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# **Food Security and Inequality: Measuring the Risk of Exposure to the Neoliberal Diet**

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## Food Security and Inequality: Measuring the Risk of Exposure to the Neoliberal Diet

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### Abstract:

How have growing food-import dependency and intra-state inequalities impacted class diets under the neoliberal food regime? This study shows a deepening inequality between low-to-middle-income working classes, whose diet has become increasingly compromised nutritionally, and higher-income classes, who have gained increased access to healthful or “luxury” foods like fresh fruits and vegetables. We develop an index that measures the risk of exposure to what we call the “neoliberal diet” for low-to-middle-income working classes. Using this index, we compare the US and Canada with a group of countries including the BRICs (Brazil, Russia, India, and China) plus South Africa, Indonesia, Mexico, and Turkey. We conclude that food security for most people in these so-called emerging nations can hardly be achieved under the “comparative advantage” logic of the neoliberal food regime and its nutritionally compromised diet. A more promising, and democratic, alternative is a food-sovereignty program of agrarian reforms to promote peasant production and social empowerment, as well as rural–urban alliances.

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## **Food Security and Inequality: Measuring the Risk of Exposure to the Neoliberal Diet**

A double-headed spectre is haunting the world's food security: hunger or the continued insufficient access to food for over 800 million people and, since the 1990s, the growing threat of overweight and obesity for at least as many and growing numbers of people (Patel 2012). The first issue has to do primarily with quantity and the second mostly with the quality of food. The central purpose of this paper is to critique the assumptions of neoliberal globalist ideology that have dominated discourse and policy on agricultural trade since the 1980s and its relation to food security. Suprastate organizations like the World Bank and many governments have promoted free trade as the chief vehicle to achieve food security. We argue that free trade in food and agriculture may have indeed increased the quantity of food available to greater numbers of people, and outright famines have been drastically reduced since the 1970s. But the quality of food has become compromised, especially for low-to-middle income classes, as the US diet has become increasingly globalized with the impetus of neoliberal trade liberalization.

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 on the basis of which the world is lived, interpreted, and understood (Harvey, 2005: 3). We note from the outset, however, that the US government (and those of other wealthy nations) has always been inconsistent with neoliberalism regarding state intervention: it has continued to heavily subsidize its agriculture while promoting neoliberalism for the rest of the world. It also has selectively practiced trade protectionism for some of its sectors and industries, including some agricultural products (McMichael 2009; Otero, Pechlaner and Gürcan 2013). Neoliberal capitalism has represented a frontal attack on working class rights in the market, e.g.,

by undermining unions; and citizenship rights even of the market-dependent liberal kind of the welfare state that predominated in the Anglo-American nations until the 1980s (Coburn 2004:44).

We first discuss the concept of food security and its quantitative and qualitative components, and highlight the increased access to “basic” but nutritionally compromised food for low-to-middle-income classes, while higher-income classes have increased access to more healthful – “luxury” – foods. Second, we establish the link between diet and class, and how inequality not only increases food-security risk in general, but also increasingly exposes the economically disadvantaged to the neoliberal diet – which is low cost but leads to considerable health risks. Third, we offer a quantification of how food-trade dependency has impacted eight emerging nations in comparison with Canada and the United States as two traditional agro-exporting powerhouses. Our sample of emerging economies amplifies the original BRIC nations: Brazil, Russia, India, and China; plus South Africa, Indonesia, Mexico, and Turkey. From shifts in consumption patterns of basic versus luxury foods, we infer that low-to-middle-income working classes have increased their caloric intake in the form of more fats and “empty calories” (e.g., sugar and/or high-fructose corn syrup), while higher-income classes have increasingly adopted luxury foods, like meats and fruits, mimicking the divergent class dietary patterns of advanced capitalist countries. We thus see a differentiated convergence toward a US-type of diet, particularly in Mexico, which is the most proximate and highly integrated emerging nation to the United States (Pechlaner and Otero forthcoming). This particular dependency relation becomes a mirror in which other emerging nations can see themselves as neoliberal globalization advances. In the fourth section we zoom into food security and inequality for the case of Mexico. Our analysis of food consumption by income quintiles illustrates how intra-state inequality is expressed in differential access to basic and luxury foods. We then introduce and discuss our Neoliberal Diet Risk (NDR) index in the fifth section and analyse the results for our selected countries. In the conclusion we recapitulate the theoretical significance of our findings and outline some means to achieve better food-security outcomes than the neoliberal-food regime has heretofore offered.

## Food Security: Quantity and Quality

Because food insecurity can be politically explosive, the 2007 global food-price inflation crisis and its continued spikes into 2012 renewed governments' concerns for "food security." Food security is defined as the availability of food for everybody's sustenance, in spite of price fluctuations, as well as the physical and economic access to it for an active and healthy life (FAO, 2008; n.d.). Even wealthy countries like Canada have more than 10 per cent of the population suffering from food insecurity (Taber, 2014) (12% in the United States), and the rate has increased since 2006. Of the 870 million people in the world identified as suffering from food insecurity by a 2012 report of the United Nations Food and Agriculture Organization (FAO), however, 850 million – almost 98 per cent – reside in developing countries. Food security is thus a central issue in a world that produces enough food for all, but in which class inequality prevents many from having access to sufficient and/or healthful food.

While differential access to food itself is already a stark marker of class inequality, this paper focuses more specifically on inequality in access to *quality* food. The chief issue is that people, particularly those with low to middle incomes, are increasingly exposed to foods that are high in energy but are nutritionally compromised, and additionally laden with salt, sugar and unhealthy fats. These may satisfy hunger but not provide people with the right nutrients. Higher-income people also face some risk, but they have greater effective choice of eating healthful diets. We propose that this phenomenon of food inequality is directly linked to what we call the "neoliberal diet" – a pattern of production and consumption of cheap, energy-dense, nutrient-poor, processed edibles that has increasingly dominated food environments since the 1980s. It amounts to the globalization of what Anthony Winson (2013) calls the industrial diet, which started in the 1940s in the United States and promoted the consumption of economically high-value, industrially produced packaged foods over their lower-value (but nutritionally superior) unprocessed predecessors.

The consequences to this dietary diffusion are already apparent. According to the World Health Organization, "65% of the world's population live in a country where overweight and obesity kills more people than underweight" (WHO 2009:16). This happens through health impacts such as coronary heart disease, ischaemic heart disease, strokes, type-2 diabetes, and

various cancers, among others. It was estimated that by 2005 one billion people suffered from overweight and 300 million from obesity (WHO 2009:17). With the increased diffusion of the neoliberal diet, millions more will likely be added to these statistics. Unfortunately, obesity has not supplanted straight food insecurity; rather the paradoxical twin issues – the double-headed spectre – of famine and obesity are increasingly and simultaneously plaguing the world (Patel 2012).

The “neoliberal diet” is the logical consequence of the neoliberal food regime (Pechlaner and Otero, 2008; 2010; Otero, 2012; Otero, Pechlaner and Gürcan, 2013), which transcended the nation-centric focus of agriculture via trade liberalization. The food-regime perspective, originally developed by Harriet Friedmann and Philip McMichael (1989), articulates the historical, geographical and political dynamics that influence the norms and rules of the international division of labour in food and agriculture into distinct regimes. The neoliberal food regime is characterized by trade liberalization and other state and suprastate regulatory structures and legal frameworks that favour large corporations, such as the food processors and agribusiness multinationals which profit from the neoliberal diet’s proliferation. Since the 1990s, agricultural biotechnologies have become the central technological form in agriculture, making this dietary change another key component of the neoliberal diet, with its associated consolidation of agrifood corporate power (Pechlaner 2012).

If, as we argue, the neoliberal-food regime is the articulation of a set of regulations and institutions that allow for stable capital accumulation in agriculture, then the global food-price crisis set off in 2007 represents its crisis, or at least its contradictions became visible (Otero 2013). The inflation crisis arrived after well over a century of declining food prices (Moore 2010), which had made food, particularly the neoliberal diet, broadly accessible. The working classes, including people with middle incomes, have been the most negatively affected by the crisis, which ironically served to further entrench their dependence on the nutrient-poor foods of the neoliberal diet. At the same time, the greatest beneficiaries of the crisis have been financial speculators, grain traders, agribusiness multinational corporations and large supermarket chains (Lean, 2008; McMichael, 2009; Rosset, 2009).

Is it possible to quantify how these neoliberal currents – such as growing import dependency – combine with intra-state dynamics and inequalities to impact class diets? Given the rapid global diffusion of the neoliberal diet through the mechanisms of the neoliberal food regime, and the additional stressor of the prolonged food-price crisis, such quantification becomes a worthwhile goal. Accordingly, in this paper we develop a “neoliberal diet risk” index (NDR) to estimate people’s risk to having access predominantly to the foods of the neoliberal diet. While there are complexities, depending on a country’s level of development, we argue that the most affected people are the working classes, whose low-to-middle incomes shape their food “choices.” We compare and contrast measures of food-trade dependency and inequality that are likely to enhance the risk of exposure to the neoliberal diet for the group of emerging economies that includes and amplifies the original BRIC nations: Brazil, Russia, India, and China; plus South Africa, Indonesia, Mexico, and Turkey. Jim O’Neil of Goldman Sachs proposed the “BRIC” acronym in 2001 as a grouping of countries for financial analysis. The BRIC represented some key “emerging markets” attractive for new investment. By 2014, South Africa had joined the original nations to form the BRICS into a set of countries intent on organizing a development bank to be an alternative to the World Bank (the latter largely controlled by the United States). Indonesia, Mexico and Turkey have been added to our analysis because they have each requested membership in the BRICS in a bloc of emerging nations. For brevity, we call this potential larger group of countries BRICSIMT. We also include some data on two advanced capitalist countries that are also agro-exporting powerhouses – Canada and the United States – as people in these countries have been exposed to the industrial diet for longer and yet their levels of inequality are lower than in the BRICSIMT countries.

One common feature about the BRICSIMT nations is that they all have large enough populations and most have sufficient land and water resources to attempt a post-neoliberal development model, potentially with a popular-democratic character that includes a food-sovereignty program.<sup>1</sup> Some critical differences among them, however, include their specific

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<sup>1</sup> We realize that the food-sovereignty program is still controversial in critical Agrarian Studies. Henry Bernstein (2014) has elaborated one of the more sceptical views and, indirectly, so has Tom Brass (2014). We consider that early statements of the program by Vía Campesina and scholarly defences like those Desmarais (2007), Edelman (2014), and van der Ploeg (2014) are more convincing.

insertion in the world economy. Mexico and Turkey, for instance, have a greater economic integration with two major blocs of the imperialist core of the world economy: North America and the European Union, respectively. We suspect that this association, as well as their wholehearted adoption of neoliberalism – a state policy feature also shared by South Africa – may lead to greater levels of food dependency, including food-export dependency, and perhaps also to greater exposures to the neoliberal diet, expressed in a higher NDR.

Drawing on data from the United Nations' Food and Agriculture Organization (FAO), we conduct a longitudinal analysis of agricultural trade and food consumption in our selected nations in order to investigate changes in domestic food dependency from the 1980s to the late 2000s. We hypothesize that food dependency has increased as these nations have been incorporated into the international division of labour in agriculture, yielding varying degrees of neoliberal-diet risk. We ascertain trade patterns in “basic” (e.g. grains, vegetable oils) versus “luxury” foods (e.g. meats, fresh fruits and vegetables) and hypothesize that the consumption of both is increasing with these nations' rising economic weight. For working classes, however, growing trade dependency in basic foods heightens their risk of exposure to the neoliberal diet, as basic foods themselves become redefined from traditional national diets to ones with a heavier reliance on refined cereals, vegetable oils and meats, increasingly of the processed kind. As an initial attempt to measure this risk, we develop a neoliberal-diet risk index or NDR.

## **The Neoliberal Diet and Class**

What Anthony Winson (2013) calls the “industrial diet” predates the neoliberal turn of the 1980s and was based centrally on the industrial processing of food. This diet came to prevail primarily in advanced capitalist countries. The neoliberal diet consolidates the trend as it becomes disseminated to emerging nations and has its own specificities. Importantly, large components of the neoliberal diet are predicated on raw materials like corn, canola and soybeans, crops at the forefront of the biotechnology revolution (Otero, 2008). Corn and soy, the raw materials for a wide range of processed food products (Pollan, 2008), are heavily subsidized in the United States because they “are among nature's most efficient transformers of sunlight and chemical fertilizer into carbohydrate energy (in the case of corn) and fat and protein (in the case

of soy)” (Pollan 2008:117). Thus agribusiness technology, agricultural policy, and agrifood processing are all inextricably linked in the industrial production of the food choices ultimately made available in the neoliberal diet.

The neoliberal diet has high calorie content (is “energy dense”) and low nutritional value, such as highly processed convenience foods and food available from “fast-food” restaurants. That said, this diet is not just heavily supplemented with the chips, candy bars and French fries we traditionally associate with “junk food”, but it has been transformed more broadly, so that the staple foods not traditionally associated with treats – everything from breakfast cereals to meats – have become so highly processed and/or nutritionally compromised that Winson calls them “pseudo foods” (Winson, 2013) and Michael Pollan (2008) calls them “fake foods”. The three principal additives of these foods are fat, salt and sugar (Moss 2013), and a key factor in their predominance has been the concerted (and effective) effort by processed-food companies to privilege taste over nutrition. In fact, a host of labs and marketing strategies have been enlisted to successfully “hook” people on these foods (Moss 2013:37).

While the popular debate over obesity associates the epidemic with the United States broadly speaking, it has not affected the country uniformly. Scholars have increasingly identified significant class differences in the adoption of the energy-dense foods of the neoliberal diet (Drewnowski and Darmon 2005; Darmon and Drewnowski 2008; Drewnowski 2009; 2014; Drewnowski and Specter 2004; Freeman, 2007; Harrington, Fitzgerald, Layte, Lutomski and Molcho 2011; Lee 2011; McLaren 2007). Indeed, there is a notable consensus that “obesity in America is a largely economic issue” (Drewnowski and Darmon 2005: 265S), and this support gets even stronger when “economic” is expanded to include other aspects of socioeconomic status (SES), such as education and occupation, and even environmental factors, such as those investigated by “food deserts” scholars (e.g., Beaulac et al. 2009; Gordon et al. 2011; Morland et al. 2002; Rose and Richards 2004; Shaw 2006; Walker et al. 2010; Guptill, Copelton, and Lucal 2013).

One of the simplest reasons for the SES–obesity relationship is that not only have industrial food producers made tremendous efforts to maximize the neoliberal diet’s appeal; they have also created products that are relatively low cost. Neoliberal-diet foods are significantly

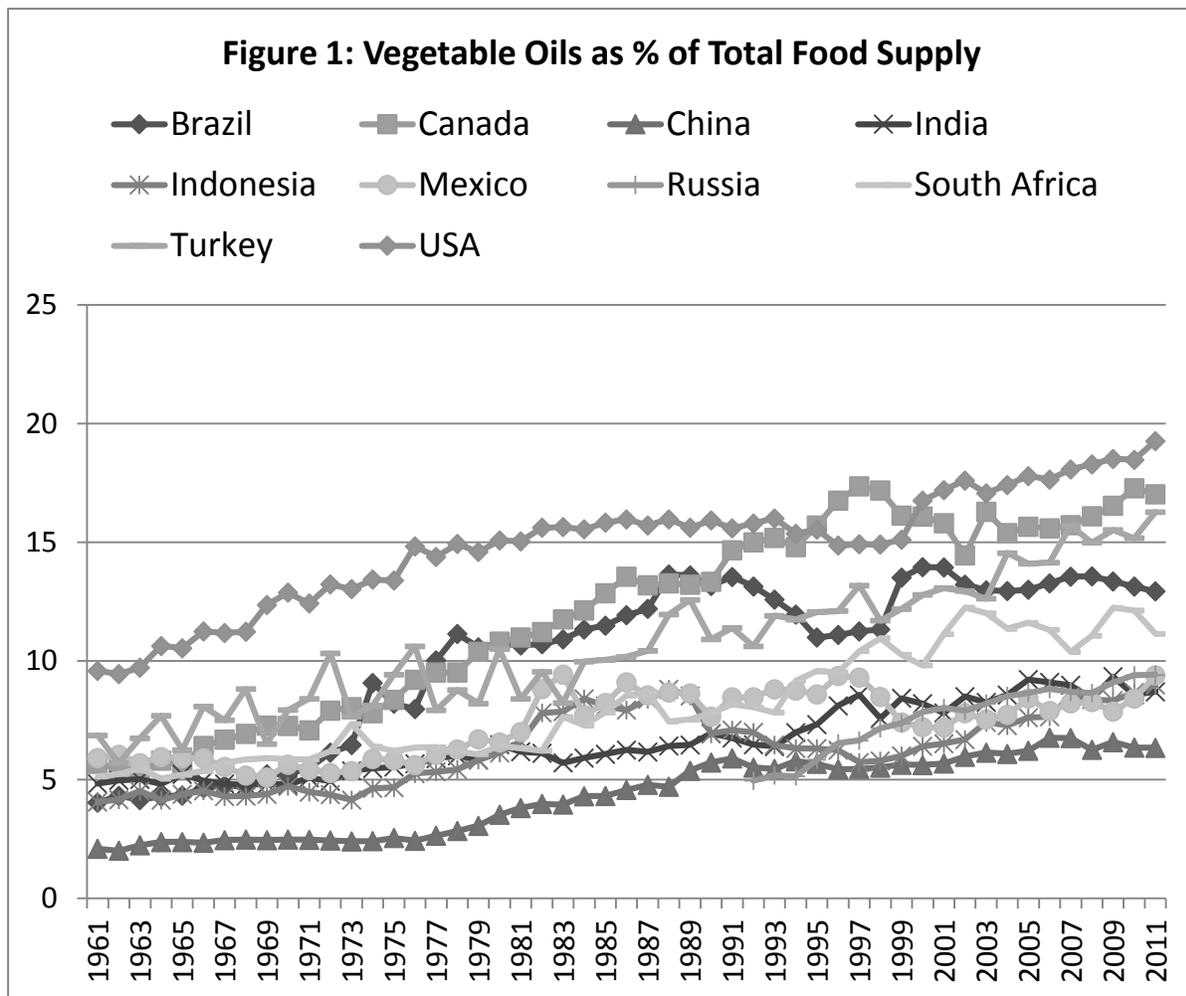
cheaper than more nutritious alternatives, which include fresh fruits and vegetables, whole grains, and leaner, unprocessed, meats. The substitution of real ingredients (peach flavour replacing peaches, for example) and the increased durability and shelf life of processed foods are key factors in this price reduction. According to Drewnowski and Specter's (2004) analysis, these types of goods cost less per megajoule of dietary energy than their more perishable counterparts of fresh meats and produce (2004: 9), making them understandably very appealing to those in the lower to middle classes.

The US "food deserts" literature (cited above) suggests that environmental factors, such as limited access to supermarkets and big box or chain stores, impact the ability of lower-income people to cheaply purchase nutritious foods. Supermarkets are more likely to have cheap, healthy, quality food than convenience stores or small neighbourhood stores, but are less likely to be situated in poor neighbourhoods, whose occupants are further hampered by transportation issues. Limited access forces the poor to purchase more of their food from the small convenience stores, which disproportionately stock processed foods. Winson (2013) calculates that "pseudo foods" make up over 70% of shelf space in these stores in the United States. Importantly, he found even greater proportions in two further case studies he conducted in Mexico and Argentina (Winson 2013: 205).

Far greater complexities in the class-diet relationship in the United States exist than can be elucidated here, including factors such as gender, age, race/ethnicity, and various types of dietary impacts, such as fast-food restaurants, to name a few. National particularities and causal features aside, the working-class basis of the obesity epidemic in the United States is unambiguous (Otero, Pechlaner, and Gürcan. 2015). Furthermore, the evidence is sufficiently strong to warrant its characterization as a form of "food oppression" (Freeman, 2007), as it has become another mechanism for deepening existing inequalities in the United States.

The obesity epidemic is not just a US phenomenon, however: along with the cultural and economic features of globalization, it is marching its way around the world so steadily it has been coined a "nutrition transition" (Popkin 1998; Drewnowski and Popkin, 1997). The nutrition transition is the global transformation of diets resulting from rising incomes and urbanization (Drewnowski and Popkin 1997:31). It combines "innate sensory preferences" with increased

access to cheap fats and sugars, and transforms traditionally low-fat diets as a result; cheap vegetable oils make “high-fat diets accessible even to low-income societies” (Drewnowski and Popkin 1997:40-41). Through their own societal changes and the lowered economic barrier to such consumption habits, developing countries can now more readily adopt the diet of wealthier nations – and its consequent health impacts.



Source: Constructed with data from FAOSTAT, using information for 1985 and 2007: <http://faostat3.fao.org/download/FB/BC/E> (accessed 06 November 2014).

Figure 1 clearly indicates that vegetable oils consumption, as a percentage of total food intake, has increased in every single country of our sample. The composition or combination of oils in each country varies, but in most cases they are converging toward soybean, as in Turkey,

which, has the third highest intake of vegetable oils after the United States and Canada. In order of importance, Turkey's vegetable oils are: palm oil, olive oil, and soybean oil. In the earlier years analysed, olive oil used to provide most of the vegetable oil, but by 1983 palm oil started to displace it. Soybean oil became important since the late 1970s for Turkey. Turkey, like the wealthier countries, was consuming above 15 per cent of its daily caloric intake from vegetable oils by 2011. Next are countries whose consumption lies between 10 and 15 per cent, which include Brazil and South Africa. The rest of the countries all consume between 5 and 10 per cent of calories from vegetable oils, topped by Mexico and Russia, and the lowest being China at 6.3 per cent. Considering that China started the period in 1961 consuming a mere 2.1 per cent of food in vegetable oils (compared with 9.6 per cent for the United States the same year), the ending number by 2011 does represent quite a dramatic increase by a factor of three. As total food consumption has also increased across the board, the absolute amount of vegetable oils ingested by today's population is substantial.

It is not very surprising that this "nutrition transition" parallels what the WHO calls a "risk transition." The risk transition regards how a country's level of development is associated with a shift in its population's diseases from primarily infectious to non-communicable diseases (NCD). Top among NCD are cancers and heart diseases associated with overweight and obesity (WHO 2013:2). Studies correlating changing demographic variables, including socioeconomic change, and obesity are increasingly available for various developing regions and countries (see, for example, studies on countries in Africa by Amuna et al. 2008; MacIntyre et al. 2002; Walker et al. 2001). Of course, developing countries are facing the impacts of these NCDs at the same time as they still face infectious diseases related to insufficient nutrition, resulting in a double whammy of diet- and nutrition-related diseases. Thus in developing countries we see an "epidemiological transition" as health issues that used to be associated with affluence overlap with those coming from malnutrition (de Maio, 2014). Notably, these same countries are the ones with the least health dollars available to mitigate the impact of such diseases.

Given that even cheap fats can be prohibitively expensive for many in developing nations, the transition is still in progress. As yet, the risk of overweight and obesity is still clearly associated with a country's income group – the higher the income group (in global comparison),

the higher the risk (WHO 2009: 11, Table 1). Within the lower income countries themselves, the pattern of class differentiation along nutritional lines appears to reverse the pattern evident in the United States in the early stages of neoliberal-diet adoption. In 1997, Drewnowski and Popkin argued that “higher individual incomes in lower-income societies are invariably associated with greater consumption of dietary fats” (41). A comprehensive review of studies on developing countries published between 1989 and 2003 further “identified strong positive relationships between [socioeconomic status] and obesity among men, women and children in nearly 90% of the studies...” (Monteiro et al. 2004: 940). In part, the growing middle and upper-middle-income classes are consuming the foods of the neoliberal diet as part of a “demonstration effect” (or imitation) of the US dietary pattern. The nature of the class–diet relationship is not stagnant in these countries, however, but appears to undergo significant changes as a country develops.

An important study by McLaren et al. (2007), for example, updates an earlier review of studies on the relationship between SES and obesity by Sobal and Stunkard (1989) in countries they classified by their level of development according to the 2003 Human Development Index (HDI). They investigated a total of 333 articles (1,914 associations between indicators). They found important distinctions in the relationship, particularly with respect to gender. Generally speaking, however, countries with a high HDI had more studies indicating a negative association between SES and body weight, whereas countries that scored low on the HDI had more studies indicating a positive relationship with SES and body size. While results were somewhat contradictory for men, the patterning for women in medium HDI countries suggested that “social patterning of weight-related attributes is perhaps in transition across the development spectrum” (2007: 37)

Other studies have suggested similar findings. Bhurosy and Jeewon, for example, state that “recently, the SES–obesity relationship in developing countries has been reported to bear similarities to that in developed ones” (2014:4). Mitchell (2014), argues that the consumption of fast food in developing countries is “initially mostly consumed by higher-SES groups but later affect lower socioeconomic groups over time as fast food becomes more economical and affordable” (2014: 294). Monteiro et al. (2004), argue that as a developing country’s GDP increases, the “burden of obesity... tends to shift towards the groups of lower SES

[socioeconomic status]” (2004: 943). It thus would seem that while the burden of obesity in developing countries initially afflicts the wealthy, class patterns begin to mimic those in wealthier nations once countries reach a certain point in their economic development.

Not only is the transition to the neoliberal diet with all its negative consequences a global phenomenon, but there are also strong indications that the rate of adoption of this diet is occurring far faster in developing countries. Obesity rates are rising faster in developing countries (Monteiro et al. 2004:940), such that “the maximum mean BMI [body mass index] in more developed countries might be exceeded by those in less developed ones” (Bhurosy and Jeewon 2014: 4). Globalization is indubitably key to this rise. While “globalization” is a poor descriptor of processes that require far greater specification to be meaningful (Urmetzer 2005), even in these general terms it is clear that by “radically altering the nature of agrifood systems, [it] is also altering the quantity, type, cost and desirability of foods available for consumption” (Hawkes, 2006:2). In more specific terms, the various macro-level policies and processes of trade liberalization are complex, sometimes contradictory, and require in-depth investigation to tease out local-level impacts.

The impact of foreign direct investment (FDI) is one dimension of globalization. Rayner et al. (2007), for example, argue that FDI has “stimulated the global spread of supermarkets, driving sales of packaged foods” (2006: 70-71). Thow (2009) similarly notes that “a high proportion of food-related [FDI] has been implemented by food processors and retailers” (2009: 2154). In Mexico, this trend has led to an astronomical increase in “US-owned food processing affiliates... with the majority of production for the local market” (2009: 2154). No doubt fast-food restaurants are also an increasingly important vehicle for the importation of the neoliberal diet into emerging economies, as illustrated by *The Economist*'s special report on obesity, which documents the high number of global fast-food establishments: Subway, 38,000; McDonalds, 34,000; KFC, 17,000; Starbucks, 16,500; Pizza Hut, 13,500; Burger King, 13,000; Domino's Pizza, 10,000; and Taco Bell, 7,000 (2012:11, Figure 4). While these figures are not specific to developing countries, it is certain that as the socioeconomic status of these countries increases, so does the prevalence of these fast-food chains and their demand for meat (Schneider 2011).

Import facilitation is another example of globalization. According to Rayner et al. (2006), for “the 49 least developed countries by the end of the 1990s, imports were more than twice as high as exports” (2006: 70). The impact of increased imports can vary depending on the country and what is imported, but some general patterns have been identified. For example, rising meat consumption is expected to boost the importation of feed grains, animal feed and meat products by 2020 (Delgado, 2003; Regmi, 2001). There is also the added burden of vulnerability to price fluctuation with food-import dependence, a cornerstone of our investigation here. In this way, various aspects of the globalization of agriculture and food each have their own dynamics and local manifestations, while holding with some general patterns. Similarly, the dietary effects of the neoliberal food regime also have some particular manifestations, despite broader general patterning. With our Neoliberal Diet Risk (NDR) Index we have selected specific variables relating to a nation’s level of development (i.e. inequality, urbanization, female labour-force participation) and its integration with these globalization processes (i.e. food-import dependency and economic globalization) that we believe in conjunction are the most revealing of neoliberal diet risk in a nationally and temporally comparative sense.

## **Food-Trade Dependency**

Our hypothesis is that, far from improving food security, trade liberalization in agriculture has worsened it, at least in the form of a heightened risk of exposure to the neoliberal diet. That is to say, the more agricultural-trade dependency grows, the more food insecurity grows in the form of enhanced risk of neoliberal-diet exposure. Food-import dependency does not *directly* translate into greater imports or ingestion of transgenic-crop-produced food. Rather, the degree of food dependency has a bearing on general food vulnerability and the extent to which people are pushed into having to buy more energy-dense foods, away from traditional food fare, which may become dearer.

We distinguish between basic and luxury foods, as this is critical to understand the differentiated convergence of class diets with economic globalization. Basic foods are primarily cereals but also, increasingly, vegetable oils (see Figure 1). Luxury foods are fresh fruits and vegetables, but also economically added-value foods like meats and wine. Meats, in particular,

are absorbing an increasing share of grains production that could otherwise be consumed directly by humans. Tony Weis (2013) has called this phenomenon “meatification” and highlights its ecological implications. Furthermore, increased trade was expected to enhance food security in all countries. But such expectation assumes that all countries involved in trade would capture “comparative advantages” equally, as if they would all be set in a level playing field. The fact is, however, that the leading agribusiness corporations in buyer-driven or producer-driven global-value chains have had “*competitive advantages*” which put them ahead of the game (Joonkoo, Gereffi, and Beauvais, 2012). As a result, the world is increasingly adopting a US diet with a heavy basis in oil crops that tend to be produced with transgenic seeds.<sup>2</sup> This type of seeds goes into the production of feed for chicken, which we suggest has become the neoliberal meat for the middle-income classes in North America, discussed presently. In China, however, pork has been the type of meat that has seen the greatest rise in consumption, with grave social and ecological impacts (Schneider 2011).

### ***Basic and Luxury Foods***

The distinction between basic and luxury foods has to do primarily with the cost per calorie, with basic foods being the most widely accessible to most people. Depending on each country’s culture, fresh fruits and vegetables may well be part of the basic diet, but this can change with globalization which can make them both more widely accessible but also more expensive in domestic markets that engage in their export. The international price for most cereals was a bit over US\$200 per tonne in 2012. By contrast, the least expensive fruit was apples at a price of over US\$400 per tonne, but the price of fresh fruit was generally much higher, up to US\$3,500 per tonne for strawberries. It should be obvious, then, that cereals are the most basic foods across all countries. We suggest that countries in which the direct food consumption of cereals increases are broadening the access to basic foods for their working classes. A decline in the consumption of basic foods, in contrast, could mean either a decline in the standard of living or a move toward substituting basic cereals for more vegetable oils and/or

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<sup>2</sup> Transgenic seeds are those produced using genetic-engineering techniques like recombinant DNA, popularly called GMOs, or genetically modified organisms (Kloppenborg 1988; Otero 2008; Otero 2012).

added-value foods like meats. For this reason, it is useful to explore sample basic and luxury foods in tandem to interpret what is the overall food consumption trend in each country.

Tables 1 and 2, below, show how cereals supply evolved across three points in time: 1961, 1985 (or 1992 for Russia), and 2011. One general trend of note is that the consumption of basic foods increased in all of our sample countries from 1961 to 1985. But there were declines in six countries from 1985 (or 1992) to 2011. When such decline in the consumption of cereals is combined with an increase in the consumption of luxury foods like meats or fruit, then one can say that the country likely experienced an increased standard of living. But it could also mean a move toward higher energy-density foods such as vegetable oils. From the tables it is clear that China has experienced the greatest food transition of all from basic to luxury foods. In contrast, two countries experienced both a decline in basic and in luxury foods consumption during the

**Table 1. Cereals and Fruit Supply for Selected Countries, in 1961, 1985 and 2011 (kilocalories/capita/day).**

	Cereals (Basic)			Fruit (Luxury)		
	1961	1985	2011	1961	1985	2011
Brazil	835	970	955	88	120	149
Canada	628	661	770	98	115	129
<b>China</b>	814	1653	1440	6	12	90
India	1265	1358	1394	30	34	66
Indonesia	1030	1581	1711	30	35	84
<b>Mexico</b>	1312	1486	1303	62	107	102
<b>Russia</b>	n.a.	1208*	1163	n.a.	42*	80
<b>S. Africa</b>	1521	1549	1545	30	40	45
<b>Turkey</b>	1650	1926	1571	211	169	160
<b>USA</b>	627	682	798	80	112	111

\* 1992

Note: Countries listed in **bold** have experienced a decline in basic or luxury foods intake in the period 1961–1985 (–1992 for Russia) and/or in 1985–2011 (1992–2011 for Russia).

Source: Constructed with data from FAOSTAT, available at:

<http://faostat.fao.org/site/609/DesktopDefault.aspx?PageID=609#ancor> (accessed 10 August 2014).

neoliberal period, which could indicate a general decline in their standards of living: Mexico and Turkey, which happen to be the countries most integrated to the wealthiest economic blocs. In both cases, declines in basic food consumption from 1985 to 2011 are double-digit: by 12 per cent and 18 per cent, respectively, with equal declines of 5 per cent for fruit consumption. The latter trend, in particular, must be causally related to the new export dependency experienced by these countries in the neoliberal era (on Mexico, see González 2013).

**Table 2: Changing Rates of Cereals and Fruit Supply for Selected Countries in the Periods 1961–1985 and 1985–2011.**

	Cereals (Basic)		Fruit (Luxury)	
	% change, 1961–1985	% change, 1985–2011	% change, 1961–1985	% change, 1985–2011
Brazil	16.0	-2.0	36.4	24.0
Canada	5.0	16.0	17.0	12.0
<b>China</b>	103.0	<b>-12.9</b>	100.0	650.0
India	7.0	3.0	13.0	94.0
Indonesia	53.0	8.0	16.7	140.0
<b>Mexico</b>	13.0	<b>-12.0</b>	73.0	<b>-5.0</b>
<b>Russia</b>	n.a.	<b>-4.0*</b>	n.a.	90.0*
<b>S. Africa</b>	2.0	<b>-0.3</b>	33.0	13.0
<b>Turkey</b>	17.0	<b>-18.0</b>	-20.0	<b>-5.0</b>
<b>USA</b>	9.0	17.0	40.0	<b>-1.0</b>

\* 1992–2011

Note: Countries listed in **bold** have experienced a decline in supply over at least one of the two periods.

Source: Calculated with data from Table 1, which was constructed with data from FAOSTAT, available at: <http://faostat.fao.org/site/609/DesktopDefault.aspx?PageID=609#ancor> (accessed 10 August 2014).

### *Measuring Food-Trade Dependency*

Unless otherwise specified, all data used in this paper come from FAOSTAT, FAO's database, which is based on each country's official statistics and FAO's estimates. We conducted

an inductive study, comparing food-trade dependency levels in 1985 and 2007, i.e., roughly at the start of the neoliberal turn and just before the global food-price crisis. The key general proposition made here is that emerging economies that have resisted an all-out neoliberal reform since the 1980s have retained a significant level of food self-sufficiency. Conversely, Mexico and South Africa, which have been some of the main developing-country adopters of neoliberalism, have become particularly food dependent – and obese.

One of the chief challenges of empirically assessing “food security” is that its definition refers to individuals rather than nations. Given that the data we analyse refers to nations and averages of daily per capita food intake, we have to design some indirect parameters to assess whether the countries under study have enhanced or deteriorated their overall positions in food security by joining the neoliberal-food regime. In line with the food-sovereignty literature and program (Edelman, 2014; Wittman and Desmarais 2010), we assume that food self-sufficiency is a better guarantor of food security. Our assumption is that losing self-sufficiency is a condition that may lead to a country’s loss of food security or at least increase its vulnerability to price fluctuations in food. Further, increased dependence on agricultural exports necessarily internalizes the “world price” for the relevant crops into the domestic economy. Price fluctuations disproportionately affect the lower-income classes in any country because they tend to spend larger shares of their household budgets on food, which aggravates any conjuncture of food-price inflation. Food-price “elasticity” – the extent to which demand changes in response to price changes – is much greater in developing countries than in developed ones (Von Braun 2007). That is, when food prices increase, demand declines are greater for lower-income classes. Also, the price elasticity of luxury foods in general is greater than that of basic foods. Conversely, the price elasticity for salt, for instance, is said to be so low that its demand will not change much in spite of price changes.

We operationally define food self-sufficiency as a country’s ability to provide “basic food” for its people without relying on imports that exceed 20 per cent of the domestic supply of these foods (the FAO uses 15 per cent, but we chose a more conservative measure to strengthen our analysis). Domestic supply is made up by the sum of existing stocks, plus domestic production, plus imports, minus exports in a given year. Although this is not exact, we use food

supply as a proxy for consumption. Because top-food sources are marked by each country's cultural specificity, we tailor our food-vulnerability assessments for each country through its actual consumption data, by inductively selecting those crops that make up 80 per cent of its national average daily per capita caloric supply. This allows for "top foods" – those that contribute the top 80 per cent of caloric intake – in some countries to be composed of a limited number of crops, while in others the diet is more diversified. With this inductive determination of each country's basic crops, we then assess the level of dependency in each of these crops. A country with dependency levels reaching 20 per cent or more of their domestic supply in a majority of its top foods will be considered to have lost its food self-sufficiency. This condition increases the country's vulnerability to price fluctuations in food. Table 3 reports the results for our countries in 1985 and 2007.

As is well known, a general pattern for all countries is that the largest percentage of food sources is cereals. But the proportions and quality vary considerably from one country to another in terms of composition of cereals, their contribution to total food supply, and the extent to which they are whole, refined and/or processed. For instance, Canada and the United States consumed about half as much food in the form of cereals (22–25%) in 2007 as did Mexico (around 43%), which makes the latter's cereals-import dependency all the more acute.

Vegetable oils were already important in 1985 and became more so by 2007, reflecting a global shift in diets away from roots and tubers and towards "livestock products and vegetable oils" (WHO/FAO 2003: section 3.2). This is consistent with the findings on the nutrition transition. In a basic reading of Table 3, we can see some increases in dependency. Mexico experienced the most dramatic shift to dependency in basic foods, having >20 per cent imports in four of its top-food sources. Turkey has developed significant dependencies in two of them, as has South Africa in three of them.

**Table 3: Dependency Levels in Food Sources (% = imports/domestic supply).**

	1985*		2007	
	Top Food	Imports >20%	Top Food	Imports >20%
<b>Brazil</b>	sugar, rice, wheat, soybean oil, maize	wheat (51%)	wheat, sugar, rice, soybean oil, maize	wheat (69%)
<b>China</b>	rice, wheat, pork, sweet potatoes, sugars	sugars (28%)	rice, wheat, pork, vegetables-other, sugar	
<b>Indonesia</b>	rice, cassava, maize, sugars, palm oil		rice, maize, wheat, sugars, cassava	wheat (103%), sugars (100%)
<b>India</b>	rice, wheat, sugar (non-centrifugal), sugars, sorghum	sugar (27%)	rice, wheat, sugars, milk (excluding butter), millet	
<b>Mexico</b>	maize, sugars, wheat, milk (excluding butter), pork	milk (24%)	maize, sugars, wheat, milk (excluding butter), pork	wheat (58%) pork (29%) maize (28%) milk (22%)
<b>Russia</b>	wheat, sugars, potatoes, bovine meat, milk (excluding butter)	wheat (41%) sugars (87%)	wheat, sugars, milk (excluding butter), sunflowerseed oil, potatoes	sugars (56%)
<b>S. Africa</b>	maize, wheat, sugars, sunflowerseed oil, bovine meats	sunflower seed oil (63%)	maize, wheat, sugars, rice, soybean oil	soybean oil (111%) rice (102%) wheat (38%)
<b>Turkey</b>	wheat, sugars, milk (excluding butter), sunflower seed oil, potatoes	sunflower seed oil (24%)	wheat, sugars, milk (excluding butter), sunflowerseed oil, maize	sunflower seed oil (26%) maize (25%)

\* 1992 for Russia

Note: "Sugars" in plural indicates that sources are sugar cane and/or sugar beets, and/or high-fructose corn syrup.

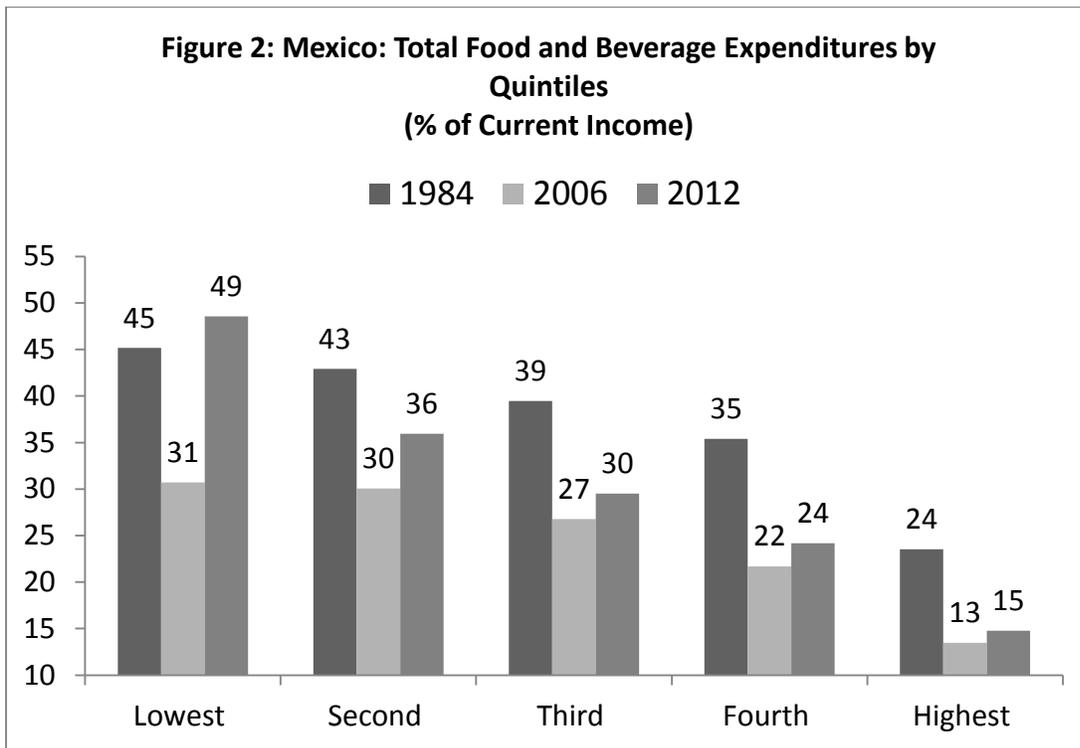
Source: Constructed with data from FAOSTAT, using information for 1985 and 2007:

<http://faostat.fao.org/site/368/default.aspx#ancor> (accessed 28 February 2013).

## **Inequality in Food Consumption: The Case of Mexico**

In general, advanced capitalist countries have lower levels of inequality than developing countries, but the neoliberal turn in the 1980s has made most countries more inequitable. In particular, many social scientists have expressed grave concern for increased wealth concentration in the top 1 per cent of the population (Stiglitz 2014). The lower income classes tend to spend a larger proportion of their incomes in food than wealthier classes. In order to demonstrate this class inequality in food consumption, the next analysis focuses on the case of Mexico. The question is how much of the household budget is devoted to food consumption and different food sources when we disaggregate Mexican consumers into quintiles, i.e., by five 20-per cent fragments of the population from the lowest to the highest income. Mexico's INEGI, the National Informatics and Statistics Agency, actually presents the data in ten fragments of 10 per cent, or deciles. We merged pairs of these for ease of presentation in graphic form. This analysis is meant to disaggregate the previous presentation of average per capita daily food supply for at least one country. Quintiles are evidently not social classes, but they help us ascertain the extent to which inequality patterns shape food intake across income groups.

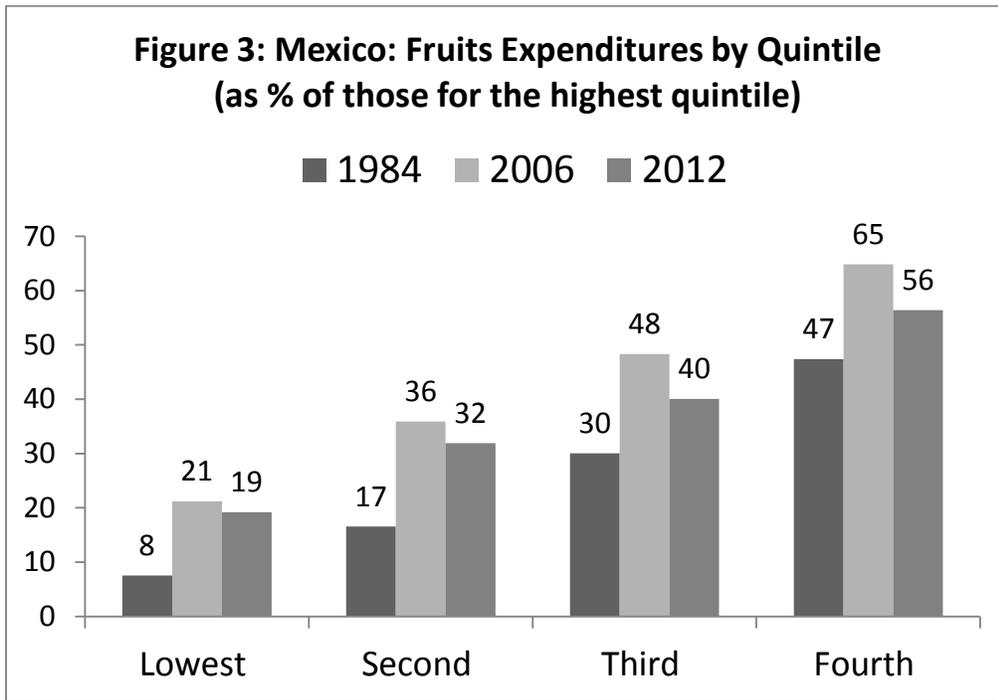
Figure 2 presents total expenditures in food and beverages by households as a per cent of their respective total current incomes in 1984, 2006 and 2012. This comparison across time allows for an interesting analysis of how Mexico's household expenditures in food have evolved from before the neoliberal turn, to just before the global food crisis, and a few years later. In 1984, the highest quintile spent 24 per cent of its income on food, while the lowest quintile spent almost double that share of their budget on food, at 45 per cent. Food inequality subsequently widened considerably. The highest quintile devoted a decreasing share of its budget on food by the 2000s, reflecting increasing total incomes, while the lowest quintile decreased its food expenditures prior to the crisis but fared far worse afterwards. By 2012, the poorest households were spending almost half of their income on food – 49 per cent – contrasted against 15 per cent for the richest. Still, all quintiles had to spend larger food shares of their budget by 2012 than in 2006, reflecting the higher prices and foods' relative inelasticity of demand: it's easier to postpone buying a pair of shoes or a car, but few forego buying their lunch.



Source: Constructed with data from INEGI, using National Household Income and Expenditure Survey for 1984, 2006 and 2012.

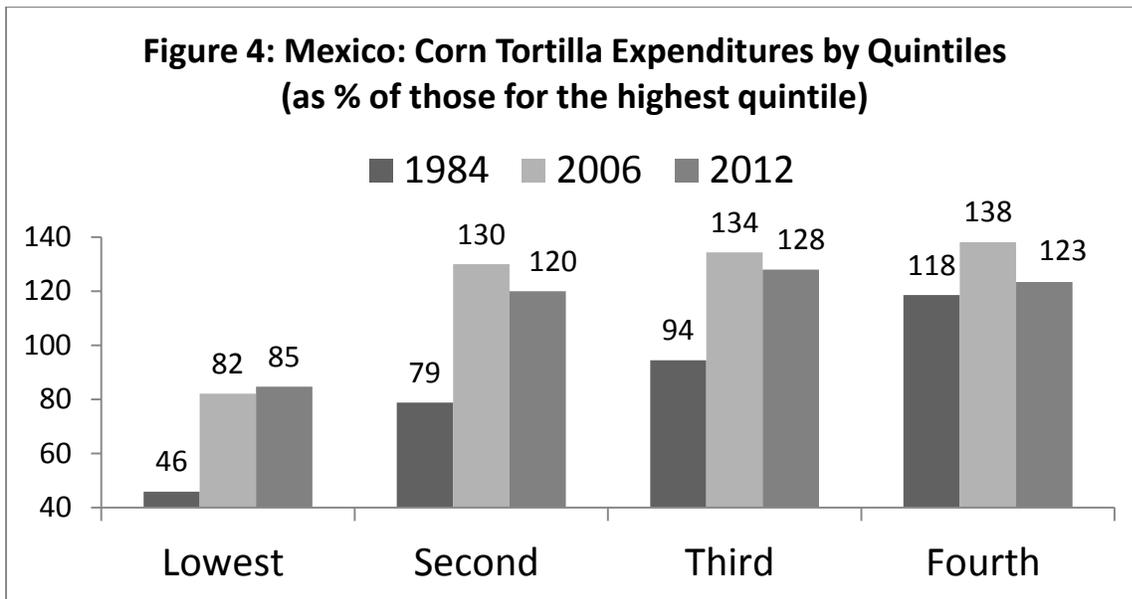
Next we explore how inequality translates into the way households in different income quintiles differentially afford (or not) basic and luxury foods. We calculated how much each of the four lower quintiles spent on different food sources as a percentage of expenditures done by the wealthiest quintile in the same three years: 1984, 2006 and 2012. In other words, food expenditures by the wealthiest quintile were turned into 100 per cent. As expected, lower quintiles spend lower percentages on luxury foods like meats and fruit than the wealthiest, but most spend higher percentages of their budgets on basic foods like corn tortillas and sugar. In the latter cases, the per cent of expenditures by lower quintiles was well over 100 percent of those made by the wealthiest quintile, which, relative to their income, spent a much lower share on food. With respect to meats, we see slightly more inequality in beef than in poultry consumption. For instance, beef expenditures in 2012 varied from a low of 42 percent for the lowest quintile to 80 percent for the fourth quintile. The 2012 per centage of expenditures in poultry, however, were 44 percent for the lowest quintile and 85 percent for the fourth highest quintile.

The contrast between fresh fruits and vegetables is similar to that between beef and poultry: fruits are relatively more luxury than vegetables and their consumption is more inequitable across income quintiles. Figure 3 depicts the evolution of the trend for fruit.



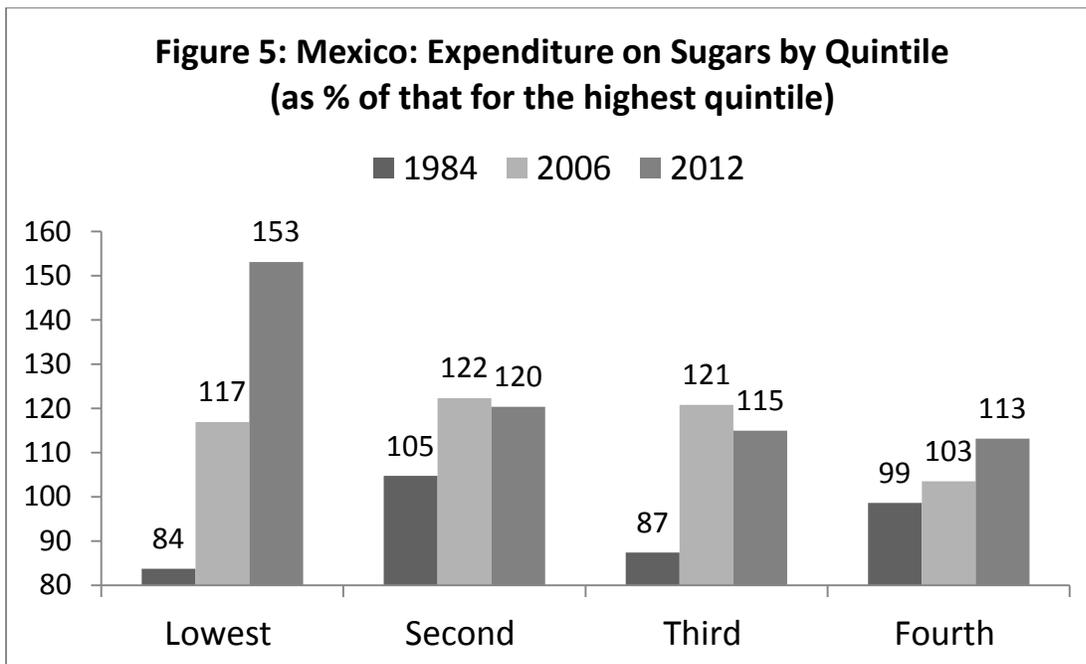
Source: Constructed with data from INEGI, using National Household Income and Expenditure Survey for 1984, 2006 and 2012.

Moving on to basic foods, the contrasts are staggering, as lower quintiles spend larger sums of income than even the wealthiest quintile, as this affords them a greater amount of calories. Corn is the most basic of cereals in Mexico and tortillas its main vehicle. Figure 4 clearly indicates that people from the second to the fourth quintiles spend larger absolute sums of money in corn tortillas, but those in the lowest quintile are too poor to spend even as much as the wealthier one.



Source: Constructed with data from INEGI, using National Household Income and Expenditure Survey for 1984, 2006 and 2012.

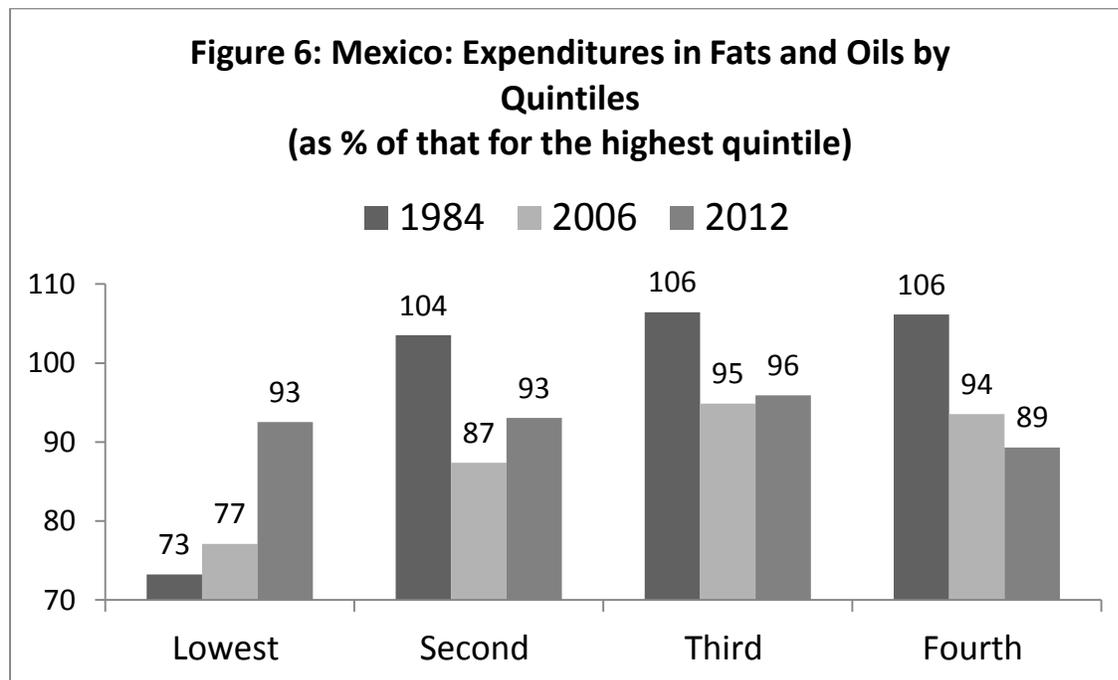
A similar but even more dramatic picture emerges from Figure 5 on sugar, which is high on calories but low in nutrition. In this case, the lower the income quintile, the higher its expenditures on sugar, likely because sugar is relatively less expensive than other foods (key



Source: Constructed with data from INEGI, using National Household Income and Expenditure Survey for 1984, 2006 and 2012.

vehicles are sugary soft drinks, candy and sweet bread). Clearly, sugar intake may be the main factor behind Mexico’s overweight and obesity problem, as supported by nutritionists’ research (e.g. Pérez Escamilla, et al. 2014).

Last is the issue of oils and fats, which are highly consumed across income quintiles, as revealed by Figure 6. We could speculate that all income categories increased their oils consumption when prices were low. Then, given the increased importance of vegetable oils on diet, demand by all income categories remained relatively high (i.e., low price elasticity), despite price increases in the 1990s. But those in the lowest-income category had to shift more of their expenditures to oils to maintain them as a basic category, spending almost as much as the wealthiest. The second to fourth quintiles just decreased oils consumption marginally in response to price increases. The point here is similar to corn tortillas: there is high consumption across income levels but in this case the wealthiest spend more on oils and fats. With this example of the impact of inequality on diets in mind, we now turn to our Neoliberal Diet Risk Index.



Source: Constructed with data from INEGI using National Household Income and Expenditure Survey for 1984, 2006 and 2012.

## **The Neoliberal-Diet Risk Index (NDR)**

While the United States was the leader in the overweight and obesity epidemic by 2008, with an average prevalence of about 31.5 percent for males and females, it has not taken long for other countries to experience the negative impacts of following its lead. Between 1980 and 2008, for example, it was Mexico where the portion of adults over 20 years of age with overweight had grown the most in the world, to 31 per cent, with a prevalence of 26.7 for males and 38.4 percent for females, well above the regional average (WHO). Next come Brazil and South Africa, with a 26 per cent increase in the portion of overweight adults, and then the United States with a 24 per cent increase (Howard 2012). As of 2008, the prevalence of obesity in Brazil was 16.5 for males and 22.1 for females aged 20 or more; and those for South Africa were 23.2 for males and 42.8 for females. The question is, how can we measure a population's risk of exposure to the neoliberal diet, which is so highly associated with overweight and obesity?

In developing the neoliberal-diet risk index (NDR), we made several logical assumptions. First, upper classes in any country do not suffer from food insecurity or from unavoidable neoliberal-diet risk; they do have an economic choice regarding what to eat (although they may well be highly tempted by general availability of energy-dense food). Second, scarce resources limit food "choices" for the poor and many with middle incomes. Neoliberal ideology blames the victim for presumably making the wrong food choices, but it is a myth that such choices even exist (Guthman, 2011). Our Mexico case study above showed important evidence of the income determinant of diet composition. Third, urban families in which all or most adults have to work are particularly affected by the neoliberal-diet risk. Urbanization also exacerbates the extent to which females join the labour force. Besides scarce resources, these households have little time to prepare good, healthful food, so they may be regarded as time-poor for food preparation.

Our NDR index is made up of the geometric mean of five measurements, and the index ranges from 1 to 100. The NDR is most effective as a comparative measure; it allows us to assess if a country's low-to-middle-income classes' risk of exposure to the neoliberal diet increases or decreases across time, and to determine whether such risk is higher or lower between countries. The five components of the NDR are as follows: (1) an index of food-import dependency for the food sources that constitute each country's top 80 per cent of caloric intake, as dependency is

linked to international price volatility; (2) the Gini coefficient, which measures the degree of inequality in each country (where 0 = perfect equality and 1 = total income concentration in a single individual) turned into a percentage; (3) the rate of urbanization, which involves a greater risk of exposure to the neoliberal diet, including its fast-food and junk-food components; (4) the rate of female participation in the labour force, as this factor increases the likelihood of eating processed food and/or eating outside the home; and (5) the index of economic globalization supplements the dependency index and 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 (per cent of current revenue) (26%), and capital account restrictions (23%). While we generated the food dependency index from FAO data as explained above, the rest of the data come from a variety of sources. To the extent possible we used the same source for each index for all the countries in our sample (see Figure 7 for sources and further definitions of each index), except for the Gini coefficients, for which we relied on different sources for Canada and the United States; the rest of the Gini figures were all taken from the World Bank.

Keeping with measurements developed by the United Nations Development Program (García Aguña and Kovacevic 2010), we aggregate the five components above 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 (García Aguña and Kovacevic 2010: 10-11).

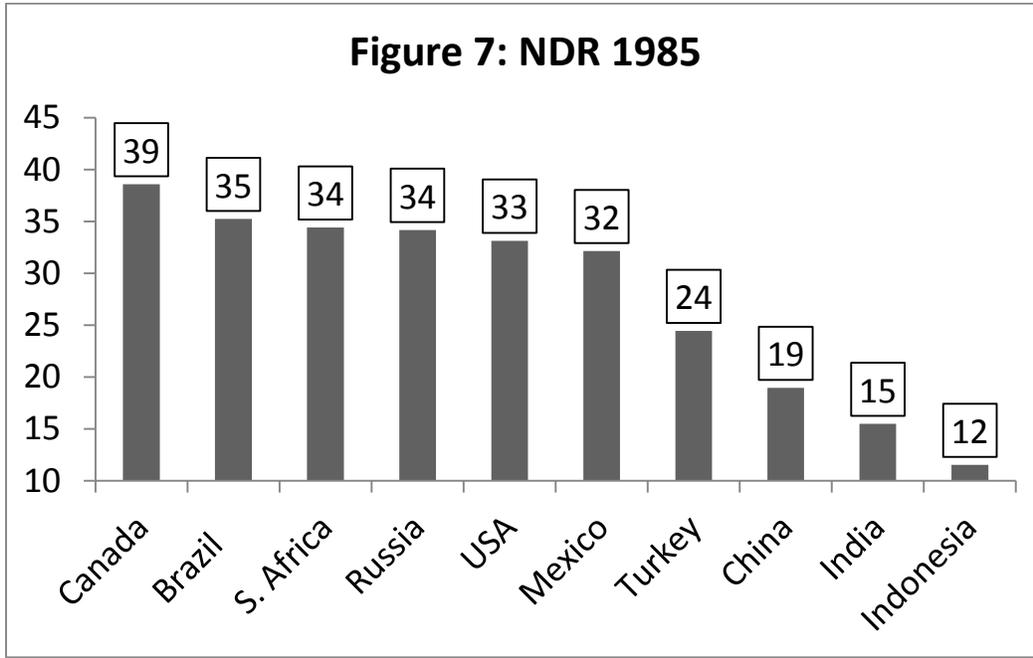
The neoliberal-diet risk index or NDR attempts to overcome the limitations of available measures, which tend to hide inequalities within countries. For instance, available data on food supply in the FAOSTAT database is given in several measures of weight, dollar value, or kilocalories per capita, but these are per capita averages. With the NDR, we try to at least 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.

The NDR can be seen and understood as a measurement that has both *construct* and *convergent validity* (Bryman and Teevan 2005:59). Construct 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. There is also a case for convergent validity between NDR and the neoliberal diet. This is revealed by the fact that there is a strong correlation between two forms of measuring the NDR (arithmetic and geometric) 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 its own problems as a measurement tool, especially to assess 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. We then ran the correlation between the NDR and the body mass index (BMI) for the corresponding years and countries. We then opted to calculate the NDR as a geometric mean, for reasons indicated above, and ran its correlation with the BMI. As it turns out, both NDR means have a high positive correlation with the BMI ( $> 0.8$ ), strengthening the case for “convergent” validity. We thus believe that the combination of the various socioeconomic measures of food-import dependency, inequality, urbanization, female labour-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.

As expected, all eight of our selected emerging economies had an increase in the NDR between 1985 and 2007. Figures 7 and 8 present the NDR for each of these years from highest to lowest, and Figure 9 compares the two years for each country. Our calculations indicate that South Africa and Mexico have the greatest risk of exposure to the neoliberal diet among emerging nations. South Africa scored the highest (49) among emerging nations on the NDR for 2007. Being one of the main developing-country adopters of neoliberalism, with the highest degree of inequality, South Africa has increased its import dependency of several top-food sources as well as vulnerability to international price fluctuations in food. As Table 3 shows, the

country has increased its reliance on the importation of basic foods, including: soybean oil (111%), rice (102%), and wheat (38%).



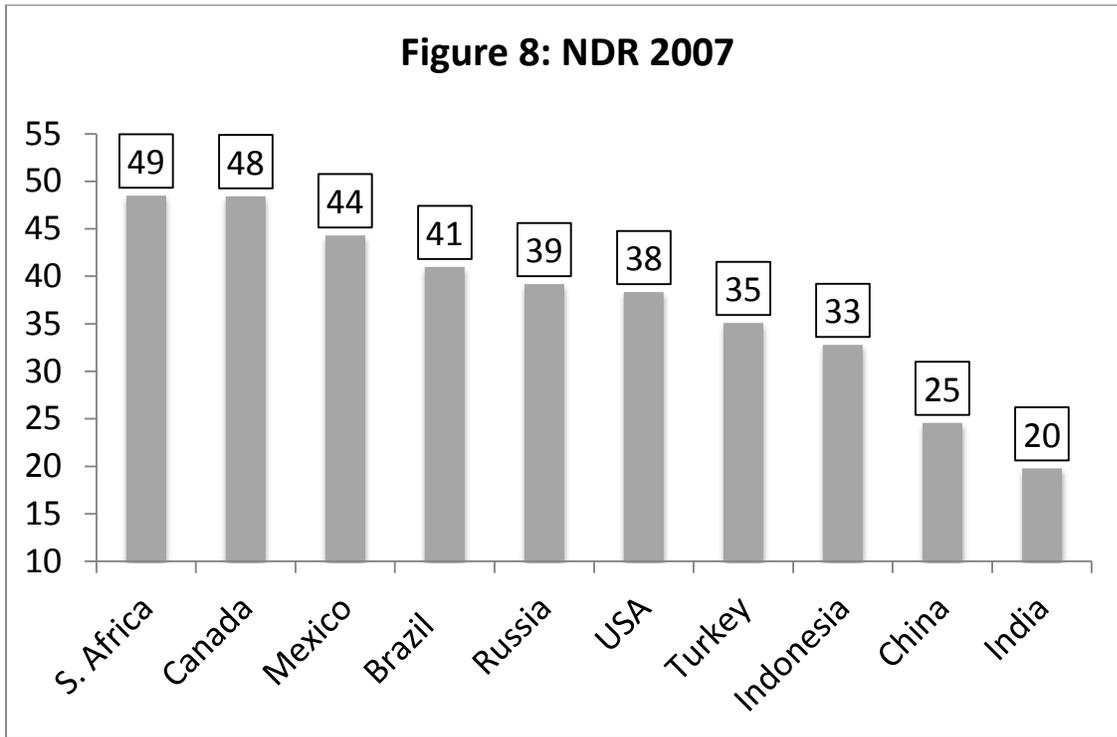
Sources: Import Dependency index constructed with the Food Balance data from FAOSTAT, using the Food Balance Sheet information for 1985 and 2007 <http://faostat.fao.org/site/368/default.aspx#ancor> (accessed: 6 November 2013).

Urbanization rate: data retrieved from Index Mundi (<http://www.indexmundi.com/>).

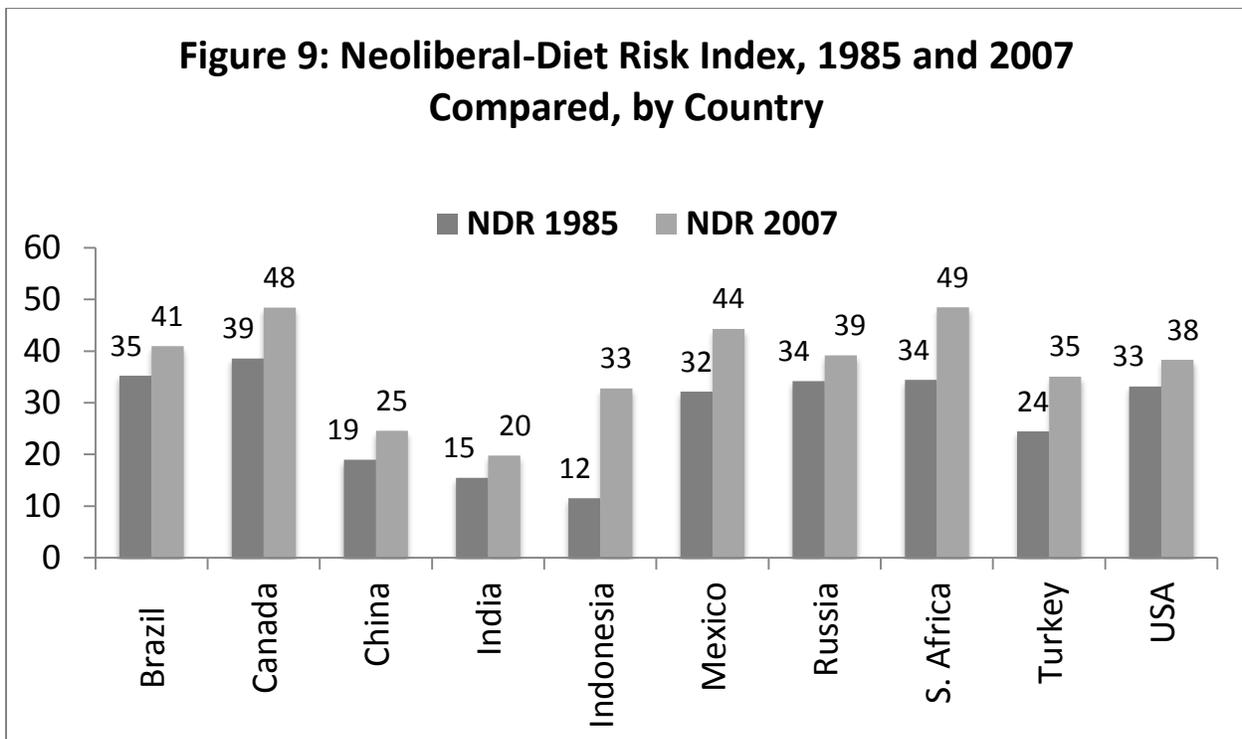
Economic globalization index taken from: KOF Index of Globalization, data from ETH Zurich; 1992 for Russia. N.B.

GINI Index: World Bank Database for all countries but US and Canada (see below). 1984 and 2008 for China, Indonesia and Mexico; 1983 and 2005 for India; 1988 for Russia; 1993 and 2006 for South Africa; 1987 for Turkey (last accessed 13-Aug-2014). GINI for Canada: Statistics Canada. GINI for the United States: US Census Bureau. Gini coefficients for Canada and 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; 2008 for Indonesia; 1988 for Mexico; and 1989 for Russia (accessed: 26 Sep 2014)



Sources: see Figure 7.



Sources: see Figure 7.

Mexico, Brazil and Russia followed close behind South Africa, with a NDR of 44, 41 and 39 respectively. The zealous incorporation of Mexico into the North American economic bloc, an increase in its dependency levels of basic food imports, and an increase in female labour force participation rate – although still moderate at 35% of the labour force – has led this country to a higher risk of exposure to the neoliberal diet. For example, while Mexico's exports of fruits and vegetables to its NAFTA partners have increased substantially, these do not make up much more than 2 to 3 per cent of daily caloric intake in Canada and the United States. Conversely, by 2007 Mexico has become dependent on the importation of well above 20 per cent of several top-food sources, including wheat (58%), pigmeat (29%), maize (28%), and milk (22%).

Indonesia, China and India have relatively lower levels of NDR primarily due to their lower urbanization indices (50, 42 and 30, respectively). Indonesia, however, leaped from a NDR of 13 in 1985 to 35 in 2007, a dramatic increase of 175 per cent. This can be explained by a rise in its import dependency level (from close to zero to almost 14 per cent), a 122% increase in its index of economic globalization and a 93% increase in its urbanization rates from 1985 to 2007. The next highest NDR increases were 46 per cent for Turkey, 44 per cent for South Africa, 38 per cent for Mexico, and 32 per cent for China.

All of the above indicates a rising risk of neoliberal-diet exposure for low-and-middle-income working classes unable to afford the luxuries of a more expensive fruit, vegetables, and meat diet. In keeping with scholarly literature regarding the nutrition transition, we can expect subsequent increases in the NDR (and its associated negative health impacts) over time, barring some countervailing measures. As noted, our index is the most meaningful comparatively. Our main goal here 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 causally related to how neoliberal globalization affects people differently depending on their country's level of NDR, exacerbated by their economic class locations within that country. Consequently, only a societal actor like the state can address the issue through the means of better agricultural and food policies on the structural level and education and subsidies for a better diet in the short term.

## Conclusion

This paper has offered a critique of neoliberal globalist discourse and policy, especially for its results in agriculture and food trade liberalization. It has presented an empirical analysis of the neoliberal diet and its relation to increasing trade dependency and inequality. One of the chief goals of neoliberalism was to shift state responsibility for managing and protecting agricultural sectors to individual and, centrally, corporate economic actors. In the process, individuals were charged with bearing all or most responsibility for their life chances, as the neoliberal state also ended most welfare policies (Harvey 2005). We have shown that the neoliberal diet has proliferated through all of our sample countries, although at varying rates with varying intensities, and established that the neoliberal diet is characterized by inequality of access to quality food. Unable to afford quality diets and with insufficient time to prepare healthful food, the working classes are the most exposed to this diet's low cost yet energy-dense (high fat and empty calorie) traits. We have proposed a measure of the risk of exposure to the neoliberal diet through what we call the NDR, with its five major components. Our proposition is that the more a country is trade dependent, inequitable, trade liberalized, urbanized with higher rates of female labour-force participation, and greater economic globalization, the more its people become exposed to the neoliberal-diet risk. Not that we defend the traditional female roles in the household, but the way they have become integrated into the workforce without simultaneously making time for other household members to prepare food, contributes to a higher NDR.

Many critics of the energy-dense diet with a liberal bent sharply identify the individual as the locus for intervention to modify the quality of food-consumption patterns. In the crudest form, this individual focus amounts to "blaming the victim": if people are fat that is because they eat too much and exercise too little (e.g., Popkin 2009). Overemphasizing the role of individual awareness and consumer responsibility, Michael Pollan, for instance, exhorts us that "we need to invest more time, effort, and resources in providing for our sustenance . . . than most of us do today" (2008:145). He has accordingly lost sight of socioeconomic differences in the negative impacts of the modern food system, which highlight the limitations of an individual-based resolution. This individualistic stance leads Pollan and others like him to the naïve perspective that the powerful dynamics shaping the neoliberal food regime can be altered individually, and

grossly undervalues the need for collective efforts for genuine structural change (see Dixon 2009; Guthman and DuPuis 2006; Otero, Pechlaner and Gürcan 2014 for a sustained critique of this literature).

Other mainstream proposals against energy-dense food bring to the forefront “corporate responsibility” as a possible solution. Michael Moss (2013) has shown, however, that food-processing companies have been aware of their role in creating the overweight epidemic and they have no real interest in making the changes required to reverse it. Indeed, corporate economic imperatives dictate that they will stay the course, barring external pressures, e.g., from state regulation. Paul Krugman (2015), a Nobel Prize Laureate for economics, has revealed that the food industry is a great contributor to the US Republican Party which is the party least inclined to state regulation. Smaller scale political attempts to address the issues of obesity – for example, New York City’s former Mayor Michael Bloomberg’s failed attempt to ban high-sugar concentration beverages (Grynbaum, 2013) – indicate the myriad difficulties of consumption-focused approaches, particularly subnationally but even nationally. Taxing junk food, for example, as was done in Mexico with sugary soft drinks in 2013, will further deepen inequalities given it is a regressive tax, especially in countries with limited availability of safe drinking water. Subsidies or incentives for low-income consumers to eat healthier food could be progressive, however; but they are still focused on individual consumption. Redirecting state subsidies would clearly shift state priorities from strengthening the corporate purveyors of the neoliberal diet to providing all citizens nutritious food. For example, shifting subsidies from corn and soy producers, and from the food-processing industry to local-produce growers that meet decent labour standards, would be a production-focused approach. Thus, while it clearly behoves the state as a societal actor to intervene in various ways, the mechanism is very important.

Statist solutions view the state as a primary means of social regulation that could help constrain market greed and abuse. As long as state regulation contends with treating the popular masses as atomized consumers without addressing the question of unequal class relations, however, statist solutions tend to assume a “partial”, “uneven” and thus “contradictory” character that tends to reproduce class inequalities (Guthman 2007c). This tendency is exacerbated when

the state's autonomy vis-à-vis the ruling class is low and there is no strong, organized, grassroots opposition.

The common liberal understanding of agency is thus roughly as follows: that individuals play a role at least in choosing how they insert themselves in larger societal structures or social issues. They may well do so, or at least try, but individuals by themselves will not change those larger social issues or structures; only their chances of doing better or worse. In our perspective, only socially empowered *collective* agents can change larger social issues, structures or, ultimately, society. Therefore, only the latter form of agency really matters or makes a difference for social change. Individual agency may improve or challenge the life of individuals without making a dent on society. Our paper highlights the structural determinants of access to food. While individuals with high levels of income and education can better insert themselves in making healthy food choices, it is quite another matter for the majority of the people with fewer such means. It will thus take socially empowered collective agents, not individuals, to change the neoliberal food regime and its diet, ultimately by pushing for state intervention focused primarily on restructuring the food production system. Conjunctural measures like heightened education and subsidized individual consumption of healthy food fare in the short term will help some individuals or social groups, a welcome outcome, but will hardly alter the structures of inequality as such. On a world scale, to the extent that individual or societal-level changes help reduce the intake of neoliberal-diet components in the United States, to that same extent agribusiness multinationals will enhance their efforts to globalize the US diet. This is just what happened with the tobacco industry, and parallels between it and “big food” have already been established (Hafez and Ling 2005; Brownell and Warner 2009).

Our class analysis has tried to show that, contrary to the individualistic focus, only a society-level collective actor can hope to change the dietary trends, including their obesity health impacts. But a genuine alternative to the neoliberal diet requires a comprehensive, critical and transformative framework that contends with neither individual political-cultural awareness nor statism by itself. In contrast to the “food security” discourse in vogue since the 1980s, which proposes trade liberalization and the individualization of people in oligopolistic markets, we proposed that the food sovereignty program would have more promise – one in which states have

the right to protect markets, democratic control of the food system, and revaluation of peasant production. Once food self-sufficiency in these terms is achieved, surpluses can be traded. The political struggle of Via Campesina has centred on defending the value of peasants' and small farmers' labour power. But it also defends the ability of small-commodity producers in agriculture to guarantee food security if they are not made to deal or compete directly with large agribusiness multinationals (Otero, Pechlaner and Gürcan 2013:269). This program would have to be firmly based on agrarian social movements in alliance with urban working and middle class movements. Such rural–urban alliance would have to become empowered to pressure the state into redirecting agricultural production away from the neoliberal diet and its chief socioeconomic agents. Overall, states would have to focus on reducing inequality in agricultural and food production and in incomes if the goal truly is a reversal of the neoliberal-diet trajectory and not a “calorie reduced” chimera of public policy intentions.

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