

FREE TRADE AND IMPLICATIONS FOR HUNGER

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Abstract

Free Trade are the numerous forms of elimination of trade barriers among regions on the world. Usually they the intent to eliminate the trade barriers by the construction of trade agreements that usually allow various types of international economic integration agreements, namely, free trade agreements, customs unions, common markets, and economic unions, etc.

This paper refers to the elimination of barriers among countries and regions on trade mainly in countries in development promote the economic development by bringing new countries with competitive advantages to the international commerce. Also, new innovative techniques of production foods are referred, as aquaponics production in order to contribute to zero hunger. As a consequence, the international supply of food generally increases at the beginning the prices decrease and allow to increase the demand of food, that means a construction, in *ceteris paribus* of a new market equilibrium higher than the initial that will contribute for food security and for the reduction of hunger around the world. This is also one of the Sustainable Goals from United Nations to achieve.

Keywords: Development; sustainability; free trade; sustainable goals; United Nations

Introduction

Nowadays due the world disparity of resources, technologies of production and distribution of secure foods among countries and territories, one of the world greatest challenges is to ensure that the world population has reliable access to adequate, affordable and nutritious food sufficient to avoid hunger. Also, the United Nations define as first goal to achieve at world level, under the Sustainable Development Goal (SDG) as number one the “End poverty in all its forms everywhere” around the world; Similarly, the UNs have as SDG Goal 2: “Zero Hunger”. Also, they define under the 12th SDG to “Ensure sustainable consumption and production patterns” both of these goals for 2030 (UN, 2019).

The first SDG is justified according to the UN (2019) because more than 700 million people that represents 10% of the world population, still live in extreme poverty and is struggling to fulfil the most basic needs like food, health, education, and access to water and sanitation. The majority of people living on less than \$1.90 a day live in sub-Saharan Africa. Worldwide, the poverty rate in rural areas is 17.2 per cent more than three times higher than in urban areas (UN, 2019).

Likewise, they define and justify the SDG 12 as “sustainable consumption and production is about promoting resource and energy efficiency, sustainable infrastructure, and providing access to basic services, green and decent jobs and a better quality of life for all. Its implementation helps to achieve overall development plans, reduce future economic, environmental and social costs, strengthen economic competitiveness and reduce poverty (UN, 2019).

There is now a wide acceptance among policymakers of the pressing need to reform the global governance of food security in order to address rising world hunger and improve the efficacy of existing food security interventions. It is widely acknowledged that the global scale (Margulis, 2013). Other aspects are related to the complexity of food insecurity arc beyond the capacity of individual states to manage alone.

Food security issues are multidimensional and encompass economic, social, environmental and institutional aspects (Dos-Santos, 2018). From the economic point of view, the majority of the world population lives in urban areas and this trend is increasing. Urbanization has become a major global trend, with ever increasing degrees of urbanization reaching 70% and more in various European and Asian

countries (Dos-Santos, 2016). Increasing urbanization of cities is accompanied by network support systems from infrastructure, transport networks and logistics, a greater demand for food and for food transportation associated to long supply chains, communication, trade, cultural aspects, tourism and employment, generating spillovers and leading to growth and development of cities (Leamer and Storper, 2014; Dos-Santos, 2016). These systems have as their main purpose the distribution and consumption accessible to the whole population, by the promotion of equitable food distribution which in most of the world is not yet happening, due the poverty, unemployment problems, social exclusion, the income distribution problems, low income associated problems, etc. Moreover, 8% per cent of employed workers and their families worldwide lived in extreme poverty in 2018 (U.N., 2019). Poverty also affects the more vulnerable people and children. These problems are even more pronounced in rural areas (U.N., 2019). Poverty has many dimensions, but its causes include unemployment, and high vulnerability of certain populations to disasters, diseases and other phenomena which prevent them from being productive. (Dos-Santos, 2018).

From the social point of view, as referred, more vulnerable people have more difficult to access to a sustainable food consumption. Growing inequality is detrimental to economic growth and undermines social cohesion, increasing political and social tensions and, in some circumstances, driving instability and conflicts (U.N., 2019).

From the environmental point of view the scientific community project several negative impacts of climate change on economic growth. (Arent et al. 2014), climatic changes are projected to test the limited ability of the economic infrastructure to adapt fast enough. This fact points out to the need for expensive investments in adaptive infrastructure in the coming decades. However, research and development might reduce the cost of adaptation (Arent et al. 2014).

Also, from the institutional point of view food security is nowadays a major issue at global governance. During the sub-prime crisis from 2008 until 2011 the food prices increase in a dramatic form. The main factors that contribute to this situation were the storm of surging energy prices, biofuel policies, food trade bans and speculation on commodities markets that drove food prices to historical peaks in 2008 swelled the number of hungry people worldwide to an unprecedented billion. Although the number of hungry persons has fallen slightly since then food prices spiked sharply again in 2010 and 2011 and uncertainty about the availability of the world food supply continues to send jitters across global markets. Politics have also felt the repercussion of volatile and rising food prices. Also, the political instability that coming from Arabic Spring in these countries associated to the penury of production and commerce in these fragile economies and visible climate change effects conduct to the hungry people worldwide (Dos-Santos, 2018; Margulis, 2013). Current trends indicate that the First Millennium Development Goals (FMDG) about the Food Security Goal (FSG) to reduce the number of hungry people worldwide by half between 1990 and 2015 was not be met (.

So, there is now a wide acceptance among policymakers of the pressing need to reform the global governance of food security in order to address rising world hunger and improve the efficacy of existing food security interventions. It is widely acknowledged that the global scale and drivers and complexity of food insecurity arc beyond the capacity of individual states to manage alone. The current global reform drive includes increasing cooperation and policy coherence across the UN system; the Bretton Woods; Institutions, European Commerce agreements from European Union (EU) regional bodies and the Group of 20 (G-20) leaders; the Group of 8 (G-8); the as well as, the varied Multilateral Trade Agreements of African Countries; of the World Trade Organization (WTO); MERCOSUL, FAO, among others.

The international trade agreements (ITA) were based from the beginning, on competitive advantages for the involved countries. But these ITA on the majority of the times don't are available to attend the country level restrictions about food availability and secure food for your entire population. As a consequence, the majority of the times fail into solve the social disparities among countries and also fail in provide available and secure food among all the population.

More recently, new and unpredictable restrictions on climate change further exacerbate food security disparities, both between and among countries and inside at country level.

Towards International Food Security Regime and Trade

Also, the existence of food equitable food production and distribution and raises many challenges from production, supply chains to distribution and access to sustainable and decent food. The problem from demand and needs of supply is different in pacific developed regions or in areas of war conflicts.

In developed countries, food banks serve the food-insecure population by collecting and distributing food donations in a timely and equitable manner (Sengul Orgut et al., 2016; Sengul Orgut et al., 2018). Unlike for-profit supply chains where demand is the main source of uncertainty, demand in a non-profit food supply chain is driven by the number of food insecure individuals and is usually a function of the county-level poverty population in the service area which tends to be relatively stable over time in developed countries (Sengul Orgut et al., 2018).

But in conflict areas, poverty and food insecurity are very important long-term humanitarian issues (Dos-Santos, 2018; Dos-Santos and Mota, 2019b), and conduct and increase humanitarian crisis. Emergency food aid is most often depicted as the compassionate response of the international community to natural disasters and 'complex emergencies (Leenders, & Mansour, (2018).

Poverty and food insecurity raising the need to address the trade-offs between efficiency, effectiveness and equity in these environments (Orgut, Ivy, Uzsoy, & Hale, 2018).

The objectives of equity, effectiveness and efficiency and the trade-offs between them have been studied in the context of disaster relief operations (Beamon & Balcik, 2008). Sengul Orgut et al., (2016) discuss the importance of food banks for addressing the problem of food insecurity world- wide and how operations research methods can be used to support their operations. Balcik, Beamon, and Smilowitz (2008) consider the "last mile distribution problem "from local distribution centers to the beneficiaries affected by disasters. They characterize emergency relief items according to the urgency of the beneficiaries' needs and seek an equitable distribution of resources that balances the unsatisfied or late-satisfied demand over a time horizon. Huang, Smilowitz, and Balcik (2011) address a similar problem, considering the speed of the response in addition to

Thomas, & Kopczak, (2010) highlights the major challenges in the area of reliable foods in develop countries and defines humanitarian logistics as a "special branch of logistics managing the response supply chain of critical supplies and services with challenges such as demand surges, uncertain supplies, critical time windows and the vast scope of its operations." Thomas and Mizushima [6] define humanitarian logistics as "the process of planning, implementing and controlling the efficient, cost-effective flow and storage of goods and materials, as well as related information, from point of origin to point of consumption for the purpose of meeting the end beneficiary's requirements." In general, humanitarian logistics issues can be categorized into two types- disasters and long-term humanitarian development issues (Dos-Santos, 2019). Although a significant portion of the literature on humanitarian logistics revolves around disaster management, the necessity and the impact of long-term humanitarian development is a significant challenge around the world.

From a sustainability perspective, the existence of a multifunctional agriculture that responds to the needs of society by providing non-market goods and services justifies government intervention in a market economy through agricultural and sectoral policies (Dos-Santos, 2016; Dos-Santos, 2018; Dos-Santos, 2017; Dos-Santos and Mota, 2019a).

Quantitative Approach to Optimize Free Trade

For the past half century, quantitative evaluation of the effect of a trade policy change on the bilateral international trade of a pair of countries has been addressed traditionally in two ways, one ex ante and one ex post. Ex ante quantitative analysis of the effects of a policy change – such as formation of a free trade agreement (FTA) – on bilateral trade flows has been conducted using computable general equilibrium (CGE) models of trade, such as GTAP and the Michigan Model. While pros and cons of these techniques

have been discussed extensively, CGE models remain a standard tool to evaluate quantitatively ex ante trade effects of FTAs (Baier & Bergstrand, 2009).

The ex post analyses of the effects of FTAs on trade flows have been conducted extensively using gravity models a log-linear ordinary least squares regression specification that typically is interpreted theoretically as the reduced-form from a formal general equilibrium model (Baier & Bergstrand, 2009). These last authors also refer all the previous scientific contributions in that field.

On the other hand, the last empirical researchers typically employed cross-sectional data for a particular year or for multiple years and used the coefficient estimates associated with a dummy variable representing the presence or absence of an FTA to estimate the Average Partial treatment effect (APTE) of an FTA on members' bilateral trade according to Baier & Bergstrand (2009). These authors also provide the first cross-section estimates of long-run treatment effects of free trade agreements on members' bilateral international trade flows using (nonparametric) matching econometrics. These authors provide estimates of the long-run effects of membership in the original European Economic Community (from the beginning with a few number of countries) and for the Central American Common Market from 1960 to 2000. The results confirm the few adjustments of these models about of these agreements' effectiveness. (Baier & Bergstrand, 2009).

Although the important econometric methods to better analyses the impacts at national and multi country level the effective microeconomic impacts at country level to solve the problem of the hunger among and populations still continue very limited, because sectorial/global models cannot cover all the dimensions of the food security, namely, the social and environmental disparity among countries and regions about food security.

Towards a World Contribute for Zero Hunger

As referred before one of the greatest challenges of the present century is to ensure that the world population has reliable access to adequate, affordable and nutritious food sufficient to avoid hunger (Mary, 2019; Dos-Santos e Diz, 2019). According to these authors, agricultural trade liberalization is often considered a central element of economic strategies aiming at improving food security in developing countries. Some authors, namely, Mary (2019); Miličić et al., (2017) however, argue that most developing countries may not benefit from freer agricultural trade and that liberalization may accentuate food insecurity. But from an empirical perspective, the literature is incipient in the effects of trade on food security in developing countries (Mary, 2019). Also, few references not very consistence occurs for countries in development. The literature refers more partial effects from results of econometric methods or mathematical programming.

Mary (2019) analyses the effects of food trade openness on extreme hunger in developing countries. The results of this author confirm that a 10% increase in food trade openness would increase the prevalence of undernourishment by about 6%. They also confirm that developing countries reduce food trade openness as a response to increased hunger, that suggest the increasing of protectionist policies.

According to Mary (2019) a “percentage point increase in undernourishment prevalence would decrease food trade openness by 0.9%”. So, this author the main conclusions highlines that countries may be better off adopting food self-sufficiency for some time, despite such actions clashing with World Trade Organization's regulations and current agenda. To promote national country self-sufficiency is difficult due the limited natural resources. To overcome this situation the best strategy is to promote local and short supply foods systems, that means, local production of food by aquaponics systems Goddek et al., (2019). Aquaponics is an innovative smart and sustainable production system for integrating aquaculture with hydroponic vegetable crops, that can play a crucial role in the future of environmental and socio-economic sustainability. These systems acquire more importance in sceneries of poverty and food insecurity that mainly occurs in humanitarian crises. Aquaponics, as a closed loop system consisting of hydroponics and aquaculture elements, could contribute to address these problems (COST FA1305, 2015; Dos-Santos, 2016; and Dos-Santos (2016).

Aquaponics don't need to any agricultural land as a based resource on an extensive way. Also, in poor regions or cities or in countries in development, in urban areas aquaponics systems can be set up almost everywhere and have the potential to urbanize food production. This could bring important socio-environmental benefits besides your contribution. Aquaponics farming plants could be implemented in old industrial neglected buildings with the advantages of re-establishing a sustainable activity without increasing urbanization pressure on land. (Goddek et al., 2019). So, can be solved several problems that currently affect urban poverty, or scenarios of catastrophe, contributing to reduce the hunger among population. On the one hand, the price's pressures on the arable land and urban land can reduce, utilizing abandoned buildings that already have a lower residential value, and on the other, fresh food will be produced with no environmental contamination nor long transport cycles and expensive storage from long distances Miličić et al., (2017; Dos-Santos, 2016). That resulting in short supply chains, with economic, environmental and social benefits, for producers, consumers and inhabitants in general. Similarly, this farming systems can also be a way of creating new jobs in cities/urban areas contributing to the reduction of unemployment; help disability and promote the social cohesion.

Conclusion

Free Trade reports the numerous forms of elimination of trade barriers among regions on the world. The results outline confirm that trade barriers contribute to a Desigual distribution of food. These effects are particularly sensible in countries in development or regions with less development. The paper also refers new innovative forms of production to overcome the problem of hungry in sensitive regions or areas.

The paper also concludes, that although the important econometric methods to better analyses the impacts at national and multi country level the effective microeconomic impacts at country level to solve the problem of the hunger among and populations still continue very limited, because sectorial/global models cannot cover all the dimensions of the food security, namely, the social and environmental disparity among countries and regions about food security.

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