

RESEARCH ARTICLE

# An Econometric History of Philippine Trade: 1810–1899

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**Abstract:** An econometric “verification” of historical accounts of Philippine international trade and economic liberalization during the 19<sup>th</sup> century using econometric analysis to correlate historical accounts from official and other historical sources from Spanish era of Filipinas (majority of Luzon and Visayas trading centers). This paper also aims to assess macroeconomic trends and institutional analyses of Philippine colonial trade of the 19<sup>th</sup> century (with consequences to the 20<sup>th</sup> century Philippine economic development experience) using the perspective of econometric methodology.

**Keywords:** Spanish era, Philippine trade, Philippine economic history, colonial trade, international economic history, time series econometrics

**JEL Classification:** C01, F10, N75

*The history of economic activity in the Philippines is the result of analysis of economic data and institutions recorded in the documents and contemporary sources. It is meant as an aid to the understanding of the Philippine economy through description and analysis of its early foundations and sectors and their basic features, as they evolved over time. Being a historical approach to economic analysis it covers both change and continuity.*

—Onofre D. Corpuz (1997, p. 2)

## Preliminaries and Contextualization

A lot of historical accounts about the 19<sup>th</sup> century Philippines are available, although only some of these discuss (and analyze) the economic underpinnings of institutions, policies, social framework, and the accompanying dynamics. In spite of the efforts made by scholars to process primary sources (which are in

dire need of archival and preservation from natural elements), accounts on “economic and international trade liberalization” of the Philippines during this period were much due *only* to histories, oral tradition, and anecdotal evidences.

This paper tries to “validate” the accounts in data sources presented by scholars of Philippine economic history, and to some extent some possible

economic data available in other institutions. Modern econometric methods, mathematical modelling, and economic theory are the tools of analysis for the material set forth, but of course, with certain guidelines. Nonetheless, data must be handled with utmost caution: measurement errors are most likely over this era, in addition to the inadequate accounting due to the social, political, and economic situation of the period.<sup>1</sup>

Hopefully at the end of this discourse, some alternative perspectives may be provided given the relative wealth of economic data that has been generated over the past century of research on Philippine economic history.

### Some Historical Rundown<sup>2</sup>

International trade in Filipinas (the ecclesiastical territories of the Philippines during the Spanish era) has not been given significant attention, despite the relative wealth of economic data that has been recorded during the period. Significant analysis done in respective accounts by Corpuz (1997) and Legarda (1999) created some initial work on this analysis.

One complexity of Spanish era economic data is that the original sources are not retrievable domestically. Usually, they are in the archives of Mexico, Spain, United Kingdom, United States, and some other trading partners of the Philippines during the period. For this reason, standard historical accounts on economic and institutional evolution during the Spanish era have relied much on initial work that has garnered sparse attention. Work is yet to be done in validating some historical accounts that has some bearing on Philippine economic history. Notwithstanding, access to the original sources is significantly limited.

Although the formal internalization of Manila in terms of trade predates to 1835, it does not mean that the Philippines did not, at all, have international relations before then. Historical accounts as early as the ninth century show that the Philippines had constant trade activities with China,<sup>3</sup> Japan, India, and Arabia (Scott, 1994).

It has been usually noted in standard high school and collegiate references on Philippine history that 19th-century Philippines has become a period of liberalization of international trade in Filipinas (Abueg, 2007). Although, it has also been recognized that a lot of factors and reasons—economic, political, social,

and institutional—contributed in this time period, this made this set of policies not originally of Spanish intellectual origin (Schumacher, 1991). Boncan (2012) also noted that learning from what the Americans and the Europeans in general have benefitted from agricultural trade, the Spaniards imitated such export policy, as manifested in catalogues of agricultural species of plants prior and during the 19th century.

This makes the economic policies implemented by Spain, by initially forming *España en Ultramar* (Overseas Spain)—in which Filipinas is “elevated” from a colony to a province of the Spanish empire—relatively a contradiction to what they want to possibly maintain as the normal conditions in the colony.<sup>4</sup>

It has also been noted that this liberalization of trade in Filipinas is a part of a system of policy reversals relative to what has been implemented in the previous two hundred years and so. For one, the relative distance of the colony from Iberian peninsula—although directly supervised then by the Viceroyalty of Mexico—has become a considerable factor for the mercantilist-feudalist economic framework to perpetuate in the colony. In addition, colonial checks imposed by the Spanish King proved to fail, either due to the sole problem of the connivance of the Catholic Church, or due to the problem of manning the colony with the *real cédulas* (royal decrees). It is most likely that the situation is a combination of the above, which made the scenario worse.

A famous institution (which is heavily founded on mercantilist doctrine) that was completely negated (in terms of balance of payments) in the 19th century is the two-century old Manila–Acapulco galleon trade (since 1572) supervised by the *real consulado*.<sup>5</sup> Historical records show that the galleon trade is one of the major economic policies which made the Spanish experience unique. Non-Spanish observers coming to Filipinas (even those who are only within the boundaries of Continental Europe) have observed this “captured market” aspirations of the Spaniards. Sailing galleons twice a year (June, amounting to 250,000 pesos and December at 500,000)<sup>6</sup> was probably one of the first global trade agreements between economies in history.

Adam Smith (1776) was also aware of the mercantilist framework of the Spanish monarchy being implemented in Filipinas:

Thirdly, the East Indies is another market for the produce of the silver mines of America,

and a market which, from the time of the first discovery of those mines, has been continually taking off a greater and a greater quantity of silver. Since that time, the direct trade between America and the East Indies, which is carried on by means of the Acapulco ships, has been continually augmenting, and the indirect intercourse by the way of Europe has been augmenting in a still greater proportion. ... (p. 277)

[Silver] is the most valuable article in the Acapulco ships which sail to Manilla [sic]. The annual importation of the precious metals into Cadiz and Lisbon, indeed, is not equal to the whole annual produce of the mines of America. Some part is sent annually by the Acapulco ships to Manilla [sic]; some part is employed in the contraband trade which the Spanish colonies carry on with those of other European nations; and some part, no doubt remains in the country. The mines of America, besides, are by no means the only gold and silver mines in the world. They are, however, by far the most abundant.<sup>7</sup> (p. 281)

It is very important to contrast that the Spaniards under the objective to conquer silver and gold sources from colonies, which is of some mercantilist doctrine,<sup>8</sup> is at its opposite with what the natives have been doing for centuries in their barangays. From the Igorots of the north, we have the famous legend of Princess Urduja, and the official accounts of Spaniards learning the presence of gold deposits in Benguet, commanded by Juan de Salcedo. Down south, the natives of the Visayas islands utilized gold in the native society in a similar manner, as described in Scott (1994):

Gold is mentioned in early Spanish accounts more often than any other substance, evidence not only of their interest in it but of the fact that they found it everywhere they went. They seem never to have seen a Visayan without gold on his person, and said that all of them could tell where any gold came from just by looking at it. But the Spanish were surprised at the low intensity of Visayan mining operations: The Visayans only went to get it as needed. (p. 67)

Even a significant number of historians have argued that whether political or economic, the Manila–Acapulco galleon trade is not in itself promising (and

obviously sustainable). A Dutch historian himself, Roessingh (1983) accounted for such phenomena in this particular period:

The financial position of the colony was repeatedly in great danger because of this narrow economic basis on which it was built; this was the case especially when the Acapulco galleon stayed away one or even more years in succession. ... The Dutch had a very clear understanding of the situation, ... aimed at hitting the Spaniards at their weakest spot. A blockade of Manila, preferably combined with pirating one of the silverships from America served a threefold aim: weakening the Spanish empire, strengthening their own trade position by acquiring silver so indispensable in Asia, and, lastly, diverting the Chinese junks to the Dutch factories. (pp. 62–63)

Additional observations by foreigners validate the principal–agent problems in standard microeconomic theory: a number of abuses and documented cases in Filipinas (even reports sent in Spain) by the clergy and the administrators themselves, have also supported this long list of “sins” (which are the main plight of the *indios bravos* in Europe). The failure of having an adequate system of checks contributed to the pitiful condition of the natives.

Nineteenth century Philippines is regarded as the foundation of major economic institutions which are still in place today: Schumacher (1991, p.10) even calls it a “formative century”. The Philippines began to be a part of a global economy, formally speaking, which have been also influenced by economic movements in Continental Europe: the industrial revolutions and the birth of mathematical economics that predated macroeconomics.<sup>9</sup> In fact, historians would even argue that much of Andres Bonifacio’s initial readings were coming from the enlightenment period of the age.<sup>10</sup> These remained unchecked as the British and the Americans began to set up businesses in Manila, which officially became an international port in 1835 with no restrictions on censorship of goods, and other customs. Schumacher (1991, p. 127) added that:

For this growth of the agricultural export economy not only made it possible for an ever-increasing number of young Filipinos to go abroad for higher education, but allowed them to live on in Europe for years.

We provide some background information of where these policies are coming from, which will help in explaining the dynamics that has been proposed in contemporary historical accounts (which is significantly discussed by Corpuz, 1997 and Legarda, 1999 as discussed in succeeding sections). Hopefully, these dynamics are captured by the relatively short time series data sets that the Spaniards have kept (with other 19th century historical documents) in record as official reports stored in various parts of the world.

### **Two Ideas: The General Economic Plan and the “Abandonment Proposal”**

If there is one governor general famous in terms of Philippine economic history—political economy, policy formulation, and administration—it is none other than Governor General Jose Basco y Vargas Valderrama y Rivera (1777–1787). Basco was sent by Charles III who was one of the Spanish Bourbon Kings after the famous War of the Spanish Succession in the 18th century. Basco’s reign was remarkably significant from the perspective of political economy and economic history.<sup>11</sup> He has been consistently noted as one of the great reformists of economic policy in the Filipinas, and this lasted even after his term, which became his major legacy as one of the economic reformists in Filipinas. Parallel to the reformist objectives of Charles III, he intended to overhaul existing political and economic institutions in the Filipinas. Primarily, he intended to cut red tape in administration, make administration efficient and prompt, and most especially, to improve the most important economic endeavor: the galleon trade. Cushner (1971, p. 157) highlighted this distinct behavior of a typical Spaniard coming to Manila:

The type of colonist who was attracted to the Philippines was perhaps not so much committed to remain in the islands as were colonists who settled in South America. The chief complaint voiced by clerics and government officials was that there was a revolving population of merchants, principally from Mexico, who came to the Philippines with the intention of remaining only long enough to strike it rich in the galleon trade and then return to New Spain... Those who came to the Philippines intended to stay for three years at most and many of these were

escaped criminals, merchants or a few nobles who accompanied the governor. Spaniards were further discouraged from serving as government officials or emigrating as colonists to the Philippines by the high mortality rate of Europeans in general. (also cited in Cruz, 2014, p. 69)

At the onset, it has become common knowledge (no matter how accurate or mixed with oral tradition) that Spaniards were ultimately after the Spice Islands (Moluccas, in Indonesia), often confused with the trading hub Malacca (in Malaysia).

They thought we had mountains planted to spices. They even thought that we were part of the Spice Islands. It was not for God or religion that they came. Although gold was the primordial consideration for the voyages of discovery, the lure of spices was just as irresistible. ...

That Spain had an insatiable desire for gold is understandable since the lure of the yellow metal is irresistible. But why spices? Apparently in the sixteenth century, those delectable and edible products of nature (and human labor) were the only commodity that could approximate the value of gold. ...

European food must have been so bland and monotonous before the Crusades brought home their war booties, among them were spices to give home cooking that extra wallop. Spices were considered status symbols, luxuries that only the privileged and moneyed classes could afford. (Hofileña, 2011, pp. 47–48)

However, it is a prominent observation that a lot of events perpetuated (and strengthened) the mercantilist motives of the Spaniards. The rise of Spain in the 14th century<sup>12</sup> and its decline as a superpower in the 16th century was much driven by the flow of the bullion (gold and silver) in the Spanish monarchy (Cipolla, 1993):

Bogged down in interminable wars, the Spanish Administration spent its tax revenues and the riches it gained from the [Spanish] Indies long before it ever set eyes on them. As a result, the administration was constantly at the mercy of bankers who advanced the sums it needed

and then transferred to the geographical areas where they required. ...

By the end of the sixteenth century, Spain was much richer than a century earlier, but she was not more developed. (pp. 239–240)

In sum, the Spanish economy in this two-century period was summed up by Cameron and Neal (2003):

In spite of these favorable circumstances, the Spanish economy failed to progress—indeed, from about midcentury it regressed—and the Spanish people paid the price in the form of lowered standards of living, increased incidence of famine and plague, and ultimately, in the seventeenth century, depopulation. Although many factors have been adduced to the account for the “decline of Spain,” the exorbitant ambitions of its sovereigns and the short-sightedness and perversity of their economic policies must bear a large share of the responsibility. (p. 133)

For these reasons, Madrid decided to revisit their economic policy and framework, and eventually implemented a new economic order. Through a royal decree by Charles III, Basco immediately drafted a general economic plan (1779) upon assuming the highest post of the colonial government in Filipinas. Under Basco’s administration, a number of policies, institutions, programs, and reforms were brought to Filipinas,<sup>13</sup> in the hope of an economic revolution. He founded the *Soci dad Econ mica de Amigos del P is*<sup>14</sup> (Economic Society of the Friends of the Country, 1781) with his intentions, advocacies, and banner programs opening with these words:

When will we free ourselves from the error of depending on foreigners for our commerce and provisions? When will we realize that our decadence has come from our bondage to the Acapulco galleon, which has served only to convey fabulous riches to the realms of China, Japan, and the coasts of Asia, leaving us nothing but the traces of their passing by? (Corpuz, 1997, p. 92)

Parallel to the *Soci dad* is the *R al Compa a de Filipinas* (Royal Company of the Philippines, 1785), which is envisioned to work hand-in-hand with the

*Soci dad*: the former is the administrator of economic programs, while the latter is the policymaker of such programs aligned with the plan of economic reforms. Although again, the presence of the “unchecked” institutions in Filipinas and the significant resistance of the *re l consulado*:

The Spanish conquerors of these islands did not leave Spain to take up the plow in Filipinas; much less did they undertake so long and unknown a voyage to set up looms and transplant new fruits. At the first suggestion of this they would have left the islands, and the archipelago today would be in the hands of another power. ... The Spanish conquerors of these islands did not leave Spain to take up the plow in Filipinas; much less did they undertake so long and unknown a voyage to set up looms and transplant new fruits. At the first suggestion of this they would have left the islands, and the archipelago today would be in the hands of another power. (Corpuz, 1997, p. 92)<sup>15</sup>

In addition, the not-so-promising collection of tributes due to the presence of *corr gimientos*, renegade barangays, corruption, and persistent refusal to reforms<sup>16</sup> provoked Basco to impose additional endeavors that would probably make revenue collection promising. Even Rizal has famously made this scenario in his *El Filibusterismo* (1891):

[T]here was a family that cleared a piece of raw land. The job of cutting down the trees and removing the stumps and stones and brush took years. But after the field was planted and the first harvest ready, the nearby friar hacienda made claim to the land. The family could not afford a court suit, and so the rent was paid. The rent rose every year, from twenty pesos in the first to two hundred pesos in the third. The man of the family was driven to be a tulinan. (as cited in Corpuz, 1997, p. 117)

This is the birth of the famous tobacco monopoly (1782),<sup>17</sup> which continued to operate and send significant revenues even after Basco’s term, and regarded the most long-lived of all the projects of Basco. Even as promising because of its revenue collection, reports of abuses and fraud permitted its demise: later converted in a private venture (in the

same year) as the *Compañía General de Tabacos de Filipinas* (with nickname *Tabacalera*).

Thanks to this enterprise, the economy in Filipinas was significantly “revived.”<sup>18</sup> Between the middle of the 18th century until the initial decades of the 19th century, there was a serious consideration to abandon the colony and just return to Spain (or to be deployed to the other colonies). In the report of former Attorney General Francisco Leandro de Viana (heading the *Réal Consulado*),<sup>19</sup> there was this striking observation that Spain is not benefitting at all from having the Philippines as its colony: constantly draining resources from Mexico through the *real situado*,<sup>20</sup> and the realizations made after the British invasion of Manila in 1762 (to 1764). He also included an alternative plan to rehabilitate the economy of the colony through mostly agricultural enterprises and programs under a liberal regime (Legarda, 1999).

The tobacco monopoly saved the Philippines from this “fate”: reversal of the flow of the *real situado*, which shows an estimate of revenues amounted to 2,263,415 pesos, of which 1,073,153 were remitted to Spain, covering the period 1782–1881 (Corpuz, 1997).

Population recovery coupled with the economic development of the period were all under the eye of the Spaniards. In turn, the friars imposed more religious activities in the name of Christianity, of course to their benefit.<sup>21</sup> Even Rizal was aware of the money-making ambitions of the Spaniards—whether the authorities or the friars—following the mercantilist prescriptions. As Elias speaks in Jose Rizal’s *Noli Me Tangere* (1887).

Do you call those external practices faith? Or that business in cords and scapulars, religion? Or the stories of miracles and other fairy tales that we hear every day, truth? Is this the law of Jesus Christ? A God did not have to let Himself be crucified for this, nor we assume the obligation of eternal gratitude. Superstition existed long before this; all that was needed was to perfect it and raise the price of the merchandise. (as cited in Schumacher, 1991, p. 25)

### **Some Significant 19th Century Philippine Economic History Markers<sup>22</sup>**

Although recovery was promising, Spain had become preoccupied in the next decades in pacifying

civil rebellion brought by internal issues in the monarchy, and also the partial occupation of Napoleon. With what has transpired during and after the British invasion of Manila, fiscal imbalances of the monarchy continued to persist and became worse. These propelled the Spanish administration to modify its economic policies in the colonies, and most especially in Filipinas. The Mexican independence of 1821 contributed to the monarchical pressures of Spain: it had to directly supervise Filipinas with its meager budgetary outlays while managing political affairs in the Iberian peninsula.

A striking feature of the 19th century Philippine economy is shared by most economies of the period: the shift of trade to cash crops.<sup>23</sup> In fact, a number of accounts show that the Philippines have indeed benefitted from such change. However, it is arguable that such shift in economic policy is not purely of Spanish ingenuity—of course grateful for the Americans and the British trade houses, the continuous influx of Chinese from southern China, and other foreign trading partners who constantly bring valuable goods in and out of Filipinas (Schumacher, 1991; de Dios, 2011). This have had helped Spain, perhaps for the first time, that Filipinas is now manifesting economic viability—cash crops—although to the extent of abuses incurred by the promising enterprise of the tobacco monopoly particularly in the last decades of its administration. This is the reason why rice became a primary import initially from a regular export crop, and also due to rice trade liberalization and the availability of Saigon rice (relatively cheaper).

It has been regarded that increase in trade activity is affected by, first, the continuous migration and intermarriage of the Chinese (who have the entrepreneurial skills, and “maneuvered” the clever efforts of the Spaniards to evict them from *pueblós*), and second, the leakage by-product effect of the *real situado* from Manila–Acapulco galleon trade. These two are the main factors to suggest—with the recovery of the population in the 18th century (after a series of natural disasters and health outbreaks)—that made inter-*pueblo*, coastal, and even international trade (in the 19th century) possible. In fact, in this period, exports reached the first one million peso level in 1825 (Valdepeñas & Bautista, 1977), and three million peso level in 1841.

Because slavery was formally abolished in *Las Antillas Occidentales* (Spanish West Indies), sugar

output significantly diminished, thereby forcing the demand to move to the eastern colonies of Spain: the reason why sugar became a major cash crop of the period, although suffered towards the end of the 19th century, due to the plummeting world prices (Legarda, 1999; Hofileña, 2011).

Apart from the increasing trade activity, economic landscape became more complex as institutions were being setup both by authorities and traders to further facilitate, promote, and sustain trade and other economic endeavors in the Islands. Banks were established: the *El Banco Filipino de Isabella II* in 1851 (now the Bank of the Philippine Islands), and the *Monte de Piedad y Caja de Ahorros* (Mountain of Mercy and Savings Bank) in 1862. At this point, the Philippines slowly departed from the use of the Mexican pesos coming from the galleons (and also other currencies circulating from America and Britain).

Transportation and communication also began to diversify, flourish, and improve. As electricity (and the use of coal) was introduced towards the end of the

19th century, trains were introduced, which further facilitated inland trade. Coastal trade also improved: ports were being set up in Visayas (beginning in Iloilo<sup>24</sup> and Cebu and extended to some parts of the provinces of Concepción [now Iloilo], Bohol), although they were not used immediately both by local and foreign traders. Much of the trade still relied on bodies of water since road networks were poorly developed until this period (Corpuz, 1997, some of which were also indicated in the Appendix).

### An Econometric Attempt to Verification

To “validate” such accounts, simple econometric methods were used in existing published data from Corpuz (1997),<sup>25</sup> and some extensions from additional data sources cited in Legarda (1999).<sup>26</sup> Time series data is not complete, thus, the computer software adjusted the data set depending on model requirements.

**Table 1.** Ordinary Least Squares Estimates, 1844–1894

Dependent Variable: Exports, in current prices (million pesos)				
MODEL	1	2	3	4
Regression variables				
Exports at previous period, current prices (million pesos)				0.208998***
Imports, current prices (million pesos)	0.556213*	0.670336*	0.819753*	0.556721*
Imports at previous period, current prices (million pesos)			0.477142*	0.383303*
Export duties	10.22913**	11.82335*		
Number of ships	-3871.450	-10367.21		
Total tonnage	12.82649	19.41089		
Exchange rate (USD to Peso)	-15643014.0***	-5913367.0***	-3504801.0	-497756.1
Percent of exports to Europe	177477.7**	206163.1*		
Percent of exports to Asia	-12386.17	17570.79		
1870 Dummy variable (Suez Canal)			2.404719**	
1870 Dummy interaction variable with imports at current prices			-3.216711*	
Constant term	12535876.0		3421240.0	864520.3
Number of observations	36	36	54	54
Period coverage	1844-1894	1844-1894	1837-1895	1837-1895

Note that MODEL2 uses regression through the origin.

\*coefficient significant at 1%

\*\*coefficient significant at 5%

\*\*\*coefficient significant at 10%

Information from these models is only indicative of signs, not of magnitude. As usual, measurement errors and some other omitted variables may be committed in the process of implementing the econometric methods. Since references are generally in Spanish prose, initial work has been done to process the old literature in the current tabular presentation of data.

We first present an ordinary least squares model (MODEL1), that is, a contemporaneous regression of exports as dependent on imports, export duties, number of ships arriving in Manila port, exchange rate (US Dollars to Pesos), total tonnage per year of all ships, percentage of exports going to Europe, and percentage of exports going to Asia.<sup>27</sup>

In MODEL1, the constant term is nonsignificant, as indicated in the results summarized in Table 1. This may suggest that Spanish trade in the nineteenth century still adheres to the philosophy of the mercantile system. Although both Legarda [1999] and Corpuz [1997]—together with numerous references in nineteenth century Philippine history—have regarded Philippine international trade in its nonrestrictive state (as in the Manila–Acapulco galleon trade), the results of the models may indicate something else. The nonsignificance of the error terms across the four models may suggest that statistically, if there are zero values for the regressors (which include imports), then there will be no exports.

From the mercantile system, we may recall that the reason for exports is due to increase domestic supply of bullion, and also to compensate the costs of imports, i.e., promote positive balance of payments. In addition, from MODEL1, other contemporaneous variables (number of ships, total tonnage, percentage exports to Asia) are nonsignificant. This is in contrast to contemporary literature in international economics where such variable should have some influence on exports.

Another variable—[nominal] exchange rates—plays also a pivotal role in trade determination. From our results, the variable in MODEL1 is only significant at the ten percent level. Nonetheless, the negative sign indicates that the coefficient estimate is consistent with theoretical predictions of economic theory: a depreciated (or devalued) peso decreases value (or volume) of exports.

Statistically speaking, from the models shown above, the main source of variability of exports is imports: possibly that the mercantilist principle

working is to have as much export revenues possible to justify and allow importation expenditures (note that all coefficients of imports in the four models are statistically significant at the one percent level). Although a substantial economics literature and some theoretical investigations show that there are other reasons that may explain export behavior.<sup>28</sup> This may be even attributed to some non-economic factors that may have influenced trade behavior in the nineteenth century. This is shown by the other variables used as regressors, apart from imports. In fact, the intense use of Mexican silver during the Spanish regime facilitated by the Manila–Acapulco galleon trade affected us in the movements of the exchange rates of the nineteenth century, in particular the 1870 adaptation of the gold standard across economies of the world. This is even supported by the findings of Loyola (2013).

Note that a lot of factors should be included in estimating variations of exports in the period considered. However, due to the nature of data collection and recording in this period, the analysis may be limited only on surviving records. In addition, a significant cost of data collection is due to the manner in which the data are retrieved. As an example, Corpuz (1999, p. 184) notes that there was a decline in total trade (both for exports and imports and being the “single most important”) during the period 1870–1872, attributed to the execution of the priests regarding the mutiny of Cavite.

To check this possible implication of the first model, we formulate another model (MODEL2), the same as in MODEL1 except for the constant. The second model showed consistent decision rules (with respect to *p*-values) of the regressors.

From the above discussion on the 19th century political economy, the high significance of the variable on the percentage of exports to Europe may be attributed to the intensification of European trade houses being set up in Manila. Imports focused on textiles and rice, which according to Legarda (1999) is mainly coming from China (a majority of trade in Asia during this period). Hence, the non-significance of the variable on percentage of exports to Asia may be explained by the fact that the dependent variable is exports, since commodities in the export and import portfolio are mutually exclusive (i.e., cash crops for exports, and textiles and rice for imports).

To infer on decision-making behavior of the Spanish administration in Filipinas given past data,



we estimate an autoregressive model AR(1) on exports. The results are summarized in MODEL3. As in MODEL1, the constant term remained statistically nonsignificant. This suggests the same finding as in the previous models: the strong mercantilist framework in the international trade data of the 19th century. However, not that in this AR(1) model, the exchange rate is not significant even at the 20% level.

Apart from the AR(1), we also introduced a dummy variable which checks for a structural break in 1870 (the year after the opening of the Suez Canal). Although the dummy variable itself is significant, it may be argued that the shortening of travel time due to the Suez Canal has an autonomous effect in the export level, as suggested in Figure 1, depicting the graph of exports and imports during the period 1810–1896 (using data from Legarda, 1999). The “spike” in the year 1870 in the graph for exports may suggest this result.

Apart from the dummy intercept, the dummy interaction term (on imports) is also significant. However, note that the negative sign suggests that imports decline over time, as also suggested in Figure 1. Observe that roughly, there is a “tapering-off effect” in the graph of imports in the period 1870–1896. Note that the total effect of the imports coefficient and the dummy interaction variable with imports is  $-2.769591$ . Both variables are significant at the 5% level, indicated in Table 1.

The above are the direct application of Chow’s breakpoint test: the implementation in this model is done manually, since the statistical software does not

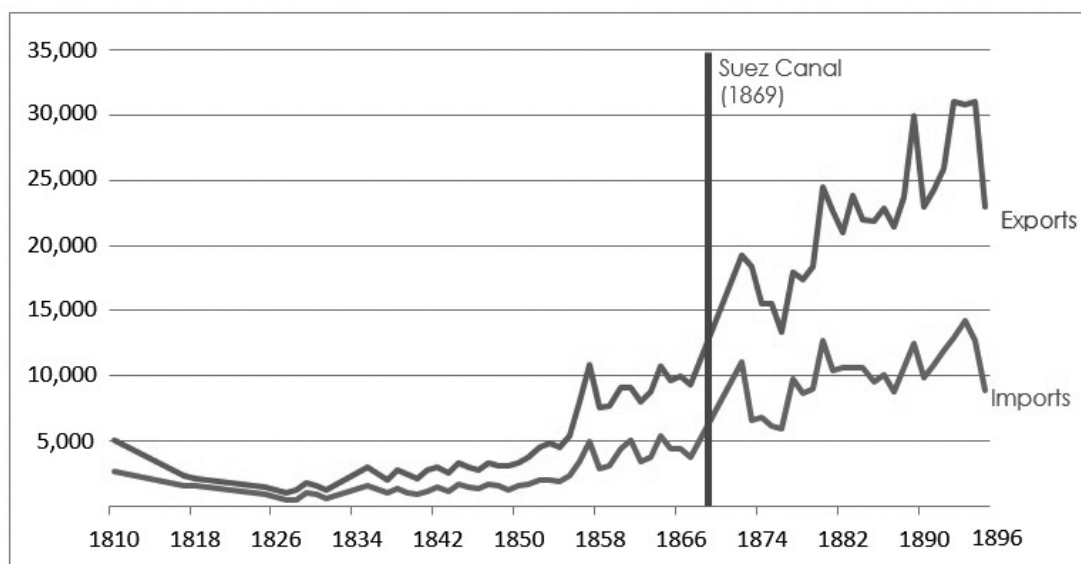
directly give an indication whether there is a structural break with respect to the constant term, or with respect to the slope coefficient (of the imports). Note that in this case, both the dummy constant term and the dummy interaction term (for slope) are both significant, at the usual 5% level.

Included observations are only years with *both* records of imports and exports data, data from Legarda (1999). To further validate the results in MODEL3, we extend the above to an autoregressive distributed lag model (ARDL(1,1)) on exports and imports, respectively. We obtain similar results (in terms of statistical significance, at the usual 5% level) of exports, imports, and the respective lagged variables. The constant term and the exchange rate variable remained nonsignificant.

Observe that in Figure 1, the graphs of exports and imports may suggest non-stationarity (as suggested in Danao, 2013). Since the error terms are assumed to be correlated, we employ an augmented Dickey-Fuller test, but suggested that no unit root exists at the 5% level of significance. Although the graph of exports previously suggests a presence of a unit root, it would still be best to validate this claim using the prescribed statistical tests.

Note that Figure 1 may suggest the findings in MODEL1, that is, regression through the origin; relative to the Chow breakpoint test results showing the importance of the Suez Canal beginning 1869.

In MODEL4, lagged exports is statistically significant only at the ten percent level, while



**Figure 1.** Exports and imports in thousand pesos (current prices), 1810-1896.

imports and lagged imports remained significant at the one percent level (as in MODEL3). Note also the decline in magnitude of coefficient estimates from MODEL3 to MODEL4. This may be attributed to the inclusion of a lagged variable on exports in MODEL4.

It would be also of importance in determining possible considerations (in deciding economic policies on exports and imports) to consider differences instead of level data. Initially, a first differencing is done on exports and imports, replacing the level data as in MODEL4, and the ordinary least squares estimation results (referred to as MODEL5) are given in Table 2.<sup>29</sup>

Comparing MODEL4 and MODEL5, imports and lagged imports remained significant at the one percent level. Also, the exchange rate variable and the constant term remained nonsignificant (even at the ten percent level). Moreover, note the sign reversals of these estimates from MODEL4 to MODEL5. This may be due to the change in the data used in exports: from level data to differenced data.

Regarding exports, note that the differenced data in MODEL5 proved more statistical significance (at the one percent level), relative to the estimates using level data in MODEL4 (at the ten percent level). This may suggest that statistically, the information on changes in annual export value matters more than the annual total value of exports over time.

Note the differences in accounted observations in across the five models. This is due to the model specifications of each regression model, and we have to take into account only years where all variables have data. More particularly, it is in the period 1844–1894 where more data have been recorded given the above variables. Such adjustments are performed automatically by the statistical software.

It is important to note that in all of the regression models, due to the nature of the recording of data during the nineteenth century in Filipinas, we only attempt to correlate the results with the narratives of the era, especially on describing trade liberalization. Despite such limitations in adequate recording, this paper tries to give an alternative perspective through elementary econometric methods in describing economic conditions—particularly trade liberalization—in the nineteenth century.

Finally, data on gross domestic product for the period will require so much work which is beyond the coverage of the paper. Such limitation is posed given the use of gravity models pioneered by Tinbergen (1962), and with modifications presented in Reinert (2013). For this reason, the econometric models presented are much limited to variability, and not on intensity of trade.

### **Agricultural Booms, Macroeconomic Policy, and the Mercantilist Framework**

Do the above evidence suggests that it is indeed way back to the Spanish era in which the “notorious” colonial mentality of Filipinos to date were originally incepted? Or is this cultural phenomenon of “pure” American (Republican) origin?

It has been consistently argued by various sources that much of the influx of imports was attributed to address the increasing demand due to improvement in pueblo life (Corpuz, 1997; Schumacher, 1991). Elementary economics would always suggest that a shortage in local demand always justifies imports. In response, this further benefitted not only the local economy, but fueled the “promise” of being a trade

**Table 2.** *Ordinary Least Squares Estimates, 1844–1894*

Dependent Variable: Differenced exports, in current prices (million pesos)	
MODEL	5
Regression variables	
Differenced exports at previous period, current prices (million pesos)	-0.334063*
Imports, current prices (million pesos)	0.532400*
Imports at previous period, current prices (million pesos)	-0.424987*
Exchange rate (USD to Peso)	4849387.0
Constant term	-5369197.0

\*coefficient significant at 1%

hub in Southeast Asia (although later exploited by the Americans):

The flowering of the nationalist movement in the late nineteenth century could scarcely be possible without the economic growth which took place in the nineteenth century Philippines, particularly about 1830. The growth of an export economy in those years brought increasing prosperity to the Filipino middle and upper classes who were in a position to profit by it, as well as to the Western—chiefly British and American—merchants who organized it. It also brought into the Philippines both the machinery and the consumer goods which the industrialized economies of the West could supply, and Spain could not, or would not supply. (Valdepeñas & Bautista (1977), as cited in Schumacher, 1991, p. 17)

From the above, it may be imperative that much of the “internationalization” of Philippine trade in the 19th century have become a mix of factors dominated by the Industrial revolution movements from Britain and America, complemented with the entrepreneurial skills of the Chinese and their maneuvers of the Spanish edicts (seeing them as competitors in their staged economic enterprises). Williamson and de Dios (2014) also have argued that the general economic movements of the 18th and 19th centuries—especially in Europe—paved way for such spillovers in the Philippines:

World economic history since 1800 has largely been one of how the international economic system adjusted to the dramatic asymmetric shock that was the Industrial Revolution. The transition to modern economic growth created a system that was lop-sided in the extreme. The new energy-intensive manufacturing technologies originated in Britain, and spread with a short lag to western continental Europe and North America. ... This comparative advantage was increasingly realized across the 19th century, as ocean freight rates declined, the Suez Canal opened, as railroads linked port to interior, as world peace prevailed (*pax Britannica*), and as trade-fostering gold standard regimes flourished. The result was an exchange of manufactures from what we will call the industrial core for commodities from what we

will call the poor periphery. This exchange posed both challenges and opportunities for the periphery. It allowed the periphery to expand its commodity exports greatly, and to enjoy a steeply-rising terms of trade. (p. 2)

Although late and arguable, these economic innovations are generally not of Spanish intellectual origin, objective, and intent [as earlier mentioned]. However, de Dios (2011, p. 63) argued that it is not a different set of economic policy, compared from the “traditional” mercantilist framework of the 16th and 17th centuries:

The dichotomy between Spanish and British colonial policy during the period of the galleon trade was not between free trade and mercantilism but between two types of mercantilism. ... On the other hand, Britain, though not less mercantilist in the past, had no access to such “treasure,” so mercantilism in its case needed to take the form of an aggressive export- and production-promotion policy both at home and in its colonies as a means of conserving and hoarding bullion.

This mercantilist framework may be the reason for the perpetuation “export-orientedness” of the Philippine economy, even until the present. However, the positive trade balance was only realized at the beginning of 19th century, far from the objectives of creating the Manila–Acapulco Galleon trade. This perspective of international relations is also a manifestation of the agricultural boom in the period coupled with the effect of the opening of the Suez Canal, and the macroeconomic forces (on gold and silver depreciation towards the end of the century).

More particularly, this is an observation posed by Boncan (2012), as mentioned in the earlier section of this paper: the imitation of Spaniards to other successful international trade models of the nineteenth century. This explains the shift of trade from “low bulk, high priced” (as in the Manila–Acapulco galleon trade), to the “high bulk, low priced” (the emergence of the “cash crops”). In addition, this paved way for the significant documentation of methods of agriculture and forestry, taxonomy of flora and fauna, geography and the environment, and other pertinent documents that will guide the administration of the planned expansion in international agricultural trade.<sup>30</sup> In addition, such is

being shared Schumacher (1991, p 18), that economic development in the nineteenth century had largely come from “non-Spanish initiatives.”

Note also the particular role of the opening of the Suez Canal, as indicated in the Chow’s breakpoint test in MODEL3. A lot of histories on nineteenth century indicated the pivotal role of this infrastructure. In particular, observe that the dummy term has an estimate of 2.404719 (significant at the five percent level), while the dummy interaction term has an estimate of  $-3.216711$  (significant at the one percent level). A new insight may be gleaned from such result: statistically, the infrastructure of Suez may have increased level exports initially, but such effect decreases over time, as reflected by the dummy interaction term estimate.

Other benefits of the Suez Canal were also enjoyed by Filipinas, affecting to some extent the trade movements of the century. Firstly, travel time from Manila to Madrid was greatly reduced from three to six months to about one month, which facilitated the more frequent trips of the *illustrados* during the latter part of the century (Foreman [1899:285]). Second, there as notable sharp increase in vessels sailing the Suez Canal: from 1,000 in its opening in 1879 to an estimate of 11,000 the following year.<sup>31</sup>

However, one downside is seen in MODEL4 and MODEL5, which suggest a myopic economic planning from the end of the economic managers. Although it can be contested if there was a planning authority from the Spaniards in terms of trade and trade relations, the mercantilist framework may seem to creep in the decision-making behavior in trade. Data suggests that exchange rates are not significant, that is, using a “volume-over-value” rule of thumb. This may also be affected by the gold standard of 1870. However, Legarda (1999, p. 336) provided some macroeconomic insights on such policy:

Another outside force was the depreciation of the Mexican silver peso, which had been used in the Philippines and Asian trade for centuries, starting in the 1870s. As has been seen, this did not affect exchange rates (based on bills of exchange) until the early 1880s. It was singularly ineffectual in accomplishing what depreciations should, namely, stimulating exports and restraining imports, although it may have helped sugar weather the depressed mid-1880s. ... It has also been seen how major Philippine exports were in the grip of cyclical

forces and structural changes in demand at the time, beside which exchange rate effects were puny. ...

Internally, the effects of silver depreciation were ambiguous, with leading foreign merchants testifying later before the Philippine Commission that the the common people in effect operated under a money illusion and that a move to a gold would be inadvisable.

Also note that this agricultural boom benefitted the colony: beginning from the London Universal Exposition Gold medal in 1851 for tobacco, and the boom of the sugar industry in this century.

In the tobacco monopoly, as early as 1772, it was already remitting 150,000 pesos to Spain, and up to 300,000 pesos towards the end of Basco’s term. Moreover, such monopoly proved lucrative due to the “persistent and exorbitant demand of Philippine tobacco in Spain. To some extent, Filipinas was made to fulfill a quota to Spain (de Jesus, 1980). This is also true in the Manila–Acapulco galleon trade, indicated by the mechanics of delivering the goods from the colony to the Iberian peninsula.<sup>32</sup>

However, a crisis happened during 1880s: world prices of sugar became low, pressuring friar haciendas to keep up with revenue targets and creating another round of tensions with the natives.<sup>33</sup>

Whether this has been mainly driven by American thought or not, the Spaniards had a clear plan of making the colony dependent on their implanted institutions. With the Chinese demographic movements, the Philippine experience particularly in the 18th up to the 19th century has been peculiar relative to other Asian colonial experiences. In de Dios (2011, p. 63), he cites the famous idea from North and Thomas (1973):

[S]pain’s industrial undoing lay in its monopoly access to the rich gold and silver mines of Mexico and Peru, which constituted a booming sector phenomenon (today called the “Dutch Disease”). This circumstance allowed Spain to draw virtually at will from huge reserves of what was then effectively a global currency, permitting its rulers to support extravagant consumption levels without bothering about production, either at home or in its colonies. This Dutch Disease led to the discouragement of Spain’s own industry and agriculture, in a kind of “hollowing-out.”

However, institutional factors and global events have contributed much to the general composition of Philippine imports and exports. Undeniably, the boom of the export agriculture economy and the improvement of the domestic economy paved way for such composition: exports mainly composed of sugar, tobacco, and manila hemp (abaca) while imports were textiles (mostly cotton), and later, rice. This in fact is another manifestation of economic development patterns, as being anticipated by the classics. In addition, in the epilogue of Legarda (1999, p. 334),

[Agricultural trade liberalization] was not necessarily bad in itself; the market for Philippine products had expanded greatly since the 1820s, and in line with Adam Smith's teaching that the extent of the market determines division of labor, a reconfiguration of economic factors resulted in growing occupational and regional specialization.

It is also notable that economic diversification falls short than that of Spain's counterparts: United Kingdom, the United States of America, and Germany. Continuous decline as a superpower, Spain had also "neglected" the need to diversify economic institutions, owing to its urgent need to replenish finances and pay its outstanding debts (Cameron & Neal, 2003).<sup>34</sup> More than a hundred years have passed, and this is still an apparent character of the Philippine economy. Modern economic development analysis of the Philippines has stressed this "special" experience of the Philippines relative to its neighbors:

In part because the grantor of independence [in 1946] was a rising superpower—not a declining European power, as elsewhere in Southeast Asia—it was especially difficult for the Philippines to emerge as a truly sovereign nation. ... The status of the Philippines, first as a colony and then as a post-colonial client of the United States, effectively insulated it both from the need to guard against external threat and (because of a steady flow of external resources) from the need to develop a self-sustaining economy. (de Dios & Hutchcroft, 2004)

Although modern economic theory suggests a variety of reasons why the Philippines in terms of trade and institutions have the present form (e.g., Sicut,

2015), a lot of possible reasons have been offered by economic historians and scholars of Philippine economic development. Such peculiar development trajectory of the Philippines—called by de Dios and Williamson (2015) as "deviant [industrialization] behavior"—can be traced back as early as the American period. But (e.g., with accounts Corpuz (1997) has offered in his work), the decision of the Americans to retain some of the existing Spanish-founded institutions (plus the creation of some other policies "special" for the Philippine as its new colony) may possibly explain that such "glorification" of imported consumables may be partially due to the social experience of the Philippines under Spain.<sup>35</sup>

As mentioned in the discussion of the econometric models, as much as we would want an adequate set of explanatory variables, such is limited to a great extent by the surviving records that we have today. The problem is exacerbated more by the manner to which scholars get access to these materials. For this major reason, contemporary econometric methods may not fit well to describe statistically historical events, particularly in this case.

Even with these limitations, economic historians—including the attempt done in this paper—experience a great deal in reconstructing the past through the use of these method and analysis.

It is undeniably obvious that knowledge in history is important, and necessary, for the previous errors will not be committed again. More so, past experiences and difficulties should have shed some light and insight in how current economic policies must be formulated and implemented, while institutions continue to adapt and evolve given an array of socioeconomic and political factors. From the pedagogical reasons of Schumpeter (1954) up to the uniqueness of experience of the Philippines as in Corpuz (1997), the roots of our institutions relevant to trade and international relations needs to be continuously revisited. Finally, it is always a painstaking work to reconstruct history from the perspective of economics, given limitations in data, archives, and the contemporary theory being used in literature. (Davis, 2013; Blaug, 2001). Nonetheless, the archival work done in secondary sources may perhaps shed a different perspective on such reconstructions in Philippine economic history.

## Notes

- <sup>1</sup> Bassino and Williamson (2015) noted that this “de-industrialization” phenomenon in Southeast Asia in the 19th century cannot be analyzed extensively because of the sparse economic data available across the region.
- <sup>2</sup> For a list of events, see the Appendix.
- <sup>3</sup> Diamond (1999) presented some anecdotal evidence on the influence of Chinese technology in the medieval period to the ethnic regions in Southeast Asia—the Philippines in particular—through its constant migration and trade activities in the region.
- <sup>4</sup> Some examples were the revisions made in the *polo y servicios* (reduction from 40 days to 15 days but for all citizens of Filipinas), and the *cedula personal* mandated to all citizens of Filipinas (de Dios, 2011).
- <sup>5</sup> Corpuz (1997) described the functions and jurisdiction of this board as “all-powerful.”
- <sup>6</sup> Legarda (1999) described this major Spanish trade enterprise as the longest shipping line in history.
- <sup>7</sup> *Digression concerning the variations in the value of silver during the course of the last four centuries* (Smith, 1776).
- <sup>8</sup> Although various interpretations of mercantilism as a system of ideas have been proposed by economic historians, experiences of economies and economic units across Continental Europe in the 15th and 16th centuries have made such perspective uneven, but gearing towards particular national objectives (Cameron & Neal, 2003).
- <sup>9</sup> de Dios and Hutchcroft, in *Chapter 2: Political Economy*, in Balisacan and Hill (2004).
- <sup>10</sup> Andres Bonifacio—the leader of the secret society Katipunan founded in 1892—traces back his influences from these readings of documents about the political and historical movements in Europe during the seventeenth and eighteenth centuries. For a discussion, please see Schumacher (1991), *Chapter 9: Economic Factors in the Revolution*.
- <sup>11</sup> Usually, a governor general has a term of three years, which may be cut or extended by the Spanish King or corresponding authorities as recommended by the monarchy. Cushner (1971) pointed that due to the relatively unstable political affairs in Madrid (affecting the colonies, and later the political economy of the monarchy), a governor general in the nineteenth century ruled on an average of eighteen months.
- <sup>12</sup> In 1675 Alvaro Nuñez de Castro accounted that this rise of Spain made her to be regarded in Europe as the superior power: “the queen of the parliaments” (in Cipolla, 1993).
- <sup>13</sup> Cushner (1971) called this process a “transplantation of institutions,” although they were successful in Madrid, these were bound to fail in Manila.
- <sup>14</sup> Sometimes referred to as the *Sociedad Economica de Manila* (to give disambiguation from the same economic society in Madrid).
- <sup>15</sup> *Memorial of Basco to Governor General Pedro de Sario by a body of Manila Spaniards composed of both traders and non-traders* (in Corpuz, 1997).
- <sup>16</sup> Tomas de Comyn noted in 1820 that Spaniards have, generally, problems in dealing with the natives, especially on lands intended for agriculture.
- <sup>17</sup> Argued by economic historians that have been approved despite of being patterned to an existing tobacco monopoly in Mexico which is also sending significant revenues to Spain. Monopoly formally ended in 1882, with its marker in Aurora Park, Laoag City, Ilocos Norte.
- <sup>18</sup> This revival is the reversal of the flow of the *real situado*: Manila now started to send revenues to Madrid, from the previous experiences the Spanish crown is experiencing via the galleon trade. In addition, the species of tobacco planted garnered a London Universal Exposition gold medal prize in 1851, which led to the creation of the Isabela province in 1856 (in honor of Queen Isabella II). Corpuz (1997) attributed this high quality tobacco to the good soil in plantation areas, as far as Ilocos and Cagayan Valley areas.
- <sup>19</sup> In *Démonstración del Misero, Deplorable Estado de las Filipinas* (Demonstration of the Deplorably Wretched State of the Philippine Islands [1765]), although such considerations began as early as 1621 (see Blair and Robertson, 1906).
- <sup>20</sup> Annual fund sent by the Spanish Empire through the Viceroyalty of Mexico in terms of Mexican silver (pesos), used to fund expenditures in Filipinas, through the Manila–Acapulco galleons.
- <sup>21</sup> Some were studied and even documented practices until today, in Yengoyan and Makil (2004). Corpuz (1997) noted that such practices were not beneficial for the economy, as it imposed some forced off days of work (a form of some tax on labor and productivity, which is estimated to be 120 days in a year).
- <sup>22</sup> Substantial accounts sourced from Corpuz (1997) and Legarda (1999).
- <sup>23</sup> Nineteenth century in Southeast Asia was dominated by the European colonial powers under their respective merchant–sovereign names: the Spanish

East Indies, the Dutch East India Company, the French Indochina, and British East India Company.

<sup>24</sup> Note that Iloilo is an important Spanish settlement as early as 1570: it became the “base of the troops of Legazpi before commanding Martin de Goiti to pursue explorations and eventual occupation of Manila. Chinese settlements have also been significant—next to Binondo in Manila (in Molo)—where the “pancit molo” was said to have obtained its name.

<sup>25</sup> *Censo de las Islas Filipinas* (1903), from 1831 to 1899.

<sup>26</sup> Note that a similar coverage for the time series can be obtained in Legarda (1999) but in current value pesos.

<sup>27</sup> It has been consistently mentioned in sources that the bulk of Asian trade is participated by China, and the bulk of European trade by the United Kingdom. Legarda (1999) provided a more detailed discussion on particular regions, especially exports bound to Mexico (and eventually to Spain), and imports coming from Spain.

<sup>28</sup> From the statistical results, performing a first differencing have substantially reduced the *p-values* of the constant term (compared with MODEL4 results in Table 1), and the exchange rate, suggesting that level data per se may not be important in external economic policies of the period, but on the differences between current and previous level data. A second differencing was done to validate this observation (although not reported in the paper), suggesting otherwise. Further differences do not lead to smaller *p-values*; moreover, some of the regressors become statistically nonsignificant at the five percent level.

<sup>29</sup> See Boncan (2012) for an enumeration of various documents of the nineteenth century on agriculture, forestry, environment, and geography.

<sup>30</sup> *Boletín de la Real Sociedad Económica de Amigos del País* 3 no. 4 (01 Aug 1844), reported in Recur (1879) and cited in Legarda (1999).

<sup>31</sup> Details can be found in Legarda (1999), in Chapter 2.

<sup>32</sup> Hofileña (2011): *Dark clouds over Calamba*. The inquilino class in the Calamba Hacienda endured the wrath of such policies by the Dominicans, of which the Mercado family of Jose Rizal bore witness.

<sup>33</sup> Hofileña (2011) noted that contributed to these struggles of 19th century Spain were the increasing costs of maintaining relatively distant colonies: one by one gaining independence. This is evidenced by the attitude of Spain “grudgingly” sold (the Philippines) to the Americans as “supervised” by the Holy See.

<sup>34</sup> A sociological phenomenon that Hunter (2007) correlated to the historical experiences of the Philippines is shared by the other peoples of Asia: high regard for fair skin (relative to the nonwhite skin tones). This is a possible indication of how Filipinos are “educated” and should regard themselves as “second class citizens” relative to the Europeans, in particular the Spanish *péninsularés* (and later the *insularés*).

<sup>35</sup> This is in Corpuz (1997); however, de la Costa (1967) cited that reduction is from 40 days to 15 days per year.

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**Appendix:****Some Historical Markers of 19th Century  
Philippine Political Economy**

- 1746 Earliest recorded proposal on trade expansion, economic diversification, and development, by Richard Bagge, an Irish Pilot in the Manila–Acapulco galleon trade.
- 1778 Jose Basco y Vargas Valderrama y Rivera became governor general of the Philippines (28 July).
- 1779 Creation of the “general economic plan” by Governor General Basco (17 April).
- 1781 Establishment of the *Soci dad Econ mica de Amigos del Pa s*: the “voice of love for the Motherland”—a body that would generate ideas for projects that are practical and for economic development (primarily export-oriented-ness towards Spain and continental Europe).
- 1782 Establishment of the tobacco monopoly.
- 1783 *Re l situado* virtually ended.
- 1784 Issuance of two royal decrees: on liberalization of intra-provincial trade, and liberal terms of tenure for native farmer families (with respect to cultivated lands assigned by the *Recopilaci n*).
- 1785 Establishment of the *R al Compa a de Filipinas*: tasked to subscribe funds that would implement the projects and the ideas of the *Sociedad*.  
Manila was opened to more traders from Asian neighbors.
- 1787 Regulation of the libre comercio (Oct 12), which opened trade of Spanish Indies to ports besides Cadiz and Sevilla (the principal ports of the Manila–Acapulco galleon trade)
- 1789 Manila was opened to more traders from Europe and America, but initially utilized by Asian shipping merchants.
- 1808 Napoleon Bonaparte (also known Emperor Napoleon I) and his forces began to partially occupy Spain, which created conflict to the former ally.
- 1809 First English (United Kingdom) trade houses set up in Manila port.  
Spain converted colony possessions to provinces, in particular, Filipinas became a province of *Espa a en Ultramar*, government called *Superior Gobierno*, under the *Ministerio de la Ultramar*.  
Ratification of the Cadiz constitution establishing the *Cortes G nerales*.
- 1813 Last galleons depart from Manila to Acapulco.
- 1815 Last galleons to arrive in Manila from Acapulco, marking the official end of the galleon trade.
- 1820 Publication of the *Estado de las Islas Filipinas en 1810* by Tomas de Comyn, which is intended to present a general administrative plan of the colonial government for economic prosperity Liberation of Mexico from Spain: colonial affairs in Manila directly supervised by the Spanish crown.
- 1825 Value of Philippine exports reached one million peso level.
- 1828 Creation of a board of appraisers.  
Royal decree effected the formal administration of *Espa a en Ultramar*; *R al Compa a de Filipinas* officially closed; creation of a board of appraisers which determined the basis of *ad valorem* taxes on imports.  
Thirty-nine merchant houses were already setup in Manila (by French, American, and British traders).
- 1835 Manila officially became an international port with no restrictions (censorship of goods, and other customs duties).
- 1841 Value of exports (dominated by “cash crops”) reached the three-million peso level.  
Alcaldes were officially banned from participating in any form of trade.
- 1850 Royal decree requiring budgetary plans to be submitted by Manila government to Madrid.
- 1851 First bank opens, the *El Banco Espa ol Filipino de Isabella II*.  
High-quality tobacco leaves obtained in Cagayan Valley recognized and awarded the London Universal Exposition Gold Medal: later creating the province of Isabela.
- 1855 Iloilo port opens, but first ship docked only in 1859.

- Sual [Pangasinan] port opens, catering to rice importation from China and transportation of goods from the north to Manila port.
- 1861 Establishment of the *Réal Casa de la Moneda y Timbre de Manila* (The Manila Mint) by virtue of a royal decree, which made the first coins inscribed with “Filipinas.”
- 1869 Suez Canal (in Egypt) opens: trade becomes more efficient, travel time between Manila and Madrid reduced from three months to one month.  
Reduction of the *polo y serviciós* from 40 days to 24 days (but applicable to all citizens of Filipinas, whether Spanish or natives).<sup>35</sup>  
Cebu port opens.
- 1870 Global economies adapt the gold exchange regime.
- 1871 Extension of cable services from Manila to Hong Kong.
- 1872 Establishment of telegraph services from Manila to Bicol, and later to Ilocos, a year later.
- 1873 Direct steamship service inaugurated (Manila–Madrid) via Suez Canal.
- 1874 Spain established the *La Intendencia General de Hacienda*, led by an *inténdente* appointed by the Spanish King to oversee economic and political affairs of Filipinas under *España en Ultramar*, and also to make political functions efficient (e.g., taxation, customs and trade administration, public works).
- 1876 Spanish restoration—the First Spanish Republic—which founded a constitutional monarchy.
- 1880 (to 1914) The “classical gold standard regime” of the world, where a significant number of economies around the world used the gold standard as the basis of the value of currency in circulation.
- 1882 Abolition of the tobacco monopoly, replaced by the Spanish–French private venture, the *Compañía General de Tabacos de Filipinas*.  
The first savings bank was founded—*Monte de Piedad y Caja de Ahorros*—by virtue of a royal decree, funded by *obras pias* (same as in *El Banco Español*) through the efforts of the Franciscan Fray Felix Huertas.
- 1884 Tribute payments were replaced by *cédula personal*, an identity document.
- 1887 First “serious” population count: the only comprehensive census of population during the Spanish Era.
- 1888 The first *tranviás* (steam-driven tramways) appeared in Manila as a means of transportation, supervised by the *Compañía de los Tranviás de Filipinas*, from the horse-drawn tramways appeared earlier this year.
- 1890 *La Fabrica de Cerveza de San Miguel* was set up, organized by virtue of a royal decree, regarded as the first brewery in the Philippines.
- 1892 Manila–Dagupan railway begins operations (November 24), after construction since 1887 (from a royal decree in 1875).
- 1895 First electric service (utilities) in Manila: the Manila Electric Company.
- 1898 The famous (but the second, involving Philippines) *Treaty of Paris* (10 December): Spain accepted twenty million dollars payment from the United States of America as payment for the sale of Filipinas (with forceful inclusion of Mindanao) and marks the official end of Spanish dominion in the Philippines.

**Appendix B:****Econometric Tests, Ordinary Least Squares (full report for Tables 1 and 2)**

Dependent Variable: EXPORTS **MODEL1**  
 Method: Least Squares  
 Included observations: 36 (1844–1894)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12535876	10533111	1.190140	0.2440
IMPORTS	0.556213	0.178431	3.117241	0.0042
DUTIES	10.22913	4.312453	2.371997	0.0248
SHIPS	-3871.450	12387.95	-0.312517	0.7570
TONNAGE	12.82649	13.82907	0.927502	0.3616
EXCH	-15643014	8866959.	-1.764192	0.0886
PCXEU	177477.7	70346.00	2.522925	0.0176
PCXAS	-12386.17	54065.04	-0.229098	0.8205
R-squared	0.928813	Mean dependent var		17662431
Adjusted R-squared	0.911016	S.D. dependent var		8954086.
S.E. of regression	2671015.	F-statistic		52.19011
Sum squared resid	2.00E+14	Prob(F-statistic)		0.000000

Dependent Variable: EXPORTS **MODEL2**  
 Method: Least Squares  
 Included observations: 36 (1844–1894)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IMPORTS	0.670336	0.151551	4.423167	0.0001
DUTIES	11.82335	4.128463	2.863862	0.0077
SHIPS	-10367.21	11200.35	-0.925615	0.3623
TONNAGE	19.41089	12.76486	1.520650	0.1392
EXCH	-5913367.	3458054.	-1.710027	0.0979
PCXEU	206163.1	66560.85	3.097363	0.0043
PCXAS	17570.79	48190.53	0.364611	0.7180
R-squared	0.925212	Mean dependent var		17662431
Adjusted R-squared	0.909739	S.D. dependent var		8954086.
S.E. of regression	2690124.			
Sum squared resid	2.10E+14			

Dependent Variable: EXPORTS

**MODEL3**

Method: Least Squares

Included observations: 54 (1837–1895)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3421240.	2897091.	1.180922	0.2435
IMPORTS	0.819753	0.112907	7.260454	0.0000
IMPORTS(-1)	0.477142	0.105691	4.514489	0.0000
EXCH	-3504801.	2763092.	-1.268434	0.2108
DUM1870	6788133.	2822838.	2.404719	0.0201
DUM1870*IMPORTS	-0.546039	0.169751	-3.216711	0.0023
R-squared	0.950610	Mean dependent var		12651677
Adjusted R-squared	0.945465	S.D. dependent var		7763124.
S.E. of regression	1812900.	Akaike info criterion		31.76319
Sum squared resid	1.58E+14	Schwarz criterion		31.98419
Log likelihood	-851.6062	Hannan-Quinn criter.		31.84842
F-statistic	184.7709	Durbin-Watson stat		1.582201
Prob(F-statistic)	0.000000			

Dependent Variable: EXPORTS

**MODEL4**

Method: Least Squares

Included observations: 54 (1837–1895)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	864520.3	2666750.	0.324185	0.7472
EXPORTS(-1)	0.208998	0.107846	1.937923	0.0584
IMPORTS	0.556721	0.106604	5.222309	0.0000
IMPORTS(-1)	0.383303	0.129357	2.963144	0.0047
EXCH	-497756.1	2400137.	-0.207387	0.8366
R-squared	0.942397	Mean dependent var		12651677
Adjusted R-squared	0.937695	S.D. dependent var		7763124.
S.E. of regression	1937752.	Akaike info criterion		31.87998
Sum squared resid	1.84E+14	Schwarz criterion		32.06414
Log likelihood	-855.7594	Hannan-Quinn criter.		31.95100
F-statistic	200.4134	Durbin-Watson stat		1.714321
Prob(F-statistic)	0.000000			

Null Hypothesis: EXPORTS has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=10)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-1.353072	0.5983
Test critical values:		
1% level	-3.557472	
5% level	-2.916566	
10% level	-2.596116	

\*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(EXPORTS)

Method: Least Squares

Included observations: 54 (1837–1895)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXPORTS(-1)	-0.068494	0.050621	-1.353072	0.1819
C	1273433.	730585.8	1.743030	0.0872
R-squared	0.034010	Mean dependent var		436790.7
Adjusted R-squared	0.015434	S.D. dependent var		2881872.
S.E. of regression	2859547.	Akaike info criterion		32.60656
Sum squared resid	4.25E+14	Schwarz criterion		32.68022
Log likelihood	-878.3771	Hannan-Quinn criter.		32.63497
F-statistic	1.830804	Durbin-Watson stat		2.471947
Prob(F-statistic)	0.181886			

Dependent Variable: D(EXPORTS)

**MODEL5**

Method: Least Squares

Included observations: 52 differences (1837-1895)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5369197.	3396328.	-1.580883	0.1206
D(EXPORTS(-1))	-0.334063	0.121631	-2.746529	0.0085
IMPORTS	0.532400	0.137222	3.879837	0.0003
IMPORTS(-1)	-0.424987	0.147587	-2.879565	0.0060
EXCH	4849387.	3066925.	1.581189	0.1205
R-squared	0.362577	Mean dependent var		304021.1
Adjusted R-squared	0.308328	S.D. dependent var		2790307.
S.E. of regression	2320609.	Akaike info criterion		32.24377
Sum squared resid	2.53E+14	Schwarz criterion		32.43139
Log likelihood	-833.3380	Hannan-Quinn criter.		32.31570
F-statistic	6.683597	Durbin-Watson stat		2.068316
Prob(F-statistic)	0.000241			