

Political Economy, Alexander Von Humboldt, and Mexico's 1810 and 1910 Revolutions

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Abstract

This article, which is informed by Steve Pincus' scholarship on revolution, engages in the novel endeavor of comparing Mexico's 1810 and 1910 Revolutions. The article explores broad parallels between the two upheavals, and highlights significant features of Mexico's Revolutions that scholars have ignored. Alexander von Humboldt's *Ensayo político sobre el reino de la Nueva España* proved to be influential in both of Mexico's Revolutions, albeit in distinct ways in each case. Conflicts over political economy were also central aspects of each Revolution. These economic disagreements sometimes pitted revolutionists against traditionalists, and sometimes divided revolutionists against each other. Even if revolutionists differed in terms of economic visions, they were all "statists" in the sense that they designated an important role for government in fostering economic and social modernization.

[**Keywords:** Alexander von Humboldt; political economy; state; modernization; revolution]

Introduction

2010 is a significant year in Mexico since it is the centennial of the 1910 Revolution and the bicentennial of the 1810 Revolution for independence.ⁱ Next year will also be historic since it will mark the bicentennial of the publication of Alexander von Humboldt's highly influential 1811 study about Mexico, *Ensayo político sobre el reino de la Nueva España*. One of the novel features of this article is that it examines the ties between Humboldt's famous 1811 work and Mexico's Revolutions of 1810 and 1910. While Humboldt's impact has been stressed for the independence era, it has been entirely unnoticed for the 1910 Revolution. By showing Humboldt's enduring influence, this essay will demonstrate an important connection between the two Revolutions that has been overlooked. While Humboldt remained prominent throughout, the discourse about him varied significantly in the 1810 and 1910 Revolutions. Additionally, this essay will suggest that Humboldt's influence during the age of independence was more complex and varied than conventional wisdom—which emphasizes his contribution to the idea of Mexico as a land of vast natural abundance—acknowledges.ⁱⁱ

Another fresh feature of this essay is that its analysis of Mexico's 1810 and 1910 Revolutions is informed by Steven Pincus's recent book about the

Glorious Revolution, *1688: The First Modern Revolution*.ⁱⁱⁱ Pincus has come to question a whole historiographical tradition of the Glorious Revolution in England, conventionally considered as a relatively peaceful movement of elites, if not completely bloodless. The traditional interpretation so stressed these characteristics that with the passage of time it came to be considered a process that only in name could be considered revolutionary. Pincus counters this interpretation by showing that this process was far more violent and broad than traditionally thought.

Something which has a bearing on the present article is the emphasis that Pincus places on the question of economic ideas.^{iv} This focus is new since literature has ignored the fact that competing economic ideas were a prominent aspect of the Glorious Revolution. Far from being a conflict between a king desirous of an unviable Catholic restoration (made impossible by the advances of the times) and a governing class moved by modern liberal ideas, the Revolution broke out as a competition between two conflicting ways of thinking about modernization of society by the State, with particular opposition concerning economic programs. The king embraced a particular idea of property (Josiah Child's) that limited wealth to the yield of the land, while his opponents spoke of a property that was able to be increased exponentially by way of manufacturing and commerce, activities that did not experience the limits of agricultural production. It was this last idea, defended by John Locke and others, that came to prevail with the expulsion of James II and the awarding of the British throne to William of Orange.

Applying Pincus' framework to Mexico provides new insight into the nation's 1810 and 1910 Revolutions. In keeping with Pincus' argument, this article demonstrates that political economy was prominent and contentious in Mexico's 1810 and 1910 Revolutions.

So, Humboldt was not the only link between the two Revolutions. Another commonality was that conflicting visions of political economy was a component of each of them. In addition to making these broad comparisons between the 1810 and 1910 Revolutions, this article also covers slightly different ground when examining each of them. The analysis of the 1810 Revolution highlights Pincus' notion of "state modernization" and economy, as well as his idea of revolutionaries' rival visions of political economy. The analysis of the 1910 Revolution, in contrast, has one central thrust. The analysis follows Pincus' broad method for examining economy in the Glorious Revolution, namely, highlighting the political economy debate between defenders of the status quo and revolutionists. Hence, even if this article makes comparisons between Mexico's upheavals of the early nineteenth- and early twentieth-centuries, the study also modifies the conventional stories of the 1810 and the 1910 Revolutions in somewhat distinct ways. This article is divided into two sections. The first one

examines the 1810 Revolution and the second section covers the 1910 Revolution.

Section One: Mexico's 1810 Revolution

Pincus' reinterpretation of the Glorious Revolution can have an important and corrective effect on the historiography of the first three decades of Mexican independence, when for the first time the most diverse economic ideas and theories were expounded and discussed indiscriminately, always with the objective of moving the country toward progress and modernity. Until now the liberal character of those who expounded these ideas has been stressed, as well as their intellectual indebtedness to the principal economists of the time: Smith, Say, Sismondi, etc...^v This picture of things is not false but it is incomplete and in a certain fashion askew. As was the case of England in 1688, the Mexican economic ideas expressed strong impetus toward change in a revolutionary sense: more equality and well-being for all, and above all a transformation of the very nature of society. This societal makeover could only be achieved by a modernizing state, an assumption that is in keeping with Pincus, who maintains that the state is central actor in modern revolutions.

Literature on Mexican independence has stressed the liberal thought of the Mexican authors examined here: promotion of property, respect for free individual interest, observance of the principles of competition, etc... However, scholarship has not examined the ways in which these authors understand a modernization of society that necessarily assumes participation of the State. In this, certainly, some authors are more modernizers and "statists" than others. All, however, understood or bore in mind the institutions and organs of the State that were capable of imposing discipline and direction on society, particularly in the economic sphere, as well as an idea of the type of citizen that should result from the social change sought.

Three Currents of Revolutionary Economic Modernization

In his reconstruction of the events and sequences of the Glorious Revolution, Pincus highlights various institutions that turned out to be essential to the regime owing to the great crisis: the national bank, the army, the navy, and the bureaucracy dedicated to military matters and the postal service. He also points out, in the conclusions of his ample study,^{vi} the changes in social culture which took place with the passage of time, changes sought by the most revolutionary sectors of 1688: the urban middle classes. Also he points out the reformulation between the governing power and the economic groups involved in the Revolution, which determined that commerce would come to be the most favored and respected economic activity by the regime. The commercial sector

was allowed broad access to economic information and it was the one from which came the regime's experts and advisers in questions of economics.^{vii}

To show the modernizing impetus (in Pincus' sense) of the Mexican thinkers presented here, all of them sympathizers with the recent national independence obtained by revolutionary means, below we will present three variants that enter in competition to a certain degree after 1821 and which owed a great deal to the inspiration of the *Ensayo político sobre el reino de la Nueva España*, by Alexander von Humboldt. The authors who represent the variants are well known by scholars of this period in Mexico. Until now, however, they haven't been dealt with as promoters of a modernization *by the State*, which implied keeping independent Mexico in a constant state of existence that was revolutionary in nature or close to it.

Four issues, pointed out by Pincus, related to a program of modernization from the State will be considered: 1) the ideas about wealth and the economic area that promotes it most (corresponding to the ideas on "property" of 1688); 2) the ideal economic adviser; 3) the control and provision of economic information; 4) and the means for disciplining the population. Keeping these points in the forefront, three variants of Mexican state modernization are outlined, and they are presented according to the ideal visions of society they articulated, ideals based on economic ideas. Each variant of modernization gives expression, therefore, to a distinct current of economic thought: 1) Colonizing society project, represented principally by Tadeo Ortiz de Ayala; 2) Secularized society project, represented principally by José Luis Mora; 3) Sovereign society project, represented principally by Lucas Alamán.

1. Colonizing Society Project

This current stresses the possibilities offered by the country with respect to its geographic situation and the production of raw material destined for world commerce. The main assumption of this current is the belief in the great potential of Mexican territorial wealth, which only needs a communication network and a good coordination of efforts from the government to be incorporated into the network of domestic and, more importantly, foreign commerce. What is important above all, however, is that these business connections inside and outside the country stimulate the colonization and settlement of regions that until now have been unpopulated and whose potential wealth has been untapped.

Tadeo Ortiz de Ayala was a Creole who left Mexico about 1810, when he was quite young, and undertook trips through Europe and America with the purpose of educating himself and – since the opportunity presented itself – supporting the cause of independence for his country.^{viii} He kept himself relatively on the periphery of the struggle by parties of his era and preferred to

participate in the organization of colonization projects (on the banks of the Coatzacoalcos River and in Texas), until his early death in 1833.

In his books *Resumen de la estadística del Imperio Mexicano* (1822) and *México considerado como nación independiente y libre* (1832), Ortiz de Ayala puts forward the idea of a Mexican territory endowed with zones of key importance whose colonization and commercial exploitation would ignite the exploitation of wealth and the political buildup of the country, to the level of foreseeing that it could become the great Spanish American power of the North.

His vision is somewhat akin to what will be the geographic doctrines of national interest formulated in Europe at the end of the 19th century and beginning of the 20th. As will be remembered, around that time there exists a French doctrine of natural borders, while in Germany the so-called doctrine of vital space is formulated.^{ix} Ortiz de Ayala sees Mexico as a physically malleable territory (through the construction of canals and roads) in which previously unsuspected connections can be established and thus make possible a greater communication of goods and persons than available until then. He has the idea that there exist sluiceways, if we may call them that, whose opening is necessary in order to expedite commerce. Although in several cases it's a question of literally hydraulic gates (rivers or streams fit for communication), it's not always so, since he envisages the construction of land routes. We can mention, as an example of this idea, the proposals for the construction of canals by Ortiz de Ayala in *México considerado como nación independiente y libre*.^x In this work he refers to the possibilities of creating means of moving the production of the high and central zones of Mexico to the coasts by way of rivers and canals.

This idea of the territorial utilization of Mexico assumes a type of physics-like approach, not only because of the engineering challenges involved in the construction of roads and canals, but as well because of the very idea that countries and regions of great size, once populated and exploited, affect neighboring entities by their economic strength, principally if those entities are smaller. We recognize this approach in the idea that through the colonization of the northern part of Mexico an "antemural" (retaining wall) can be established which will allow it to resist the political and economic power of the United States. More importantly, Mexico, by its size and economic potential, naturally attracts the Central American countries as satellites, whose lesser dimensions destine them to be always under the Mexican influence.^{xi}

In the economic sphere, Ortiz de Ayala places particular emphasis on the importance of promoting agriculture before industry, with the idea that "a very young country cannot be industrial without first being agricultural."^{xii} His proposals include improving the production of ranches and farms, but he is thinking particularly of the so-called colonial products. As for banking establishments, Ortiz de Ayala has two in mind:^{xiii} 1) a bank for the promotion of colonization, 2) a commercial bank after the model of the bank of Hamburg, in

which the individuals make deposits of gold and silver bars which don't return to their owner unless the value of the circulating coins makes it profitable.^{xiv} Evidently, in the second case he has in mind a system by which a significant quantity of letters of exchange and orders of payment backed appropriately by true wealth can be put in circulation.

It is also clear that for Ortiz de Ayala there is no greater priority in productive investment than that related to agriculture and most especially infrastructure works. These latter are investments of guaranteed long-term usefulness which the government ought to promote extensively among capitalists and individuals in general, with generous rewards as regards exemptions, permits and other terms to comfortably trade the goods that these entrepreneurs will be able to produce as a result of such works. Because of the importance that geographical and statistical knowledge has regarding where and how beneficial public works can be done, Ortiz de Ayala proposes the formation of an exploration commission which will travel about the territory, whose work may produce a *Dictionary* of Mexican geography and a substantial national collection of maps.^{xv}

Finally, we point out that the social transformation sought by Ortiz de Ayala assumes that Mexican society will learn to appreciate the beauties and richness of its geographic surroundings, so that it will learn to recognize the places and raw materials that can turn out to be of interest for their exploitation and commercialization. In order to combat the tendencies toward disorder and neglect that are evident in the Mexican population, he invokes the need for *policía*, which he understands as the work of vigilance and beautification that the State should offer so that society may accustom itself to order, cleanliness and good behavior in the most necessary daily activities: getting provisions, cleaning streets and roads, the provision of assistance services, etc.^{xvi}

From the philosophical point of view, Ortiz de Ayala emphasizes, particularly in *México considerado como nación independiente y libre*, the need to think about public problems according to the most exact principles and the most salutary maxims for the people and the youth.^{xvii} It should be noted that he explicitly rejects extensive and exhaustive analyses in these matters.

2. Secularized Society Project

This current is represented in exemplary fashion by José María Luis Mora, a cleric who embraced some of the most modern philosophical and sociological ideas of his time with a tolerant and sympathetic attitude toward Protestantism, Freemasonry and many of the ideological positions traditionally fought against by the Church during the colonial past and still during his time.^{xviii}

The central notion of this current is the importance that it gives to the emergence of a secularized politics and administration that is removed from the influence of the clergy, a body that still maintains a large influence over the

majority of the Mexican population during the first years of Independence. In this regard, two expressions that occur frequently in Mora's texts are important: 1) the metaphor of the "political machine" applied to the apparatus of government and administration, and 2) the formula that public problems should be attacked under the idea that "the problem is in things, not in people." His turning to these formulas is guided by the idea that a modern government does not function if different branches operate on contradictory principles. However, in independent Mexico contradictions exist. At the level of the economy secular criteria are already used, like the search for *individual* well-being and the free pursuit of personal interest, but with respect to an area like the imparting of justice, for example, a confusion between what is crime and what is sin prevails, hence the survival of jurisdictions like the ecclesiastical one, as well as of a citizenry that often assumes that the public authorities sanction crimes because in some fashion they are sins.^{xix}

From the economic point of view, what Mora emphasizes most is the need to put into circulation assets held in mortmain, mainly those that are under the control of the Church, a type of concentration that prevents the distribution of wealth and the emergence of a sector of middle class proprietors. Already in the last years of Spanish control in Mexico, the cleric Manuel Abad y Queipo had pointed out the excessive concentration of agricultural property as one of the principal causes of poverty in the country.^{xx} Mora takes up the point again and observes that the excessive dispersion of the population to the interior of Mexico creates a situation in which workers have to take work on ranches since they cannot establish property of their own, and they are forced to enter into working relationships on poor terms.^{xxi}

The emphasis on the labor situation is not gratuitous. Queipo and Mora are familiar with the work of Adam Smith and know his theory about wealth as a result of human effort and not a gift of nature. They are also very cognizant of the damage that erroneous monetary measures can cause to an economy. Such was the case of the order of 1804 by the Crown to finance a circulating paper money (*vales reales*) through the collection of capital lent to individuals by the Church.^{xxii} With the passage of time, independent governments have resorted increasingly to the issuing of credit notes, orders of payment, certificates, copper coinage and other instruments to finance their debts, from which there has resulted a scarcity of good currency and speculation or *agiotaje* relations between the government and groups of financiers, by means of which the latter acquire the instruments issued by the government with a discount and then later use them at their face value against the government.^{xxiii}

Both the problem of badly distributed property and that of financial flaws can be resolved through a well-planned confiscation of mortmain assets in clerical hands with the creation of a national bank charged with financing and supervising the operation.^{xxiv} The bank will administer the assets confiscated

from the clergy as long as there is no complete redemption of the value of them or of the debts incurred based on them on the part of the new owners. It will not be a bank which executes loans or contracts which may open the door for speculation.

Mora and those who share his view place emphasis on the sphere of the circulation of wealth, whose virtues are not related exclusively with the possibility of creating new owners and facilitating distribution. There is also a certain sense of the social benefits of the division of labor brought about by commerce, an idea promulgated at that time by the Swiss economist J. C. L. Sismonde de Sismondi in his *Nouveaux Principes* (1819).^{xxv} Mora does not view favorably the project of a bank for industrial promotion, as will Alamán in the next current to be examined, since he fears that by virtue of protectionism the public funds in question may benefit only the already wealthy businessmen and not the majority of the population.^{xxvi}

Interested in the confiscation of mortmain assets, Mora knows that with that operation they will have the basis upon which to calculate more exactly the amount of the national wealth, of which there exist only approximate ideas. He also points out in *México y sus revoluciones* (1836) the importance of having the national assets administered by the federation, not by the states.^{xxvii} As can be seen, the formation of national statistics, according to Mora's proposal, should begin in the financial area.

If Ortiz de Ayala was concerned about the filth and neglect of a large sector of the population in public life, what worries Mora is the tendency of political rebellions against the legitimately constituted authority. One of the most important means for disciplining the population, according to Mora, involves discrediting the false understanding of Rousseau's theory of the general will, which has been invoked many times to justify this rebelliousness.^{xxviii}

With regard to the social transformation that he seeks, Mora places emphasis on the need for teaching economics at the secondary level and he introduced a chair of economics in an important school in Mexico City (Colegio de San Ildefonso).^{xxix} To know the truths of economics, along with the ideology, that is, the epistemological science concerned with the formation of ideas, developed by the so-called ideologues of France (especially Count Destutt de Tracy), will teach young people to know that true morality is not metaphysical and is oriented rather toward social virtue and what is useful in general.

3. Industrial Society

This current of thinking is represented fundamentally by Lucas Alamán, the famous intellectual and politician who holds important public positions between 1822 and 1853, be it in the Ministerio del Interior and that of Relaciones Externas or at the head of organizations like the Junta de Agricultura e Industria.^{xxx} Nevertheless, several of his elements are already present in the

texts of Fausto de Elhuyar, an important mining official at the end of the colonial period who leaves the country after Independence. So, we will relate some ideas of Elhuyar about wealth first.^{xxxii}

Elhuyar had taken up Adam Smith's idea of industrial labor. According to the latter, as is known, the wealth of a nation is generated through human labor and not through commerce or the natural yield of the land. By the same token, neither a robust commerce nor the abundance or diversity of fruits created by the nature of a country is proof of great wealth in that country. Fatigue, the hardship of human effort, which confers value on what is created, is required. Although Elhuyar highlights the Smithian principle of human labor as the source of wealth, it is certain that he did not follow Smith in his high opinion of the investments directed toward agriculture. For Elhuyar, the main economic branch to boost was mining, an activity practiced in colonial Mexico for three centuries and that had generated a flowering precious metal craft industry, besides providing an instrument like money, which expresses utility like no other object in the economy.

Elhuyar contested the criticism that the mining industry nourished the production of luxury items and not of necessary things. Silver and goldwork gave impetus to craft skill as well as the refinement of aesthetic taste, he claimed. This was not inconsiderable, and beyond this, Elhuyar stressed the stimulus that mining had exercised in the history of Mexico for the settling of territory, creating demand for agricultural and industrial production. Above all, Elhuyar warned about the inconvenience of diverting the resources and personnel involved in mining to other areas, even if these latter produced more necessary goods than precious metal.

Alamán, who did his professional training in the Colegio de Minería, originally shares this enthusiasm for mining and considers it the most important sector, the "motor" of the Mexican economy. Subsequently he believes that this function is carried out more fully by the manufacturing industry, which he decides to support through the creation of the Banco de Avío para el Fomento de la Industria Nacional (1830).^{xxxiii} His model, as is known, is the corporate organization of mining at the end of the colonial period, in which he sees a clear example of business capacity, saving habit and corporate spirit.

Already during his first years as minister in the decade of the 20's and the 30's, Alamán considers it necessary to collect animal, vegetal and mineral species, and also historical pieces, in order to create public collections and museums in the cities and small towns of Mexico. He expected in this way to attract national and foreign investment in mines and other activities. He also promoted the designing of maps from different parts of the country.^{xxxiiii} Additionally, the Banco de Avío served to reunite statistical and economic information about industrial activities and possibilities.

For Alamán, the manufacturing industry in industrial centers offers not only the advantage of establishing the foundation of economic sovereignty but also of instilling habits of saving and discipline in the working population. Alamán also thinks about the establishment of savings banks in which workers can form the habit of savings, and also rely on a type of assistance societies, in the case of illness or other similar emergency.^{xxxiv}

In all of these proposals Alamán is guided by experience and not by the reading of a specific economist. Elhuyar had already criticized observations of Smith and Say about fiscal policy. Alamán also speaks disdainfully of “speculative economists” and maintains that several of the great principles of economic science were known previously, although they were not theoretically formulated. Juan de Zumárraga, the first archbishop of Mexico, was a clear example of this. In keeping with this practical disposition, Alamán believes that in some early phases of industrialization a certain level of protectionism is legitimate, beyond what modern economic theories, generally free trade, may advocate. The capitalist will be able to preserve and augment his capital in a sure way, at the same time that, as we saw, the worker will develop the corresponding habit.

As a means of social discipline, the Alamán active as minister in the government of Anastasio Bustamante (1830-1832) is not ashamed to rely on ecclesiastical authority, which leads to severe criticism by certain liberal sectors.^{xxxv} However, with such support Alamán seeks to quash the malaise that speculative philosophical ideas generate in individuals, who become attracted to abstract views of things and forget what experience can teach.

Alamán valued prudence as the principal political virtue.^{xxxvi} For him the government cannot orient itself according to a logic of things, as Mora wants. Neither can it base itself on principles evident to reason, as Ortiz de Ayala suggests. The one governing ought to be informed about the multiplicity of circumstances that will present themselves, and actions should be guided by intuition as well as the knowledge of men. Consequently, there is nothing as useful as the knowledge of history, which shows concrete and proven examples of this prudence, considered by Alamán as an authentic wisdom based on empiricism, as exemplified by Edmund Burke.

Recapitulation of the Currents

As one can see, in all the three currents presented we find several of the elements pointed out by Pincus in his examination of the Glorious Revolution:

1. The definition of economic goals and certain aspects of social order indispensable to society in its process of modernization. This is made concrete in the imperative of the priority development of some area of the economy (agriculture, commerce, manufacturing industry) based on precise ideas or theories about the source of wealth. Also the public authority is vested with

powers for disciplining the population, which move from the old idea of *policía* to support of the public authority in the clergy, and on to the conception of a state authority which is compatible with the vulgar and subversive version of Rousseau's General Will.

2. The plan to prepare a statistical study of the country, which in the case of Ortiz de Ayala is related to an exploratory geographic commission, in Mora to the incorporation of statistics in the Treasury (Hacienda), in Alamán to his plan for the creation of museums and expositions in the whole country.

3. The projects of banks which will have an important role in the monetary system and for achieving the economic goals. In Mora and Alamán it's a question of transitory establishments directed toward a specific mission. In Ortiz de Ayala, who formulates the proposal of a commercial bank in a somewhat imprecise fashion, it seems to be a matter of a permanent establishment of private or semi-public nature. This latter model is the closest to that seen in the case of the Bank of England in 1694.

Now let us move to the topic of the traits of economic advisors. The personalities of our three authors are illustrative, and we will examine them in turn:

1. The cosmopolitan, travel-loving and self-taught man, which is the profile of Ortiz de Ayala. His is the continuation of the old enlightened pattern of the man who travels the world to become familiar with projects, technology and models of administrative organization that can be useful in his own country. Spaniard Bernardo Ward is a case in point. He was author of the famous *Proyecto económico* (1779), in which he urged solutions seen in the British Isles. However, the "geological study" practiced by the traveler Humboldt in his *Ensayo político*, which assumes knowledge of orography and the way in which it influences the quantity of population, commerce, the state of agriculture, etc.,^{xxxvii} also has influence on Ortiz de Ayala. Knowledge of history and geography are among the most useful things, above all in order to explain the great revolutions or changes which are seen in the constellation of economic and political power relations between countries and continents.

2. Man of philosophical spirit, versed in philosophy, literature and economics, and of tolerant temperament. Mora was precisely this. The ideal adviser has a sense of the so-called "social virtues," that is, of a humanitarian morality in which the most important thing is to be useful to society. He is the individual who recognizes merits in the enlightened spirit of modern philosophy, of Freemasonry and of those who are not Catholic but do have a public and philanthropic spirit.

3. Man of religious conviction. He is the person formed in the common experience of public and private business, but with a religious sense. Alamán makes perfectly clear his conviction that only religious men can carry out duties

in public service with sure honesty, as happened with several of the most noteworthy viceroys of New Spain. It is also the idea expressed by Burke about the usefulness of religious opinions, according to which the fear of God lends a certain character to the human mind, such that he always thinks with honesty and doesn't fall into the easy temptation of egotism and dissipation. In short, it is the theme of the usefulness of the religious man.

The Importance of the Ideas of Humboldt

Something that cannot be ignored is the impact that the economic ideas expressed by Humboldt in his essay *Ensayo político* had on the three currents of thinking. The impact on the first current is the most evident, since both the idea of the benefit of the priority of investment in agriculture and the importance of large public works is affirmed in the *Ensayo*.^{xxxviii} Also, the assessment of the advantages in world commerce that Mexico enjoyed owing to its natural wealth and its position in the northern hemisphere, which made Mexico an intellectual and commercial link between the European and Asian continents, is something that Ortiz de Ayala has clearly taken from Humboldt.^{xxxix} Finally, the emphasis on the necessity for government leaders and administrators to have knowledge of geography, cartography and statistics, and also to have the ability to interrelate them, is something that is common to Humboldt and Ortiz de Ayala.

However, Humboldt had pointed out the grave consequences of a bad monetary policy, like that of having the financing of the *vale real* fall on the loans of the owners.^{xi} He had also referred to the dreadful distribution of wealth among the inhabitants of Mexico, from which resulted a profoundly unjust social order.^{xii} Finally, Humboldt had been the one who had stressed the importance of mining in augmenting the demand for agriculture and the economy in general, disavowing the dogmatic idea of "the economists" that agriculture cannot prosper where mining flourishes,^{xiii} with which he showed also the empirical disposition that Alamán so valued when dealing with economic questions.

We cannot go into great detail here about the economic ideas of Humboldt. However, everything points to the fact that the publication of his *Ensayo político* stimulated economic thought in a visible fashion among Mexicans and that it came to certify scientifically the traditional Creole idea that Mexico was a rich country that had everything needed to achieve economic well-being and modernity. Humboldt's conviction about the necessity of considering a priority area (in his case agriculture), along with his sense of the importance of geographical and statistical information, and beyond that, his own cosmopolitan disposition with a dash of the *philosophe*, and his willingness to recognize the useful works of the clergy in Spanish American history,^{xliii} guaranteed that his treatment of economic topics would inspire the representatives of the three currents examined here. Humboldt would impel them to enter into an economic discussion in which the principles of a priority area, the imperative of capital, and of the necessity of gathering of statistical information for good governance would

be economic themes. Thus, for the first three decades after independence, Humboldt proved to be influential for Mexicans who sought the economic reorganization and modernization of Mexico.

A Modernization beyond Bourbon Reformism

Something that also cannot be ignored is the fact that several of the ideas of the three currents presented have their roots in the ideas that had moved the Spanish Crown in its objectives of modernization during the so-called Bourbon reforms. Each of the currents takes central aspects or themes of those reforms, although in each case something new is added which has to do precisely with the history of economic thought.

Ortiz de Ayala is obviously inspired by the great colonizing effort of the Crown in northern colonial Mexico, mainly the northeast: Sonora and Sinaloa. As will be remembered, the *visitador* José de Gálvez planned the colonization of that region in the decade of 1760-1770 almost as a personal commitment before the king, to the extent of developing somewhat utopian plans for ideal colonies in the Californias after the expulsion of the Jesuits.^{xiv} Gálvez traveled through part of that zone in person and conceived of a stable and economically productive population that would allow both defending the region from possible colonizing advances by Russians, English, French or Americans as well as converting it into a center of production in mines, pearls and even agricultural products, ready to ship to the port of San Blas and from there to other points in the Spanish empire.

Ortiz de Ayala, however, concentrates his attention first of all on the zone of the banks of the Coatzacoalcos River (Veracruz), where he wants to make the project for interoceanic communication and commerce so sought after by Humboldt a reality.^{xv} The plan to colonize that part with French colonists failed miserably, and only a few years later (*ca.* 1827) Ortiz de Ayala directs his attention to Texas, which was visibly at risk of breaking away from Mexico given the secessionist intentions of the Anglo-Saxon colonists. Ortiz de Ayala's plan to colonize Texas indicates the priority that he gave to a project that he deemed most promising to intensify the production of national wealth.

In Mora we have a clear appreciation of the spreading of economic knowledge among the citizenry which recalls efforts of the same kind by the Count of Campomanes, the principal agent of the Spanish Crown in economic reform projects during the 1770's and 1780's. However, the Spanish official wanted above all else a diffusion of these ideas in order to give impetus to societies and clubs of people favorably disposed toward collaborating with the Crown in its intention to improve the state of national wealth and provide well-being to its subjects.^{xvi} In Mora there exists the intention of incorporating economic knowledge in public education in regular plans of study, which indicates the idea of an essential responsibility for the state in this area, not a simple initiative which appeals to the good faith and disposition of individuals.

Some of Alamán's contemporaries recognized that his interest in industry was similar to Campomanes',^{xlvii} who promoted the so-called industry practiced by the common people. Like the Spaniard, Alamán boosts the formation of groups of individuals to propose or introduce technical improvements, to disseminate technical manuals, to find transformable materials in their surrounding area, etc. However, Alamán sees in the establishment of an industrial plant in Mexico "the first cause, the essentially national cause," in the sense of guaranteeing sovereignty, and not just well-being and progress. Campomanes preferred, on the other hand, industry in the domestic sphere, that is, in a familiar environment that would avoid the transfer or emigration of the worker to other work centers, while in Alamán's plan Mexico's industrial unity is visibly favored and that old reservation of Campomanes is discarded.

So, what has this section on the 1810 Revolution for Mexican independence demonstrated? It has established that the Mexican case fits with some of Pincus' arguments about the Glorious Revolution. Pincus stresses the centrality of economic ideas and policies enacted by individuals to the modernization programs of revolutionary states, something we have seen in the three currents in Mexican revolutionary thought examined above.^{xlviii} Historiography has not sufficiently assessed the character and revolutionary background of the economic ideas presented here, nor has the literatures explored the rival revolutionary economic visions and programs in sufficient depth. Since this section scratches the surface on these topics, much study still needs to be carried out.

Section Two: Mexico's 1910 Revolution

Pincus contends that debates over political economy were central to the 1688 Revolution. Pincus maintains that revolutionists, who embraced a Whig political economy, were upset with James II because he implemented policies that were associated with a Tory economic vision, a position that Josiah Child, the influential economic advisor of James II, advanced. The Tory vision, Pincus writes, was a "land-based zero-sum political economy."^{xlix} Land was finite hence trade was a "vicious international competition for limited resources."^l This vision favored low taxes on land, territorial expansion, and trade monopolies (particularly the East India Company). Whigs, in contrast, favored "labor over land, [and] manufacture over husbandry."^{li} In terms of policy differences, Whigs objected to monopolies and taxes on manufactures. For Pincus, the Glorious Revolution sought to replace a Tory political economy with a Whig one, a radical endeavor that revolutionaries were not entirely successful in achieving.

Pincus' orientation provides new insights into political economy during the Mexican Revolution of 1910. Like Pincus' case, in Mexico there were political-economy conflicts between the established Porfirian society (1876-1910) and the

revolutionary order that emerged in 1910. Porfiristas' political economy stressed large scale industry, agriculture, and the extractive industries, and emphasized the roles of capital and technology in generating wealth. The particular strand of revolutionary political economy examined here championed a nation of small farmers and small-scale industries, and conceived the natural environment as the basis of wealth. This focus on political economy in the 1910 Revolution modifies conventional wisdom, which tends to highlight the theme of social justice when examining revolutionists' critique of the Porfiriato.ⁱⁱ As will be shown below, Humboldt was an important but controversial figure in this political economy debate.

While a number of thinkers will be discussed, this section largely focuses on debates between two noted Porfiristas, Francisco Bulnes and Carlos Díaz Dufoo, and one revolutionary propagandist, Fernando González Roa. During the Porfiriato, Bulnes and Díaz Dufoo were members of the highly influential científico camarillo, a political clique that shaped government policy during the last two decades of the Porfiriato. Later they became vocal opponents of the Mexican Revolution. Bulnes, a politician and writer who published works on economy and history, was arguably the most noted polemicist of the Porfirian era.^{liii} Carlos Díaz Dufoo was an economist, educator, and journalist. During the Porfiriato he helped found the influential pro-government daily *El Imparcial* and also served as editor of the noted financial journal *El Economista Mexicano*.^{liv} Fernando González Roa, a national bureaucrat and foreign diplomat during the 1910s and 1920s, wrote extensively about the agrarian aspect of the Mexican Revolution.^{lv} Bulnes and Díaz Dufoo both wrote anti-revolutionary books in the 1910s. González Roa dedicated a book to refuting each of them.^{lvi} Looking at the debate between these three writers provides a clear window—albeit a somewhat narrow view—into the clash between Porfirian and Revolutionary political economy.

The Porfirian Era: Científicos' Political Economy

Some members of the científico camarilla depicted Mexico as naturally poor, and maintained that the only way to generate wealth was via capital and labor. In this discourse, the natural environment was not an autonomous generator of wealth. To the contrary, human activity manufactured riches. Justo Sierra, a leading científico and arguably the most prominent intellectual of the Porfirian era, maintains that, over the first half century of Mexico's independent existence, Mexicans fail to appreciate the central roles of capital and labor in creating wealth owing to the Humboldtian idea of Mexico's vast natural abundance, which makes it appear that the physical environment is the creator of riches. After all, Humboldt maintained that Mexico was destined to be the economic colossus of the Americas owing to its varied climate, large territory, fertile soil, rich minerals, and fortuitous commercial location.^{lvii} Hence part of

científicos' endeavor to promote a new political economy entails critiquing the Humboldtian notion of Mexico's vast natural abundance. The first extensive critique is penned by Justo Sierra. His 1889 essay entitled *México social y político* details the natural obstacles to Mexico's material progress.^{lviii} Published about a decade later, a three-volume multi-authored work *México, su evolución social* that Sierra oversees further develops the ideas articulated in *México social y político*.^{lix} According to chapters in *México, su evolución social*, Mexico's natural environment is actually an impediment to the creation of wealth: a mountainous geography and a lack of navigable rivers thwarts commerce and stymies the exploitation of resources, arid soil and climatic extremes (including dry spells interspersed with torrential rains and temperatures that jumped from hot to cold) hinder agriculture, and substandard minerals pose a serious roadblock to industrialization.^{lx}

In terms of sectors of the economy, Díaz Dufoo, Bulnes, Sierra and others have a comprehensive view. They do not dogmatically adhere to economic theories such as the international division of labor and its concomitant focus on traditional exports. To the contrary, guided by empiricism and nationalism rather than abstract liberal theory, Sierra and other científicos champion traditional primary product exports and Mexican industrialization.^{lxi} Primary exports are essential to Mexico's balance of trade and foreign exchange. A manufacturing base is the cornerstone of international status and power. Bulnes, Díaz Dufoo, and Sierra cite Great Britain and the United States as cases in point.^{lxii}

The central theme in científicos' economic discourse is the production process. Capital and labor are the main ingredients in wealth creation. Emphasis is placed on economic modernization applied to all sectors. (There may be some naysayers, for example in the Ministry of Development, but their objections are based on the difficulties in financing modernization rather than on the merits of modernization.^{lxiii}) True, there are some discussions about the economic merits of medium size holdings versus economies of scale in the agrarian sector. But the discussion hinges on the issues of productivity and modernization. For example, Justo Sierra and Francisco Bulnes, in certain instances, promote some medium sized holdings in the name of economic modernization.^{lxiv} The central agrarian discourse, perhaps best exemplified by Genaro Raigosa's chapter on agriculture in *México, su evolución social*, is the need to apply modern technologies and irrigation to Mexican agriculture.^{lxv} Raigosa, a national politician and intellectual, lauds the American Southwest, where, he argues, agriculture flourishes in the desert owing to the application of modern technologies. He champions the same for Mexico.

Economic discourse on labor parallels discussions about technology. In the writings of Sierra, Díaz Dufoo, and Bulnes, labor is central to producing wealth. Critiques of the national labor force, calls for European immigration, and comparisons of the productivity of workers of different nationalities all underscore

the importance of labor in the generation of wealth. Productive foreign immigrants, capital, and technology are essential to Mexico's material progress.^{lxvi}

Sierra maintains that during the Porfirian era, finally, Mexico's political economy is on the right track. This is not to say that Sierra and other científicos do not point out Mexico's economic shortcomings, which they say are numerous. Nevertheless, Porfirian policies promote material progress. Justo Sierra's chapter about contemporary Mexico in *México, su evolución social*, for example, depicts the Porfirian era as something of a watershed during which Mexican material progress is finally realized. Sierra contrasts the Porfiriato with the era that preceded it. Porfirian policy, Sierra shows, eschews the Humboldtian legend of Mexico's vast natural wealth by stressing the roles that capital, technology, and labor play in production. Sierra notes Porfirian achievements, including capital investment, railroad construction, immigration, a banking system, industrialization, and exports.^{lxvii}

Sierra died shortly after the Revolution broke out (1912). Undoubtedly, had he lived he would have viewed it as a significant break with the Porfiriato, as Díaz Dufoo and Bulnes did. They were particularly concerned with the economic changes wrought by the Revolution, many of which were enshrined in the 1917 Constitution. For Díaz Dufoo especially, Article 27, which provides the legal basis for agrarian reform and national economic sovereignty, is the most controversial part of the new Constitution. Díaz Dufoo and Bulnes protest revolutionary reforms and publish widely during the 1910s and 1920s.^{lxviii} While there are some distinctions between their critiques in terms of emphasis (Díaz Dufoo focuses on nationalism and Bulnes stresses agrarian reform) and predictions about Mexico's economic future (Díaz Dufoo is more positive), they have much in common. Both writers attack what they term revolutionary "optimism."^{lxix} This "optimism" refers to the general mood that the Revolution will usher in positive changes for the poor in the economic and social realms. (In a counter-charge, revolutionists label Bulnes the "pessimist.") Díaz Dufoo and Bulnes maintain that "optimism" is groundless since it is rooted in erroneous perceptions of Mexico's natural resource wealth and flawed assumptions about what generate riches. In terms of notions of Mexico's natural resources, the pillar that this false optimism is built upon is the Humboldtian legend. Flawed assumptions about what create riches flow logically from it: the natural environment. Díaz Dufoo's and Bulnes' critique of political economy during the Mexican Revolution, then, echoes científicos' attack on the political economy of the early national period. Díaz Dufoo and Bulnes, however, attack the idea of Mexico's extensive natural abundance much more extensively during the Revolution than before it broke out. Politics appears to have been the motivating factor. Díaz Dufoo and Bulnes are broadly in agreement with Porfirian political economy. But they disagree with revolutionary political economy. Disputing the idea of Mexico's great natural wealth is their main way of challenging revolutionary policies.

Díaz Dufoo's and Bulnes' explicit thesis is that adhering to the false idea of Mexico's natural abundance leads to flawed explanations for Mexico's economic and socio-economic woes. According to Díaz Dufoo and Bulnes, revolutionists reason that since Mexico is naturally wealthy, the nation's economic problems are rooted in politics. Consequently, a redistribution of wealth and power will alleviate poverty. Bulnes' and Díaz Dufoo's summary, then, portrays revolutionary political economy as very different from its Porfirian predecessor. According to them, revolutionists believe Mexico's problems are not rooted in production, but rather distribution: the Porfirian economic pie was large, but cut unevenly. Revolutionary political economy will ameliorate poverty by diminishing the size of the portions given to foreigners, large landowners, and industrialists, and increasing the pieces given to rural peasants and urban workers.

After summarizing the revolutionary position, Díaz Dufoo and Bulnes refute it.^{lxx} So, their rhetorical strategy might be characterized as one of building a straw man to knock over. Díaz Dufoo, in fact, writes hundreds of pages to undermine the idea of Mexico's vast natural abundance, which he attributes to Humboldt.^{lxxi} In Díaz Dufoo's and Bulnes' writings during the Revolution, in keeping with analyses they wrote before it, Mexico is a land of scarcity. Díaz Dufoo and Bulnes, then, undermine justifications for revolutionary reforms by arguing that they are built upon false assumptions. Reflecting the strong association between Humboldt and the false idea of Mexico's vast natural wealth, Bulnes' actually defends the famous German. Bulnes maintains that when Humboldt wrote Mexico was naturally wealthy, but subsequent overuse of resources impoverished Mexico's natural environment. Hence, in the age of the 1910 Revolution Mexico's economic dilemmas stem from environmental as opposed to political factors. Furthermore, political reforms will not solve Mexico's economic problems, but rather exacerbate them. Owing to reform, capital and technology, the crucial elements in wealth creation, will become scarce. Bulnes repeatedly states that simply redistributing the land will not improve conditions for the majority since the impoverished land Mexicans will be granted will prove worthless without capital investment.^{lxxii}

Fernando González Roa's Revolutionary Political Economy

González Roa's responses to Díaz Dufoo and Bulnes highlight political economy. Much of the revolutionist's disagreement with the two científicos is economic. To make his case for a new political economy, González Roa details the problems with the Porfirian variant. He charges that Porfirian political economy impoverished the vast majority of Mexicans. He especially focuses on conditions in rural areas, but also discusses the plight of urban factory workers. González Roa's explanations for their impoverished conditions contrast significantly with Bulnes' and Díaz Dufoo': Mexicans' poverty stems not from the

natural environment, but rather the inequitable distribution of wealth, particularly land concentration. Consequently, land redistribution is González Roa's main solution to Mexico's economic problems. Hence his analysis has similarities to those of Mora and Queipo, which were examined above. In fact, González Roa cites both of them to make his case for Mexico's historical problem of land concentration.^{lxxiii}

These different policies that González Roa and the two científicos champion to resolve Mexico's economic problems are partly a consequence of their disagreements over the basis of wealth. In the concluding pages of the work that González Roa writes to refute Díaz Dufoo, he explicitly attacks "Porfirian economists," complaining that they place "capital" above all else.^{lxxiv} This charge is consistent with González Roa's overall critique of Porfirian political economy. For example, he maintains that the Porfirian solution to agrarian problems, namely capital investment, worsened conditions for Mexicans. Similarly, González Roa contends that foreign capital resulted in deteriorating conditions for most Mexicans. For González Roa, natural resources are the basis of wealth. Likewise, the book he co-writes with José Covarrubias maintains that natural resources and labor are more significant than capital.^{lxxv} While natural resources are clearly most significant in generating wealth, González Roa is not opposed to capital investment, at least in theory. But in a social context characterized by a high degree of inequality (as he claims Mexico has) capital investment is harmful since it will enhance the power of the rich and thus exacerbate inequalities and thereby impoverish the masses to an even greater degree.

González Roa's critique of the Porfiriato highlights problems in the agrarian sector. He documents the existence of land concentration since the colonial era, but maintains that concentration increased significantly during the Porfiriato. He labels Porfirian agriculture as a "feudal" system of vast landed estates. To make his case, González Roa quotes heavily from noted Mexican critics of Porfirian Mexico, especially Andrés Molina Enríquez.^{lxxvi} González Roa contends that the size of landed estates expanded vastly over the Porfirian era at the expense of small and medium sized holdings. Owing to land concentration, the countryside is characterized by a rural proletariat and a large number of peons. Concentration is a product of political favoritism rather than economic efficiency. Laws and taxes favor the large estates, which explain their expansion. Ironically, landed estates make high profits but are unproductive. Land values are high but landowners produced little purposely, for high levels of production will drive prices down.^{lxxvii} Labor is coerced, exploited, and paid very low wages. Since land is concentrated the landless have no other options but to work on large estates. (Landowners resist land reform, González Roa contends, so Mexicans will be forced to work for them.) With low wages and high prices for goods, the system of landed estates makes the vast majority of Mexicans poor. González Roa repeatedly insists that the Porfirian strategy of throwing money at the problem via irrigation will not resolve the dilemma, for this strategy will result in

increased land concentration and enhance the power of rural large landowners, which will deteriorate conditions of the majority in the countryside.^{lxxviii} González Roa attacks the Porfirian raw material export economy on two counts. First, owing to international demand and prices, goods are exported, resulting scarcity and higher prices at home. Second, primary exports do not contribute to national economic development since Mexican raw materials that are exported cannot be utilized to build national industries.

González Roa contends that the Porfirian industrial economy is also a failure, both in terms of its viability and its national impact. He explains that successful large-scale industry needs national capital, global markets, and raw materials, but of the three Mexico only has natural resources. Since Mexico has limited national capital it has to utilize foreign capital to finance industrialization. Foreign capitalists, consequently, have extensive power and influence in Porfirian Mexico. Additionally, since Mexican industry cannot compete internationally and there are limited national consumers, markets for Mexican industrial goods are too small.^{lxxix} Hence, large scale manufacturing does not benefit Mexico. Mexican workers do not benefit since they are exploited and underpaid. Furthermore, the Mexican state's authority is compromised by foreigners' influence. Since foreign investors are the main group that benefits increased investment and industrialization will only exacerbate problems.

For González Roa, the immense inequality in Porfirian Mexico, particularly land concentration, causes the 1910 Revolution. It is a modern revolution in the sense that it seeks to overthrow Mexican feudalism. This depiction of the Porfiriato as "feudal" is ironic since científicos had viewed themselves as modernizers bent on stamping out traditional economic mores and practices. Underscoring the Porfirian "feudal" label, González Roa repeatedly compares the 1910 Revolution to the 1789 French Revolution. Since Mexico is agrarian as France had been before its revolution, he argues (apparently informed by Marxist theory) the Mexican Revolution is not socialist. Land reform, for González Roa, is the main feature of the Mexican Revolution. He champions dissolving the great estates and creating a nation of small and medium sized landholders. Even if González Roa suggests there is social justice in redistribution, he makes a strong economic argument. In congruence with his economic critique of the Porfiriato, González Roa makes an economic case for revolutionary reform. Of course, land reform will enable Mexicans to be freed from the economic exploitation of landowners, for they will become independent farmers. But most importantly, a nation of smallholders is economically viable.

To make his case for the economic viability of a nation of small farmers, González Roa provides a detailed examination of Mexico's natural environment. His analysis refutes Bulnes' depiction, which showed that the natural environment was the source of poverty. Discrediting Bulnes, González Roa charges that the Porfirian ideologue's portrayal is inspired by political objectives.

González Roa maintains that “conservatives” (such as Bulnes’) depiction of Mexico’s natural environment as poor is a tactic to obstruct agrarian reform. While González Roa does not cite examples, history had borne out his contention. During the late Porfiriato there was a loud cry to redistribute uncultivated lands. In this reform discourse hacendados were depicted as lazy and uninterested in production. *El Economista Mexicano*, a financial weekly edited by Díaz Dufoo, opined against the reform, explaining that Mexico’s impoverished natural resources and mountainous topography made production in some regions impossible, so hacendados were not the culprits.^{lxxx} Furthermore, during the Revolution, as noted above, depicting Mexico as a land of scarcity was central to Díaz Dufoo’s and Bulnes’ attacks on land redistribution and economic nationalism.

Directly addressing the arguments of Bulnes and Díaz Dufoo, González Roa’s analysis acknowledges problems that the natural environment poses for economic development, but shows that despite these obstacles Mexico will become a nation of prosperous small farmers. Dividing the land is the main action that will achieve economically sustainable agriculture, even if some other minor modifications in the production process and the natural environment will also be necessary. The need for capital investment is hardly mentioned. González Roa’s analysis strongly suggests that the land itself is the basis of wealth. González Roa predicts that if the lands of the Central Valley are divided, agriculture will become prosperous. Limited investment will be required since small farmers will become successful growers even without irrigation. The state Morelos is González Roa’s case in point. He contends that production has increased there after the land there was divided up.^{lxxxi} He maintains that northern Mexico (which he says comprises 40% of the national territory) will also be a region in which small farmers can flourish without irrigating their lands. To make his case, González Roa utilizes the United States southwest as a case in point—a region he says is analogous to northern Mexico in terms of the natural environment. Since dry farming is successful in the former, it will also flourish in the latter. Countering científicos’ discourse, for González Roa Mexican agriculture will flourish without irrigation. (Ironically, Porfirian ideologue Genaro Raigosa cites the American southwest as a case in point for the necessity of technology in Mexican agrarian development.) If limited water is not an insurmountable problem for González Roa, neither are other natural dilemmas that científicos lament about. Take the case of climatic extremes. González Roa asserts that the damage done by torrential rains can be mitigated by building canals. And the economic problem caused by early frosts can be avoided by using special seeds that shorten the growing season.^{lxxxii}

González Roa envisions Mexico as primarily an agrarian country, but maintains that the nation can also successfully develop small-scale industries, which, he laments, had declined during the Porfiriato. Small traditional industries are clearly his antidote to the problems associated with Porfirian large scale

industrialization. Small industries that require little capital, he explains, will guarantee profits for Mexican owners since foreigners will not dominate. In accordance with his analysis of agriculture, his discussion of small industry features the importance of natural resources. He proclaims that “in order to develop our small industry we have most abundant raw materials.”^{lxxxiii} (Ironically—given his pro-labor stance—he also says low wages in Mexico bode well for the success of small industries.) He mentions numerous possibilities, such as the silk industry, the bee industry (honey and wax), the furniture industry, the dairy industry (particularly cheese and butter), and the breeding industry (hares and rabbits). To strengthen his case, he cites some examples of European successes in these industries. Further fortifying his argument, González Roa explains that some of his European industrial examples utilized Mexican raw materials. Since he mentions exports, it appears that González Roa thinks that at least some of Mexican products will be sold abroad.^{lxxxiv}

Tellingly, even though González Roa cites Humboldt at various times to support his arguments, he does not mention the famous German when discussing Mexico’s natural resource wealth. González Roa is, in all probability, aware that Díaz Dufoo discredits revolutionists’ political economy by charging that they adhered to the erroneous Humboldtian legend. Perhaps González Roa seeks to deflect this criticism by avoiding Humboldt when discussing Mexico’s natural wealth. Other revolutionists are also cognizant of the charge that they overestimate Mexico’s natural wealth. The noted revolutionist Salvador Alvarado, for example, maintains that he is well aware of economic deficiencies in Mexico’s natural environment. But he counters that it is an exaggeration to proclaim that Mexico is a land of scarcity. Despite environmental problems, Alvarado says that Mexico is a land of significant natural wealth.^{lxxxv}

Even if González Roa and some other revolutionists acknowledge natural obstacles to economic development, their political economy, to a large extent, is accurately summarized by their critics like Díaz Dufoo and Bulnes, who contend that revolutionists erroneously believe that Mexico’s wealth is rooted in its natural abundance. Porfirian land concentration is the source of poverty and land redistribution will ameliorate socio-economic ills. Not only González Roa and Alvarado, but also groups like the Mexican Liberal Party (PLM) seemed to embrace this economic perspective.^{lxxxvi} There may be some truth to Daniel Cosío Villegas’s claim that revolutionists’ political economy was “weak” in terms of analysis, but it does not detract from the fact that they championed an alternative to Porfirian political economy.^{lxxxvii} Furthermore, even if it was not solely justified on economic grounds, the Revolution resulted in the realization of González Roa’s principal economic goal: dividing up the haciendas and expanding small and medium sized farms.

Conclusions

Applying Pincus' concept of revolution to Mexico provides a new perspective on Mexico's 1810 and 1910 Revolutions. The insights derived from Pincus' model serve to highlight an important feature of Mexico's two upheavals that scholars have failed to appreciate: both Revolutions were characterized by conflicts over political economy. During the age of the 1810 Revolution, three competing models of revolutionary political economy emerged, each of which promoted modernization and deemed the state significant to realizing their agendas. In the era of the 1910 Revolution, competing visions of political economy were central to the clash between defenders of the status quo (i.e., científicos) and revolutionaries. Like a focus on Pincus, this article's stress on Alexander von Humboldt has provided new insights into Mexico's 1810 and 1910 Revolutions. Highlighting Humboldt reveals a link between the two Revolutions that scholarship has overlooked, for he was not only an influential in the political economy of the 1810 Revolution for independence from Spain, but also the 1910 Revolution. While it is true that Humboldt was utilized in various ways by Mexican thinkers during the age of independence, at that time he was not the controversial figure he became during the 1910 Revolution.

Notes

ⁱ The authors thank David Oberstar, Professor Emeritus of Spanish at Indiana University-Purdue University Fort Wayne, for translating all of section one and part of the introduction of this article from Spanish to English.

ⁱⁱ Since the age of independence commentary has emphasized Humboldt's contribution to the idea of Mexico's vast natural abundance. Scholarship on Humboldt, consequently, has tended to stress this theme. Therefore, literature has not fully appreciated the complexity of Humboldt's impact on Mexican economic discourse. See, for example, Lucas Alamán, *Historia de Méjico*, vol. 1. Mexico City, Editorial Jus, 1942, p. 138; Justo Sierra, "Historia política," *México: su evolución social*, tomo I, vol. I, Justo Sierra et al, Mexico City: J. Ballezá, 1900, p. 144-5; and Walther Bernecker, "El mito de la riqueza mexicana," In *Alejando de Humboldt: una nueva visión del mundo*, 95-103. Mexico City, UNAM, 2003.

ⁱⁱⁱ Steve Pincus, *1688. The First Modern Revolution*, New Haven/London, Yale University Press, 2009.

^{iv} Pincus, *1688*, p. 366-399.

^v For example, the very well known books by Jesús Reyes Heróles, *El liberalismo mexicano*, México, Fondo de Cultura Económica, 1982, 3 vols.; Charles A. Hale, *El liberalismo mexicano en la época de Mora*, México, Siglo XXI, 1999.

^{vi} Pincus, *1688*, p. 483-485.

^{vii} *Ibid.*, p. 458-468.

^{viii} About the life and work of Tadeo Ortiz de Ayala: W. H. Timmons, *Tadeo Ortiz, Mexican Colonizer and Reformer*, El Paso, University of Texas, 1974; Ernesto de la Torre Villar, *Labor diplomática de Tadeo Ortiz*, México, Secretaría de Relaciones Exteriores, 1974.

^{ix} Raymond Aron, *Paz y guerra entre las naciones. I Teoría y sociología*, Madrid, Alianza Editorial, 1985, p. 248-256. Aron calls “geographic ideologies” that what we call here geographic doctrines.

^x Tadeo Ortiz, *México considerado como nación independiente y libre, o sean algunas indicaciones sobre los deberes más esenciales de los mexicanos*, Burdeos, Imp. de Carlos Lawalle Sobrino, 1832, p. 382-420.

^{xi} Ibid., p. 104.

^{xii} Ibid., p. 572.

^{xiii} Ibid., p. 378-380, 446-448.

^{xiv} This last condition is pointed out by José Canga Argüelles, *Diccionario de Hacienda con aplicación a España*, Londres, Imprenta de Marcelino Carrero y Portocarrero, 1833, I, p. 127.

^{xv} Ortiz, *México considerado*, p. 475-482.

^{xvi} Ibid., p. 483-535.

^{xvii} Ibid., p. 7.

^{xviii} About Mora’s life and works, see Hale, *Liberalismo*.

^{xix} José María Luis Mora, *México y sus revoluciones*, París, Librería de Rosa, 1836, I, p. 517-528.

^{xx} Mora, *Obras sueltas de José María Luis Mora, ciudadano mejicano. Revista política. El crédito público*, París, Librería de Rosa, 1837, I (segunda parte), p. 54-69, 100-118.

^{xxi} Mora, *México y sus revoluciones*, I, p. 510-516.

^{xxii} Mora, *Obras sueltas*, I (segunda parte), p. 70-99; *México y sus revoluciones*, I, p. 503-505.

^{xxiii} Mora, *Obras sueltas*, I (segunda parte), p. 330-331.

^{xxiv} Ibid., p. 343-359.

^{xxv} J. C. Sismonde de Sismondi, *Nouveaux Principes d’économie politique, ou de la richesse dans ses rapports avec la population*, Paris, Calmann-Levy, 1971, p. 239-270.

^{xxvi} Mora, *México y sus revoluciones*, I, p. 41.

^{xxvii} Ibid., I, p. 340-341.

^{xxviii} Hale, *Liberalismo*, p. 109-110.

^{xxix} Ibid., p. 174.

^{xxx} About Alamán’s life and Works: José C. Valadés, *Alamán, estadista e historiador*, México, UNAM, 1977.

^{xxxi} Elhuyar’s works on economic subjects were: *Indagaciones sobre la amonedación en la Nueva España*, Madrid, Imprenta Calle de la Greda, 1818; *Memoria sobre el influjo de la minería en la agricultura, industria, población y civilización de la Nueva España*, Madrid, Imprenta de Amarita, 1825.

^{xxxii} Robert Potash, *El Banco de Avío de México. El fomento de la industria, 1821-1846*, México, Fondo de Cultura Económica, 1986.

^{xxxiii} Valadés, *Alamán*, p. 287-289.

^{xxxiv} Alamán, *Memoria sobre el estado de la agricultura e industria de la República*, en Alamán, *Documentos diversos (inéditos y muy raros). Tomo segundo*, ed. Rafael Aguayo Spencer, en Alamán, *Obras*, México, Editorial Jus, 1045, p. 104-113.

^{xxxv} As Mora in *Obras sueltas*, I (primera parte), p. 19-49.

^{xxxvi} José Enrique Covarrubias, *Fomento, utilidad e historia en el pensamiento económico de Lucas Alamán*, in Pilar Martínez López-Cano (coord.), *Historia del pensamiento económico: testimonios, proyectos y polémicas*, México, UNAM/Instituto de Investigaciones Dr. José María Luis Mora, 2009, p. 255-280.

^{xxxvii} Alejandro de Humboldt, *Ensayo político sobre el reino de la Nueva España*, ed. Juan A. Ortega y Medina, México, Porrúa, 2002, p. 21.

^{xxxviii} Humboldt, *Ensayo*, p. 141-155, 445, 470-471.

^{xxxix} *Ibid.*, p. 7-18.

^{xl} *Ibid.*, p. 504.

^{xli} *Ibid.*, p. 70-73, 83.

^{xlii} *Ibid.*, p. 237-238.

^{xliii} For example in *ibídem*, p. 168, 199.

^{xliv} Ignacio del Río, *La aplicación regional de las reformas borbónicas en Nueva España. Sonora y Sinaloa, 1768-1787*, México, UNAM, 1995, p. 59-115.

^{xlv} Carlos J. Sierra, *Tadeo Ortiz de Ayala (viajero y colonizador)*, México, SHCP, 1965.

^{xlvi} Vicent Llombart, *Campomanes, economista y político de Carlos III*, Madrid, Alianza Editorial, 1992.

^{xlvii} It was the case of Luis Manuel del Rivero, a Spaniard resident in Mexico. See his book *Méjico en 1842*, Madrid, Imprenta y Fundación de Eusebio Aguado, 1844, p. 250.

^{xlviii} The reader might object in the case of Alamán, maintaining he does not promote a revolutionary state. After all, we know that in the 1850s he was in favor of a monarchic intervention in Mexico, which came to fruition in 1862, after Alamán had already died. However, the monarchic project of Alamán did not assume the disappearance of the independent state but rather a change in the form and nature of the political regime.

^{xlix} Pincus, *1688*, p. 378.

ⁱ *Ibid.*, p. 374.

ⁱⁱ *Ibid.*, 387.

ⁱⁱⁱ Even if Daniel Cosío Villegas's observation that land redistribution was justified on moral grounds is well taken, there was also an economic rationale. Daniel Cosío Villegas, "La crisis de México," *Cuadernos Americanos* 32 (March-April), 1947.

ⁱⁱⁱⁱ George Lemus, *Francisco Bulnes: su vida y su obra*, Mexico City, Andrea, 1965.

^{lv} On Díaz Dufoo's economic ideas see Jesús Silva Herzog, *El pensamiento económico, social y político de México 1810-1964*, Mexico City, Instituto Mexicano de Investigación Económica, 1964, pp. 325-33. For a study Díaz Dufoo's writings during the Mexican Revolution see Richard Weiner, "Economic thought and culture in revolutionary Mexico: Carlos Díaz Dufoo's Critique of the

Humboldtian idea of Mexico's legendary wealth," *História e Economia* 2: 1 (2nd Semestre), p. 13-31.

^{lv} González Roa held governmental positions under various presidents during the 1910s and 1920s, including diplomatic posts in the United States and Great Britain. His publications on agrarianism include: *Parte general de un informe sobre la aplicación de algunos preceptos de la ley agraria de 6 de enero de 1915*, Mexico City, Fomento, 1916; *The Mexican People and their Detractors*, New York, 1916; *El aspecto agrario de la revolución Mexicana*, Mexico City, Liga de Economistas, [1919] 1975; and *Las cuestiones fundamentales de actualidad en México*, Mexico City, Secretaría de Relaciones Exteriores, 1927. He co-authored a book: Fernando González Roa and José Covarrubias, *El problema rural de México*, Mexico City, CEHAM, [1917] 1981. For a brief discussion of González Roa's writings on agrarianism see Jesús Silva Herzog, *El agrarismo mexicano y la reforma agraria*, Mexico City, FCE, 1959, chap. 7.

^{lvi} Bulnes work was *The Whole Truth about Mexico. The Mexican Revolution and President Wilson's Part Therin as seen by a Científico*, New York, M. Bulnes Book Co., 1916. González Roa refuted Bulnes with *The Mexican People and their Detractors*. Parts of *The Mexican People* were taken from a manuscript González Roa later co-published with José Covarrubias, *El problema rural de México*. The counter-revolutionary work by Carlos Díaz Dufoo was *México y los capitales extranjeros*, Mexico City and Paris: Bouret, 1918. González Roa responded to Díaz Dufoo's book with *El aspecto agrario de la revolución Mexicana*.

^{lvii} Richard Weiner, "Redefining Mexico's Riches: Representations of Wealth in Alexander von Humboldt's Political Essay on the Kingdom of New Spain." In *Humboldt y otros viajeros científicos en América Latina*, edited by Lourdes de Ita Rubio and Sánchez Díaz, pp. 157-170. Morelia, Universidad Michoacana de San Nicolás de Hidalgo, 2006.

^{lviii} Justo Sierra, *México social y político*, Mexico City, Memoria, Bibliotecas y Publicaciones, [1889] 1960.

^{lix} For a study of *México su evolución social* see Laura Angélica Moya López, *La nación como organismo: México su evolución social 1900-1902*, Mexico City, UAM, 2003.

^{lx} Especially see Carlos Díaz Dufoo, "La evolución industrial," *México: su evolución social*, tomo II, Justo Sierra et al, Mexico City, J. Ballezá, 1901; and Agustín Aragón, "Del territorio de México y sus habitantes," *México: su evolución social*, tomo I (vol. 1), Justo Sierra et al, Mexico City, J. Ballezá, 1900, p. 13-17.

^{lxi} Richard Weiner, "Trinidad Sánchez Santos and Justo Sierra: Two Critics of Political Economy," In *El Catolicismo social en México: Los intelectuales*, tomo III, edited by Manuel Ceballos, Guadalajara, IMDOSOC [forthcoming].

^{lxii} Díaz Dufoo, "La evolución industrial"; Francisco Bulnes, *El porvenir de las naciones latinoamericanas ante las recientes conquistas de Europa y Norteamérica*, Mexico City, Mariano Nava, 1899.

^{lxiii} Clifton Kroeber, *Man, Land, and Water*, Berkeley, Univ. California Press, 1983.

^{lxiv} See Sierra's newspaper articles from the mid-1870s reprinted in Justo Sierra, *Obras Completas IV*, Mexico City, UNAM, 1991, p. 56-59, 342-358; and Bulnes, *El porvenir*.

^{lxv} Genaro Raigosa, "La evolución agrícola," *México: su evolución social*, tomo II, Justo Sierra et al, Mexico City, J. Ballezá, 1901.

^{lxvi} Richard Weiner, *Race, Nation, and Market: Economic Culture in Porfirian Mexico*, Tucson, University Arizona Press, 2004, chap. 2.

lxvii Justo Sierra, "Historia política. La era actual," *México: su evolución social*, tomo II, Justo Sierra et al, Mexico City, J. Balleescá, 1901

lxviii Works by Carlos Díaz Dufoo (in addition to *México*) are *La cuestión del petróleo*, Mexico City, Eusebio Gómez, 1921; and *Comunismo contra capitalismo*, 2nd ed. Mexico City, Ediciones Botas, 1941. For a collection of journalism see Díaz Dufoo, *La vida económica: hechos y doctrinas, 1916-1934*, Mexico City, Excelsior, 1935. Works by Francisco Bulnes (in addition to *Whole Truth*) include *El verdadero Díaz y la revolución*, Mexico City, Eusebio Gómez de la Puente, 1920. For a compilation of his newspaper editorials (1920-24) see Francisco Bulnes, *Los grandes problemas de México*, Mexico City: SRA, [1926] 1981.

lxix Francisco Bulnes, "Verdades sobre el petróleo: contrarias a las mentiras de los optimistas," *El Universal*, 9 August 1922, p. 3. Díaz Dufoo, *México*, 186.

lxx Díaz Dufoo, *México*, chap. 5.

lxxi *Ibid.*, p. 153.

lxxii Bulnes *Los grandes problemas*, pp. 119-202.

lxxiii González Roa, *Mexican People*, p. 8, 15; and González Roa, *aspecto agrario*, p. 25.

lxxiv González Roa, *aspecto agrario*, p. 388.

lxxv González Roa and Covarrubias, *problema rural*, p. 202.

lxxvi González Roa, *aspect agrario*, p. 21.

lxxvii González Roa, *Mexican People*, p. 15-18.

lxxviii González Roa, *aspecto agrario*, p. 138-145; and González Roa, *Mexican People*, p. 72-73.

lxxix González Roa, *Mexican People*, p. 29-35.

lxxx Weiner, *Race, Nation, and Market*, p. 44-5.

lxxxi González Roa, *Mexican People*, p. 71.

lxxxii González Roa, *Mexican People*, p. 61-67.

lxxxiii *Ibid.*, p. 36.

lxxxiv González Roa, *Mexican People*, p. 36-39; and González Roa and Covarrubias, *problema rural*, p. 149-171.

lxxxv Salvador Alvarado, *La reconstrucción de México*, vol. 1, Mexico City, J. Balleescá, 1919.

lxxxvi Weiner, *Race, Nation, and Market*, chap. 5.

lxxxvii Cosío Villegas, "La crisis de México."

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