



The neoliberal diet and inequality in the United States



Gerardo Otero ^{a,*}, Gabriela Pechlaner ^b, Giselle Liberman ^a, Efe Gürçan ^c

^a Simon Fraser University, School for International Studies, 7200-515 West Hastings Street, Vancouver, BC V6B 5K3, Canada

^b Department of Sociology, University of the Fraser Valley, Abbotsford, BC, Canada

^c Simon Fraser University, Department of Sociology and Anthropology, Simon Fraser University, 8888 University Drive, Burnaby, BC, V5A 1S6, Canada

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ABSTRACT

This paper discusses increasing differentiation of U.S. dietary components by socioeconomic strata and its health implications. While upper-income groups have had increasing access to higher-quality foods, lower-to-middle-income class diets are heavily focused on “energy-dense” fares. This neoliberal diet is clearly associated with the proliferation of obesity that disproportionately affects the poor. We provide a critical review of the debate about obesity from within the critical camp in food studies, between individual-focused and structural perspectives. Using official data, we show how the US diet has evolved since the 1960s to a much greater emphasis on refined carbohydrates and vegetable oils. Inequality is demonstrated by dividing the population into households-income quintiles and how they spend on food. We then introduce our Neoliberal Diet Risk Index (NDR), comprised of measures of food-import dependency, the Gini coefficient, rates of urbanization, female labor-force participation, and economic globalization. Our index serves to measure the risk of exposure to the neoliberal diet comparatively, across time and between nations. We conclude that only a societal actor like the state can redirect the food-production system by modifying its agricultural subsidy policies. Inequality-reducing policies will make the healthier food involved in such change widely available for all.

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While the United States dominates the modern agricultural paradigm and its associated dietary patterns, it is nonetheless generating an acute dilemma within its own borders. On one hand, it has the most profitable and successful agribusiness multinational corporations. On the other, it is exacerbating what we term “the neoliberal diet,” composed of what is popularly known as “junk food” but also a broader range of highly processed and convenience products than the chips, pop and candy traditionally associated with the term junk food. A watershed decision came in 1973, under President Richard Nixon, when the Food and Drug Administration repealed a 1938 law requiring the food industry to include the word “imitation” when a natural food was adulterated. The new requirement only stipulated that such edibles be “nutritionally equivalent” to real food: “Adulteration had been repositioned as food science,” said Michael Pollan (2008:36). These industrial, edible commodities are what nutritionists identify as “energy-dense” foods, which are usually highly processed, have high contents of fat and “empty calories” and low nutritional value

(Drewnowski and Specter, 2004; Drewnowski and Darmon, 2005; Nestle, 2006; Popkin, 2009). The health repercussions of this dietary shift, heavy on trans fats, are apparent as obesity becomes labeled a national epidemic due to mounting costs: according to America’s Institute of Medicine, the United States spends about \$190 billion a year on obesity-related illnesses (Howard, 2012:13; Nestle, 2013:393).

Whereas the USDA estimates that about 12% of the U.S. population continues to face food insecurity (Nord et al., 2004), we argue that the core nutritional issue in the United States is not whether people have sufficient access to food, but what quality of food is accessible to most. The global food crisis set off in 2007–2008 has made even the US working classes vulnerable to price fluctuations, food insecurity and increased their exposure to the energy-dense, nutritionally-compromised food that typifies the neoliberal diet. This type of food is the most price-accessible to lower-income groups, which rise in numbers and proportion with greater levels of income inequality. Worsening income inequality has been drastic in the United States and drew much public and scholarly attention after the Occupy Wall Street movement of 2011–2012 (e.g., Galbraith, 2012; Piketty, 2014).

In this paper, we discuss how classes or socioeconomic strata in the United States have increasingly differentiated diets. Upper-

* Corresponding author.

E-mail address: otero@sfu.ca (G. Otero).

¹ Web page: <http://www.sfu.ca/people/otero/html>.

income groups have growing access to higher quality and/or higher value-added foods like meats, imported fresh fruits and vegetables, wines and other alcoholic beverages (Otero et al., 2013), while the diets of low-to-middle-income classes are heavily focused on the energy-dense pseudo foods associated with the proliferation of obesity in the United States. The neoliberal diet is the nutritional expression of what Pechlaner and Otero (2008, 2010) have called the neoliberal food regime. It is the industrial diet as it becomes globalized under the impetus of neoliberalism, the international realignments and historically and geographically variegated national/local regulatory trends in global political economy since the 1980s.

The defining characteristic of neoliberalism is its reliance on market-based arrangements and norms in the interest of monopoly capitalism through active use of state power (Peck, 2010). Neoliberal ideology and practice proposes that the best way to achieve human welfare is through the liberation of individual entrepreneurial abilities within an institutional framework characterized by solid private-property rights, free markets and trade (Harvey, 2005: 2). The withdrawal of direct state intervention in the economy is also critical for neoliberal globalism so as to allow the private sector to take hold of resource allocation, presumably in a more efficient manner. Neoliberal discourse has been hegemonic since the 1980s to the point that it has become the common sense basis on which the world is lived, interpreted, and understood (Harvey, 2005: 3).

The U.S. government (and those of other wealthy nations) has always been inconsistent with neoliberalism regarding state intervention: it continues to heavily subsidize its agriculture while promoting neoliberalism for the rest of the world. It also selectively practices trade protectionism for some of its sectors and industries, including some agricultural products (McMichael, 2009; Otero et al., 2013). Neoliberal capitalism has represented a frontal attack on working class rights in the market, e.g., by undermining unions and citizenship rights of even the market-dependent, liberal welfare states characteristic of Anglo-American nations until the 1980s (Coburn, 2004:44). As for the neoliberal food regime, its key dynamic factors are state neoregulation, which promotes the central economic role of agribusiness multinationals, and agricultural production based on biotechnology as its key technological form. Much of the neoliberal diet can ultimately be traced to transgenic crops such as corn and soybeans—the most subsidized US crops (Pollan, 2008:117)—used for the production of livestock or processed food, including high-fructose corn syrup (Pechlaner and Otero, 2008, 2010).

In this paper, we first offer a brief literature review on the class and inequality dynamics of dietary consumption. Much of this literature focuses on the individual as the chief locus to address obesity, as if consumers had equal economic chances of choosing their food. Our major goal is to contribute to this literature by providing an index that measures the risk of exposure to the neoliberal diet and highlighting the structural determinants of food choice. The second section begins our analysis with macro data from the UN FAOSTAT, demonstrating how the US diet has evolved since 1961. It shows an increasing emphasis on fats and high-caloric foods. Next we compare and contrast the patterns of U.S. household food consumption for five income quintiles for 1972, 1984, 2006, and 2012 to illustrate the consequences of inequality. We then offer five socioeconomic indices towards the construction of a new index of the risk of exposure to the neoliberal diet, which we label NDR. We demonstrate how the NDR has changed 1985, i.e., soon after neoliberal reforms were initiated, to 2007, the year when the global food-price inflation crisis started. Our analysis shows that food systems and social inequality constitute structural realities, placing most solutions well beyond individual choice. We thus conclude that the state is the only social agency that can ameliorate the deteriorating food quality and security situation, as well as

inequality and the increasing health risks they have generated.

1. Class and inequality in dietary consumption: the state of the literature

There is general support in the academic literature for the correlation between various socioeconomic-related variables and diet (Darmon and Drewnowski, 2008; Dixon, 2009; Drewnowski, 2009; Drewnowski and Specter, 2004; Dubowitz et al., 2008; Larson et al., 2009; Lee, 2011; Thirlaway and Upton, 2009). The social class dimension of this correlation is encapsulated in Andrea Freeman's (2007: 2245) term of “food oppression”, a “form of structural subordination that builds on and deepens pre-existing disparities along race and class lines.” According to Freeman, governmental support of the fast food industry—through industry-friendly subsidies for animal feed, sugar and fats—serve to reduce the cost of fast food and create a structural constraint on dietary choices. For example, a report by the Economic Research Service (ERS) of the United States Department of Agriculture (USDA) itself discusses how government policies helped make corn sweeteners less expensive than sugar, through mechanisms such as “investments in public research that raised yields for corn, sugar production allotments and trade restrictions, and subsidies for corn production” (Morrison, Buzby and Wells, USD ERS, 2010:17). Consequently, the availability of sweeteners increased from 113.2 pounds per person between 1924 and 1974 (excluding the war years) to 136.3 pounds per person in 2008. No doubt this ease of access and affordability has something to do with the unhealthy increase in soft-drink consumption.

Julie Guthman also contends that the current problems in our food system—and thus the source of their resolution—have to do with the nature of capitalism (Guthman, 2011: 16). More specifically, Kathryn Thirlaway and Dominc Upton's (2009) show that “people living on a low income have higher rates of diet-related diseases than other people” (Thirlaway and Upton, 2009:58). Most notable of these health impacts is the proliferation of obesity that disproportionately affects the poor (Dixon, 2009; Drewnowski and Specter, 2004; Drewnowski, 2009; Popkin, 2009). Drawing on an extensive review of existing literature, Hedwig Lee (2011) concludes that social inequality is closely linked to the question of obesity in the United States at the individual-, family-, school-, and neighborhood-level. Furthermore, Katherine Mason (2012) has shown that obesity itself has become a new basis for discrimination and furthering inequality, affecting women more severely than men.

The reasons why diets differ by socioeconomic class are less straightforward, although a number of variables have been identified. A key mediating factor between socioeconomic status and diet is the simple fact that highly processed, high fat, high sugar, energy dense junk food is usually more affordable. Fresh fruits and vegetables and leaner proteins are far more expensive (Lee, 2011). Drewnowski and Specter's (2004) analysis of food energy and cost found an “inverse relation between energy density and energy cost ... [suggesting] that ‘obesity-promoting’ foods are simply those that offer the most dietary energy at the lowest cost” (2004: 9). In general, “dry foods with a stable shelf life are generally less costly (per MJ [megajoule]) than perishable meats or fresh produce” (9). Thus, for example, the energy cost of cookies or potato chips was ~20 cents/MJ, but ~95 cents/MJ for carrots (9).

Not only is healthy food more expensive, but it also may be more difficult to obtain for lower income individuals and racial minorities due to accessibility issues. This issue taps into the food deserts literature (e.g., Gordon et al., 2011; Shaw, 2006; Walker et al., 2010; Guptill et al., 2013), with its admittedly inconsistently defined concept that indicates some form of exclusion or impediment to

access to food or particular types of food. Notably, supermarkets and chain stores are more likely to have cheap, high quality (healthy) food than convenience stores and small grocery or neighborhood stores, which are more likely to stock processed items. A study of low income populations in the United States, for example, concluded that neighborhood food availability, such as easy access to supermarket shopping, was a significant factor in determining household fruit consumption. In addition, food costs are usually higher in such deserts, further reducing available funds for the more expensive fresh fruits and vegetables, even where available (Rose and Richards, 2004).

While other variables—culture, education, and gender, to name a few—further complicate the SES (socioeconomic status)-obesity relationship (Christensen and Carpio, 2014), in the United States and other higher-income countries there is broad general support for an inverse association between SES and obesity. The neoliberal diet is being exported internationally, however, and is well on its way to forming the basis of a global neoliberal diet. This dietary globalization occurs through the dissemination of agriculture and food industrialization, supermarketization, the proliferation of fast food outlets, cultural shifts, and various marketing processes. While export mechanisms of the neoliberal diet are familiar, it should be noted that the diet's correlation with class manifests with notable differences in areas outside of the United States and other high-income countries.

Most notably, while the basis of the neoliberal diet is the proliferation of cheap processed foods, these foods are still prohibitively expensive for many in lower-income countries. Those at greatest risk in these countries are thus initially the middle and upper classes. A growing body of evidence supports the contention that the class-diet relationship is reversed in lower income countries but transitions as a country economically develops. Through a systematic assessment of 67 nations, for example, Pampel et al. (2012) specifically assessed and found support for this “reversal hypothesis” (with some variations by gender), whereby the relationship between SES and body weight reverses with a change in a country's GDP. While these global dynamics are beyond the scope of this paper, the global replication and/or reversal of U.S. patterns of dietary inequality provides a powerful incentive to understand the dietary dynamics of this country. In what follows, we offer empirical evidence on the implications of the neoliberal globalization of food, stressing the structural parameters of dietary differentiation.

2. Making sense of the evolution of the US diet

Overall, between 1961 and 2007, there has been a 28 percent increase in per capita food intake in the United States, with a slight dip occurring in the first years of the second millennium. This trend likely has more to do with declining food prices than rising income, but the latter also played a role at least until the early 1970s.

Let us break down the sources of increased caloric intake. The proportion of calories contributed by animal products has declined, although absolute figures have remained fairly stable. The increase in total food intake is due primarily to three categories of food, all part of the larger category of “vegetable products” (as defined by the FAO): cereals, vegetable oils and sugars. Note, however, that we are not referring to fresh vegetables. Rather, these are primarily processed or industrialized vegetable products, including refined carbohydrates, vegetable oils and sugars. All of these have a strong link to overweight and obesity.

Historically, we have seen a clear correlation between high-income levels (both for countries and individuals) with higher-fat diets coming from meat and milk products. The globalization of U.S. dietary patterns around the world has involved a sharp decline

in the consumption of complex carbohydrates, such as those from whole grains and fresh fruit, vegetables, and legumes. The relationship between levels of gross national product (GNP) and fat consumption was high and direct in the 1960s, but declined by the 1990s, when high-fat consumption became less linked to GNP levels and more linked to rates of urbanization (Drewnowski and Popkin, 1997:33):

Although the availability of animal fats continued to be linked to income, but less strongly than before, vegetable fats now accounted for a greater proportion of dietary energy, and their availability was virtually independent of income.

The latter phrase highlights the strong relevance of the rise of vegetable oils, the bulk of which are now produced from transgenic crops. Soybean oil was an important component of these oils, accounting “for about 70% of the production and consumption of edible oils and fats in the United States, and ... for the bulk of vegetable oil consumption worldwide” by the 1990s (Drewnowski and Popkin, 1997: 34). Urbanization is thus an important indicator of neoliberal diet pressures and is one of the five components of our NDR index, as will be discussed.

Fig. 1 depicts the rise or decline of the four main contributors to caloric intake in the United States: cereals, sugars (including high-fructose corn syrup), vegetable oils and animal products (not only fat). Absolute amounts of animal products remained high and stable throughout the period. Sugars increased their caloric contribution from 515 in 1961 to a high point of 660 in 2004, then declining slightly to 569 by 2011. Cereals, however, increased from 627 kilocalories per capita per day in 1961 to a high point of 871 in 1997, and then declined to 798 by 2011—still a 27 percent increase for the entire period. This is a higher increase in cereals than the world average at 19 percent. Yet, the US per capita average consumption of cereals of 798 kilocalories per day pales in comparison to the world average of 1296 in 2011.

But the most dramatic increase of 154 percent was clearly in the consumption of vegetable oils by 2011 (compared with 148 percent increase worldwide). This climb is consistent with our understanding of the importance of vegetable oils in the high prevalence of processed, energy-dense foods that typify the neoliberal diet. It is also related to what Michael Pollan identifies as the dietary move from “leaves” (for feed and food) to “seeds” (2008:124–132)—the former containing more micronutrients, while the latter undergo considerable processing, and are in keeping with a broader trend of

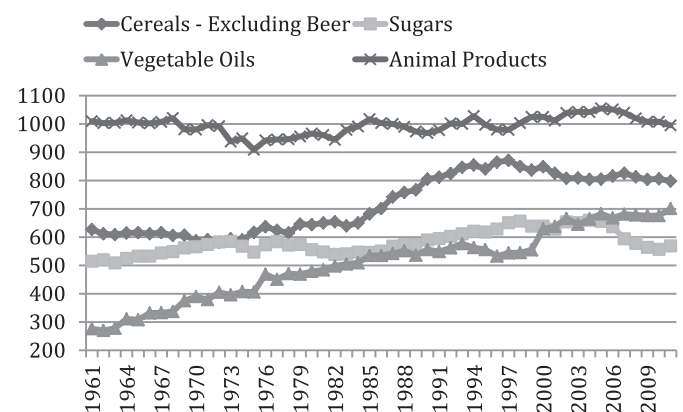


Fig. 1. US main caloric sources, kcal/capita/day.

Source: Constructed with data from FAOSTAT, available at: For crops: <http://faostat.fao.org/site/609/DesktopDefault.aspx?PageID=609#ancor>; for livestock: <http://faostat.fao.org/site/610/DesktopDefault.aspx?PageID=610#ancor> (last accessed: 3 April 2015).

nutritional loss through what [Winson \(2013\)](#) calls the “simplification” of our diets (2013:30).

This historical evolution of the U.S. diet is one which is replicating in a global “nutrition transition” ([Popkin, 1998](#)). We can see similar historical changes in a sample of other high income countries, as exemplified in [Table 1](#).

[Table 1](#) presents changes between 1961 and 2011 in the caloric (kilocalories per capita per day) contribution of various generic food sources, namely those from animal products, cereals, sugars, and vegetable oils. If we consider that changes of 20 per cent or higher are significant, as indicated in bold numbers, then we get some interesting patterns and some anomalies. First, while there was a general increase or stagnation (Canada) in animal products consumption, there was a large decline in the United Kingdom (–19 per cent). In cereals, again, we see a general increase of 17–27 percent in all countries except France. With regard to sugar, all countries, except for Canada, experienced significant changes, and only Canada and the UK decreased their sugar consumption. Finally, all the countries in our small sample experienced a quite significant increase in the consumption of vegetable oils, ranging from a low of 65 per cent in Germany to a high of 266 per cent in Canada. The world's average closed the gap with rich nations, especially in animal products and vegetable oils.

Specific to our focus on the United States, here, it is important to consider how this dietary transition disproportionately affects the low-to-middle-income classes. Since the 1970s, the United States has been experiencing an increase in its Gini Coefficient, which measures the level of income inequality (OECD 2011). Other measures of inequality refer to income concentration by population percentile. According to [The Economist \(2012\)](#), for instance, the proportion of income going to the top one percent of the U.S. population declined from almost 20 percent in 1923 down to a low of 7.5 percent in 1973. This low came after the Fordist era of mass production and mass consumption, combined with the growth of the welfare state that started in the Franklin D. Roosevelt era. The crisis of Fordism that began at the end of the 1960s, however, was ultimately resolved by cutting wages (e.g., via outsourcing) and the social policies of the state. After the neoliberal reforms ([Harvey, 2005](#); [Peck, 2010](#)) the percentage of wealth captured by the top one percent increased to almost 20 percent again by 2010 ([The Economist, 2012](#)). If the wealthiest have captured so much of the nation's income, there is proportionally less available for lower and middle income classes. How has this inequality affected diets in the United States?

Our general proposition is that in today's world, even in developed countries, lack of access to food or its availability continues to be a menace for some—in 2004, for instance, 88 percent of US households were food secure ([Nord et al., 2004](#)). But the new risk is having access to too much energy-dense “food”, while having insufficient access to healthy, nutritious food. This new risk is due primarily to economic reasons related to inequality. Families in the

United States spent on average 23.4 percent of disposable personal income on food in 1929 (the highest was 25.2 percent in 1933, at the height of the Great Depression); the figure was below 10 percent by 2000 declining further to 9.8 percent in 2011 (the lowest point was 2008 at 9.5 percent). But these averages must be disaggregated to capture the impact of inequality.

3. Food and inequality in the United States

In this section, we offer some statistics that zoom into how inequality impacts the ability of US households to consume a variety of foods, starting with the percentage of their income devoted to food expenditures in [Fig. 2](#). This analysis is based on data from the Consumer Expenditure Surveys for 1972, 1984, 2006 and 2012, conducted by the U.S. Bureau of Labor Statistics. They present the data dividing U.S. households into income quintiles, each of which contains 20 percent of households, from lowest to highest income level.

What is striking in these figures is that there does not seem to be huge differences in the percentage of household income devoted to food for those in the top four quintiles, particularly in later years. In 2012, for instance, their share of food expenses was 17 percent for the second lowest quintile and 7 for the wealthiest—a ten-point difference. The poorest quintile spent 37 percent of their income on food that year, however—a 30-point difference with the wealthiest. This is clearly a huge discrepancy for the lowest quintile. But inequality is even worse if we consider that these figures are calculated as a percentage of each quintile's income. In order to further appreciate how inequality affects food consumption, we present calculations of the percentage (rounded figures) that each of the lower four quintiles spent as a proportion of the wealthiest's food expenditures for selected years.

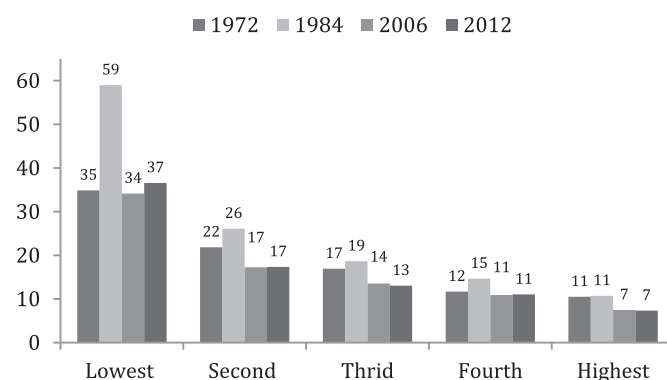


Fig. 2. US food and beverages expenditures, % of income before taxes by quintiles. Source: Constructed with data from on U.S. Bureau of Labor Statistics, Consumer Expenditure Survey, 1972, 1984, 2006 and 2012.

Table 1
Main Food Supply Sources in Various Countries, % Change in Kilocalories per capita per day from 1961 to 2011.

	Animal products			Cereals			Sugars			Vegetable oils		
	1961	2011	%	1961	2011	%	1961	2011	%	1961	2011	%
WORLD	338	507	50	1086	1296	19	192	229	19	113	280	148
Canada	1069	913	–1.5	628	770	23	471	443	–6	159	582	266
France	1013	1180	17	951	949	–0.2	296	357	21	184	502	173
Germany	923	1093	18	716	871	22	336	464	38	252	417	65
UK	1225	989	–19	766	900	18	504	389	–23	243	441	81.5
USA	1010	995	–1.5	627	798	27	296	357	21	276	701	154

N.B. Bold = Change >20 per cent (+or –).

Source: Constructed with data from FAOSTAT, available at: For crops: <http://faostat.fao.org/site/609/DesktopDefault.aspx?PageID=609#ancor>; for animal products: <http://faostat.fao.org/site/610/DesktopDefault.aspx?PageID=610#ancor> (last accessed: 2 June 2015).

As depicted in Fig. 3, each of the lower four quintiles had slightly decreasing proportions in food expenditures than the wealthiest since 1984. Secondly, while the amounts of food likely continue to be similar across quintiles—indeed average per capita caloric food intake is increasing—the quality must vary considerably depending on income levels.

We next examine the percentage that each income quintile spends on food away from home, and on selected types of foods. Fig. 4 depicts each quintile's share of its food budget spent away from home, in relation to its own total food expenditures.

Remarkably, after increasing in all income quintiles since 1984, food expenditures away from home decreased in all quintiles from 2006 to 2012, likely reflecting the effects of the 2008 financial crisis in general and the food-price crisis in particular, which forced people to eat more at home. Even households in the top quintile marginally scaled back their out-of-home food spending. The difference in food away from home expenditures between the poorest and wealthiest quintiles is 13–14 percentage points, although most U.S. households clearly spend at least a third of their food budgets out of home. Much of this expenditure must be done at fast-food restaurants, especially for the lower-income quintiles.

Let us now explore how households with different income levels spend their food budgets in a variety of foods, contrasting what we call “luxury” foods like meats, fruits and vegetables with “basic” foods like cereals, sugars and fats. Meats can in general be regarded as “luxury,” but in the United States they have become fairly generalized fare, with type of meat (e.g. beef versus chicken) becoming the more salient factor. Given the greater economic accessibility of chicken, we could designate beef as a luxury food and chicken as a basic food. Chicken has become so widespread (Schwartzman, 2013) that we could call it the neoliberal meat.

Notice in Fig. 5 that beef expenditures for all lower quintiles declined or remained stable from 1984 to 2012 in relation to those of the wealthiest quintile. For poultry, mostly chicken, this trend is somewhat reversed for the third and fourth wealthier quintiles after declining from 1984 to 2006 then rising again in 2012. Overall poultry consumption figures were higher than those for beef in each quintile. Chicken meat was becoming the most accessible for at least 60 percent of U.S. households in the period analyzed.

If our analysis were restricted to the within-quintile shares of budget spent on fruit in U.S. households, we would conclude that they spend very similar amounts, with expenditures of 3.9; 3.8; 3.9; 3.6; and 3.6 percent of budgets, from lowest to highest quintile, in 2012. Fig. 6 puts this impression of similarity regarding fruit in perspective, however, as the lowest quintiles were spending less than a third than the wealthiest quintile. This is an even lower share of what is spent on beef or chicken. All four lower quintiles spent a lesser share on fruit than the wealthiest from 2006 to 2012. This

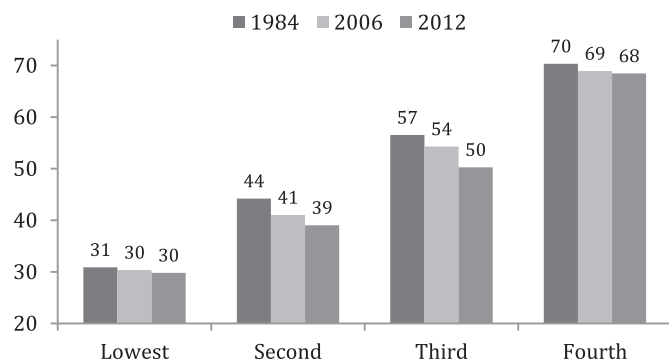


Fig. 3. US food and beverages expenditures by quintiles (wealthiest quintile = 100). Source: See Fig. 2.

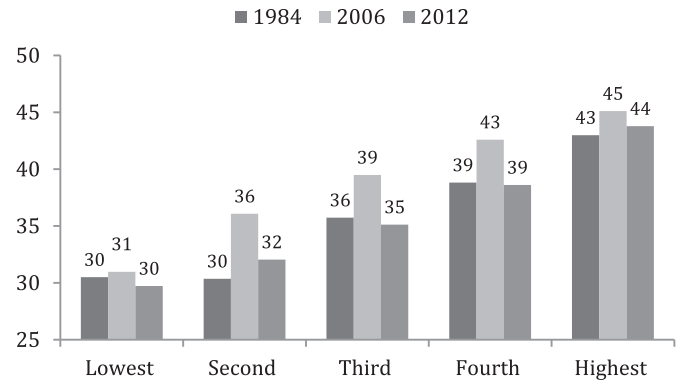


Fig. 4. US % of food and beverages expenditures Out of Home. Source: See Fig. 2.

was not just a factor of the 2008 crisis, given that, except for the lowest quintile (which briefly increased its fruit expenditures in 2006), other quintiles declined their fruit expenditures throughout the period since 1984. Rather, it is more likely a symptom of the neoliberal diet.

For comparative purposes with another “luxury” food, we considered alcohol, and see a similar trend occurring, where the lowest quintile spent just 16 percent as much as the wealthiest in 2012. Except for the fourth-richest quintile, all others saw their expenditures in alcoholic beverages decline in relation to those of the wealthiest.

From the preceding analysis, we see that there is significant dietary inequality in the United States. Moreover, in a high-income country such as the United States, this inequality has far less to do with the amount of food consumed, and far more to do with the quality of that food, when the cheapest food is the high-calorie, nutritionally-poor, processed offerings of the neoliberal diet. Inequality, we consequently argue, is a very important measure of risk of exposure to the neoliberal diet, to which we turn.

4. The Neoliberal Diet Risk Index

The literature has identified a multiplicity of medical (e.g., genetic, diseases, drug use, level of physical activity), epigenetic (e.g., maternal diabetes or obesity) and environmental factors related to overweight and obesity. These health issues are generally regarded as complex, having multiple causes. We are not concerned here with the biomedical or epigenetic causes of obesity. Among environmental factors, scholars have pointed to socioeconomic status, education levels, access to supermarkets, race and ethnicity, family lifestyles, state policies (e.g., protectionism or trade promotion), food technology (e.g., processing), urbanization, food-import dependency, economic globalization, and others. Among the latter, some scholars focus on how individual behavior can be altered through state or educational interventions (e.g., lifestyle, education, labeling food). Other scholars focus on macro-structural factors on which only a societal actor can intervene successfully. The point would be to change the food production system and inequality rather than individual consumption directly. No matter how attractive some lifestyles or greater awareness about food healthfulness may be, individual behavior will not change if healthy food is economically inaccessible (Guthman, 2011). In line with this argument, we focus on macro-structural “environmental” factors in our proposed Neoliberal-Diet Risk Index.

Specifically, we focus on several socioeconomic risk factors that we determine to increase lower-and-middle-income American's vulnerability to the neoliberal diet out of economic necessity. We

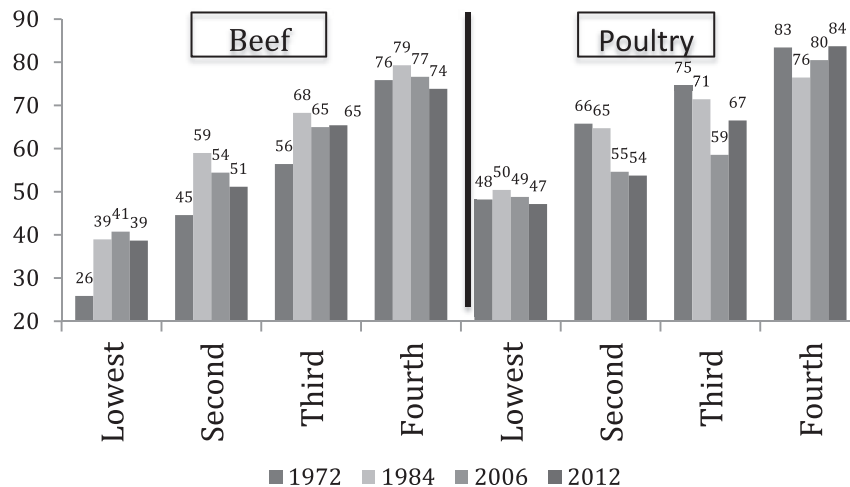


Fig. 5. US beef and poultry expenditures by quintiles, as % of wealthiest quintile's.
Source: See Fig. 2.

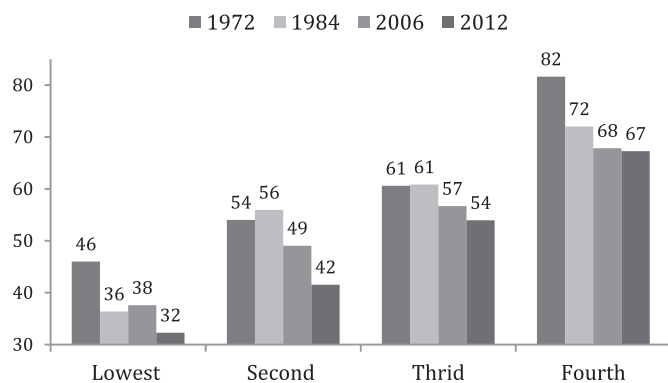


Fig. 6. US expenditures in fruits by quintiles, as % of wealthiest quintile's.
Source: See Fig. 2.

make the assumption that high-income groups are economically free from this constraint, even if some nonetheless choose to eat energy-dense diets. In constructing the index from our proposed measures, we aim to indirectly assess the risk of exposure to the neoliberal diet that will affect the lower-and-middle-income people in the United States. The NDR index is most effective as a comparative measure; it allows us to assess if a country's risk of exposure to the neoliberal diet increases or decreases across time, and to determine whether such risk is higher or lower between countries. We highlight this comparative aspect by including NDR data for eight countries: Canada and the United States, as the countries where the neoliberal diet has been established the longest, and also six emerging economies: Brazil, China, India, Mexico, Russia and South Africa.

Our Neoliberal-Diet Risk index (NDR) is made up of the geometric mean of five measurements and the result is represented by an index that ranges from 1 to 100. The five components of the NDR are: (1) an index of food-import dependency; (2) the Gini coefficient; (3) the rate of urbanization; (4) the rate of female participation in the labour force; and (5) an index of economic globalization. We will discuss each in turn. While we generated the food dependency index from FAO data, as explained below, the other indices come from a variety of sources. To the extent possible, we used the same source for each index for all countries in our sample (see Fig. 7 for sources and further definitions of each index). The exception is for the Gini coefficients, for which we relied on

different sources for Canada and the United States, while the remaining Gini figures were taken from the World Bank.

Our first index is that of food-import-dependency, which we created with data from FAOSTAT. Ideological assumptions that free trade in agriculture and food would guarantee food security (McMichael, 2009) have faced increasing counter-pressures from the food sovereignty perspective (Wittman et al., 2010), particularly in the face of the dramatic impact on the poor resulting from the 2007 food-price crisis. A nation's increase in dependence on agricultural exports also increases its people's vulnerability to international price fluctuations in food, as the country must internalize the "world price" for the relevant crops (Otero et al., 2013). Thus we crafted our index of food-import dependency for the food sources that constitute each country's top 80 per cent of caloric intake. Given the cultural specificities of food, we used an inductive method to determine which food sources make up the top 80 percent. We then set up the criterion that imports of any of these foods representing 20 percent or more of the domestic food supply represents dependency (FAO uses a 15 percent mark but we wanted to be more conservative to strengthen our analysis). Our assumption on this point is straightforward: food dependency is associated with greater price volatility, and lower-income classes are most vulnerable to food-price fluctuations (Von Braun, 2007).

Our second index, the Gini coefficient turned into a percentage, is a measure of inequality, the importance of which was highlighted in our analysis of U.S. food consumption patterns. Using the Gini index in the NDR is simply a way to include a direct measurement of inequality: to what extent does inequality impact the risk of exposure to low-cost but nutritionally compromised food? The higher the Gini coefficient in a given country, the greater the risk of NDR exposure for its working classes.

Third is the rate of urbanization, which involves a greater risk of exposure to the neoliberal diet, including its fast-food and junk-food components. With regard to urbanization, the literature clearly indicates that higher rates of urbanization lead to greater fat consumption (Drewnowski and Popkin, 1997:33), which will enhance the NDR. Studies also find sugar consumption to be associated with urbanization (Senekal et al., 2000). Urbanization also reduces energy expenditure (James, 2008), which increases a population's health risks in the context of an energy dense diet.

Urbanization is related to the fourth index, female labor-force participation. It is safe to expect that the more integrated women become in the labor force, the less time they will be able to devote

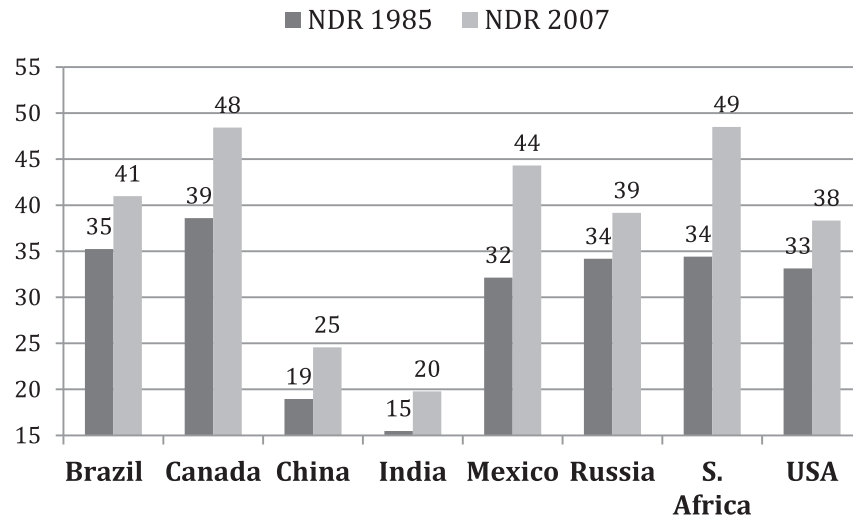


Fig. 7. Neoliberal-Diet Risk Index, NDR.

Sources: Import Dependency index constructed with the Food Balance data from FAOSTAT, using the Food Balance Sheet information for 1985 and 2007 (<http://faostat.fao.org/site/368/default.aspx#ancor> (last accessed: 6 November 2013)). Urbanization rate: data retrieved from Index Mundi (<http://www.indexmundi.com/>). Economic globalization index taken from: KOF Index of Globalization, data from ETH Zurich. GINI Index: World Bank Database for all countries but US and Canada (see below). 1984 and 2008 for China and Mexico; 1983 and 2005 for India; 1987 for Turkey (last accessed 13-Aug-2014). GINI for Canada: Statistics Canada. GINI for the United States: U.S. Census Bureau. Gini coefficients for Canada & United States have been converted from GINI coefficient to GINI Index by multiplying GINI Coefficient *100. Female Labour Force Participation: Data from World Bank Database; 1990 for China; 1981 and 2005 for India; and 1988 for Mexico (last accessed: 26 Sep 2014).

to traditional roles like cooking, which increases the likelihood of eating processed food and/or eating outside the home. It is easier to substitute female time for food preparation than it is for childcare, for instance (Mincer, 1962). Not that we defend traditional female roles, but short of compensating for labor-force incorporation, this factor leads to creating “time-poor” families who will be under greater pressure to buy processed food.

The logic of using the rate of economic globalization is associated with that of the dependency index, which it complements. It includes the following components: 50 per cent of the index is calculated by actual flows in trade (22%), foreign direct investment and stocks (27%), portfolio investment (24%), and income payments to foreign nationals (27%); the other 50 per cent is calculated by restrictions in the form of hidden import barriers (24%), mean tariff rate (28%), taxes on international trade (percent of current revenue) (26%), and capital account restrictions (23%). We argue that the greater integration of a nation to the global economy will introduce a greater volatility in food prices, disproportionately affecting those with lower incomes. Economic globalization measured in this way highlights its neoliberal character, which deepens inequality.

Keeping with measurements developed by the United Nations Development Program (García Aguiña and Kovacevic, 2010), we aggregate our five components using the geometric mean to obtain the NDR. As a method of aggregation, the geometric mean has several advantages over the arithmetic average. Most importantly, it allows for better comparability of diverse indicators, even when their maximum values differ (2010: 10–11).

The NDR attempts to overcome the limitations of available measures, which tend to hide inequalities within countries. For instance, available data on food supply in the FAOSTAT database is given in several measures of weight, dollar value, or kilocalories per capita, but these are per capita averages. With the NDR, we partially address this limitation by emphasizing measures that are likely to disproportionately affect the types of food available and accessible to lower-and-middle-income classes.

How can we measure the validity of the NDR? Validity has to do with the correspondence between the measurement tool and the object that is being measured: the presence and the degree of an

attribute (Streiner et al., 2015:227). In our case, the NDR measures the presence and degree of actual risk of exposure to the neoliberal diet in each country. The question then becomes whether the five indices we have chosen are the most reliable to make such measurement. There could be other indicators such as the prevalence of fast-food restaurants or supermarkets, but these figures are simply not available for many countries across time.

To the extent that most of our indices are strongly based on the existing literature, our NDR can be seen and understood as a case of both *construct* and *convergent validity* (Bryman and Teevan, 2005, p.59). Construct (or concept) validity is said to exist when there is a good correspondence between the concept and its measurement, in this case between the NDR and the neoliberal diet, as affecting primarily lower-and-middle-income classes. Content validation, as Streiner et al. argue, is not arrived at or based on the scores from a scale or an index. It is based on the judgement of experts regarding the content of the chosen items (2015:233).

There is also a case for *convergent* validity between NDR and its association with overweight and obesity. As Streiner et al. (2015:240) put it: “Ideally, the new instrument should be tested against existing ones that are maximally different.” We have a strong correlation between two different forms of measuring the NDR, a socioeconomic index, and the body mass index (BMI), one of the key biomedical indicators used in studies of food and hunger generally, and about overweight and obesity in particular. The BMI has weaknesses, especially for assessing individuals (Guthman, 2011), but it is an easily accessible and generally valid indicator to assess the weight status of general populations (Popkin, 2009).

In our exploratory research to arrive at the NDR, we first constructed it using an arithmetic mean of its five components. Then we ran the correlation between the NDR and the BMI for the corresponding years and countries. We then calculated the NDR as a geometric mean, for reasons indicated above, and ran its correlation with the BMI. Both NDR means have a high positive correlation with the BMI (above 0.8), strengthening the case for “convergent” validity. We thus believe that the combination of the various measures of food-import dependency, inequality, urbanization, female labor-force participation, and economic globalization

constitutes a potent proxy for the risk of exposure to the neoliberal diet experienced by the working classes in each country.

Our main goal is to show that the issue of overweight and obesity is not just a matter of choice or personal lifestyle. Rather, it is a structural matter that is strongly related to how neoliberal globalization affects people differently depending on their class positions. The poor face significant constraints to maximize the benefits of healthy food, exercise facilities and other health-enhancing resources simply for lack of access (De Maio, 2014:19).

We can see the results of the comparison of our NDR index for our selected years and countries in Fig. 7. Our results for the United States show an increase from 33 points in 1985 to 38 points in 2007, approaching the levels of poorer emerging economies and Canada. The 5-points NDR increase for the United States in this period indicates a consolidation of the neoliberal diet. Both the United States and Canada, another agricultural-exporting powerhouse, have lower food-import-dependency indices than emerging countries. Whereas in 1985 only Canada and Brazil had a higher NDR than that of the United States, by 2007 all had surpassed it except for China and India. This could well be a reflection of the success of U.S. agribusiness multinationals in diffusing the U.S. diet through neoliberal globalization—and increased food trade. In fact, Mexico has become the most food-import dependent nation of those compared in this sample (Otero et al., 2013). Mexico's obesity rate of 32.8 percent of adults also surpassed that of the United States, 31 percent (FAO, 2013:77–79).

We argue that growing NDRs across the board indicates that rather than improving diets, the risk of exposure to nutritionally bereft food has increased for low-to-middle-income people in the United States and beyond. This becomes a structural force that pushes them into energy-dense diets. Our results are thus in keeping with the concerns raised by other socioeconomic indicators of diet. The poor are disproportionately at risk of overweight and obesity, with all the known health consequences. Therefore, only a societal actor like the state can address the issue through better agricultural and food policies, as well as policies to reduce inequality. As Bren Smith (2014) has argued, however, it will take social movements to change state policy.

5. Conclusions

In this paper we have presented a confirmation and measurement of the historical transition to an energy-dense or high-fat and highly-refined-carbohydrates diet in the United States suggested by many others. We also see that greater inequality in this nation results in a greater risk of exposure to the neoliberal diet for low-to-middle-income people, with all its extensive health consequences. When we consider these objective trends in light of critical food debates, we see much reason to put forth the idea that disparities in dietary consumption are rooted in structural conditions. State policies that neglect the structural nature of the food system's problems, and, notably, the structural inequalities that are inherent in it, will fall far off the mark of food-system reform for social benefit.

While this discussion is limited to the United States, these trends are not exclusive to it, as shown in Fig. 7, and we can see them replicated to a greater or lesser extent, with some national differentiation, globally. Consequently, how the United States addresses the proliferation of obesity of its own making is of particular interest, as it has also been a central actor in disseminating the neoliberal diet around the world. Winson (2013) and others (Otero and Pechlaner, 2008) have noted that the dietary changes could be called an 'American' diet, given how "powerful has the influence of the American food industry been in shaping it" (Winson, 2013: 3). Ultimately, we believe there could be great value in applying our

index more broadly, to assess the vulnerability of the low-and-middle-income classes to the neoliberal diet in different countries. Although there is arguably room for adjustment in our index – tempered by our desire for consistency of data across countries – we feel its current form nonetheless captures the core features of neoliberal-diet risk. Measurement is only one part of the equation, however. The much larger part is structural change to improve the health of those most at risk of this dietary change.

Guthman argues that resolving the problems of our food systems depends on far-reaching structural changes that go beyond farm and food policies (Guthman, 2011: 196). Nonetheless, directly addressing these two with particular attention to a justice perspective would go a long way on the first steps to addressing the health implications of the neoliberal diet. Considering the current scholarly understanding of the relationship between socioeconomic factors and diet, it seems to clearly support Drewnowski and Darmon's (2005) position that "encouraging low-income families to consume healthier but more costly foods to prevent future disease can be construed as an elitist approach to public health" (2005: 265S). Notably, given the structural inequality around nutrition, the suggestion that unhealthy foods should be taxed as a way of providing an incentive to purchase healthier food is indeed regressive. Food taxes are "on their own, a simple solution to a complex problem" (Caraher and Cowburn, 2005: 1248). It is possible that subsidies of healthy foods (in the manner of subsidies to the sugar and fast food industries) could be a more progressive means to the same goal, although again, these are likely insufficient on their own as they are focused on consumption rather than production.

Working out the policy corrections for neoliberal-diet production is clearly not going to be self-evident; however, it is clear that a broader understanding of how states affect food production, and how, in turn, inequality affects the type and quality of food to which people have access are important first steps. The second step is a concentrated intention to make the structural changes in food production necessary for a healthful diet. Given the close alignment between government and industry, it is promising that some are not waiting for these policy corrections but are acting on their increased awareness through a plethora of alternative food and food system social movements, for example those advocating organic, fair trade, slow food, local provisioning, GMO-free and various other forms of anti-ABM means of food provisioning. It is to be hoped, however, that inequality-reducing policies will make the healthier food involved in these initiatives widely available for all.

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Gerardo Otero is professor of international studies and sociology at Simon Fraser University. He is the author of *Farewell to the Peasantry? Political Class Formation in Rural Mexico* (Westview, 1999) and editor of *Food for the Few: Neoliberal Globalization and Biotechnology in Latin America* (University of Texas Press, 2008, 2010). He has published over 80 refereed articles and chapters, and five books. Email: otero@sfu.ca, Web page: <http://www.sfu.ca/~otero/>.

Gabriela Pechlaner is sociology instructor at the University of the Fraser Valley and author of *Corporate Crops* (University of Texas Press, 2012). She is the author of over a dozen refereed articles and book chapters.

Giselle Liberman, an Argentine economist, holds an M.A. in Latin American Studies and is a research assistant to Drs. Otero and Pechlaner.

Efe Can Gürkan is Ph.D. student in sociology at Simon Fraser University and Bombardier Fellow of the Social Sciences and the Humanities Research Council of Canada. He is the author of over a dozen refereed articles and book chapters and co-author, with Efe Peker, of *Challenging Neoliberalism at Turkey's Gezi Park: From Private Discontent to Collective Class Action*. New York: Palgrave, 2015.