

# Re-primarization revisited: an analysis of decision-making variables in the Argentine soy agribusiness (1993–2015)

*Re-primarização revisitada: uma análise das variáveis decisórias no agronegócio argentino da soja (1993–2015)*

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## ABSTRACT

Argentine soy production from the 1990s to the 2010s has shown major shifts in both production techniques and the ping-pong-relationships between the agribusiness and national governments. The objective of this paper is to introduce a new statistics-based perspective on soy production in Argentina. We analyse variables of technological innovation, weather, price, territorial expansion, and the role of the state to show the extent of influence these variables have on the decision-making of agribusiness representatives and subsequent production and export of soy. As a result, we show that the primary resource 'soybean' does not equal the soy commodities that are exported: National refinement does occur, watering down the re-primarization argument within the debate on neo-extractivism and re-defining the actual role of national governments from steering power of 'what' and 'how much' is produced to 'in what form' soybeans are exported.

**Keywords:** Soy Agribusiness; Argentina; Retenciones; Neo-extractivism; Re-primarization.

## RESUMO

A produção argentina de soja da década de 1990 até a década de 2010 mostrou grandes mudanças, tanto nas técnicas de produção, quanto nas relações de “pingue-pongue” entre o agronegócio e os governos nacionais. O objetivo deste artigo é apresentar uma nova perspectiva, baseada em estatísticas, sobre a produção de soja na Argentina. Analisamos as variáveis de inovação tecnológica, previsão do tempo, preço, expansão territorial e o papel do Estado, para mostrar a extensão de suas influências na tomada de decisões por parte dos representantes do agronegócio e para subsequente produção e exportação de soja. Como resultado, mostramos que o recurso primário ‘soja’ não é igual às commodities de soja que são exportadas: o refinamento nacional ocorre diluindo o argumento de primarização no debate

*sobre o neoextrativismo e redefinindo o papel real da soja. Os governos nacionais controlam o poder de 'o quê' e 'quanto' é produzido para decidir 'sob que forma' a soja será exportada.*

*Palavras-chave: Agronegócio da Soja; Argentina; Retenções; Neo-extrativismo; Re-primarização.*

## 1 INTRODUCTION: SOY PRODUCTION AND NEO-EXTRACTIVISM

Soy production is nothing new in Argentina. First experiments have been carried out in 1908 at the Córdoba Experimental Station (SHURTLEFF, AOYAGI, 2009, p. 7), but the crop has only been considered an industrial good of little value until the mid-1970s when the small national market expanded to the international level (HAFNER, 2016, p. 112). However, the 1990s have brought major changes to the form of production (non-tillage farming and introduction of GM crops), leading to the rise of a massive and highly impactful business that has transformed large territories in the productive areas of the Pampas Region (ARORA et al., 2015; GRAS, HERNANDEZ, 2013), as well as created new frontiers of production, especially in the Northwest of Argentina (c.f. VIGLIZZO et al., 2011; BLANCO, NEIMAN, 2017).

In the vein of this soy boom from the 1990s to the 2010s, the neo-extractivist mode of development – particularly under the progressive governments of Néstor Kirchner and Cristina Fernández de Kirchner – has gained a highly interesting example to be studied (LAPEGNA, 2017; LAPEGNA, 2018). In this paper, however, we argue for a more in-depth analysis of the interrelated effects of neo-extractivism with soy production and hypothesise that the Argentine case has to be treated differently. In particular, we explore potential (non-) factors of changes (CABRINI, CALCATERRA, 2016; CHOUMERT, PHÉLINAS, 2016) in the production scheme over the last three decades. In so doing, we follow two arguments:

First, while neo-extractivism and re-primarization of national economies are considered to go hand in hand, we argue that a more precise sub-division of re-primarization is needed. We will provide the reader with a detailed look to the actual modes of production and forms of exportation of soy and its derivatives. As we will show, export rates of whole soybeans are far lower than already processed derivative. Consequently, the question will be raised to what extent processed goods can still be considered 're-primarized'.

Second, we reason that the role of the state in Argentine neo-extractivist soy production is less pronounced than stated so far in the literature. Here, we particularly focus on the impacts of the so-called *retenciones* (i.e. export taxation) on soy. We will show that – albeit reaching values of up to 35 percent until 2015 – these forms of taxation only have very little effect on the quantity of soy produced and subsequently exported.

In order to show the reasoning behind our arguments, we set up three core questions: First, we identify variables that influence how soy is being produced. Second, we pay particular attention to the question of how much soy can be and is produced within the country. Finally, we ascertain variables that influence in what form the produced soy is eventually exported. Thereby, our arguments are based on an in-depth analysis of Argentina's soy production and export statistics from 1993 to 2015. Furthermore, we can draw on long-term field research in the soy agribusiness (14 months), enriching quantitative results with qualitative evaluations founded on in-depth expert interviews of soy agribusiness stakeholders.

### 1.1 NEO-EXTRACTIVISM AND RE-PRIMARIZATION

With the emergence of progressive governments in Latin America by 2000, the debate on neo-extractivism has become en vogue and has reached a publication peak in 2016. Three foci with differing consequences are observed: First, ALTVATER (2013) sees neo-extractivism as an economic strategy where the monetisation of extractive resources is central. Here, unlike with the Washington Consensus, the Commodities Consensus (SVAMPA, 2015) becomes apparent and focuses on the resource rather than on the geo-political domination of the Global South by the Global North. Consequently, players in the Global South (including, but not limited to progressive governments), but more so financial investors gain momentum to financialize nature as a coping strategy against crisis situations; over-

accumulated capital is being brought into the primary sector (BRAND, WISSEN, 2014). Second, ACOSTA (2012) highlights de-industrialisation and primarization processes and goes even as far as claiming the re-installation of colonial trade structures and dependencies. Thus, he sees the re-emergence of the power disparity between the Global North and the Global South. Third, GUDYNAS (2013) sees a strengthening of the role of respective states, both directly via shares held (e.g. PDVSA Venezuela) or indirectly via financial aid, as seen in Argentina with the introduction of more than 60 social plans (c.f. HAFNER, 2016, p. 111).

While we do not question the validity of the three trains of thought, we argue that a generalisation of neo-extractivist structures overlooks certain particularities of commodity types, the power of state intervention as well as the discussion on re-primarization of Global South economies. Considering the role of commodities in general, two core features are identified (HAFNER et al., 2016): the excessive exploitation and valorisation of scarce and hardly renewable resources, and the expansion of production towards formerly “unproductive” territories and their subsequent upgrading (SVAMPA, 2012, p. 14). The first aspect here is undeniably focussed on fossil fuels, minerals and ores, but had to be expanded to less traditional extractive commodities like soy. In so doing, and particularly for the Argentine case the territorial expansion from the Pampas Region particularly to the Northwest of the country has shown the massive economic potential of this crop that has been cashed in from the 1990s onwards. With soy being one of the major export commodities in Argentina, the neo-extractivist elephant in the room – re-primarization of national economies (COONEY, 2016) – is considered one of the many long-term pitfalls of this development model.

## 2 METHODS

The following contribution examines the production of soybeans and soy-derived products and their relationship with world prices and political decisions in the time span from 1993 to 2015. Carlos Menem has been elected president in 1989. In the early 1990s his government lowered the export taxes to four percent for crude soybeans and applied a zero export tax policy on processed soybean products. Therefore, this specified timeframe has been selected in order to include the early effects of the Menem government.

The applied approach allows for a more comprehensive examination of re-primarization and for an analysis of the efficacy of governmental regulatory measures in times of neo-extractivism. Although there is data available regarding absolute production levels of soybeans, this proves to be more difficult for data related to subsequent processing to soybean oil, soybean meal and soybean oilcake. Unlike corn or wheat, soybeans and soybean derivatives do usually not record domestic sales (HAFNER et al., 2016). Therefore, we assume that the entirety of exports explains the overall production of soybeans and soybean products in Argentina.

We start off by describing the export development of soybeans and soy-derivatives from 1993 to 2015. Due to the relatively very small export share of soybean meal (0.08% of the overall production by 2015), we do not consider it in our analysis. UN COMTRADE (2017), the United Nations International Trade Database has been applied as main source regarding annual export quantities. Annual world prices per product have been adopted from WORLD BANK (2017). Besides the annual stock exchange prices for crude soybeans and soybean oil, it is assumed that the soybean meal price is valid for soybean oilcake.

According to the respective level of *retenciones* the examined time span 1993-2015 has been divided into four periods (P1-P4). With regard to the products under consideration crude soybeans, soybean oil and soybean oilcake each period has been further subdivided into three categories. For each period and category, the level of *retenciones* per product has been juxtaposed with the related mean price as well as with the mean export quantity (c.f. Figure 2). Moreover, the chart also shows annual values for prices and quantities. In order to examine the linear relationship between annual prices and annual export quantities simple regression analyses have been applied to each product type. Finally, the unprocessed soybean product has been contrasted with processed soybean products both in terms of export quantity and export value in order to challenge the frequently used term re-primarization.

For the qualitative testing of quantitative results, 53 interviews (conducted from 08/2013 to 05/2014; 47 were recorded and transcribed) with professionals from the Argentine soy agribusiness sector were analyzed according to qualitative content analysis (MAYRING, 2010) and evaluated with the help of MaxQDA 12. For the whole research process in general, and the qualitative part in particular, we strictly follow ethical rules and considerations reflected in the EC document “Ethics for researchers” (2013) as well as the “European Code of Conduct for Research Integrity” (ALLEA, 2017).

### 3 RESULTS

The main idea of this paper is to carry out an ex post explanation of the influencing factors of soy production in Argentina from 1993 to 2015. Hence, Figure 1 is considered the starting point, offering a concise overview over the Argentine soy cultivation (without considering processing and refinement of soy) in the period under evaluation.

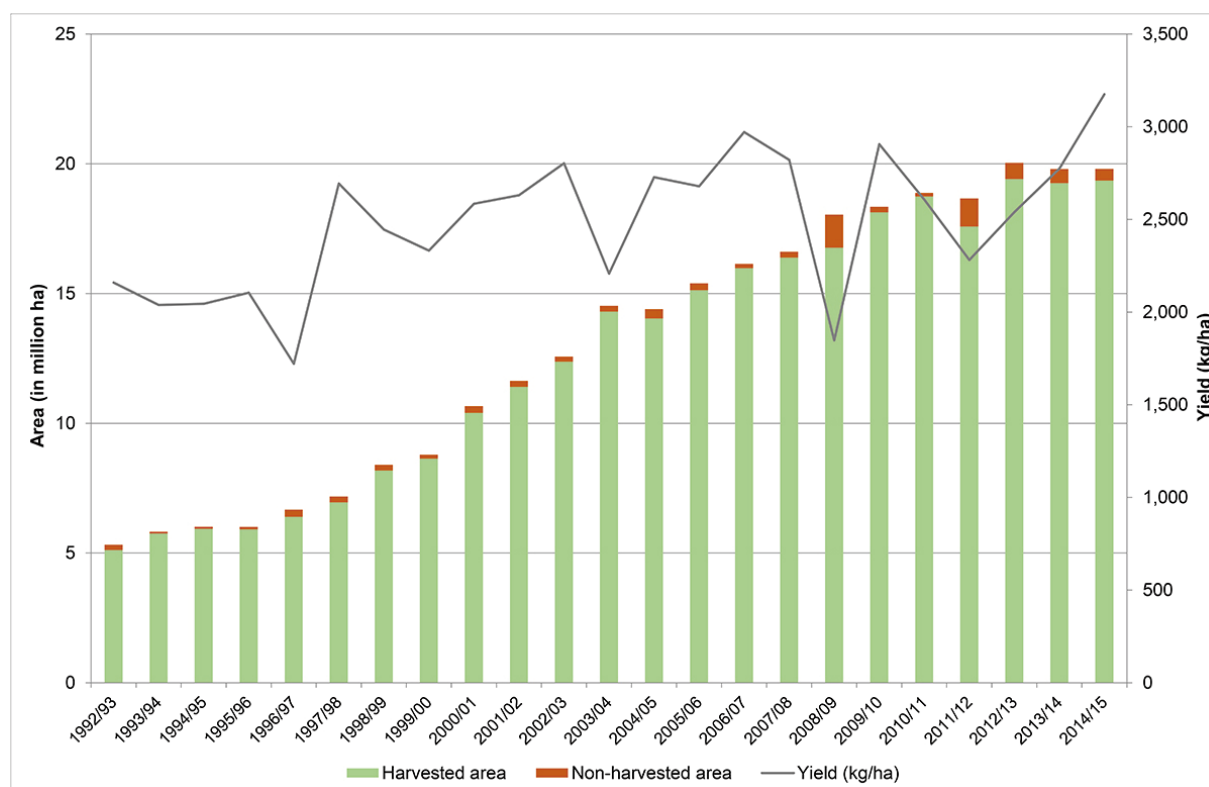


Figure 1: Surface and yield of Argentine soy production (1992/93 – 2014/15).

Source: Own elaboration, based on SIIA, 2016.

Figure 1 speaks a clear language that the cultivation of soy has been constantly increasing from the season 1992/93 to 2014/15, highlighting the profitability of the Argentine soy production. Additionally, by combining results from the yield/ha of harvested area with non-harvested areas, unfavorable (and not influenceable) weather conditions can be isolated identified as extreme values. Here, the temporal component is vital to avoid the trap of over-simplification and “blaming on the weather”. Therefore, in order to achieve significant results we assume the following causality: If the non-harvested area exceeds the threshold value of three percent among the overall harvested area and the yield level is negative compared to the previous season, a decline in production can be traced back to weather influences. Consequently, production decreases of 1996/97, 2008/09 as well as 2011/12 fall under the weather-category. The season 2008/09 shows the most extreme effects with very high temperatures and the absence of rain. More than 1.2 million hectares (seven percent) could not be harvested. The productivity per hectare decreased from 2,821 kg/ha in the previous season to 1,848 kg/ha. The overall production declined by more than 15 million tons, a reduction of 33 percent.

Besides weather conditions, two seasons of abnormal change are highlighted: (a) 1997/98 experiences an increase in soy production of 70.2 percent, while the cultivated and non-harvested area are below our threshold of extreme values. The high productivity, also confirmed by results from stakeholder interviews, is traced back to the productive slump of the previous season 1996/97 and the taking effect of the increased conversion from traditional to GM soy production (c.f. PHÉLINAS, CHOUMERT, 2017). (b) 2009/10 shows an increase in production of 70.0 percent. Here, the weather along with the world financial crises of 2008/09 as well as the after-effects of the introduction of the forest zoning law (KRAPOVICKAS, SACCI, HAFNER, 2016) are main influencing factors. Before the new law with increased protection against deforestation was put into place, deforestation rates and subsequent first-time-cultivation have significantly increased, lowering the productivity of the season 2008/09.

As particularly seen in 2008/09, it can be said in general that territorial expansion of soy production, particularly to areas previously not used for agriculture (especially when covered with forest) has the effect of decreased yields in the first years due to the process of adaptation of soy crops to the respective soil and climatic conditions.

### 3.1 PRICE DEVELOPMENT AND EXPORT QUANTITIES

Having identified weather-related outliers of soy production, the relationship between production quantities and world market prices is analysed. Therefore, a more detailed breakdown of soy into three types of products is carried out. Unlike commonly observed in the debate on re-primarization, soy cannot be considered a single entity, but rather has to be treated as three different (sub-)commodities: Crude soybeans, soybean oil and soybean oilcake.

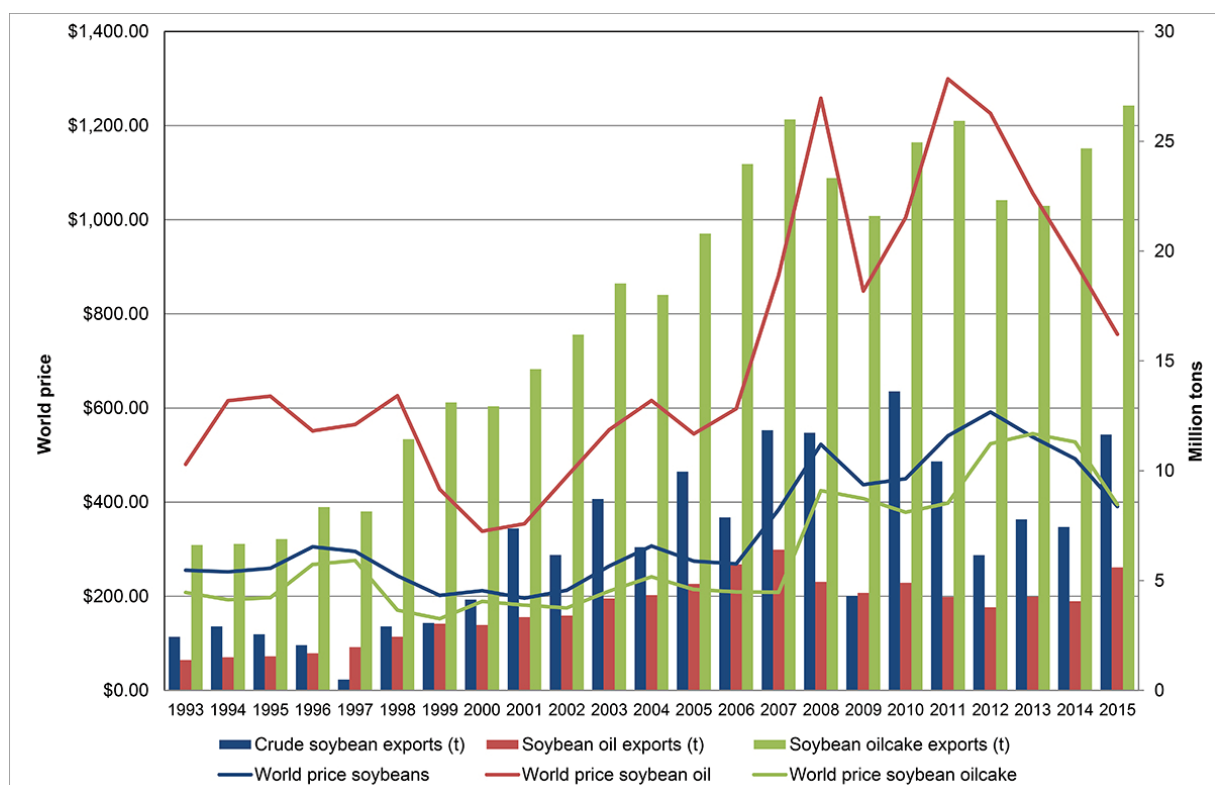


Figure 2: Price development and export quantities.

Source: Own elaboration, based on UN Comtrade, 2017; World Bank, 2017.

In contrast to crude soybeans, soybean oil and soybean oilcake are subject to further processing. Thereby, oil refers to a vegetable oil gained from soybeans that is predominantly used as a comestible good as well as for the production of biodiesel. Oilcake, sometimes also called press cake, is a secondary product of the cold pressing of vegetable oil. With each ton of soybean oil, several tons of soybean

oilcake can be produced (BERK, 1992). Thus, the commercial value of soybean oilcake often exceeds that of soybean oil. However, from an economic point of view the former cannot merely be considered a by-product. Instead, in terms of both quantity and value, soybean oilcake is the most important Argentine soy product. By 2015, soybean oilcake reached 61 percent of the overall soy export volume and 54 percent of the overall export revenues.

Going along with the splitting up of soy into three types of commodities, the next step is to look into the correlation between world market prices and export quantities. Simple regression analyses for annual prices and annual export quantities result in correlation coefficients between low ( $0.2 \leq r \leq 0.5$ ) and moderate ( $0.5 \leq r \leq 0.7$ ). The correlation coefficient between crude soybean exports and soybean world market prices of the same year ( $r=0.49$ ) results not as significant as the coefficient between world market prices and crude soybean exports of the subsequent year ( $r=0.65$ ). Thus, price changes particularly influence the export development of the successive year. These results do not greatly change regarding soybean oil and their respective world price ( $r=0.44$  and  $r=0.62$ ) as well as regarding soybean oilcake and their respective world price ( $r=0.59$  and  $r=0.69$ ).

Although an exclusive contemplation of prices falls short of a satisfactory description of the developments of more than two decades, we can conclude that statistical links between prices and export rates exist. The obtained statistical relationship is even more emphasized by excluding production outliers based on negative weather impacts of 1996/97, 2008/09 and 2011/12. The correlation coefficient of crude soybeans and the respective world price increases to  $r=0.75$ . Although we did not analyse the underlying dataset for positive outliers, the statistical correlations between soybeans, soybean oil and soybean oilcake and their respective world prices have to be ascertained as high.

Evaluating the reasons for price developments would go beyond the scope of this paper. We define them as externally given and immutable. Nonetheless, based on our analysis of stakeholder interviews, global market prices do strongly influence soy farmers' decisions.

### 3.2 ROLE OF THE STATE: RETENCIONES AND PRODUCTION

Today, Argentina is the third biggest soybean producer in the world. In 2013, soybeans and soy-derived products constituted 26 percent of the country's total exports (ACSOJA, 2015). Soybean cultivation and further value-adding processes have become one of the most important sources of fiscal income and have an enormous influence on the economy's wellbeing (DORN, 2017; REBORATTI, 2006).

Even though soy farmers consider the costs of soy production, numerous agribusiness representatives have stated that the profit margins during the period analyzed were still that high that no strategic decision-making on whether soy should be cultivated or not was necessary (ROLLA et al., 2018). Consequently, this variable does not have a prominent position in our analysis.

Nevertheless, one dominant factor of soy production in Argentina are the so-called retenciones (i.e. export taxes). Despite the strongly verbalized resistance against the retenciones over time, their actual effect on the productivity of the soy agribusiness is under question. As seen in Figure 1, the quantity of soy production shows a clear upward trend in the period under discussion, leading to the preliminary conclusion that the retenciones are a mere topic of discursive change of strategy (PALMA, 2017), while an action-oriented pragmatism of soy farmers towards the continuation of soy production is given.

Here, one analytical flaw becomes apparent: Particularly in scientific literature, the retenciones on soy production are often portrayed as a single value per commodity rather than focusing on the level of industrial refinement and changing rates of the retenciones (e.g. GRAS, 2012; an exemption here is RECA, 2010, p. 440). As seen in Table 1, from 1993 to 2015 four periods of different rates of retenciones are in place. Even more interestingly, there is a sub division between crude soybeans and already processed products of soybean oil and soybean cake.

With respect to exported volumes, the average share of crude soybeans among all soybean products amounted to 19.7 percent in P1, 24.6 percent in P2, 26.8 percent in P3 and 23.7 percent in the last

period P4. Even though big importing countries like China are using strong tariffs to avoid the import of processed soy-derived products (PENGUE, 2013), Argentina managed to further process between 73.2 percent and 80.3 percent of soya before export. In the past decade, milling and crushing capacities duplicated (ACSOJA, 2015). At present, the Argentine processing sector has daily a capacity of 147 million tons (2013, p. 44). Regarding the value of unprocessed and processed soybean exports this analysis results in similar shares. In all four periods between 70.9 and 80.4 percent of the total export value is explained by processed soybean products.

Table 1: Retenciones on, mean price and quantities of soybeans and its main derivatives.

		<b>P1</b>	<b>P2</b>	<b>P3</b>	<b>P4</b>
		<b>1993-2001</b>	<b>2002-2006</b>	<b>2007</b>	<b>2008-2015</b>
<b>Crude soybeans</b>	<b>Retenciones</b>	4%	24%	28%	35%
	<b>Mean price</b>	\$246.55	\$265.30	\$384.05	\$495.28
	<b>Mean export quantity (to)</b>	3,101,085	7,845,550	11,842,536	9,137,092
<b>Soybean oil</b>	<b>Retenciones</b>	0%	20%	24%	32%
	<b>Mean price</b>	\$509.18	\$553.53	\$881.43	\$1.045.00
	<b>Mean export quantity (to)</b>	2,206,352	4,504,310	6,403,550	4,528,868
<b>Soybean oilcake</b>	<b>Retenciones</b>	0%	20%	24%	32%
	<b>Mean price</b>	\$203.71	\$210.17	\$208.37	\$450.06
	<b>Mean export quantity (to)</b>	9,862,649	19,498,993	25,991,013	23,937,745

Source: Own elaboration, based on HAFNER, 2016, p. 110; WORLD BANK, 2017; UN COMTRADE, 2017.

Hence, state intentions are already clearly visible: The more processing there occurs within Argentina, the lower are the export taxation rates – regardless of the political orientation of the national governments. Under the presidency of Carlos Menem in the 1990s, the Argentine government charged the export of crude soybeans with four percent. Processed soybean products were not export taxed. This period is known as the period with the lowest/no export taxes in the second half of the 20th century (HAFNER, 2016, p. 109).

After the Argentine great depression from 1998-2002, higher export taxes of 24 percent were (re-) introduced in 2002, the levies for processed soybean products up to 20 percent. The subsequent governments of Néstor Kirchner and Cristina Fernández de Kirchner maintained the high levels of retenciones and even incremented them by 2007, changing the level to 28 percent for unprocessed and 24 percent for processed soybean products, respectively. 2008 was marked by the infamous lock out, started by the CONINAGRO (Confederación Interccoperativa Agropecuaria Limitada), Confederaciones Rurales Argentinas (Argentine Rural Convederations, the Sociedad Rural Argentina (Argentine Rural Society), and the Federación Agraria Argentina (Argentine Agrarian Federation) (MANGONNET, MURILLO, 2017). The open conflict (including massive strikes) between the Argentine government and the agrobusiness was initiated by the Resolution 125/2008 (Ministerio de Economía y Producción, 3 out. 2008), proposing a flexibilization of the retenciones. While this flexibilization does not hold, the tax rates are once again increased. Between 2008 and 2015 the retenciones for unprocessed soybeans reached a record level of 35 percent, processed soybean products were charged 32 percent.

Hence, considering GUDYNAS (2013) stance on neo-extractivism, the steering role of the state is visible – however, not in the form of what is being produced and exported, but rather in the way how this is done. After what and how, the third question here is the interrelation between state strategies and how much soy is being produced and exported.

In period one (P1), the mean export quantity of crude soybeans was 3.1 million tons. Although fluctuations did occur, for instance a harsh drop in exports in 1997 and a mayor increase in 2001, these fluctuations can be considered relatively limited when comparing to subsequent periods. Regarding soybean oil and soybean oilcake almost constant increases in export quantities can be constituted, amounting to mean export quantities of 2.2 million and 9.8 million tons, respectively. The corresponding price levels experienced major price drops in the last years of the period. This decrease has been particularly strong regarding soybean oil, resulting in a decrease of 46 percent between 1998 and 2000.

The onset of the second period (P2) coincides with the end of the Argentine great depression from 1998 to 2002 and initiated a phase of strong growth. Besides increased financial speculation and the emergence of a potential market for biofuels the expanding middle classes in India and China and their growing demand for animal protein created the “perfect storm” (LEGUIZAMÓN, 2014, p. 157). Argentina’s agro-export based model of genetically modified soy production was able to highly benefit from the global context (LEGUIZAMÓN, 2016). Whilst the export levels of soybean oil and soybean oilcake increased constantly, crude soybean exports were characterized by some fluctuations. Compared to the first period (P1) both the mean price as well as the mean export quantity have increased in the case of all three products. While crude soybeans now accounted for averagely 7.8 million annual exported tons, an increase of more than 150 percent, the exports of soybean oil increased to 4.5 million tons (more than 100 percent) and soybean oilcake to 19.5 million tons (almost 100 percent) on average. Moreover, the second period was characterized by strongly incrementing price levels. This trend continued until 2008 (P4).

Period three (P3) resulted the shortest period of the analysis and not even lasted an entire year: Although taxes were raised to 28 percent (unprocessed soybeans) and 24 percent (processed soybeans) in January 2007, a renewed increase became effective in November 2007. This renewed elevation, up to 35 percent (unprocessed soybeans) and 32 percent (processed soybeans) marks the beginning of period four (P4) which lasted until the businessmen Mauricio Macri of the conservative-liberal *Propuesta Republicana* (PRO) became president at the end of 2015.

The last period was characterized by fluctuating export quantities and unsteady price levels. After the global financial crisis of 2007-2008 commodity prices recovered and even surpassed their foregone all-time peaks. By 2011, the price for soybean oil reached almost 1,300 U.S. Dollars. For unprocessed soybeans, the world price reached its all-time high of 591 U.S. Dollars in 2012, for soybean oilcake it raised up to 545 U.S. Dollars in 2013. For all products prices went into significant decline after reaching those unprecedented maximum levels.

Once again, Table 1 supports the common ground established by results from stakeholder interviews that the value of the *retenciones* does not impact the decision of soy farmers to diminish the amount of soy produced. Considering the increase in prices minus the respective export tax percentages, the mean profit margin decreases in all three soy products in P2, but gains considerably in P3 (soybean oil and crude soybeans), culminating in the highest mean margins in P4. Hence, it is seen that there are no significant production and/or export changes of the quantity of soy and its derivatives due to the *retenciones*. The outlined price developments go hand in hand with more general trends on global commodity markets. The global financial crisis resulted in an enormous price drop on stock markets. Although the world economy was able to recover rapidly, general price deterioration commenced as of 2010. This can be traced back to the economic downturn in important consumer countries such as China and India (COY, RUIZ PEYRÉ, OBERMAYR, 2017). By 2014, the fast-growing country – and by most measures the world’s biggest economy (IMF, 2017) – has imported 80 percent of unprocessed Argentine soybeans (ATLAS OF ECONOMIC COMPLEXITY, 2016). Thus, in the last period under consideration export quantities of all three products declined regardless of possible state interventions.



## 4 DISCUSSION

Contextualizing the previous chapter’s analytical train, two forms of influencing variables are identified: (a) Theoretical opportunities; and (b) influencing factors in practice. Relating to (a), the first question is how soy can be produced. Here, the technological aspect of soy cultivation is central. As observed in Table 2, the effect of technological change was highly visible in the mid-1990s: Non-tillage farming was introduced, combined with the legalization and distribution of GM crops. The mid 2010s, though on a lower level, showed technological change towards precision agriculture and the quest for more heat and drought resistant crops. Technological factors do not only influence the question of how but also how much can be produced.

The analysis has also shown that not just the increase in yield, but also the size of cultivated areas has risen dramatically. Territorial expansion (i.e. the increase in supply), because of rising international demand (expressed in the prices for soy and its derivatives), has experienced major bursts: In 1993/94 after the decrease of the retenciones, triggered by introduction of GM soy (especially in 1996/97), but also due to the low land prices after the Argentine financial crisis in 2001/02. The third influencing variable – interwoven with the previous two – is the externally set ‘price’. While lucrative over the whole period (even though going through minor decreases from 1998/99 to 2001/02), prices have particularly soared in the 2010s, fostering farmers’ decisions to continue (and increase) soy cultivation.

Table 2: Influencing factors on soy production.

Core question	HOW	HOW MUCH		IN WHAT FORM	
	... can be produced?	... can be produced?	... is produced?	... should soy be exported?	
Influencing variable	<b>Technology</b> (as positive factor of innovation)	<b>Extreme weather</b> (as hindering factor)	<b>Territorial expansion</b>	<b>Price</b> (increase as positive factor)	<b>Politics</b> (especially related to retenciones)
Year					
1992/93	+	++	++	+	++
1993/94	++		+++	+	++
1994/95	+++		++	+	+++
1995/96	+++		-	+	++
1996/97	+++	+++	+++	+	++
1997/98	+++		++	+	+
1998/99	++		+++	-	+
1999/00	+		+	-	+
2000/01	+		+++	-	+
2001/02	+		++	-	++
2002/03			++	+	++
2003/04			+++	+	+
2004/05			-	+	+
2005/06			++	+	+
2006/07			+	++	+
2007/08			+	+++	+++
2008/09		+++	++	++	+++
2009/10			+	++	+
2010/11	+		+	+++	+
2011/12	+	+++	-	+++	+
2012/13	+		++	+++	+
2013/14	++		-	++	+
2014/15	++		+	++	+
<b>Relevance of factors</b>					
- ... decline    + ... little impact    ++ ... medium impact    +++ ... high impact					

Source: Own elaboration.

In terms of (b) the focus lies on the practical effect of theoretical opportunities. Here, the first and most external variable is weather, having high influence on how much can be produced with the area cultivated and seeds available. Having identified weather outliers, the second most important factor is politics. It has been shown that political actions do not have the characteristic of influencing soy farmers' decision-making on how much soy is being produced. The state offers a legal frame for what can be done (especially seen with the legalisation of GM crops in the 1990s), but the most effective influence is observed at the point of export, when export taxations do play a role when deciding the level of processing of the commodity. Internal costs of production and processing on the one side, and the world price minus retenciones on the other side are the core variables of soy production. Hence, through staggered retenciones, the state can regulate the level of processing of the primary good 'soy'.

## 5 CONCLUSION

In this paper we have focused on the Argentine soy production from 1993 to 2015, highlighting the influencing factors for soy farmers' decision making. Through a statistical analysis and supported by stakeholder interviews, we could identify and eliminate production and export outliers from the data available. Consequently, we were able to show that – going along with GUDYNAS' (2013) understanding of the state's steering mechanisms in neo-extractivist modes of production – the Argentine government does have influence on the soy agribusiness, but less in the form of how much is being produced, but more so in what form soy is being exported.

As a result, we do not deny the notion that Argentina's soy production under the framework of neo-extractivism has experienced a major shift towards re-primarization. We do, however, argue for a closer look on the type and form of the commodity at hand. The primary resource are soybeans, but most of the analyses carried out (particularly in terms of the retenciones) have a too generalized focus. They do not make the distinction between the primary resource and the commodities exported (soybeans, soybean oilcake, soybean oil) and thus overlook the fact that soy is being processed and added value to in Argentina; between 2008 and 2015 more than 76 percent of all soybean exports have been subject to further industrial treatment before export. We have shown, that this feature is particularly important for the understanding of the limits of the state's steering role in neo-extractivist modes of production.

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