

Regional Impact of Mining Activity During Colonial Times in the Highlands of Southern Bolivia

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Abstract The Lipez Altiplano is an arid and cold highland desert, where population density was always low and there was no urbanization. Pre-Hispanic, the regional distribution of the population was related to the environment: the majority was concentrated where quinoa agriculture was possible. Following the Spanish conquest, however, mining activity allowed an unprecedented demographic development in those highlands. In this study, I analyze the consequences of mining activities on demography and socio-economic activities in Lipez, before, during and after the apogee of its most important colonial mine, San Antonio del Nuevo Mundo.

Keywords Mining · Highland desert · Herders · Indigenous population · Bolivia

Introduction

During pre-Hispanic times, the centre of the population and power in the Andes lay in the mountains, between Cuzco and the Lake Titicaca, principally in those places where agriculture was possible. Two important complex empires developed over 3500 m above sea level (Tiwanaku –650 to 1050 CE- and Inca –1200 to 153 CE). Southwards, the environmental conditions change, and the Lipez Altiplano -southwest Bolivia- is more arid and colder, with lower productivity compared to the central and northern Altiplano. Its population density was consistently low, there was no urbanization and the local economy was mainly based on herding and agriculture of micro-thermic crops, inter-regional commercial trade, hunting and small-scale mining. In this highland desert, the regional distribution of the population was also related to the environment:

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the majority was concentrated south of the Uyuni salt lake, were quinoa agriculture was possible.

During the first decades of colonial times, the conquerors reinforced this distribution pattern: they used the abundant labour force available in the highlands to organize the work of the mines and the haciendas. However, mining activity allowed an unprecedented demographic development in the highlands. The best known example is Potosí, the most populated city in South America in the early seventeenth century.

In this study, I analyse the influence of mining activities on demography and socioeconomic activities in Lipez, located in the southwest of present-day Bolivia, focusing on a special place called San Antonio del Nuevo Mundo. Compared to Potosí, this mine was smaller, operated for only a few decades and was located in an even dryer highland desert. Thanks to its excellent documentation, I can describe the population and their socio-economic activities before, during and after the silver boom. Following this aim, my analysis will focus on regional population trends and distribution patterns from 1550 to 1900. I also use historical records to reconstruct both socio-economic changes among the native population and the local history of mining activities.

Sources and Methods

During colonial times, Indigenous populations had to pay tributes to the Crown or to particular others. In different occasions, Spanish authorities -and sometimes the Church- organized what could be called “inspections” (*visitas* or *padrones*), which were similar to old censuses. During those inspections, colonial authorities took notes on different aspects of indigenous life, and listed the population, including names, ages, kindships, places of origin and, sometimes, they added other information. These sources are varied and very rich, although they can also be inaccurate for demographic analysis. In my study case, there are colonial *padrones* from 1603, 1683, 1689, 1725, 1791, 1795 and 1804. Some of them are incomplete and difficult to compare with the others (for example, that from 1725). Some are very good and complete, and for this reason also difficult to compare with the others (for example, that from 1689). All of them are located in different archives and made in a different way, so, I processed them using a database program, and analysed them all together. In this paper, I only use the best information for the problems I proposed. However, the rest of the data was also taken into general consideration.

For the nineteenth century, I used the tributaries’ censuses made in 1841, 1845, 1854, 1862, 1867, 1871 and 1877, that are located in the National Archive in Sucre. These sources, together with the previous, are all about indigenous population. For the rest of the inhabitants, there are less documents: a summary of one colonial census from 1778 (located in the Archive of Sevilla), some colonial estimations (dispersed throughout the rest of the documents), a second summary from 1854 (located in Sucre), and all the national censuses starting in 1900. Only the lasts are published, and I had to use the summaries and not the original data, which is not accessible.

My historical research is based on interdisciplinary fieldwork. This fieldwork and many informal conversations were an important guide for the decisions made, for example, for the analysis of the demographic trends. I first used a proposal made by Nielsen (2006), who divided the territory of Lipez into three regions, according to the

distribution of the natural resources and the pre-Hispanic population: north, southeast and southwest. His model was very useful for my hypothesis about the LÍpez' population during the conquest and the early colonial period. However, part of the colonial province of LÍpez was not included in the territory he analysed, so I needed to reconstruct its history (Gil Montero 2015). As a result, for my analysis I divided the province into three again, but in a slightly different way following colonial jurisdictions: each coast of the Uyuni salt lake (north and south), and the southeast. These regions are, more or less, what persisted until the twentieth century, although their evolution was not obvious or natural during pre-Hispanic times. The division was a result of the territory's conquest, as you will see in this article.

LÍpez Province and its Population

The territory of LÍpez was for Luis Capoche, a Spanish miner who was living in Potosí at the end of the sixteenth century, cold, windy and dry, with high mountains always covered by snow and plains covered by salt; for him, only local people could live there (Capoche 1959 [1585], p. 127). He noticed that the majority was concentrated in small villages, all of them located in the north of the province and close to the hills. There, they found water, and it was possible to cultivate quinoa and potatoes. The Spanish called the region San Cristóbal.

In the southeast of the province, agriculture was almost non-existent. The miner Capoche described its population as “barbarian,” without any law except birth and death, and without villages: they moved from one part to the other. Archaeological research has shown that the inhabitants were mostly specialized and mobile pastoralists, living in perishable constructions (Nielsen 2009). The southwest was always unsettled, but important for the indigenous population, who occasionally went there to hunt, gather flamenco eggs, and collect obsidian.

The Spanish conquest of the regional population started in the north, with an early *encomienda* (Gil García 2011; Martínez 2011). In 1540, Cristobal Vaca de Castro entrusted the local ethnic authority and “his” *indios* to Hernán Núñez de Segura and Francisco de Tapia. The meaning of this institution was that the Spanish had responsibility for the Christian education of this indigenous population, and received, in exchange, their tributes, paid in labor, goods, and silver (Presta 2000).

The LÍpez *encomienda* lasted until the 1550s, when both *encomenderos* went to Spain and never returned. Since 1562, the LÍpez' tributes were paid to the Crown. During this early period, that coincided with the discovery of the Potosí's mines (1545), part of the population of the LÍpez *encomienda* was sent to work in this huge mining camp and city (Gil Montero 2015). However, since the 1570s, some of them were also working in small-scale mines that were discovered in LÍpez. One important regional mine located in the north of the Uyuni salt lake, promoted the organization of an indigenous village close to it, to facilitate the access to workers. Part of the LÍpez population living on the southern coast of the salt lake (the so-called San Cristóbal region) was sent to live there.

Although the sixteenth-century population information is not very accurate, we do have data since the Spanish conquest that allows us to analyse its evolution from those years until today. According to Capoche and to the numbers declared in the documents

related to the *encomienda*, the population of northern Lípez could have been between 2500 and 3000 people (Platt et al. 2006, p. 242). Those who lived in the southeast were not included in the *encomienda*, and, during the first decades, they did not have the obligations that the *indios de encomienda* had (for example, to go and work in Potosí). We know they existed thanks to information included in documents that mentioned, for example, indigenous merchants coming from pastoralist areas that freely went to Potosí to sell their goods. Capoche also told us about those “barbarians” that could not be obliged to pay the tributes. How many were they? We can only have an idea of the proportion of people living in the north and in the other regions of the province since the beginning of the seventeenth century.

In 1603, the Spanish authorities ordered a census, with the objective of reorganizing the Lípez population into fewer villages (AGN, 13–18–6–5), as occurred before—in the 1570s—in the majority of the viceroyalty (Mumford 2012). They said they lived dispersed, and that it was not good for the colonial control. The villages would facilitate the payment of tributes and the organization of labor. The census showed that 87% of the population was living on the southern coast of the Uyuni salt lake, 9% on the north coast (both regions belong to the so-called “northern Lípez”), and only 4% in the southeast of the province. Although we have no quantitative data of the pre-Hispanic population in the area, this distribution is consistent with the archaeological analysis made by Nielsen (2009) and with the descriptions of Capoche.

Thanks to its detailed information, the 1603 census can be, then, our starting point for the analysis of the distribution pattern of the Lípez population since early colonial times until today. We can also propose, as a hypothesis, that the pre-Hispanic distribution pattern was similar to that of the early seventeenth century. Figure 1 and 2 shows both the evolution of the population and the distribution pattern from 1603 until 2000. We can observe that there were always more inhabitants in the north, except for one period: the late seventeenth century.

What happened in that period that profoundly disturbed the demography of the province? Around 1640, an important silver mine was discovered in southeast Lípez: San Antonio del Nuevo Mundo. As we will see in the next sections, the distribution pattern was one of the many changes that the region underwent.

San Antonio Del Nuevo Mundo

The history of this silver mine is closely related to that of Potosí. We saw in the previous pages that part of the Lípez population had to migrate to work there in the late sixteenth and the early seventeenth centuries. Potosí became the most important silver producer of the world at that time (Cross 1983), and concentrated the attention of the authorities and, of course, of the miners. The production of this center grew significantly since the 1570s, partly thanks to a technological improvement made in the silver processing stage: the quicksilver amalgam allowed the separation of the silver from the rest of the ore and facilitated the production of silver (Bakewell 1984; Brown 2012). However, around the 1630s, its decline was perceptible, and some of the Spanish working there intensified their mining prospecting outside Potosí. The territory of Lípez was well known for its potential, so some small-scale silver mines were operated in the north and, also, in the southeast. It was around the late 1630s or early 1640s that the

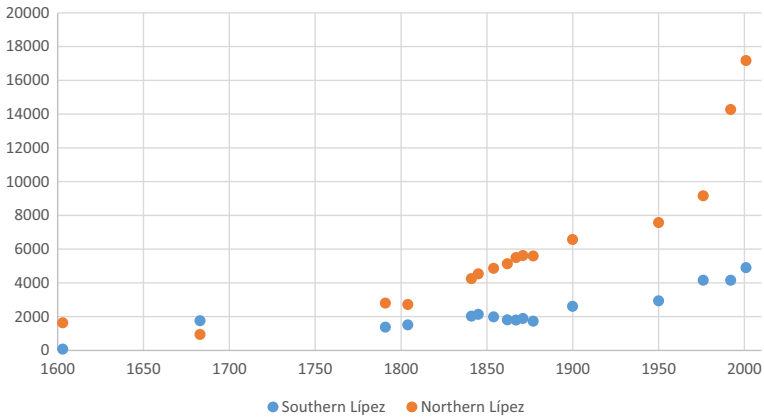


Fig. 1 Evolution and distribution of the Lipez population between 1603 and 2001. Sources: 1603 to 1804, AGN 13–18–6-5, 13–23–10-2, 13–19–1-1, 13–19–2-2; Tributaries censuses from 1841, 1845, 1854, 1862, 1867, 1871, 1877 in ABNB, TNC; 1900 to 2001, National Censuses

Spanish discovered San Antonio, and in a few years the original mining camp became a city.

San Antonio is located 4700 m above sea level, where there is nothing but water and silver. Close to the mines and in a sheltered place, the camp was



Fig. 2 The villages of Lipez during colonial times. Source: Laboratorio de Cartografía Digital. Instituto Superior de Estudios Sociales. Natural Earth (www.naturalearthdata.com), August, 2010

spontaneously built and became the center (Gil Montero 2015). It was later called the “Asiento,” and it was there where authorities used to live. Its archaeological remains show that there was also a cathedral (and other churches), a plaza, houses, and some ore mills. On an adjacent hill, we still find some entries to mines today, and, on the opposite side of the hill, another neighborhood called the “Huaico Seco.” According to some local authorities, the Huaico was a place where illegal ore processing was possible, so it attracted thieves, rogues, and opportunists. However, if we carefully read the documents, the place was interesting for all kinds of people that wanted to be away from authorities and close to the mines. There was also another residential and work location called the “Valle de los Ingenios,” where the majority of the mills were placed, taking advantage of a small river that provided water to move the wheels. San Antonio became the capital of Lipez Province, and the authority, the *corregidor*, used to live there with his family.

The Spanish needed to bring to San Antonio, not only food and mining supplies, but also the labor force. Half of the indigenous population living in the Province of Lipez during the 1680s was migrant, coming from different parts of the Peruvian Viceroyalty, and mostly concentrated in San Antonio. The geography of this migration is in itself interesting: the majority (84 %) was born in the provinces obliged to send forced laborers (*mitayos*) to Potosí, or in other mining centers. A possible explanation for this fact is that those migrants were probably working in Potosí before, where they learnt the amalgam technology. In 1683, during the general inspection ordered by Viceroy La Palata, most of the migrants declared that they went to San Antonio for the opportunities they had to earn money and fulfill their obligations. According to their testimonies, San Antonio attracted indigenous laborers and merchants (AGN, 13–18–6-5). Other documents, however, show the dark side of this mining camp: there are descriptions of the Spanish that “hunted” for their labor force (AGI, Charcas 58), or ethnic authorities that “sold” their tributaries to the miners of San Antonio (AGN, 13–23–10-2), and other forms of collecting laborers that were far from being free.

Migrant labor force was not enough: almost all population from the southern coast of the Uyuni salt lake was obliged to go and work in the mines, to live close to San Antonio with their families and llamas (AGN, 13–18–6-5). They also needed their animals for carrying ore from the mines to the mills, or for transporting different kinds of supplies. In their small villages, there only remained those who could not work in mining activities.

According to their place of origin declared in the general inspection of 1683, migration often involved more than one generation (AGN, 13–18–6-5). There are many examples of couples with children that were born in different places, including Lipez, and examples of men belonging to a specific community but born in other places. Migration was also a family matter. All laborers were in San Antonio with their women and children. Men and women worked in different stages of the silver production, and in related activities such as transport, animal husbandry, and construction.

San Antonio had two important silver booms: the first was around 1655, and the second at the beginning of the 1680s (Bakewell 1988). During 1696, its production abruptly dropped and the place was almost abandoned. There were fifty years of intense silver production that changed the demography of Lipez and much more.

The Decline

San Antonio del Nuevo Mundo is a ghost town today, where adventure tourists go to see the sunrise before going to the lakes located in the high cordillera. It still has houses (without roofs) and mills, some entries to the mines, and a few ovens. The new San Antonio, where the population moved to around 1970–90, is located in a lower place, where water is not as contaminated as near the mines. The tourists sleep there the night before going to the old town.

Present herders in LÍpez have different stories that explain the existence of this ghost town in their highlands: all the accounts have demons and the presence of pestilence. Bolton recorded one story, where the pestilence had a name: María Picha Picha:

All of a sudden in the town of LÍpez there appeared a woman that the people there refer to as María Picha Picha. This woman was a sickness. She would arrive at each house and the whole family would start to die; she would arrive at a house and the whole house would start to die, the whole family. I'm certain that the people realised this, and no longer wanted to meet her, but to escape, some to the church and others to the mines, to the deepest *socavón* possible, but wherever it was María Picha Picha was able to enter, whether church or *socavón*, wherever it was they had to die. So, they could no longer escape. Those remaining, the most lively, the strongest, as you could say, couldn't you? They thought about escaping from the place completely. They escaped, they say, to here, to the banks of the Río San Pablo, something like thirty to fifty people, who must have been both men and women (Bolton 2000, p. 342).

Plagues were frequent during colonial times. However, “money and the love of money” were more powerful than disease, and the power of money made possible, what, in another context, was impossible (Acosta 2006 [1589], p. 161). A plague was not the reason why San Antonio became a ghost town: it was the lack of money, the lack of silver.

Since the end of the 1690s, almost all the mines were flooded. The remaining ore was poor, and its exploitation was very expensive: the best solution for many was to migrate, again, to a better place. San Antonio was depopulated, only a few families stayed there, and, for some years, some civil and ecclesiastical authorities also remained.

During the 1880s, a new company tried to exploit the site: it is worth taking some time to understand the origin of this attempt. During the 1850s, a local miner called Demetrio Calvimonte discovered some old documents (from the seventeenth century) in two villages of LÍpez (LÍpez 1885a). He reconstructed part of the history of San Antonio, through a combination of facts and invention, and, especially, a conflict a powerful miner called Antonio López de Quiroga had with his foreman, Alvaro Ruiz. Calvimonte thought that, during 1672, López de Quiroga made a mistake by not following Ruiz's advice and missing the richest silver vein by ordering the halt the construction of a tunnel (*socavón*). Two centuries later—he thought—the silver was still waiting for new miners, so Calvimonte started to work in San Antonio. He had neither enough money nor luck: the beginning of the Pacific war made all operations difficult. He decided to sell his El Dorado fantasy, and this sale was his only success.

The Compañía Minera Lipez started to work in September, 1883, cleaning the tunnel and looking for the silver vein named “*hundimiento*” (sag). The foreman wrote, two years later, that they could work only for a few months in the year because of the frozen soils and the snow (Compañía Lipez 1885b, p. 17). Flood was also a problem inside the mines, and the company imported some new water pumps to extract the water. After a few years and a lot of work, the same foreman could make a better diagnoses: the colonial miners had found and extracted almost all the richest ore. In 1889, after significant investments in money and labor, the company’s situation was in bad shape: during five years, they invested money without any profit. In addition, they had started to have problems with laborers since an accident occurred in January, 1889, they did not have access to credit, the mine was far away from all railways, and the labor force was very expensive.

In the early 1890s, a geographer from the United States traveled through the Lipez Province and published an interesting description of San Antonio (Pasley 1894). By this time, the company was not working in Lipez, and he found there only five herder families. He interpreted that the ghost town was caused by an accident: during colonial times, the galleries that the Spanish opened were so wide that one of them collapsed and killed between 300 and 600 people. He also said that the railway changed the landscape of the whole region, and made mining activities possible: where there is no train, it is so expensive to work that it becomes impossible.

Bolivian National Censuses from 1900 and 1950 show that there were still people living in San Antonio, although they were few (less than 200), all of them herder families. Over the period, 1970 and 1990, the site was finally abandoned. Nevertheless, miners went, and still go, to San Antonio to occasionally look for different kind of minerals, depending on the year, and the international price of metals.

The Impact of Mining Activity on Lipez’ Population

Figure 1 shows one of the most important impacts of mining activities in Lipez: the changes in the distribution pattern of the population. However, we know that this activity started before, even before the conquest, and continues until today. Why were these changes concentrated in the second half of the seventeenth century?

There were two different kinds of exploitations that affected the Lipez’ population, before the discovery of San Antonio: the first kinds were located outside the province (the most important was, of course, Potosí, but there were also others), and the second kinds were inside (some local mines). First, Potosí affected part of the indigenous population of Lipez that was sent to work in its bakeries, mines and mills. Although we do not have the numbers, we can propose that they were few, a small proportion of the tributaries (males between 18 and 50 years old) and their families. The absence of those who were working in Potosí did not affect the continuity of the local economy, at least in a significant way. Neither did it affect the distribution pattern of the population. The second kinds were visible during the general Inspection of 1603, that shows one alteration caused by an important local mine: part of the Lipez population was sent to live close to a mining camp called Salinas de Garcimendoza, located in the northern coast of the Uyuni Salt Lake. This change was just a subtle alteration of the traditional distribution pattern, because it affected just a small part of the population. However, it was the starting point of a new distribution of the Lipez’ population that lasted until today.

Until the discovery of San Antonio, the mining activity in LÍpez was small-scale, of generally short duration, and with a demand for only a few laborers. In contrast, the exploitation of San Antonio lasted at least 50 years, that is, more than one generation; and, it was a large and important site, and its technology demanded more laborers. However, the most important difference I want to stress was one that subsumes all the others: San Antonio was a different kind of residential place because it was not only a mining camp, but also a city. Its importance implied changes in the organization of the administrative division of the Province of LÍpez, because San Antonio became the capital. The governor (*corregidor*) went to live there, so people had to go there for different administrative activities. For example, Indigenous authorities had to fulfill their obligations in San Antonio (tribute payment), and many of them moved to the city; the same occurred with miners, who had to declare their new discoveries there. Religious authorities went to live in San Antonio, where they found the majority of the population (and the richest). Therefore, the city became an important local market: miners needed food, clothes, and supplies that were delivered to San Antonio by indigenous people from Atacama, Tucumán, Arica, Potosí and other parts of the Peruvian Viceroyalty.

Most of the migrants and the regional population went to live in San Antonio or in the vicinity during its apogee (1650–90). For this period, we only have indigenous censuses, so we know more details about this population that was, however, the majority: in 1652, four-fifths of the inhabitants were indigenous migrants (AGI, Charcas 58). The General Inspection made in 1683 and a second inspection made in 1689 show, among other facts, two different groups of laborers living in San Antonio: half of them declared birthplaces in distant provinces, and the other half in LÍpez. However, distance was not the key factor that differentiated the two groups. It was more significant for the consequences we are now analyzing, that the first declared that they went to San Antonio freely, and the second said that they were forced to migrate within their province.

The declarations from indigenous people in a General Inspection could be suspicious, especially if all of the responses were more or less the same. Those coming from other provinces declared, almost monotonically, that they went to San Antonio because their places of origin were poor and arid, and they could find all they needed in San Antonio. The *corregidor* asked the foreigners from Paria, for example, why they were there and for how long, and they answered:

[they went to San Antonio] because their land was poor, they could not plant, they did not have enough grass for the animals, so they went there to work in the mines and mills, and to transport ore, firewood and salt. Some of them were there for twenty years, some for eight, and all of them fulfilled their obligations, paid their tributes, and paid their replacement in Potosí as *mitayos* with silver (AGN 13–18–6–5; *my translation*)

In San Antonio, they did not have grass or plants either, but they found where to work. Freedom is, maybe, a strong word to define their migration, if we consider -as they said- that they had colonial obligations to fulfill: their income was given to their authorities to pay the tributes and the replacement for the *mita* service. However, one can observe that there were different grades of coercion, since they were not obliged to specifically go to San Antonio, as they were free to choose where to migrate.

The situation of the original LÍpez population was different. They declared that they were forced to go and live in San Antonio, and they were not allowed to go back to their villages of origin, although it was, in theory, their right. In a small village called San Antonio de Chuica, the Spanish authority said that the *caciques* listed all his people, including those working away in the mines, even though:

[...] they are not in the villages, they and their animals are close to San Antonio de LÍpez where they are obliged to stay, and use their animals for the transport of ore, firewood, salt and other elements, and they have to also work in person, and their women work in the mills. That is why the village is depopulated, and there were only the old people that are included in the census (AGN 13-23-10-2, *my translation*).

After the decline, during the late 1690s, the majority of the population went to other places, looking for better opportunities. How was the impact of this decline of San Antonio on the distribution pattern of the LÍpez population? Although this mining camp was almost abandoned, not all the regional population returned to their villages: the distribution pattern of the population in LÍpez was never again the same as in pre-Hispanic times. Mining activity in south LÍpez remained important, although not as important as in the second half of the seventeenth century. One third of the provincial population was living in the south one century after the beginning of the decline of San Antonio, and this distribution remained more or less the same until the second half of the nineteenth century. This distribution pattern is related to changes in the regional economy that are referred to in many documents, but are more difficult to measure, as we will see in the next section.

The Impact of Mining Activity on the LÍpez Economy

There are only few descriptions of the pre-Hispanic population of LÍpez in the early chronicles. One of them, written by Juan de Betanzos in 1557, described the journey of Inka Topa Yupangué from the Atacama to the Collao (Betanzos 1987, p. 164). For the Inkas, the population of LÍpez had small-scale agriculture (quinoa and potatoes), had some llamas and were also miners. All those activities were specific to the Uyuni salt lake coasts, what the Spanish called San Cristóbal in north LÍpez.

Quinoa cultivation was mentioned in different occasions in relation to the LÍpez population. In 1559, the *caciques* from LÍpez asked for a reconsideration of the amount they had to pay as tribute, because they could not satisfy it. They said that they were poor, and that they only had quinoa, salt, and some potatoes (AHP, CR 1). Capoche (1959 [1585]) mentioned their presence in Potosí, as merchants selling clothes, feathers, and quinoa flour.

This highland agriculture allowed a relative concentration of population in north LÍpez, as we saw in the previous section. However, this activity was only possible with intensive land work, that implied many hours and people. The rest of the territory was high, arid and cold, and there were only dispersed families of herders found.

During San Antonio's apogee, the majority of those who used to work in agriculture were obliged to go to the mining camp. Old people that remained in their villages located on the southern coast of the Uyuni salt lake later remembered, in 1689, the time

when they had quinoa, potatoes, and llamas (AGN, 13–23–10-2). The *corregidor*, who went to inspect their production and land, said:

[the *cacique*] has shown me some old *cercos* (stone walls), that the *antiguos* (ancient) had made to shelter their crops, near the village, and I recognized them, and the stone walls were close to the hills, and they had only few potatoes and quinoa, and all were planted by different old people living in the village (AGN, 13-23-10-2, *my translation*).

Local authorities declared that they did have only little quinoa and few potatoes, and the remains of those old stone walls. It was the end of the 1680s, and San Antonio had been productive for more than 40 years at that time. A whole generation of *lipeños* was born in the mining camp, and the old villages were inhabited only by old people.

The history of the people living on the northern coast of the Uyuni salt lake was different. They were not obliged to go to San Antonio, but were obliged to work in Salinas de Garcimendoza when it was active. They also received population from the southern coast, though much less than San Antonio.

The 1689 inspection details crops and animals that were produced in the whole of Lipez (AGN, 13–23–10-2). According to this data, agriculture (potatoes and quinoa) was only possible around the Uyuni salt lake, that is, in northern Lipez: 99% of the crops were grown in two villages located on the northern coast (Llica and Tagua) and only 1% on the southern coast (Chuica, Chuquilla and Quemes). The animals were more dispersed: 33% of the llamas were in San Cristóbal village, a mining camp located in northern Lipez, and belonged to foreigners that were working there; 25% were in Llica and Tagua, and 42% were distributed among the villages on the southern coast. The document did not record the animals living in San Antonio and its surroundings. In sum, the pre-Hispanic centre of the quinoa production had almost disappeared, or, one could better say, it shifted to the northern coast of the salt lake.

We can rethink the population's distribution pattern analysing its development, together with the changes in the economy of the province. In this analysis, however, and following the differences we saw regarding both coasts of the Uyuni salt lake, one should consider each coast separately: Table 1 shows both the evolution of the total population per region, and its proportion, this time with the differentiation of the three regions I have mentioned here. The northern coast of the Uyuni salt lake was called Llica, San Cristóbal was the name of the southern coast, and the southeast is the region where San Antonio was discovered.

Although the absolute numbers of the population shown by these sources can be controversial, because they were fiscal documents, the tendencies are strong and coherent. We can see the apogee period, when San Antonio needed many of the laborers from San Cristóbal, in the second half of the seventeenth century, and the increase of the Llica region was partly independent of this mining camp. After that, the population of San Cristóbal increased constantly, but it was never again as important in population (compared to the other regions) as in the beginning of the seventeenth century. The northern coast of the Uyuni salt lake increased its population and its importance in Lipez, since the decline of San Antonio. There are no statistical data for the period, but I found some descriptions of the Lipez economy that allow us to think about the changes.

Table 1 Distribution of the Lípez population, 1603–1900

Year	Llica		San Cristóbal		Southeast		Total
	N	%	N	%	N	%	
1603	155	9	1484	87	70	4	1709
1689	510	18	360	13	1984	70	2854
1791	1249	30	1547	37	1377	33	4173
1804	1197	28	1519	36	1510	36	4226
1841	1653	26	2590	41	2032	32	6275
1845	1837	28	2701	41	2130	32	6668
1854	2082	30	2774	41	1983	29	6839
1862	2297	33	2830	41	1812	26	6939
1867	2489	34	3010	41	1794	25	7293
1871	2484	33	3137	42	1884	25	7505
1877	2411	33	3181	43	1732	24	7324
1900	2614	28	3951	43	2607	28	9172

Sources: 1603 to 1804, AGN 13–18–6–5, 13–23–10–2, 13–19–1–1, 13–19–2–2; Tributaries censuses from 1841, 1845, 1854, 1862, 1867, 1871, 1877 in ABNB, TNC; 1900, *Censo General de la población de la República de Bolivia* (1973)

In August, 1775, a new *corregidor* arrived in Lípez, and described the province in these terms:

This Province, Sir, the richest and wealthiest in the past, is today the most terrible and frightful of the Peruvian Viceroyalty, for its location, for its weather comparable to that of Lapland, covered with ice and snow all year round. Its inhabitants [...] work only four months in a year in the old mines, using wooden tools and bones. The rest of the year, they go to other provinces, looking for their livelihood [...] because this province] does not produce wheat, corn, grains or vegetables, and its indigenous population does not have where to plant (ABNB, Minas 61, 433, *my translation*)

This description is extreme, but it has elements that are in all other descriptions of Lípez written between the first half of the eighteenth and the whole nineteenth centuries: the past was wealthy, and the present was poor. The inhabitants of the province were indigenous people working in old and poor mines, and transporting different goods on their llamas.

The records of the tributaries made during the nineteenth century show two places where agriculture was still present, although not very important: Llica and Colcha, located on the northern and southern coasts of the Uyuni salt lake, respectively (ABNB, TNC, 493 and 495). They had quinoa and potatoes, but, apparently, only in those years when it rained.

For all the authorities, the Lípez' population was poor; they were mostly herders and small-scale miners. An anthropologist who analysed what he called their “activities calendar,” however, interpreted their situation in a different way (Platt 1987). For this author, Llica was specialized in agriculture, namely quinoa and potatoes. Few of the

inhabitants of this region were carriers during the whole year, but many went to different lower lands to interchange their production during the dry season, in August. On the southern coast of the Uyuni salt lake, Colcha was the most important village, where most of the inhabitants of L pez went to exchange their goods once a year, during its September fair. Agriculture was less important there, and their inhabitants were known because of their participation in the salt commerce. Finally, people living in the southeast were herders, miners and they travelled part of the year looking for work and food during the dry season.

This was the dominant image of the population of L pez for the national and regional authorities during the nineteenth and part of the twentieth centuries: poor herders and miners, migrants that went to look for opportunities in other provinces, permanently or occasionally. The present is, however, different: it was during the last quarter of the twentieth century that quinoa was again very important in L pez. A combination of good international prices and new technology allowed the cultivation of more hectares around the Uyuni salt lake, and the agricultural centre changed again to the southern coast.

Changes in mining activity also influenced the regional migration. The managers were allowed to hire less laborers due to technology available since the late nineteenth century: steam pumps for drainage, better smelter ovens that replace quicksilver amalgam, and wagons for the extraction of the ore, among others. Mining activity during this period required only few specialized, and even fewer non-specialized, laborers. One can see new technological changes again during the late twentieth century: San Cristobal, an open-pit silver, lead and zinc mine, started its operations in 1996, and it is one of the largest mines in Bolivia today. In addition, the new mining star, lithium, has become one of the most important scenarios in the Uyuni salt lake. This is, however, another story.

San Antonio, discovered in the 1640s, with a significant decline in the late 1690s, influenced the economy of the most populated region of L pez: the southern coast of the Uyuni salt lake. The majority of its inhabitants had to migrate and they lost their crops: they needed many centuries and changes in the national and international context to again recreate their traditional activity. After San Antonio's decline, the population in the province depended more on herding and small-scale mining, and in medium and long distance transportation of different kinds of goods.

Conclusion

In the highland desert of L pez, the distribution pattern of the population in pre-Hispanic times was related to the distribution of the natural resources: where agriculture was possible, there were small villages scattered along the hills on the southern coast of the Uyuni salt lake. On the northern coast, one found less population, also based on agriculture and pastoralism; and, in the southeast of the province, there were specialized herders living in small groups with high mobility. Although mining activity was always present in the region, it was the discovery of San Antonio del Nuevo Mundo that affected, in a profound way, the traditional distribution pattern of the population.

San Antonio was not only an important mine, it was also the only city of the province. Mining, but also the concentration of all administrative and economic

activity, made the camp an important local market and the center of attraction for migrants coming from different and distant parts of the Peruvian Viceroyalty. The apogee lasted a few decades, between 1640s and the late 1690s. However, the impact of mining activity has lasted until today. Although the camp was almost abandoned at the beginning of the eighteenth century, one-third of the total population of the province remained in the region, working in different small-scale mines.

The distribution pattern of the population changed, not only because of the attraction of migrants to San Antonio, but also because the majority of the regional population was forced to go and work in the mines and mills. They abandoned their villages and traditional activities for more than a generation, quinoa agriculture—the activity that characterized the local population—was reduced to a minimum, and the centre of quinoa production shifted to the northern coast of the salt lake.

After the decline of San Antonio, the main activity of the population was animal husbandry, small-scale mining, medium and long distance exchange. They reduced their agricultural activity to specific places and contexts. Compared to the rest of the province, the populated southern coast of the Uyuni salt lake was never as important in terms of its population as before the discovery of San Antonio, even today.

Why was San Antonio so important, when mining is—in theory—a low-population-impact activity? I have proposed some reasons that stress the difference between this camp and others. First, it was a large-scale mine, for which technology required, at that time, many labourers, and not as few as we can see today. Its veins lasted some decades, more than one generation. Moreover, it was not only a mining camp, but also a city, the capital of the province. It attracted authorities, religious people, merchants, and, of course, all other people related to its main activity. In spite of its decline, San Antonio remained the capital during all colonial times, but the *corregidores* were not always living there, as they went to live in other villages with better communication with the rest of the Viceroyalty.

San Antonio was not alone, as there were many other small mines and mills scattered in southeastern Lipez. Most of them remained sporadically active, although the population changed radically: during San Antonio's apogee, approximately one-fifth of the population were Spanish; after the apogee, the majority were indigenous people. Further, there is another important difference: during the apogee, the silver production of San Antonio dictated the rhythm of all activities in Lipez; however, after that, the local population subordinated, on many occasions, the mining activities to their productive calendar, for example their herd migration during the dry season, their crops, and their long distance exchanges.

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ABNB, archivo y biblioteca nacional de bolivia (Sucre, Bolivia); AGI, archivo general de indias (Sevilla, Spain); AGN, archivo general de la nación (Buenos Aires, Argentina), AHP, Archivo histórico de potosí (Potosí, Bolivia); TNC, Tribunal nacional de cuentas (in ABNB, Sucre, Bolivia).

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