

A RESEARCH AGENDA TOWARDS “THE BEIJING EFFECT”: IS THE CHINESE MARKET SHAPING LATIN AMERICAN AGRICULTURE? THE CASE OF GMOS

Un programa de investigación sobre el “efecto Beijing”: ¿Está siendo moldeada la agricultura latinoamericana por el mercado chino? El caso de los OMG

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Abstract: Global political economy is a field of inquiry that tends to focus on the projection of power as a purposive action. However, when we look at international trade, we observe that trade-engaged companies will adapt their production methods to fit the standards, regulations and needs of the market in which they can earn the largest profit. Their behavior tends to be later reinforced with policies and rules in the domestic markets that converge with the rules developed by the foreign power. In this vein, a country that possesses a large and open market can force a convergence of international rules to benefit its own interests without projecting power purposively onto third countries. The goal of the current research is to analyze whether or not China, as a massive market for Latin American agricultural goods (which are even reaching a point of dependence) has had a similar effect on the domestic agricultural regulations and standards of these countries. The territorial focus will be on Chile, Argentina and Brazil, as these are the largest agricultural exporting markets from Latin America towards China. In terms of topics, we will focus on the ongoing issue of GMOs. Can we speak of a “Beijing Effect” in Latin America?

Keywords: Regulatory convergence, GMOs, China-Latin America, International trade.

Resumen: La economía política global es un campo de investigación que tiende a centrarse en la proyección del poder como una acción intencional. Sin embargo, cuando observamos el comercio internacional vemos que las empresas comprometidas que participan del mismo adaptarán sus métodos de producción para ajustarse a los estándares, regulaciones y necesidades del mercado en el que pueden obtener los mayores beneficios. Su comportamiento tiende a reforzarse posteriormente con políticas y reglas en sus mercados domésticos generándose un proceso de convergencia con las reglas desarrolladas por la potencia extranjera. En este sentido, un país que posee un mercado grande y abierto puede forzar una convergencia de las reglas internacionales en beneficio de sus propios intereses sin proyectar poder deliberadamente en terceros países. El objetivo de la investigación actual es analizar

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si China, como mercado masivo de productos agrícolas latinoamericanos (llegando a un punto de dependencia comercial), ha tenido un efecto similar en las regulaciones y estándares agrícolas nacionales de estos países. El enfoque territorial estará en Chile, Argentina y Brasil, ya que estos son los mayores mercados de exportación agrícola de América Latina hacia China. En términos de temas, nos enfocaremos en la cuestión de los OGM. ¿Podemos hablar de un "Efecto de Beijing" en América Latina?

Palabras clave: Convergencia regulatoria, OGM, China-América Latina, Comercio internacional

I. INTRODUCTION

Global political economy is a field of inquiry that tends to focus on the projection of power as a purposive action. International relations scholars (with a few exceptions) have neglected to show how the inward-facing aspects of the State – such as its domestic regulatory capacity – have important consequences in global affairs (Farrell & Newman, 2010). When we look at international trade, we observe that profit-maximizing entities (companies that engage in international trade) will adapt their production methods to fit the standards, regulations and needs of the market in which they can earn the largest profit. Their behavior tends to be later reinforced with policies and rules in the domestic markets that converge with the rules developed by the foreign power. In this vein, a country that possesses a large and open market can force a convergence of international rules to benefit its own interests without projecting power purposively onto third countries.

Bradford (2012) has researched this phenomenon by focusing on the effect that the European Union as a market has had on trade and production regulations and standards worldwide: She called it the Brussels effect, and it has led to an unintended "Europeanization" of several aspects of global commerce. Similarly, Drezner (2007) argued that large markets will most likely attract exporters that are willing to adapt to the standards of production set for these markets, causing great power preferences to alter international regulatory regimes; his focus, however was on the European Union as well as on the United States. The goal of the current research agenda is to analyze whether or not China, as a massive market for Latin American agricultural goods (which are even reaching a point of dependence) has had a similar effect on the domestic agricultural regulations and standards of Latin American countries. The territorial focus will be on Argentina and Brazil, as these are the largest agricultural exporting markets from Latin America towards China; Chile will be used in the analysis as counterfactual, as it exports large amounts of agricultural goods to China, but even larger volumes to western powers. In terms of topics, as agricultural trade involves many different aspects, we will focus on the ongoing issue of GMOs.

The focus on GMOs is justified on two grounds: First, it is an ongoing issue where a global consensus has not been reached. The European Union and the United States have largely divergent positions regarding the impact that GMOs and chemical residues may have on human health and the environment. Such divergence allows for a stronger discussion within the domestic regulatory frameworks of each country, and thus adds cleavage to a situation where a third position could emerge. Secondly, GMOs are highly relevant to China, which depends largely on GMOs for its agricultural imports of grain, thus having a stake in the development of genetically modified organisms.

The analysis of the process whereby this convergence occurs will rely on the toolbox developed by historical institutionalism, as this theoretical approach allows for a better approximation to regulatory issues than most general theories of international political economy (IPE): It has generated mechanisms to understand how actors evolve in a changing environment. Within this toolbox, the concept of layering is particularly useful, as it allows for an analysis of incremental change in a scenario where exogenous shocks are non-existent, such as the one which we are analyzing where endogenous change accounts for the shifts in domestic regulation. Layering occurs “when new rules are attached to the existing ones in ways that affect how old rules structure behavior” (Thelen & Conran, 2016). The fact that agricultural trade between Latin America and China does not reflect power projection on part of later has changed the trading environment gradually, thus the changes to regulations are expected to be gradual as well, adding or amending regulations to the existing institutional environment.

While agricultural trade research has largely focused on the regulatory differences between the European Union and the United States (Moyer & Josling, 2002) and their impact on third markets (Drezner, 2007), the goal of this research is to analyze whether China -as a massive market for Latin American agricultural products- is currently shaping the international agricultural regulatory regime, thus provoking what we have named the “Beijing Effect” in Latin America: A convergence towards Chinese regulations.

It should be noted that the following article is not a conclusive research project, but it is rather the proposal of a research agenda, which aims to foster a path of research for analyzing Chinese influence in Latin American agriculture. No conclusions can be drawn from it yet; it purports to be the development of a research agenda which is of interest to the entire Latin American region when its current relations with China are analyzed.

What is the Beijing Effect?

The Beijing Effect will start from the basis of market power and the regulatory capacity of China. In order to establish a standard measurement of regulatory convergence, the following indicators will be used for this research in order to empirically assess whether the Beijing Effect is a reality, a partially existing phenomenon, or just empty words:

- GMO regulations (for production and trade)
- GMO approvals for growing and consumption
- Regulatory impact assessment guidelines
- Ideational elements (refers to the underlying justification for regulations and standard-setting)
- International organizations coordination and cooperation.

Through these five indicators, we intend to showcase whether a convergence of positions through cross-national layering has been occurring in the markets under analysis. In order for these indicators to shed some light on regulatory convergence, this research will stand atop of a series of prior research projects that analyzed the process of regulatory convergence. As mentioned above, the theoretical framework under which this research will develop its hypotheses has already approached the issue of the formation of international regulatory regimes as an unintended consequence of having a large and open domestic market. Atik (1997), Drezner (2007), Bradford (2012), Newman (2016), Farrell and Newman (2010) and Fioretos (2010) amongst others have researched the effect that domestic regulatory regimes can have on the international sphere through market influence in different sectors. Their focus, however, has always been on either the European Union or the United States, neglecting the impact that one of the largest markets today –namely China– can have on several issue topics. Through their research, a toolbox already exists for approaching this type of investigation which does not focus on power, but on the avenues whereby domestic regulations can have a global impact. Their arguments look beyond the power-centric and state-centric approach, focusing on a more multidimensional impact of international relations, more akin to the current state of affairs in the 21st century.

In agricultural trade, the transatlantic dimension of the discussion is also evident in the main arguments surrounding the field. The iconic research conducted by Moyer and Jostling (2002) showcased how the defining conception behind agricultural trade came from a divergent set of opinions from both the United States and the European Union. In the particular issue of GMOs, Stephan (2014) further pursues this point, and digs deeper into how the transatlantic divide has shaped the international regulatory regimes in GMO trade, with both the United States and the European Union influencing world markets through domestic regulations. Moreover, the clash in the

WTO between the G10 and the Cairns Group over agricultural trade regulations has also been at times considered a clash between Europe and North America, even in view of the relevant presence on the G10 of Japan, South Korea and Taiwan. China's impact on regulatory discussions has been notably absent, as the agricultural trade's focus on China has focused largely on the impact that its WTO accession generated on the world's food trade (Huang & Rozelle, 2003; Anderson & Wittwer, 2015).

China's power projection is however evident, and its potential to shape up international trade regimes has largely been discussed over the scenario of the Trans Pacific Partnership and the Regional Comprehensive Economic Partnership becoming antagonistic institutions aiming to shape the trade regime towards the national interest of the United States or China respectively. Panda (2014), Armstrong (2017), Ye (2015) and Leal-Arcas (2013) have researched China's position on the discussion over the setting of a regulatory trade regime in Asia Pacific from the perspective of ongoing negotiations, adding purpose to China's pursuance of a favorable trade regime. From a rather global perspective, Stephan Halper's book *The Beijing Consensus* (2010) has been central to the discussion of the existence of a Chinese model of development, which translates into several regimes finding support for policies that would not be supported by the Western institutional framework. While these pieces of research are without a doubt useful when understanding China's position in the 21st century global sphere, they do not tell us anything about the unintended consequences that China's own regulations have on third markets, altering global trade dynamics.

From the perspective of historical institutionalism, John Ikenberry (2016) enunciated China's role in an existing world of norms, as it is leading incremental change in world order. Such incremental changes, by way of layering, displacement, drift or exhaustion will come to reflect China's position in the world, and thus the regulatory regime will also be a reflection of the new material reality. Ikenberry does not dig deeper into the issue, thus leaving it to future scholars to analyze China's role in gradually changing the rules of western-dominated regulatory regimes.

Research on layering has progressed within historical institutionalism to address regulatory changes through international influences. Chile, Brazil and Argentina are three countries whose agricultural economy is highly dependent on exports, and thus are regularly exposed to foreign regulatory frameworks in order to be able to trade. A process of feedback with the government is expected to emerge if the current domestic regulatory conditions do not match the needs that these players have on foreign markets (particularly those markets where they have a larger stake). Policy feedbacks refer to the "propensity of state institutional reforms to create client groups that then have a strong incentive to push for their maintenance" (Farrell & Newman, 2010). Policies themselves create incentives for concentrated interests to organize and become clients of the bureaucracies involved in policy stability and

change. Feedback loops can force a process of layering when there is a divergence of regulatory frameworks, and when the level of agricultural exports to China exceeds those of the markets that forced the initial shape of the regulatory framework, the forces pushing for new layers of regulations will be large in order to accommodate the exporters' interests.

Layering itself has been researched extensively by Mahoney and Thelen (2010), Schickler (2001), and several researchers have looked at both the reasons of layering and the outcomes of this process (Bruszt & McDermott, 2014; Parker & Parenta, 2008). As this research stands, we will be looking at both the reasons (through feedbacks and the relevance of China's Beijing Effect) as well as the outcomes (the changes in agricultural trade patterns reinforced by changes in regulatory frameworks), but with a stronger focus on reasons over outcomes. Thus the current research sets itself within the existing literature on layering, yet it aims to add to the existing literature by focusing on the growth that China has experienced over the past decades, raising questions regarding its influences on global regulatory frameworks, which unintentionally challenges the dominant positions in agricultural trade espoused by the European Union and the United States.

II. TRADE FACTS

Since the year 2004, China became Argentina's largest export destination for food and drinks, overtaking Brazil. By 2016, the United States was Argentina's 4th largest market, and Spain appeared in the 9th place as the largest Argentinean export destination within the EU. Argentina's exports of food and drinks to China have not reached a point of dependence (they represented roughly 7% of its food and drinks total exports), but they have certainly reached a point of high relevance to the domestic agricultural production structure, particularly for some key items such as soybeans and meat.

Brazil's dependence on the Chinese market for exports of food and drinks is much stronger than that of Argentina, with China representing in 2016 28% of its total food and drinks exports. Soybeans, meat and sugar are the largest items on the export basket towards China. In the case of Brazil, the United States is its second largest export market for agricultural goods, but while Brazil exported to China US\$ 17.3 billion worth of agricultural and agro-industrial products, it exported only US\$ 3.1 billion to the United States, marking a stark contrast. Considering all the markets of the EU27 combined, the food and drinks exports stand well below those that had China as their destination, standing at US\$ 9.2 billion in 2016.

Chile, as mentioned earlier, is not as reliant on China for its agricultural exports, even though China is the largest global purchaser of Chilean cherries, grapes and nectarines. The United States remains the largest export destination with roughly 27% of the food and drinks exports, while the EU27 combined receive an export share of 17%; in 2016 China accounted for 12%. It should be noted that China's participation in Chile's agricultural export basket has regularly increased over the past 10 years, thus gaining relevance.

One important issue should be highlighted. GMOs have largely penetrated the soybean production in Latin America, making regulations around GMOs highly relevant for Latin America's agricultural exports to China. Through trade statistics, this research justifies the selection of the issue topics under research, as they are highly relevant when considering inter-regional trade. One shortcoming this research has with regard to its descriptive statistics area is that there are no specific statistics for GMO trade, as they are not registered differently from their equivalent non-GMO products.

Considering the abovementioned, we hypothesize the following:

1. The increasing dependence of Latin American agriculture towards the Chinese market -combined with the growth rates of these trade relations- are forcing a convergence of regulations and standards to meet the needs of the Chinese market.
2. Such convergence will be reflected on future trade agreements reached between Latin America and China.

The goals of this research agenda are the following ones:

1. To develop a set of comparable indicators in order to measure the "Beijing Effect".
2. To conduct comparative analysis of Chinese and Latin American agricultural production/trade regulations to see whether there is a process of convergence.
3. To understand the reasons behind such a convergence by analyzing both the public and private actors involved in agricultural policy decision making and implementation.
4. To study the existing bilateral and regional agreements in which both China and the abovementioned Latin American countries participate, looking for convergence in the negotiations towards Chinese interests.
5. To study the regional trade agreements currently under negotiation to further research China's position on agricultural trade, and the chance it has towards influencing regulatory convergence.

III. REACHING THE RESEARCH'S GOALS

To conduct the analysis, this research will use a case study methodology. Three different case studies will be researched (Chile, Argentina and Brazil) and tested

against the hypotheses devised for this research. For each case, the same qualitative indicators will be used and compared to come up with a final report of results, granting the research construct validity. The unit of analysis will be the agricultural trade regulations of each.

This research understands case studies, in the words of Stake, as “the study of the particularity and complexity of a single case, while trying to understand its interaction with important circumstances” (Stake, 1995). As George and Bennet have pointed out (2005), “case studies are generally strong precisely where statistical methods and formal models are weak”. Available quantitative data is not always the best data for understanding policy shifts. There are four strong advantages of case study methods that make them valuable in testing hypotheses and particularly useful for theory development:

- 1) Potential for achieving high conceptual validity
- 2) Strong procedures for fostering new hypotheses
- 3) Value as a useful means to closely examine causal mechanisms in individual cases
- 4) Capacity to address causal complexity.

The hypotheses under this research require an analysis of causal complexity, which will most probably differ from case to case, giving rise to a global understanding of the structures that operate in the endogenous regulatory regime change.

In order to be able to carry out this research, the researcher will rely on multiple sources of evidence, focusing on archival records, documents and more importantly interviews. The first source to be relied upon will be documents, through a review and analysis of the available literature. To complement the documents, a trade data analysis will be necessary to correlate the existence of an increased dependency on the Chinese market from its Latin American trade partners under research. The research will analyze the existing trends and current market shares as they correlate (or do not correlate) with regulatory influence.

The second source of evidence to be utilized is archival records. Official documents will be reviewed from the all the government units that are going to be researched as they are involved in policy formation and regulatory decision-making. These will include the Chinese domestic institutions (bureaus in charge of trade and agricultural issues), and their equivalent institutions in the countries under case studies. For the case of the domestic institutions the documents to be utilized are the following:

- Official policy statements
- Laws related to agricultural trade

- SPS regulations
- Decrees
- Internal bureaucratic regulation documents
- Trade policy review.

The third source of evidence will be represented by interviews with the relevant actors involved in the formation of regulatory regimes, both in China and in the countries under case-study analysis. In order to fulfill the qualitative open-ended interviews, a set of relevant areas of enquiry will be devised to cover all the relevant topics that could deliver the information needed. With the interviews and collected data, this research will build up an explanation, layer by layer in the different cases, in order to understand the formation process of the different regulatory regimes and the influences it has received in the process. As a general strategy, this research will rely on theoretical propositions, and in order to confirm or revise these theoretical propositions the specific analytical technique selected is that of explanation building through an iterative process. The deductive section of the research is aimed at being able to measure qualitatively the relevance that the Beijing Effect may have had over the regulatory regime.

IV. GMO REGULATIONS

When it comes to GMO regulations, there are two starting principles under which the rest of the norms flow: Either the country considers GMOs as equivalent to non-GMOs because the nutritional content is the same, or the country considers GMOs and non-GMOs as inherently different because the process under which they were grown differs widely. The United States has championed the first alternative: GMOs are equivalent to non-GMOs if the end product has the same characteristics. The European Union has applied the precautionary principle arguing that, even if the nutritional content is the same, the health and environmental repercussions are unknown and further research is needed, since the process of growth of the organisms is different.

China is an important player in the GMO market; not only does it consume one of third of the world's soybeans (which is mostly GMO), it is also the sixth largest in terms of cultivation of GMO grains. "It was estimated that nearly 95% of all imported maize and over 90% of the imported soybeans of China are genetically modified" (Wong & Chan, 2016). As it stands, China's initial position in GMO regulations has shifted from openness in the 1990s to a more precautionary stand during the 21st century; but it does not have any regulation specifically aimed to GMOs. China seems to be in a middle ground, fast progressing in some areas, yet taking huge precautions when it comes to consumption and planting of new GM crops. Carpio (2014) has argued that this approach is largely explained by China's role not only as a recipient of GMs,

but also as a stakeholder in biotechnology at large, and as a developer of GM crops in particular. Thus China's approach, she argues, tends to protect GMOs as part of a protectionist strategy aimed at positioning China as a worldwide competitor in GMO trade, while at the same time it acknowledges China's reality (with looming issues of food security, food deficit, and increasing concern from its citizens regarding food safety) and tends to regulate in order to avoid pitfalls with its population. Broadly speaking, China does not allow the imports of any GMO for final consumption – foodstuffs- unless specifically approved by a positive list², but it does allow the import of GMOs as raw materials for processing. Thus as one editorial puts it, China hates GMOs, but the problem is China really needs GMOs.

Given that China does not have any GMO law, the focus falls on regulations, enacted by the State Council, and administered by the Ministry of Agriculture (MOA) and AQSIQ. The main regulations which rule the GMO regime in China are the following:

- Administrative Measures for Safety Evaluations of Agricultural GMOs (Safety Evaluation Measures)
- Measures for Examination and Approval of the Processing of Agricultural GMOs
- Administrative Measures for Labeling Agricultural GMO Marks (Labeling Measures)
- Administrative Measures for Safety Control for Importing Agricultural GMO Products
- Administrative Measures on the Entry and Exit Agricultural GMO Products Inspection and Quarantine (Library of Congress, 2015).

Wong and Chan (2016) provide an interesting recount of China's main positions with regards to GMOs. China's GMO development in terms of trade is focused largely on grains. As of 2016, China had allowed the imports of soybean, corn, cotton, canola and sugar beet either for cultivation or as raw materials for finished goods, allowing them to be used as feed. Firstly, a biosafety certificate is needed for any GMO to either enter China, or circulate within China. This biosafety certificate is issued after compliance with five stages which are (i) laboratory research; (ii) restricted field trials; (iii) environmental release field trials; (iv) preproduction testing; and (v) application for a biosafety certificate. Once the biosafety certificate is issued, importing into China can be done under four categories: (i) import for research; (ii) import for testing; (iii) import for production; and (iv) import as raw materials for processing. Most GMOs are imported under the fourth category, thus generating enormous pressure for exporters to comply with Chinese regulations. Thirdly, once the product is in the market, there are some beyond-the-border regulations with which exporters have to comply, such as the labelling requirements. Not all GMs require labelling in China,

2 This list includes rapeseed oil, tomato sauce, tomato ketchup, maize flour, maize oil, and a few other items.

but those that are included in MOA's GMO Catalogue must be labeled as GMs. Thus China's regulations point towards a reality where GMOs are needed in order to clear agricultural bottlenecks, but the country has been very precautionary when it comes to their approval for consumption. China's regulations are thus forming a middle ground between the United States' openness towards GMOs and the European Union's reaction which is short of an outright ban on these products.

The surge of this middle ground appears to be a controlled one, as it has been guided by the government, more so than in any other region. Since Deng Xiaoping, all of China's presidents have directly addressed this issue as a need for China, and current president Xi Jinping has taken this stance to a new level assuring a nationalistic approach and saying that foreign companies should not be allowed to dominate the agricultural biotech product market (Anderson-Sprecher & Jie, 2014). China's development of GMO has been state-led, with little room for entrepreneurial development. State-funded research institutions, agricultural universities, the Ministry of Agriculture and the Ministry of Science and Technology (MOST) have had the leading role in China's development of GMOs, generating spin-off companies that are largely still linked to the State.

Faced with the pending challenges of food security, and trying to feed 22% of the world's population on 7% of its arable land, agricultural biotech in China is "often presented in the policy narratives of government officials and scientists as essential for sustainable agricultural intensification and food security in China" (Keeley, 2006). This marks a stark contrast with the United States GMO development, whereby the process has been led by large biotech companies, such as Monsanto. In Europe, large biotech firms, such as Bayer or Syngenta, have also led the process of lobbying towards more favorable regulations for GMOs, with limited success given Europe's own agrarian structure dominated by SMEs with a strong reticence towards GM technology, and a consumer base even more distasteful for GMOs. Thus the nexus between GM development and the government in China is closer (or even linked) than that observed in those regions that have led GM development.

When it comes to import requirements, China is also finding a middle ground between scientific evidence and the precautionary principle. When we discuss the transatlantic divide on GMOs, the United States regularly argues that any ban or restriction on trade should be based only on scientific evidence; the European Union argues that generating scientific evidence takes time, thus it is bound to apply the precautionary principle. China focuses largely on scientific evidence when it approves or rejects import permissions for GMOs; but in the year 2014, China also alleged officially that public acceptance was necessary towards further granting of import permits. Even though approvals of new crops for imports have proceeded (new soybean and corn

varieties) the process has been slow and has faced tough criticism coming from the United States. Rather than converging towards China's regulations, the United States is exercising pressure, as it is a player whose capabilities allow it to do so. It is less likely that other players, namely South American countries, will opt for that strategy, and will rather rely on convergence.

One particular item where this fact is observable regards the acceptance of Low Level Presence (LLP) on foods. The international guidelines for food safety, represented by the Codex Alimentarius, has established standards for the acceptance of LLPs in foods which contain low levels of gene-mixing. The United States does not make a difference between gene-mixing occurring by natural causes and gene-mixing done through genetic modification. The European Union, on the contrary, is very strict when defining LLPs and establishes that there are "Traces of genetically modified organisms (GMOs) in imports of feed materials from third countries not covered by EU authorizations" (FAO, 2014). China does not have LLPs, which has derived in rejection of shipments and trade disruptions; but its approach is not overtly opposed to LLPs, but rather it tends to be decided on a case-by-case scenario.

This initial survey of regulations serves to indicate the main differences between China's GMO regulation development, and that of the United States and the European Union. China's has posed a strong nationalistic tone in its biotech industry, banning the imports of foreign seeds, and fostering endogenous innovation, in order to be a large player in the GMO industry. Its labelling, testing and import requirements are unique, and are not aligned with the absolute rule of the precautionary principle, nor with the product-equivalency principle respected by USDA. As of today, it is a net importer of GMOs, originating largely in the United States, Brazil, Argentina and few other countries, thus its regulations have two different stake-holders: Domestic producers and foreign exporters. It is in this second category of stakeholders where this research aims to venture, in order to analyze whether the GMO regulations of Latin American countries are converging with those of China, or whether China is not yet an influential player when it comes to determining biotech regulations in the region.

V. INITIAL ASSESSMENTS

We mentioned at the beginning that Chile would be used as a counterfactual. This is evident given Chile's own resistance towards introducing legislation which could allow the country to produce GMOs. Chile is an agricultural powerhouse, and one of China's largest suppliers of food; fresh fruit, salmon and dried fruit from Chile are abundant in China's market, with a growth trend that has not stopped since both countries signed a Free Trade Agreement on 2005. But Chile's GMO production today is restricted only to the production of seeds, which are then exported (mostly to the United States) for

cultivation elsewhere. Thus Chile has not properly discussed GMOs; since the seeds are not planted in Chilean soil, they do not have any environmental repercussion on the country. While Chile has invested on GMO technology for research purposes, and allows the consumption of GMO food, it is not a producer of GM foodstuffs, not having yet a regulatory framework for this activity beyond seeds. On the other hand, China does not import biotech seeds for cultivation (Anderson-Sprecher & Jie, 2014). Thus the potential for the existence of a Beijing effect in the case of Chile is limited to future expectations. Were Chile to develop a regulatory framework for GMO production, then it would probably develop it bearing in mind the regulations of its largest agricultural export market: China. Yet this is not a reality, thus the Beijing Effect is impossible to witness in Chile's GMO sector.

But excluding Chile, the Southern cone has risen as the largest source of corn and soy, most of which is produced with GM varieties. The Southern Cone accounts for 57% of the world's soybean exports, while East Asia accounts for 65% of total soybean imports (Oliveira & Schneider, 2016), thus the connection between both regions is evident. Nearly 40% of Brazil's total exports to China are soybeans. Soybeans grown in Brazil are mostly GMOs -96% according to Mano (2017) . Therefore Brazil's massive GMO industry is reliant on one huge market, and must be able to comply with China's regulations. This is, however, a recent development. Until the early 21st century, as Oliveira and Schneider (2016) explain, American agro-industrial firms (ADM, Bunge, Cargill and Louis Dreyfus) "were major pillars of a 'corporate food regime', which shed the narrow ties between US state interests and regulatory mechanisms that structured the post-war international food and agricultural regime, but further concentrated the power and profits in the hands of these North Atlantic-based transnational agribusiness corporations", extending this model to South America, including Brazil. Thus the formation of Brazil's GMO regime and regulations is not expected to resemble that of China, but rather that of the United States. China's influence is rather recent, thus a process of layering over an existing GMO regime is expected.

The first impact of the Beijing Effect in Brazil is not referred directly to GMOs, but to the trading of the GM soybeans. Brazil used to crush and process -obtaining oil, feed and other sub products of the crushing- most of its soybeans in 1995 (95%). But the situation today is extremely different. Given that China prioritizes the crushing and processing of the beans in Chinese territory, it favors the imports of whole beans. Brazil's crushing of its soybeans stands today below 50%, exporting mostly whole beans. This is in part an effect of China's nationalistic GM regulations and the increased participation of Chinese state-owned agribusinesses (such as COFCO), aimed at sustaining the largest part of processing within the country.

In regulatory matters, Brazil's GM regime is governed by the Law No. 11.105 from 2005, which defines and regulates GMOs. Under this regulation, Brazil has approved the production and commercialization of 68 varieties (ISAAA, 2017), of which 11 are

soybean varieties, 39 are maize varieties, 15 are cotton varieties with only 3 remaining for other items. Soybeans, maize and cotton seem to be marked by China's demand, without further development of GM fruits or vegetables either for further processing or direct consumption. To put it in perspective, China has approved 64 GM varieties, of which 11 are cotton, 18 are maize and 12 are soybean, thus marking a correlation. By comparison, the United States has approved 195 varieties of GM crops, and the European Union –in spite of having a large number of restrictions on GMOs- has approved 99. This represents only an initial assessment, but it demonstrates Brazil's lack of diversification, and its work towards commodification of its GM crops, with no aim to eventually add value to them.

VI. CONCLUSIONS

As mentioned at the outset, this article is not a research, but rather a research agenda, and as such it is not conclusive. It has only begun with the analysis of the case studies. Given that the information revised and compiled is still superficial, concluding remarks cannot be drawn yet as to whether there is a Beijing Effect in Latin America's agriculture or not. The fact that China does not have a unique voice regarding GMOs -but has also been altering its stance- makes the research even more complex. But given the relevance that China's market has for Latin America's agriculture, some sort of influence is to be expected.

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