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Constructing a food retail environment that encourages healthy diets in cities: the contribution of local-level policy makers and civil society

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DALIA MATTIONI^a

Abstract.

Faced with growing rates of malnutrition, food environments play a key role in shaping eating habits and in helping transition towards healthy diets. Much of the attention on food environment policies has been directed at the national level. Less attention has been devoted to what happens at local level, at the measures being taken by local government policy makers and by other local-level actors to encourage healthier diets, especially in cities. The objective of this article is thus to give a critical overview of the contribution “from below” to the construction of healthier food environments. In doing so, it focuses on the retail food environment (RFE) as a specific contribution of cities. A critical review of evaluated local-level policies sheds light on the nature and effectiveness of different types of interventions and on the complementary actions of local government and civil society, where the latter contributes to communicating a different way of “knowing” food in line with a greater appreciation of healthier foods, and to advocating for an integration of sustainability aspects in the transition towards healthy diets. The article reflects upon areas where further efforts and adjustments are needed to make interventions more effective, and emphasizes the need to continue supporting local-level civil society RFE actions, and ensure coordination and coherence between different players and between different administrative levels.

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^a School of Geography and Planning, Cardiff University

Via R. R. Garibaldi 44

00145, Rome

Italy

E-mail: Mattionid@cardiff.ac.uk

Biographical Note: I have worked for over 15 years in the fields of food security, nutrition, and rural development mainly with the United Nations agencies. The scope of my work has ranged from direct project management in the field, to research and training on various topics such as sustainable food systems, food environments and healthy diets, food security and gender. I currently work as a research associate at the School of Geography and Planning of Cardiff University and specifically on an EU-funded project called Food Trails on urban food policies. I have completed two MScs – on Development Studies at SOAS, UK, and on Food Policy at the City University London - and I hold a PhD from the University of Pisa.

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Introduction

In spite of the many advances made in terms of reducing hunger and other forms of malnutrition, the constant rise of diet-related NCDs witnessed in the past decades has highlighted the importance of shifting towards healthy and sustainable diets, i.e. diets that contain more fresh fruits and vegetables, legumes and wholegrains, and less refined carbohydrates, sugars, animal fats and ultra-processed foods (Willett et al, 2019). It is widely acknowledged that food environments play a key role in shaping eating habits (Glopan, 2016; HLPE, 2017). Food environments are made up of various “components”, such as the relative price of foods, the way food is formulated, the quality of the food sold in schools and other public venues, food promotion and marketing, labelling and food retailing: ultimately, they determine which foods are available, affordable and desirable to people in their surroundings (Swinburn et al, 2011). Faced with growing levels of overweight and obesity, a number of countries have developed a series of policies within a number of these “components” aimed at making it easier for people to eat in a healthier way. The policies range from innovative labelling laws in Chile and Ecuador to taxes on certain ultra-processed foods such as sugar-sweetened beverages in Mexico and salty snacks in Hungary, advertising restrictions in the UK, and laws on maximum levels of salt in certain food items in South Africa (WCRF database).

Much of the global attention on food environment policies has been directed at the national level. A number of global reports, scientific articles and actions by international networks have focused on providing guidance for national governments on suitable measures to take (HLPE, 2017; Mozaffarian, 2018; FAO, IFAD, UNICEF, WFP, WHO, 2020; GNR, 2020) and, where taken, on evaluating their effectiveness (WHO, 2015; Mazzocchi, 2017, Vandevijvere et al, 2019). The same reports however devote less attention to what happens at local level and at measures being taken by local policy makers and by other local level actors to encourage healthier diets, especially in cities. Yet here too, as we shall see below, faced with growing levels of overweight and obesity in the case of higher-income cities and with double burdens of malnutrition in lower-income urban centres, cities have also begun to take measures aimed at re-fashioning the food environment, commensurate with what is feasible at municipal level. In the face of “patchy progress” made by national Governments in constructing food environments that work for healthy diets (Roberto et al, 2015), understanding and qualifying the contribution that local governments can make to replace or complement national policies that may have partially failed, is important (Ilieva, 2016). Cities are indeed at the right governance “level” to introduce certain policies that are particularly suited for shaping food environments and that would complement broader national level policies. Examples include: building appropriate local-level food infrastructures, orienting public procurement, encouraging urban agriculture, supporting food education, and organizing food assistance to the most deprived (Galli et al, 2018). As food (environment) policy however is not only the result of decisions made by Government - be it at national or municipal level - but is rather a “social process” involving a myriad of different actors (Lang et al, 2009), scrutinizing the role of local level initiatives spurred by civil society and consumer-citizens in contributing to shape the food environment, and the nature of their contribution, becomes equally important.

The objective of this article is to better understand and qualify the contribution that local governments and local level actors can make towards the construction of healthier food environments. In doing so, it will focus in particular on one of its components, of particular relevance to urban contexts, that of food retailing. The RFE has indeed been identified as “critical”, as it “influences all aspects of the food environment”, i.e. what food is available, its price, quality, convenience and promotion (GloPan, 2016). While there is some literature that gives a descriptive overview of the contribution of cities to the development of healthier food environments overall (e.g. Halliday et al, 2019), no studies have, to our knowledge, given a critical overview of the specific contribution of the retail food environment (RFE)¹. The novelty that this article adds to the body of work that links urban

¹ The retail food environment consists of the food outlets that individuals use to buy the food they need for their homes or for eating out - these can range from hypermarkets to street vendors.

policies to the food environment is therefore firstly that of focusing on the RFE and secondly that of providing a critical view – in other words its aim is not so much to provide an inventory of urban interventions, but rather to move a step further by focusing on what has worked and what has not. In order to do so, in the case of government action, it will focus on those (few) policies that have been evaluated so as to gauge their effectiveness in making un/healthy food more/less available, affordable and desirable. Considering the importance of promoting not only healthy, but also sustainable diets (Willett et al, 2019), the article will also explore the extent to which policies aimed at making healthier food more available have also tried to promote its sustainable production and procurement.

A search was carried out on Web of Science and Google Scholar of relevant scientific articles by using key words such as “food retail”, “food outlet*” “urban” “healthy diet*” “healthy food*”, “polic*”. Relevant databases, such as the World Cancer Research Fund (WCRF), NOURISHING database were also reviewed. Given the difficulty of identifying through search words those policies that had been evaluated, this process was carried out manually, and a total of 24 articles and 1 Report were finally included in the cohort. Once identified, the evaluated policies/interventions were analyzed on the basis of their “strength” or level of intervention, where options ranged from “harder” or higher levels of interventions i.e. policies that eliminate or restrict choices, to “softer” policies that provide information or enable choice through labelling for example. In between are intermediate policies that can “guide choice through incentives/disincentives” where the latter are either financial or non-financial (Nuffield Council on Bioethics, 2007; Ranganathan et al, 2016). The aim of the analysis was to understand whether there is a link between the “strength” of government-level policies and their effectiveness at changing diets. It is important to note that, most of the evidence presented below will concern high-income cities, particularly in the UK and in the USA, where interventions in the RFE have been more long-standing and where resources have been made available to evaluate them. The evidence thus collected on government level policies was complemented with qualitative evidence emerging from the Alternative Food Networks literature on relevant RFE-related actions carried out at grassroot level.

The article will be subdivided into four sections. The first section of the article will give an overview of the evidence on the link between RFE and healthier dietary patterns and highlight those areas where evidence is stronger, thus laying the grounds for local government action. The second section of the paper will analyze the effectiveness of policies taken by city-level policy makers to make RFEs more conducive to healthy diets, while the third will highlight the specific and complementary contribution of civil society initiatives. The fourth and last section will discuss emerging themes from the analysis and draw some policy implications for future work.

Latest evidence on the relationship between the RFE and healthy diets

Spurred by the emerging evidence around “food deserts”, it was posited that the “built environment”, i.e. the retail settings that surround people where they live, could have an influence on people’s dietary behavior and outcomes (Beaulac et al, 2009). The last decades have thus witnessed a burgeoning number of studies on the link between the retail food environment, dietary patterns and Body Mass Index (BMI) (Lytle & Sokol, 2017). The analysis of the retail food environment can be subdivided into two distinct areas of work: *community food environment* studies, that look at the density and proximity of different types of food outlets in neighbourhoods and use predominantly static geo-spatial tools such as GIS, and *consumer food environment* studies that focus on what consumers find once they walk into shops (or restaurants), and therefore analyzes types, quality and relative prices of foods in-store by using checklists to carry out in-store audits (Ni Mhurchu et al, 2013)².

A review of the literature on the retail food environment shows that while the evidence so far on the relationship between both the community and the consumer food environment on the one hand,

² Most of the evidence collected around these two RFE areas has been quantitative, although mixed results have led analysts to encourage a greater use of qualitative and mixed methods in both areas, aimed at unpacking people’s lived experiences of the RFE, and consequently at refining our understanding of the link between RFEs and healthy diets.

and dietary patterns (and/or health outcomes) on the other, is mixed, there are certain variables that are more robustly correlated to unhealthy dietary patterns and/or levels of overweight and obesity³. With respect to *community food environment* studies, the relative density of healthy/unhealthy outlets has a higher positive association (albeit mild) with dietary patterns and outcomes than proximity (Caspi et al, 2012; Burgoine et al, 2018). In other words, what matters most for dietary patterns is not so much how close one lives or works to an “unhealthy” outlet (such as fast foods and convenience stores), but the relative number of these outlets compared to healthier ones, such as fresh fruits and vegetable shops. This is particularly true in the case of fast foods in low-income areas (Lopes et al, 2020). One of the reasons why density may have a more significant impact on the way people eat, in addition to physically making the food more readily available, is that a long-lasting exposure to healthy foods and healthy eating outlets in their home or work environment may change people’s perceptions and “concept” around food and preferences (Clary et al, 2017; Mattioni et al, 2019). What the above findings point to is the importance of changing the density of “unhealthy”/healthy outlets present in the city, and particularly in certain high-risk neighborhoods, which is what some cities have attempted to do by using a range of measures, as we will also see below.

Consumer food environment research results have also been mixed, although more consistent data is emerging on link between buying in specific stores, such as supermarkets or Farmers Markets, and the relationship with dietary patterns and/or obesity. Given the global penetration of the food retail sector by supermarkets, there is a risk today of certain traditional ways of selling food, such as through wet markets and small-scale wholesalers in middle-and lower income countries of being lost (Reardon et al, 2003), with strong dietary implications. The concern stems from the way that different categories of foods are sold in supermarkets, i.e. there is generally a higher prevalence of processed and ultra-processed foods sold compared to fresh fruits and vegetables. While some studies in LMICs show that buying in supermarkets can lead to higher dietary diversity for some groups, such as children or adults depending on the country (Rischke et al, 2015; Umberger et al, 2015), others show that it leads to higher levels of overweight and obesity, especially for low-income consumers who are more price sensitive and can thus mainly take advantage of the cheaper processed foods sold in supermarkets (Asfaw et al, 2008; Demmler et. al, 2018). Studies have also been carried out (mainly in the USA) on the link between diets and shopping at Farmers’ Markets, Community Supported Agriculture (CSA) and other local food initiatives, and have shown a positive correlation between shopping in these outlets and an increased intake of fresh fruits and vegetables as well as a more positive attitude towards healthy eating (Pitts et al, 2013; Minaker et al, 2016). There is also evidence of a positive impact of introducing mobile vendors of fruits and vegetables, especially in low-income areas, on dietary patterns measured in terms of an increased purchase and self-reported intake of fresh fruits and vegetables (Hsiao et al, 2018).

Other studies have concentrated on convenience stores and eating-out outlets. With respect to the latter, there is evidence that the more people eat out, the greater the odds of an increased total energy and fat intake with fast food outlets having the highest correlation with total energy intake compared to restaurants (Nago et al, 2014). One way of helping people choose better in an eating-out outlet is by providing them with nutritional information, such as energy labelling on the menu. Evidence shows however that although energy labelling can be useful as it may be an incentive for outlet owners to reformulate their menus, it has a small impact on the overall energy purchased by consumers (Crockett et al, 2018), while changing the content of the menu by introducing smaller portion sizes or increasing the proportion of meals on restaurant menus that are lower in energy content can lead to a substantial reduction in energy purchased by consumers (Marteau et al, 2015).

³ It is important to note that much of the research work in RFE has been carried out in high-income countries due to the need to tackle the pressing issue of rising rates of overweight and obesity and thanks to the availability of more resources to carry out the research. Work is however currently underway in low-and middle-income countries (LMICs) too, and is increasing, as issues related to the rise of the double burden of malnutrition climbs the agenda in LMICs.

What the above tells us is that, in addition to the spatial distribution of outlets, *where* people choose to buy their food products and/or where to eat out has implications for their diets, as there is evidence that both the types/mix of foods offered and the way they are presented, contributes to steering people's eating behavior. This explains why cities have taken action not only in trying to change the relative density of types of outlets, as we have alluded to above, but also in trying to change what types of food are sold *within* outlets. It is important to note here that in both areas of research, mixed results point to the need for further investigation to overcome issues of methodological limitations⁴. In spite of this however, faced with rising rates of overweight and obesity, cities have taken action, and the objective of the next two sections is to illustrate the types of actions taken both by local government policy makers and by civil society, as well as their outcome.

Local government food retail actions for healthy diets

In the last 15-20 years local level policy makers have emerged as important players in the food systems and food security arena. After a period in which food was rather invisible and dealt with mostly in a "piecemeal fashion" by urban policy makers (Pothukuchi and Kaufman 1999; Sonnino, 2016), local policy actors have risen to the challenge of contributing to construct sustainable food systems in the understanding that cities are "key strategic sites and actors to address the complex socio-economic and ecological issues that constrain food security and nutrition" (FAO, 2019). Healthy diets are an integral part of the commitment that a number of cities have taken to address challenges linked to the food system. In 2015, 140 cities signed the Milan Urban Food Policy Pact (MUFPP) with the explicit commitment to "work to develop sustainable food systems that are inclusive, resilient, safe and diverse, and *that provide healthy and affordable food to all people*" (author's italics). Prior to the signature of the MUFPP, a number of cities had already taken action to confront the challenge of constructing sustainable food systems by developing Urban Food Policies, some of which contain activities aimed at improving urban dwellers' diets (Ilieva, 2016; Sonnino et al, 2019). Other cities, while not developing comprehensive Urban Food Policies, have developed ad-hoc projects or stand-alone policies specifically directed at improving citizens' diets, particularly in higher-income cities where overweight and obesity have been on the rise for the past decades. These policies and programmes fall in a number of food environment areas and include actions such as the development of mandatory standards/voluntary guidelines for food available in schools, healthcare facilities and workplaces (Berlin, La Paz, New York), mandatory regulation of food advertising on non-broadcast communication channels (London), or the support given to urban agriculture and short value chains (Belo Horizonte, Rome) (WCRF database).

Given the remit that cities have over urban planning, food retailing has been an area where activities have been designed at local level to tackle problems of malnutrition. Reflecting the two categories of RFE studies, these activities can be subdivided into community and consumer food environment policies. *Community food environment* policies includes two types of actions: zoning aimed at making unhealthy outlets less available, and actions aimed at making outlets that sell healthier food products more available, for example by relocating Farmers' Markets in low-income areas. The second category of policies concerns the *consumer food environment* and includes actions aimed at making healthier products more available both in eating out venues, such as fast food takeaways, and in convenience stores. As mentioned above, this section will analyse the effectiveness of such policies in making un/healthy food more/less available, affordable and desirable, and will also point out whether attention has been paid by local policy makers to issues related to the sustainable production and procurement of food.

⁴ These include the need to carry out research with greater rigor and accuracy in designing and using the different RFE measures, as well as in validating and standardizing them (Lytle and Sokol, 2017). By way of illustration, community environment studies have been found to use different measures for proximity (buffer distances), for defining outlets, as well as for perceived availability (Caspi et al, 2012).

Community food environment policies

With respect to changing the relative mix of healthy/unhealthy outlets particularly in low-income areas, much has been done in the USA to introduce healthier outlets, such as supermarkets⁵, Farmers Markets and mobile fresh fruits and vegetables vendors in areas with relatively fewer outlets that sell fresh fruits and vegetables. A particularly successful initiative was the New York Green Carts Initiative introduced in 2008 by the Mayor's Office of Food Policy. A number of interventions were introduced to give the Initiative "strength": the City Street Vending Code was amended to include vendors of fresh products⁶, new permits were issued and were provided at a lower cost to vendors willing to operate in low-income neighbourhoods, and the City partnered with a private Fund (the Illumination Fund) that provided support to give vendors technical training (Fuchs et al, 2014). Evaluations highlighted the ability of the initiative to increase the overall availability and variety of fresh fruits and vegetables in the neighbourhoods where mobile vendors operated, not only through the supply that vendors themselves made available, but also by influencing other businesses in the area to offer the same products, thus promoting a wider demand for healthy products (Leggat et al, 2012; Farley et al, 2015; Lucan, 2019). Evidence also points to a self-reported increase in the consumption of fresh fruits and vegetables since shopping at Green Carts (Fuchs et al, 2014). Some studies however have shown that within low-income neighborhoods, vendors tend to place their carts in areas of high foot traffic where healthier stores may already exist, thus far from the neediest neighbourhood areas (Lucan, 2011; Li et al, 2014). While no specific indication was given in the Green Carts initiative as to the source of the fresh food (e.g. local, organic), a similar initiative in Springfield, Massachusetts spearheaded by a multi-stakeholder group made up of local government, NGOs, academia and private sector – Go Fresh Mobile Market – focused on introducing mobile fresh fruits and vegetables vendors that specifically sold local products. Evidence shows that the initiative led to an increased availability and affordability of the products, as reported by users (Hsiao et al, 2018).

Other community RFE interventions have aimed at increasing the accessibility of supermarkets and Farmers Markets in low-income areas. In 2009 the Federal Government approved the Healthy Food Financing Initiative (HFFI) as part of the US Government's efforts to combat childhood obesity which was used by various cities to introduce such outlets in low-income neighbourhoods. While introducing Farmers Markets in low-income areas, as seen above, has led to an increased purchase and consumption of fresh fruits and vegetables, the same cannot be said of supermarkets. Here the findings are more mixed, with data collected in cities both in the USA and in the UK showing that while the perceived availability of fresh fruits and vegetables increases, the adoption rate of new outlets is relatively low and that it does not necessarily impact people's dietary behavior in a positive way as expected (Cummins et al, 2014; Ghosh-Dastidar et al, 2017).

Zoning policies have been used very sparsely and only in cities in the UK, the USA and South Korea (Keeble et al, 2019a; Lee and Popkin, 2002). While in the USA the initiative to develop this tool stems from and remains at city level, in the UK its development at local level has been stimulated and coordinated with the national level. In 2018 the UK Government updated its National Planning Policy Framework and explicitly mentions the potential of "planning policies and decisions to enable and support healthier lifestyles [...] through [greater] access to healthier food" (Ministry of Housing Communities and Local Government, 2018). As national guidance informs local level planning practices, the last years have seen a proliferation of local governments in the UK use their local planning powers to design exclusion zones, specifically for hot food takeaway outlets: a study carried out in 2018, shows that about half of local governments with local planning powers had developed planning policies specific to regulating the proliferation of takeaway food outlets (Keeble et al, 2019).

⁵ In contrast with the food retail set up in other countries, in the USA, supermarkets are outlets that provide access to a large portion of the fresh fruits and vegetables that people consume, and are almost absent in low-income areas, served mostly by convenience stores (Diez et al, 2017).

⁶ In this paper, references to fresh foods/products are synonymous with fresh fruits and vegetables, as increasing the consumption of the latter represents a key challenge in trying to transition towards healthier diets.

While a large portion of these policies were not explicitly related to health, i.e. they were developed to protect the character of local areas for example, they nonetheless lend themselves to help reduce the burden of obesity (Keeble et al, 2019). Importantly, local level commitment to healthy diets emerges clearly from the partnership forged between the Local Governments Association and national level Public Health institutions aimed at “supporting councils in designing a whole-systems approach to reducing obesity” (LGA, 2016). Evidence on the impact of zoning is very sparse. The only evaluation carried out of a zoning policy concerns the Los Angeles “fast food ban” adopted in 2008 and shows a very limited impact on the reduction of obesity levels. One of the reasons is related to the choice of outlets that were targeted for exclusion, which may not have been the most suitable ones considering the population’s eating out patterns (Sturm and Hattori, 2015).

Consumer food environment policies

Policies in this category aim at changing the in-store environments in small food/convenience shops and in eating out outlets. With respect to convenience stores, only a handful of cities have embarked on comprehensive policies/programmes aimed at increasing the availability of healthy foods in these stores, such as New York and its Healthy Bodegas Programme (or Shop Healthy) and Minneapolis with its Staple Foods Ordinance aimed at small food shops. The Healthy Bodegas Initiative in New York is one of the largest in the USA covering about 1,000 convenience stores in low-income areas. The New York City Department of Health and Mental Hygiene provided staff to support small store owners in making interventions that could improve the healthiness of in-store environments. The Programme is voluntary and interventions included a mix of “intermediate” and “soft actions”. On the former, the Programme encouraged the shops to increase the amount of healthy foods stocked, such as fresh fruits and vegetables as well as healthier snacks and beverages, and as an incentive to do so they were provided with fresh foods display crates and reusable shopping bags to offer to customers. The programme provided free trainings by the Health Department staff on how to rearrange the shop to increase the visibility of healthy items (such as improving the display of fresh fruits and vegetables and placing refrigerated water at eye level). Softer actions included the provision of promotional material, the organization of cooking demonstrations and recipe giveaways using bodega products, or assisting with applications for microfinancing and permits to display fresh fruits and vegetables outside the store (Bassett et al, 2014). The Programme also worked with suppliers of the bodegas, that were conventional, large scale wholesalers, with an aim to encourage the latter to better signal healthier options to retailers, but no specific indication was given to source local and/or organic food. Evaluations confirm the positive results of experimental trials illustrated above, showing that the Programme was successful in increasing the amount of healthier food displayed, such as fresh fruits and vegetables and healthier versions of products already on sale, even though this translated into a modest improvement of customer purchases (Dannefer et al, 2012; Bassett et al, 2014). This may be due to the fact that both evaluations only took place about 8-12 months after the intervention, thus not giving time to consumers to change their purchasing habits accordingly.

The Minneapolis Staples Food Ordinance represents a stronger intervention by the local government insofar as it changes the rules on licensing: certain licensed small food shops are *required* to stock a minimum amount of foods, including nutrient-rich items such as fresh fruits and vegetables, whole grain and low-fat dairy products. Here too shop owners were supported by the Minneapolis Health Department to comply with the minimum requirements, and support included trainings on product procurement and marketing as well as low-interest loans and grants for equipment and marketing kits. While no specific indication was given in the Ordinance on where the fresh food would have to be sourced from, the local government did provide assistance to store owners to connect them with local Farmers Markets/CSA vendors so as to encourage the procurement of local fresh food. The programme was implemented without enforcement for one year to give time to owners to comply with the requirements. An evaluation of the programme showed a considerable increase in healthy food availability, but not larger than what had occurred in a nearby control city (Laska et al, 2019). This could be due to the observed limited compliance of shop owners to the

ordinance standards, which is in turn the result of the limited capacity of health inspectors to enforce the ordinance (Laska et al, 2019).

Eating-out is another area of concern for cities, and here too a number of cities have taken action to change the food environments in these shops. Examples include the Healthy Dining Programme in Singapore, the “Less Salt, More Health” initiative in Mexico, and a range on initiatives across the UK and the USA where most evaluations have taken place. Two systematic evaluations of interventions made in a number of cities, prevalently in the USA, show that the “stronger” interventions, aimed at restricting the choices available in the restaurants/fast-foods, such as reformulating recipes or changing the default options to healthier ones, are those that showed the most positive results, i.e. a greater uptake of these practices by outlet owners and more healthful options chosen by customers. “Softer” interventions such as signage to promote healthful options (e.g. posters, menu inserts) and menu labelling, were less effective, confirming the data seen above, although they did improve people’s awareness of the importance of consuming healthier foods (Gittelsohn et al, 2013; Hillier-Brown et al, 2017). Importantly there is evidence that the “stronger” interventions are also those that are most equitable, as they have an impact both on middle- and low-income consumers (Bagwell 2014; Hillier-Brown et al, 2017). While all urban food policies aimed at changing the food environment in eating-out outlets in the USA and the UK are voluntary, local governments (mainly through their public health departments) have provided a number of incentives to help owners transform their menus, ranging from providing leaflets and training materials to face-to-face training on new recipes to equipment provisions (Hillier-Brown et al, 2017a). Evidence from the London Healthy Catering Commitment (LHCC) however shows that while this type of support was important to improve the provision of healthier options and their sales in a number of outlets in Greater London, especially in middle-income areas, it was less successful in small, independent fast food operating in low-income areas, as owners had more difficulty taking up some of the more onerous measures, such as using healthier, but more expensive oils, or using baking equipment that they could not afford (Bagwell, 2014; Bagwell, 2015). With respect to providing indications on where the healthier foods were to be sourced, the LHCC did not contain any provision on this, thus giving the possibility for shop owners to source their fresh foods from any supplier.

What the above evidence on both the community and the consumer environment tells us is that, although results are mixed, overall local policy makers’ actions show some degree of effectiveness in increasing the availability of healthy foods, such as fresh fruits and vegetables, in certain neighbourhoods, even though limited attention was placed in ensuring/encouraging the procurement of fresh foods from sustainable sources. Before carrying out a more critical assessment of the policies, we now turn to the specific contribution of civil society that, as we shall see, adds on to and complements the work of local government policy makers.

The complementary role of civil society – communicating a different way of knowing food

In the last decades food movements have been very active in shaping food systems that are considered as an “alternative” to the dominant mainstream system based on “industrial” agriculture (Goodman et al, 2012), initially mainly in industrialized countries, but increasingly in less-industrialized countries as urban centres expand along with the middle-class (FAO/INRA, 2016). Born mainly as community-anchored activities aimed at placing producers directly in contact with (urban) consumers, today we can find a wide array of local food initiatives, ranging from the more grassroots and community-based activities, such as community-supported agriculture (CSA), solidarity purchase groups (GAS) and Farmers Markets, to more privately-owned and business-like activities (Grando et al, 2017). In terms of type of food exchanged, there is little “hard” data on the topic, but for their very nature, local food initiatives mainly involve relatively larger quantities of fresh fruits and vegetables and minimally processed food compared to other types of foods. A key role in these initiatives is played by conscious-consumers (or citizen-consumers), understood as those who “inflect their choices as ‘consumers’ with the values that underlie their responsibilities as ‘citizens’” (Lockie, 2002). Indeed, the main driver behind the creation of a large number of local-level initiatives is

a consumer concern for the environmental impact of “conventional” food systems as well as a desire to improve local-level economic development and especially farmers’ livelihoods. The engagement with local food initiatives thus leads to a requalification of food along new lines, i.e. “quality” is no longer founded only on price, but considers aspects related to environmental protection, trust, “care” about others’ livelihood and local economies (Dowler et al, 2010).

Health concerns have also been an important reason for consumers to choose local food systems, especially in the light of food safety “scares” that regularly surface in a number of countries. Indeed, in the face of an industrial food system that has increasingly obfuscated and mystified how food is grown, treated and distributed, people have felt more and more distanced from Nature—especially in cities—, and have thus felt the need to know more about how the food that sustains their health is produced (Belasco, 2008). In a series of studies carried out in the UK on what motivates people to buy or consume their food within local food initiatives, as opposed to supermarkets, is the belief that the food is “wholesome and nutritious”, it is fresh, and therefore contains more of the food’s nutrients, and it is free from chemicals and preservatives (Chambers et al, 2007). As globally people become increasingly conscious of the link between food and health, this is no longer a concern only for a “minority” of citizen-consumers: a recent global survey, the Nielsen Global Health and Wellness Survey, polled 30,000 people in 60 countries - including low-and middle-income countries - and found that 88 percent of consumers are willing to pay more for healthier foods. Nearly 80 percent of respondents claim using foods to prevent health and medical problems such as obesity and diabetes, while 37 percent choose to consume fewer processed foods. Interestingly, the willingness to pay a premium for healthier food was highest in emerging markets, and among younger consumers (Bereuter & Glickman, 2015).

Very little data has been collected on the dietary impacts of local level initiatives, except for data on Farmers Markets that we have seen above. It is therefore not clear to what extent this web of initiatives influences the overall availability and affordability of healthy foods, but there is evidence on their contribution to making healthy foods more desirable, or the “preferred option” among customers. Local food initiatives can introduce a new way of “communicating” food, as they provide spaces to learn new ways of valuing food. Evidence points to the potential that these initiatives have in providing new economic and cultural spaces to learn new ways of “knowing” food, both for the producer and the consumer: the producer learns (or re-learns) about (traditional) ways of producing more sustainably (in the case of local systems based on supporting farmers who use agro-ecological methods), while consumers are re-educated towards a greater appreciation of certain foods, both explicitly through educational material, but above all experientially (Goodman *et al*, 2012; Mattioni and Caraher, 2018). Learning can occur both in relation to more sustainable ways of consuming (eg. exposure to organic food) or to a greater exposure to healthy and often diverse foods, thus shifting consumer food preferences. In taking part in local food networks, people change their social practices related to buying and consuming food and consequently modify their purchasing and consumption routines (Brunori et al, 2012; Fonte, 2013; Cohen and Ilieva, 2015), thus leading at times to actual shifts in dietary intakes. These transformations have occurred not only in high-income countries but also in low-income countries. In a study carried out in 12 low- and middle-income countries, initiatives such as Farmers’ Markets, Ecofairs, box schemes and on-farm sales have led to increased levels of trust and reciprocal learning amongst participants. In Latin America, for example, food items— and diversity- that were being “lost” are being recaptured through an increased emphasis on native and traditional varieties within these “spaces”, and thanks to a joint learning process of “requalifying” foods – foods are no longer valued only on the basis of price or aesthetic qualities, but also on the basis of their ability to provide environmental, nutritional and health value (FAO/INRA, 2018).

In response to critics who have pointed out the small impact of local food initiatives on the overall food system, it is important to bear in mind that learning in one sphere can also lead to what Kneafsey et al have called a “graduation effect”, whereby as consumers change their food consumption and decision patterns (their way of “knowing” food) as a result of being part of a local

food scheme, they may change their purchasing modes for other food and/or non-food items along the same lines (Kneafsey et al, 2008). Indeed, consumers who are part of local food schemes often also resort to other food provisioning outlets, such as supermarkets but also convenience stores, etc. In doing so, they “bring” their new food preferences into other “venues” thus signaling (directly and indirectly) a new demand to food manufacturers and formal retailers that may lead to a new type of “supply” (Brunori et al, 2012), as we have seen above in the case of mobile vendors and their impact on the overall supply of fresh fruits and vegetables in the neighborhood/s where they operate.

Discussion and conclusion

The policies examined in this paper illustrate a certain level of commitment by local-level government to effect a real change in food environments and to provide support to local-level associations in doing so. Evidence of the commitment is the uptake of recommendations made by academics and practitioners to move beyond using exclusively “soft” measures, such as education campaigns and provision of information (Ranganathan et al, 2016; Mozaffarian et al, 2018), to “harder” measures or, as specifically recommended, a mix of both. Most of the interventions analyzed in Section 2 were voluntary in nature, i.e. actors could decide whether to take up the action or not, and governments used an intermediate level of intervention by seeking to “guide choice through incentives”. This is the case of the mobile vendors, such as the Green Carts and Go Fresh, the relocation of Farmers’ Markets and supermarkets, the Healthy Bodegas initiative and the LHCC. The measures used by governments have been mainly financial, such as absorbing the cost of the Green Carts’ permits or providing baking equipment in fast foods for free. Other incentives have been non-financial, such as amending the NYC City Street Vending Code to include vendors of fresh products. As mentioned above, with the exception of the relocation of supermarkets, all the measures show some degree of effectiveness in increasing the availability of healthy foods, such as fresh fruits and vegetables, and in the case of the Green Carts and Farmers’ Markets, in increasing their consumption.

The above points to the need to continue using a mix of soft and intermediate measures, although there may be some limitations in terms of equity. For this reason, some of the evaluation studies reviewed above suggest that stronger, more intrusive, policies that work at population level are needed in order to reach lower-income consumers (Neckerman, 2014; Hiller-Brown et al, 2017). This is particularly true for measures aimed at improving the provision of healthier foods in eating-out outlets. The London experience shows that healthier alternatives are indeed more expensive, less popular with customers living in low-income areas and difficult to source from suppliers (Bagwell, 2014). These challenges would justify either a restriction of choice, such as a ban on the use of saturated fats for frying, which would force suppliers to provide healthier alternatives, or a financial support to suppliers to provide healthier alternatives, a policy implemented successfully in Singapore (Bagwell 2014; WCRF database). It must be noted that, in the two cases reviewed above where “harder” measures were introduced – the Los Angeles fast food ban and the Minneapolis Ordinance – they did not have the expected impact on the availability of healthy foods or obesity levels, although the evidence suggest that this could be due to faults in the implementation of the policy (i.e. inaccurate targeting in Los Angeles and an administrative weakness in Minneapolis) rather than in the nature of the policy itself.

The evidence above also suggests that governments needs to intervene with a wide array - or mix- of interventions rather than just invest in one, as data shows that different types of interventions are complementary and increase effectiveness: in the case of the consumer food environment for example, while price increases of unhealthy foods alone in certain urban restaurants in the USA were ineffective overall, when combined with signposting, they resulted in a decrease in the purchase of unhealthy items (Hillier-Brown et al, 2017). In addition to increasing effectiveness, a good mix of interventions can also increase the stability of changes in time, such as finding ways of stimulating demand for healthier products through the engagement of community organizations at the same time

as changes are made in the supply of food in the environment (Dannefer et al, 2012). In this respect, working together with local-level civil society represents a valuable asset.

Civil society complements government action by helping to change people's food practices and the meaning they attribute to food towards a greater (and more long lasting) appreciation of the healthier products usually sold in local initiative venues, as well as paying a greater attention to procuring food from sustainable sources. As we have seen above, action from local government has prevalently focused on making healthier foods more available, with little attention given to *where* the food comes from, i.e. whether the fresh food is organic for example or local, while civil society action has focused around providing more local and/or organic food. This may be due to the different motivations that have spurred action: in the case of local-level government the impetus to act was often linked to health-related concerns, such as the desire to drive down obesity levels, while, as we have seen above, civil society action was often borne from a desire to mitigate the environmental impact of the food system. Where actions have been designed and carried out in collaboration and coordination with civil society, such as in the case of the relocation of Farmers Markets in various cities, and of the Go Fresh initiative, it was possible to introduce actions that would help people eat both in a healthy *and* sustainable manner.

The above has important governance implications, as it points to the need for an inclusive and multilevel urban food governance system that includes aspects related to the food environment. Many of the activities described above were not carried out without some level of partnership, and successful activities benefitted from the financial and non-financial support of different levels of administration. So, civil society action through Farmers Markets in New York, for example, benefitted from the planning support of the municipality and the financial support of the State (Cohen and Ilieva, 2015), while the Solidarity Purchase Groups in Italy were able to successfully continue their work thanks to a national law that legally framed their activities (Fonte, 2013). In much the same way, as we have seen in Section 2, a number of the local-level government activities benefitted from financial support from the national level, such as the HFFI in the USA, or from legislative action that enabled local-level activities, such as the changes made in the National Planning Policy Framework in the UK. This confirms previous findings and calls on the importance of multilevel food governance and policy coherence across administrative levels in order to have a more effective response to problems of malnutrition (Lang et al, 2009; Sonnino et al, 2019).

It also raises the issue of providing adequate support for local-level initiatives that often struggle to find sufficient resources to operate, thus pointing to a need to "further support, fund and link movements, coalitions and networks together if change is to come about" (HLPE, 2017), and to set up platforms that encourage greater stakeholder participation in the construction of integrated food policies (IPES-Food, 2017; Warshawsky and Vos, 2019). As we have seen above, civil society participation is important to advocate for and integrate sustainability aspects in actions aimed at transitioning towards healthy diets. As briefly touched upon, some work has been done by local-level governments to increase the inclusiveness of urban food governance: greater spaces for participation and deliberation have been opened up by the creation of Local Food Policy Councils in cities across the world, and concrete actions have been taken to support local level grassroots activities, by opening up public spaces in cities for the creation of Farmers Markets for example, or by fostering school food procurement systems that support local-level farmers who use sustainable methods. More however would need to be done to align policies at various levels and to ensure coherence, for example by adapting regulatory frameworks on hygiene and food safety to the needs and constraints of micro- enterprises and consumer co-operatives that are the most active at local level (Howlett and Rayner, 2007).

One of the limitations of this study has been that of focusing on high-income cities because, as explained at the outset, much of the research on this topic has taken place in high-income countries, particularly in the USA and the UK. There is however an important aspect of the way the food retail sector is organized in low- and middle-income countries that has implications for future national and local-level action in these countries. While traditional ways of selling fresh foods, such as "wet"

markets or street vendors, are declining in LMICs as mentioned above, they still represent an important venue for the provision of fresh foods and an important source of fresh and nutritious food, such as fresh fruits and vegetables and minimally processed foods (Kelly et al, 2014; Wertheim-Heck and Raineri, 2019). In this respect, efforts of cities in LMICs should be aimed not so much – or maybe less - at introducing outlets that make fresh foods more available, but rather at keeping these traditional venues alive and ensuring their improvements from a food safety point of view. More efforts need to be placed here too in collecting data on the link between buying food in these traditional venues and healthy diets, and generally on the specific link between the unique RFEs in LMICs and healthy diets.

Another limitation has been the scarcity of RFE evaluations on which this analysis rests, and where they have been carried out, they have been characterized by the use of heterogenous tools and variables that do not allow for comparisons or have not used sufficiently rigorous measures of success. Some studies, for example, have used reported sales by business owners as a proxy for increased consumption of healthier products, rather than using dietary patterns as an outcome variable and dietary tools on consumers themselves. Other methodological limitations include the lack of control groups or evaluation of natural experiments carried out too early after the start of the intervention, such as the case of the opening of a supermarket or the introduction of healthy food items in convenience stores. More rigorous evaluations are thus needed in order to gauge the effectiveness of an intervention and the need (or not) to adjust it.

References

- ASFAW, A. 2008. Does supermarket purchase affect the dietary practices of households? Some empirical evidence from Guatemala. *Development Policy Review*, 26(2), 227-243.
- BAGWELL, S. 2014. Healthier catering initiatives in London, UK: an effective tool for encouraging healthier consumption behaviour? *Critical Public Health*, 24(1), 35-46.
- BAGWELL, S. 2015. Designing healthier catering interventions for takeaways in deprived areas. *Journal of Environmental Health Research*, 15(1).
- BASSETT M.T. 2014 *Shop Healthy NYC, Year 1 Evaluation Report*, New York City Department of Health and Mental Hygiene
- BEAULAC, J., KRISTJANSSON, E., & CUMMINS, S. 2009. Peer reviewed: A systematic review of food deserts, 1966-2007. *Preventing chronic disease*, 6(3).
- BELASCO, W. 2008. *Food: The key concepts*. Bloomsbury Academic, UK
- BEREUTER D. AND GLICKMAN D., 2015 *Healthy Food for a Healthy World: Leveraging Agriculture and Food to Improve Global Nutrition*, The Chicago Council on Global Affairs, Chicago, USA.
- BRUNORI G., ROSSI A., AND GUIDI F., 2012. "On the new social relations around and beyond food. Analysing consumers' role and action in Gruppi di Acquisto Solidali (Solidarity Purchasing Groups)", *Sociologia Ruralis*, Vol.52:1
- BURGOINE, T., SARKAR, C., WEBSTER, C. J., & MONSIVAIS, P. 2018. Examining the interaction of fast-food outlet exposure and income on diet and obesity: evidence from 51,361 UK Biobank participants. *International Journal of Behavioral Nutrition and Physical Activity*, 15(1), 71.
- CASPI, C. E., SORENSEN, G., SUBRAMANIAN, S. V., & KAWACHI, I. 2012. The local food environment and diet: a systematic review. *Health & Place*, 18(5), 1172-1187.
- CHAMBERS, S., LOBB A, BUTLER L, HARVEY K AND TRAILL W.B., 2007. Local, national and imported foods: A qualitative study, *Appetite* 49:208-213
- CLARY, C., MATTHEWS, S. A., & KESTENS, Y. 2017. Between exposure, access and use: Reconsidering foodscape influences on dietary behaviours. *Health & Place*, 44, 1-7.
- COHEN N. AND ILIEVA R. 2015. "Transitioning the food system: A strategic practice management approach for cities", *Environmental Innovation and Societal Transitions*, vol.17
- CROCKETT, R. A., KING, S. E., MARTEAU, T. M., PREVOST, A. T., BIGNARDI, G., ROBERTS, N. W., ... & JEBB, S. A. 2018. Nutritional labelling for healthier food or non-alcoholic drink purchasing and consumption. *Cochrane Database of Systematic Reviews*, (2).
- CUMMINS, S., FLINT, E., & MATTHEWS, S. A. 2014. New neighborhood grocery store increased awareness of food access but did not alter dietary habits or obesity. *Health Affairs*, 33(2), 283-291.
- DANNEFER, R., WILLIAMS, D.A., BARONBERG, S., SILVER, L., 2012. Healthy bodegas: increasing and promoting healthy foods at corner stores in New York City. *Am. J. Public Health* 102 (10), e27–e31.
- DEMMLER, K. M., ECKER, O., & QAIM, M. 2018. Supermarket shopping and nutritional outcomes: a panel data analysis for urban Kenya. *World Development*, 102, 292-303.
- DOWLER E., KNEAFSEY M., COX R., HOLLOWAY L. 2010. 'Doing food differently': reconnecting biological and social relationships through care for food. *The Sociological Review*, 10/2009, Volume 57.
- FARLEY, S. M., SACKS, R., DANNEFER, R., JOHNS, M., LEGGAT, M., LIM, S., ... & NONAS, C. 2015. Evaluation of the New York City Green Carts program. *AIMS Public Health*, 2(4), 906.
- FAO/INRA 2018. *Constructing markets for agroecology: an analysis of diverse options for marketing products from agroecology*, Rome, Italy.
- FAO, IFAD, UNICEF, WFP and WHO. 2020. *The State of Food Security and Nutrition in the World 2020. Transforming food systems for affordable healthy diets*. Rome, FAO.
- FRONZONI M. 2013. Food consumption as a social practice: Solidarity Purchase Groups in Rome, Italy, *Journal of Rural Studies*, vol. 32
- FUCHS, E. R., HOLLOWAY, S. M., BAYER, K., & FEATHERS, A. 2014. *Innovative Partnership for Public Health: An Evaluation of the New York City Green Cart Initiative to Expand Access to Healthy*

Produce in Low-income Neighborhoods. Columbia University, School of International and Public Affairs.

- GALLI F., FAVILLI E., D'AMICO S., BRUNORI G. 2018. *A transition towards sustainable food systems in Europe. Food policy blue print scoping study*. Laboratorio di Studi Rurali Sismondi, Pisa, Italy.
- GHOSH-DASTIDAR, M., HUNTER, G., COLLINS, R.L., ZENK, S.N., CUMMINS, S., BECKMAN, R., et al., 2017. Does opening a supermarket in a food desert change the food environment? *Health & Place* 46, 249–256.
- GITTELSON, J., LEE-KWAN, S. H., & BATORSKY, B. 2013. Community-Based Interventions in Prepared-Food Sources: A Systematic Review. *Preventing Chronic Disease*, 10.
- Global Panel on Agriculture and Food Systems for Nutrition (GloPan), 2016. *Food Systems and Diets: Facing the Challenges of the 21st Century*. London, UK.
- Global Nutrition Report (GNR) 2020. *Global Nutrition Report: Action on equity to end malnutrition*. Bristol, UK: Development Initiatives.
- GOODMAN D., DUPUIS M., AND GOODMAN M., 2012. *Alternative Food Networks*, Routledge, New York, NY.
- GRANDO, S., CAREY, J., HEGGER, E., JAHRL, I., & ORTOLANI, L. 2017. Short food supply chains in urban areas: Who takes the lead? Evidence from three cities across Europe. *Urban Agriculture & Regional Food Systems*, 2(1).
- HALLIDAY, J., PLATENKAMP, L., NICOLAREA, Y. 2019. *A menu of actions to shape urban food environments for improved nutrition*, GAIN, MUFPP and RUAF.
- HILLIER-BROWN, F. C., SUMMERBELL, C. D., MOORE, H. J., ROUTEN, A., LAKE, A. A., ADAMS, J., ... & BROWN, T. J. 2017. The impact of interventions to promote healthier ready-to-eat meals (to eat in, to take away or to be delivered) sold by specific food outlets open to the general public: a systematic review. *Obesity Reviews*, 18(2), 227-246.
- HILLIER-BROWN, F. C., SUMMERBELL, C. D., MOORE, H. J., WRIEDEN, W. L., ADAMS, J., ABRAHAM, C., ... & LAKE, A. A. 2017a. A description of interventions promoting healthier ready-to-eat meals (to eat in, to take away, or to be delivered) sold by specific food outlets in England: a systematic mapping and evidence synthesis. *BMC Public Health*, 17(1), 93.
- HLPE, 2017. *Nutrition and food systems. A report by The High Level Panel of Experts on Food Security and Nutrition of the Committee of World Food Security*, Rome.
- HOWLETT M. AND RAYNER J. 2007. Design Principles for Policy Mixes: Cohesion and Coherence in 'New Governance Arrangements', *Policy and Society*, vol. 26
- HSHIAO, B. S., SIBEKO, L., WICKS, K., & TROY, L. M. 2018. Mobile produce market influences access to fruits and vegetables in an urban environment. *Public Health Nutrition*, 21(7), 1332-1344.
- IPES-Food. 2017. *Unravelling the Food–Health Nexus: Addressing practices, political economy, and power relations to build healthier food systems*. The Global Alliance for the Future of Food and IPES-Food.
- ILIEVA, R. T. 2016. *Urban food planning: Seeds of transition in the global north*. Routledge.
- KEEBLE, M., BURGOINE, T., WHITE, M., SUMMERBELL, C., CUMMINS, S., & ADAMS, J. 2019. How does local government use the planning system to regulate hot food takeaway outlets? A census of current practice in England using document review. *Health & Place*, 57, 171-178.
- KEEBLE, M., ADAMS, J., WHITE, M., SUMMERBELL, C., CUMMINS, S., & BURGOINE, T. 2019a. Correlates of English local government use of the planning system to regulate hot food takeaway outlets: a cross-sectional analysis. *International Journal of Behavioral Nutrition and Physical Activity*, 16(1), 127.
- KNEAFSEY, M., COX, R., HOLLOWAY, L., DOWLER, E., VENN, L. AND TUOMAINEN H. 2008. *Reconnecting consumers, producers and food: Exploring alternatives*. Berg, UK.
- LANG, T., BARLING, D., & CARAHER, M. 2009. *Food policy: integrating health, environment and society*. OUP Oxford.
- LASKA, M. N., CASPI, C. E., LENK, K., MOE, S. G., PELLETIER, J. E., HARNACK, L. J., & ERICKSON, D. J. 2019. Evaluation of the first US staple foods ordinance: impact on nutritional quality of food store

- offerings, customer purchases and home food environments. *International Journal of Behavioral Nutrition and Physical Activity*, 16(1).
- LEE M., POPKIN B., KIM S. 2002. "The unique aspects of the nutrition transition in South Korea: the retention of healthful elements in their traditional diet", *Public Health Nutrition*, vol 5/1A
- LEGGAT M, KERKER B, NONAS C, MARCUS E. 2012. Pushing produce: the New York City Green Carts initiative. *Journal of Urban Health*, 89 (6)
- LI, K. Y., CROMLEY, E. K., FOX, A. M., & HOROWITZ, C. R. 2014. Peer Reviewed: Evaluation of the Placement of Mobile Fruit and Vegetable Vendors to Alleviate Food Deserts in New York City. *Preventing Chronic Disease*, 11.
- Local Government Association (LGA) 2016. Tipping the Scales: Case Studies on the Use of Planning Powers to Limit Hot Food Takeaways. *Local Government Association: London, UK*, 7.
- LOCKIE, S. 2002. The invisible mouth": mobilizing "the consumer" in food production – consumption networks. *Sociologia Ruralis*. 42:278-294
- LOPES, M. S., CAIAFFA, W. T., DE SOUZA ANDRADE, A. C., MALTA, D. C., BARBER, S., & DE LIMA FRICHE, A. A. 2020. Disparities in food consumption between economically segregated urban neighbourhoods. *Public Health Nutrition*, 23(3), 525-537.
- LUCAN, S. C., MAROKO, A., SHANKER, R., & JORDAN, W. B. 2011. Green Carts (mobile produce vendors) in the Bronx—optimally positioned to meet neighborhood fruit-and-vegetable needs? *Journal of Urban Health*, 88(5), 977.
- LUCAN, S. C. 2019. Local Food Sources to Promote Community Nutrition and Health: Storefront Businesses, Farmers' Markets, and a Case for Mobile Food Vending. *Journal of the Academy of Nutrition and Dietetics*, 119(1), 39-44.
- LYTLE, L. A., & SOKOL, R. L. 2017. Measures of the food environment: a systematic review of the field, 2007–2015. *Health & Place*, 44, 18-34.
- MARTEAU TM, HOLLANDS GJ, SHEMILT I, JEBB SA. 2015. Downsizing: policy options to reduce portion sizes to help tackle obesity. *BMJ*. 351.
- MATTIONI D. AND CARAHER M. 2018. Moving towards Ecologically Sustainable Diets: Lessons from an Italian Box Delivery Scheme, *International Journal of Consumer Studies*, vol. 42, issue 4.
- MATTIONI, D., LOCONTO, A. M., & BRUNORI, G. 2019. Healthy diets and the retail food environment: A sociological approach. *Health & Place*, 102244.
- MAZZOCCHI, M. (2017). *Ex-post evidence on the effectiveness of policies targeted at promoting healthier diets*. Trade Policy Technical Notes, No. 19, Food and Agriculture Organization of the United Nations.
- MINAKER, L. M., OLSTAD, D. L., THOMPSON, M. E., RAINE, K. D., FISHER, P., & FRANK, L. D. 2016. Associations between frequency of food shopping at different store types and diet and weight outcomes: findings from the NEWPATH study. *Public Health Nutrition*, 19(12), 2268-2277.
- Ministry of Housing Communities and Local Government 2018. National Planning Policy Framework, UK [available at: <https://www.gov.uk/guidance/national-planning-policy-framework> Last accessed 18 March 2020]
- MOZAFFARIAN, D., ANGELL, S. Y., LANG, T., & RIVERA, J. A. 2018. Role of government policy in nutrition—barriers to and opportunities for healthier eating. *BMJ*, 361, k2426.
- NAGO, E. S., LACHAT, C. K., DOSSA, R. A., & KOLSTEREN, P. W. 2014. Association of out-of-home eating with anthropometric changes: a systematic review of prospective studies. *Critical reviews in food science and nutrition*, 54(9), 1103-1116.
- NECKERMAN, K. M. 2014. Takeaway food and health, *BMJ*, 348
- NI MHURCHU, C., VANDEVIJVERE, S., WATERLANDER, W., THORNTON, L. E., KELLY, B., CAMERON, A. J., ... & INFORMAS. 2013. Monitoring the availability of healthy and unhealthy foods and non-alcoholic beverages in community and consumer retail food environments globally. *Obesity Reviews*, 14, 108-119.
- Nuffield Council on Bioethics, 2007. *Public health: ethical issues*. London, UK.

- PITTS, S. B. J., WU, Q., MCGUIRT, J. T., CRAWFORD, T. W., KEYSERLING, T. C., & AMMERMAN, A. S. 2013. Associations between access to farmers' markets and supermarkets, shopping patterns, fruit and vegetable consumption and health indicators among women of reproductive age in eastern North Carolina, USA. *Public Health Nutrition*, 16(11), 1944-1952.
- POTHUKUCHI, K., AND KAUFMAN L. 1999. "Placing the Food System on the Urban Agenda: The Role of Municipal Institutions in Food Systems Planning", *Agriculture and Human Values*, 16, no. 2.
- RANGANATHAN, J., VENNARD, D., WAITE, R., DUMAS, P., LIPINSKI, R., et al., 2016. Shifting diets for a sustainable food future. In: Working Paper, Installment 11 of *Creating a Sustainable Food Future*. World Resources Institute, Washington, DC.
- REARDON, T., TIMMER, C. P., BARRETT, C. B., & BERDEGUÉ, J. 2003. The rise of supermarkets in Africa, Asia, and Latin America. *American journal of agricultural economics*, 85(5), 1140-1146.
- RISCHKE, R., KIMENJU, S. C., KLASSEN, S., & QAIM, M. 2015. Supermarkets and food consumption patterns: The case of small towns in Kenya. *Food Policy*, 52, 9-21.
- ROBERTO C., SWINBURN B., HAWKES C., HUANG T., COSTA S., ASHE M., ZWICKER L., CAWLEY J., BROWNELL K. 2015. "Patchy progress on obesity prevention: emerging examples, entrenched barriers, and new thinking", *The Lancet*, Vol. 385.
- SONNINO, R. 2016. The new geography of food security: exploring the potential of urban food strategies. *The Geographical Journal*, 182(2), 190-200.
- SONNINO, R., TEGONI, C. L., & DE CUNTO, A. 2019. The challenge of systemic food change: Insights from cities. *Cities*, 85, 110-116.
- STURM, R., & HATTORI, A. 2015. Diet and obesity in Los Angeles County 2007–2012: Is there a measurable effect of the 2008 "Fast-Food Ban"? *Social science & medicine*, 133, 205-211.
- SWINBURN B., SACKS G., HALL K., MCPHERSON K., FINEGOOD D., MOODIE M., GORTMAKER S. 2011. "The global obesity pandemic: shaped by global drivers and local environments", *The Lancet*, Vol. 378
- UMBERGER, W. J., HE, X., MINOT, N., & TOIBA, H. 2015. Examining the Relationship between the Use of Supermarkets and Over-nutrition in Indonesia. *American Journal of Agricultural Economics*, 97(2), 510-525
- VANDEVIJVERE, S., MACKAY, S., D'SOUZA, E., & SWINBURN, B. 2019. The first INFORMAS national food environments and policies survey in New Zealand: A blueprint country profile for measuring progress on creating healthy food environments. *Obesity Reviews*, 20, 141-160.
- WARSHAWSKY, D., & VOS, R. 2019. Governing at Scale: Successful Local Food Initiatives in the World's Cities, *Sustainability*, 11 (24).
- WERTHEIM-HECK, S. C., & RANERI, J. E. 2019. A cross-disciplinary mixed-method approach to understand how food retail environment transformations influence food choice and intake among the urban poor: Experiences from Vietnam. *Appetite*, 142, 104370.
- WILLETT, W., ROCKSTROM, J., LOKEN, B., SPRINGMANN, M., LANG, T., VERMEULEN, S., GARNETT, T., TILMAN, D., DECLERCK, F., WOOD, A., JONELL, M., CLARK, M., GORDON, L.J., FANZO, J., HAWKES, H., et al., 2019. Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems. *The Lancet* 393 (10170), 447–492.
- WHO. 2015. *Using price policies to promote healthier diets*, Geneva
- World Cancer Research Fund (WCRF), NOURISHING database [available on: <https://www.wcrf.org/int/policy/nourishing-database> last accessed 22 March 2020]
- YANG, S., ZHANG, X., FENG, P., WU, T., TIAN, R., ZHANG, D., ... & CHENG, G. 2020. Access to fruit and vegetable markets and childhood obesity: A systematic review. *Obesity Reviews*, published online 14/1/2