Global neoliberalism in agricultural case: Quinoa's case

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Abstract

Quinoa has recently become of interest at a national and international level due to the nutritional value that it offers consumers who are looking for something healthy and nutritious but also for those consumers who suffer from some kind of allergic reaction related with the bowels, or have circulatory or muscular problems. In spite of being considered a wonderfully beneficial grain at a national and international level, there are many paradoxes that quinoa has to overcome in its production, commercialization and consumption phases in order to achieve an authentic development and improvement over the quality of life of the quinoa producers and the entire Bolivian people as a whole. This investigation will outline in detail several of the mentioned paradoxes that come into play during the production, commercialization and consumption of quinoa and will also provide a set of strategies that could be pursued with the intent of achieving an acceptable level of development.

1. Background

Quinoa has recently become of interest at a national and international level due to its nutritional properties like protein and magnesium, among others. It's been said that if you had to choose some form of nourishment for NASA's deep space voyages, the best choice would be quinoa. The program for Alternative Nutrition of the Archdioceses of La Paz (2002) states that problems related with malnourishment which affect a great deal of the Bolivian population could be solved through the consumption of quinoa and other products from the Andean region like amaranth or kewina. Furthermore, "if you had to choose one kind of sustenance among many to survive, the best choice by far would be quinoa" (Johnson Duane: 1997).

Recent studies conducted on this type of grain have shown that it contains a high degree of magnesium, which helps to ensure good cardiovascular circulation and consequently helps to keep the heart healthy and reduce the chance of migraine headaches. Furthermore,

quinoa helps the body create and maintain new muscle fiber and its regular consumption prevents muscle cramps. It's also been regarded as a grain that is high in protein content (contains 9 essential amino acids), free of gluten and offers twice the fiber of oatmeal[1]. Even though quinoa is considered to be a wonderfully beneficial grain it poses as a source of many paradoxes for Bolivia, regarding both its chain of production and trade. In order to be able to overcome these difficulties and achieve sustainable development, it has become necessary to undertake drastic strategic measures at a regional and national level with the intent of undermining these difficulties and preventing that they have a negative impact on development.

The main objective of this article is to expose the great economic potential of quinoa for Bolivia and to show how the different paradoxes, both in its chain of production and commercialization, make it seem as though the development of the region is not evident. With this intent, the article will be divided into three separate parts. One will outline the different paradoxes present in the commercialization and consumption of quinoa mainly at a national level. The second part will present the different paradoxes concerning commercialization in the most important markets around the world along with potential markets in which quinoa should be exposed in a more aggressive fashion. Finally, we will present a set of conclusions that summarize the entire array of paradoxes that have been taken into account for this investigation.

2. Paradoxes of Production and Consumption

Quinoa is a millenary grain that was subject to investigation during the decade of the 90s and was regarded as one of the "grains of the future" due to its vast nutritional properties (Meinig, 1999; Fautapo, 2008; Montoya 2007; Proinpa 2011). It's been said that if you had to choose some form of nourishment for NASA's deep space voyages, the best choice would be quinoa. The program for Alternative Nutrition of the Archdioceses of La Paz (2002) states that problems related with malnourishment which affect a great deal of the Bolivian population could be solved through the consumption of quinoa and other products from the Andean region like amaranth or kewina. Furthermore, "if you had to choose one kind of sustenance among many to survive, the best choice by far would be quinoa" (Johnson Duane: 1997).

Recent studies done on this type of grain (Alcântara Santos V., Calderelli M., de Toledo B.; et. Al., 2010; Farinazzi-machado f., Barbalho s., Oshiiwa M., et. Al., 2012) have shown that it contains a high degree of magnesium, which helps to ensure good cardiovascular

[1] More information is available on different websites that talk about quinoa and research to date. There is also a wealth of information on the web pages of importers of quinoa to the United States, Canada and Europe.

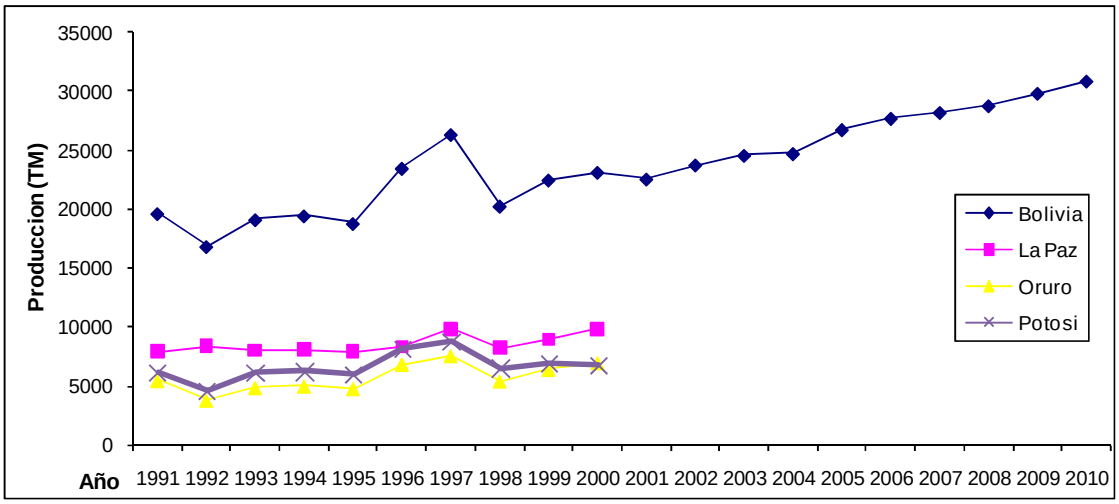
circulation and consequently helps to keep the heart healthy and reduce the chance of migraine headaches. Furthermore, quinoa helps the body create and maintain new muscle fiber and its regular consumption prevents muscle cramps. It's also been regarded as a grain that is high in protein content (contains 9 essential amino acids), free of gluten and offers twice the fiber of oatmeal[2]. Its production is mainly based in the Bolivian Altiplano[3], otherwise known as the high plains. In order to have a clear idea of what quinoa is and what it represents for Bolivia, below we will explain the evolutionary process that the production of quinoa experienced in the country. In Bolivia, quinoa is mainly produced in the cities of La Paz, Oruro and Potosi (See Figure 1). Conventional and Organic quinoa is produced in all three counties. Organic quinoa is grown, produced and distributed in such a way that it prevents damage done to the soil, water and animals, consequently protecting the legacy of future generations whilst trying to pay a fair price to the producers. In contrast, conventional agriculture is produced with the use of insecticides and other harmful materials.

"*Por los genotipos y fenotipos específicos, la quinua producida en la parte del salar de Uyuni es de mejor calidada nivel nutricional*" (Laguna: 2000) and it is the one that is largely destined for production. Generally speaking, we can see (Figure 1) that the production of quinoa has been rising in all three counties in the last couple of years due to the rapid increase in demand around the world and the high prices offered for the grain in contrast with other cereals such as Soja. The IBCE (2010) has shown that in 2010 a kilogram of quinoa was worth 8 times more (3.1 $/Kg) than a kilogram of Soja (0.4 $/Kg) in the international market. La Paz remains the county that has the highest numbers of quinoa production, which is believed to be destined mostly for the local market. On the other hand, the quinoa originating from Oruro and Potosi is primarily destined for the international market (be it organic or conventional).

[2] More information is available on different websites that talk about quinoa and research to date. There is also a wealth of information on the web pages of importers of quinoa to the United States, Canada and Europe.

[3] Quinoa is produced in the Bolivian Highlands. It is also produced in Argentina, Chile, Peru, Ecuador, Canada, United States, Holland and Germany. It is a grain that can grow to heights ranging between 2500 and 4000 m where winters are very cold and reach annual temperatures ranging from 0-14 ° C with very scarce rainfall.

Figure 1. Average Quinoa Production, in Metric Tons, 1991-2000.



Source: Personal research from INE data, 2012.

Numerous associations of producers have been created for the task of harvesting the quinoa grain, with the intent of storing enough quantity for sourcing of both the domestic and international markets. During the last twenty years, the number of associations like (Asociación Nacional de Productores de Quinua), CECAOT (La Central de Cooperativas Agropecuarias "Operación Tierra") and others, have been created in order to provision the different markets with organic and conventional quinoa. Around some 70,000 families are solely dedicated to the production of quinoa, some for self-consumption and others for commercialization purposes (Proinpa, 2011). Many have also ventured into the production of value added products that are sold mostly in the domestic market and in markets such as Argentina, Chile and Peru.

But if one thinks that the objective behind the increase in the production of quinoa is (as indicated by the surplus theory) to cover the basic demands of the domestic market, one is sorely mistaken. In fact, this measure is only meant to try to cover the potential demand of the international market and what is not sold outside (because it's of low quality, a less marketable variety of quinoa or other factors) is only then destined for the local market. In the case of Bolivian quinoa, there is a large potential found in the national market but a very small number of producers feel drawn to cover the domestic demand due to the low prices that it offers in comparison to the international bid, which as of right now is in steady increase and can pay higher costs.

There have been extensive studies done around the national consumption of quinoa (Montoya, 2007; Laguna 2000, Proinpa, 2011). Quantifying the amount of consumption with certainty is very difficult since there are no detailed statistics due to the fact that a large part of the economy is still very informal.

This type of economic structure makes it difficult to come up with clear figures on the actual amount of consumption and genuine exportation. One of the numerous studies carried out in this field shows that in Bolivia in 1999, the average consumer would expend 2Kg per capita of quinoa (Laguna, 2000). Another more recent research indicates that consumption increased in the past couple of years to a yearly average of 5.42Kg per capita (Montoya, 2007) and in 2007 consumption decreased to 1.11Kg per capita (Proquior, 2008). During the present year, Proinpa (2011) points out that the yearly national average of consumption is estimated at 4.7 Kg per person. The counties that rank the highest amongst consumers of the grain are Oruro and Sucre (Ceprobol 2007). In contrast, places where organic quinoa is produced at a large scale like Potosi show significantly lower figures of only 2.5 Kg per person during the course of a year (Borja y Soraide, 2007). Nevertheless, we must stress the fact that there are two points that neither statistics nor studies have taken into account, which have to do with the unregistered amounts of produced and exported quinoa. If we were to take into account the data gathered on smuggled exports of quinoa to Peru, it would reduce the amount of domestic consumption to only 10% of the total production (see below). It is known that in 2011 about 15,000 tons of contraband was shipped to Peru between conventional and organic quinoa. This number would represent about 44% of Bolivian production. On the other hand, during the exact same year there were 45,000 families who benefited from a monthly subsidy[4] destined for the mother and child, which among other products contained 2 kg of quinoa (Page Seven, 2012)**.** Now, if we assume, as does Proquior (2008), that the annual consumption will reach 2130 tons, we can deduce that this subsidy represents 51% of the total amount of consumption and the rest is divided into different products of quinoa marketed with added value through private companies or organizations of quinoa producers.

In the past ten years, the national production of quinoa increased by 18.58% between 2001 and 2005 and 11.40% between 2006 and 2010. This rise is due to the fact that quinoa has had a high degree of acceptance in the international market; hence exerting a positive influence on the local market and increasing the demand for quinoa. Before the 90s, quinoa was thought of as nourishment for underprivileged people only and was not included amongst the regular products procured by the average person (Laguna 2000; Montoya 2007). Proof that the demand curve has changed in recent times, is the fact that in local markets around the country (Cochabamba, La Paz and Santa Cruz) we have begun to see quinoa being sold with an added value, much like popcorn, energy bars, chips, other types of grains, honey sticks, cookies, etc. The wide variety of quinoa products sold with added has led to higher demand and higher prices for producers.

[4] This mother-child subsidy is funded by the national government, given to pregnant women from the fifth month of pregnancy until the newborn baby is one year old. Quinoa was introduced in this package in 2008 to increase national consumption.

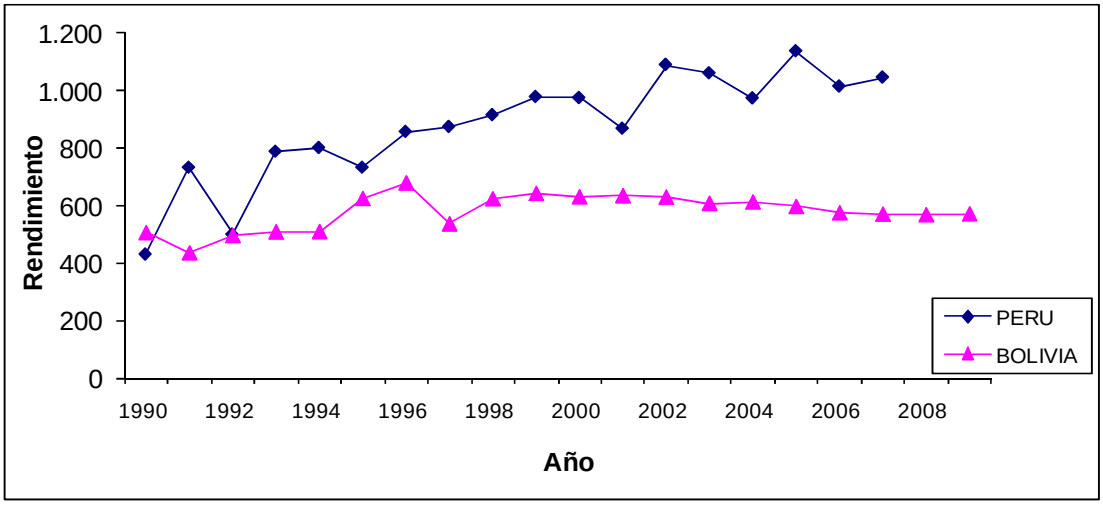
In general, production seems to have risen, but if we look closely at the data presented in table 1 we can see the following pattern emerge. Within the last decade, the total amount of land devoted to growing quinoa increased by 22.03% in 2000-2004 and by 16.47% in 2005-2009. However, the yield has reduced dramatically, showing a decrease of 2.84% and 4.34% with an average of 573 kg / ha for the same quinquenniums, who had before reached their highest point at 637 Kg / Ha.

Table 1. Percentage growth in production, performance and total area where quinoa is produced in Bolivia. Expressed in lustrums, from 1990 to 2009.

	% de crecimiento quinquenal			
	1990-1994	1995-1999	2000-2004	2005-2009
Superficie, en Ha	-5,16	-4,23	22,03	16,47
Producción, en TM	-4,26	-1,45	18,58	11,40
Rendimiento, en Kg/Ha	0,79	2,87	-2,84	-4,34

Source: Personal research from INE data, 2012.

Figure 2. Presents a performance comparison between the quinoa produced by Peru and Bolivia, in Kg/Ha, for the period between 1990 and 2008. One can see that Peru and Bolivia were similar in terms of yielding at an early stage, but differentiation became increasingly apparent over the years.



Source: Personal research. INE data Bolivia 2012 and Ministry of Agriculture - Dirección General de Información Agraria - Dirección de Estadística del Perú 2012.

The total quantity of yielded Bolivian quinoa by Hectare, amounts to an 83% lesser bulk than that of Peru, who manufactured a total of 1047 Kg/HA in average between 2005 and 2007 (See figure 2). If we take into account earlier data that shows that as far back as 1990 Peru only had 14.4% lesser yielding than that of Bolivia (434 Vs 507 Kg/Ha), we can clearly see that Peru has undertaken great efforts to improve the production and efficiency of quinoa. Among some of Peru's policies regarding quinoa, we can find strategies centered

around promoting greater domestic production by reducing imports of Bolivian quinoa[5], motivating the development of quinoa products with high added value and including quinoa in different programs such as school breakfast foods.

One of the possible causes for the low amounts of quinoa yielded in the last couple of years could be due to the fact that there have been large advances made in the agricultural frontier in different areas of the Highlands, which have deforested immense areas of land in an irrational fashion, particularly in the Southern part of the Altiplano where organic "Quinua Real" is cultivated. A recent investigation carried out by Aroni G. and A. Bonifacio (2009), indicates that there are few places where you can still see the SIT tall bushes that characterized this region in the past and camel and sheep farming have become increasingly untenable. This phenomenon is in part due to the fact that there is very little grass in the Highlands to serve as nourishment for animals, forcing them to find other sources of food, like quinoa. To prevent such problems with the quinoa crops, many farmers that inhabit this area have decided to reduce their heard or eliminate them completely. Many researchers believe that the reason for this dilemma lies behind the fact that livestock demands a great deal of sacrifice from the farmers and is less profitable than quinoa, which takes less time to cultivate and can yield great income due to high export prices. According to Antonio Ruiz (2009), in 1998 the price of quinoa was $1340 per ton, climbing to $3600 by 2009. We can evidence that in a period of ten years the price of quinoa has incremented by 268.66%, which has played an important role in changing the mindset around quinoa from a product perceived as not profitable to a grain that is valued above any other of its kind and is the only one produced in such a large scale (monocultures). All of this translates into higher profits for the producers as MADGR (2008) shows us, between 65% to 85% of the income among producers comes from quinoa.

It's for this reason that in the last twenty years camelid livestock has taken a backseat to quinoa production due to the vast economic potential that quinoa represents for producers. This measure has had its effects on the situation leading to a stagnant state where there is no rotation of crops and all that is produced is quinoa. Additionally, the good practice of allowing the soil to rest for two years after a harvest has been reduced to only one year, contributing to worsen the problem of an inexistent process of replenishment of the soil through organic matter due to the lack of manure in the area (Aroni y Bonifacio, 2009). All this leads to faster soil erosion which in turn affects the productivity of quinoa. Furthermore, social conflicts have created boundaries between communities, product of the constant struggle to gain more land for growing quinoa. While

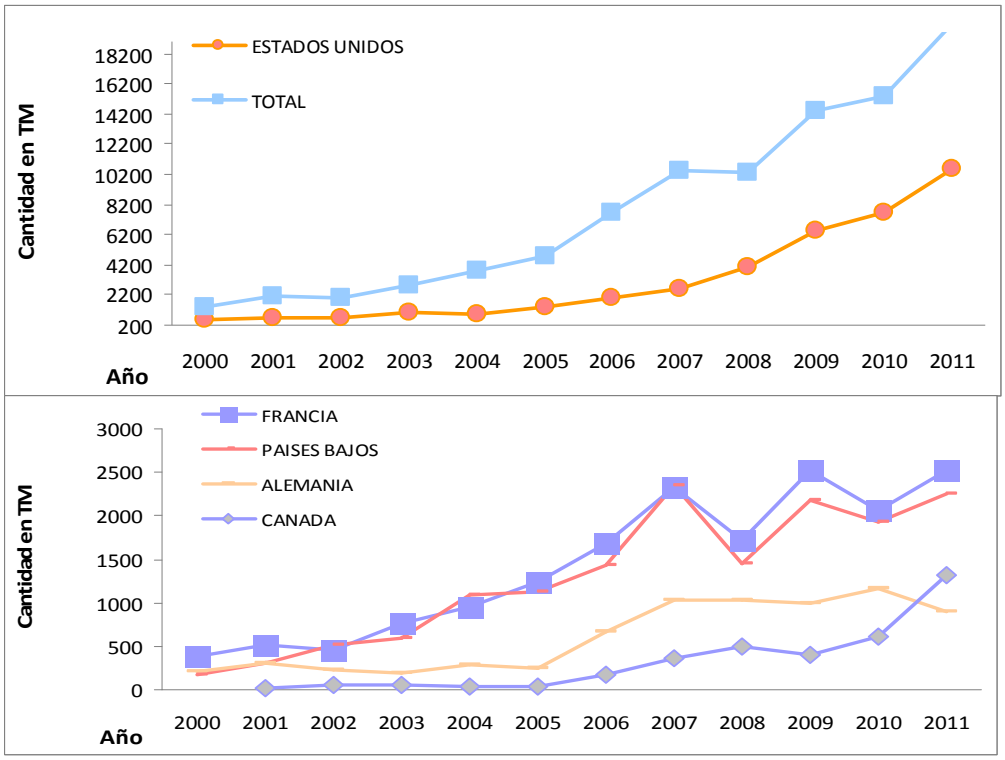
[5] While there is greater control on imports of quinoa in Peru, the estimated imports for smuggling have been growing due to strong demand and high prices compared to the prices in Bolivian local markets. The newspaper La Razon and Bolpress (2011) indicates that only in 2011 were exported about 15,000 contraband TM (see more at URL: http://www.bolpress.com/art.php?Cod=2012031506 and http: / / www.la-razon.com/economia/quinua-boliviana-sale-contrabando-Peru_0_1523847628.html).

quinoa has improved the living standards of farming communities by providing a means to a better income, it has also become clear that this promising venture is threatened by poor farming practices and a lack of long-term vision.

3. Paradoxes of commercialization

Bolivia has the privilege of being home to what is known as “the grain of the Gods”, due to its many nutritional properties. It’s one of the few products in the market that needs no promotion or endorsement; clients are always available and are quick to seek out producers. Since the 90s, exportations have been steadily increasing and are predicted to reach an all time high in 2013, recently declared “The International Year of Quinoa” by “La Organización de Naciones Unidas para la Agricultura y la Alimentación” (FAO). In 2011, Bolivia exported around 20179 metric tons of quinoa which accounts for 58.62% of the total amount of national production. Bolivia’s biggest commercial partner is the United States, where the organic type of quinoa known as Real (white, red and black type) is sold. In 2011, the U.S. had 52.33% of all exports to 10,561 MT and 30.68% of Bolivian production (See figure 3). As we can see, there are other important markets for the country, such as France, the Netherlands, Germany and Canada, which together make up for more than 34.67% of total exports. Around 87% of all exports are split between all of these countries (United States, France, Netherlands, Germany and Canada). Nevertheless, it is important to acknowledge other potential markets where quinoa is still regarded as a “questionable product” due to the lack of exposure, since great efforts are being made to publicize the incredible nutritional benefits of quinoa and in turn help in creating potentially thriving markets. Therefore, the future success of quinoa will depend on potential clients that adhere to the consumption of this grain. In order for these products to become leaders in the market, it has become necessary to invest great deals of money to ensure its development by intensifying campaigns of awareness that focus on the many nutritional benefits of quinoa. Bolivian “Real quinoa” and other types of the grain have easily made their way in other markets with support from marketing campaigns and product distribution by importing organizations and chains of fair trade and organic food. There is a very distinct possibility that the international quinoa market will expand during the coming years, especially since quinoa is now being offered as an "organic product" which is of preference for consumers in developed countries who are also concerned with producers receiving a fair price for their goods.

Figure 3. Comparison of Bolivian quinoa exports in metric tons. Years 2000-2011. The largest importers are the United States with a steady growth trend, France and the Netherlands with a growing trend but also smaller scale.

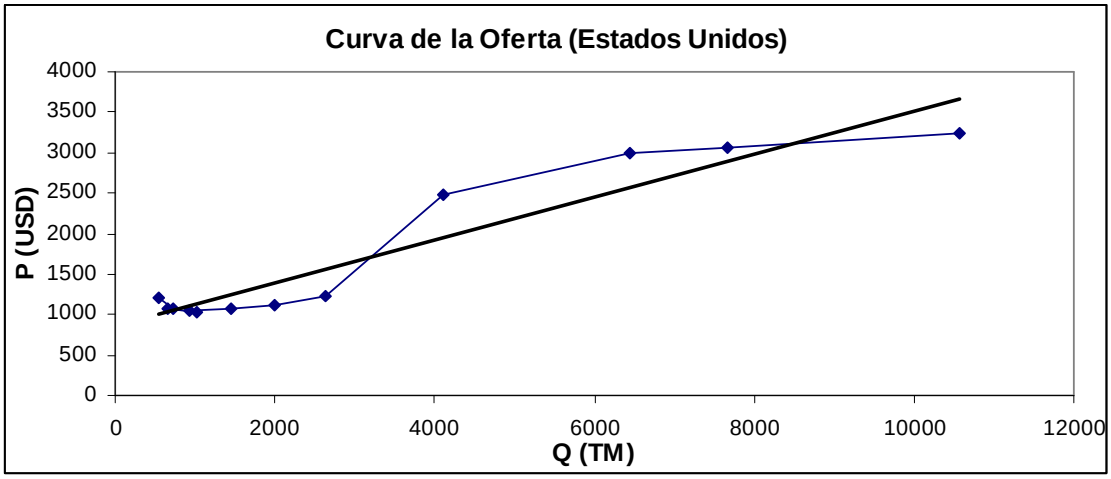


Source: Personal research. INE data Bolivia 2012 and Ministry of Agriculture - Dirección General de Información Agraria - Dirección de Estadística del Perú 2012

Quinoa exports have fluctuated a great deal during the last couple of years. The percentage growth in 1993 for example, was 6.63% and seven years later (1999) this percentage increased to 30.73%. By 2011 it grew to 1310% in relation to 2000. Such abrupt and sudden changes make it difficult to choose an adequate tendency for the exporting of quinoa in the upcoming years.

As we can see in figure 4, the total amount of tendered quinoa will probably continue to increase along the curve until reaching a new level of balance alongside the demand curve, which has also continued to augment since the number of consumers has risen and people who were already consuming this grain have seen the need to demand a larger amount. A slight change in the demand or tender curves will consequently have an effect on the price and the amount of quinoa. The price of quinoa has a tendency to increase, although it has not been very evident in the last three years since the price seems to be stabilizing around $ 3,000 a ton, the supply in this market is still growing.

Figure 4. United States: Supply curve, relationship between quantity (TM) and Price (Dolars), from 2000-2011.



Source: Personal research from INE data, 2012.

This context can be explained by several different factors; perhaps one of the most evident is that in past years quinoa has gained the interest of many researchers across the United States who have voiced their opinion and exposed quinoa as a very important source of organic nourishment for the future. This is the reason why quinoa is sold through the channel of organic products. The results of this research show that in spite of being marketed through fair trade channels this product also has a huge consumption potential in people suffering from allergic reactions or celiac[6] who could use quinoa as a replacement for various medicinal products[7]. In this way, we feel that in the near future, quinoa could stop being commercialized through the channel of organic products only and start venturing into normal flows of international commercialization.

The second and third most important markets where quinoa is exported are France (with 12.54%) and the Netherlands (11.18%) (See figure 3). As we can observe in figure 5, there is a tendency for prices to increment and a supply line that moves along the curve. One can see that the offer suffered a downturn in 2008 and 2010, due in part to the price and quantity levels which may not be consistent with European consumer demand. In these curves it can be seen that there is a strong tendency to strive for equilibrium in the average price per ton of 1000-1500.

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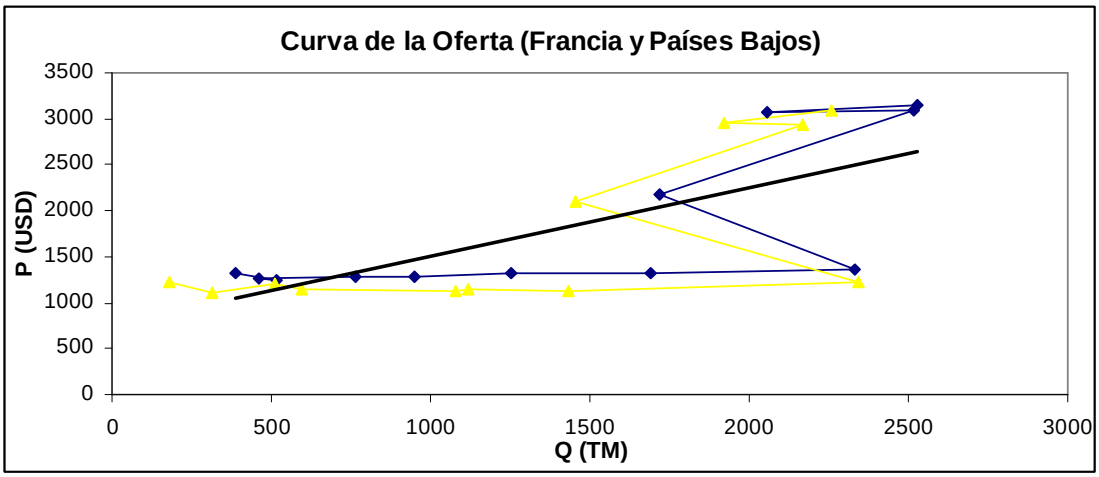
[6] The team of researchers from King's College London (England) has discovered that quinoa helps to regenerate celiac gluten intolerance. They found that if a celiac has a gluten free diet but rich quinoa http://www.celiacos.com/category/productos-sin-gluten/ can restore bowel function in much less time (FAO Latin America, 2011).

[7] Currently, quinoa is not only promoted around the United States as a grain that is important for organic or natural nutrition. The quinoa grain is also used for the large group of people who are celiac, suffer from allergies to the small intestine, have difficulty digesting or are lactose intolerant.

Figure 5. France and the Netherlands; Supply curve, relationship between quantity (TM) and Price (Dollars), from 2000-2011.



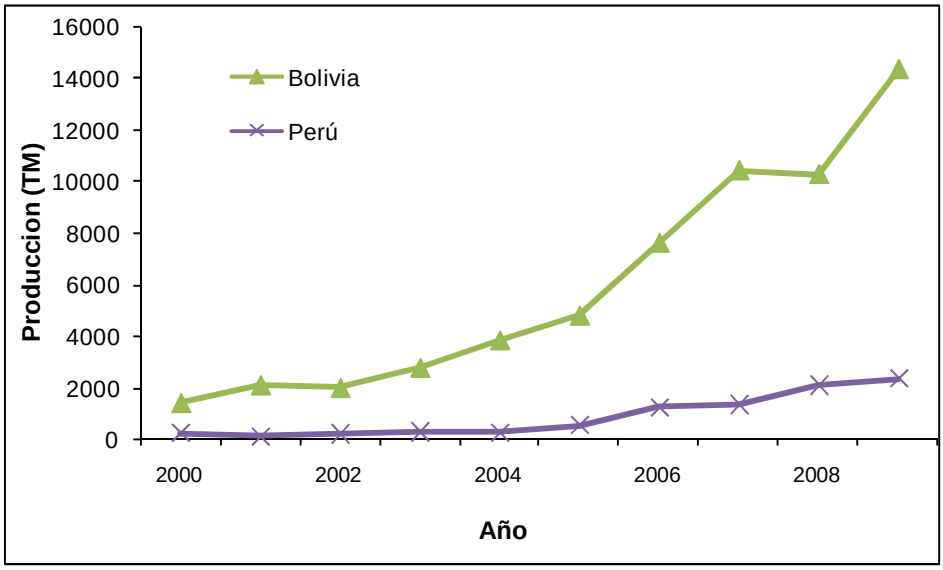
Source: Personal research from INE data, 2012

The exporting trend of France and the Netherlands can be seen in Germany as well, especially when it comes to pricing. Nonetheless, if we examine the curve that represents the demand for the product, we can see that Germany is still a very new market trying to find a balance between supply, price and quantity. On the other hand, Canada´s market has more of a similar supply curve than that of the United States, even though quinoa is relatively new to the average consumer and still needs to establish itself in the market. In recent years there has been a process of stabilization of the price at around $ 3000 per ton.

Nevertheless, the markets that now represent 76% of the total amount of exportations are the United States, France and the Netherlands. If we were to include Canada and Germany in this list, the percentage would climb to 87% of all exportations, which represents such a large portion that it would make the idea of an equitable exporting process tumble. Currently, quinoa exports represent 4.5% of all Bolivian exports that originate from rural manufacturers (CAF et. Al, 2001). As quinoa has increasingly become an important grain for consumption, it is these countries that have embarked on a path towards the production of quinoa within their own borders. Let us take the case of France as an example, where governmental strategies have begun to focus on the production of sufficient quinoa to satisfy the demand of the domestic market (Le Point, 2011). Once France initiated actions towards this end, they reached a yielding of 1080 Kg/Ha, 1.89 times higher than that of Bolivia to date. In the case of the Netherlands, the quinoa grain has been produced mainly to feed the countries' livestock due to its high nutritional value and to the fact that the industry has not developed rapidly enough to offer quinoa suitable for human consumption. The United States produces about 6% of the global production of quinoa, considering that Bolivia and Peru produce up to 92% (Suca Apaza and Suca Apaza, 2008), the remaining

2% is spread between other countries (including Ecuador). This offers clear proof that the United States has also undergone efforts to produce enough grain for its internal market. All of these countries have learned, through dealing with “fair trade” organizations, to give an added value to all products that contain quinoa and are sought after by consumers. Being that Bolivia is so dependent on the export of quinoa to only three markets that make up 76% of the total exports of quinoa, Bolivia may suffer a setback in its development if these markets demand a lesser amount of grain. In South America, Ecuador, Peru and Bolivia are the three Andean countries that originally produce quinoa. Out of this three, Bolivia exports the largest amount of quinoa in metric tons to the international market (Table 2). This is in part due to the fact that Bolivian quinoa is regarded as being of the highest quality and thus offering more nutritional value to the average consumer. Peru’s imports continue to grow as does the potential market for quinoa and consequently, their exports have also reached new heights. Unfortunately, there are no factual statistics available for an in depth study of the amount of quinoa being exported towards Peru. The INE has records of the amounts legally exported to Peru, but contains no data on exportations through contraband. Taking into account that a great majority of the exports of quinoa to Peru are done through contraband, there should be an accurate process of assessment of these figures for quantification purposes and subsequent analysis. For example, it’s been said that in 2011 Peru imported 15,000 tons of quinoa through means of contraband which would account for 43.58% of the total amount of national production, leaving very little product for the provisioning of the domestic market since many producers prefer to export their goods to the neighboring country in return for higher wages. A large amount of the quinoa that was exported to Peru is re-marketed under the name "grown in Peru" and so, you can see Bolivian quinoa on American or European shelves……*"el crecimiento mucho mayor de las importaciones respecto a la exportación es debido a que la quinua boliviana es más cotizada por una mejor presentación, menos impurezas, mayor tamaño de granos, cualidades que el consumidor peruano en la actualidad exige." (Magno: 1998)*

Tabel 2. Comparison between quinoa exportations in TM/year. Between 2000-2009. It is apparent that Bolivia is relatively larger than Peru.



Source: Personal research. INE data Bolivia 2012, INEI Peru 2012.

There are different rural and private organizations thought Bolivia who engage in the commercialization of quinoa. There are three major associations: ANAPQUI (Asociación Nacional de Productores de Quinua), CECAOT (Central de Cooperativas Agropecuarias Operación Tierra y SAITE). These groups account foro ver 40% of the total amount of exportations in Bolivia. Of all of these, Cecaot holds the biggest share at 18% (Laguna: 2000). Even as producers have played an active role in organizations that export through channels of fair commerce (in its majority), they have had to face many complications in order to receive a fair price for their goods, as is the case of Ecocert, who doesn't always comply with "fair trade" policies when it comes to organic quinoa (Laguna 2009). For this reason, producers who have a chance to commercialize directly with Peru do so using the road to Desaguadero, located on the Peruvian frontier. Some producers have chosen this option in order to have money immediately delivered to them without intermediaries.

Although many research papers show that production and exports have improved for producers, it is still hard to visualize a breakthrough in the production and marketing chain. It has been over twenty years and Bolivia still continues to export benefited quinoa grain (washed), but not quinoa products with added value. There are numerous investigations that show that the market is not ready yet for products derived from quinoa that are not in its most basic grain form (Montoya, 2007). Nonetheless, through an examination of the different websites that are run by these fair trade organizations (Markal in France) and the organic trade in the United States (Quinoa Corporation and NorQuin Brand), we can see that these organizations market products like quinoa grain, flakes, flour and noodles under the motto of "gluten free", showing that northern consumers do purchase quinoa products

with added value at high prices (e.g. flakes are 5.22 per 400 gr., and the flour is 5 dollars per pound). The interesting aspect behind conquering the added value market is that producers are able to divide their risks and can further increase demand through varied products. Perhaps one of the biggest challenges that prevents producers from achieving this goal, is the different types of certifications needed for exporting products with added value, especially through "fair commerce" channels of distribution. Many of these processes require large investments from Bolivian producers, who in spite of being associated in most cases, still do not have long-term institutional visions that could help to motivate them in carrying out this type of investment. On the other hand, perhaps the same importing organizations that belong to the fair trade chain are keen on maintaining their position of acquirers of raw material for the production and distribution of value-added products in their own markets, as this particular stage in the chain of quinoa production is the most profitable, as presented in detail by Córdova Pozo (2002). The possibility of processing the grain and giving it an added value before being commercialized, accounts for more than 60% of the value over the price presented to the average consumer.

4. Conclusions

After this research we can clearly state that the quinoa grain possesses a large potential market to be developed at a national and international level. Quinoa's potential development in the chain of production and distribution could derive in a process of development for the region and consequently the country. Nevertheless, before sustainable development can be reached, there are many paradoxes that require attention. The following, are among the most important paradoxes presented in this research paper:

1. *Producers are only interested in meeting the demands of the international market.* The few products that find their way to the domestic market are those that are not fit for exporting. For quinoa producers, it has become much more attractive to venture into international markets willing to pay more per pound of quinoa than the local market. The only advantage that attracts the eyes of producers is that in the domestic market the demand for quinoa products with added value has increased, but Bolivia is still a very small market, and therefore not attractive.

2. *The production and marketing of quinoa has increased significantly, which shows that quinoa is gaining value worldwide while at the same time being paradoxically detrimental to Bolivia´s ecosystem.* Large international demand requires an increase in production without giving second thought to bad practices that erode the soil and nullify the diversified production of other grains or the breeding of livestock. These practices hinder productivity, making it hard for producers to compete in the international market and causing quinoa to be very expensive for the local market.

3. Exports have increased; however, 76% of it is concentrated in only three countries. This situation can pose a threat to the economy, in the case that one of these countries should stop buying or buy less: vulnerability to ¨demand shocks¨.

4. *The price of quinoa has increased, which means that producers earn more income and are satisfied to sell the product as a grain.* After 20 years, the country is still exporting quinoa as a grain and there are no investments to sustain the requirements of the international market for added value products. It would seem as though the producers lack long-term vision and focus only on producing and selling raw materials at a good price.

5. it's very difficult to grasp the true potential of quinoa regarding production, exporting and consumption, due to the fact that accurate statistics are inexistent and there is a great deal of contraband and informal production which poses a great threat for the development of the region and the country.

CONFLICTS OF INTEREST

The authors declare to not have any conflicts of interest.

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DISCLAIMER

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of South Group.

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