanted to, I could finish everything on my plate at lunch in the university cafeteria.  <i>Scale: definitely true (1) to definitely false (7)</i></p> <p>It is mostly up to me whether or not I finish everything on my plate at lunch in the university cafeteria.  <i>Scale: strongly disagree (1) to strongly agree (7)</i></p>
<p><b>Subjective Norms</b> (Ajzen, 2006; Yazdanpanah &amp; Forouzani, 2015)</p> <p>Most people I value would finish everything on their plates rather than leaving plate leftovers at lunch in the university cafeteria  <i>Scale: strongly disagree (1) to strongly agree (5)</i></p> <p>It is expected of me that I finish everything on my plate at lunch in the university cafeteria (D)  <i>Scale: Extremely unlikely (1) to Extremely likely (7)</i></p> <p>The people in my life whose opinions I value would  <i>Disapprove (1) ... Approve (7)</i>            of finishing everything on my plate at lunch in the university cafeteria.</p>
<p><b>Personal Norms</b> (Lorenz et al., 2017b; Yazdanpanah &amp; Forouzani, 2015)</p> <p>I am not the type of person to leave food on my plate (D)  <i>Scale: Definitely not true (1) to definitely true (7)</i></p> <p>Leaving food on your plate is wrong (D)  <i>Scale: Strongly disagree (1) to Strongly agree (7)</i></p> <p>I do not think that it makes any difference whether I finish all the food on my plate or not (D)  <i>Scale: Definitely true not (1) to definitely true (7)</i></p>

<b>Measurement of Constructs (Continued)</b>
<p><b>Self-reported Environmental Behavior</b> (Schultz et al., 2005)</p> <p><i>How often you have done each of the following in the past year?</i></p> <ul style="list-style-type: none"> <li>Looked for ways to reuse things such as plastic bottle and paper.</li> <li>Recycled newspapers and papers.</li> <li>Recycled cans or bottles.</li> <li>Encouraged friends or family to recycle.</li> <li>Bought second-hand clothes (revised for the survey).</li> <li>Picked up litter that was not your own.</li> <li>Used food scraps for feeding animals in the campus (revised for the survey).</li> <li>Conserved gasoline by walking or bicycling instead of using car or shuttle services provided by the university.</li> <li>Wrote a letter supporting an environmental issue.</li> <li>Voted for a candidate who supported environmental issues.</li> <li>Donated money to an environmental group.</li> <li>Volunteered time to help an environmental group or university social club.</li> </ul> <p><i>Scale: never, rarely, sometimes, often, very often, there was no opportunity for the action</i></p>
<p><b>Portion Size</b> (Lorenz, Hartmann &amp; Langen, 2017)</p> <p>The portion size of lunch in the university cafeteria is ...</p> <p><i>Scale: too small (1) to too large (7)</i></p>
<p><b>Taste and Palatability</b> (Lazell, 2016; Lorenz, Hartmann &amp; Langen, 2017)</p> <ul style="list-style-type: none"> <li>Taste of food served in the university cafeteria during lunch is good.</li> <li>The smell of food served in the university cafeteria during lunch is good.</li> <li>The appearance of food served in the university cafeteria during lunch is good.</li> </ul> <p><i>Scale: Strongly disagree (1) to Strongly agree (7)</i></p>
<p><b>Value for Money</b></p> <ul style="list-style-type: none"> <li>I get the value for my payment for food in the cafeteria.</li> <li>I try very hard not to leave plate leftover when I pay more for the food.</li> <li>If the food was free during lunch at the cafeteria, I would not leave plate leftover.</li> </ul> <p><i>Scale: Strongly disagree (1) to Strongly agree (7)</i></p>
<p><b>Note: (R)-reversed items for the analyses and (D)-deleted items for further analyses.</b></p>

One of the most critical aspects of the study was the definition and the quantification of the dependent variable, namely the plate waste or leftover. Comstock et al. (1979) categorized the quantification methods for plate waste in institutional settings into two main categories, direct and indirect measurements. Weighting each plate leftover as the direct measurement method in the food service area is the most reliable method compared to aggregate measuring by weighing the total food waste (Derqui &

Fernandez, 2017). Yet, weighting each plate waste in the cafeteria may not have been so practical due to its logistic burden (Comstock et al., 1981; Derqui & Fernandez, 2017). Besides, it could have affected the participants' behavior in the field, generating biased results when they noticed that their plate leftovers were weighed (Derqui & Fernandez, 2017).

On the other hand, self-reported plate waste, which is an indirect measurement, could have been misleading. People tend to underestimate the amount of their food waste and deliver misleading information as they determine their waste amount or behavior depending on their memories (Hebrok & Boks, 2017; Sebbane & Costa, 2018; Secondi et al., 2015). Every measurement method has both advantages and drawbacks. Regarding reliability issues, to measure students' plate waste in the present study, I decided to apply the visual estimation method (Comstock et al., 1979, 1981), which is still a current and promising way (van Herpen & van der Lans, 2019).

The visual estimation method, which involves estimating the amount of food waste from photographs, yields more reliable and accurate estimates (Derqui & Fernandez, 2017; Olafsdottir et al., 2016; van Herpen et al., 2019; van Herpen & van der Lans, 2019). Van Herpen and van der Lans (2019) revealed that using photographs of food waste as a measurement method resulted in a perfect match between the estimated and the actual weights with neither overestimations nor underestimations. Thus, the visual estimation method was employed in the current study to measure plate waste by adopting the scale from Comstock et al. (1981), which is a less disruptive and obtrusive method to measure food waste in an eating environment (Derqui & Fernandez, 2017).

### **2.4.3. Sampling**

The sample consisted of 18-to-30-year-old 521 students pursuing tertiary education in Ankara, Turkey. I consciously targeted educated young people for this study

because educated young people were more likely to show sensitivity to issues of sustainability, and they were expected to have a higher level of environmental awareness when compared to previous generations (Diddi et al., 2019; Lee, 2008; Vermeir & Verbeke, 2006). As the present study sought to contribute to the literature on the connection between individuals' environmental responsibility and food waste behavior, the young population, who are presumed to be more environmentally accountable, were chosen to constitute the sample of the study as it would help to observe such a connection.

Table 2.2: Demographic Characteristics of Sample

<b>Demographic Characteristics of Sample</b>		
Demographic Features (N = 479)	# of participants	% in total
<b>Gender</b>		
Female	227	47.39%
Male	250	52.19%
Other	2	0.42%
<b>Age</b>		
18-22	361	75.37%
23-30	115	24.01%
Missing	3	0.63%
<b>Education (the highest level completed)</b>		
High School	422	88.10%
Undergraduate	48	10.02%
Masters	6	1.25%
Missing	3	0.63%
<b>Income Level</b>		
0-499 TL (0-97.1 USD)	45	9.39%
500-999 TL (97.3-194.5 USD)	210	43.84%
1000-1499 TL (194.7-291.8 USD)	151	31.52%
1500-1999 TL (292-389.1 USD)	36	7.52%
2000 TL and over (389.3 USD and over)	36	7.52%
Missing	1	0.21%
<b>Dietary Choice</b>		
No	453	94.57%
Vegetarian	7	1.46%
Vegan	2	0.42%
Other	17	3.55%
<i>Note: Monthly incomes are converted to USD with the monthly exchange rate of December 2018. Data retrieved from the OECD (n.d).</i>		

Table 2.2 presents the demographic characteristics of the sample. Accordingly, the respondents' average age was 21.19 ranging from 18 to 30, with 47% of them being female and 52% male. As expected, most of them were high school graduates (88.1%), i.e., undergraduate students. Very few students with a proportion of 5.43% in total had specific dietary choices. 9% of the sample had the lowest income with 97.1 USD upper bound. While almost half of the sample, corresponding to 44%, had an income level of 194.7-291.8 USD, which was followed by an income level of 194.7-291.8 USD with around 32% of the sample. Finally, the highest income levels of 292-389.1 USD and over had the same proportion with 7.52% of each.

#### **2.4.4. Data Collection and Description**

Prior to the commencement of the study, ethical clearance was sought by receiving the approval of the Ethics Committee of the METU Research Center for Applied Ethics (See Appendix A). Then, the pilot study was conducted for 73 people who did not target the population of the study. According to preliminary results and feedbacks, the wording of questions was revised and rechecked. Therefore, the final version of the survey, which is exhibited in Appendix B, was ready to collect data.

The questionnaire was applied to students in the METU Cafeteria during lunchtime as more students had their lunch in the university cafeteria when compared to dinner. Data were collected during the cafeteria's hours of lunch service, from 11.30 am to 2.00 pm on business days. The data were collected from December 10 to December 21 in 2018 to construct the data set; hence, the lunch menu cycle was partially covered because similar menus were served every two weeks in the cafeteria. A regular meal in the cafeteria, a fixed menu with a vegetarian option, is composed of one main dish, one soup, one side dish (pasta or rice), and one dessert (or fruit/salad/yogurt) on the menu.

I conducted the survey in the cafeteria throughout the two weeks, except several researchers at the department helped a few times. Students were asked whether they

were willing to participate in the questionnaire when they had already gotten their meals and sat at a cafeteria table. Students were told that the study was about investigating food consumption in the university cafeteria to prevent the collection of biased data by accentuating its primary purpose was investigating factors affecting food waste behaviors. Furthermore, anonymity and the significance of the participants' honesty were specifically stressed before administering the survey. Participants were provided with a paper questionnaire instead of directing them to a web-based to fill it out because I was of the expectation that surveying in the field generated less biased data as they might forget details about the meal until they reached the online questionnaire.



Figure 2.4: Photos and Scoring for the Visual Estimation (Scores of 3, 4, 1 and 0 were given to trays numbered 200, 404, 458, and 561, respectively)

Moreover, after completing the field study, the participants' questionnaires were matched with the photographs of their trays, which were given the same number as their surveys, and then the students' plate leftovers were scored. The scores were given based on the remaining proportion of the plates (Comstock et al., 1981) as follows: 0 = 0%, 1 = 25%, 2 = 50%, 3 = 75%, 4 = 95%, 5 = 100%. In other words,

the scoring included intervals for proportionate amounts of waste. Two independent coders, I and the supervisor of the present study, scored the leftovers; then, I used the average of the two scores for further analysis. Before scoring, both coders had a full fixed portion served on the same plates to each student and made the assessments accordingly. It is important to note that both of the scorings were almost alike because the scoring depended on the proportions of waste, not the exact weight. Additionally, we rechecked different scores and discussed them further. In this way, a mutual score was decided on to prevent discrepancy. Examples of the scaling of the visual estimation method are displayed in Figure 2.4.

## **2.5. Data Analysis and Results**

To check the reliability and validity of the measurement constructs, a CFA, then an SEM, was conducted to test the conceptual model. Before presenting them, the results of preliminary analyses, including data screening and assumptions checking for SEM, will be explained.

In the present study, all the analyses were run via R (Team R Core, 2013). Each construct in the model was checked across each hardcopy version of the survey. Each construct in the model is checked with the hardcopy version of the survey one by one. After removing specific cases, reverse items are recoded, which is remarked with “R” in the table of measurement constructs (Table 2.1). Data screening and assumptions checks are detailed in the following parts.

### **2.5.1. Data Screening**

To test the conceptual model via SEM, the data were screened to meet the assumptions of the methodology. Data screening is composed of handling missing data and outliers, which were run as follows.

### **2.5.1.1. Handling Missing Data**

As data were collected from human beings, having missing data was unavoidable (Beaujean, 2014). There were 521 participants in the present study; however, 19 cases were excluded from the sample size because the filled-in questionnaire forms did not match the photos of the corresponding trays. Then, 13 cases were also removed as they had more than 5% missing data in a random pattern, which could have created serious problems in further analyses (Tabachnick & Fidell, 2013). There were 45 cases that had missing values at a random pattern as well; however, those missing data points could be imputed, depending on the researcher's choice. Thus, to impute the missing data, the package mice in R (van Buuren & Groothuis-Oudshoorn, 2011), a multivariate imputation by chained equations, was utilized.

### **2.5.1.2. Outliers**

After the imputation of missing data, the remaining cases had outliers that could be removed from the sample size. To begin with, univariate outliers were checked. Tabachnick and Fidell (2013) declared that cases without the range of +3.29 to -3.29, standardized z scores can be titled as outliers. All cases are within the specified range in this sample that is represented in Appendices C. After checking for the univariate outlier, checking multivariate outlier is pursued. Mahalanobis distance is calculated and evaluated according to the Chi-square table based on degrees of freedom to check for multivariate outliers (Kline, 2016; Tabachnick & Fidell, 2013). Depending on the Mahalanobis distance calculation, 10 cases, which were outliers, were removed from the sample. Consequently, 479 cases remained for the execution of further analyses.



## **2.5.2. Assumptions Checks for SEM**

In this part, assumptions to run SEM were checked to proceed with the further analysis. In this regard, the adequacy of the sample size, normality, linearity and homoscedasticity, and multicollinearity were all analyzed for the available data.

### **2.5.2.1. Adequacy of the Sample Size**

Having a sample above 200 is required to conduct SEM (Kline, 2016). There are 521 participants of the present study and 479 remaining cases for further analysis. Regarding the suggestion of Kline (2016), the adequacy of the sample size is clearly met in this study.

### **2.5.2.2. Normality**

Skewness and kurtosis values, q-q plots, and histograms were checked for univariate normality assumption. Skewness and kurtosis values could be ignored when the sample size is over 200 (Kline, 2016; Tabachnick & Fidell, 2013); nevertheless, I obtained skewness and kurtosis values for each item in the survey. As can be seen from Table B in Appendices C, there were no values exceeding the cut-off values (Kline, 2016), which is specified as the rule of thumb for the skewness as within  $\pm 3$  and for the kurtosis as within  $\pm 10$ .

However, the Generalized Shapiro-Wilk test (Gonzalez-estrada & Villasenor-alva, 2015) revealed that the data violated the multivariate normality (can be seen in Appendices C). As the normality assumption could not be met for the data set to conduct SEM in the present study, the Satorra-Bentler correction (Satorra & Bentler, 1994) was used for further analysis.

### 2.5.2.3. Linearity and Homoscedasticity

To test the linearity and homoscedasticity assumptions, a scatter plot of residuals (Tabachnick & Fidell, 2013) was examined. As it is observed by visually examining the q-q plot, can be seen in Figure 2.5, the linearity assumption was not violated.

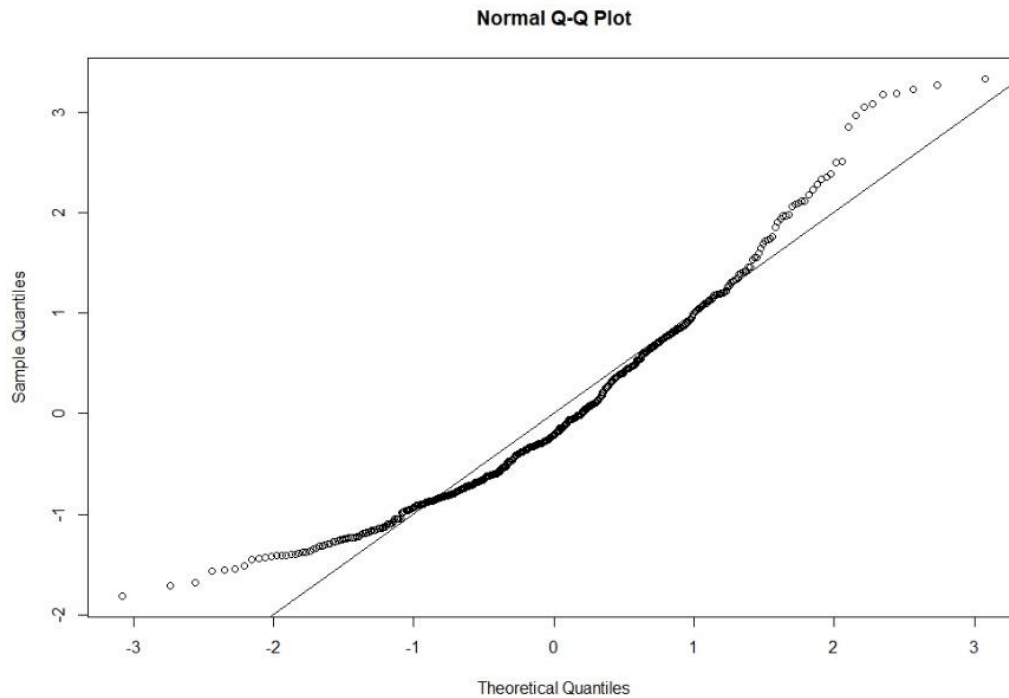


Figure 2.5: The Q-Q Plot

The homoscedasticity assumption was checked by means of the scatterplot of residual of regression and the standardized predicted value, which showed no violation, as there is not an apparent pattern in the scatterplot seen from Figure 2.6 below. Homoscedasticity is associated with the assumption of normality as the relationships between variables are not homoscedastic when the assumption of multivariate normality is not met (Tabachnick & Fidell, 2013). Although there is no clear pattern in the scatterplot, the aforementioned, the multivariate normality assumption was not met according to the Generalized Shapiro-Wilk test (Gonzalez-

estrada & Villasenor-alva, 2015). Therefore, it is crucial to emphasize that the Satorra-Bentler correction (Satorra & Bentler, 1994) was utilized for further analysis.

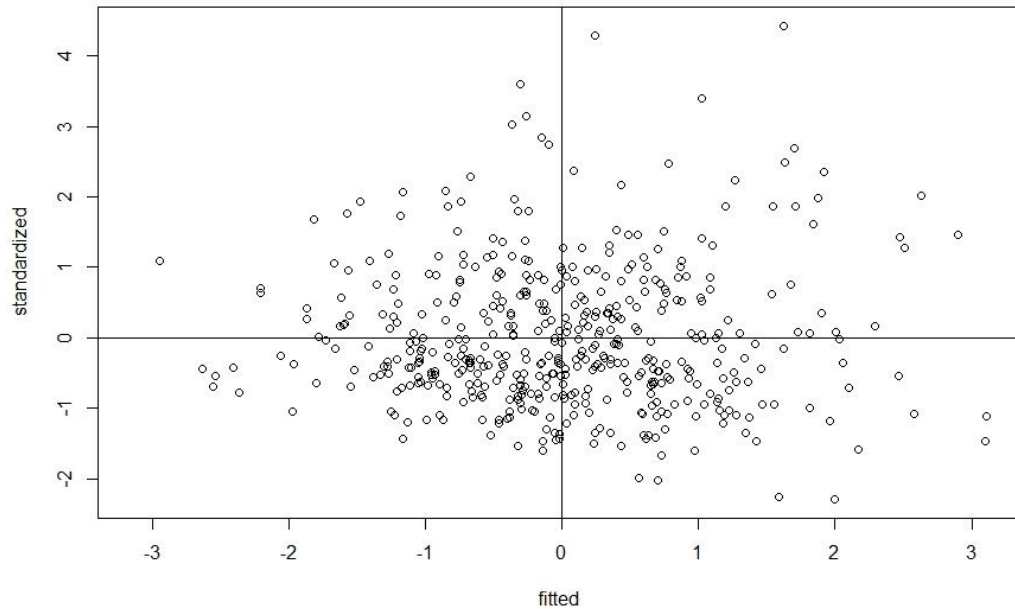


Figure 2.6: The Scatterplot of Residual of the Regression

#### 2.5.2.4. Multicollinearity

When variables are highly correlated, which is 0.90, and above, multicollinearity problem occurs. These values can be observed from the bivariate correlation table (Tabachnick & Fidell, 2013). As it can be seen from the correlation table, displayed in Appendices C, there is only one correlation ranges between 0.8 and 0.9, while others are below 0.8. All these values are below the cut-off value of 0.9 stated above; hence, there is no multicollinearity between indicators (Tabachnick & Fidell, 2013), allowing to proceed with further analysis.

### 2.5.3. Confirmatory Factor Analysis (CFA)

As the measurement model is a part of the SEM and a prerequisite of the structural model to test the proposed hypotheses (Kline, 2016), CFA was used to test the six-factor model, which is called the measurement model, using R, lavaan package (Rosseel, 2012) in the present study. The TPB and other added factors excluding the value for payment can be accepted as valid and reliable depending on prior research (Ajzen, 2006; Lorenz, Hartmann & Langen, 2017; Lorenz, Hartmann, Hirsh et al., 2017; Schultz et al., 2005; Stancu et al., 2016, Yadav & Pathak, 2017). Therefore, it was expected that the adapted questionnaire of this study was a valid and reliable one so that CFA could be conducted.

However, the intended model could not be run due to the multicollinearity between latent variables. As can be seen from Table 2.3 below, personal norms were highly correlated with attitudes and subjective norms. Hence, the personal norm was excluded from further analyses. Yet, this exclusion of personal norms is in line with the literature (Graham-Rowe et al., 2015).

Table 2.3: The Correlation Table 1

Correlation Table 1						
	Intention	Attitudes	PBC	Subjective N.	Personal N.	Taste
Intention	1					
Attitudes	0.298	1				
PBC	0.434	0.14	1			
Subjective N.	0.434	0.738	0.634	1		
Personal N.	0.615	0.965	0.443	0.864	1	
Taste	0.369	0.106	0.348	0.133	0.162	1

CFA was conducted with a robust Maximum Likelihood estimation for the remaining five latent constructs, and Satorra Bentler scaled chi-square because multivariate normality criteria were violated, as stated above. First, the fit measures were investigated as they should reach acceptable levels to judge the model fitness,

as suggested by (Hair et al., 1998). According to the results of the analyses, Satorra Bentler  $\chi^2$  (67, N=479) = 126.322,  $p = 0.000$ , and the scaled chi-square was divided by the degrees of freedom, yielding a value lower than 3 ( $\chi^2/df = 1.886$ ), which could be interpreted as a good fit (Kline, 2016).

Table 2.4: CFA Results

<b>CFA Results</b>								
Factors and items	B	SE	Z	p-value	Factor Loadings	CR	AVE	Cronbach Alpha
<b>Intention</b>						0.787	0.570	0.758
Intention1	1.455	0.065	22.242	0.000	0.927			
Intention2	0.743	0.080	9.264	0.000	0.400			
Intention3	1.513	0.068	22.247	0.000	0.908			
<b>Attitudes</b>						0.737	0.486	0.732
Attitudes1	0.913	0.048	19.058	0.000	0.773			
Attitudes2	1.104	0.072	15.252	0.000	0.727			
Attitudes3	0.867	0.070	12.421	0.000	0.603			
<b>Perceived Behavioral Control</b>						0.678	0.440	0.643
PBC1	0.509	0.087	5.829	0.000	0.316			
PBC2	1.245	0.070	17.844	0.000	0.838			
PBC3	1.205	0.083	14.522	0.000	0.745			
<b>Subjective Norms</b>						0.463	0.310	0.441
Subjective1	<i>Deleted</i>							
Subjective2	1.083	0.100	10.802	0.000	0.584			
Subjective3	0.696	0.080	8.678	0.000	0.506			
<b>Taste and Palatability</b>						0.885	0.720	0.884
Taste1	1.438	0.054	26.848	0.000	0.882			
Taste2	1.376	0.053	25.823	0.000	0.867			
Taste3	1.281	0.064	19.956	0.000	0.793			
Goodness of fit indices: sb $\chi^2 = 126.322$ , $df = 67$ , $\chi^2/df = 1.885$ , CFI = .973, TLI = .963, SRMR = .046, RMSEA = .046, CI-RMSEA = .035-.057								

The comparative fit index (CFI) and the Tucker-Lewis index (TLI) (Tucker & Lewis, 1973) were found to be 0.974 and 0.965, respectively, which were also signs of good model fits. Hu & Bentler (1999) evaluated CFI and TLI values close to 0.95 as a good model fit. The Standardized Root Mean Square Residual (SRMR) was 0.046, which indicates a good fit again, according to Hu and Bentler's (1999) 0.08 and lower criteria. The Root Mean Square Error of Approximation (RMSEA) was 0.045, which is also interpreted as a good fit by (Browne & Cudeck, 1993), who proposed that RMSEA values lower than 0.06 are accepted as a good fit. Thus, CFA results demonstrated a good model fit with Satorra Bentler  $\chi^2/df = 1.885$  ( $p < 0.001$ ),

CFI=0.973, TLI=0.963, SRMR=0.046, and RMSEA=0.045, which are displayed in Table 2.4.

Moreover, the first item of the subjective norms was eliminated because it has a low factor loading, below the cut-off value of 0.32 (Tabachnick & Fidell, 2013). Apart from that, all items in the model had significant positive loadings ( $p < 0.001$ ), with standardized coefficients ranging from 0.316 to 0.927, as can be seen in Table 2.4.

According to Fornell & Larcker (1981), constructs with Composite Reliability (CR) values of 0.7 or higher and with Average Variance Extracted (AVE) values of 0.5 or higher can be accepted to have convergent validity. PBC slightly missed both criteria, and attitudes slightly missed the criterion for AVE. On the other hand, the construct of subjective norms completely violated the criteria.

Table 2.5: The Correlation Table 2

<b>Correlation Table 2</b>					
	Intention	Attitudes	PBC	Subjective N.	Taste
Intention	1				
Attitudes	0.302	1			
PBC	0.437	0.145	1		
Subjective N.	0.435	0.704	0.626	1	
Taste	0.366	0.113	0.349	0.174	1

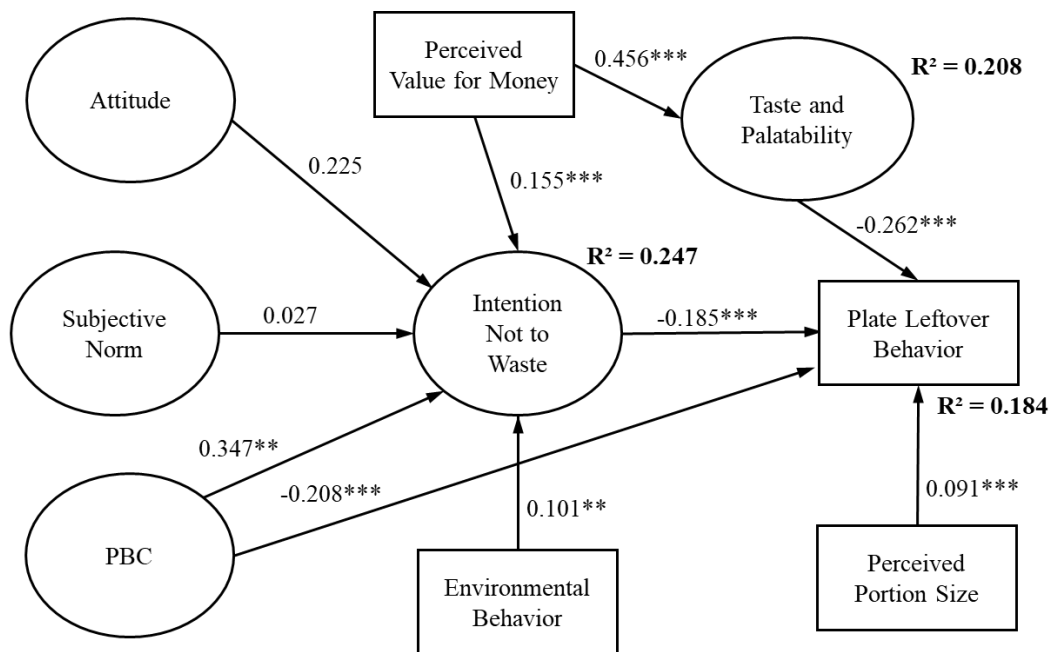
Lastly, in the examination of the discriminant validity of the constructs, the AVE for each factor should be observed to be numerically bigger than the square of the correlation between the factor and the other constructs (Fornell & Larcker, 1981). The correlation values in Table 2.5 prove that all remaining factors met the criteria, except the subjective norms, which normally had to be excluded from further analysis. Yet, doing so would have lessened the value of the overall model since subjective norms are a theoretically derived component. Thus, I decided to keep the subjective norms in the present model despite violating the validity and reliability arguments.

#### **2.5.4. The Structural Model**

This study aimed to elicit factors affecting university students to produce plate leftovers in the university cafeteria and analyzed the relationship between these factors. The defined five factors, namely the intention, attitudes toward behavior, subjective norms, PBC, and taste and palatability, and three manifest variables, which were self-reported environmental behavior, perceived value for money, and perceived portion size, were added to the structural model. Schultz et al. (2005) developed the self-reported environmental behavior scale was used to obtain a composite score, while the perceived portion size and perceived value for money were measured and analyzed using a 7-point Likert Scale. The perceived portion size was added to the model as direct measurements of individual plate leftovers, while the composite score for the self-reported environmental behavior and value for money were integrated as indirect measurements of behavior through intention, as stated previously.

The final structure model displayed a satisfactory fit (sb  $\chi^2$ -square = 326.726, df = 94,  $\chi^2$ /df = 2.656, CFI = .920, TLI = .903, SRMR = .092, RMSEA = .062, CI-RMSEA = .054 – .069). The proposed model could explain around 18% of the variance in the plate leftover behavior and 25% of the variance in intention not to waste food. The structural model with the standardized estimates is exhibited in Figure 2.7.

Regarding the hypotheses of the TPB framework, attitudes (H2A) and subjective norms (H2B) were not statistically significant, while the remaining hypotheses associated with the classical TPB framework, referring to intention (H1) and PBC (H2C), were found to be statistically significant. The obtained results also supported the supposed negative relationship between PBC and plate leftovers (H3) with a regression coefficient of -0.208.



**Notes:** Goodness of Fit Indices: sb  $\chi^2$ -square = 326.726, df = 123,  $\chi^2/df$  = 2.656, CFI = 0.920, TLI = 0.903, SRMR = 0.092, RMSEA = 0.062, CI-RMSEA = 0.054 – 0.069. Significance levels: \*\*\*p < 0.01; \*\*p < 0.05; \*p < 0.1.

Figure 2.7: SEM Plot for the Proposed Model with Standardized Estimates

Also, Hypothesis 4 related to personal norms could not be tested as it was initially removed from the model due to multicollinearity. As expected, when the perceived portion size increased, the amount of plate leftover also increased (H5) by 0.091. Additionally, taste and palatability (H6) had a negative impact on students’ plate leftover behavior with a regression coefficient of -0.262, which is higher than that of the other determinants of plate leftovers.

Furthermore, the higher perceived value for money for the meal served in the university cafeteria positively affects the taste and palatability of the food. While this makes the hypothesis (H7B) is statistically significant, perceived value for money (H7B) could explain 20% of the variance in taste and palatability. Besides, both perceived value for money (H7A) and environmental responsibility (H8) positively affected the intention of not wasting food in the cafeteria. The regression coefficient values for value for money and self-reported environmental behavior were found to



be 0.155 and 0.1, respectively. Overall, the taste and palatability factor was the most important predictor of plate waste in the university cafeteria, followed by PBC, intention, and portion size, respectively.

## **2.6. Discussion**

This chapter examined the factors that affected the intention of not leaving plate leftovers in the university cafeteria based on the extended TPB (Ajzen, 1991). Individual environmental concern, perceived value for money, perceived portion size, and taste and palatability were added to the traditional model, and both the survey and visual estimation method were used to measure plate waste, which was observed to be quite rare in the food waste literature.

The findings of the present study support the fact that having plate leftovers in the university cafeteria can be predicted by intention, which aligns with the TPB model (Ajzen, 1991; Graham-Rowe et al., 2015; Lorenz, Hartmann, and Hirsh et al., 2017; Russell et al., 2017; Stancu et al., 2016; Visschers et al., 2016). Nevertheless, a higher intention of not wasting food has a smaller impact on students' plate leftover behavior than other situational variables in the model, suggesting that this volition did not necessarily turn into students' behavior (Schanes et al., 2018). Moreover, the PBC, both as a determinant of the intention not to waste food and plate waste behavior, was significant and consistent with the literature (Lorenz, Hartmann & Langen, 2017; Mondéjar-Jiménez et al., 2016; Russell et al., 2017). Regarding the significant effect of the PBC in predicting both intention and behavior, students confided in themselves to perform the behavior and believed that this situation was under their control (Schanes et al., 2018). The attitude towards behavior as a determinant of the intention not to waste was not statistically significant, which supports findings of (Russell et al., 2017) while contradicting results reported by some other studies (Lorenz, Hartmann, Hirsh et al., 2017; Lorenz, Hartmann & Langen., 2017).

Additionally, subjective norms were not found to be related to students' intentions of not having plate leftovers, which also supported some studies (Coşkun & Yetkin Özbük, 2020; Sebbane, 2017; Stefan et al., 2013; Visschers et al., 2016), while contradicting others (Graham-Rowe et al., 2015; Lorenz, Hartmann, & Langen, 2017; Russell et al., 2017). This result is rather unexpected as students may have a tendency to be affected by other people's opinions in a public food consumption place such as a cafeteria (Sebbane, 2017). On the contrary, results revealed that students are not concerned by other people's opinions about their plate waste in the cafeteria.

Extending the TPB by adding personal norms as in the literature (Arvola et al., 2008) could not be supported by the results of the current study because the impact of this variable could not even be tested. Due to the high correlations of personal norms with all TPB factors, I had to remove this latent construct from the model to run further analyses. This correlation might be a sign of the high degree of empirical overlap between personal norms and other factors in the model, which might be very likely in environment-related behavior having a strong moral dimension, consistent with the literature (Graham-Rowe et al., 2015; Lorenz, Hartmann & Langen, 2017). Hence, both subjective (or social) and personal norms need to be further studied to clarify the possible empirical overlap.

Besides, adding situational variables appeared to be more reasonable to increase the prediction power of the TPB model is common in the literature. The current study's findings have empirically supported the impacts of additional determinants on plate waste, such as perceived portion size and taste and palatability. As previous studies suggest, the smaller the portion size, the less plate waste there was in the university cafeteria (Betz et al., 2015; Lorenz, Hartmann & Langen, 2017). However, it is crucial to note here that this finding is relevant only for students' perception of the portion size.

The taste and palatability of the meal served in the university cafeteria directly impacted plate waste behavior, which is in line with the findings reported by both

studies of Lorenz, Hartmann, and Hirsh et al. (2017) and Lorenz, Hartmann, and Langen (2017). This finding is not very surprising because people do not even feel hungry, and consequently, are not willing to eat when the food is not tasty or delicious as suggested (Heikkilä et al., 2016). Providing good quality food (Guthrie & Buzby, 2002) and taste may help to reduce plate waste in the university cafeteria. Yet, it is critical to accentuate that the METU cafeteria is a facility that provides a fixed menu meal to around 8000 students on a daily basis. As a result, it may not be easy to improve the taste of the food to match everyone's likings while preparing a tremendous number of meals, even though it would be the most effective strategy to reduce plate waste with respect to the results of the study.

One of the main contributions of the study to the classical TPB is the addition of the variable perceived value for money in the food service sector context. This variable was measured in the present study by determining the individuals' perceptions of getting good value for the money they paid for their meal. It was revealed that the individuals who believed that they got good value for the money they paid for their meal intended not to waste their meal. This finding aligns with the results of the study by Graham-Rowe et al. (2014). Accordingly, the more people acquired value for their money, the more they tended to think food tasted better.

The other main contribution of the current study was the analysis made of the relationship between individuals' environmental responsibility and their intention of not wasting food. In the related literature, there are two main approaches to measuring environmental concerns. The first approach measures environmental responsibility by "the cognitive expressions of environmental concern" (Dunlap & Jones, 2002, p. 490). The second approach, which is employed in the present study, detects individuals' daily life behaviors and reported actions about environmental responsibility, such as recycling, reusing, buying eco-friendly products, saving energy and engaging in voluntary activities (Dunlap & Jones, 2002). Going to the cafeteria and consuming food followed by discarding some of it are mundane everyday life practices, which are naturally connected to students' consumption

habits. Thus, choosing a scale to measure environmental responsibility addressing the consumption aspect and even developing a new scale was critical.

Hence, individuals behaved in a more environmentally friendly way, the more they intended not to waste food. This result contradicts with some of the previous findings, which emphasize that realizing the environmental impacts of food waste may require a thorough thinking process as their connection may not be explicit to people (Graham-Rowe et al., 2014; Neff et al., 2015; Parizeau et al., 2015; Principato et al., 2015; Quested et al., 2013; Watson & Meah, 2013). On the other hand, it supports the results of studies (Betz et al., 2015; Filimonau, Matute, et al., 2020; Lorenz-Walther et al., 2019; Sirieix et al., 2017; Williams et al., 2012) that environmentally conscious people generate less plate waste. The sample included individuals aged between 18 and 30, young and relatively educated, who could be more environmentally responsible and behave accordingly (Diddi et al., 2019; Lee, 2008). Therefore, results should be interpreted cautiously.

Overall, the general findings of the current study show that the intention had a rather minor role in predicting the plate leftover behavior of students than the PBC and taste and palatability, unlike what the TPB suggests. However, similar results can be seen in the literature. For instance, the conceptual model of Stancu et al. (2016) also revealed there were more significant determinants than intention, such as the PBC. Yuriev et al. (2020) pointed out the drawbacks of the TPB model in complex issues as food waste behavior since the theory focuses on determinants that influence one action while overlooking the entanglement of the issue in the question. Results of the study explicitly laid out how complex food waste behavior is. Hence, opening up the phenomenon with a qualitative approach is crucial to understanding underlying factors and determinants forming and shaping the food waste behavior of students, as suggested in the literature (Yuriev et al., 2020).

This weak relationship between intention and the behavior leads to the common debate in the literature of the so-called “attitude-behavior gap” (Vermeir & Verbeke, 2006) or “value-action gap” (Blake, 1999); that is, the gap between the attitudes and

values, and performed or observed behavior (Schanes et al., 2018). Even if people have an intention to behave in a specific way, they may not end up acting accordingly. The current study's findings also underscored that the intention of not wasting food might not be automatically accepted as signs of less plate waste. The attitude-behavior gap is even more observed in environmental issues as the more consumers are concerned with environmental justice, the less they express it as a behavior (Chatzidakis et al., 2021). To overcome the intention-behavior gap, particularly in the green behavior context as in the present study, I added a factor, taste and palatability, influence directly the behavior as suggested in the literature (Yuriev et al., 2020). Yet, further studies are required to explain and understand this gap in the context of food waste behavior. In sum, the results revealed that the main determinants of the intention not to waste in the TPB model, such as attitude towards behavior and subjective norms, were not significant whilst the intention not to waste had a smaller impact on the plate waste behavior than the PBC and taste and palatability. Also, the effect of the personal norms, which accentuate the moral aspect, could not even be tested due to the multicollinearity caused by the possible empirical overlap in the model. Although this study provides interesting results, the issue of students' food waste in the cafeteria can be addressed and elaborated thoroughly through a qualitative approach within the emerging country and food service sector contexts.

As a result, I conducted a second study on students' plate waste practices in a university cafeteria with a qualitative approach to broaden the scope of the literature by exploring the morality aspect of food waste practices. In the next chapter, I will present the second study I conducted in the METU Cafeteria through a qualitative approach and its principal findings of the investigation on food waste practices of students. I expect that the second study may help gain a more detailed understanding of students' everyday life practices, which in turn would contribute to the generation of new ideas about how to reduce food waste.



## CHAPTER 3

### QUALITATIVE APPROACH

There is no doubt that the current consumption patterns are not environmentally sustainable, leading people to change their lifestyles to tackle global climate change or at least adapt to it by these changes (Evans et al., 2013). It is urgent to navigate more ecologically and environmentally sound behaviors, although there is no clear-cut way to reach that level. Recently, researchers in the field of behavioral economics have shown an increased interest in behavior change toward adopting sustainable consumption practices, as I discussed in Chapter 2 of the dissertation. This necessary change and understanding of how it can happen is still a challenging issue in the social sciences as well.

Food as a necessity basically nurtures our bodies to survive. Since the beginning of human beings, food has been a controversial issue due to its biological, political, social, moral, and ecological aspects. Inlining with the overall sustainability discussion, it has been gaining much more attention as “food is the thin end of environmental awareness” (Opel et al., 2010, p. 251). Concerning already undernourished people, current population growth and the planet’s scarce resources to produce food, the issue of food waste in relation to the ongoing sustainable consumption debate clearly creates a dispute by bringing the notion of disrespect on the agenda (Närvänen et al., 2018).

In the previous study, I could not even measure the effects of personal (moral) norms on the intention not to waste in the cafeteria. Besides, attitudes toward plate leftover behavior and subjective (social) norms were not statistically significant variables in the conceptual model. Results clearly suggested that normative perspective could not

be observed through the data set as it could be embedded in other variables. However, I argue that food consumption and food waste are morally charged notions that require further research to understand the situation in the university cafeteria. Additionally, much uncertainty still exists about how environmental consciousness influences plate waste behavior. Results of the first study on this relationship were limited, so I decided to extend this research with a qualitative perspective to dig more into these unsettled topics in relation to food waste in a cafeteria.

This study explores how students morally justify their food waste practices at a state university cafeteria. While my approach is related to the food waste literature, it also provides novel insights by employing pragmatic sociology (Boltanski & Thévenot, 2006) to the analysis. Waste management and consumption studies mainly focus on mundane routinized household food waste or waste-elimination practices (Cappellini, 2009; Cappellini & Parsons, 2012; Evans, 2011b, 2012b, 2014; Mattila et al., 2019; Närvänen et al., 2018; Southerton & Yates, 2015; Watson & Meah, 2013). Practices are routinized when there is an agreement on the “equivalence” (Boltanski & Thévenot, 2006), i.e., rules and values adopted by the actors. However, in the context of this present study, wasting is an issue of dispute. Students continuously generate justifications utilizing different and multiple moral regimes to either criticize or justify why one should not waste or waste that indicate the situation of dispute in a cafeteria. Therefore, this study aims to explore and understand how young people in Turkey negotiate their moral grounds to justify their food waste practices in a university cafeteria context.

I conducted qualitative research in the context of a state university cafeteria, METU Cafeteria, in Ankara, Turkey, and adopted Boltanski and Thévenot’s (2006) Economies of Worth framework as this approach conceptualizes situated moral justifications in situations of dispute. Such a perspective is useful in a mundane consumption context where practices are situational rather than assumed as constituted structurally. The study contributes to the contingencies formed around conditions of life transition, alternative cultural systems such as religion, and bodily



physical and emotional responses create a situation of dispute in which actors search for a resolution by employing multiple regimes.

In this chapter, I present the second study of the dissertation. Firstly, I will explain related literature on food waste, adopting a mainly qualitative approach. Then, I will introduce the concept of morality in relation to food consumption and lay out the theoretical dimensions of the research, Economies of Worth framework (Boltanski & Thévenot, 2006), in the following sections. After that, I will describe the methodology and the context of the study that will be followed by the findings of the study, focusing on the five key themes. Finally, I discuss the findings of the research in relation to the related literature.

### **3.1. Literature on Food Waste**

The majority of the food waste research framed the issue as individual behavior change (Graham-Rowe et al. 2014; Stancu et al. 2016; Visschers et al. 2016) to prevent food waste occurring mainly in the consumption stage of the food supply chain as in the very first study of this dissertation. Warde (2005) clarified that an individual in different situations might do the very same activity differently. In other words, doing something else has less to do with personal attitudes toward a specific practice (routinized behavior like wasting food). In contrast, it is closely related to shared requirements to perform that specific practice successfully (Evans, 2014). It is crucial to observe how practices evolve, how they capture and lose their carriers, and how systems of practice form and fall apart to understand social change (Shove, 2010).

Studies embracing practice theory as enabling theoretical lens brought insights into consumer food waste through understanding material, social, and cultural mechanisms and dynamics of everyday life (Evans, 2014). In the broader perception of food waste, research so far focuses on the waste emerging in households with a practice approach (Evans, 2011a, 2012, 2014; Mattila et al., 2019; Närvänen et al.,

2018; Southerton & Yates 2015; Watson & Meah 2013), except several studies defined the food service sector as context (Lui & Chen, 2019; Yui & Bilttekoff, 2020).

The disposal process explicitly has a very complex, constructive, and interactive relationship with consumption, rather than being the last step in the objects' life (Türe, 2013). In other words, focusing on the disposal process together with the consumption perspective may contribute to enhancing our understanding of waste and its interconnectedness with consumption as disposal is an integral part of the dynamics of consumption practice (Cappellini, 2009) and is fundamental to grasp “consuming as a social activity” (Hetherington, 2004, p. 158). Moreover, Hewer (2015) pointed out rising concerns from “the forms of knowledge produced around an understanding of waste when it is not adequately theorized through the lens of consumption” (p.59) because we reflect our belonging within a society not only through our consumption but also through our disposal practices (Cappellini, 2009). Opening up a consumer perspective on the issue of waste is also necessary because understanding how consumers link waste and consumption in their mundane everyday lives can facilitate transforming the practices of consumers in a more environmentally friendly way (Cherrier et al., 2018; Ekström, 2015; Gregson et al., 2013).

A large and growing body of literature has investigated disposal practices in consumer research to prolonging the life of acquired objects and perhaps revaluing waste through repairing, recycling, upcycling, and reusing (Brosius et al., 2013; Cherrier et al., 2018; Ekström, 2015). However, food waste in consumption literature gets scant attention with a few exceptions such as transforming and consuming food leftovers at households (Cappellini, 2009; Cappellini & Parsons, 2012) and diverting the surplus food, which will be wasted if not saved, from retailers through alternative food markets (Cherrier, 2017) and by “dumpster divers” (Gollnhofer et al., 2019).

In the earliest research on food waste, Cappellini (2009) uncovered food divestment practices in relation to the consumption of food leftovers in a household context. To contribute to the ongoing debate on disposal in the consumer culture field, she

analyzed how the domestic food leftovers were reused in particular attention to the family relations. As drawing attention to the circularity of the consumption process and stating that the disposal was a part of the consumption process, she constructed the data by observing and interviewing 20 families in the UK while cooking, eating, handling food leftovers, and cleaning up. She found out that consuming leftovers by “giving leftovers a second chance” (Cappellini, 2009, p. 370) evoked various ordinary domestic practices such as classifying, selecting, and storing to transform the leftover foods into a form clean enough to put on a table. While these practices indicated the practice of thrift, they happened only among the family members through “the process of sacrifice” (Cappellini, 2009, p.366).

Cappellini and Parsons (2012) revisited the practice of reusing and revaluing food leftovers in households as a particular conduit of disposing of food surplus. They accepted reusing and revaluing food practices as thrift practices in relation to saving resources. To divert the leftovers from being wasted, families showed collective sacrifice of saving together by consuming food leftover apart from the sacrifice made by individual family members, usually mothers. Therefore, thrift practices strengthened collective family identity and family membership, which refers to saving and spending together for the family’s sake.

In his ethnographic study, conducted 19 households in the UK, Evans (2011a, 2012, 2014) explored why and how food becomes waste in the domestic context by employing the practice theory. He outlined “the passage of food into waste” (Evans, 2014, p. 11) while uncovering the routines of domestic food (over)provisioning, cultural conventions, household dynamics, domestic social relations, material properties of food, and socio-temporality of food practices in general. In his book (Evans, 2014), he also discussed the conduits of food disposal in households. He explicated how surplus food turns into excess to be eventually binned; yet, it might linger in the gap to be disposed of in such ways, which might save the food from being wasted if it does not fall into the category of excess food. Additionally, he accentuated that people actually care about food, and getting rid of food was creating

anxiety. Finally, he underlined the materiality and social aspects of food that cannot be reduced to an individual level.

Watson and Meah (2013) focused on how public discourses on food waste and food safety were translated into domestic practices in the UK. They embraced the qualitative and ethnographic approach to reveal how consumers feel anxious about food in their everyday lives. Authors benefited from the visual records, such as photographs and videos, to overcome the differences between participants' doings and saying while constructing the data through focus groups, interviews, and observations in order to show the passages of food on the way of turning into waste in households. They explicitly brought the "best before" and "use-by" debate into the front as they aimed to understand the discussion between food safety and food waste issues in domestic practices. Their findings manifested that the organization of daily life is the key to the current academic discussions on food, practices, materiality, food safety and waste concepts. Finally, they remarked that policy interventions targeting to reduce food waste, especially at the household level, should focus more on thrift and ethics as underscoring food waste's environmental drawbacks in these interventions does not have enough potential to achieve the purpose.

Närvänen et al. (2018) explored how the content of consumer-oriented social media campaigns negotiated and transformed socio-cultural meanings of household food waste reduction in Finland. They chose three different case campaigns by using a theoretical sampling method. Three campaigns covered food bloggers, an annual awareness-raising campaign facilitated by a non-governmental organization, and a public relations campaign arranged by a private company in Finland. Interviews with seven bloggers, blog and Facebook postings, Instagram photos, campaigns website, and food waste festival were used to construct the data. Results of the content analysis revealed three main themes of socio-cultural meaning used in these social media campaigns. All themes, named as creativity in reducing food waste, aesthetic of food waste, and ethic of food waste, carry a positive orientation toward the issue

of food waste, which moved the focus from individuals to broader socio-cultural meanings.

Mattila et al. (2019) investigated the temporal relations of humans (consumers) and non-humans to reduce household food waste in Finland by the “dance of agency” metaphor. They adopted an ontological approach to the phenomenon of food waste and food to underline the potential state of food on the way of turning to waste depending on the daily domestic practices. To overcome the difficulty of observing mundane everyday life practices of people, they embraced ethnography as a primary methodological tool in this study. The data are driven from the blog posts related to the “From Waste to Delicacy” campaign in Finland. The campaign was initiated by a couple of bloggers in 2012 to raise awareness of consumers about household food waste and share relevant tips to reduce it. All the blog postings and comments within four years of time frame were screened, and finally, 597 postings were collected. After that, seven of these bloggers were interviewed as well. Their findings uncovered that scheduling, pausing, stretching, and synchronizing are the main practices stressing the temporality of domestic food waste. They detailed these terms by elucidating how they show themselves as practices in mundane everyday life. For instance, planning for food shopping is about scheduling, while freezing food to delay its usage is what pausing means. Ignoring date labels and converting potential food waste into a meal are practices referring to stretching. Similarly, appointing the right time for purchasing and using food as well as finding a use for leftovers are named as synchronizing practices. Therefore, they contribute to understanding the time and temporality aspects of theories of practice in household food waste by analyzing posted everyday practices of bloggers to save food becoming waste in Finland, which are reflections of the “dance of agency.”

Liu and Chen (2019) investigated how and why young people consume takeaway food ordered online in China by understanding convenience food beyond the family space in a non-Western context. They conducted 35 in-depth interviews with young people aged between 18 and 35. Findings revealed that Chinese young people

normalized takeaway food consumption regarding its convenience and perceived takeaway food as family meals while adopting various lifestyles such as self-centered or individualized, technology-dependent, and fast-paced. They also explained that takeaway food might not automatically bring a wasteful lifestyle as young people developed strategies to refrain from wasting food. Thus, this research brought new insight into the convenience of takeaway food by accentuating the possibility of reducing food waste as opposed to the immediate association between convenience food consumption and an unsustainable and unhealthy lifestyle in the literature.

Lehtokunnas et al. (2020) pointed out the necessity of change in everyday practices in the transition towards the circular economy by investigating daily practices of domestic food waste reduction as ethical work. They adopted the practice lens with Foucault's concept of ethical subjectivity to elaborate the data constructed by 26 food waste diaries and participant observation in four leftover cooking workshops in Finland. Their findings demonstrated that unsustainable domestic food consumption practices and emotions connected to them are the ethical substances in their data. Also, the mode of subjectivation to avoiding food waste has been formed through observing and acting accordingly. For instance, participants did not want to waste due to environmental drawbacks. Finally, the self-forming activity depended on creativity, skills, learning new things, anticipation, and the right attitude towards food waste. They emphasized the moral complexity of daily life rooted in somewhat contradictory ethical sensitivities and practices.

Finally, Yui and Biltekoff (2020) underlined the importance of consumer-level food waste in university dining facilities. They tried to understand the patterns of food becoming surplus and then waste by using the practice theory approach. They constructed the data through interviews, focus groups, relevant reports, and observations in the field. They found four primary situations in the university dining system: payment, service, information, and waste management, leading students to have plate leftovers. First of all, students are forced to purchase the meal plan as a

requisite when enrolling for the residence hall on the campus without providing sufficient and transparent information about the available meal plans. The physical environment in the service area, especially with pre-plated portions and seating layout of the dining halls designed for students to obtain food effortlessly, also makes them produce a food surplus. Not to break social norms, students tended to take more food than they could consume. In this way, they refrained from all so-called “disrupting” or “interrupting” (Yui & Biltekoff, 2020, p.13) interactions with service staff by asking for samples and customization. Moreover, students did not have an opportunity to reach sufficient information regarding the ingredients and nutrients of served food in the dining hall, resulting in uneaten food on the plates. Lastly, plate leftovers in the cafeteria directly became waste; in contrast, they could linger a little bit longer in the household settings to be saved from being wasted. In effect, it is how the regular waste management system usually works in the cafeterias. To sum up, various practices might trigger to generate surplus food in the university cafeteria, as opposed to the individual responsibility of the consumers or students.

To sum up, food waste generated in the food service sector is relatively unaddressed in the literature. Even if several studies focus on food waste in a food service context with a qualitative approach, most of them have a more descriptive nature (Liu & Chen, 2019; Yui & Biltekoff, 2020). Therefore, bringing consumers’ perspectives and opening up why and how consumers waste food in the food service context is crucial.

### **3.1.1. Food and Morality**

Consumption has been thoroughly linked to morality (Wilk, 2001). Due to the growing significance of morality of food consumption (Grauel, 2016) and eating practices (Johnston et al., 2011) since it is associated with the issue of fairness due to its necessary character (Sassatelli, 2004), morality became instrumental in my understanding of food waste. Besides, practice change to reduce food waste in relation to ethics has been recently studied in the literature. Närvänen et al. (2018)

explored how the content of consumer-oriented social media campaigns negotiated and transformed socio-cultural meanings of household food waste reduction in Finland. Lehtokunnas et al. (2020) pointed out the necessity of change in everyday practices in the transition towards the circular economy by investigating daily domestic food waste reduction practices as ethical work through adopting the practice lens with Foucault's conception of ethics. Their findings emphasized the moral complexity of everyday life rooted in somewhat contradictory ethical sensitivities and practices.

In the literature, the moral economies of food focus more on consumers and consumption as it encompasses the interactions between various processes from macro-level, such as state regulation, to micro-and meso-level, such as mundane daily reflections of diverse consumers (Evans & Mylan 2019; Wheeler 2018, 2019). In this study, I recognize a similar fashion on food waste by directing my attention to the morality of food waste as it has deeply perceived as a moral issue (Gregson et al., 2013; Wilk, 2010); for instance, the term "moral economy" is inherently associated with food (Wheeler, 2018).

Despite moral discourses on thrift and wasting (Wilk, 2015), wasting has accelerated with consumption. Considering moral complexity in mundane everyday life, understanding morality can diversify and contradict each other as various perceptions can be enlisted as good (Grauel, 2016). Yet, we know that "moral pronouncements about the consumption are inevitable, but that they are not arbitrary; on the contrary, they are highly patterned, and they have a social and historical context." (Wilk, 2001, p.250). Hence, understanding how morality works in people's daily lives for the issue of food waste and how they utilize morality to justify their food waste practices is crucial.



### **3.2. Economies of Worth Framework**

In this part, I elucidate the “Orders of Worth” approach of Luc Boltanski and Laurent Thévenot, called by various names such as convention theory, economies of worth, or pragmatic sociology (Jagd, 2011). Orders of worth can be explicated as “higher-order principles that structure social spheres and can be mobilized in the context of ‘tests of worth’ to resolve disputes between actors with differential degrees of legitimacy” (Patriotta, 2011, p.1809). Their original framework underlined that for the formation of order and change in institutions, the process of critique and justification carries a great deal (Jagd, 2011). Boltanski and Thévenot (2006) distinguished their approach (especially from the critical theory) to the dispute by reflecting the very characteristic of human beings: “they have judgment” (p.144). All human beings naturally have an ability to understand the available situation (or dispute), whether it is well-founded or not, and adapt to it if not so-called psychologically abnormal (Boltanski & Thévenot, 2006). In other words, this framework provides insights to understanding social life by accentuating human agency and their moral capacities to engage with the social world (Blokker, 2011), when actors “criticize, challenge institutions, argue with one another, or converge toward agreement” (Boltanski & Thévenot, 2006, p. 15).

Lemieux (2014) asserted that Boltanski and Thévenot (2006) brought a new perspective to the socialization processes that play a great deal in shaping human action by emphasizing the material and organizational constraints. For everyday life disputes and struggles, “we need to take seriously the fact that ordinary actors are equipped with critical, moral, and judgmental capacities.” (Lemieux, 2014, p.154).

In ordinary everyday action, sometimes actors partake in dispute when there is uncertainty among actors about an issue. In such situations, actors are either need to justify themselves against possible critiques or provide critique for the others’ actions (Boltanski & Thévenot, 2006). In other words, they can operationalize the same higher order principles in order to justify one specific position or its opposite

one in a particular case (Patriotta, 2011). In this regard, I find the economies of worth perspective relevant to my research as data revealed that food waste practices in the cafeteria demonstrate a dispute situation. Disputes can be resolved if there is an equivalence; in other words, a clearly defined rule, criterion, or norm, i.e., accountability. The food waste situation in the METU Cafeteria is a case of dispute with equivalence, which means that multiple criteria can be applied by actors to resolve the dispute. If there is no dispute (i.e., a situation of peace) and there is an equivalence (i.e., there is a defined criterion), in that case, the relevant practice is routinized and continues as it is. Most waste studies focus on the situation of peace and equivalence, and they primarily identify the equivalence by referring to the dominant social values or discourses. However, in a situation of a dispute with equivalence, it is worthwhile to have the justification as the empirical object of analysis.

Ostensibly, I have not been necessarily trying to affirm Boltanski and Thévenot's theory in this study, although I adopted their approach as a tool to understand and perhaps thoroughly explicate the data. As Boltanski and Thévenot (2006) expressed that they developed this theory particular to their culture, the Western French culture, I can detect and encounter innate differences between this current case and the theory. "Boltanski and Thévenot's suite of worlds effectively represents a repertoire or a toolkit of cognitive, symbolic, and material elements that actors can actively draw upon to justify their actions and beliefs or to convince others as to what beliefs or actions are appropriate in a given situation." (Cloutier & Langley 2013, p.366-7). I employed the economies of worth framework to analyze the data and unravel the situation of dispute in the cafeteria by explicating how students justify their food waste and food waste avoidance practices. In other words, the economies of worth framework appeared to be an appropriate tool for the present study.

Boltanski and Thévenot (2006) have identified six different worlds based on well-known principles of moral philosophy: domestic, civic, industrial, market, inspired, and fame. Later, Thévenot et al. (2000) added the green world to the framework. The

notion of the world refers to a real-life situation defined by specific principles or worth forming the polity. For example, when at home, wasting food is eliminated since your mom orders you not to waste it. This situation is in the domestic world, and hierarchical relationships among the family members are a principle defining domestic polity. On the other hand, when the student wastes food at home because it is cheap and not tasty, they apply market polity in the home context. So, I can observe actors choosing or combining multiple polities in a specific situation of dispute. Table 3.1 (retrieved from Gond & Leca, 2012, p.49) exhibits these worlds, and each world will be detailed in the following part.

### **3.2.1. Domestic World**

Worthiness is measured with trust in personal relationships, reflecting hierarchy, tradition, upbringing conditions, and authority in the domestic world (Boltanski & Thévenot, 2006). As it is also called the realm of family, one's upbringing in families carries a great deal as it reflects "where one 'comes from'" (Cloutier & Langey, 2013, p.365). The unit as a family is preserved and protected as such because actors in this world measure their worthiness by this unit, family (Cloutier & Langey, 2017).

### **3.2.2. Civic World**

In the civic world, what matters most is the collective will, not the persons themselves (Boltanski & Thevenot, 2006). Individual interests can be sacrificed for the sake of collective interests (Cloutier & Langey, 2017). For instance, during data analysis, I looked for what underscored collective interests and solidarity in students' sayings (Thorslund & Lassen, 2016).

Table 3.1: Consolidated Overview of the Economies of Worth Framework (retrieved from Gond & Leca, 2012, p.49)

<b>Common Worlds</b>	<b>Market</b>	<b>Industrial</b>	<b>Civic</b>	<b>Domestic</b>	<b>Inspired</b>	<b>Fame</b>	<b>Green</b>
<b>Mode of Evaluation (worth)</b>	Price, cost	Technical efficiency	Collective welfare	Esteem, reputation	Grace, singularity, creativeness	Renown, fame	Environmental friendliness
<b>Test</b>	Market competitiveness	Competence, reliability, planning	Equality and solidarity	Trustworthiness	Passion, enthusiasm	Popularity, audience, recognition	Sustainability, renewability
<b>Form of Relevant Proof</b>	Monetary	Measurable: criteria, statistics	Formal, official	Oral, exemplary, personally warranted	Emotional involvement and expression	Semiotic	Ecological ecosystem
<b>Qualified Objects</b>	Freely circulating market good or service	Infrastructure, project, technical object, method, plan	Rules and regulations, fundamental rights, welfare policies	Patrimony, locale, heritage	Emotionally invested body or item, the sublime	Sign, media	Pristine wilderness, healthy environment, natural habitat
<b>Qualified Human Beings</b>	Customer, consumer, merchant, seller	Engineer, professional, expert	Equal citizens, solidarity unions	Authority	Creative beings, artists	Celebrity	Environmentalists, ecologists
<b>Time Formation</b>	Short-term, flexibility	Long-term planned future	Perennial	Customary part	Eschatological, revolutionary, visionary moment	Vogue, trend	Future generations
<b>Space Formation</b>	Globalization	Cartesian space	Detachment	Local, proximal anchoring	Presence	Communication network	Planet ecosystem

### **3.2.3. Inspired World**

The focus is on creativity, imagination, excitement, and dreams in the inspired world (Boltanski & Thévenot, 2006; Jagd, 2011). Actors in this world push away routines and habits as they dream, imagine, and take risks (Cloutier & Langey, 2017).

### **3.2.4. Fame World**

In this world, worthiness rests upon the recognition of individuals by others (Boltanski & Thévenot, 2006; Jagd, 2011). In other words, the opinions of others to be recognized determine the worth of actors (Cloutier & Langey, 2017).

### **3.2.5. Market World**

Boltanski and Thévenot (2006) emphasized that economic actions depend on two separate forms of coordination, the marketplace and industrial order, so the market world should not be confused with the sphere of economic relations. Individuals' desires to possess rare goods motivate the actions in the market world, and the price is the key here to evaluate (Boltanski & Thévenot, 2006). In this world, what is expensive, rare, and profitable is valued (Cloutier & Langey, 2017).

### **3.2.6. Industrial World**

The efficiency of beings, their performance, productivity, and capacity to provide normal operations are orderings of the industrial world (Boltanski & Thévenot, 2006). While optimization and progress, which denote efficiency, should be pursued, any forms of waste should be disapproved (Cloutier & Langey, 2017).

### **3.2.7. Green World**

Thévenot et al. (2000) clarified that the green world becomes even more common with the acceleration of the global environmental movement to be added to Boltanski and Thévenot's (2006) framework. In the green world, the worthiness of actions depends on its support for environmentalism principles through considering the general good of humanity in harmony with nature and being sensitive to environmental issues and consequences (Thévenot et al., 2000).

### **3.3. Method**

This study focuses on investigating the food waste practices of students in the METU Cafeteria. To understand how people perform their mundane daily routine practices and situated moral justifications, I conducted qualitative research that provides in-depth information on food waste practices and meanings. Similar to the study of Thorslund and Lassen (2016), my purpose was to investigate students' arguments and justifications on their wasting practices and, in general, their understanding of the notion of waste. I adopted participant observation, semi-structured, in-depth interviews, projective techniques and secondary data as data collection techniques. As I worked as a research assistant for eight years and have been a student in METU since 2005, I have been attending the Cafeteria and other catering places on the campus. In a way, I am an insider in this research.

I also used secondary data to find out more about the METU campus and the cafeteria contexts. Mostly, information from the university website and social media are searched to depict the field in detail. Next, I conducted participant observation in the METU Cafeteria, during the lunch hours, from 11.30 am to 2.00 pm for two weeks when I was applying the first study of the dissertation. Each observation session took around 2 hours, and I recorded the data as field notes. I pursued an ethnographic approach to wasting practices by observing students while they were eating and bringing their trays to the disposal area and the whole process of food service. That

way, I had a holistic understanding of the dynamics of the cafeteria by observing, not necessarily gaining insights depending on students' sayings in the interviews.

Table 3.2: List of Interviewees with Pseudonyms

Interview Participants								
Pseudonyms	Gender	Age	Department	Religion	Occupation of Father	Occupation of Mother	Income	Family Income
Sarp	Male	21	Business Administration	Atheist	Restaurant Manager	Nurse	2100	10000
Gaye	Female	22	Business Administration	-	Academic	Academic	1500	20000
Ezgi	Female	21	Business Administration	None	Private Sector	Doctor	2000	8000
Berrak	Female	30	Chemistry	Agnostic	Teacher (Retired)	Teacher (Retired)	6000	6500
Özge	Female	25	Computer Engineering	Islam	Retired	Tailor	150	2000
Ali	Male	25	Biological Sciences	Atheist	Teacher	Nurse (Retired)	6000	8000
Melikşah	Male	23	Industrial Engineering	Islam	Teacher (Retired)	Housewife	-	4300
Boran	Male	20	Mining Engineering	Islam	Family Doctor	Nurse	500	-
Bartu	Male	24	Aerospace Engineering	Islam	Police Officer (Retired)	Blue-Collar Worker	510	4000
Şebnem	Female	25	Environmental Engineering	Islam	Accountant (Retired)	Teacher (Retired)	5700	6000
Caner	Male	31	Petroleum& Natural Gas Engineering	Believe in God	Retired	Retired	7500	7500
Yasemin	Female	22	Business Administration	-	Retired	Teacher	1100	5000
Melih	Male	23	Electrical-Electronic Engineering	Islam	Electrical Technician	Housewife	1750	9000
İrem	Female	22	International Relations	Agnostic	Language Teacher	Language Teacher	1000	3400
Gülse	Female	21	Business Administration (SUNY)	Islam	Civil Engineer (MSc)	Civil Engineer (PhD)	-	30000

During these observation visits, conducting informal interviews and small talks with students and personnel enriched the ethnographic data (Elliott & Jankel-Elliott,

2003). Also, to deepen the understanding from participant observation data, the photos of the trays from the first study helped to identify some patterns in students' consumption practices more clearly (Power, 2003). While I occasionally used field notes in the analysis, they surely provided insights for the interviewing part. Further, during the participant observation phase, I recruited eleven students for semi-structured, in-depth interviews. Details about respondents can be seen in Table 3.2 below. Prior to commencing the study, ethical clearance was sought from the Ethics Committee of the METU Research Center for Applied Ethics.

I tried to diversify the sampling to understand students' wasting practices sophisticatedly enough by embodying a broad array of student perceptions across the university campus. At this point, the iterative process of data analysis was exceptionally helpful. In the first eleven interviews, the environmental responsibility concept was not thoroughly elicited. As I wanted to explore this phenomenon with students who were perhaps more familiar with environmental issues, I adopted purposive sampling to recruit the participants from the university's students club, which related to sustainability, environmental issues, and animal rights. I communicated with three university clubs and invited their members to participate in the present research. Only members from two clubs returned to participate in the study. Besides, I deliberately recruited one more interviewee who does not eat at the cafeteria in order to diversify and enrich my data with an outsider's point of view.

The duration of the interviews varied from 21 minutes to 101 minutes, and I recorded them with interviewees' permissions, then transcribed them verbatim, 204 pages in length. As part of the interview process, I conducted projective techniques, specifically association techniques, to understand the image of the cafeteria, other catering places and their customer profiles. To achieve this, I asked participants to describe these places and customer profiles by anything that came to mind (Belk et al., 1997), primarily using adjectives depending on their experiences. Consequently, I used the projective technique to understand the context and phenomenon better and genuinely. In addition, in an attempt to make each interviewee feel as comfortable



as possible, I certainly guaranteed the confidentiality and anonymity of participants (Flick, 2009).

In this study, I used MAXQDA Plus 2020 for data management and analysis (VERBI Software, 2019). After conducting a generic qualitative thematic analysis, I identified justifications of participants about food waste and then implemented Boltanski and Thévenot's (2006) Economies of Worth framework.

### **3.4. Context**

As mentioned earlier, Turkey is an interesting context with a rather high level of food waste and an exemplar of an emerging country experiencing growth of urbanization, middle classes, and consumerism. In this part, I will elaborate more on Turkey and METU Cafeteria as a context. First, I will overview the historical developments in Turkey as an emerging country. After that, I will present the history of METU and specifically the significance of the Cafeteria in the METU context.

#### **3.4.1. Turkey as a Context**

Turkey's development strategy, which shapes the country's economy and positions the citizens, has changed over time. Until the 1980s, domestically oriented manufacturing and agricultural sectors were on the rise, called import-substitution industrialization (Boratav & Yeldan, 2006). In the post-1980 period, the development policy was changed, and the liberalization process began in Turkey (Boratav & Yeldan, 2006) as the existing model failed to secure sustainable growth (Kravets & Sandikci, 2014) so that the formation and transformation of consumer culture burgeoned in the 1980s as well. These infrastructural transformations adopted to pursue economic growth prepared ground for production, international trade, foreign investment, and consumption (Yenal, 2000). Consequently, this new strategy, Turkey's liberalization policies, resulted in the transformation of consumers in the 1990s (Sandikci et al., 2016). For instance, it was not arduous anymore to find

foreign brand-name products on the market, while various new places, such as foreign cuisine and fast-food restaurants, shopping malls, and office towers, started to spread, especially in big cities of the country, like Istanbul (Sandikci et al., 2016). Additionally, through the spread of mass media, such as television networks and magazines, this transformation of consumer culture was accelerated (Üstüner & Holt, 2007).

At the same time, we know that the distribution of the population has shifted; that is, urbanization has accelerated with the economic developmentalist policies so that the urban middle class in Turkey would be established to create economic and political stability (Yenal, 2000). The proportion of the urban population reached around 44% in the late 1970s, which was mainly caused by rural to urban migration (Berker, 2011). Yet, this proportion was around 65% in the 2000s due to rural-to-urban and urban-to-urban (from small cities to big cities) migration during this period (Berker, 2011).

Ostensibly, the middle class plays an essential role in developing and spreading consumer culture in the West (Featherstone, 2007; Karademir-Hazır et al., 2016). Regarding consumer culture, the rise of the new middle class in an emerging country context recently gained even more attention from various agents as the future demands to create more consumption will be generated by this new middle class (Kravets & Sandikci, 2014). Despite its small proportion in the population of emerging countries, the new middle class has created the demand for a significant scale of consumption that has the power to define self-identification and an image of a comfortable life, shaping consumer demands in these countries (Kravets & Sandikci, 2014). On the other hand, studies show that around 80% of the global middle class will live in emerging countries by 2030 (Uner & Gungordu, 2016), indicating the importance of enlarging the new middle class in emerging countries that fuels the consumption practices. As a fast-growing emerging country (Kravets & Sandikci, 2014), Turkey is experiencing the aforementioned macro changes and transformations. These changes revealed themselves as the adaptation of the Western Lifestyle myth not only by as a status in upper-middle-class but also by people

migrated from rural and living in urban as squatters (Üstüner & Holt, 2007). It is not so surprising to observe such an imitation because: “Turkish modernizers had readily identified modernization with Westernization” (Keyder, 1997).

### **3.4.2. METU as a Context**

METU, an elite state university, was founded in 1956 as a result of the United States’ postwar policy in the Middle East region, and it symbolizes Turkey’s modernization efforts (Sargın & Savaş, 2013). Simultaneously, the “American Model” of higher education was directly enforced while establishing the METU (Öncü, 2007), which denotes the domination of the US on emerging countries economically, politically, and culturally. METU offers a high-quality academic education by underscoring merit and excellence in research, scientific, cultural, and intellectual studies (METU, n.d.) while accepting students of certain prequalification such as ranking among the top percentiles in the university entrance exam. METU community’s current student population is around 28000 students and alumni with above 120000. Concurrently, students from various geographies, social classes, demographics, and income levels constitute a very diverse university population on the campus. Besides, English, the language of instruction in the university, helps students engage in global discussions relatively effortlessly and somehow be exposed to multiple global discourses that result in global and local tensions and negotiations in their moral evaluations of daily life. METU spirit or the community ethos are described as modernist, authentic, open-minded, revolutionist (not a surprise as the university has a stadium called *devrim*, the revolution), democratic, critical, humanist, environmentally conscious, having merits, and having an aesthetic taste (Özgen, 2015). This so-called METU spirit strengthens the bonding among students, academics, and staff altogether.

Since the beginning of its foundation, the METU has included environmental and sustainability issues on its agenda. METU members transformed the barren land, where the university was initially set up, into an artificial forest, which the Aga Khan Foundation of Architecture later awarded due to the landscaping (Sargın & Savaş,

2013). Currently, these forestation efforts are still ongoing by the traditional festival on tree plantations. To strengthen the sustainability of the METU Campus, the university included this in its strategic plan, such as sensitivity to the natural environment was listed as a core value. For instance, the “METU Sustainable/Environmentally-Friendly Campus” program was launched, and various projects were supported to secure these core values accordingly, such as the effectiveness of current solid waste management strategies in the METU Campus (Bahçelioğlu et al., 2020). The latest news on this program was that the campus obtained the zero-waste certificate in 2020 (METU Zero Waste, n.d.). Different students clubs, such as Green Campus Club and METU Orchard, are also platforms where students can gather, learn and apply projects to transform the campus into a more environmentally friendly place. All these efforts may indicate that students are in some way familiar with discourses on sustainability and environmental issues. However, as demonstrated in the findings section, students do not establish a link between pro-environmental ideologies and food waste practices at the cafeteria.

METU Cafeteria (n.d.) daily provides *table d'hôte*, a set menu for a fixed price, as opposed to an “All-You-Care-to-Eat” system (Yui & Biltekoff, 2020), which means paying upfront at the beginning of the semester and allowing an unlimited amount of food in the US universities. Daily, between 8000 – 10000 METU members, most of which are students, benefit from the services of the cafeteria. This fixed menu is monthly planned by dieticians concerning daily caloric intakes and all macronutrients of students, academics, and staff. A regular meal in the cafeteria was composed of one main dish (with a vegetarian option), one soup, one side dish (salad, pasta, or rice), and one fruit, dessert, or drink. When I was constructing my data, the lunch price for METU students was 2.5 Turkish Liras (around 0.4 U.S. Dollars) since the state subsidizes the food served in the Cafeteria. The cafeteria runs for lunch from 11.30 am to 2.00 pm on working days. During the lunch hour, the METU Cafeteria is almost overstuffed with a long queue, where students were waiting to get lunch. This huge demand and incapability of the METU Cafeteria to supply were also very prevalent discussion topics in the university, especially among politically charged

student clubs. One of our respondents, affiliated with one of these clubs, indicated her concerns for the cafeteria staff.

METU students are always in solidarity with the staff of the METU Cafeteria. These attitudes are mutual. Likewise, METU staff embrace students as such. Also, the METU Cafeteria has its own culture. One can observe the perceptions of students and staff, such as Serdal Abi, from the youtube video prepared by the METU Media Club (METU Media Club, n.d.). For instance, *havuç borona*, a side dish prepared with carrot, is a favorite dish of almost every student, and they even started a Facebook Group called “*Yemekhane Sevdalıları*” (METU Cafeteria Lovers, n.d.) to communicate about the Cafeteria and to let members know when there is *havuç borona* on the menu. Recently, Serdal Abi, thanks to Audio-Visual Systems Research and Production Center, published a video to give the recipe for *havuç borona* and deliver a message that students should miss having it on the menu during the Covid-19 pandemic (ODTÜ-METU, n.d.).

Orhangazi and Yeldan (2020) underlined the economic crisis in Turkey in 2018 that has fostered and deepened the financial constraint of students as most of the students highlighted Turkey’s current economic conditions by accentuating the dramatic increases in commodities prices, specifically the cost of food, in our conversations. Consequently, the METU Cafeteria became even more significant for students concerning their limited budget, which deteriorated by the economic crisis. Şebnem reflected her opinions about the cafeteria compared to Turkey’s current economic conditions by using the metaphor: “be scarcer than hen’s teeth”.

I mean, I heard that more students were going to the cafeteria towards the end of the month, but frankly, I didn’t think of it that way because it is a habit for me to go to the cafeteria. But you know, I think the cafeteria is ‘scarcer than hen’s teeth’ for the students, especially in the current economic condition. *Interviewer: Be scarcer than hen’s teeth and in the current economic condition. Would you like to open these up a little bit?...* What I meant by the current economic condition is that everything is very expensive. The prices are

raised, everyone is having financial hardship in the current economic state of Turkey. The possibility of eating at a lower price is scarcer than hen's teeth. I mean, it is not like the cafeteria is terrific; everybody craves for it. But you know maybe we say more than enough (laughs) (Şebnem)

Ostensibly, as the current economic conditions of Turkey intensify (and reflect), the METU Cafeteria becomes even more significant for students in their daily lives. Projective data also puts forward the image of the Cafeteria as a place cheap, average, insufficient capacity, just adequate, austerity, economical, indispensable, at the same time the image of the students who eat at the Cafeteria as common people, not elites, leftist groups, poor, thrifty, belong to a lower-income class. These descriptions of the cafeteria and who eat there regarding the current economic conditions of Turkey make the context even more interesting to study moral grounds for justifying food waste practices.

Amidst the aforementioned economic, social, and cultural dynamics, youth having an education in a top reputable university of the country are in the process of building cultural capital. After graduation, since most students secure well-paid positions in work life, they will join middle and upper-middle classes as Karademir-Hazır (2016) showed that education is a crucial determinant for upward social mobility in the formation of the new middle class in Turkey. In other words, today's university students from an elite university, such as METU, are potentially tomorrow's new middle class independently from their current background since they probably will experience upward social mobility through acquired education which will create a good image in the job market and result in high-status job opportunities (Karademir-Hazır, 2016).

Holt (2012) also accentuated that due to spreading consumerism, the middle classes of emerging countries are perceived as "voracious consumers" (p.238), in addition to the Western societies. That is, they will be added to the flock's of "voracious consumers" in the near future that results in structuring the consumption field (Üstüner & Holt, 2010). Under the macro-dynamics of Turkey as an emerging

country and students' life transition, I introduced students' moral justifications and sensitivities on food waste in the following section. Such information will be unique in its conceptualization of moral justifications in a particular context and enlighten in developing future policy and business implications.

### **3.5. Findings**

By analyzing the data in light of the economies of worth framework, I have identified moral evaluations of the METU students on food waste practices, which is an issue of dispute. Domestic, industrial, civic, market, inspired, and fame worth are employed to justify food waste-related practices in the cafeteria. Sometimes students compromise the worth of different worlds; or use them together to justify a situation. Although waste is generally seen as bad, participants justify food waste under particular conditions such as rites of passage, health, and food taste.

#### **3.5.1. Multiple Regimes of Worth**

In this part, I explicate multiple regimes of worth employed by students to justify food waste-related disputes in the Cafeteria. METU students find leaving food at the plate wrong because work and labor to prepare this food are spent unnecessarily. They utilize industrial worth to justify as performance and efficiency are the modes of evaluation in this world (Boltanski & Thévenot 2006; Cloutier & Langley 2013). Most participants elaborate on work, labor, and material allocated throughout the food supply process, such as cultivating crops, preparing food, spending energy, time, and raw materials. For example, Yasemin, a female undergraduate student living in the dorm, quotes a passage from Goethe's novel "The Sorrows of Young Werther" on what it means to have food on a plate:

There is a passage in Werther. I haven't thought about this by myself, but when I read it, I felt it. The woman brings lettuce to the table and, Werther thinks about it. "She did not only bring the lettuce but the whole labor she

spent through summer, she brought both the good and bad days of summer, brought all of her labor for me on the table..." My aunt has a garden... She [her aunt] watered a tomato, seeded it, thought about it, looked after it. It is as if throwing days of a person into the bin. Or, if they do not eat when I cook, my two hours are gone into the bin... You throw it, my labor, food. This is something sad... (Yasemin)

Participants also evaluate food waste according to the amount wasted at the individual or accumulated levels. While they see vast amounts of waste as unjustifiable due to incurred loss and inefficiency, small amounts are acceptable. For example, the more waste his friends produce, the more uncomfortable Melih, a male undergraduate student, feels.

"When they [his friends] get just a spoon and leave, then I may think that what on earth do you get this food. But after eating most of it, just leaving a small amount [on the plate], I do not say anything to it, do not feel anything at all."  
(Melih)

Participants could not justify waste if the resources wasted get higher in amount, indicating inefficiency. For some participants, if an individual's wasting behavior turns into a habit, it is unjustifiable. Others see if the cumulative amount of food wasted at the cafeteria is high. Şebnem, a female graduate student and research assistant in the Environmental Engineering Department, accentuates the habit of wasting practice, along with the notion of effort and work, i.e., values of industrial worth.

Why does she throw it unnecessarily... You spend materials, energy, labor... It is not a single instance. I might have wasted food once in my life; maybe it [food] goes off... or I may not want to have it, it may not give pleasure, then I throw it. However, if this is a habit, it is bad. (Şebnem)



Similarly, producing a single plate of waste may seem fine for Ali, a graduate biological sciences student, whereas it turns out to be a problem if everyone acts in the same way. He is also employing industrial worth in his evaluation.

If I leave just two spoonfuls of rice, it is not a problem. But, when I think about the possibility of everyone leaving two spoonfuls, then trays full of rice are just gone to the trash... all the effort to grow, process, cook the rice, energy spent, the chefs time, they are all lost. (Ali)

In addition, Ali employs industrial worth and civic worth when he considers the inefficient use of meat. Civic worth involves people's responsibility to care for animals as an evaluative criterion (Thorslund & Lassen, 2016). However, due to his continuing graduate education in Biological Sciences, Ali brings forth a more scientific interpretation of civic polity by emphasizing humans and animals belong to the same kingdom. At the dispute of wasting meat, since he feels remorse for depriving an animal of the right to live, cumulative waste is more unjustifiable.

You leave, I leave, 5 grams, 10 grams, then this is getting equal to a whole chicken or an animal. It is not eaten, does not have any benefits to anyone, and just gone as an animal killed for no reason. It is sad to kill a plant as well, but I feel sadder because I am at the same thing [the kingdom of animals - class of vertebrates – animals with backbones] with the animal... In the end, we squander away things from the environment for nothing. I think it [cumulative waste] has such harm. (Ali)

Students also employ domestic and industrial worth as two different moral regimes while justifying their food waste avoidance practices. Sarp, a male Business Administration student, respects her mother and does not want to offend her by producing a plate waste because she puts effort and labor into preparing that dish. Additionally, he mentioned how his sense of taste in physiological means developed and shaped with upbringing through his mother's cooking since childhood. In the domestic world, trust (Evans, 2011) in personal relationships, hierarchy among family members, tradition, upbringing conditions are employed for justification. In

other words, while mom's labor implies a criterion of industrial worth, emotional attachment with family members and the taste developed during upbringing form the two criteria of domestic worth. When Sarp, a male Business Administration student, goes home for vacation, he describes his wasting food practice:

Well... generally, when I get back home, I am already longing for the [mom's] food, and I do not have a chance to leave it, [so] I do not waste ... After all, I grew up with my mom's food. In every meal, I am looking for it [the taste]... Therefore, she does not need to cook my favorite food [whenever he is back home for a break], whatever there at home [he eats] ... But I know that they keep the food if I can't finish, even if I leave my food, it goes to the fridge, we never throw it away. But generally, it is because I love it [mom's food] and... of course my mom's labor is in there, I don't want to break her heart. (Sarp)

However, when Sarp mentions his wasting practices at the Cafeteria, he utilizes industrial and market worlds. He says:

Sometimes I don't like the meal I get, I cannot eat. For example, I get a meal, a vegetable meal. After eating vegetables, I do not eat its sauce with onions and tomatoes because I do not eat bread. [Then] It is not easy to spoon it up. Generally, I leave it [the liquid part of the meal] if I will leave. Sometimes I cannot finish pasta, pasta or rice... *Interviewer: how do you feel when you leave food?...* I do not feel bad because I feel as if I have eaten half of the meal they will throw. That's why it does not have any psychological impact on me. I feel bad when I leave the bread. *Interviewer: bread? Well, bread because it is packaged. It can be consumed the next day. Someone else can eat it. I think I create harm in this way... They are going to throw the meal, anyways.* (Sarp)

For the food Sarp can eat, he utilizes industrial worth to justify his wasting practice. Unlike at home, it is impossible to keep the food leftovers in the fridge to consume later in the Cafeteria. Keeping or reusing the leftovers decreases the production efficiency, quality, and hygiene of the food served in the Cafeteria. Hence, even eating half of the food on his plate means saving that food from eventually being

wasted. However, for the food he does not like, Sarp uses market worth. In this case, the taste of the food is a feature of a product. From a consumer's perspective, Sarp justifies wasting at the Cafeteria using taste as an evaluative criterion.

On the contrary, İrem, a female undergraduate student, who supposedly suffered from anorexia nervosa for some time, now blames students who waste food because they do not like the taste and care about their looks. Wasting food is an issue of civic worth for İrem –she utilizes the term conscience, indicating the infusion of morality into habits through the daily language of compulsion (Hawkins, 2006) as an evaluative criterion. She also criticizes other students who waste by employing market worth, i.e., valuing taste as a product's feature (Thorslund & Lassen, 2016), and fame worth, i.e., caring for appearance for the recognition of others. We can see this argument in İrem's words below:

Some people waste more easily... They do not think about it or don't make it an issue of conscience, or when we talk about it [leftovers], they say, "I don't like it [the taste of the food]." In other words, ... for me, even if I do not like it, the food mustn't be left on the plate. For them, "I don't like the taste, then it must not enter into my body [to be skinny] (İrem)

Additionally, participants compromise market, civic and industrial regimes of worth in a situation of producing leftover. For example, Bartu justifies wasting distasteful beef – vegetable stew and cheap food as it will not hurt him financially. Here, taste and price as two evaluative criteria for market worth are actively employed to justify waste. However, he feels in dispute and justifies not to waste in the Cafeteria through civic and industrial regimes. Bartu argues that he must be sensitive in such a situation because it protects taxpayers' rights in this way. Since the state subsidizes a public university's cafeteria, according to Bartu, taxpayers pay for the food through their labor.

Let's say the state donated 7 [Turkish] Liras per person per meal. These 7 Liras include shares of the person [taxpayer, citizen] A, person B. Eventually, it is their labor. Even if the 7 Liras are a small amount, it is their labor. I cannot

waste it; I need to consider this. I need to be sensitive... In other words, when talking about rights, we need to respect people's rights. (Bartu)

These findings may help us understand the plurality of moral regimes of worth and the critical relation between multiple worths in situations of dispute. In fact, compromises are formed to put aside controversy between worths by specific constructions (Andersen, 2011; Jagd, 2011; Thévenot, 2001).

### **3.5.2. Taste As an Evaluative Criterion for Multiple Economies of Worth**

The aforementioned, the taste of food representing a product feature is a criterion of market worth (Thorslund & Lassen, 2016), used to justify wasting or not wasting. However, the notion of taste as an evaluative criterion is more complex. To begin with, consumers' sublime taste experiences, creating emotions and organoleptic properties of food, such as flavor or odor, are evaluations of food in the inspired world (Andersen, 2011, Truninger, 2011).

In the domestic world, tradition and locality are valuable (Boltanski & Thévenot 2006; Truninger, 2011). The taste of traditional and local food that participants used to during their family upbringing is the domestic regime's evaluative criterion. For instance, Yasemin, who grew up in the Central Anatolian region, enjoys eating wheat-based foods, which primarily form regional food traditions. The Central Anatolian region is known as the granary of Turkey and has heavy grain-based food consumption. Yasemin says she does not waste bulghur or pasta in the Cafeteria and enjoys drinking *tarhana*, a traditional soup made of flour and yogurt-based dried dough. The joy Yasemin gets from local food is an emotional response, which transforms an evaluative criterion of the domestic world into the inspired world.

In contrast, both Berrak and Yasemin mentioned their unhappiness and disgust about the canned vegetables in the Cafeteria, and specifically, Yasemin admitted that she wasted them.

Canned food is terrible at the cafeteria. For example, I love green beans, but I never go to the cafeteria if there are green beans on the menu. Because I know that obviously it is canned green beans, and it tastes awful... (Berrak)

Here, joy and disgust are moral emotions used to justify moral decisions in the inspired world. If the food and taste in the Cafeteria are similar to the traditional or local food cooked at home, participants do not waste it, and they justify their decision through emotions of joy or getting physiopleasures (Tiger, 2005). If the taste of the food is not as they like, students justify their waste by the emotion of disgust and its physical sensation of vomiting, which belongs to the realm of abject because students are disturbed by the food (Cherrier, 2017).

Boran asserts that he lives a “dilemma” when justifying his leftovers. On the one hand, he compromises domestic, market worth, and the Islamic religious notion of *nimet* (God’s blessing) to justify why one must not waste food. On the other hand, sometimes, the taste of the food makes him disgusted, indicating an evaluative criterion of the inspired world to justify his waste.

In my family, when the food is on the plate, it must be eaten entirely. I had such [value]... On the one hand, I do not want to leave food on my plate; I paid money for it. I also want to eat it because it is a *nimet* . On the other hand, I just feel as if I am going to vomit. I really feel bad because I am in such a dilemma. (Boran)

Boran learned avoidance of food waste in the family, a value in the domestic polity. He employs both price and taste as evaluative criteria of the market worth to justify not wasting. He is compromising domestic and market worth to justify why one should not waste. Besides, to justify his waste, he employs the taste as emotional involvement in disgust, a criterion for the inspired world.

Habitus is not only a disposition in the schema but also practically embodied (Debevec & Tivadar, 2006; Ignatow, 2009). In Yasemin’s case, moral habitus defining taste and emotional and bodily responses resonates with domestic and

inspired worlds. Boltanski and Thévenot (Boltanski, 2011; Boltanski & Thévenot, 2006) differentiate their theory of economies of worth from Bourdieu's perspective, emphasizing the role of social structures in shaping social practices. Economies of worth perspective eliminate the dominance of structure and study how people in everyday situations experience, interpret and justify social practices. Findings are in parallel with Ignatow's (2009) argument that the concept of moral habitus complements the economies of worth framework.

### **3.5.3. Health as Politics**

Besides the politics or worlds covered in the economies of worth framework, health constitutes an alternative moral regime to justify waste (Ditlevsen et al., 2019, Thorslund & Lassen, 2016). One of the most common justifications for not finishing the menu taken is the health-related perception of students. Students tend to produce plate leftovers when they feel that it will make them uncomfortable when they eat. Several students have already determined specific dishes affect their well-being and refused even to take those. For example, Bartu says:

Especially in the cafeteria noodle, rice are very greasy. Even if I am hungry, I try not to get them. (Bartu)

For Şebnem, food is also an issue of health and well-being. For her, "you are what you eat." Consequently, she explains how she arranged her daily routines depending on this motto because she feels bad when she consumes unhealthy food. After so much consideration and attention that she paid, she thinks it had to be so if she still leaves plate waste.

Rarely I do [waste food]... since I feel unwell, I feel I need to leave. I know, later I will get sick. (Şebnem).

Melikşah also highlights having an upset stomach was his threshold for wasting food at the Cafeteria. Normally, he pushes himself not to leave any plate waste; even so,

he is full and does not feel like eating. But if he feels like he will feel unwell, he does not push himself to finish it. He points out:

I mean, as I said, if I think it will upset my stomach, I say there is no problem [to have leftover] because I would have felt sick if I ate. But, apart from that, [if I leave food because] I'm full, or I cannot eat anymore; these are not acceptable [excuses]. I would have taken according to my eating capacity, and [I think] this is a lesson for me. I must eat that. (Melikşah)

On the other hand, Sarp is not always happy with the menu because dairy products make him sleepy when he eats them. He states:

For instance, *ayran* (a drink made of yogurt and water) and yogurt on the menu complete the calorific balance of the menu, but it makes me sleepy when I eat it on the lunch. I have an issue with it. (Sarp)

Although health is utilized to justify waste, the notion is often limited to a momentary stomach discomfort rather than a holistic understanding of health governed by a public health discourse, except for one participant, Şebnem, as observed in the UK (Watson & Meah, 2013).

#### **3.5.4. Lifecycle Transitions and Change in Personal Value Regimes**

Participants are in transition stages in their life cycles. Some of them left their homes and moved to dorms or student housing. Others are graduated and started earning their livings as research assistants. Even one of them got married and established a business at a technopark. Data provides that such rites of passage are conditions either to transfer moral worth employed in their previous lifecycle stages or to reject them and adopt new moral regimes.

Tradition in families as a crucial worth in the domestic world is rooted and strongly tied to upbringing (Truninger, 2011). The discourse on how wrong to leave food on the plate is dominant in most students' families. They mostly carry this discourse in

their new environment. For example, İrem claimed that she does not leave any plate waste at the Cafeteria as she was raised so. She explained how her mother and grandmother (her family divorced and raised by them) forced her to finish her plate at home, even if her appetite was good and did not need nudging. After moving to the METU dorms, she still insists on finishing her plate.

In contrast to İrem, Yasemin, who also lives in METU dorms, is sad about leaving plate waste at the Cafeteria because she never does it at home. She emphasizes how her family raised her with “you must finish every single grain of rice, or it will cry” phrases, leading her to accept her mother as an authority figure on producing food waste or not. However, she does not have such an authority in the Cafeteria that refrains her from generating any waste. After experiencing tension and conflict at home on finishing her plate, she finally has autonomy releasing herself from family norms as such (Wills et al., 2011). Therefore, wasting food at the Cafeteria is like freeing herself from the domestic authority (Wilk, 2010), which enforces not to waste. Here domestic worth of not wasting is violated, accompanied by the feeling of guilt. In this case, spatial and life changes eliminate domestic worth as a source for justification. Students transgress the learned practice in their families to free themselves from being members of their families. That is, wasting is a practice for entering into adulthood, forming an individual self. Although Evans (2011a) accentuated, ongoing social ties may prove the existence of domestic worth, findings uncover either the transferability of authority generated through these social ties from generation to generation or rejection of them.

Some of the participants who have been graduated and started earning their livings are in the becoming of new middle class members and constitute the consumer segments in this emerging market (Karademir-Hazır et al., 2016; Kravets & Sandikci, 2014). For instance, Caner utilizes market value to justify not wasting food at the Cafeteria and wasting food at home. He was raised by his grandparents with limited economic means. Now, he is a graduate student, a research assistant, and married. Also, he has been running an engineering company with his friends in a technopark in Ankara. Through education, Caner experiences upward social



mobility, climbing the ladders towards the upper-middle class. He underscores his low-income background:

As a family, our income level was not high. My grandmother was a homemaker. My grandfather was the breadwinner of the family. My grandmother asked us to eat half of an olive in a bite and the remaining half in another bite. Or, for example, the cheese. Now, we have our own home and own order [with his wife]. For example, I love eating cheese without bread because I can eat it, and I enjoy it. We could not in those old days. My grandmother told us: "divide this cheese into 5 or 6; now you need to eat them in small pieces." Ok. Why? Because you must learn scarcity. If you learn scarcity, you won't be in trouble when there is abundance. We grew up like that... (Caner)

During his undergraduate years, Caner was almost every day eating at the Cafeteria. Even if the taste of the food was sometimes awful, he was eating because he had to due to the financial scarcity. However, after earning his living and getting married, he enjoys transgressing the thrifty practice he learned and thinks that he deserves the abundance and excessive consumption. His deservingness is based on his prior deprivations (Ger & Belk, 1999).

During the interview, he switches his justification about food waste from an economic loss to a force to boost the economy by generating demand for suppliers. In his terms, "... [on the one hand] waste creates a hole in the economy, but on the other hand, you realize that the baker earns money when you waste." He is also reflexive and recognizes the inconsistency in his argumentation because he both justifies wasting food and not wasting food simultaneously by employing different criteria within the market polity. When critiquing wasting, he adopts a consumer perspective and sees waste as harmful to the economy. However, he shifts gears, adopts his entrepreneurial identity, and justifies waste as a necessary factor for the businesses' sustainability and growth. When the participants move from one situation to another or from one identity position to another, their justifications

transform as well. Even the same person can justify conflicting situations or disputes by using the same worth when they change identity positions.

### **3.5.5. Islamic Notion of *israf* As an Evaluative Criterion**

This part explains how a religious notion is employed as an evaluative criterion in Turkey, an emerging country, apart from the economies of worth framework constructed in secular French society as an exemplar of a Western affluent developed country. While justifying food waste practices, participants employ moral regimes and a religious notion. The notion of *israf* (wastefulness or excessiveness) is frequently used by students when they justify why one must not waste.

Multiple surahs in the Koran mention the notions of *israf*, which is strictly prohibited in Islam: ‘Do not squander wastefully. Surely the squanderers are the fellows of the Satan’ (Isra, 26–7) (Jafari & Süerdem, 2012), and wastefulness is punishable (el Jurdi et al. 2017). Surah Al-A’raf (7:31) of the Koran orders that; “O children of Adam, take your adornment at every masjid, and eat and drink, but be not excessive. Indeed, He likes not those who commit excess.” Or, Surah Al-An’am (6:141) of the Koran says: “He is the One Who produces gardens—both cultivated and wild—and palm trees, crops of different flavors, olives, and pomegranates—similar in shape, but dissimilar in taste. Eat of the fruit they bear and pay the dues at harvest, but do not waste. Surely, He does not like the wasteful.” These verses of the Koran specifically point out that wasting food is a sin. However, it is not justified, and that leaves justification for not wasting to the interpretation of Muslims. As a result, through this variety of interpretations in the culture, the concept of *israf*, a religious notion, is identified with various moral values.

In the interviews, most participants refer to multiple interpretations of *israf* to justify why one must not waste food. In most instances, they associate *israf* with civic worth, making it an issue of conscience. However, in a few other instances, they make their judgment according to “Authority Ranking” (Fiske, 1991), which is a relational

structure, describing moral judgment as whatever the supreme being ordered them to do the correct way of action.

Informants of different religious orientations use the word *israf* in their justifications. Ali, an atheist, describes *israf* when comparing the METU cafeteria with a restaurant on the campus, offering open buffet food. For him, the Cafeteria is a place, which barely provides what is needed. However, the restaurant represents excessiveness with the variety it offers. When he sees all the variety of food at the buffet, he buys without thinking and then complains that he wastes and feels guilty. Ezgi, who does not believe in any religion, relates *israf* with spontaneous greed, i.e., impulsive buying food more than someone can eat and waste the excess food. Greed and impulsiveness display that participants lack self-control so that their greed and unconscious behavior result in waste. Whilst self-control is what God orders when consuming God's blessings, as indulgence may dissociate Muslims from Islamic values (Jafari & Sürdem, 2012), participants do not explicitly refer to religion. Yet, in a Muslim culture, we can see the secularization of the notion of *israf*.

Berrak, an agnostic, and Gülse, a Muslim, delineate that that *israf* is a value they know from their families. Both argue that most probably throughout generations in the family, the meaning of *israf* transformed from a religious value to an issue related to conscience. For example, wasting food (*israf*) is unjustifiable when many people starve out there, or *israf* represents disrespect to food itself and the people who prepare the food. Both Berrak and Gülse relate *israf* to both civic and industrial worth with their interpretations. Caner, who identifies himself as "believing in God," says, "... it's *israf* [wasting food at the cafeteria], a pity, wish God bestows to the ones who don't have as well." Melikşah, a Muslim, also evaluates his waste practice by using *israf* and civic regime. He also points to self-control by not leaving the table with a full stomach as suggested in a Hadith (sayings of the prophet Muhammad) (en-Nevevî 2013, Hadith No:518).

I am trying to be a religious person... Some people cannot find the food you leave. The only difference is that I was born here, and they were born there. I

do not have any superiority over them... I cannot do anything for them [people who cannot access food]. At least I can do this [not wasting food]... For example, many countries are struggling with hunger, lots of people live under the hunger threshold... I don't do anything for them. As you said, it is like the environment, even more important, because this is human... Actually eating this [the food] is respect towards them [starving nations] or getting [food] as much as I need, not eating much, leaving the table not full. These are important things. Respect to oneself, to others, to the place you live. (Melikşah)

The notion of *israf*, plays a critical role in broadening the traditional range of care beyond our 'nearest and dearest' (Silk, 1998, p.179) and signaling the existence of responsibility to distant others (Smith, 2008). In these explanations, there is an example of "caring at a distance," i.e., responsive action in distant contexts (Silk, 1998). Melikşah has a desire to do good by not wasting food to reflect his care to distant others, who are in more deprived conditions of suffering from hunger; yet it is not necessarily taking the moral responsibility through actively and really doing something good (Smith, 2008). The notion of *israf* shaped the articulation of moral issues regarding food across various geographical scales and through a range of temporalities (Jackson et al., 2009).

Although Boltanski and Thévenot's framework does not take into consideration religion as a polity (Friedland & Arjaliès, 2017), in everyday life situations, regardless of the participants' religious beliefs, they utilize this religious notion of *israf*. In a few other cases, several students make their judgments according to their religious orientation. Yet, religious students also reinterpret the notion of *israf* with other moral regimes, such as civic and industrial worth. I uncover that the religious value of *israf* is identified with various moral values in most instances because they relate *israf* to civic worth, making it an issue of conscience, and industrial worth, respecting the people who prepare the food. Therefore, in Turkey, an emerging market, I demonstrate how a religious notion is employed as an evaluative criterion

that differentiates itself from the economies of worth framework constructed in secular French society as an exemplar of a Western affluent developed country.

### **3.5.6. Food Waste Elimination Practices in the Cafeteria**

The above section demonstrates the complex moral justifications on why one must not waste. Participants who find wasting bad adopt various practices to eliminate food waste at the cafeteria. They mention different practices such as sharing among friends (sharing-in), sharing with others, leaving the food for animals (sharing with animals), and getting half of the food on the menu.

Participants mention sharing-in (Belk, 2014) practices when they do not like the taste of a specific dish served on the fixed menu or the amount of food is too much for them. Then, they share it with friends, rather than wasting it. For example, Yasemin depicted how they quickly organized among her friends when they were about to get their food by asking each other who would eat what. After that, they decided to get the whole menu or not accordingly, and then they shared everything they had got. This practice is an example of a sharing-in situation since it occurs among friends than strangers.

Though in order not to waste, participants prefer not to take the meal they do not want to eat on the menu, they pay the total price of the fixed menu. Melikşah usually does not like eating leek and does not take that dish on the menu. However, he stumbled when I asked about it further. He said that he took the leek dish if one of his friends was willing to eat. He does not think whether his friend can eat his whole menu plus the leek dish he took for him or not. He focuses on sharing his right to get the plate with his friend. Here, what he means by sharing is volitional sharing, which is: “the act and process of distributing what is ours to others for their use as well as the act and process of receiving something from others for our use.” (Belk, 2007, p.127). Belk (2007) further explains that: “sharing is an interpersonal process and is sanctioned and prescribed by culture.” (p.130). In this example, Melikşah justified a

possible wasting practice through his sharing practices, as he did not take it for himself; he took it for his friend.

Sharing with others is a common practice, like sharing-in practices at the cafeteria. As mentioned, sharing is a culturally learned behavior that can create feelings of a community (Belk, 2007). There is such a cafeteria culture that students leave the dessert or the fruit on the table when they do not want to eat or cannot eat. This pattern is unlikely to what Belk (2014) stated: “sharing is more likely to take place within the family, close kin, and friends than among strangers.” (p.1596). The community sensation in the cafeteria (or in the university) creates this closeness and intimacy. Obviously, students perceive this leftover food as theirs. For instance, Gaye, who was very careful about the hygiene of food she consumed, was not concerned about the hygiene of food left by another student for sharing on the table. Her approach indicates closeness and community feelings. Gaye states that:

Sometimes, for example, I decide not to eat dessert on these days, or I try to quit eating dessert for a week. I do not get the dessert on the menu on these days or leave it on the table so that someone else can eat.” Interviewer: When you leave it on the table, do they eat it?... “Probably they eat it. For example, sometimes, if I stumble upon a *tulumba tatlısı* (dessert) on the table, I eat it. My friend also eats. Perhaps we do not think about the hygiene issue. (Gaye)

Yasemin mentions the sharing culture in the cafeteria, and like Gaye, she shares by leaving the excess food on the corner of the table that disclosing the capacity of food as a catalyst for triggering human engagement through sharing (Cherrier, 2017).

We leave it [food] on the corner of our table. It is nice because I see them [other students] taking and eating it. Or I tell my friend to take it and eat. I do not take *tulumba* [dessert] because it’s not good, but when there is an orange, I grab and eat it. (Yasemin)

Sharing with animals is another common practice which students utilize to avoid and justify their waste. Students prefer sharing with animals as a way to get rid of the feelings of guilt, and they think that this is an issue of conscience indicating civic

worth. Several students justified their plate wasting practice as a student club, METU Animal Lovers Club, collects the waste to feed the campus animals such as dogs and cats:

Sometimes there is this volunteer lady... collecting leftovers for dogs. In fact, we try to give the leftovers to her. But I feel bad when I leave the food on my plate. (İrem)

For example, there are some people collecting food for Animal Lovers club. I feel less bad when I give my leftovers to them. In the end, it is not going into the trash. You know it. But sometimes these people are not there; then it goes to the bin. Then, maybe someone else can eat it. Maybe the person left at the end of the queue cannot eat it because of me, or maybe food is over. (Gaye)

Besides, some participants find giving plate leftovers directly to the animals as a practice to divert food from being wasted:

In the worst scenario, I would wrap it in a paper napkin, and if I couldn't eat that meatball, I try to give it to cats, dogs. The same at home. Of course, I throw away rotten food, but if I think it is not rotten and if it is suitable for animal consumption, generally I leave it outside. (Berrak)

Some of the participants even prioritize sharing waste with animals rather than with other students since stray animals are helpless than human beings.

What can I do? I am happy in a sense. There is active recycling, especially dogs, animals. Since there is that team [METU Animal Lovers club], I tell myself, "it is not important, it is not going into the trash" If they [students] don't eat, even I like more that they don't because the other [stray animals], poor things, they cannot find food. Someone needs to find food for them. I say, "OK, who cares! if they don't eat" ... But there is an enormous amount of waste [food waste in the campus]. (Caner)

Finally, some students specifically ask for a half portion or a smaller portion to prevent plate waste in the Cafeteria. For instance, Yasemin asks for half rice as she cannot finish the whole portion. Similarly, Şebnem demands half a portion:

For example, I usually ask for a less (small portion of ) rice. The amount of rice on a portion is too much for me. Also, when there is a *tulumba tatlısı* on the menu, they put four pieces of dessert on a portion, but I have never eaten four of them until now. I'm only getting two pieces of dessert, too. Because I know that they throw it when it (the remaining two pieces) stays on the plate. So I usually demand less what I will eat less. (Şebnem)

### **3.5.7. Green Worth**

In this part, findings focus on the possibility that a green worth denoting environmental conventions is utilized to justify food waste practices in the Cafeteria. However, most students did not associate leaving plate waste with environmental drawbacks by stating that they did not think about it before. Some students assert that they do not have enough qualifications to comment on the matter:

I cannot evaluate food waste has direct effects on the environment or not because I do not have, how to put it, the necessary background to be honest. Maybe, perhaps, a biologist can give a better judgment on this (Caner)

Some of them also assume food waste is organic and dissolves in the soil. As a result, food waste does not harm the environment.

Food waste is an organic product. Can I dump this on the soil? I don't want to dispose of it because it is a useful product after all; one can benefit from it. Does it have an effect on nature... (she thinks) Either way, it rots... (Özge)

The majority of students also admit that they look for a connection between food waste and the environment right after I specifically asked this question because they suspect that there should be otherwise, I would not have asked such a question.



Now that I'm thinking about how I can establish a connection between food waste and the environment if I have to connect them somehow. I mean, it will be both cliché and bad right now, but my food (waste) is on my plate... if my not leaving the food on the plate would change anything, I wouldn't really quit, but as I said, it doesn't make me feel bad. And when there are times when it feels bad, I don't just think that it will be disposed of and wasted. I'm more concerned with people who can't eat it or something, rather than doing any harm to the environment. (Sarp)

On the other hand, one student, Melih, directly mentions the sustainability-related aspect of food waste, employing other worth such as the religious notion of *israf*. He clarifies how the environment could be affected by wasting food, but he eventually connected this aspect with the notion of *israf*, demonstrating a different interpretation of the religious term.

Preparing food (a specific dish) has a burden on the environment, and a particular food leaves its mark on the world until it arrives at our table: Carbon footprint. Some resources are allocated; for example, water is used for growing plants. These have effects. Or, energy is utilized for its (food) transportation; maybe fossil fuels are used. So in terms of such things, it is *israf*. And yes, it (wasting food) can have some effects. (Melih)

Although one student explicitly uses an evaluative criterion for green order of worth, overall findings demonstrate that the notion of green worth is confinedly utilized to justify food waste practices. Therefore, I can assume that the green order of worth has not been conceptualized yet in the case of food waste within the present emerging country context.

### **3.6. Discussion**

Regarding the results of the first study, I designed a second study to deeply understand the moral aspects of wasting food practices in the cafeteria. In this study of moral judgments of food waste practices, I adopt the economies of worth

framework (Boltanski 2011; Boltanski & Thévenot 2006) to understand multiple moral regimes in ordinary everyday life disputes on food waste practices. To justify why one must not waste, students utilize multiple regimes of worth such as domestic, industrial, market, civic, fame, and inspired. In addition to these worth, students employ the religious concept of *israf* (wastefulness), which is banned in Islam and learned in their families through upbringing to justify avoiding waste with their own interpretations. Participants also utilize multiple regimes, such as industrial, market, inspired, and health worlds, to justify their wasting practices. Depending on the situation, participants sometimes refer to a single worth, such as the industrial worth, or employ multiple moral regimes together to justify why one should or should not waste. Besides, sometimes they compromise more than one worth, such as civic and industrial worth, to make moral judgments.

Although waste is generally seen as immoral and bad, students justify food waste under the conditions of health concerns and individual life transitions. Consumers' physiological responses to food that they cannot control is an evaluative criterion to justify food waste when they feel discomfort, like an upset stomach. When students experience a transition in life, they either reject the moral regime they gained in their earlier phase of life or utilize new moral regimes to justify waste. When moving to the campus, they leave behind moral polities they used to employ to communicate the new self in the creation. For example, when Yasemin moved from home to dorm, she left using the domestic world's evaluative criteria of tradition and hierarchy to form her new independent adult self.

In addition, there is another life transition that can be observed, becoming the new middle class. After graduating, Caner enters into the new middle classes as expected because he both gains a position as a research assistant and becomes a business owner, indicating individual life transition. As a result, he switches using the market worth's evaluative criterion of economic loss and then adopts the market worth's criterion of demand from the perspective of a business owner in justifying waste.

In the food waste context, the notion of taste is an evaluative criterion used in multiple regimes of worth. Taste corresponds to a product's feature, referring to quality in the market polity (Thorslund & Lassen, 2016). Additionally, taste creates emotions, such as aesthetic or pleasurable experiences, that appear in the inspired world (Truninger, 2011). Besides, in the food waste context, tradition and locality as the domestic world's evaluative criteria are reified in the notion of taste. These various understandings of taste as an evaluative criterion are interlinked. Therefore, while consumers make moral judgments on food waste, they transfer taste as an evaluative criterion among polities. Beyond adopting worth from multiple moral regimes, the transfer process develops as a result of criteria that can be translated to different regimes. In other words, food waste practices can be justified through taste in the domestic, market, and inspired worlds.

When theorizing democratic-capitalist societies, Boltanski (2011) rejects the idea of absolute power, a mechanism of enforcement. Instead, he accentuates pluralistic moral regimes and self-governance, similar to the Foucauldian perspective (Boltanski, 2011; Dean, 1999). Further, the economy of worth framework does not consider cultural systems such as religion (Friedland & Arjaliès, 2017; Silber, 2003). However, findings unveil that the religious notion of *israf*, is frequently employed to justify why a person must not waste. In a way, that proves the economy of worth and religion may co-exist. Participants employ the notion of *israf* no matter what their religious beliefs are. Students sometimes interpret the notion of *israf* with civic worth, making it an issue of conscience, and industrial worth, respecting people's labor who prepared the food. Therefore, through these varieties of interpretations in the culture, the concept of *israf*, a religious notion, is identified with various moral values.

This finding questions the preconceptions on the absence of secular moral regimes and the dominance of religious morality as characteristics of the non-western 'others' (Ger et al., 2018). The religious notion of *israf* can be observed in the justifications of the participants. However, they are not interpellated only by the religious doctrine. They interpret *israf* by using evaluative criteria of various secular moral polities such

as civic and industrial. This interpretation process creates a fusion of *israf* as the religious obligation with Western secular moral values. Through this process, the participants adopt the values of the modern secular West without detaching from their roots (Ger, 1999). Similar processes can be observed in western societies if researchers can also be reflexive about their assumptions on the West. For example, even though Lehtokunnas et al. (2020) investigate a group of adult Finnish urbanite women who see food waste as sin with connotations of Christian ethics and green consumerism, they fail to recognize the hybrid understanding of religious and secular moral obligations.

As the findings put forward that moral justifications of students in an emerging non-Western context demonstrate intermingling of global and local forms of reflexivity. METU, as a university, is actively promoting sustainability and environmental issues, as mentioned in the context section. Due to English as the medium of education, students have access to global media and are exposed to Western culture through popular exchange programs with Europe. Since the beginning of its foundation, METU has also included environmental and sustainability issues on its agenda. Yet, the participants do not necessarily consider the green world, a market-mediated secularized morality of global consumer culture (Ger et al., 2018), as an alternative moral regime in their food waste judgments and practices. In parallel with Türe's (2014) findings, local meanings and practices of sustainability accentuating conscience and efficient use of resources rather than environmental friendliness operate in this case. While they emphasize the efficient use of food and labor in employing industrial worth, resonating with the ideals of progress and modernity, students prevent waste by sharing resources with other students or even with animals, adopting civic worth.

On food waste, blaming consumers and burdening the responsibility on them will not automatically change their practices as they engage in wasting practices while feeling anxious about it (Evans, 2011a, 2014). On the other hand, Wilk (2002) points out the urgency of environmental problems and calls for exploring "whatever tools can work" (p.9) rather than anticipating the consolidation of the social science

theory. Therefore, I neither completely ignore the reflexivity of people in this analysis, which is very much embedded in the theoretical lens; however, I nor thoroughly support the individual responsabilization framework on food waste through signaling the green world as a moral regime that would not be that much suitable for this context.



## **CHAPTER 4**

### **OVERALL CONCLUSION**

Amidst climate crisis, population growth, and the global food crisis, the issue of food waste is fast becoming a key instrument in tackling these challenges. Various institutions, organizations, governments, and academics have paid more attention to uncovering drivers of food waste to develop policies for reducing food waste at all levels. Considering the current colossal magnitude of food waste and its economic, social, and environmental impacts, indicating food systems' inefficiency, unfairness, and unsustainability, these attempts to reduce food waste are long overdue. Whilst the majority of studies in the field of food waste have focused on the consumer level, which is the largest food waste generator compared to other parts of the food supply chain, there have been few empirical investigations into consumers in out-of-home context, i.e., the food service sector. Hence, my purpose is to contribute to the growing body of research by understanding the reasons behind food waste in the food service sector in an emerging country context to provide fresh insights into developing useful and practical policy recommendations to reduce food waste. More specifically, this dissertation explores why and how students end up producing plate waste in the METU Cafeteria and how they morally justify it. I conducted two empirical studies explicated in the previous chapters to unveil the reasons behind students producing plate waste and thoroughly understand how students justify their food waste practices. I designed this final chapter to provide an overall discussion by summarizing two studies' key concepts, findings, and contributions. After that, I will shortly revisit the implications and limitations of both studies. Finally, I will deliver my suggestions for further research.

The first empirical study extends the TPB framework by adding personal or moral norms, portion size, taste and palatability, self-reported environmental behavior, and perceived value for money. Results revealed that two prominent variables of the TPB, namely attitudes towards behavior and subjective norms to predict intention, did not prove to be statistically significant in the present study, implying that the TPB model may not be supportive for non-Western social and cultural contexts as anticipated. Besides, multicollinearity of personal norms with other variables, indication possible empirical overlap, prevent including this determinant in further analysis. While taste and palatability and the PBC were more effective in predicting the plate waste behavior of students than the intention, which is the main factor of the TPB model, perceived portion size as a situational variable has a valuable impact on the plate waste behavior. These results disclose the complexity of the behavioral structure on the issue of food waste and provide insight into the importance of implementing qualitative research in the future.

The second follow-up study explores how students justify their food waste practices at a university cafeteria. While food waste studies mainly focus on mundane routinized household food waste, in this context, wasting is an issue of “dispute,” not a routinized practice. Although I started the follow-up study to thoroughly understand why and how students generate plate waste in the cafeteria, I realized that students continuously generate justifications utilizing different moral regimes to either criticize or justify one’s food waste practices. Therefore, the second study set out to untangle how young people in Turkey negotiate their moral grounds to justify their food waste practices in the context of a university cafeteria. I conduct qualitative research in the context of the METU Cafeteria and adopt the Economies of Worth framework (Boltanski & Thévenot, 2006), which unravels moral justifications of actors specifically in the situations of dispute (Boltanski, 2011). Findings demonstrate students experiencing life transitions in an emerging economy context synthesize and reinterpret local (traditional, religious) and global (modern, secular) multiple moral regimes. Additionally, I unveil how taste translates as a moral evaluative criterion in food waste practices among multiple moral polities such



as market, domestic, and inspired worth. Finally, students reinterpret the Islamic notion of *israf* mostly by utilizing polities belonging to various worlds, such as civic and industrial, to justify food waste practices. Having explained how two studies explore food waste behavior and practices of students in a university cafeteria by adopting two different theoretical frameworks and methodological approaches, I will now move on to argue the contributions of these two studies.

#### **4.1. Contributions**

This dissertation contributes to our understanding of students' food waste behavior and practices in several ways. To begin with, the first study extended the TPB framework by adding the perceived value for money variable in the food service sector context. This variable indicated how students perceived getting good value for the money they paid for the meal. As students think they acquired good value for the money they paid for their meal, they did not intend to leave plate waste in the cafeteria. Although this variable has been commonly utilized in food consumption literature, it has been applied to the food waste concept. Hence, including perceived value for money in the TPB framework within the food waste behavior concept, specifically in the food service sector, was a prominent contribution.

The other main contribution of the first study was unraveling the relationship between individuals' environmental responsibility and their intention of not wasting food. What differentiates the approach of the present study from others is that the self-reported environmental behavior scale adopted here discloses individuals' mundane daily life behaviors instead of their mere concerns or intentions. Apparently, individuals, who behaved in a more environmentally friendly way, intended not to waste food in the cafeteria. Literature encompasses contradictory findings on whether environmentally conscious people generate less food waste or not, so that extending the classical TPB model with adding self-reported environmental behavior contributes to our understanding of this relationship.

Further, utilizing the visual estimation method as a measurement methodology in the present study was crucial. Whilst the self-reported food waste may provide misleading results, the visual estimation method is very reliable on that matter. Besides, direct measurement methods such as weighing plate waste may generate biased results in the cafeteria context. Hence, using the visual estimation method was critical to reaching accurate results in the model and logistically more practical for the context of the current study. The measurement method is critical to achieving accurate results in the analysis (Visschers et al., 2020), so I preferred to use the visual estimation method, which is quite rare in food waste literature.

Unlike what the TPB anticipates, performing specific behavior is an intentional process, the first study uncovers that the intention is less effective than the PBC and taste and palatability to predict students' plate leftover behavior in a university cafeteria. This result stresses on "attitude-behavior gap" (Vermeir & Verbeke, 2006) discussion in the literature as people may not manifest their intentions into their behavior. On the other hand, the flexibility of the theoretical approach enabled the integrating of various variables into the model, increasing the predictive power of the model and overcoming the intention-behavior gap by adding factors, which directly influence the behavior in question. Thus, extending the classical TPB model through including taste and palatability was critical.

Regarding the TPB is the most common theoretical framework adopted in not only pro-environmental behavior but also food waste behavior studies, the results of the present study incline to question the suitability of the theoretical approach since the theory failed to notice the complexity of the issue of food waste. Besides, this theoretical framework is developed in Western society so that it may not be that effective to test it in the non-Western context, which has its particular dynamics. Hence, the theoretical framework clearly has both positive and negative aspects within the context of the present study, which clearly necessitates more research in this field.

The contributions of the second study were two folds, the food waste literature and the theoretical framework. Firstly, food waste practice creates a situation of disputes for students in the Cafeteria; hence I adopt the Economies of Worth framework (Boltanski & Thévenot, 2006) which uncovers moral justifications of actors. Yet, most studies in the literature frequently utilize Practice Theory, denoting routinized behavior, and are usually conducted in developed countries.

Secondly, I unveil how taste translates as a moral evaluative criterion in food waste practices among multiple moral polities. Taste refers to a product's feature, signaling market worth, while taste creates emotions, appearing in the inspired world. Additionally, tradition and locality correspond to the domestic world's evaluative criteria specific to the food waste context. As a result, the notion of taste creates various understandings entangled and reshaped through students' life cycle transitions, some of which are specific to the emerging country context, such as becoming a new middle class. That is, students justify their food waste practices through taste in the market, domestic, and inspired worlds.

Finally, the Economies of Worth framework does not take into account cultural systems, specifically religion. Nonetheless, students frequently employ the notion of *israf* regardless of their religious beliefs to justify why a person should not waste and interpret the notion by using market and civic worth. This interpretation process creates the hybrid understanding of religious and secular moral regimes that indicates the economies of worth and religion may co-exist. Therefore, the second study contributes to food waste literature by focusing on a university cafeteria in an emerging country and provides novel insights by employing pragmatic sociology (Boltanski & Thévenot, 2006) to the analysis through the operationalization of the notion of taste and the religious notion of *israf*.

In sum, this dissertation signifies the necessity both to determine the factors affecting young people's food waste behavior and to understand their moral justifications of food waste practices in a food service context, specifically a university cafeteria. Adopting quantitative and qualitative approaches assists in understanding the role of

morality in students' food waste practices that provide insights to prevent the possibility of generating more food waste in the near future.

## **4.2. Implications**

The findings of this dissertation have a number of important implications for future practice in university cafeterias. To reduce food waste, instead of focusing on intentional processes, targeting material context is crucial (Evans, 2014) so that the administration may develop new strategies. Practices are formed of three elements: materials, competences, and meanings (Shove et al., 2012). In order to change the practices, the three elements need to be considered. My suggestion is to keep the meanings element as it is but change the materials element in the cafeteria (Evans, 2011a). That is, the cafeteria may arrange how and when they serve to provide an opportunity for students to excel in their competences. For instance, the cafeteria may offer a half-portion option to eliminate students' asking for customization of their portion size. That way, students at least partially have control over their portions.

Additionally, the cafeteria's working hours may be extended to reduce surplus food accumulated in the cafeteria, depending on how many students show up for lunch on that specific date. Every student's schedule may differ; e.g., the course hours may overlap with lunchtime at the cafeteria, or they may not feel hungry during the cafeteria's operation hours. Broadening the possibility for students to eat at the cafeteria by arranging the lunch hours may help to reduce surplus food. Besides, each student can be provided with a reusable lunchbox to take back the surplus food when they cannot finish their plate. All these adjustments may ensure students are provided appropriate materials to improve their competences to rearrange or change their current practices.

Perhaps, the taste of the food served in the cafeteria can be better as it is an evaluative criterion used in multiple regimes of worth. Ostensibly, providing the taste of mom's food of every student is not very likely in the cafeteria. Yet, the ingredients of meals

may be carefully selected. For instance, canned food evokes disgust as a moral emotion. Replacing canned food with fresh vegetables would create joy as opposed to disgust. Yet, the suitability of this option should be carefully considered as well since the food supply chain of canned food and fresh vegetables are entirely different. Simply changing from canned to fresh vegetables might cause more food loss in the other parts of the food supply chain.

Additionally, raising the awareness of students on the subject of food waste and its shortcomings on the environment, economy, and society is valuable as environmental responsibility and perceived value for money concepts are both effective factors in young people's intentional processes, according to results of the first study. Exposing the drawbacks of food waste by emphasizing the gain from reducing food waste and creating awareness are valuable, although the attitude-behavior gap (Vermeir & Verbeke, 2006) sometimes may get into students' way to manifest this knowledge into behavior. The university, as an institution, should aim to convey the knowledge needed for students to raise awareness about the impacts of food waste on various levels in order to combat these drawbacks.

In this study, it is not my purpose to recommend ways to change the wasting practices of students as food waste is a complex issue, and reducing food waste should not be just the responsibility of consumers. Nevertheless, this study has various implications on the issue that should be interpreted cautiously. Närvänen et al. (2018) reveal how sociocultural meanings of reducing household food waste, such as creativity, aesthetics, and ethics, were negotiated in social media campaigns in Finland. The findings of the present study also unravel similar socio-cultural meanings in Turkey. For instance, students were creative in finding strategies to divert food from being wasted through means of sharing; at the same time, their moral judgments elucidate how their self-ethics on wasting food have been formed in mundane daily life. While the Turkish government and companies have recently started promotional campaigns on environmental sustainability and waste issues, rather than utilizing discourses of green consumption in governing responsible Turkish consumers, in the food waste context, it seems that domestic, industrial,

civic, market, fame, and inspired worth are more substantial than the green worth. Therefore, effective communication strategies may utilize these strong moral regimes.

#### **4.3. Limitations**

The present study inevitably had certain limitations. One limitation was that the questionnaire used in the study had to be kept as short as possible as it was paper-based and applied in the field. Students would not have volunteered to participate in the study if filling out questionnaires took more time as the circulation in the cafeteria is relatively fast and conducting such a study may disrupt the usual daily operations there. Due to this limitation, the study had to be limited to the minimum requirements of three indicators for each factor, leading to a just-identified model. Furthermore, this study was designed depending on the one meal of participants, not necessarily regarding their food consumption patterns, by observing and measuring for multiple meals. In consequence, the results should be treated carefully.

Moreover, I could expand the context of the second study to the cafeteria as an institution that may provide a more holistic approach to the issue of food waste in the food service sector overall. However, due to the pandemic, I have to demarcate my focus as only consumers because the Cafeteria could not run for almost one and a half years.

#### **4.4. Future Research**

Depending on the dissertation's overall findings, I can suggest targeting portion size and consumers' perception of taste, which also strengthens individuals' control over their behavior, in future intervention studies to reduce food waste in out-of-home consumption context would be more promising. Yet, measuring and evaluating the effects of these interventions in the long run is critical to observing the behavioral change.

In addition, Graham-Rowe et al. (2015) suggest that the available resources and opportunities to perform a specific behavior could be a moderation between the intention-behavior relationship, which may explain the lower variance level for intention. Within the context of the present study, students were provided with a set menu, meaning that they could not determine the amount of each course they got unless they objected. Hence, in future research studies, actual control could be considered (Graham-Rowe et al., 2015) in models to understand its effect on people's plate waste behavior in food service sector context.

Furthermore, consumer food waste is an emerging theme in a non-Western context, such as Turkey. Researching on consumers' food waste practices in food service or households within the context of an emerging country is crucial. As most theoretical frameworks and tools were developed in Western societies, I strongly suggest employing a qualitative approach to understand the particular notions and concepts specific to a non-Western context.

Finally, after Covid-19, the latest economic changes and rising global food prices will probably increase poverty and create more vulnerable consumers, especially in developing countries like Turkey. Regarding these changes, how consumers react and reflect in their food waste practices is an emerging avenue of research. Besides, the impacts of the pandemic on consumers' mundane daily food practices, specifically in food service sector, should be inquired due to rising concerns on hygiene. For instance, students' food sharing practice to eliminate food waste in a cafeteria might be disrupted or reshaped. Therefore, exploring the impacts of the Covid-19 pandemic and related economic changes on people's everyday food waste practices can be a candidate for a new research area.





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## **APPENDICES**

### **A. Ethical Protocol**





## B. Survey



ORTA DOĞU TEKNİK ÜNİVERSİTESİ

Yer Sistem Bilimleri

### Öğrencilerin ODTÜ Kafeterya'daki Tüketim Davranışları

Bu çalışmanın temel amacı, katılımcıların günlük gıda tüketimi davranışları ile ilgili bilgi toplamaktır. Bu çalışmaya katılımcı olacak kişilerin 18 yaşından büyük, ODTÜ'de öğrenci ve öğle yemeklerini haftada en az 1 kere ODTÜ Kafeterya'da yiyor olmaları gerekmektedir.

Çalışmada, sizden kimlik belirleyici hiçbir bilgi istenmemektedir. Vereceğiniz bilgiler tamamen gizli tutulacak, yalnızca araştırmacılar tarafından değerlendirilecektir. Çalışmadan elde edilecek sonuçlar sadece bilimsel amaçlı olarak kullanılacaktır. Çalışmada sizi rahatsız eden herhangi bir durumla karşılaşırsanız ya da çalışmaya devam etmek istemezseniz çalışmayı istediğiniz aşamada yarıda bırakabilirsiniz. Çalışmayı yarıda bırakmanız sizin için olumsuz bir durum oluşturmayacaktır. Ancak çalışmaya vereceğiniz katkı, devlet üniversitelerinde gıda tüketim davranışlarını etkileyen faktörleri anlamamıza yardımcı olacaktır.

Çalışma iki aşamadan oluşmaktadır.

1. ODTÜ Kafeterya'daki öğle yemeğinizin tepsisinin (yemek sonrasında) fotoğrafını çekmemize izin vermeniz istenmektedir.
2. Yaklaşık 10 dakika sürecek bir anket doldurmanız beklenmektedir.

Araştırma hakkında daha fazla sorunuz olursa aşağıdaki e-posta adreslerini kullanarak bize ulaşabilirsiniz. Yardımlarınız ve katılımınız için teşekkür ederiz.

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*Bu çalışmaya tamamen gönüllü olarak katılıyorum ve istediğim zaman yarıda kesip çıkabileceğimi biliyorum. Verdiğim bilgilerin bilimsel amaçlı yayımlarda kullanılmasını kabul ediyorum.*

Sosyodemografik Sorular	
1	Kaç yaşındasınız? ____
2	Cinsiyetiniz: <input type="checkbox"/> Kadın <input type="checkbox"/> Erkek <input type="checkbox"/> Diğer
3	En son mezun olduğunuz okulu/dereceyi lütfen belirtiniz.
	<input type="checkbox"/> Lise <input type="checkbox"/> Lisans <input type="checkbox"/> Yüksek Lisans <input type="checkbox"/> Doktora
4	Nerede kalıyorsunuz?
	<input type="checkbox"/> Yurtta <input type="checkbox"/> Ailemle <input type="checkbox"/> Arkadaşlarımla paylaştığım evde <input type="checkbox"/> Diğer (.....)
5	Öğle yemeği için yemek bursu alıyor musunuz?
	<input type="checkbox"/> Evet <input type="checkbox"/> Hayır
6	Nasıl besleniyorsunuz?
	<input type="checkbox"/> Özel bir diyet tercihim yok <input type="checkbox"/> Vejetaryen <input type="checkbox"/> Vegan <input type="checkbox"/> Diğer (.....)
7	Aylık ortalama geliriniz ne kadardır (Ailenizden aldığınız para, burs, kredi ve çalışıyorsanız aldığınız ücretlerin toplamı, yani aylık elinize geçen ortalama miktarı lütfen belirtiniz)?
	<input type="checkbox"/> 0 - 499 TL <input type="checkbox"/> 500 - 999 TL <input type="checkbox"/> 1000 - 1499 TL <input type="checkbox"/> 1500 - 1999 TL <input type="checkbox"/> 2000 TL veya üzeri

Lütfen aşağıdaki davranışları son bir yıl içinde ne sıklıkla gerçekleştirdiğinizi belirtiniz		Hiçbir Zaman	Nadiren	Bazen	Sıklıkla	Çok Sık	Uygulama Olanaklı Yok
1	Plastik şişe, kağıt gibi eşyaları yeniden kullanmanın yöntemlerini/yollarını aradım.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	Gazeteleri ve/veya kağıtları geri dönüşüme gönderdim.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	Teneke kutu ve cam şişeleri geri dönüşüme gönderdim.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	Arkadaşlarımı ve ailemi geri dönüşüme katkıda bulunmaları için teşvik ettim.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	İkinci el kıyafet aldım.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	Başkaları tarafından etrafa atılmış çöpleri çöp kutusuna attım.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	Yiyecek artıklarını değerlendirdim (Hayvan beslemek vb)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	Kampüs içerisinde özel aracımı veya ring hizmetini kullanmak yerine yürümeyi veya bisiklet kullanmayı tercih ettim.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	Çevre ile ilgili bir konuda destek veya şikayet amacıyla dilekçe/mektup yazdım.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10	Seçimlerde çevreye daha duyarlı olan adayları destekledim.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11	Çevreci bir organizasyona para bağışı yaptım	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12	Çevre ile ilgili bir organizasyonda ve/veya öğrenci topluluğunda gönüllülük yaptım.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<b>Kafeterya ile İlgili Sorular</b>		Kesinlikle Katılmıyorum	Katılmıyorum	Biraz Katılmıyorum	Kararsızım	Biraz Katılıyorum	Katılıyorum	Kesinlikle Katılıyorum
1	Kafeteryada bugün servis edilen öğle yemeğinin tadı güzeldi.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	Kafeteryada bugün servis edilen öğle yemeğinin kokusu güzeldi.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	Kafeteryada bugün servis edilen öğle yemeğinin görüntüsü güzeldi.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	Kafeteryada servis edilen öğle yemeğine ödediğim paranın karşılığını alıyorum.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	Daha fazla ücret ödediğim bir yemeği tabakta bırakmamaya gayret ederim.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	Kafeteryada öğle yemeği ücretsiz olsaydı tabağımda yemek bırakmazdım.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	Bana göre, kafeteryada öğle yemeği servis edilen zaman bugün yeterli değildi (Sizin bugünkü programınıza göre).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	Bana göre, kafeteryada servis edilen öğle yemeğinin porsiyonu... Çok küçük <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Çok büyük							

<b>Tabakta Kalan Yemekle İlgili Sorular</b>		Kesinlikle Katılmıyorum	Katılmıyorum	Biraz Katılmıyorum	Kararsızım	Biraz Katılıyorum	Katılıyorum	Kesinlikle Katılıyorum
1	Kafeteryada servis edilen öğle yemeğimin hepsini bitirmeye niyetliydim.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	Kafeteryada servis edilen öğle yemeğimi bitirmek için çok çabaladım.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	Kafeteryada servis edilen öğle yemeğimi tamamen bitirmeyi planlıyordum.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	Kafeteryada servis edilen öğle yemeğimi tamamen bitirip bitirmemek çoğunlukla bana bağlıydı.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	Değer verdiğim insanların çoğu, kafeteryada servis edilen öğle yemeğinde tabaklarında yemek bırakmak yerine tabaklarındaki yemekleri bitirirler.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	Tabakta yemek bırakmak yanlıştır.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	Tabağımdaki yemeği tamamen bitirip bitirmeyeceğimin bir farklılık yaratacağını düşünmüyorum.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Tabakta Kalan Yemekle İlgili Sorular (devam ediyor)	
8	Bence tabakta yemek bırakmak ...
	Kesinlikle kötüdür <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Kesinlikle iyidir
9	Bence tabakta yemek bırakmak ...
	Kesinlikle kabul edilemez <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Kesinlikle kabul edilebilir
10	Bence tabakta bıraktığım/yemediğim yemekle çevreye yük olmak ...
	Kesinlikle zararlıdır <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Kesinlikle zararsızdır
11	Kafeteryada servis edilecek bir sonraki öğle yemeğimi bitirmek benim için ...
	Kesinlikle mümkün değil <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Kesinlikle mümkün
12	Eğer istersem, kafeteryada servis edilecek bir sonraki öğle yemeğimi tamamen bitirebilirim.
	Kesinlikle yanlış <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Kesinlikle doğru
13	Benden beklenen kafeteryada servis edilecek bir sonraki öğle yemeğimi tamamen bitirmemdir.
	Kesinlikle olamaz <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Kesinlikle olabilir
14	Hayatımda fikirlerine değer verdiğim insanlar, kafeteryada servis edilecek bir sonraki öğle yemeğimi tamamen bitirmemi ...
	Kesinlikle onaylamaz <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Kesinlikle onaylar
15	Ben, tabağında yemek bırakan tarzda bir insan değilim.
	Kesinlikle yanlış <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Kesinlikle doğru

Kafeteryada yediğiniz öğle yemeğinde tabağınızda kalan yemek miktarını etkileyen olası faktörleri ve bu faktörlerin sizin için önemini lütfen belirtiniz.		Hiç önemli değil	Önemli değil	Kararsızım	Önemli	Çok önemli
1	Yemek servis edilen zaman aralığı	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	Kafeteryanın fiziki koşulları	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	Birlikte yemek yenilen kişi	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	Servis edilen yemek porsiyonunun büyüklüğü	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	Tabakta yemek bırakmanın doğaya/çevreye zararı	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	Yemeğin tadı, kokusu ve lezzeti	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	Yemeğin tabldot olması (Yemek seçeneğinin olmaması)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	Servis edilen yemeğin fiyatı	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	Diğer:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Anketimize katılarak çalışmamıza destek olduğunuz için çok teşekkür ederiz. ?

**Anketler tamamlandıktan sonra, çalışmayla ilgili yaklaşık yarım saat sürecek bire bir görüşme yapmayı planlamaktayız. Bu görüşme için sizinle iletişime geçmemizi isterseniz iletişim bilginizi (mesela e-posta adresinizi) aşağıya yazabilirsiniz.**

**İletişim Bilgisi (İsteğe Bağlı):**

## C. Outputs

Table A: Descriptive Statistics													
	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
ID	1	479	326.9	195.82	327	321.43	229.8	1	733	732	0.17	-0.88	8.95
date*	2	479	5.23	2.83	5	5.14	4.45	1	10	9	0.14	-1.24	0.13
age	3	476	21.19	2.38	21	20.98	1.48	18	30	12	1.11	1.82	0.11
gender*	4	479	1.53	0.51	2	1.53	0	1	3	2	-0.03	-1.76	0.02
education	5	476	1.13	0.37	1	1.02	0	1	3	2	2.97	8.66	0.02
grant*	7	479	2.11	0.32	2	2.02	0	1	3	2	2.31	4.15	0.01
dietary	8	479	1.13	0.58	1	1	0	1	4	3	4.52	19.05	0.03
income	9	478	2.6	1.02	2	2.52	1.48	1	5	4	0.75	0.26	0.05
category*	13	479	1.49	0.5	1	1.49	0	1	2	1	0.05	-2	0.02
plate	14	479	0.83	0.89	1	0.71	1.48	0	4	4	1.1	1.07	0.04
I1	15	479	5.47	1.57	6	5.72	1.48	1	7	6	-1.24	0.66	0.07
I2	16	479	4	1.86	4	4	2.97	1	7	6	-0.03	-1.33	0.09
I3	17	479	5.33	1.67	6	5.57	1.48	1	7	6	-1.13	0.31	0.08
A1	18	479	5.38	1.18	5	5.4	1.48	1	7	6	-0.24	-0.55	0.05
A2	19	479	4.37	1.52	4	4.41	1.48	1	7	6	-0.27	-0.27	0.07
A3	20	479	5.22	1.43	5	5.36	1.48	1	7	6	-0.68	0.15	0.07
SN1	21	479	4.67	1.58	5	4.77	1.48	1	7	6	-0.57	-0.57	0.07
SN2	22	479	4.52	1.86	5	4.64	1.48	1	7	6	-0.37	-0.81	0.08
SN3	23	479	5.6	1.38	6	5.72	1.48	1	7	6	-0.66	-0.38	0.06
PBC1	24	479	5.31	1.61	6	5.54	1.48	1	7	6	-1.08	0.25	0.07
PBC2	25	479	5.44	1.48	6	5.63	1.48	1	7	6	-0.81	0.01	0.07
PBC3	26	479	5.63	1.62	6	5.91	1.48	1	7	6	-1.15	0.43	0.07
PN1	27	479	5.29	1.71	6	5.53	1.48	1	7	6	-0.99	0.01	0.08
PN2	28	479	5.04	1.8	6	5.24	1.48	1	7	6	-0.73	-0.54	0.08
PN3	29	479	5.32	1.67	6	5.56	1.48	1	7	6	-0.97	0.1	0.08
T1	30	479	4.61	1.63	5	4.76	1.48	1	7	6	-0.68	-0.7	0.07
T2	31	479	4.33	1.59	5	4.42	1.48	1	7	6	-0.45	-0.85	0.07
T3	32	479	4.47	1.62	5	4.61	1.48	1	7	6	-0.64	-0.64	0.07
valueformoney	33	479	5.42	1.54	6	5.64	1.48	1	7	6	-1.14	0.62	0.07
portion	34	479	3.66	1.12	4	3.68	1.48	1	6	5	-0.14	-0.06	0.05
E1	35	479	3.49	1.19	4	3.57	1.48	1	5	4	-0.41	-0.7	0.05
E2	36	479	3.57	1.22	4	3.68	1.48	1	5	4	-0.53	-0.6	0.06
E3	37	479	3.24	1.24	3	3.3	1.48	1	5	4	-0.19	-0.88	0.06
E4	38	479	3.26	1.25	3	3.32	1.48	1	5	4	-0.29	-0.89	0.06
E5	39	479	2.1	1.33	2	1.9	1.48	1	5	4	0.94	-0.37	0.06
E7	40	479	3.37	1.24	3	3.46	1.48	1	5	4	-0.33	-0.84	0.06
E8	41	479	3.66	1.29	4	3.81	1.48	1	5	4	-0.59	-0.74	0.06
E6	42	479	3.6	1.14	4	3.68	1.48	1	5	4	-0.42	-0.63	0.05
E9	43	479	1.89	1.15	1	1.68	0	1	5	4	1.28	0.8	0.05
E10	44	479	3.37	1.46	4	3.46	1.48	1	5	4	-0.53	-1.1	0.07
E11	45	479	1.86	1.12	1	1.66	0	1	5	4	1.21	0.61	0.05
E12	46	479	1.95	1.24	1	1.74	0	1	5	4	1.14	0.22	0.06

	<b>I1</b>	<b>I2</b>	<b>I3</b>	<b>A1</b>	<b>A2</b>	<b>A3</b>	<b>PBC1</b>	<b>PBC2</b>	<b>PBC3</b>	<b>SN2</b>	<b>SN3</b>	<b>T1</b>	<b>T2</b>	<b>T3</b>	<b>intention</b>	<b>attitudes</b>	<b>PBC</b>	<b>subjective</b>	<b>taste</b>
<b>I1</b>	1																		
<b>I2</b>	0.37	1																	
<b>I3</b>	0.841	0.362	1																
<b>A1</b>	0.217	0.094	0.213	1															
<b>A2</b>	0.203	0.087	0.199	0.563	1														
<b>A3</b>	0.167	0.072	0.164	0.464	0.434	1													
<b>PBC1</b>	0.128	0.055	0.126	0.036	0.034	0.028	1												
<b>PBC2</b>	0.341	0.147	0.334	0.095	0.089	0.073	0.266	1											
<b>PBC3</b>	0.302	0.13	0.296	0.084	0.079	0.065	0.235	0.624	1										
<b>SN2</b>	0.236	0.101	0.231	0.334	0.313	0.257	0.116	0.308	0.273	1									
<b>SN3</b>	0.204	0.088	0.2	0.29	0.271	0.223	0.101	0.267	0.237	0.295	1								
<b>T1</b>	0.3	0.129	0.293	0.076	0.071	0.058	0.098	0.259	0.23	0.069	0.06	1							
<b>T2</b>	0.295	0.127	0.288	0.074	0.07	0.057	0.096	0.255	0.226	0.068	0.059	0.765	1						
<b>T3</b>	0.269	0.116	0.263	0.068	0.064	0.052	0.088	0.233	0.207	0.062	0.054	0.699	0.688	1					
<b>intention</b>	0.927	0.399	0.908	0.234	0.219	0.181	0.139	0.368	0.326	0.254	0.221	0.323	0.318	0.29	1				
<b>attitudes</b>	0.28	0.121	0.274	0.776	0.726	0.598	0.046	0.123	0.109	0.431	0.374	0.098	0.096	0.088	0.302	1			
<b>PBC</b>	0.406	0.175	0.398	0.114	0.106	0.087	0.316	0.839	0.744	0.367	0.319	0.309	0.304	0.278	0.438	0.146	1		
<b>subjective</b>	0.404	0.174	0.395	0.573	0.536	0.441	0.199	0.528	0.468	0.584	0.506	0.118	0.116	0.106	0.436	0.738	0.629	1	
<b>taste</b>	0.34	0.146	0.332	0.086	0.08	0.066	0.111	0.294	0.261	0.078	0.068	0.882	0.868	0.793	0.366	0.111	0.35	0.133	1

<b>Table C: Generalized Shapiro-Wilk test for Multivariate Normality by Villasenor-Alva and Gonzalez-Estrada</b>	
I1	
MVW = 0.8084, p-value < 2.2e-16	
I2	
MVW = 0.91073, p-value = 3.524e-16	
I3	
MVW = 0.82602, p-value < 2.2e-16	
A1	
MVW = 0.89486, p-value < 2.2e-16	
A2	
MVW = 0.94007, p-value = 5.646e-13	
A3	
MVW = 0.90284, p-value < 2.2e-16	
SN1	
MVW = 0.9117, p-value = 4.366e-16	
SN2	
MVW = 0.9169, p-value = 1.418e-15	
SN3	
MVW = 0.8492, p-value < 2.2e-16	
PN1	
MVW = 0.84614, p-value < 2.2e-16	
PN2	
MVW = 0.87467, p-value < 2.2e-16	
PN3	
MVW = 0.856, p-value < 2.2e-16	
PBC1	
MVW = 0.83807, p-value < 2.2e-16	
PBC2	
MVW = 0.87319, p-value < 2.2e-16	
PBC3	
MVW = 0.80538, p-value < 2.2e-16	
Value for payment	
MVW = 0.83904, p-value < 2.2e-16	
T1	
MVW = 0.87365, p-value < 2.2e-16	
T2	
MVW = 0.91201, p-value = 4.678e-16	
T3	
MVW = 0.8938, p-value < 2.2e-16	
Portion size	
MVW = 0.92574, p-value = 1.191e-14	

## CFA Output:

Lavaan 0.6-3 ended normally after 30 iterations

Optimization method	NLMINB		
Number of free parameters	38		
Number of observations	479		
Estimator	ML	Robust	
Model Fit Test Statistic	135.995	126.378	
Degrees of freedom	67	67	
P-value (Chi-square)	0.000	0.000	
Scaling correction factor for the Satorra-Bentler correction		1.076	

Model test baseline model:

Minimum Function Test Statistic	2592.690	2278.644	
Degrees of freedom	91	91	
P-value	0.000	0.000	

User model versus baseline model:

Comparative Fit Index (CFI)	0.972	0.973	
Tucker-Lewis Index (TLI)	0.963	0.963	
Robust Comparative Fit Index (CFI)		0.974	
Robust Tucker-Lewis Index (TLI)		0.965	

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-11278.983	-11278.983	
Loglikelihood unrestricted model (H1)	-11210.986	-11210.986	
Number of free parameters	38	38	
Akaike (AIC)	22633.966	22633.966	
Bayesian (BIC)	22792.491	22792.491	
Sample-size adjusted Bayesian (BIC)	22671.883	22671.883	

Root Mean Square Error of Approximation:

RMSEA		0.046	0.043	
90 Percent Confidence Interval	0.035	0.058	0.032	0.054
P-value RMSEA <= 0.05		0.690	0.846	
Robust RMSEA			0.045	
90 Percent Confidence Interval			0.033	0.056

Standardized Root Mean Square Residual:

SRMR	0.046	0.046	
------	-------	-------	--

Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem



Latent Variables:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
intention =~						
I1	1.455	0.065	22.231	0.000	1.455	0.926
I2	0.746	0.080	9.302	0.000	0.746	0.401
I3	1.512	0.068	22.257	0.000	1.512	0.907
attitudes =~						
A1	0.918	0.048	18.981	0.000	0.918	0.778
A2	1.099	0.072	15.212	0.000	1.099	0.724
A3	0.846	0.070	12.103	0.000	0.846	0.591
PBC =~						
PBC1	0.515	0.088	5.887	0.000	0.515	0.320
PBC2	1.244	0.070	17.813	0.000	1.244	0.840
PBC3	1.203	0.083	14.506	0.000	1.203	0.740
social =~						
SN2	1.080	0.100	10.785	0.000	1.080	0.583
SN3	0.698	0.080	8.669	0.000	0.698	0.507
taste =~						
T1	1.437	0.054	26.842	0.000	1.437	0.882
T2	1.381	0.054	25.777	0.000	1.381	0.868
T3	1.278	0.064	19.978	0.000	1.278	0.793

Covariances:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
intention ~~						
attitudes	0.302	0.051	5.924	0.000	0.302	0.302
PBC	0.435	0.054	8.090	0.000	0.435	0.435
social	0.438	0.064	6.867	0.000	0.438	0.438
taste	0.363	0.050	7.304	0.000	0.363	0.363
attitudes ~~						
PBC	0.149	0.059	2.517	0.012	0.149	0.149
social	0.736	0.070	10.528	0.000	0.736	0.736
taste	0.109	0.054	1.998	0.046	0.109	0.109
PBC ~~						
social	0.629	0.069	9.077	0.000	0.629	0.629
taste	0.349	0.053	6.576	0.000	0.349	0.349
social ~~						
taste	0.132	0.073	1.805	0.071	0.132	0.132

Variances:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
.I1	0.350	0.085	4.121	0.000	0.350	0.142
.I2	2.898	0.144	20.144	0.000	2.898	0.839
.I3	0.491	0.101	4.883	0.000	0.491	0.177
.A1	0.550	0.085	6.459	0.000	0.550	0.395
.A2	1.096	0.120	9.138	0.000	1.096	0.476
.A3	1.334	0.121	11.022	0.000	1.334	0.651
.PBC1	2.331	0.164	14.183	0.000	2.331	0.898
.PBC2	0.645	0.120	5.389	0.000	0.645	0.294
.PBC3	1.196	0.162	7.401	0.000	1.196	0.452
.SN2	2.268	0.224	10.148	0.000	2.268	0.660
.SN3	1.407	0.137	10.303	0.000	1.407	0.743
.T1	0.592	0.085	6.983	0.000	0.592	0.223
.T2	0.621	0.083	7.472	0.000	0.621	0.246
.T3	0.966	0.106	9.151	0.000	0.966	0.372
intention	1.000				1.000	1.000
attitudes	1.000				1.000	1.000
PBC	1.000				1.000	1.000
social	1.000				1.000	1.000
taste	1.000				1.000	1.000

R-Square:

	Estimate
I1	0.858
I2	0.161
I3	0.823
A1	0.605
A2	0.524
A3	0.349
PBC1	0.102
PBC2	0.706
PBC3	0.548
SN2	0.340
SN3	0.257
T1	0.777
T2	0.754
T3	0.628

**SEM Output :**

Lavaan 0.6-3 ended normally after 30 iterations

Optimization method NLMINB  
 Number of free parameters 36

Number of observations 479

Estimator	ML	Robust
Model Fit Test Statistic	325.832	312.330
Degrees of freedom	94	94
P-value (Chi-square)	0.000	0.000
Scaling correction factor for the Satorra-Bentler correction		1.043

Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
intention =~						
I1	1.221	0.062	19.647	0.000	1.415	0.914
I2	0.631	0.074	8.515	0.000	0.731	0.395
I3	1.296	0.064	20.106	0.000	1.502	0.914
attitudes =~						
A1	0.900	0.051	17.590	0.000	0.900	0.762
A2	1.141	0.076	14.923	0.000	1.141	0.751
A3	0.825	0.072	11.493	0.000	0.825	0.576
PBC =~						
PBC1	0.528	0.087	6.044	0.000	0.528	0.328
PBC2	1.244	0.074	16.921	0.000	1.244	0.840
PBC3	1.190	0.085	13.973	0.000	1.190	0.732
taste =~						
T1	1.458	0.052	28.302	0.000	1.458	0.894
T2	1.364	0.053	25.892	0.000	1.364	0.858
T3	1.272	0.061	20.962	0.000	1.272	0.789

Regressions:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
intention ~						
attitudes	0.282	0.060	4.676	0.000	0.243	0.243
PBC	0.435	0.074	5.892	0.000	0.376	0.376
env	0.015	0.007	2.198	0.028	0.013	0.100
pay	0.105	0.040	2.601	0.009	0.090	0.139
plate ~						
intention	-0.135	0.048	-2.798	0.005	-0.157	-0.177
taste	-0.211	0.047	-4.481	0.000	-0.211	-0.240
PBC	-0.184	0.055	-3.375	0.001	-0.184	-0.209
por	0.069	0.032	2.159	0.031	0.069	0.088

Covariances:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
attitudes ~~						
PBC	0.149	0.059	2.508	0.012	0.149	0.149
taste	0.126	0.054	2.322	0.020	0.126	0.126
PBC ~~						
taste	0.366	0.051	7.118	0.000	0.366	0.366

Variances:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
I1	0.393	0.086	4.553	0.000	0.393	0.164
I2	2.901	0.144	20.109	0.000	2.901	0.844
I3	0.442	0.110	4.021	0.000	0.442	0.164
A1	0.583	0.091	6.401	0.000	0.583	0.419
A2	1.003	0.140	7.150	0.000	1.003	0.435
A3	1.369	0.125	10.978	0.000	1.369	0.668
PBC1	2.317	0.162	14.291	0.000	2.317	0.893
PBC2	0.645	0.134	4.818	0.000	0.645	0.294
PBC3	1.227	0.172	7.135	0.000	1.227	0.464
T1	0.533	0.081	6.538	0.000	0.533	0.200
T2	0.668	0.084	7.987	0.000	0.668	0.264
T3	0.983	0.105	9.373	0.000	0.983	0.378
plate	0.607	0.048	12.627	0.000	0.607	0.780
intention	1.000				0.745	0.745
attitudes	1.000				1.000	1.000
PBC	1.000				1.000	1.000
taste	1.000				1.000	1.000

R-Square:

	Estimate
I1	0.836
I2	0.156
I3	0.836
A1	0.581
A2	0.565
A3	0.332
PBC1	0.107
PBC2	0.706
PBC3	0.536
T1	0.800
T2	0.736
T3	0.622
plate	0.220
intention	0.255

---

## D. Interview Guideline



ORTA DOĞU TEKNİK ÜNİVERSİTESİ

Yer Sistem Bilimleri

### Kafeteryalardaki Tüketim Alışkanlıkları - Mülakat Soruları

Tarih:

Yer:

Saat:

Mülakatı uygulayan kişinin ismi: Selin Özokcu

Mülakat yapılan kişinin ismi:

Bana biraz kendinizden bahseder misiniz? (Şimdiye kadar yaşanan/ikamet edilen yerler, eğitim düzeyi, bölümü, kaç kardeşler, kaçınıcı çocuk vs) “(mülakat yapılan kişinin ismi)” kimdir?

.....

Yemek denince aklınıza ne gelir?

.....

Bir günde neler yersiniz? (Günlük hayatında neleri yediğini anlatması, mesela sebze, meyve,.. vs neler yiyor, neleri severek yiyor veya yemiyor? Özel bir diyet tercihi var mı? Bu diyeti tercih etmesinin arka planında olan durumlar neler olabilir? Daha rahat hatırlaması için bir gün önce neler yediğini sorabilirsin.)

.....

Sağlık ve yemek arasındaki ilişkiden biraz bahsedebilir misiniz?

.....

Sağlıklı yemek sizin için nasıl olmalıdır? Biraz açıklayabilir misiniz?

.....

Çevreye/doğaya duyarlı bir insan sizce nasıl olmalıdır? (Tarif etmesi için örnekler verebilirsin)

.....

Peki, siz kendinizi çevreye duyarlı olarak görüyor musunuz?

.....

Sizin bu anlamda (çevreye dair) yaptığınız/yapmadığınız günlük rutinleriniz var mı? Biraz bahsedebilir misiniz? (geri dönüşüm: geçen hafta neleri geri dönüştürdün? Su ve elektrik kullanırken nelere dikkat ediyor? Matara kullanıyor mu? Yiyecek artıklarını değerlendiriyor mu? Toplu taşıma kullanıyor mu? İkinci el kıyafet alıyor mu? Satın aldığı ürünlerin doğaya zararı/ etkisini düşünüyor mu, bir şeyi satın alırken bunları göz önünde bulunduruyor mu? Genel olarak tüketimle çevre arasında bir ilişki kuruyor mu? Çevresindeki insanları da bunları yapmaya yönlendiriyor mu? )

.....  
Sizin için çevreye duyarlı olmanın bir anlamı/ değeri var mı?

.....  
Okulda/ Yerleşkede nerelerde yemek yiyorsunuz? (Kafeteryada yemek yemediğinde nerelerde yemek yiyor?)

.....  
Ne sıklıkla kafeteryada/ yemekhanede yemek yiyorsunuz?

.....  
Kafeteryayı tercih etmeniz için özel bir nedeni var mı? Paylaşabilir misiniz?

.....  
Kafeteryada yemek yemek, günlük rutinleriniz arasında nerede duruyor? Gündelik yaşantınıza bir etkisi var mı? (Bölümünün uzak olması, zamanının kısıtlı olması gibi örneklendirebilirsin.)

.....  
Kafeteryaya kiminle gitmeyi tercih ediyorsunuz?

.....  
Kafeteryada servis edilen öğle yemeği hakkındaki düşüncelerinizden bahsedebilir misiniz? (Burada tanımlama ve /veya betimleme yapmasına teşvik etmek iyi olabilir.)

.....  
Kafeteryanın sağladığı hizmet hakkındaki düşünceleriniz nelerdir?

.....  
Kafeteryanın yemek fiyatı hakkında ne düşünüyorsunuz?

Kafeteryada ne tür yemekler servis edilmesini istersiniz? (yemek çeşidi vs)

.....

Kafeteryada yemeklerin nasıl servis edilmesini istersiniz? (sunumla ilgili detaylar, kafeteryanın fiziki koşulları, porsiyon büyüklüğü vs)

.....

Kafeteryada servis edilen bütün çeşitleri alıyor musunuz?

.....

Kafeteryada yemek yediğinizde, tabağınızda yemek bıraktığınız oluyor mu? (bunu biraz açabilir misiniz?)

.....

Kafeteryada yemek bıraktığınız zaman nasıl hissediyorsunuz?

.....

Peki, kafeterya dışında kampüste yemek yediğiniz yerlerde sunulan hizmet hakkındaki düşünceleriniz nelerdir?

.....

Buralardaki yemek fiyatları hakkındaki düşünceleriniz nelerdir?

.....

Kafeterya dışında kampüste yemek yediğiniz yerlerde tabağınızda yemek bıraktığınız oluyor mu?

.....

Yemek bıraktığınız zaman nasıl hissediyorsunuz?

.....

Ailenizle yemek yediğinizde de tabağınızda yemek bıraktığınız oluyor mu? Onların bu duruma herhangi bir tepkisi oluyor mu?

.....

Tabağınızda yemek bırakmanın zararı/kötü bir etkisi olduğunu düşünüyor musunuz? Bunu biraz açabilir misiniz?

.....

Tabağınızda yemek bırakmanın çevreye zararı/kötü bir etkisi olduğunu düşünüyor musunuz?

.....

Sizce tabakta yemek bırakmakla çevreye duyarlı olmak arasında bir bağ var mı?  
Varsa, biraz açıklayabilir misiniz?

.....  
Kafeteryadaki yemeği değerlendirseniz (neleri göz önüne alırdınız), hangi fiyatı verirdiniz? Sizce yemekhanede sunulan yemeğin değeri ne sizin için?

.....  
Kafeterya dışında kampüste yemek yediğiniz yerlerdeki yemekleri değerlendirseniz (neleri göz önüne alırdınız), hangi fiyatı verirdiniz?

.....  
Tabak/tepsi fotoğrafını gösterince verdiği tepki:

.....  
Kampüste yemek yediği yerlere geri dön.  
(kampüste yemek yediğiniz yerler) Size çağrıştırdığı 5 kelime/ sıfat söyleyebilir misiniz? Buraları betimleseniz etseniz hangi sıfatları kullanırdınız?

Kafeterya .....

Çatı – Arka Bahçe.....

Çarşı .....

Yurt Kantini .....

Bölüm Kantini .....

Söylediğiniz sıfatlar size göre hangi anlamlara geliyor?

.....  
Buralarda yemek yiyen insanları betimleyebilir misiniz?

Kafeterya .....

Çatı - Arka Bahçe.....

Çarşı .....

Yurt Kantini .....

Bölüm Kantini .....

Söylediğiniz sıfatlar size göre hangi anlamlara geliyor?

.....





## CURRICULUM VITAE

Özokcu, Selin

### EDUCATION

Degree	Institution	Year of Graduation
MSc	METU Earth System Science	2015
BSc	METU Business Administration	2012
High School	Fatih Science High School, Eskişehir	2005

### PROFESSIONAL EXPERIENCES

Position	Institution	Years
Policy Analyst	The Economic Policy Research Foundation of Turkey (TEPAV)	2021-Present
Research Assistant	METU Business Administration	2013-2021

### PUBLICATIONS

#### Journal Articles

1. Özokcu, S. & Özdemir, Ö. (2017). Economic growth, energy, and environmental Kuznets curve. *Renewable and Sustainable Energy Reviews*, 72, 639–647.
2. Eruygur, H.,O. & Özokcu,S. (2016). Impacts of Climate Change on Wheat Yield in Turkey: A Heterogeneous Panel Study. *Ekonomik Yaklaşım*, 27(101), 219255.

#### Book Chapters

1. Özokcu, S. & Başoğlu Acet, D. (2021). İklim krizi gölgesinde gıda tüketiminde ve israfında öznenin rolü. In M. Tiryakioglu, (Ed.), *Afetlerle yoksullaşma: Salgınlar, göçler ve eşitsizlikler*. Istanbul Bilgi University Press. (In Turkish)

### FOREIGN LANGUAGES

Turkish: Native Speaker, English: Advanced French: Beginner

### SCHOLARSHIPS

The Scientific and Technological Research Council of Turkey (TÜBİTAK), National Scholarship Programme for PhD Students

The Scientific and Technological Research Council of Turkey (TÜBİTAK), National Scholarship Programme for MSc Students