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# Producing Cheap Food and Labour: Migrations and Agriculture in the Capitalistic World-Ecology

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KEYWORDS

World-ecology
Migrations
Capitalism
Agriculture
Seasonal workers

ABSTRACT

Through the perspective of world-ecology, one of the most recent approaches in international relations, we aim to analyse global capitalism as an ecological project based on the appropriation of human and extra-human nature oriented to support capital accumulation process. Agriculture and its labour force occupy a central role in maintaining the world-system in which global chains, international migrations and centre-periphery relationships interact. This paper shows how global processes occur at this intersection. The aim of this paper is to contribute to the analysis of the current world-system through this innovative approach, developed mainly by Jason W. Moore, and then show how the world-system's structure and its crisis have articulated a highly-internationalized production model whose most significant effect has been the generation of large migrations of cheap labour across the planet. It is also proposed to descend to the local context to highlight examples because the organization of work at this territorial scale is representative of global agricultural production.

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## Introduction

Agriculture can be analysed from different points of view such as economic, environmental, and social; however, it can be observed going beyond these conventional divisions. This paper proposes the second option, considering agriculture a socio-ecologic unit developed through labour activities in the context of the world-ecology, in which human work and extra-human nature shape a combined unit.

This analytic perspective is inserted in the vision developed by Jason W. Moore (2015) and other researchers in the frame of a confrontation and a critical re-elaboration of the world-system and metabolic rift theories. Moreover, this elaboration is the result of a dialogue with certain feminist theories, focused on connecting production and social reproduction with decolonial perspectives.

The world-ecology therefore starts from a critique of the modern vision that divides humanity from nature, placing societies on one side and the environment on the other. The critique acknowledges that there are no clear boundaries between one and the other, but the social – human nature – and the environmental – the extra-human nature – domains constitute a single matrix through which different production and reproduction processes are performed. From this perspective, the study of agriculture is based on the idea of its socio-ecological centrality insofar as it is a key sector not only for the production of value but also for the reproduction of the capitalist system and the workforce because the average value of wages in the different geographical areas of the world depends largely upon the average value of the food[1]. World-ecology also evidences how reducing the cost of food for proletarian and working class families allows reducing

[1] This trend has been alerted by international organizations such as the United Nations, through the World Food Program (see https://www.wfp.org/stories/how-high-food-prices-affect-worlds-poor), State agencies such as the United States Department of Agriculture (see table (http://www.ers.usda.gov/datafiles/Food_Expenditures/Expenditures_on_food_and_alcoholic_beverages_that_were_consumed_at_home_by_selected_countries/table97_2014.xlsx) and media such as "The Economist" (see http://www.economist.com/blogs/graphicdetail/2013/03/daily-chart-5).

wages as well, revealing the clear link between low cost agricultural production and the reproduction of a cheap workforce, which is fundamental in the capitalist relations of production.

The crisis of cheap food, which began to manifest itself in 2003, and the 2008 financial crisis have shown a depletion of the current accumulation model, highlighting the difficulties that the capitalistic world-ecology is experiencing to continue reproducing the key factors at a low price[2]. As Moore (2015) notes, the system continually seeks to appropriate new commodity frontiers[3] to turn the accumulation wheel again. However, the great hope of the neoliberal project, the green revolution of biotechnologies, has been a resounding failure at allowing a new wave of food production at low cost.

In this context, we raise a key question: what factors are allowing the capitalist world-ecology in its neoliberal phase to maintain food production at low cost?

We intend to demonstrate that accumulation requires the reproduction of hierarchical relationships between states and populations, in which the economic, political and symbolic centre of the world-system is characterized by a high rate of constant capital (machinery) and the periphery is a provider of variable capital (workforce). Additionally, because of the exhaustion of the green revolution and the inadequacies of biotechnologies, the profitability of agriculture and food production at low cost has been maintained due to the massive extraction of surplus value from migrant labour coming from the periphery. This strategy is short-sighted, but it has been extended throughout the world-system. Thus, we will initially explain the analytical perspective of world-ecology; then, we will explore more

[2] As explained below, the theory of world-ecology starts from the premise that capitalism requires low-cost production of four fundamental elements (the four cheaps) for the survival of the system and the continuation of accumulation. These factors are food, labour, energy and raw materials.

[3] The paradigm of world-ecology conceives commodity frontiers as territorial and systemic (both natural and technical) frontiers that allow to obtain the four fundamental factors in larger quantities and at lower cost. The aim of the system therefore is to appropriate the factors to overcome obstacles posed to the production process and through their control to allow starting a new phase of accumulation.

deeply how it works. We will analyse the fundamental role occupied by the migrant workforce in maintaining the sector and continue by analysing the mechanisms, both national and local, that ensure the availability and reproduction of the reserve army to the system focusing on central areas in the structure of world capital accumulation.

## Analytic perspective of the world-ecology

The world-ecology theory is the result of a critical development of three lines of research: the world-system perspective, the metabolic rift and feminist thought based on the recognition of the centrality occupied by social reproduction and relations of domination.

The first reference to the term 'world-ecology' was made by Wallerstein in the first volume of 'The Modern World System'. In this analysis, the author showed how in the medieval prelude:

> '(…) food needs dictated the geographical expansion of Europe [and] the benefits turned out to be even greater than they could have anticipated. World ecology was altered in such a way that, due to the social organization of the emerging European world-economy, it would benefit primarily Europe' (Wallerstein 1974, 44).

This analysis already shows how the strict connection between food production, spatial transformations and social and geopolitical power relations worldwide are evident. In this respect, it is recognized that each mode of production is not simply an economic fact but a more complex fact that involves civilization. If agricultural production, spatial relations and power relations are developed globally, it follows that the history of capitalism has not been a purely economic history but rather an ecological history, characterized by the combination of specific class, socio-ecological and political-military relations. The continuous search and appropriation of new frontiers has allowed each cycle of accumulation to obtain free or cheap food, energy, human labour, or raw materials. These four fundamental cheap factors – food, energy, labour and raw materials - have reduced the

organic composition of capital of the produced goods, favouring the profit rate and therefore the rate of capital accumulation (Moore 2010). The world and the limits of cheap factors to conquer have been a fundamental reference for capitalism since the beginning; for those reasons, capitalism can be defined as a world-ecology. According to this analytical perspective, capitalism is not an economic system that has an environment outside itself; rather, capitalism is an ecological system. According to Moore (2015), capitalism does not have an ecological regime, but it is an ecological regime. Thus, capitalism is a civilization; in other words, it is the historical manifestation of a project and socio-ecological processes guided by the reference value (of exchange), which squeezes the connection in a dialectical unity of capital accumulation, production of nature and the pursuit of territorial power.

The interpretation of capitalism as a civilization project founded on the cheap appropriation of human and extra-human nature has been shared by this theory with other approaches developed in the framework of the Marxist ecological critique. Here, we highlight the metabolic rift theory outlined by Marx and developed as an ecological fracture (Clark and Foster 2009; Foster, Clark and York 2010) by various researchers. In the theory, the existent rift between the city and the countryside is revealed as a key element of the civilization caused by the industrialization of agriculture through the dissemination of chemistry that started in the second half of the nineteenth century and that underwent a strong acceleration throughout the twentieth century. However, world-ecology has covered a wider field, emphasizing his criticism on the separation between humanity and nature, which according to Moore (2015) remains present in the analysis of the metabolic rift. For Moore, society and nature are not separate worlds. Thus, for example, we can say that Wall Street is a means of organizing nature. This perspective goes beyond the idea of nature and capitalism and refers to capitalism-in-nature, emphasizing the need to think and talk about the relationship between humanity and nature differently, building a language that recognizes the unity of human beings with the rest of nature. We must

produce concepts that challenge the separation between humans and extra-humans to think of both as members of a relations that belongs to a single matrix, living in a common environment, sharing the same world – in a word, living in the same *oikeios*. The latter term is 'a way of naming the creative, historical and dialectical relationship between, and always inside, human and extra-human natures' (Moore 2015, 91), a concept that places 'the creative and generative relationship of species and the environment as the ontological pivot of historical change' (Moore 2015, 91).

The concept of *oikeios* recognizes that a common environment to human and extra-human life exists and that this life is reproduced through socio-ecological relations.

Therefore, what is recognized from this perspective is the centrality occupied by the practices and activities of life reproduction, not only in the social sense but also in the socio-ecological sense of the word. This centrality was studied in the same sense by a part of the feminist research that starts with the idea that life is reproduction rather than production, whereas in a civilization based on the law of value, the relationship between production and reproduction has been inverted, hierarchically superimposing production on reproduction. The world-ecology perspective recognizes the centrality of reproduction from a broader perspective, that of socio-ecological relationships, which goes beyond the hierarchical separation between the society and ecology. In this view, the hierarchical separation between the activities of human and extra-human natures aims to legitimize the cheap appropriation of the second by the first, as Marx noted in the 'Grundrisse' (1973), as capitalism undergoes a process of subordination of work to capital even when the source of value is in the first, that is, in the living labour.

## World-ecology and Agriculture: the centrality of cheap labour

Food and work are two of the four cheap factors. Together with energy and raw materials, which allow the capitalist accumulation through use, that is,

through the appropriation of human and extra-human activities at a low price, they produce what can be called an ecological surplus. Unlike the Marxist tradition, the perspective of world-ecology recognizes that the profit rate is not only connected with the processes of capitalization; it does not depend solely upon the relationship between the workforce's exploitation rate and total invested capital. From this perspective, the profit rate is also connected with the practice of cheap or free appropriation of vital activities (unpaid human work and actual or accumulated not-human activities). This connection does not reduce the importance of labour-capital relations or of the effect of class struggles' success on the rate of profit; instead, we are analysing the processes of accumulation by articulating ownership and capitalization and assuming that appropriation underlies accumulation.

This analysis is embedded in a broader picture of socio-ecological relations that can be interpreted as spatiotemporal (Harvey 1996) and therefore as labour relations because these factors are responsible for transforming time and space by combining human and extra-human activities. Specifically, there is a structural trend in capitalism towards time-space compression, that is, towards reducing (ideally to zero) the rotation time of the invested capital and, therefore, the circulation time of the produced commodities (Marx 1973). This trend has deepened in the neoliberal period and is characterized as a regime of flexible accumulation (Harvey 1989). This regime is particularly noticeable in the case of production and circulation of agricultural goods that are always aimed at reducing their cycle times through a proliferation of technologies supported by research in biological engineering and the deepening of logistics activities (Kastner, Erk and Haberl 2014).

The contraction of animals' lifetimes in farms and of the time for vegetables and fruits' growth in greenhouses is a tendency of all the agriculture in the neoliberal period, characterized, after the green revolution years 1930-1960, by the contributions of genetics and biotechnology. The transformation of the time required for agricultural production and circulation has been based on the changes suffered by elements that we

usually call natural (life and growth of animals and plants), confirming once again that there is no separation but instead interpenetration between humanity and extra-human nature.

However, this transformation has also affected human factors such as employment conditions and the cost of the labour force in world agriculture. A study of different publications and statistical sources highlights the centrality of a cheap, worldwide agricultural labour force (Bonnanno and Barbosa Cavalcanti 2014; Pedreño Cánovas 2014). For example, this trend is observed in the Californian case, in which the relative rise in wages between 2000 and 2010 has not changed the fact that:

> 'in mechanized agriculture (...), labour is often considered the most "controllable" expense in the sense that it is easier for a farmer to negotiate whether to pay $0.25 or $0.26 cents to have a 25-pound tray of raisin grapes picked than to negotiate the price of fertilizer' (Martin 2011, 5).

Moreover, in areas characterized by a process of rising wages as in Asia, for example (Elumalai 2015; Wang *et al.* 2014), 'nonfarm sectors tend to grow more rapidly than farm sectors, thereby creating an income gap between the two sectors' (Otsuka 2012). Therefore, the centrality occupied by cheap labour in the agricultural sector is essential for generating high profit rates on farms and agribusinesses. However, it has at the same time a centrality in the capitalistic world-ecology, in the sense that this workforce allows the production of cheap basic commodities and therefore cheap reproduction of human life. This centrality systemically depends upon the fact that if this world-ecology is based on the appropriation of the four economic factors and if the price of labour (wage) depends upon the food, forming a systemic link (Moore 2015, 240), then the inverse relationship is also applicable. That is, the price of food is dependent, among other factors, upon the cost of workforce. In short, if it is admitted that 'the relationship between cheap food and price of labour is particularly close' (Moore 2010, 395), then the price of food influences the level of wages. Therefore, wage levels influence the price of food.

This back and forth relationship between the price of food and workers' wages is fundamental to an understanding of the capitalistic strategy for the reproduction of labour in agriculture. The use of cheap labour can produce cheap food and therefore provide it to the planet, guaranteeing cheap labour throughout the world-ecology. In the absence of a new revolution in agricultural production, this short-sighted strategy has been launched as a transitional mechanism for the system's maintenance, whose operation will be further detailed in the next section.

The use of cheap labour is even more crucial if we consider another fundamental aspect of neoliberal agriculture – its dependence upon technologies (investments). In a context in which agriculture is increasingly capitalized, increasing the organic composition of capital and therefore reducing the rate of profit, human work becomes central. Cheap labour is a counter-trend against growing technologization, a fact that joins the tendency of companies to postpone investments in constant capital (machinery and technology). If the organic composition of capital (OC) is the ratio between constant capital (Cc) and Variable capital, (Vc) - OC = Cc / Vc, and the rate of gain (G) is the ratio of surplus value (Pl) and the total capital invested, that is, the sum of constant Capital (Cc) and Variable Capital (Vc) - G = Pl / (Cc + Vc), then what might reduce or stop the falling trend in the rate of profit is the growth rate of surplus value. This growth rate can block the growing trend of the organic composition of capital. In other words, the tendency towards capitalization of agricultural production due to the increasing use of technologies and machinery has as counter-trend an increased exploitation of the labour force, which reduces the use of constant capital. However, how has articulating this counter-trend been possible?

To understand this fact, we must go back to the 80s, when a general process of restoration of cheap labour worldwide, identified by David Harvey (2005) as one of the fundamental characteristics of the neoliberal class project, began to assert itself. Authors such as Moore (2014) have linked other key dimensions to this phenomenon. Examples include the processes of relocation and construction of the global factory, the great global

enclosure (Araghi 2000) that has expropriated land from millions of peasants since the 80s, the strong growth of the female proletariat worldwide that has inserted new unpaid work in the system's life and the system of forced underconsumption that has affected a part of humanity in terms of hunger and nutritional deficiencies (Araghi 2009).

These processes have been combined in agriculture with what could be termed the worldwide tendency towards the 'Californization' of production patterns. This tendency consists of the spread of a production model based on the subordination of the working conditions and wages of employees to the production of food characterized by low value composition.

In this process, low wages in agriculture occupy a central space. In fact, the production of cheap food depends largely upon socio-ecological revolutions that have been changing the historical nature of agricultural production over time, through the combination of new frontiers of commodities outside the area of capitalization. However, these revolutions are always under the control of the capitalist power, whose new technologies (fertilizers, machinery, seeds, and innovative agricultural and livestock techniques) are internal to the area of capitalization.

This phenomenon was already observable in seventeenth century agriculture, which was characterized by the conquest of the colonial border, the appropriation of the labour of slaves (all free labour), the use of new technologies for production and food processing, and new forms of organization of agricultural labour, as evidenced by the anthropologist Mintz (1986) in the case of sugar. The same combination of cheap appropriation of nature and capitalization through investments in technology came with the revolution of fertilizers in the nineteenth century and the green revolution from 1930–1960, a time when the first bracero and recruitment of foreign agricultural workers' programmes arose (Calavita 1992). Moore (2015) explains that each revolution has been possible due to a single condition – that the appropriation has been faster and stronger than the capitalization. Therefore, it is possible, in other words, to obtain a

revolution in agricultural production able to generate strong growth in yields and useful to the reproduction of capitalism only through a cheap appropriation of nature higher than its capitalization. Therefore, only opening new frontiers outside of capital relations, but under its control and logic, for a limited time can cause a revolution in agriculture production and capital accumulation.

However, today we are witnessing a suspension of this rule, an effect that the world-ecology analysis explained by the reduction of productivity growth:

> 'Unlike agricultural revolutions of the past, there has been no substantial progress in productivity since the 70s. Actually, the opposite has occurred; productivity growth has gradually slowed despite the introduction of agricultural biotechnology and the widespread use of fertilizers and other inputs' (Moore 2015, 255).

Despite having achieved an unprecedented decline in the value composition of food, the long-term effect of the green revolution lasted only until the end of the 80s, when the slowdown in productivity growth changed the central axes of the neoliberal agricultural revolution. Since then, agriculture has been based on a 'strange mixture between finance and empire, combined with coactive overproduction and forced underconsumption, without a revolution in productivity' (Moore 2015, 257). In this process, the role played by the global southern countries' debt has been essential after the so-called 'Volcker shock'[4] of 1979 that opened the way to new investments from the financial centre to the peripheries, establishing a new global period defined as 'debt's regime' (McMichael 2012; Rowden 2001).

The strategy of active debt in North-South relations is coupled to the strategy of capitalizing Northern agriculture through building global networks of production and distribution. These networks have allowed the

[4] The Volker shock refers to the decision taken in 1979 by the Federal Reserve to increase the nominal interest from one day to the other to reduce inflation, initiating a long period of recession and the era of structural adjustment programs (Harvey 2005).

global enhancement of concentration processes in agricultural enterprises, land ownership and agronomic knowledge, the worldwide spread of industrial agriculture and the global extension of market-oriented (in many areas for export) production.

At the same time, a process of financialization of agriculture has increased inequalities between the different forces involved in it. The process particularly favours distance between production and realization of value, which some authors have termed a 'global value chain' (Gereffi and Korzeniewicz 1994), becoming particularly evident in places such as the United States. In the United States:

> 'In 2006, farmers received an average of 30 percent of the retail price of fresh fruits and 25 percent of the retail price of fresh vegetables. Annual expenditures of $434 per consumer unit come out to $120 to the farmer, and only one-third of this $120 went to farm workers, or $40 a year' (Martin and Midgley 2010, 5).

In a situation defined by an asymmetric balance of power along the value chain, it becomes clear that labour is the basis on which these valorisation processes are based. The use of cheap labour can be interpreted in agriculture as a counter-trend that contrasts with the historical growing trend of the organic composition of capital in agriculture. Thus, the use of cheap agricultural labour is primarily a strategy – not yet known whether in the short or medium term – to increase the extraction of surplus value and the rate of profit without increasing the organic composition of capital of agricultural enterprises (introducing machinery and technology).

Within this context, we ask ourselves who suffers the downward pressure on wages and how does the world-ecology obtain sufficient manpower to supply the needs of the multiple global agricultural enclaves that exist all along the world-system?

## The role of migrants in maintaining agriculture in the capitalist world-ecology

As explained above, in the neoliberal phase of capitalism, the current one, the centre of the world-system has mechanized, deseasonalized and capitalized all means at its disposal to produce cheap food from the agriculture sector at a low cost. This change has not only pursued higher profitability of production but also has sought to maintain prices at a level sufficiently low to allow on the one hand the expansion of the accumulation process and on the other hand the reproduction of proletarian masses whose salary is completely dependent upon food prices (Moore 2015).

In this context, the theorists who developed the analysis of the capitalist world-ecology have tended to focus on the study of the macrostructure, ignoring certain factors that are also important in the discipline that allows departing from the bottom to the top and that shows the arc of hierarchical relations articulated for the functioning of the global system of accumulation. Although it is true that a centre of world power in which capital and production are concentrated and a periphery (plus a semi-periphery) primarily focused on the supply of raw materials and unskilled labour still exist, neoliberalism has tended to be more multifaceted. Production processes go through numerous states and actors, both at the centre and the periphery, that shape global commodity chains (Hopkins and Wallerstein 1986) in which each link in the chain plays a role in the final shaping of consumption goods. In this sense, global enclaves of agricultural production are spaces in which the chains come to life, allowing the existing hierarchy between actors (or chain links) within the production process to be observed. The hierarchy includes companies, intermediaries, states and workers. The metaphor of the chain allows showing 'how transnational labour and production processes materially connect economies, firms, workers, and households in the contemporary world economy' (Mezzadra and Neilson 2013, 119), but also allows showing the role that each actor plays in the chain. In that sense, Mezzadra and Neilson (2013) also demand placing the focus on one of the key links, the one related to work, and on

how frictions and struggles occur there, showing that workers have an agency often forgotten in the global chains literature[5].

World-ecology theorists such as Jason Moore (2015) have focused on the study of the macrostructure, explaining that the appropriation of new frontiers of commodities and the overcoming of the boundaries that limit accumulation capacity are fundamental elements of the system. However, with this explanation, the theorists have omitted mentioning that some sets of strategies have allowed capitalism to keep the four factors at a low price, whereas a new change would allow a qualitative leap in the process of accumulation. The prospect of global commodity chains, although identifying the roles of the actors involved in the global production process, allows connecting bottom-up processes and structure analyses, enriching and revealing the complexity of the formation of the capitalist world-ecology.

For Jason Moore (2015), the neoliberal stage is showing signs of exhaustion; that is, it has entered into crisis, a fact shown easily by the rise of food prices from the beginning of the XXI century to the present. The great capitalist hope in the world-ecology – tearing down a new production barrier that will again allow the production of food at low value composition – is the revolution of biotechnologies (e.g., GMOs and chemical fertilizers). However, as shown above, biotechnologies have been revealed ineffective for this purpose because, although endowing food with greater resistance, biotechnologies have failed in their objective of producing that food at a productivity rate sufficient to reduce costs.

In a context of widespread crisis, with rising prices on world markets, how can the relative maintenance of the low prices of the food produced in the centre of the capitalist world-ecology be explained?

Our proposal begins with the explanation that the failure of the biotechnology revolution has obliged the capitalist world-ecology to seek its

[5] An example of this agency would be the social movements created by immigrants in the US camps in the years 1950–1960 that, with the figure of César Chávez as a reference, formed the National Farm Workers Association (NFWA) and gained great visibility with movements such as the grape strike in Delano, California, in 1965 (Calvo Buezas 1982).

recomposition through the appropriation of new boundaries that will allow taking another leap forward. However, in the meantime, the system, through its global chains, has chosen to survive by playing with the only cost that employers can handle more or less independently of global market vagaries – the price of labour. In a context in which the control of the production chain is carefully exercised by retailers and supermarkets that progressively increase the costs of production, the remaining option for businessmen has become managing the only cost over which they can exercise some power – salary (Boeckler and Berndt 2014; Filhol 2013).

The profitability of agricultural production in the capitalist world-system in its neoliberal stage has therefore largely turned around the extraction of surplus value from the agricultural workforce, which, despite the increasing mechanization of production, remains essential in large quantities for the system's functioning (Gertel and Sippel 2014). However, note that despite the massive diffusion that this strategy has had throughout the world-system, as observed later in the study of the functioning of global enclaves of agricultural production, the strategy is short-sighted, a patch that has allowed the system to be maintained while continuing the search for strategies that would allow the appropriation of new frontiers. This issue is critical because it allows understanding the current dynamics of neoliberal agriculture without hiding the structural weakness that this strategy entails by introducing class dynamics and making the system vulnerable to the organization of workers or to labour disputes that can make the appropriation of new frontiers of cheap factors difficult.

The next question is, in a global context in which the central states are parliamentary democracies and the international human rights regime is hegemonic, how has a massive extraction of surplus value sufficient to maintain such a fundamental sector been possible? The answer is not simple because the complex web woven around who produce the food we eat and under what conditions they work is produced and reproduced through several instruments and strategies. However, all coincide on one key element: the replacement of national workforces by a migrant and racially or

sexually subaltern workforce, belonging to minorities or indigenous communities in certain geographical areas. Today, this phenomenon is a structural element of production. Because one of the foundations underlying the concept of extra-human nature in the capitalist world-ecology comes from the Cartesian dualism in which nature is conceived as an external object available for human appropriation, migrants have also been constructed as an external element to the national sphere. They are a subaltern and invisible workforce marked by what Abdelmalek Sayad (1999) called 'state thought', which refers to the idea that the alien is not part of the state but is rather an external element of which there can be no proper identification and that cannot benefit from the same rights as nationals. As it will be shown later, the capitalist project has deliberately made invisible to those who produce the food consumed in the centre and thus has hidden their working conditions, extending a veil over who produces our food. Doctors Without Borders said in a report on the situation of agricultural labourers in Italy that they are 'an invisible population who live in the paradox of not existing officially but at the same time being the irreplaceable engine of Italian agriculture' (Medici Senza Frontiere 2005, 4). Gertel and Sippel talk about seasonal workers as 'undesirably desired' (Gertel and Sippel 2014, 247) because on the one hand they are indispensable for working the neoliberal field. However, on the other hand, various economic and legal mechanisms have been set all around the world to maintain their exclusion and maximally reduce their presence (both physically and in terms of visibility) in the producing poles, which in turn reduces the possibility of a labour dispute.

The periphery of the world fulfils its function within the international division of labour, being reduced to the role of providing human resources employed in low-skilled jobs because of their stock of large masses of impoverished people willing to accept working conditions that nationals of the central states would hardly accept or would accept less and less. Neoliberal agriculture transcends the local and national level, creating transnational economic spaces, or global enclaves of agricultural production

(Pedreño Cánovas 2014; De Castro 2014), embedded in global commodity chains. In these chains, the mechanized north, holder of the means of production, establishes a productive system in which the periphery, both from the north and south[6], is reduced to the role of providing a fully mobile and flexible reserve army available to producers under the conditions and schedules required by production.

This effect has occurred at a world scale, showing how agricultural poles of the centre have opted for this strategy as a basis for maintaining food production at low cost, using for this purpose their 'backyards' as providers of a cheap workforce. Thus, Californian agriculture is impossible to understand without the labour of Mexican and Central American '*braceros*'. Huelva's strawberry (Andalusia, Spain) or Piana del Sele's arugula (Salerno, Italy) would not be worked without the hands of Moroccan and Romanian workers. Israel's binding system is fed by Thai and Palestine labourers. The Pacific (but also countries such as Brazil) is a source of cheap labour for New Zealand's agriculture. These examples are only some of the many cases that can be found throughout the world, but they all confirm the central role occupied by migrants from the periphery in the world-ecology's central agricultural production.

Jason Moore (2015) notes how in the neoliberal phase, states have tended to act as facilitators of the accumulation process through the articulation of legal systems that protect capitalist interests or by following the law of *laissez faire* to make room for the free growth of markets. Here, the concept of 'de-democratization', coined by Charles Tilly to refer to the subordination of politics and actions of neoliberal states to the needs of the economy, becomes very useful to characterize state actions in the capitalist world-ecology (De Castro 2014). In the case of the agricultural sector, both sides are key to understanding the process of the impoverishment of working conditions and the massive use of migrant labour.

[6] By this statement, we sought to emphasize that although at the global level a centre and a periphery, as described by the world-system theories, still exist, there are also peripheries within the centre as is true for example of southern Europe concerning central and northern European countries.

## Common features of migrant labour's regulation in global agricultural enclaves

The study of how neoliberal agriculture is configured must not depart from the state, but from the local domain. The state is not an irrelevant player in this sector, but its role in the chain is not central to understanding the dynamics that have shaped local agricultural markets. Thus, the role played by central states has rather been 'enabling'. They have chosen to set up a system allowing local markets to deploy a wide range of instruments oriented to obtaining the required workforce to maintain the sector. Mobility and flexibility are the two guiding principles of the management of farmworkers (Boeckler and Berndt 2014; De Castro 2014), which could be complemented by the lack of inspections led by the states on farms. Therefore, we cannot speak of a Spanish agriculture but rather of the global enclaves of agricultural production of Huelva, Lleida, Murcia, Almeria, and others. All of these apply 'neoliberal logics to agricultural production but are modulated differently depending upon local contexts' (Gadea, Ramírez and Sánchez 2014, 135). The following explains how these four examples of capitalist poles of agriculture in southern Europe can both share the macro structure (European legislation and then the Spanish national legislation) but present in their local markets conditions sufficiently diverse not to be 'stuck in the same bag.' As Gadea Ramirez and Sanchez (2014, 135) indicate, how neoliberal global trends are applied at the local level depends upon the strategies used by the various players in the global chain (e.g., employers, institutions, and migrants). Although this heterogeneity of situations makes an analysis difficult from an International Relations point of view, it remains possible to identify in all cases two common features underlying the structure of agricultural markets: the deregulation of the sector (to varying degrees) and the provision of a number of instruments for the tight control of migrant mobility.

Of the two aspects mentioned above, the first is essential to understanding the logic of functioning of agriculture in the capitalist world-ecology. Agriculture has traditionally been one of the most deregulated sectors in the economies of the global north in which black work and irregularity have tended to have a more significant effect than in other sectors of the economy and in which a certain logic of exploitation has survived over time (Avallone 2013; Izcara Palacios and Rubio 2004; Izcara Palacios 2009). This logic is due to many factors, among which some elements stand out: on the one hand the persistence of entrenched informal intermediation systems such as the *caporalato* system in southern Italy (Brovia 2008; Perrotta 2015); on the other hand, the difficulties involved in the inspection of scattered and isolated fields. These difficulties generate a sense of impunity for businessmen in places in which worker mobility is constant (Izcara Palacios and Andrade Rubio 2004). All of the above form a series of conditions causing the 'employment standards' in agriculture, understood as the commonly observed working conditions throughout the world-system, to be characterized by non-salarization of workers, strong power of intermediaries, temporality and informality, resulting in lower average wages than in other sectors and characterizing employment in agriculture by its precariousness (De Castro 2014).

Of course, the self-regulating margin that each global enclave occupies is variable, even within the same state, because the formation of each local market depends upon both geopolitical and legal factors and on the type of production or the weight of certain entrenched structures present in each territory. Thus, the arc of cases that global enclaves of agricultural production in the capitalist world-ecology can present ranges very broadly from the Far West of Rosarno (Calabria, Italy), where mafias control the production of oranges and situations of worker exploitation are extreme, to the controlled circular migration programmes of Huelva (Spain) or New Zealand, for example. An interesting point is that, although each of the above cases represent an extreme of a type of organization in the agricultural

labour market, in both situations, exploitation of workers occurs (Lewis 2014; Colloca 2013; Rodríguez and Breva 2012).

The other factor common to all global enclaves of agricultural production is the control of migrant mobility. Similarly, as mentioned in the previous point, here also a variety of situations can be found throughout the world-system. However, all cases coincide on having articulated a structure in which employment contracts, whose function for the social control of immigrants is crucial, are central. In this respect, we can again divide the arc between those agricultural areas in which, on the one hand, recruitment in origin programmes has been implemented (e.g., Canada, New Zealand, Huelva, Lleida, and Israel) and, on the other hand, those enclaves that have not needed to go directly to the periphery to extract a cheap workforce.

As mentioned above, in the current neoliberal phase, states are at the service of the capitalist world-ecology and therefore are provided with mechanisms articulated to promote the accumulation process in all its aspects. Concerning the agricultural sector, the difference between the different enclaves in the management of migrant labour is determined by the needs of capital. In this sense, we argue that those states that have implemented recruitment in origin programmes have not done so because of a will to protect worker's rights but rather have driven its creation based on pure production needs. Guest worker programmes always start from a need for labour not covered by the workforce already present in the physical territory of the enclave. Thus, only when employers in agriculture lack an available cheap labour force from which to extract surplus value to produce food at low cost has recruitment in origin programmes been implemented. This does not mean that other factors have not conditioned how these programmes are set up, but the universal tendency that drives their creation always is related to the availability of a labour force. The Win-Win approach is a questionable effect that their drivers often use to justify these programs, but the concept seems more rhetorical than a real propellant factor for programmes. Nonetheless, note that the absence of programmes does not mean that employers from Piana del Sele (Salerno, Italy) or Murcia (Spain)

are more ruthless than are employers in California or New Zealand. In other words, in these territories, the strong presence of an available reserve army has not pushed employers to require their states to design or allow the creation of programmes to bring a workforce from the periphery.

As Boeckler and Berndt (2014, 30-31) state, 'ideally, illegal undocumented immigrants constitute the most favourable embodiments of labour for northern producers', because they certainly are more vulnerable; thus, the extraction of surplus value can reach a higher level, which results in a maximum reduction of production costs. Therefore, in those territories with a large presence of undocumented migrants, as is true of southern Italy for example, entrepreneurs tend to opt for the use of this workforce, which is available at low cost. In the summer of 2015, we conducted fieldwork in Piana del Sele (qualitative interviews) with migrants working in agriculture[7]. In one of our interviews, Hassan (not his real name), a man who works in an arugula greenhouse, told us that employers are complaining because of the latest massive regularizations. In his discourse, he mentions the possibility of replacing the recent regularized workers with irregulars:

> *Before we worked eight people in black. However, the employer now says that with residence permits, he can only afford four workers and he does not like it ... he needs to change and bring the rest in an informal way, at least two or three.*[8]

Hassan's case illustrates how the search for cheap labour is crucial for agricultural employers and how the regular status of workers often plays against them, making irregular recruitment difficult and increasing production costs. In areas characterized by a high incidence of irregular labour, agriculture acts as a refuge sector because its partial deregulation often becomes the only option to work for those seeking both to survive and regularize their situation. This magnetic effect on undocumented migrants

[7] This work was part of the European project 'TEMPER' (www.temperproject.eu).

[8] Hassan (not real name); farmworker in an arugula greenhouse in Piana del Sele, interviewed in Santa Cecilia di Eboli 29 July 2015; complete transcription of the interview is available in CSIC.

guarantees the availability of the reserve army and, conversely, keeps ties to those migrants who are already regularized but depend upon their work to continue maintaining their legal status because they have no alternative to accepting the same working conditions as do those migrants who lack papers.

The system seeks to discipline, employ at a low cost and be very flexible (Boeckler and Berndt 2014); the cornerstone is always the employment contract. Deregulation allows maintaining the logic of an informal economy that keeps attracting those who need a livelihood but cannot find it in more-formal sectors. Conversely, those seeking to regularize their situation find here a possibility that allows them to demonstrate rootedness (as in the Spanish case), to disclose their situation during a massive regularization (as in Spain and Italy) or to obtain a nominal permit for the campaign (in those places in which programmes have been implemented). All of these situations reduce immigrants' autonomy, limiting their mobility, and this also reduces their power in the employment relations.

Although it is undeniable that the wages and conditions of migrant workers who are hired at the origin tend to be better than are the wages and conditions of irregular migrants hired in black, this point does not imply that the degree of control of their mobility is lower. On the one hand, those who come 'out of program' are controlled by their dependence upon the employment contract; on the other hand, those who already come with a contract are subject to a control structure in which 'mobile labour is counted, scanned, interrogated, photographed and fingerprinted, are decreed and voluntary returns are granted' (Boeckler and Berndt 2014, 31). The idea is that migrants come in the number and when required by production. This flexibility allows employers to always have the required manpower at a low cost, with strict conditions that guarantee their docility and thus avoid conflict. In the case of programmes, abiding by and obeying the rules means to be called again the following year and even to be able to settle in the country of destination because companies have examples of migrants who

came as agricultural labourers in the past and, because of their good behaviour, ultimately obtained a command position (usually organizing production plots) and, thus, obtained a residence permit and the rights arising from it. Those migrants who do not return fall into irregularity, with a risk of being deported and losing all rights to be called back through the programmes. In some cases, such as the Canadian one, any protest can lead to permit loss and thus to repatriation (Hennebry 2012).

Deregulation and mobility control are determinants for the production of food at low cost in the capitalist world-ecology. Whether by employing workers in black or implementing recruitment programmes in origin, the centre of world accumulation guarantees the availability of a reserve army from the periphery and perpetuates the reproduction of their conditions. This phenomenon, worsened during the neoliberal stage, has converted the presence of immigrants in the agriculture sector into a central element. The failure of the green revolution of biotechnologies to provoke a leap forward that will allow the production of cheaper food has made the exploitation of the migrant agricultural proletariat increasingly essential to maintaining production conditions at a low cost in this sector. Thus, despite being a temporary strategy of capitalism whose boundaries begin to be observed in the form of protests by migrants across the globe[9], we believe that, far from disappearing, this phenomenon is likely to become more acute.

## Conclusion

Capitalism is a world-ecology, a socio-ecological project of global dimension largely supported by the appropriation of extra-human nature and human labour to control the prices of the four cheap factors to allow the expansion of the accumulation process. The crisis that the system is currently facing is partly due to its inability to seize new frontiers that would again allow

[9] In recent years, several protests led by migrants in agriculture have erupted throughout the globe, as occurred in Italy (Nardò strike in July 2011 or the Rosarno protests in 2010), Spain (the Ejido strike in 2010 or the occupations of abandoned greenhouses in Almería in 2013) and in Canada (Edmonton strike in October 2008 or the Ontario strike in November 2010).

restarting the accumulation machine. As Jason Moore (2015) notes, we do not yet have sufficient perspective to know whether we are facing a cyclic crisis in which capitalism is being reorganized for the appropriation of new frontiers that will allow reactivating the system, or whether it is a crisis of the system itself, whose outcome would be entirely unknown. Moreover, as observed throughout this article, the failure of the green revolution in agriculture has caused the capitalist world-ecology to turn to the exploitation of the labour factor to maintain food production at a low cost. This result has primarily affected the population of the periphery, whose migrants have occupied a central place in agricultural production chains. World agriculture depends upon people's migration; thus, not only their presence but also their employment conditions have become structural and systemic factors in global enclaves. The recourse to exploiting a cheap workforce of migrant origin is an observable phenomenon across the planet that is intrinsically linked to the system's inability to seize new frontiers that would change how food is produced. This failure suggests that migrant farmworkers are inserted in updated labour relations, that are neither past relations nor isolated cases but they are a global phenomenon with a tendency to expand as long as the system increasingly depends upon this strategy.

## Note

This article is the English translation of an original article written in Spanish and published in number 33 (October 2016) of the journal *Relaciones Internacionales*.

## Acknowledgement

The research leading to these results received funding from the European Union's Seventh Framework Programme for research project TEMPER (Temporary versus Permanent Migration, under grant agreement no.613468)

This article has been prepared in the framework of the PhD program on Law, Government and Public Policies (Doctorado en Derecho, Gobierno y Políticas Públicas) of the Autonomous University of Madrid and will be part of Yoan Molinero Gerbeau's thesis.

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