

Thresholds are Everywhere: A Worker Food Program Investigation

Track: Surpassing the Emerging Country Threshold: Intangible Assets for Future Growth

Abstract

The Worker Food Program (WFP) benefits around 20 millions of employees working for 250.000 companies in Brazil. The paper presents its main characteristics, its impacts on companies, employees, and government, and a model that accounts for its main network effects on the economy. Using system dynamics, a scenario that includes workers from small businesses is simulated, showing that it generates increased taxes to government over time. The paper discusses challenges and, adopting a social marketing perspective, barriers to the expansion of the program. It also discusses points related to the design, implementation and evaluation of WFP-like social programs.

Keywords

Worker food program, social marketing, systems dynamics, social programs assessment.

Thresholds are Everywhere: A Worker Food Program investigation

Introduction

The need to surpass thresholds is a challenge that can occur at different levels of aggregation or analysis. Middle-income countries can become trapped in the same level of economic development for decades. Throughout history, several countries have overcome initial low levels of development, growing at exponential rates and then stalled (Agénor, Canuto, & Jelenic, 2012). Similarly, progress in education is rapid in a country when there are ample resources and the population starts from a very low educational level. Nonlinearities such as those are common in social systems (Sterman, 2000). They also appear when one analyses the introduction of social programs such as the Worker Food Program (WFP), which is the focus of this paper. Usually a rapid expansion reaches the most accessible segments of the population and then the program stalls, failing to surpass an important threshold that would bring about more social and economic returns.

The Brazilian Worker Food Program has been a success since its introduction, more than four decades ago; however, it has never surpassed a crucial threshold, never reaching the most vulnerable segment which is the one represented by employees of small companies (Mazzon et al., 2016). The government sponsored the Working Food Program in the country with the initial goal of avoiding malnutrition in workers or insufficient diets, factors that were an important barrier to increase productivity in Brazil in the 70's. Nevertheless, the program so far has been reaching only the “low hanging fruit” (the most accessible segment in the society) – workers from bigger companies. Moreover, two main changes in the social and economic landscapes have been representing enormous challenges to the program. The first change was the virtual elimination of undernutrition in Brazil and the increasing prevalence of obesity as the fundamental problem in the health and nutrition fields. The second change was the introduction of new, privileged tax regime to small companies that prevented them from using the tax incentive created by the WFP and therefore drastically limited the reach of the program. Most low-wage Brazilian workers are employees of small businesses. Thus, the landscape has changed but the program rules have remained virtually the same. In fact, social programs in general can face similar challenges when the social context changes.

The paper offers both theoretical and practical contributions. There has been a long tradition of research on the topic of food programs and their effects, including the British Food Stamp Program (e.g. Hoynes & Schanzenbach, 2012; Landers, 2007), school meal programs (e.g. Afridi, 2010; Gleason, Briefel, & Wilson, 2009) and even behavioral consequences of meals (e.g. Mitchell & Bates, 2011). There also studies, most of them case studies, focusing on the consequences of meals program in work. Such studies either describe similar programs in different countries (e.g. Barquera, Rivera-Dommarco, & Gasca-García, 2001) or investigate their impact on government, workers or companies (e.g. Castro, 1997; Geraldo, Bandoni, & Jaime, 2008).

Most papers have a nutritional viewpoint while some of them also adopt a public health public perspective (e.g. Veloso & Santana, 2002). The present paper extends this previous literature since it (1) investigates the barriers to the expansion of the worker food program to a new target population, (2) considers the worker food program using a social marketing perspective, and, (3) uses system dynamics to model the program and to explore an alternative scenario.

From a practical perspective, the paper aims at highlighting some points of attention, especially for governments conducting similar programs and interventions. The first point is the identification of barriers that prevent similar programs to reach their original intent, with special emphasis to the issue of thresholds that are widespread in social systems. The second point is the importance of integrative models to represent multiplicative effects. The third point is the discussion of an alternative to overcome the barriers in practice (social marketing). Finally, the paper also hints at the increasing importance of nutrition in well-being programs.

The structure of the paper follows this order. First, it presents the main aspects of WFPs as adopted in several countries. Second, it explains the characteristics of the Brazilian WFP. Third, using a network analysis and the system dynamics method, it presents a model to represent the Brazilian program and its main impacts. Fourth, it describes the simulation of a scenario with the inclusion of workers from small businesses in the program. Fifth, a discussion highlights the main challenges to the program, presenting practical suggestions to tackle them, with the use of the social marketing theoretical framework. Finally, the conclusion summarizes the main points and lessons from the Brazilian WFP, putting them in a broader context.

Worker Food Programs: origins, context and goals

Worker food programs have a long history. The first country to devise such a program was the United Kingdom during the Second World War. Soon after it, France, Belgic and Italy followed the Britannic lead (Mazzon et al., 2016). The Worker Food Program in Brazil¹ was created by the Law nº 6321 in April of 1976 (Geisel, 1976). In Latin America, WFPs have been slowly spreading after the Brazilian pioneer initiative. In 1981, Mexican Social Security Institute (IMSS) created the Mexican version of WFP, with a major update in regulations in 2011 (Hinojosa, 2011).

Overall, WFPs throughout the world have undergoing some changes regarding their structure and operational mechanisms (Colares, 2005). Nevertheless, they usually share the same goals: reduction in work accidents, increase in workers' productivity and promotion of well-being and better quality of life (Wanjek, 2005). In the beginning, the focus of most WFPs was to replenish the energy levels of workers, especially considering that in some countries (like in Brazil) their diets were poor in calories and nutrients. Undernutrition and malnutrition were the rule. While the former refers to a deficiency in

¹ In Portuguese, PAT – Programa de Alimentação do Trabalhador.

calories, proteins, vitamins and minerals, the latter is a discrepancy between the minimum nutrients required by the body requires and the actual nutrients ingested (Morley, 2016). In both cases, people can easily become sick and have frequent infections such as diarrhea and pneumonia (Kramer & Allen, 2015). In the context of work, undernutrition and malnutrition can lead to accidents and loss of productivity (Wanjek, 2005). Colares (2005) reports a study with sugar cane cutters showing increases in productivity (52%) and reduction in absenteeism (38%) as a consequence of a WFP-like program running for five years. Work accidents, in turn, are more than a matter of simple economic costs. Not only do work accidents represent a loss of productivity for firms but they also increase social security costs and can disrupt familiar structures, especially when they result in death (Mitchell & Bates, 2011).

Typically, several social actors integrate WFPs: governments, companies, workers and their unions, and the diverse set of companies and agents that integrate complementary economic sectors. That set includes companies from the agro industrial sector, restaurants, brokers, firms that manage vouchers, companies offering consulting services etc. The most common design of WFPs share the costs of the program among three social actors: companies offering the benefit, their employees and the government (through tax breaks).

Governments create the legal infrastructure for a WFP. They also institute regulations that attribute a special legal status to the benefits. In a WFP, the benefit does not share the same status of regular salaries. This means that they (the benefits) are exempt from social security or income taxes. On the other hand, workers share some of the costs, usually limited to a small percentage of the benefit, while companies share the remaining costs.

In most countries, the government offers tax incentives to attract companies to the system, which means, in practice, the public sector shoulders part of the costs, while also receiving taxes generated by the program through its multiplicative effects on the economy (Mazzon et al., 2016; Wanjek, 2005).

Overall, the programs in different countries have been successful. They usually decrease problems of nutrition among workers, providing them and their families with access to better nutrition. By reducing sickness and work accidents, the programs also decrease costs in the public health system. By increasing productivity at work, they generate economic gains to participant companies. Finally, by generating network effects through positive multipliers, they induce the growth and development of related economic sectors, increasing the collection of taxes. The effects are widespread. For instance, a study in Portugal also showed that WFPs could help to distribute income in society, considering that the price of meals is proportionally higher for lower income workers. By providing meals and food vouchers, WFPs represent an actual increase in their budgets (Vassalo, 2012).

While there are several recognized benefits of WFPs, they can become ill adapted to the current social landscape marked by epidemic obesity and changes in taxation systems, as in Brazil. According to the World Health Organization (2016),

overweight and obese populations represent more than 1.9 billion adults in the world. This is more than 30% of the world's adult population. The main cause of obesity and overweight is the high consumption of calories, especially refined foods, intensified by the sedentary nature of many forms of works, modes of transportations, etc. Therefore, public decision makers should change their focus to social groups eating excessive amounts of food with poor nutritional quality. Currently, underconsumption of important micronutrients and excess of poor quality food are serious challenges in the health and nutrition fields, especially considering their roles behind the growth of cardiovascular diseases, diabetes, musculoskeletal disorders and cancer (WHO, 2016).

The Brazilian Worker Food Programs

In Brazil, the WFP, known as PAT, is a flexible program, with different alternatives of provision. For instance, workers in firms located in industrial districts, with precarious infrastructure, have different necessities compared to those located in large urban centers or with those that work for companies with restricted physical space (e.g., offices). There is no one-fits-all solution. On the contrary, the PAT program offers six different types of meal/food provision: in-company kitchen, outsourced kitchen, transported meals, meal voucher, food voucher and food basket. This flexibility has been key to the success of the program, at least considering the segment that it has been catering to (workers from big companies).

Similar to other countries, the main goal inspiring the creation of the Brazilian WFP was the improvement of the nutritional status of Brazilian workers, creating favorable results for government, businesses and workers. Low-income workers (with salaries ranging from one to five times the minimum wage) have been the main target since the inception of the program and comprise 85% of current beneficiaries (Mazzon, 2006). However, more than three decades after its creation, the Brazilian Worker Food Program has never surpassed a crucial threshold, never reaching the most vulnerable segment represented by employees of small firms.

The last available data shows that, in December of 2015, around 20 million employees (almost 20% of the Brazilian workers), working in more than 250.000 companies, received either meals or other kind of benefit (typically food vouchers) from companies operating in the program (Ministério do Trabalho, 2016). On the other hand, nearly 80% of the workers do not benefit from the program, because they are not employed in big companies. According to IBGE (data from 2015), only 40% of private sector workers are in formal work contracts in Brazil.

Thus, there is a huge potential for expansion. In many other countries, employees from small businesses rarely benefit from equivalent programs. Usually employees of large companies are the ones who benefit the most, considering that such companies tend to be better equipped to deal with the required paperwork and, in some cases, the required investment (for instance, by building kitchens or contracting other firms). In Brazil, according to data from the Federal Revenue Service (SRF,

2014) there are around four million businesses classified as small business for taxation purposes. They are entitled to a more beneficial taxation regime compared to bigger companies, which have to deal with a myriad of heavy taxes from the three levels of government. The Brazilian WFP only offers tax breaks for companies that operate under the regular taxation system. At the same time, employees from small companies are typically from lower social classes, have lower educational levels, work more hours and are more prone to work accidents. On the bright side, the capillarity of small businesses throughout the Brazilian territory could help to increase the already positive effects of the program.

In sum, the barriers associated with the expansion of WFP to small business in Brazil seem to derive from: (1) the high degree of informality in those kind of companies (preventing part of them from taking part in official programs); (2) the current limitation of tax breaks to firms under the regular taxation regime; (3) the difficulty in understanding all the complex regulations that typically characterize Brazilian public programs; (4) the strained fiscal budget of Brazilian federal government; (5) erroneous beliefs that incentivized programs necessarily contribute to fiscal deficits.

The realization that the Brazilian WFP can benefit from the inclusion of workers from small businesses led the authors to create a model of the program in order to simulate that scenario.

Network effects and a system dynamics model of WFP

The Brazilian WFP puts in motion a complex web of effects that spreads through different sectors and form a true macro virtuous cycle. Companies provide better nutrition to workers, leading to increases in their satisfaction and productivity, improved capital-work relations, and better occupational health (lower incidence of diseases, reduction in absenteeism and less work accidents). Federal government incurs in less costs compensating victims of work accidents. Moreover, the tax breaks lead through multipliers to increased tax revenue over time. The expansion of economic activity in the food, meals and agribusiness sectors increases tax revenues and jobs and stimulates the sophistication of those industries. Nevertheless, the effects are not immediate. There is a time delay between entrepreneurs perceive an increase in demand for meals, for instance. Similarly, it takes time in the food and other industries to perceive a need to expand their capacity. Such delays can represent, in practice, a few years.

Using the system dynamics method, we first present a model that represents the main effects associated with the program and then we test a scenario that includes workers from small businesses (next section).

System dynamics is a simulation method pioneered by Forrester (1961) and explained in texts by Ford (2010) and Sterman (2000). It focuses on understanding the structures in a system that produces dynamically certain patterns of behaviors. The method is especially suited for modeling complex social systems, where several actors interact under the influence of factors

playing out over a long time. Moreover, in such systems those factors are often nonlinear and interact among themselves, creating positive or negative feedback loops.

It is important to emphasize that any governmental program offering tax incentives faces a temporal trade-off when its effects have positive multipliers. Losses in the short-term and gains in long-term characterize this trade-off. The size of the multiplier and the delays involved in the production of effects can make the introduction of such program sensitive to budget constraints and political pressures. Figure 1 presents the general scheme for a WFP that accounts for the existence of delays and multipliers. When properly designed, such programs can create a virtuous cycle in the economy.

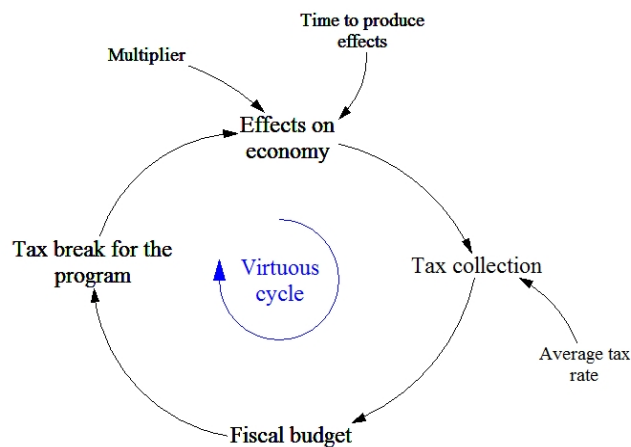


Figure 1. General scheme of a worker food program

Thresholds are everywhere. Thresholds are important in incentivized programs. In the case of a WFP, its attractiveness depends on the value CEOs and executives (one of the main targets) perceive in them. They typically weigh costs and benefits associated with the program. Considering the general human proneness to overvalue tangible and short-term rewards, giving rise to a hyperbolic discount of time (Frederick, Loewenstein, & O'Donoghue, 2002), benefits with those characteristics tend to be more appealing. On the other hand, it is expected that decision-making processes in organized companies have a rational basis. We expect variation in the decision of managers: which criterion prevails in each case is an empirical matter, but a general proposition is the more rational a decision-making process is, the more probable the company will adopt programs with long-term benefits and favorable costs. Another crucial factor to predict adoption is simplicity of rules and operational procedures. For modeling purposes, adoption is sensitive only to offered tax breaks. When the incentives reach a minimum level, most (but not all) companies adopt the program.

A WFP-like program has attractive benefits for companies willing to provide better meals and nutrition to their workers. It has also short and long-term benefits for economic sectors, such as restaurants, the food industry and several other actors that operate in this economic ecosystem. However, some necessary conditions must be present to a WFP program generate its positive multiplicative effects. First, governments must create an adequate conceptual and legal framework. Calibrated incentives and adequate coordination makes possible the first transition of state – it works as a metaphorical ladder that invite the economic actors to start climbing.

The WFP in Brazil (as well as any properly managed WFP) led to two transitions of phase in the economy, overcoming two thresholds. The first threshold is surpassed when an increase in demand for meals generate the minimum viable demand for new restaurants as well as an increase in the demand of existent meals providers, increasing their profitability (Figure 2). Threshold analysis (e.g. Deller & Ryan, 1996) suggests that this effect tends to be stronger in middle and small cities where fixed and variable costs are smaller.

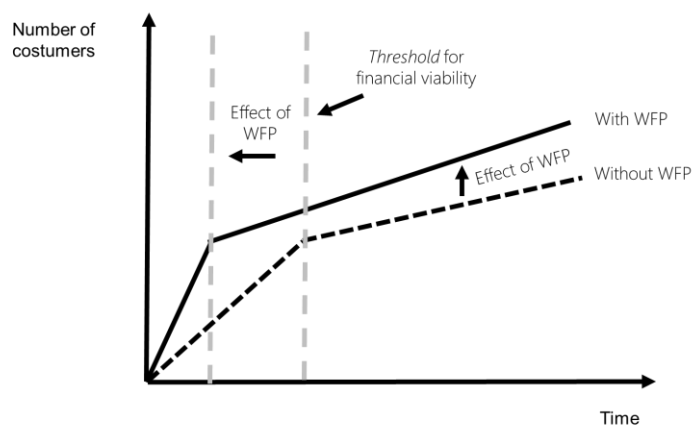


Figure 2. Threshold effect for restaurants and meals providers

Over time, the accelerated expansion in the number of restaurants and meal providers leads to an increase in economic complexity of the involved sectors. A new threshold can then be surpassed. Economic sectors become more sophisticated, with the creation of a myriad of new services (consulting, development, courses), and increasing differentiation in the culinary. In Brazil, an innovation in the meal industry in the 80's was the popular “pay by weight” restaurant - where people choose from a diverse set of plates and pay according to the weight of the food. This sophistication has been accelerating since then. In the city of São Paulo, for instance, there have been increased competition and professionalization among restaurants; the creation of undergraduate courses in gastronomy; greater availability of fresh produce and other inputs, and better qualified workers (Masano, 2011). Figure 3 presents the effects that occur at a more aggregate level.

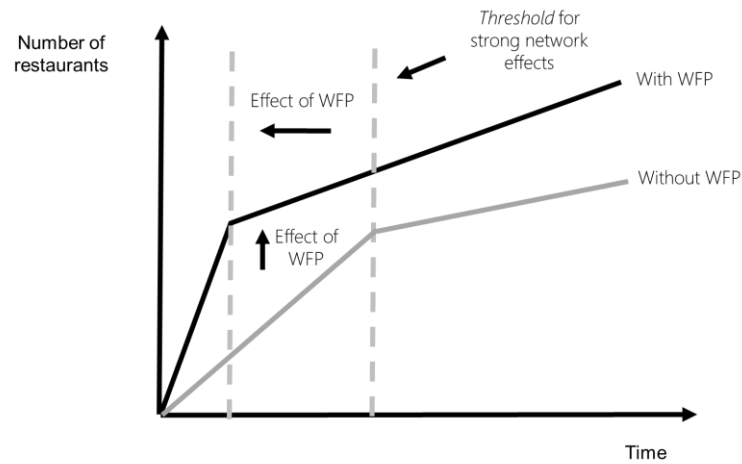


Figure 3. Threshold effects for the economic ecosystem

The multiplicative and threshold effects of the WFP are favorable both to providers of inputs (tablewear, silverware, food), who also become more sophisticated over time, and to the creation of special services, such as management, nutrition and gastronomy consulting. In turn, new services create a positive feedback in the system, inducing the creation of premium restaurants, new formats for meal provision and so on. Those network effects are depicted in figure 4.

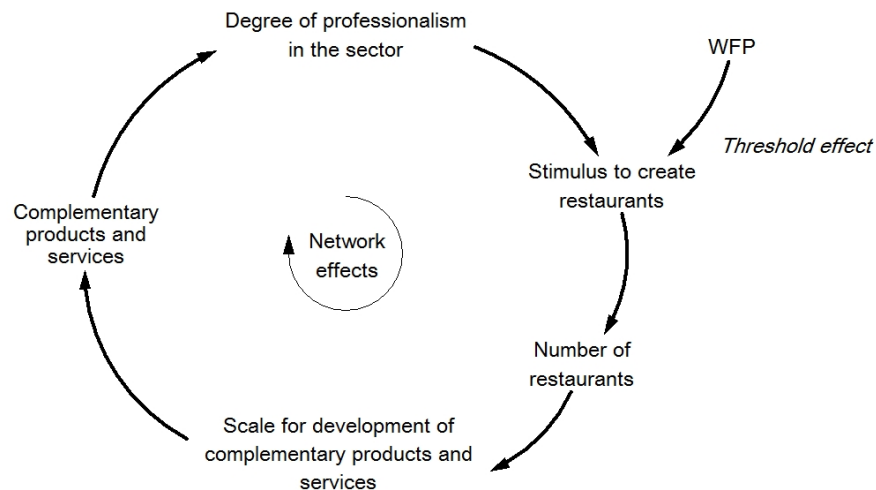


Figure 4. Network effects of a WFP

Based on this brief network analysis, we created a system dynamics model to represent the main effects of the Brazilian WFP. System dynamics propitiates a “10,000 meters” view of the system, portraying its structures and policies in an aggregate manner. The method portrays the elements of systems using stocks, flows and auxiliary variables (Figure 5). Stocks represent tangible or intangible assets (or states of the system) that accumulate over time. Flows change the stocks and auxiliary

variables represent constants and policy elements embedded in the systems. Clouds represent everything that is outside the system. Arrows depict causal relations, information and policies.

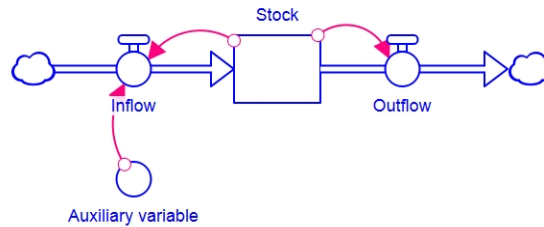


Figure 5. Stock and flow representation

The effects of a WFP occur over a long time span. The model considers a time horizon of 50 years, which corresponds to a projection between the years 1976 (actual beginning of the program in Brazil) and 2026. Whenever existent, data employed in the model came from official data and studies conducted by representative associations (e.g. IBGE, 2014; IBPT, 2012; SEBRAE, 2014). Considering the absence of historical data for most series (e.g., number of small and big businesses since the beginning of the program), the model runs on averages. In addition, considering the disparity in data from different organizations, the choice was always for conservative estimates.

A major feedback process stands behind the dynamics implied by the model. Tax breaks incentivize companies to join the program, setting in motion several multiplier effects in the economy, which, in turn, generate taxes, closing the cycle. As said before, the main trade-off made in the program, from a public policy perspective, is the concession of tax incentives versus the possibility of future tax returns generated by the program. Such returns take some time to be collected, especially considering the fact that there are delays in the process of opening restaurants, specialized firms and other businesses. Another important aspect is the nonlinearity in adoption rates. They depend on the level of tax breaks, knowledge of the rules, normative pressure (e.g., perception that similar companies are doing the same) and the easiness in enrolling and complying. Similarly, it takes some years, in practice, to potential entrepreneurs realize unaddressed demand in the meals market and invest in new restaurants. The trade-off may elicit opposition to the program based on its short-term negative loss (in the initial years) or represent a temptation to public executives to cut tax incentives in times of constrained fiscal budgets. The general stock-and-flow model of Brazilian WFP is presented on figure 6.

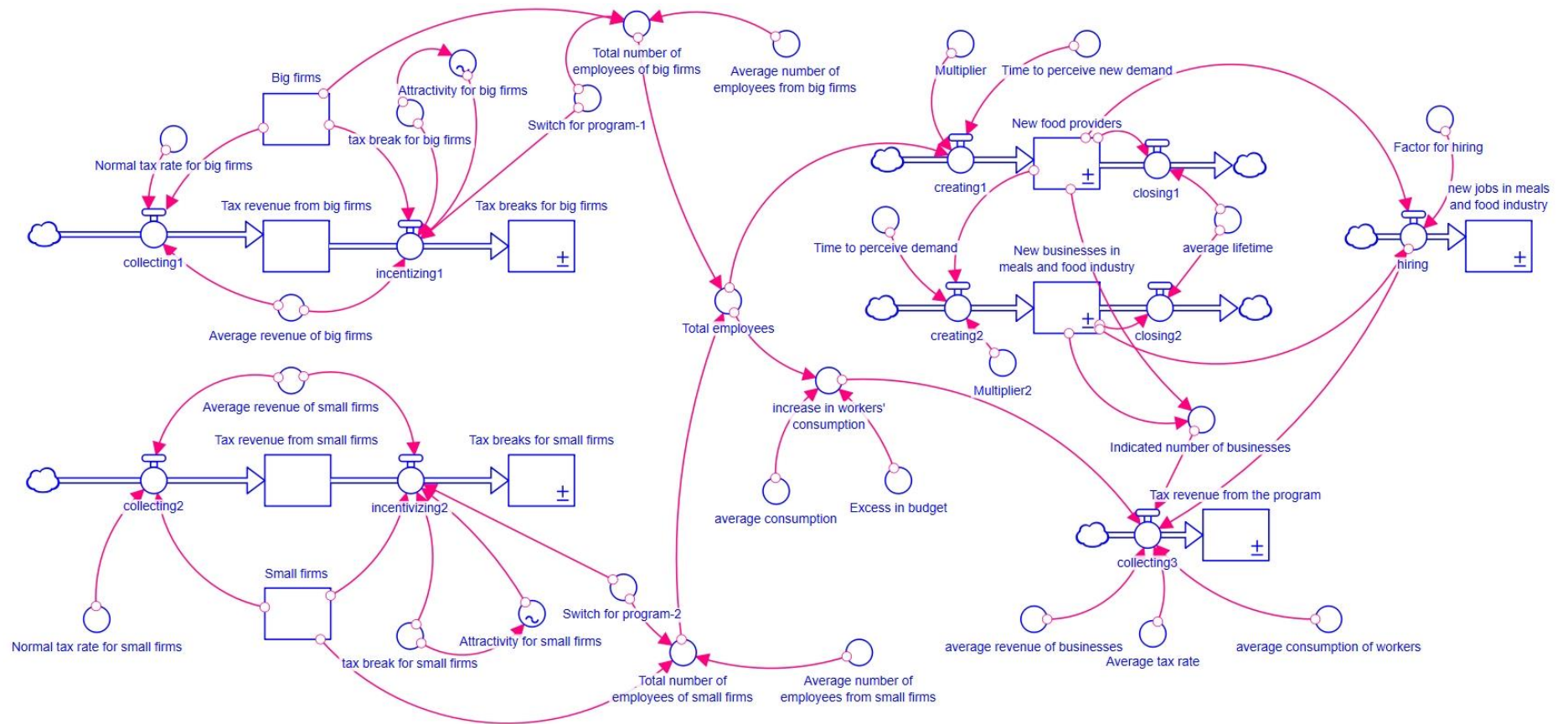


Figure 6. General stock-and-flow model of Brazilian WFP

For simplicity, some effects were not included in the model. They refer to gains in productivity and decrease in work accidents that also translate in financial savings for companies and governments. In addition, the effects through all economic sectors were simplified and only the effects on restaurants and specialized companies were included. This makes the estimation very conservative. A fact worth emphasizing is that companies have shouldered most of the financial burden of the Brazilian WFP throughout its history. In fact, the governmental subsidy has been representing the smallest fraction of all costs. Currently, for every meal a firm can only offset R\$ 1.99 in taxes.

Figure 7 presents the simulation for 50 years, which includes only the big companies authorized by law to participate in the program. The figure depicts accumulated figures for tax breaks and tax revenues generated by the program. It is worth noting in the simulated series that the breakeven point takes about seven years to occur. After that point, however, the accumulated increase in tax revenues grows at a steeper rate. The payback in taxes is equivalent to \$7 for each \$1 invested by the government (through tax breaks) – which is clearly a lower bound for the range of economic effects, considering the exclusion of other economic effects (such as decrease in work accidents) and the probable overestimation of tax breaks in the model.

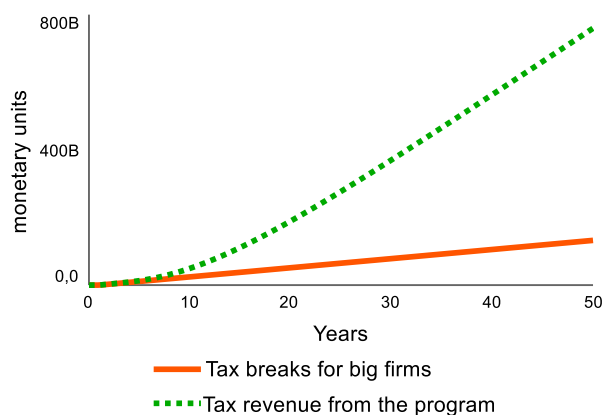


Figure 7. Simulated results for the Brazilian WFP: accumulated tax break and accumulated tax revenue

Simulation: inclusion of small businesses

Next, we next simulate the inclusion of small businesses in the program, starting in the year 35 of the simulation, corresponding to the year 2011. There are, thus, 15 years remaining in the simulation (corresponding to the period between 2011 and 2016) to observe the effects. Figure 8 presents the total results, including the ones generated by the participation of

big companies. Figure 9, in turn, presents the results including only small businesses (notice that they join the program only in year 35 of the simulation).

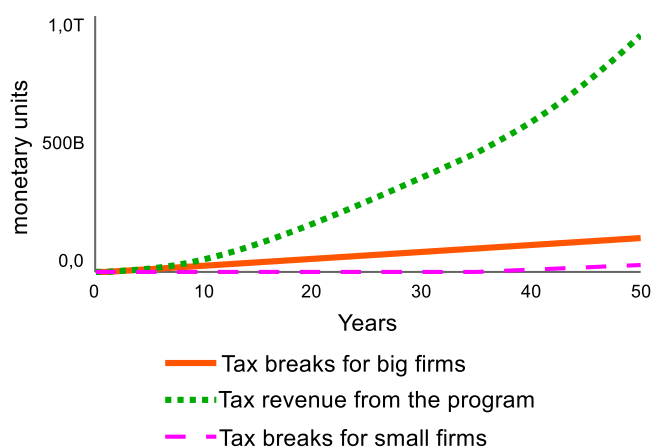


Figure 8. Simulated total results with the inclusion of small businesses in Brazilian WFP

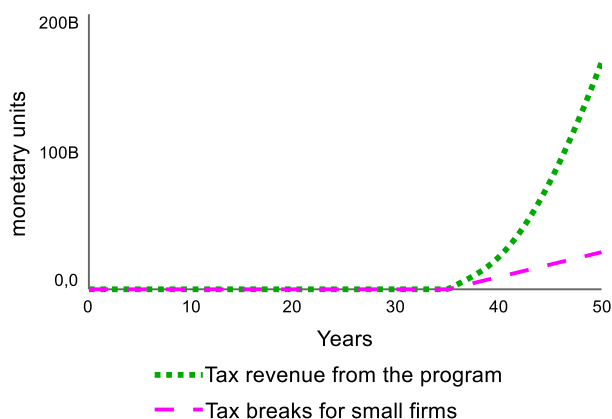


Figure 9. Simulated results considering only the contribution of small businesses

It is worth noting that the parameter for participation of small companies in the program was set at conservative levels. The reason is the high degree of informality in those companies and the probable low weight given to investments that accrue long-term benefits. The tax break in the simulation was equivalent to the one offered to big firms, a 4% reduction. Under such incentive, the model considers that 30% of small companies would perceive value and join the WFP in the remaining 15 years of the simulation. More than being conservative, this estimation considers the long time span involved in the adoption of any new social program, especially when the incentives are relatively small and benefits take time to play out. Nonetheless, the

simulation makes clear that the inclusion of small business is advantageous for the government and for the general WFP social ecosystem.

Another challenge looms in the horizon: Obesity

In 1975, a staggering percentage of 22.3% of Brazilians suffered from undernutrition (FAO, 2015). Only in 2007, Brazil would overcome this health problem. Since then, the numbers of undernutrition in the country have been undetectable. Figure 10 presents the historical data series as well as a projection for the next decades considering the rate will remain undetectable (i.e., below 5%). It is clear that the landscape has changed. Undernutrition is no longer a problem. Obesity has taken the center of stage.

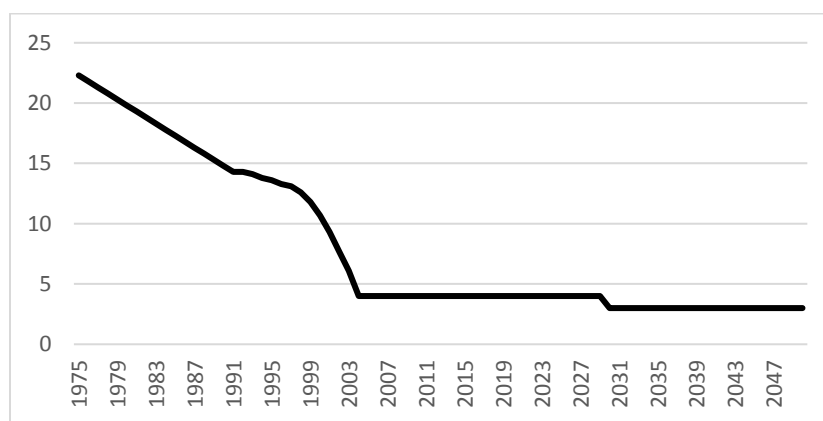


Figure 10. Evolution of undernutrition in Brazil: historical data and projection (in percentage of population)

Most recent data shows that 52.5% of Brazilians are overweight, with a corporal mass index above 25 Kg/m², and 17.9% of the population are obese, with a CMI above 30 Kg/m² (Brasil, 2015). In fact, since the last decade undernutrition became undetected in the country, while excess weight and obesity have become the main problem in the health and nutrition fields. According to Cardoso (2015), Brazil is the fifth country in the world in number of obese individuals and the problem has achieved an epidemic status. The costs to the health system have skyrocketed, reaching currently 2.4% of Brazilian GDP. Like undernutrition in the past, obesity is strongly related to socio-economic status, affecting disproportionately the poor in developing countries (McLaren, 2007).

Social marketing response to the challenges

What happens in the case of Brazilian WFP illustrates a more general phenomenon. Often, but slowly, key macro environmental factors change, but that change takes a long time to be perceived by influencers and decision makers. Programs

created under a previous macro environment progressively become misadjusted as long as their goals do not fit current social landscape. In the case of Brazilian WFP, tax regulations changed over time so most of the main targets of the program, low-income workers, were, in practice, blocked from taking part in it. At the same time, due to social and economic development processes, undernutrition became a distant memory and obesity became a major problem. Therefore, the WFP requires changes that, in turn, demand behavior change from several social actors.

In sum, the main challenges for the Brazilian WFP are the need for inclusion of workers from small businesses and the increasing prevalence of obesity in the population.

Social marketing can help in the process of tackling both challenges. Social marketing is a discipline that emerged in the second half of last century with the goal of tackling social problems using the same principles, methods and tools of commercial marketing. The discipline promotes the adoption of ideas, behaviors, programs and social causes aiming at specific audiences (Carvalho & Mazzon, 2013; Kotler & Lee, 2011). In other words, social marketing is all about behavior change. Social marketers aim at creating conditions for the performance (or avoidance) of specific behaviors. Goals could be the support for a change in law, the increase in the offer of fruits and vegetables in restaurants or the creation of well-being programs in small companies.

A social marketing perspective considers, first, that there are several segments involved with the WFP in Brazil: workers, companies (either offering the benefits or taking part in the economic chain), government (politicians and public executives), think tanks and influencers (such as media experts and economic advisors). Each segment can have different perceptions about the program and its related aspects (e.g., the salience of the obesity issue). As suggested previously, each segment may have to perform certain behaviors in order to expand the program. On the other hand, changes in behaviors often depend on a previous change in beliefs. For instance, think tanks, influencers and public executives must have the rational belief that including small companies is a sound policy to adopt. Small companies must have the perception that better nutrition leads to greater productivity and less accidents. A social marketing campaign must identify from the current perception of those social actors the main barriers and benefits related to the program. Politicians may think the expansion of the WFP is not a priority, for instance.

Sometimes politicians and even executives may believe that giving benefits in cash is better. A benefit in cash can even be higher, compared to vouchers, given the elimination of administrative costs (Vassalo, 2012). However, people do not treat money as a fungible resource; instead, they adopt an underlying concept of mental accounting (Thaler, 1999). Thus, a benefit in cash has a higher probability of being used to cover other expenses, since the elimination of vouchers would blur the boundaries of the mental account for meals. One necessarily uses a voucher to pay for meals or food. Cash, on the other hand, goes to a general “pool” of financial resources. It is easier to spend what otherwise would be the price of a meal on another

more pressing need or desire. People can then resort to meals of poor nutritional quality. Therefore, social marketing programs need to provide compelling reasons to keep the system running on vouchers and alternative means of provision, maintaining their nature of a job benefit, instead of merely providing cash.

It is therefore advisable for a social marketing program to aim at changing the prevailing beliefs about the program in the mentioned targets. According to Kotler and Roberto (1989), social marketing means a social-change management technology involving the design, implementation, and control of programs aimed at increasing the acceptability of a social idea or practice in one or more groups of target adopters. A social idea can be a belief (e.g., “refined carbohydrates are hazardous to one’s health”), an attitude (e.g., “fruits makes a perfect dessert after lunch”) or a value, such as “human rights”.

Considering the different targets involved in the possible expansion of Brazilian WFP, table 1 presents a tentative sketch comprising possible salient beliefs and desired behaviors a social marketing campaign would have to plan for. Of course, the beliefs are listed only for illustrative purposes. Social marketing is a bottom-up approach and there are structured approaches to elicit actual beliefs.

Table 1. Elements of a social marketing campaign to expand WFP to small businesses

Target	Possible salient beliefs	Desired behaviors
Politicians	Change is not urgent WFP is an expensive program Cash or vouchers are indifferent	Sponsor change in law Support the change Guarantee that workers continue receiving the benefit
Public executives	Subsidies are always undesirable	Support the change
Media influencers	WFP is a complicated program	Prioritize the issue in media agenda
Owners of small companies	Implementing a WFP is expensive There is no advantage in providing meals to workers	Visit a website Ask for additional material Sign up for the program

A social marketing program to fight obesity will have to employ a similar strategy, under a longer time span. Because this social problem has a systemic nature, it demands a wider set of tools from social marketers, including regulations and changes in laws regarding taxation of refined foods, for instance.

Final Considerations

The hardest segments to reach in almost any governmental intervention are usually the ones where such intervention is more pressing. This is true for interventions in any field related to development of human capital, especially education and health. This is also the case of the Brazilian WFP. While it has been a success since its introduction, around four decades ago, reaching a great number of low-income workers and generating positive economic and social returns, it has never surpassed a crucial threshold. It never reached the vulnerable segment represented by employees of small firms.

Thus, a model was created to represent the main network effects of the Brazilian WFP, allowing, in turn, the simulation of a scenario in which that crucial threshold was surpassed. However, showing that the expansion is beneficial from a societal point of view is not enough. It is necessary to convince influencers and decision makers that such change is desirable and urgent. A social marketing intervention can create the conditions for that change. Moreover, it must tackle the second challenge associated with the program, which is the increasing prevalence of overweight and obesity among Brazilian workers. Most of that effort should involve the production of compelling narratives to change beliefs and induce behavior change. The first leg of the intervention, thus, aims at influencing the behavior of upstream social actors, like politicians, public decision makers, business groups and media gatekeepers, with the goal of changing laws and regulations. The second leg of that approach aims at influencing restaurant owners, firms and workers to change their offers or dietary habits, with the goal of increasing the nutritional quality of everyday meals.

Thresholds and nonlinearities are everywhere. The key for countries to surpass important ones in their quest for development involve the coordination of multifaceted and complex factors, including the development of their human capital. Nutrition and health are a necessary condition for such development to occur. Therefore, programs like WFP, although representing only a piece in the complex puzzle of economic development, can be a valuable tool in the hands of governments and firms. To produce its effects, governments have to be patient to wait for longer-term benefits (especially fiscal ones and gains in economic productivity) and firms should look beyond the traditional (narrow) recipe for managing work relations.

Kotler (2015) stresses that when a firm invests in training their workers it benefits not only itself but also its employees, who increase their educational level. The same argument stands for most other benefits firms can offer. When a company offers adequate, nutritiously rich meals to its workers, it fosters more than favorable conditions to better operational and financial indicators, though increases in productivity, decreases in work accidents and other effects. It fosters better work conditions. Workers perceive that their well-being is important, increasing therefore their satisfaction, whose effects also tend to reach their familiar life, creating a true virtuous cycle. Families also benefit when workers can acquire food of better quality, as it is the case when they receive food vouchers redeemable in supermarkets.

Standing among the main challenges capitalism faces nowadays, it is the need to offer better pay and work conditions to employees (Kotler, 2015). Satisfied workers treat consumers better, innovate more and are more productive. In the end, this approach is in the sheer self-interest of the firms, considering the evidence suggesting it increases profits. There has been an increase worldwide in well-being and health management programs in companies, including better nutrition programs. There is, thus, ample potential for expansion of WFPs and similar programs aiming at increasing human capital. In the special case of Brazil, the need for a well-prepared workforce is still more pressing, considering the virtual stagnation in worker

productivity in the country at a level that is roughly one third of the Organization for Economic Co-operation and Development (OECD) average.

References

- Afridi, F. (2010). Child welfare programs and child nutrition: Evidence from a mandated school meal program in India. *Journal of Development Economics*, 92(2), 152–165. <http://doi.org/10.1016/j.jdeveco.2009.02.002>
- Agénor, P. R., Canuto, O., & Jelenic, M. (2012). Avoiding Middle-Income Growth Traps. Retrieved September 1, 2016, from <http://siteresources.worldbank.org/EXTPREMNET/Resources/EP98.pdf>
- Barquera, S., Rivera-Dommarco, J., & Gasca-García, A. (2001). Políticas y programas de alimentación y nutrición en México. *Salud Pública de México*, 43(5), 464–477. <http://doi.org/10.1590/S0036-36342001000500011>
- Brasil - Portal Brasil (2015). Metade dos brasileiros está com excesso de peso. Retrieved September 15, 2016, from <http://www.brasil.gov.br/saude/2015/04/metade-dos-brasileiros-esta-com-excesso-de-peso>
- Cardoso, L. O. (2015). Sobre peso e obesidade atingem crianças e adolescentes cada vez mais cedo. Retrieved September 17, 2016, from http://epoca.globo.com/vida/noticia/2015/01/bsobre_peso-e-obesidadeb-atingem-criancas-e-adolescentes-cada-vez-mais-cedo.html
- Carvalho, H. C., & Mazzon, J. A. (2013). Homo economicus and social marketing: questioning traditional models of behavior. *Journal of Social Marketing*, 3, 162–175. <http://doi.org/10.1108/JSOCM-11-2011-0080>
- Castro, E. T. P. (1997). *Estimativa das perdas de rendimento dos trabalhadores devido a condições inadequadas de nutrição*. Escola Superior de Agricultura Luiz de Queiroz (Esalq/USP).
- Colares, L. G. T. (2005). Evolução e perspectivas do programa de alimentação do trabalhador no contexto político brasileiro. *Nutrire Rev. Soc. Bras. Aliment. Nutr*, 29, 29, 141–158.
- Deller, S. C., & Ryan, W. F. (1996). *Retail and service demand thresholds for Wisconsin*. Center for Community Economic Development, University of Wisconsin.
- FAO - Organización de las Naciones Unidas para la Alimentación y la Agricultura. (2015). Brazil - Food security and safety. Retrieved January 1, 2001, from <http://www.fao.org/countryprofiles/index/en/?iso3=BRA&paia=2>
- Ford, A. (2010). *Modeling the Environment*. Washington: Island Press.
- Forrester, J. W. (1961). *Industrial Dynamics*. Cambridge: Productivity Press.
- Frederick, S., Loewenstein, G., & O'Donoghue, T. (2002). Time Discounting and Preference : A Critical Review. *Journal of Economic Literature*. <http://doi.org/10.1126/science.151.3712.867-a>
- Geisel, E. (1976). Decreto Programa de Alimentação do Trabalhador - PAT. Retrieved September 20, 2016, from http://www.planalto.gov.br/ccivil_03/leis/L6321.htm
- Geraldo, A. P. G., Bandoni, D. H., & Jaime, P. C. (2008). [Nutritional information of meals supplied by companies participating in the Workers' Meal Program in Sao Paulo, Brazil]. *Revista Panamericana de Salud Publica = Pan American Journal of Public Health*, 23(1), 19–25.
- Gleason, B. P., Briefel, R., & Wilson, A. (2009). School Meal Program Participation and Its Association with Dietary Patterns and Childhood Obesity. *Nutrition*, 76(59).
- Hinojosa, F. de J. C. (2011). Decreto por el que se expide la Ley de Ayuda Alimentaria para los Trabajadores. Retrieved October 10, 2016, from http://dof.gob.mx/nota_detalle.php?codigo=5174785&fecha=17/01/2011
- Hoynes, H. W., & Schanzenbach, D. W. (2012). Work incentives and the Food Stamp Program. *Journal of Public Economics*, 96(1–2), 151–162. <http://doi.org/10.1016/j.jpubeco.2011.08.006>
- IBGE - Instituto Brasileiro de Geografia e Estatística. (2014). Economia. Retrieved July 1, 2016, from http://www.ibge.gov.br/home/mapa_site/mapa_site.php#economia
- IBPT - Instituto Brasileiro de Planejamento e Tributação. (2012). Censo das Empresas. Retrieved July 1, 2016, from <http://www.ibpt.com.br/img/uploads/novelty/estudo/372/CENSODASEMPRESAS EENTIDADESOUTUBRO2012V9FINAL.pdf>

- Kotler, P. (2015). *Confronting Capitalism: Real Solutions for a Troubled Economic System*. New York: Amacon.
- Kotler, P., & Lee, N. R. (2011). Social Marketing: Influencing Behaviors for Good. *Sage*, 3, 456. <http://doi.org/10.1080/15245004.1996.9960974>
- Kotler, P., & Roberto, E. L. (1989). *Social Marketing: Strategies for Changing Public Behavior*. New York.
- Kramer, C. V., & Allen, S. (2015). Malnutrition in developing countries. *Pediatrics and Child Health (United Kingdom)*. <http://doi.org/10.1016/j.paed.2015.04.002>
- Landers, P. S. (2007). The Food Stamp Program: history, nutrition education, and impact. *Journal of the American Dietetic Association*, 107(11), 1945–1951. <http://doi.org/10.1016/j.jada.2007.08.009>
- Masano, I. R. (2011). *A gastronomia paulistana: O local e o global no mesmo prato*. Thesis from Universidade de São Paulo.
- Mazzon, J. A. (2006). *Programa de Alimentação para o Trabalhador: 30 anos de contribuições ao desenvolvimento do Brasil*. FIA - Fundação Instituto de Administração. São Paulo.
- Mazzon, J. A., Barros, F. M. de O., Zilveti, F. A., Isabella, G., Carvalho, H. C., Marques, J. A., & Guilhoto, J. J. M. (2016). *40 anos Programa de Alimentação do Trabalhador. Conquistas e desafios da política nutricional com foco em desenvolvimento econômico e social*. São Paulo: Edgard Blücher.
- McLaren, L. (2007). Socioeconomic status and obesity. *Epidemiologic Reviews*, 29(1), 29–48. <http://doi.org/10.1093/epirev/mxm001>
- Ministério do Trabalho. (2016). Ministério do trabalho do Brasil. Retrieved April 1, 2016, from <http://trabalho.gov.br/>
- Mitchell, R. J., & Bates, P. (2011). Measuring health-related productivity loss. *Population Health Management*, 14(2), 93–98. <http://doi.org/10.1089/pop.2010.0014>
- Morley, J. E. (2016). Undernutrition. Merck Sharp & Dohme Corp Report. Retrieved from <https://www.merckmanuals.com/home/disorders-of-nutrition/undernutrition/undernutrition>
- SEBRAE. (2014). A evolução das microempresas e empresas de pequeno porte 2009 a 2012. Retrieved July 1, 2016, from <http://www.bibliotecas.sebrae.com.br>
- SRF. (2014). Estatísticas do Simples Nacional. Retrieved June 1, 2015, from <http://www8.receita.fazenda.gov.br/SimplesNacional/Aplicacoes/ATBHE/estatisticasSinac.app/Default.aspx>
- Sterman, J. D. (2000). *Business Dynamics : Systems Thinking and Modeling for a Complex World*. *Journal of the Operational Research Society* (Vol. 53). Boston: Irwin/McGraw-Hill. <http://doi.org/10.1057/palgrave.jors.2601336>
- Thaler, R. H. (1999). Mental accounting matters. *Journal of Behavioral Decision Making*, 12(3), 183–206. [http://doi.org/10.1002/\(SICI\)1099-0771\(199909\)12:3<183::AID-BDM318>3.0.CO;2-F](http://doi.org/10.1002/(SICI)1099-0771(199909)12:3<183::AID-BDM318>3.0.CO;2-F)
- Vassalo, D. (2012). *Estudo sobre o regime jurídico aplicável aos benefícios sociais relacionados com a alimentação, transporte, educação e saúde*. Endered Internal Report. Lisboa.
- Veloso, I. S., & Santana, V. S. (2002). Impact of the worker food program in Brazil. *Pan American Journal of Public Health*, 11(1), 24–31.
- Wanjek, C. (2005). *Food At Work: Workplace Solutions for Malnutrition, Obesity and Chronic Diseases*. International Labor Office.
- WHO - World Health Organization (2016). Obesity and overweight. Retrieved June 20, 2009, from <http://www.who.int/mediacentre/factsheets/fs311/en/>