

The Sustainability of Empire in
Global Perspective: The Role of International
Trade Patterns

Roberto Bonfatti

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Abstract

European empires had two key economic aspects: the extraction of colonial wealth by colonizers, and the relevance of trade for the colonial economies. I build a simple model of decolonization that puts these two elements at centre stage. By controlling policy in the colony, the mother country can appropriate part of her wealth; the colony, however, can stage a successful revolution at a stochastic cost. I incorporate this mechanism in a three-country, two-good trade model where countries (the mother country, the colony and a third independent country) can decide whether to trade with each other, and revolution is expected to generate trade frictions between the mother country and the rebel colony. Thus, the attractiveness of revolution and the sustainability of empire come to depend on the capacity of the rebel colony to access international markets, which, in turn, depends on the economic fundamentals that shape the pattern of trade as well as the optimal trade policy of the third country. I present detailed historical evidence showing how to use this model to put a few important cases of decolonization in global perspective. My results have important implications for the debate on the economic legacy of colonial empires.

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Keywords: colonial trade, decolonization, international determinants of secession, American Revolution, independence of Spanish and Portuguese America.

Roberto Bonfatti
Department of Economics
Oxford University, OxCarre
Oxford / United Kingdom
roberto.bonfatti@economics.ox.ac.uk

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1 Introduction

One of the striking political and economic changes of the twentieth century was the almost complete elimination of colonial power. This has naturally precipitated a large debate about the legacy of colonialism for contemporary development experiences. This has been invigorated recently among economists by the empirical study by Acemoglu, Johnson and Robinson (2001) linking settler mortality to current prosperity.

To understand the legacy of colonialism, it is important to understand the forces that led to its rise and decline. This paper studies one central aspect of this - the influence of trade. The paper begins from the observation that trade between colonial states and colonizers was at the centre of colonial relationships, and a source of benefit to the colonial power. But this must be seen in the context of a global equilibrium that shapes alternative sources of trading opportunities open to the colony, which, in turn, shape the incentive to rebel and hence the sustainability of colonial power. The paper sets up a model to make these ideas precise and then relates it to the experience of decolonization in some parts of the world. It argues that the economic fundamentals that shaped the pattern of trade are key to understanding the historical experience. While particularly relevant to the case of European empires, the paper has broader implications for the study of regional secession in a global perspective.

One characteristic that, with varying intensity, was common to all European empires, was the importance of trade for the colonial economies. Soon after conquest, colonies were encouraged (or forced) to re-orientate their economy toward the production of tradable goods that could be consumed in the mother country, or sold on international markets.¹ Over time, this trade became a source of prosperity for important colonial groups (both of European and of indigenous descent), who owned some of the export-generating assets and consumed manufactured goods produced in Europe. At the same time, it was a key source of gain for the mother country, who appropriated part of the value of colonial produce through a series of taxes and restrictions.² This redistribution of the gains from trade was often at the heart of the colonies' discontent with colonial power.

Trade did not only determine the wealth of colonies, however, but also the cost for them of a conflictual separation from their empire. For their size and economic importance, colonial empires were key export and import markets for individual colonies. Since it could be expected that a conflictual separation would compromise access to these markets (because of sanctions, or the deterioration of colonial trade links), revolution had a cost in terms of the worse terms of trade that a colony could hope to obtain after becoming independent. This terms-of-trade cost

¹In some cases (e.g the Peruvian and Mexican gold and silver), these goods has been produced before colonization. In others (e.g. the Azores' sugar) production was implanted by colonizers.

²In many colonies, residents of the mother country also owned a sizable portion of the export-generating colonial assets.

of revolution affected the balance of power between the colony and the mother country, and thus the sustainability of colonial power. In this paper, I study how the terms-of-trade cost of revolution depended on the pattern of colonial trade, and on the economic fundamentals that determined it.

I construct a model that relates the pattern of colonial trade to the balance of power between a colony and her mother country. This is a simple 3-country, 2-good trade model, where the colony sells good x to the mother country in exchange for good y , and there is a third country who may be a net exporter of either x or y depending on economic fundamentals. A natural interpretation of x and y is “raw materials” and “manufactures”, but this interpretation is not exclusive. Under empire, the mother country controls policy in the colony. This allows her to extract some of the colony’s gains from trade, being only constrained in this by the capacity of the colony to stage a successful revolution at a stochastic cost. A deterministic component of this cost is given by a deterioration in the colony’s terms of trade as she exits the empire and the mother country enacts sanctions against her. Crucially, this terms-of-trade cost of revolution depends on the trade policy adopted by the third country after sanctions have been imposed. I solve for the trade equilibrium after sanctions, and show how the role of the third country, the balance of power between the colony and the mother country, and the sustainability of empire, all depend on the economic fundamentals that shape the pattern of colonial trade.

There are a few important cases in which decolonization was clearly driven by colonial rebellion, and where international factors played a key role in facilitating this. I present detailed historical evidence from two of these cases, showing that my model can help understand both the timing of decolonization, and some of its key features. I first consider the case of the American Revolution of 1776. Historians have often claimed that this was linked to the peace terms of the Seven Years Wars, a major conflict occurred between Britain and France in 1756-1763. My model provides a precise economic interpretation of this link, which is broadly consistent with some of the arguments put forward by historians. I then study the collapse of Spanish Imperial power in 1810-1827, relating it to the change in trading patterns associated with the industrial revolution in Britain.

The paper is related to a vast historical literature on colonial rebellion, and in particular on that strand of literature that emphasizes the role of international factors in determining the outcome of rebellion.³ For the specific historical examples that this paper focuses on, abundant details on this literature are provided in Section 5. In general, the paper innovates

³European empires have witnessed various waves of decolonization, spanning around two centuries. While in the historical examples that I consider decolonization was clearly driven by colonial rebellion, it is still debated whether other cases of decolonization - including 20th century decolonization - were driven by colonial rebellion or by an independent decline in the benefit of empire. See Bonfatti (2012) for a theory of the changing benefit of empire that can account for some of the broad pattern of European imperialism, and for further references on the literature on decolonization.

on this historical literature in two ways. First, it sets up a formal model, that is potentially more general than the specific examples that it seeks to explain. Second, it deepens our understanding of the economic factors that mattered for the emergence of international alliances, and their interaction with the domestic political economy of the countries involved. To the best of my knowledge, the only other papers that have looked at colonial rebellion in the context of a formal model are Gartzke and Rohner (2011) and two papers by Hershel Grossman and Murat Iyigun (1995 and 1997). These papers, however, do not consider the role of trade - nor of international factors more in general - in shaping the incentives to rebel. As a consequence, they focus - both theoretical and historical - is very different from my own.

The paper is also related to several strands of literature in economics, particularly in the fields of international trade and political economy. On the theory side, the paper is related to the literature on regional trade agreements (for an excellent recent survey, see Freund and Ornelas, 2010). This is because, in my model, revolution may induce the third country to create a “regional” trade agreement with one of the two countries in conflict. My key innovation on this literature is the fact that I look at how regional trade agreements emerge in reaction to conflict-related trade disruption, and at how the expectation of this may affect the emergence of conflict in the first place.

The paper is also related to the political economy literature on the endogenous size of nations (Alesina and Spolaore, 1997 and 2000). In particular, a key result in these papers - that globalization reduces local economic dependence, increasing the equilibrium number of countries - is very close to my own results. My main innovation on this literature is that I explicitly model the secession decision, and that I put this in a context in which global trade policy is optimally determined. This allows me to comment on the emergence of international “alliances”, that favor or hinder the secession process. Finally, the paper is related to the literature on natural resources and secessionist conflict, which is a part of the broader literature on civil wars (see Blattman and Miguel, 2010, for a recent survey). While such literature has looked at the relation between the price of exported resources and the incentives for a region to secede, I focus on the structure of trade patterns that generate a certain price, and the implications of this for the amount of support that the region may expect to receive from foreign countries.

On the empirical side, the paper is related to the empirical literature on the relation between trade and war. The most important recent paper in this literature is Martin *et Al.* (2007). That paper finds that bilateral trade decreases the probability of war between pairs of countries, while multilateral trade increases it. While my theoretical results are in line with these results, the two papers differ in two key respects. First, in my model, conflict-related trade disruption depends not only on economic fundamentals, but also on the optimal choice of trade policy in the third country. As suggested above, this allows me to comment on the emergence of

international alliances, which in turn matter for the occurrence of conflict. Second, Martin *et Al.* (2007) look at war between independent countries, while I look at independence in the specific context of colonial empires: as a result, the historical focus of the two papers is quite different. Next, the paper is broadly related to the empirical literature on the legacy of colonialism for post-colonial trade patterns. A key paper in this literature is Head *et Al.* (2010), who look at the impact of 20th century decolonization on the trade pattern of colonies. Because of scarcity of data on *pre*-decolonization trade, the authors mostly look at the evolution of *post*-decolonization trade. This makes this paper only marginally related to my theory, that does not have explicit predictions for the impact of peaceful decolonization on subsequent trade patterns.

Finally, the paper is close in spirit - although not directly related - to two other strands of literature in history and economics. In the first group are historical works on the relation between international trade, territorial expansion/contraction and war (see, for example, Findlay and O'Rourke, 2007). In the second is the recent economics literature on the economic legacy of colonialism, and in particular to the few papers that have looked at trade explicitly (Acemoglu *et Al.*, 2005; Nunn, 2008).

The paper is structured as follows. The two building blocks of the model are separately described in Sections 2 (trade model) and 3 (political model). Section 4 puts the two building blocks together, and solves for the equilibrium. Section 5 presents the historical evidence. Section 6 draws some implications of the analysis, and concludes.

2 Trade model

There are three countries, C , M and F : C is a colony, M her mother country, and F a foreign country external to the colonial relation.⁴ Two goods x and y exist as endowments in the three countries, and are traded and consumed.⁵ National endowments are:

$$\begin{aligned} x^C &= 1 & y^C &= 1 \\ x^F &= 1 & y^F &= 1 + \delta \\ x^M &= 1 & y^M &= 1 + \kappa \end{aligned}$$

where $\kappa, \delta > 0$ and $\delta < 2\kappa$. In words, I am assuming that M and F are abundant in y relative to C , and that F is not too abundant in y relative to M . As will become clear below, the latter

⁴ M should be thought of as the mother country *and the rest of her empire*, and I will interchangeably refer to F as to a third country or to *the rest of the world*.

⁵To assume a production function would enrich the model, but not compromise the basic mechanism that I am going to highlight.

assumption rules out that the colony and the mother country are in competition for selling the same good to the rest of the world, a case that is not historically very relevant.⁶ The most natural interpretation of x and y - and the one I will stick to in the rest of the paper - is, respectively, “foodstuff and raw materials” and “manufactures”. This interpretation is not exclusive, however, since x (y) could represent any commodity that M and F are competing to buy from (sell to) C .

Each country is inhabited by a continuum of atomistic citizens, and endowments are dispersed enough to make markets perfectly competitive. Preferences are equal across countries, and are described by the utility function:

$$u^{iJ} = u(x^{iJ}, y^{iJ}) = (x^{iJ})^{\frac{1}{2}} (y^{iJ})^{\frac{1}{2}} \quad (1)$$

where iJ denotes citizen i in country J . By working out uncompensated demands and plugging back into (1), it is straightforward to find national indirect utility:

$$v^J(p^J) = \frac{p^J + y^J}{2(p^J)^{\frac{1}{2}}} \quad (2)$$

where I have used y as the numeraire and called p^J the price of good x in country J . To simplify the notation, I write indirect utility as a function of p^J only.

Goods x and y can be thought of as final goods. For example, the colonial US exported foodstuff and tobacco to the British Empire and to the rest of the world, obtaining manufactures in return. Alternatively, x and y could be thought of as intermediate goods. In this case, equation (1) would describe the production of a final good, whose consumption increases utility linearly. Examples include colonial exports such as indigo (in the colonial US) or cotton and hides & skins (in colonial Latin America), which were used in the production of final goods together with European capital-intensive intermediates.

2.1 Autarchy equilibrium

Since the marginal rate of (technical) substitution of (1) is simply $\frac{y}{x}$, market clearing requires that, in autarchy, the MR(T)S equals relative endowments. Because agents set their MR(T)S equal to the price ratio when they behave optimally, the equilibrium autarchy price must then be:

$$p_A^J = y^J \quad (3)$$

where y^J is the relative endowment of y in country J (since $x^J = 1 \forall J$). Using equation

⁶I comment below on how my results change when $\delta \geq 2\kappa$.

(2), it is easy to check that national indirect utility in country J reaches a global minimum at $p^J = p_A^J$, and is monotonically increasing (decreasing) in p^J for $p^J > p_A^J$ ($p^J < p_A^J$). This is consistent with standard theory of the gains from trade: countries always benefit from opening up to trade; furthermore, a net exporter of good x (that is, a country for which $p^J > p_A^J$) benefits from an increase in p , while a net importer (a country for which $p^J < p_A^J$) benefits from a decrease.

2.2 Trade equilibrium

I assume that trade policy is a stark decision as to whether a country is “open” or “closed” to each of the other two countries, and trade takes place between two countries if and only if they are both open to each other. This stark trade policy implies that, besides a case where all countries remain in autarchy, there are four possible trade outcomes: one in which all countries belong to the same free trade block, and three in which two countries belong to the same free trade block, while the third country remains in autarchy. I use the notation $\{C, M, F\}$, $\{C, M, \cdot\}$, $\{C, \cdot, F\}$ and $\{\cdot, M, F\}$ to denote these four cases.⁷

The assumption of an endowment economy allows us to find the equilibrium price within a given free trade block by solving for the integrated equilibrium, i.e. by finding the autarchy equilibrium price of a single country whose endowments are equal to the sum of the endowments of the countries who belong to the block. Take for example the case $\{C, M, F\}$. In this case, all countries in the world belong to the same free trade block, and thus face the same price:

$$\begin{aligned} p_{\{C,M,F\}}^C &= 1 + \frac{\kappa + \delta}{3} \\ p_{\{C,M,F\}}^M &= 1 + \frac{\kappa + \delta}{3} \\ p_{\{C,M,F\}}^F &= 1 + \frac{\kappa + \delta}{3} \end{aligned} \quad (4)$$

where $p_{\{C,M,F\}}^J$ denotes the price faced by country J when the $\{C, M, F\}$ outcome realizes, and $1 + \frac{\kappa + \delta}{3}$ is the relative endowment of y in the free trade block composed of all countries. To derive the trade patterns within this trade block, notice that net imports of x by country J when facing price p^J can be written as $m_x^J(p^J) = \frac{p_A^J - p^J}{2p^J}$.⁸ It is then easy to check that, under our assumption on the structure of the parameters, C is always a net exporter of x , M always a net importer, while F is a net exporter if $\delta \in (0, \frac{\kappa}{2})$, a net importer if $\delta \in (\frac{\kappa}{2}, 2\kappa)$.

Equilibrium prices in the other three cases can be found similarly. Here, prices are only

⁷In this simple world with no transport costs, not all countries need to be open to all countries for $\{C, M, F\}$ to realize, but at least one must be. For example, $\{C, M, F\}$ realizes if B and F are both open to C but closed to each other, while C is open to both.

⁸Since $m_x^J(p^J) = d_x^J(p^J) - x^J = \frac{p^J + y^J}{2p^J} - 1 = \frac{y^J - p^J}{2p^J} = \frac{p_A^J - p^J}{2p^J}$.

equalized in the two countries that belong to the same free trade block:

$$\begin{aligned}
p_{\{C,M,\cdot\}}^C &= 1 + \frac{\kappa}{2} & p_{\{C,\cdot,F\}}^C &= 1 + \frac{\delta}{2} & p_{\{\cdot,M,F\}}^C &= p_A^C \\
p_{\{C,M,\cdot\}}^M &= 1 + \frac{\kappa}{2} & p_{\{C,\cdot,F\}}^M &= p_A^M & p_{\{\cdot,M,F\}}^M &= 1 + \frac{\kappa+\delta}{2} \\
p_{\{C,M,\cdot\}}^F &= p_A^F & p_{\{C,\cdot,F\}}^F &= 1 + \frac{\delta}{2} & p_{\{\cdot,M,F\}}^F &= 1 + \frac{\kappa+\delta}{2}
\end{aligned} \tag{5}$$

and it is possible to show that M is a net importer of x in $\{C, M, \cdot\}$, F is a net importer of x in $\{C, \cdot, F\}$, while either M or F is a net importer of x in $\{\cdot, M, F\}$ depending on whether it is $\delta < \kappa$ or $\delta > \kappa$.

The preferences of each country over alternative trade outcomes depend on the country's position in the world economy, and on the distribution of world endowments (captured by κ and δ). Table 1 reports the trade outcomes that maximize national welfare in each country, fixing κ at any positive value and allowing for all possible values of δ :⁹

Table 1: National Welfare-Maximizing Trade Outcomes

$\delta \in$	C 's optimum	M 's optimum	F 's optimum
$[0, \delta^*)$	$\{C, M, \cdot\}$	$\{C, M, F\}$	$\{\cdot, M, F\}$
$[\delta^*, \frac{\kappa}{2})$	$\{C, M, \cdot\}$	$\{C, M, F\}$	$\{C, \cdot, F\}$
$[\frac{\kappa}{2}, \kappa)$	$\{C, M, F\}$	$\{C, M, \cdot\}$	$\{C, \cdot, F\}$
$[\kappa, 2\kappa)$	$\{C, M, F\}$	$\{C, M, \cdot\}$	$\{C, \cdot, F\}$

The preferences described in the table have an intuitive interpretation. When δ is low, the third country (F) is a competitor of the colony (C) in selling x to the mother country (M). Thus, while C and F prefer to trade with M exclusively, M 's national welfare is maximum when trading with both. This is because C and F get the highest possible price on their exports by trading with M exclusively, while M gets the highest possible price on its exports by trading with both B and F . Symmetrically, when δ is high, F is a competitor of M in selling y to C . Thus, in order to obtain the highest possible price on their exports, F and M prefer to trade with C exclusively, while C prefers to trade with both F and M . The logic underlying these preferences is similar to that underlying the standard optimal tariff argument: while global free trade is the joint optimum, trade restrictions may be welfare maximizing for individual countries, as they may improve their terms of trade.

⁹For values of δ such that a country is indifferent between two trade outcomes, I report the preferences of the country for values of δ immediately to the right of that specific value. The threshold δ^* is defined as $\delta^* = \arg[v^F(p_{\{C,\cdot,F\}}^F) = v^F(p_{\{\cdot,M,F\}}^F)]$. It can be shown that $\delta^* \in (0, \frac{\kappa}{2})$ with these functional forms, implying that if F is a net importer of x in the fully integrated world, its first best is always to trade with C alone.

The preferences described above have important consequences for F 's attitude towards the two other countries in the world. As δ increases from 0 to 2κ , F 's ideal world switches from one in which C 's trade is restricted, to one in which M 's trade is. We may then expect that F 's external actions will be aimed at hindering C 's trade when δ is small, at hindering M 's trade when δ is high. The political economy of this is quite clear. When δ is low, F 's political economy is dominated by agents who are net sellers of x . These agents will then be able to twist their government external actions in the direction of hindering foreign net sellers of x (who happen to be concentrated in C). Conversely, when δ is high, F 's political economy will be dominated by agents who are net buyers of x (or net sellers of y), and these will be able to twist their government external actions in the direction of *favoring* foreign net sellers of x . We will see in section 4 how these forces shape F 's optimal trade policy, having important consequences for F 's foreign policy as well.

3 Political Model

Empire is modelled in a very simple way: while M and F set policy freely, policy in C is set by M .¹⁰ In other words, to use the terminology introduced by Acemoglu and Robinson (2006), M has *de jure* political power in C .

3.1 Policy

There are two policy instruments: *trade policy*, which is set in all countries, and a *transfer from C to M*, which captures colonial extraction and is therefore specific to C .

Trade policy is a set of 0-1 decisions which specify whether a country is closed or open to each of the other two countries. It is described by a 3x3 matrix τ , whose element τ_J^I is equal to 1 if I is willing to trade with J , zero otherwise (of course, $\tau_J^J = 1 \forall J$). Trade between country I and country J takes place if and only if $\tau_J^I = \tau_I^J = 1$. Mapping from τ to the trade equilibrium, we can express equilibrium prices as functions of τ , κ and δ only. The gains from trade for country J can then be written as:

$$\Pi^J(\tau|\kappa, \delta) = v^J[p^J(\tau|\kappa, \delta)] - v_A^J$$

where $v_A^J \equiv v^J(p_A^J)$ is autarchy utility.

The letter T will denote the transfer from C to M . For simplicity, I assume that this transfer is non distortionary. Because C and M have the same indirect utility function, and

¹⁰I assume that politics in each country is dominated by a representative agent, so that we can talk of each country as if it was an individual agent.

because this is linear in income, we can thus think of T as a transfer of indirect utility from C to M , that can be added linearly to the payoff functions. To capture the fact that it is not optimal for M to reduce C into starvation, I assume that there is a minimum level of utility that C must be left with. I denote this by u , and assume for simplicity that $u < v_A^C$.

3.2 Independence, Revolution and Sanctions

Before choosing policy, M decides whether to stick to empire or to concede *independence*. If it concedes independence, control of policy is transferred to C at no cost for either country. If it sticks to empire, C can stage a successful *revolution*. Thus, in Acemoglu and Robinson (2006)'s terminology, C has some *de facto* political power. Revolution also transfers control of policy from M to C , but generates two costs to C . The first is a stochastic cost μ , distributed over $[0, \infty)$. This cost captures all exogenous factors that determine the colony's military power relative to the mother country.¹¹ The second is a possible trade cost, since after a revolution is staged, the mother country enacts *sanctions* against the rebel colony. Such sanctions consist in the mother country refusing to trade with the colony any longer ($\tau_M^C = 0$). To keep the model simple, I assume sanctions to be applied automatically after a revolution, and thus to be perfectly credible ex-ante.

The assumption of ex-ante credible sanctions can be interpreted in one of two ways. In a narrow interpretation, sanctions capture an actual change in trade policy in the mother country, which is specifically aimed at harming the rebel colony.¹² In this narrow interpretation, what gives the mother country the capacity to commit to ex-post sub-optimal sanctions? A natural micro-foundation for this would be to consider a world in which the mother country owns multiple colonies, and is happy to incur the cost sanctions in order to preserve a reputation as an hardliner with her other colonies. This large-empire case fits well the case of the most important European colonizers (Britain, France, Portugal and Spain), and there is some historical evidence that colonies that staged *individual* revolutions were indeed punished with trade sanctions, at least for some time (see section 5.1 for the case of the American Revolution). While to explicitly include a reputation mechanism in the model could provide some additional insights on the history of European empires, I prefer to keep this mechanism in the background for the sake of simplicity.¹³

¹¹Examples include the emergence of a successful leader or ideology that helps the colonists overcome their collective action problem; or the occurrence of external events that weaken the capacity of the mother country to react to a revolution.

¹²Of course, such change does not need to be as extreme as a total trade ban. Commonly observed sanctions may include the erection of a discriminatory tariff, or the elimination of a preferential tariff previously enjoyed by the rebel colony. While the stark nature of my trade policy space does not allow me to model sanctions realistically, it does allow me to study their efficacy in a very simple and intuitive way.

¹³For example, to give a role to reputation would suggest that, as the size of an empires decreases, the

An alternative interpretation of “sanctions” is that they actually capture the trade disruption associated with military conflict between the colony and the mother country, or the rapid erosion, following to a conflictual separation, of the trade-enhancing institutions provided by empires (for example, a single currency and legal system, or the networks connecting merchants in the mother country to those in the colonies). This broader interpretation - just as the narrow one discussed above - is consistent with the results by Head *et Al.* (2010), according to which trade between former colonies and the mother country declined much more rapidly after a conflictual separation than after a peaceful separation.

For C , the advantages of breaking free from empire (whether through independence or through revolution) are two. First, it obtains control of policy. Second, it obtains an exogenous benefit B . I assume this benefit to be strictly positive and non contractible. This is equivalent to assuming that empire is welfare decreasing, and that the two parties cannot contract their way out of it. One reason why empire could be welfare-decreasing is that there could be efficiency losses associated with the centralization of policy in the hands of the imperial government, or of its frequently turned-over colonial administrators. Alternatively, decolonization could be associated with some psychological benefit from achieving freedom. As for the no-bargaining assumption, a natural interpretation is that colonies could not commit to making payments after empire was dismantled, and could not therefore compensate the mother country for the loss of future gains from empire.¹⁴ Notice that the asymmetry in the commitment capacity of C and M - C cannot commit to paying for its independence, while M can commit to enacting sanctions - may be grounded in the different importance of reputation for these two countries.

Before moving on, it is useful to briefly discuss the relevance and scope of my model of colonial rebellion. I have assumed that colonial extraction consisted in a transfer from C to M , and that the main benefit of decolonization would consist in getting rid of such transfer. This assumption seems fairly realistic for colonies where the Europeans only resided as temporary administrators (e.g. Ghana, India) and for colonies of settlement where the Europeans represented a majority of the population (e.g. US North or Australia). In all of these colonies, a set of taxes and regulations were in place to transfer wealth from colonial citizens to metropolitan citizens, and the former could then expect that the end of colonial rule would bring an end to this transfer.¹⁵

credibility of sanctions decreases. This could help explaining why decolonization happened in “waves” (see Section 5).

¹⁴This interpretation further requires to assume that budget or credit constraints prevented colonies from paying the present discounted value of the mother country’s future gains.

¹⁵Such taxes and regulations can be grouped into three broad categories: transfers from the colonial treasury to the imperial treasury; the allocation of colonial public revenues to specific public goods; and monopolies or other restrictions on investment, production and trade. See section 5 for some examples.

More complex is the case of colonies where an *elite* of European descent co-existed with a large indigenous population (e.g. Peru, Bolivia), or with a population of imported slaves (e.g. Santo Domingo, US South). Here, “colonial extraction” usually took place at two distinct levels: on one hand, the elite of European descent imposed taxes or institutions of forced labor on the rest of the population; on the other, both groups (but mostly the elite) were liable to taxes and regulations that transferred part of their wealth to citizens of the mother country. In these colonies, the end of empire could be associated not only with the end of the transfer from C to M , but also with a change in the domestic political economy of the colony, possibly to the disadvantage of the European elite.¹⁶ Because it does not consider the second type of change, the model takes a rather narrow view of decolonization in this last group of colonies, and its relevance should therefore be circumscribed to a few specific cases. Namely, the model is best suited to describe the game between the mother country and the colonial *elite*, in those cases in which the elite colonial elite did not expect the colonial political economy to change much upon the end of empire. We will consider in section 5 several historical examples when this was the case.

A second key assumption of the model is that trade costs had a key role in shaping the colonies’ decision to rebel. This assumption seems *ex-ante* plausible, since international trade played a vital role in most colonial economies. Looking at specific groups of colonies, the assumption may be particularly well-suited to capture the case of the colonies of settlements, where colonial trade typically involved large groups of colonial citizens. Even in colonies where Europeans resided as temporary administrators, however, decades of involvement in the international economy contributed to creating an indigenous middle class with a direct or indirect involvement in colonial trade. As for the case of colonies of mixed European and indigenous/African descent, colonial trade was clearly very important for the elite of European descent. Thus, this second assumption is consistent with the model’s focus on elite-driven instances of rebellion in these colonies.

Before concluding this section, it is worth mentioning that the model may be relevant to understand secession beyond the case of European empires. In particular the model may apply to the case of secessionist regions that satisfy two, potentially plausible conditions. First, their belonging to the country or origin is not that much driven by efficiency considerations - such as the optimal provision of public goods - but rather by the desire of the country of origin to extract part of their wealth through redistributive taxes and regulations. Second, trade with the country of origin may be important for them, and there is a credible threat of disruption to such trade in the case of conflictual separation. For cases where such conditions are met,

¹⁶Notice that, in many of these colonies, the elite tended to see themselves as citizens of the colonies, more than citizens of the mother country. This was, for example, the case of the *creoles* that governed the Spanish and Portuguese colonies of Latin America.

the model investigate the link between the structure of international trade patterns, the global environment that the secessionist regions find herself, and the probability that secession actually takes place.

3.3 Timing

I denote the three possible political states (empire, independence and revolution) by the notation $S = E, I, R$. The initial political state is empire, $S = E$. The timing of the game is then:

1. Nature chooses μ ;
2. M chooses whether to stick to empire or to grant independence;
3. τ and T are simultaneously set: under empire M sets τ^M, τ^C and T ; under independence, instead, τ^C and T are set by C ;
4. If M has granted independence, nothing happens at this stage. If the political state is still empire, C decides whether to stage a revolution or not;
5. If C has staged a revolution, policy is reset with τ_M^C automatically set at 0; otherwise, nothing happens at this stage;
6. Production, trade and consumption take place; all payoffs are realized.

4 Equilibrium

Let us proceed to find the equilibrium of the model by solving backward:

Date 6. Final payoffs depend on the policy choices made in dates 3 and 5, and on world endowments. Call $V^J(\tau, T|\kappa, \delta)$ the final payoff of citizens in country J :

$$V^C(\tau, T|\kappa, \delta) = v_A^C + \Pi^C(\tau|\kappa, \delta) - T + \phi B + \theta(B - \mu) \quad (6)$$

$$V^M(\tau, T|\kappa, \delta) = v_A^M + \Pi^M(\tau|\kappa, \delta) + T \quad (7)$$

$$V^F(\tau|\kappa, \delta) = v_A^F + \Pi^F(\tau|\kappa, \delta) \quad (8)$$

Where $\phi(\theta)$ is an indicator variable that takes value 1 if the political state is independence (revolution), 0 otherwise.

Date 5. If C has staged a revolution, policy is reset under the constraint $\tau_M^C = 0$. I look at the *coalition-proof Nash equilibrium* of the trade policy formation game. Thus, equilibrium is a set of trade policies such that no single countries or coalitions of countries have an incentive to deviate. My first result is:¹⁷

Proposition 1 *After the colony stages a revolution, the trade equilibrium depends on the distribution of endowments in the following way:*

- If $\delta \in [0, \delta^*(\kappa))$, the trade equilibrium is $\{., M, F\}$ (the colony falls into autarchy);
- if $\delta \in [\delta^*(\kappa), 2\kappa)$, the trade equilibrium is $\{C, ., F\}$ (the mother country falls into autarchy).

Proof. Because autarchy gives minimum utility, and trade between C and M cannot take place, C and M must always open up to F if this opens up to them. Thus, F can choose between trading with only one of the two (and the outcome is $\{C, ., F\}$ or $\{., M, F\}$) or with both (and the outcome is $\{C, M, F\}$). The result then follows from the preferences of F .¹⁸ Notice that the equilibrium is coalition-proof, because neither F can be part of a deviating coalition (it is always at its first best) nor C and M can form a deviating coalition between themselves (because trade between them cannot take place, any deviation would lead at least one of the two to fall into autarchy). ■

Proposition 1 has an intuitive explanation. When δ is low, the third country is a competitor of the colony in selling x to the mother country, and its terms of trade are best when it trades with the mother country alone. Thus, the third country reacts to sanctions by closing down to trade with the colony. In other words, when δ is low, F 's trade policy is determined by the interests of its net sellers of x . Since these perceive C 's exporters as competitors, F 's trade policy turns out to be hostile to the rebel colony's commercial interests after a revolution. When δ is high, on the contrary, the third country is a competitor of the mother country in selling y to the colony, and its terms of trade are best when it trades with the colony alone. In this case, the third country reacts to sanctions by offering open trade to the colony. This is because F 's trade policy is determined by the interests of its net buyers of x (or sellers of y), who perceive C 's exporters as trade partners.

Notice that revolution makes F at least as well as off as any other political state: this follows from the fact that F achieves its first-best trade outcome after a revolution. The intuition for this result is simple: by construction, F is always a trade competitor of either C or M . This

¹⁷I use the tie-breaking assumption that if a country can select between two trade outcomes over which it is indifferent, it selects the one that maximizes its welfare to the right of that value of δ .

¹⁸In the case where $\delta \geq 2\kappa$, $\{C, M, F\}$ is always F 's first best, and the only trade equilibrium of the game.

implies that any disruption in trade between the latter two countries must result in trade diversion in favor of F , which can then benefit from better terms of trade. While this structure of trade flows may suit particularly well the case of European empires, it may well be relevant more in general.¹⁹ Thus, this finding provides one motivation for why foreign countries may want to take an active role in facilitating secession: while I do not incorporate this possibility in the formal model, I discuss it further detail at the end of this section.

Denote by $T(S)$ extraction under political state S . It is then straightforwardly shown that:

Proposition 2 *Extraction is set to zero after the colony stages a revolution: $T(R) = 0$.*

Proposition 1 and 2 above (together with 3 and 4 below) create a complete mapping between political states and policy. We can then express equilibrium prices, gains from trade, and payoffs, as functions of political states and endowments only. Thus, I use the notation $p^J(S, \kappa, \delta)$, $\Pi^J(S, \kappa, \delta)$ and $V^J(S, \kappa, \delta)$ from now on.

Date 4. If M has granted independence at date 2, nothing happens at this stage. If, instead, we are still under empire, C stages a revolution if and only if:

$$\Pi^C(R, \kappa, \delta) + B - \mu > \Pi^C(E, \kappa, \delta) - T(E) \quad (9)$$

The LHS of condition (9) is the final payoff to C under revolution, while the RHS is the final payoff under empire.²⁰ Given that C cannot be left with less than u , the maximum that can be extracted under empire is $A = \Pi^C(C, \kappa, \delta) + v_A^C - u$; plugging this back into (9), we find M 's *revolutionary constraint*:

$$\mu < B + v_A^C + \Pi(R, \kappa, \delta) - u \equiv \bar{\mu} \quad (10)$$

If the stochastic cost of revolution is higher than the threshold $\bar{\mu}$, revolution never takes place - not even if M , the mother country, pushes extraction to its maximum. If, instead, μ is lower than $\bar{\mu}$, M is constrained to keep extraction below its maximum, if it wants to stave off a revolution. Intuitively, the threshold $\bar{\mu}$ represents the benefit from revolution when extraction is maximum. Notice that this depends on expected trade conditions after the revolution, $\Pi(R, \kappa, \delta)$.

¹⁹Given the relative similarity of a group of European economies, it was often the case that other European countries competed with the mother country for colonial trade. However, as we shall see in particular for the case of the US South, it also happened that colonies competed with other European countries to trade with the mother country.

²⁰Autarchy utility drops from the inequality, as it appears on both sides.

Date 3. In date 3 there are two possibilities: either we are still under empire, in which case M sets policy for C , or we are under independence, and C sets policy autonomously. Clearly, extraction will be set to a minimum under independence. Under empire, instead, there are two possibilities. If there is no revolutionary constraint ($\mu > \bar{\mu}$), M will set extraction at a maximum. If there is a revolutionary constraint ($\mu < \bar{\mu}$) M seeks to maximize extraction subject to not triggering a revolution. This is done by choosing T in such a way that 9 holds as an equality.²¹ All this can be summarized in the following:

Proposition 3 *Under independence, extraction is set to zero: $T(I) = 0$. Under empire, instead, extraction is set to maximum ($T(E) = \Pi^C(C, \kappa, \delta) + v_A^C - u$) if $\mu > \bar{\mu}$; to less than maximum ($T(E) = \mu - B + \Pi^C(C, \kappa, \delta) - \Pi^C(R, \kappa, \delta)$) if $\mu < \bar{\mu}$.*

Next, we investigate equilibrium trade policy under empire and independence:

Proposition 4 *Both under empire and under independence, the trade equilibrium is $\{C, M, F\}$ for any $\kappa > 0$ and $\delta \in [0, 2\kappa)$.*

Proof. If $S = I$, $\{C, M, F\}$ is a CPNE. To see this, notice that $\{C, M, F\}$ realizes if $\tau_J^I = 1 \forall I, J$. In this case, 1-country deviations are ruled out because they would drive a country into autarchy, while 3-country deviations are ruled out because either C or M are at their first best at $\{C, M, F\}$ (Table 1). To see that no 2-country deviation is feasible, it is then sufficient to realize that deviating to $\{C, \cdot, F\}$ ($\{\cdot, M, F\}$) is not optimal for C (F) when $\delta \in [0, \frac{\kappa}{2})$ ($\delta \in [\frac{\kappa}{2}, 2\kappa)$) as $p_A^C \leq p_{\{C, \cdot, F\}}^C < p_{\{C, M, F\}}^C$ ($p_{\{C, M, F\}}^F \leq p_{\{\cdot, M, F\}}^F < p_A^F$). To see that $\{C, M, F\}$ is the unique CPNE, notice that $\{C, M, \cdot\}$, $\{C, \cdot, F\}$ or $\{\cdot, M, F\}$ cannot be equilibria, as either C or M are always better off by extending trade to the excluded country. If $S = E$, M moves for C as well, maximizing $p^M(\tau|\kappa, \delta) + T(E)$. From Proposition 3, this is equal to $\Psi \equiv v^M [p^M(\tau|\kappa, \delta)] + v^C [p^C(\tau|\kappa, \delta)]$. To see that no trade outcome other than $\{C, M, F\}$ can be a CPNE, notice that M always gains from deviating from $\{C, \cdot, F\}$ ($\{\cdot, M, F\}$) to the first best of C (M), and from $\{C, M, \cdot\}$ to $\{C, M, F\}$. To see the latter point, use (2) to re-write Ψ at $\{C, M, \cdot\}$ as $\Psi(p) = p^{\frac{1}{2}} + \bar{K} (1 + \frac{\kappa}{2}) p^{-\frac{1}{2}}$. Taking the first and second derivatives shows that $\Psi(p)$ reaches a global minimum at $p = \bar{K} (1 + \frac{\kappa}{2})$, proving the point. To see that $\{C, M, F\}$ is always a CPNE, notice that M is at its first best:²² this is because either

²¹I am using the tie-breaking assumption that revolution does not take place when it yields just the same payoff as empire.

²²If $\delta \geq 2\kappa$, it may be the case that M 's first best is $\{C, \cdot, F\}$ (and this is also the trade equilibrium). This is because M and C are competing for selling x in this case, and restricting supply may improve their terms of trade vis-à-vis the third country. One implication is that empire may be welfare improving in this case.

$\{C, M, F\}$ or $\{C, M, .\}$ always dominate any other outcome, and $\{C, M, F\}$ always dominates $\{C, M, .\}$. ■

Proposition 4 says that in the absence of sanctions, the simple world described in this model is always fully integrated in trade. By comparing Proposition 4 to Proposition 1, it is clear that revolution always puts the colony in a different trade equilibrium, where its terms of trade are worse than before.²³ The model allows us to relate this terms-of-trade cost of revolution - a determinant of the mother country's economic power vis-à-vis the colony - to the structure of international trade patterns.

The result that, under empire, C is fully integrated in trade with the world economy, may seem at odds with the many trade restrictions that famously characterized colonial empires. Typically, colonies were subject to a set of regulations that encouraged them to channel their exports to the mother country, from where they were also required to source their imports. An extreme example of this were the national monopolies that were in force in most European empires in the 18th century. For example, the Spanish monopoly required all Spanish American exports to be first sent to Cadiz, and most Spanish American imports to come from that same port, independently on these commodities' final destination or origin.²⁴ How is the existence of such restrictions compatible with the results of Proposition 4?

While in a very stylized form, the model does capture the main point of colonial trade restrictions. In fact, this was not so much to depress the value of colonial trade, but rather to enhance it as much as possible, while at the same time extracting as much as possible of it for the mother country. It was then the fact that trade regulations were often the only viable tool of extraction, that induced the imperial powers to erect the sort of restrictions that we have just discussed. In the model, I have simplified this by giving the mother country a lump-sum extraction tool, T , and by implicitly incorporating any inefficiency that colonial extraction actually entailed into the exogenous cost of empire, B . It then follows straightforwardly that M always maximises the value of colonial trade (Proposition 4), before fully appropriating it (Proposition 3). I believe this simplification makes sense in the current context, since my focus is on understanding how F 's *policy* affect the trade cost of revolution, and how this depends on international trade patterns. Of course, an interesting question - to which I look in further detail below - is whether the inefficiency of colonial extraction (and thus B), may itself depend the structure of trade patterns.²⁵

²³For $\delta \in [\frac{\kappa}{2}, 2\kappa)$ this is evident from the fact that $\{C, M, F\}$ is C 's first best. For $\delta \in [0, \frac{\kappa}{2})$ this follows from the fact that $\{C, ., F\}$ is dominated by $\{C, M, F\}$ in the preferences of C (since F is a competitor of C in selling x).

²⁴Trade restrictions in the 19th and 20th century became somewhat milder - they were based on preferential and discriminatory tariffs rather than on outright ban - but were based on the same principle as the 18th century monopolies.

²⁵Specifically, I look at this question at the end of section 5.2, when looking at alternative explanations for

Date 1 and 2. In date 1, Nature chooses the cost of revolution μ . Clearly, M has no reason to stick to empire when the maximum transfer it can extract from C (subject to not triggering a revolution) is negative. From Proposition 3, this is the case iff:

$$\mu < B - [\Pi^C(C, \kappa, \delta) - \Pi^C(R, \kappa, \delta)] \equiv \underline{\mu} \quad (11)$$

Thus, the mother country concedes independence whenever the stochastic cost of revolution is lower than the threshold $\underline{\mu}$. Such threshold is equal to the exogenous benefit from becoming independent (B) discounted by the terms-of-trade cost of revolution ($\Pi^C(C, \kappa, \delta) - \Pi^C(R, \kappa, \delta)$). Since the latter is always positive, it is always $\underline{\mu} < \bar{\mu}$.

Proposition 5 summarizes the characteristics of the equilibrium:

Proposition 5 *The political state of the model depends on the stochastic cost of revolution, μ , in the following way:*

- If $\bar{\mu} \leq \mu$ there is no departure from empire and M , the mother country, imposes maximum extraction;
- If $\underline{\mu} \leq \mu < \bar{\mu}$, there is no departure from empire but M imposes only partial extraction;
- If $0 \leq \mu < \underline{\mu}$, M concedes independence.

In what follows, I will make a distinction between empire when $\bar{\mu} \leq \mu$ (I call this “unconstrained empire”) and when $\underline{\mu} \leq \mu < \bar{\mu}$ (“constrained empire”). The key point is now to understand how $\underline{\mu}$ and $\bar{\mu}$ depend on the distribution of world endowments.

To make the exposition simpler, I define $\gamma \equiv \kappa + \delta$, and study how $\underline{\mu}$ and $\bar{\mu}$ depend on $\frac{\delta}{\gamma}$, keeping γ constant. The measure $\frac{\delta}{\gamma} \in [0, \frac{2}{3})$ captures the attractiveness of rest of the world’s endowments (as opposed to the mother country’s) for the colony’s trade. In particular, $\frac{\delta}{\gamma}$ close to 0 means that the colony’s trade is more attracted by the mother country’s endowments than by the rest of the world’s, while $\frac{\delta}{\gamma}$ close to $\frac{2}{3}$ - the maximum allowed in the current parameter space - means just the opposite. Notice that, by fixing γ , I am now fixing the total value of the colony’s trade.

Figure 1 gives a qualitative representation of $\underline{\mu}$ and $\bar{\mu}$ as functions of $\frac{\delta}{\gamma}$. The figure plots $\frac{\delta}{\gamma}$ on the horizontal axis and μ on the vertical axis. The threshold $\delta(\gamma)$ is defined so that $\frac{\delta}{\gamma} \geq \delta(\gamma)$ if and only if $\delta \geq \delta^*(\kappa)$, where $\delta^*(\kappa)$ was defined in Section 2.2. The upper line represents $\bar{\mu}$, while the lower line represents $\underline{\mu}$. According to Proposition 5, the equilibrium

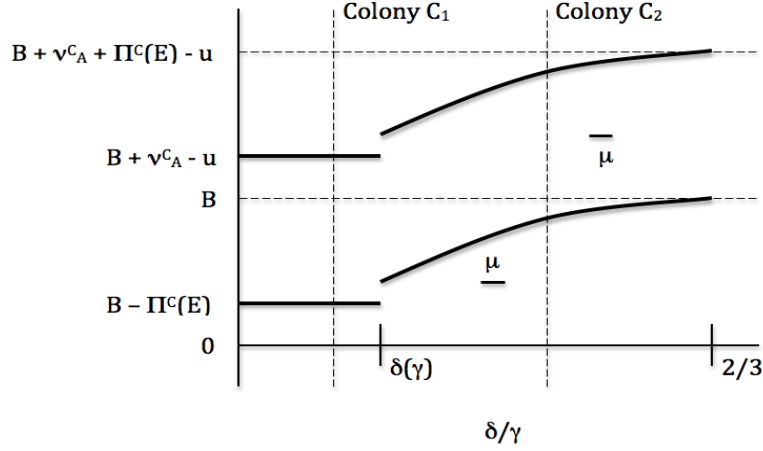


Figure 1: $\underline{\mu}$ and $\bar{\mu}$ as functions of $\frac{\delta}{\gamma}$.

political state is unconstrained empire at points above the upper line, constrained empire at points between the two lines, and independence at points below the lower line.

When $\frac{\delta}{\gamma} < \delta(\gamma)$, $\underline{\mu}$ and $\bar{\mu}$ are constant and valued at $B - \Pi^C(C, \delta, \kappa)$ and $B + v_A^C - u$ respectively. This is the case in which the third country, being a competitor of the colony in selling x , reacts to sanctions by closing down to trade with the colony. In this case, the terms-of-trade cost of revolution is maximum (the colony falls into autarchy), and so is the economic power of the mother country vis-à-vis the colony. When $\frac{\delta}{\gamma} \geq \delta(\gamma)$, $\underline{\mu}$ and $\bar{\mu}$ are a step higher, and increasing monotonically to reach B and $B + v_A^C + \Pi^C(C, \delta, \kappa) - u$. This is the case in which the third country, being a competitor of the mother country in selling y , reacts to sanctions by offering open trade to the colony. Since the colony's gains from trade are best when it trades with both other countries, the terms-of-trade cost of revolution is still positive; however it is smaller than for $\frac{\delta}{\gamma} < \delta(\gamma)$, and converges to zero as $\frac{\delta}{\gamma}$ converges to $\frac{2}{3}$. Thus, for $\frac{\delta}{\gamma}$ in this range the mother country's economic power vis-à-vis the colony is also decreasing in $\frac{\delta}{\gamma}$.

The following proposition is, together with Proposition 1, the central result of the paper:

Proposition 6 *There exists a threshold $\delta(\gamma) \in (0, \frac{2}{3})$ such that a rebel colony obtains the commercial support of the third country if and only if $\frac{\delta}{\gamma} \geq \delta(\gamma)$. Ceteris paribus, the expected share of colonial wealth that the colony can retain, and the likelihood of decolonization, are strictly higher for $\frac{\delta}{\gamma} \geq \delta(\gamma)$ than for $\frac{\delta}{\gamma} < \delta(\gamma)$; furthermore they are both strictly increasing in $\frac{\delta}{\gamma}$ for $\frac{\delta}{\gamma} \geq \delta(\gamma)$.*

the end of the Spanish and Portuguese empires.

Proposition 6 suggests how the sustainability of empire depends on the prevailing global environment, and how this depends on international trade patterns. Because I have assumed that γ is fixed, I am focussing on how trade patterns shape the global environment faced by the colony, for a *given* value of the colony’s export commodity. This distinguishes the mechanism described in this paper from other well-known mechanisms through which the global economy can affect the incentives to secession.²⁶

In particular, Proposition 6 suggests that there are two types of global environments that a colony can find herself into. The first is a “hostile” environment, which realizes when $\frac{\delta}{\gamma} < \delta(\kappa)$. In this case, trade policy in the third country is dominated by the interests of net sellers of x , for whom the colony is a trade competitor. This results in F being commercially hostile to the colony in a post-revolutionary world, making the overall cost of revolution high. As a consequence, the likelihood of decolonization is low in this case. The second type of environment is a “favorable” environment. This realizes when $\frac{\delta}{\gamma} \geq \delta(\kappa)$, since in this case foreign policy in the third country is dominated by the interests of net buyers of x (or net sellers of y), who perceive the colony as a trade partner. This results in F being commercially supportive of the colony in a post-revolutionary world, and in an overall cost of revolution (probability of decolonization) that is always lower (higher) than in the first environment.

While the cost of revolution and likelihood of decolonization do not depend on international trade patterns in the first environment, they do so in the second environment. This is because the value of the commercial support that a rebel colony may expect to receive from the third country depends on the third country’s importance as a trade partner for the colony. The higher is $\frac{\delta}{\gamma}$, the more important is the third country as a trade partner, the more valuable is the commercial support that the rebel colony may expect to receive. To the limit, for $\delta = \frac{2}{3}$, this support is valuable enough to fully make up for any commercial disruption with the mother country, and revolution has effectively not trade cost.

Similar results to those derived for the likelihood of decolonization apply for the expected share of colonial wealth that the colony can retain. This is always higher in a favorable global environment than in a hostile one, because the set of domestic political conditions under which the mother country can apply maximum extraction ($\bar{\mu} \leq \mu$) is smaller in the first case. Intuitively, the mother country cannot treat the colony too harshly when this faces a favorable global environment, since the perspective of commercial support by the third country makes rebellion rather attractive in this case. Also, the expected share of colonial wealth retained by the colony is strictly increasing in $\frac{\delta}{\gamma}$ for $\frac{\delta}{\gamma} \leq \delta(\kappa)$. This is because the larger is $\frac{\delta}{\gamma}$, the more valuable is the commercial support provided by the third country, the more attractive is rebellion to the colony.

Proposition 6 can be illustrated by comparing the case of colonies C_1 and C_2 in Figure 1.

²⁶See Blattman and Miguel (2010) for a review of the literature on civil wars and separatist conflict.

By construction, the two colonies have the same value of exports; let's assume that they also have comparable domestic political conditions, as captured by two identical distributions of μ . It is easy to see that the likelihood of decolonization (the probability that $\mu < \underline{\mu}$) is lower for C_1 than for C_2 . Similarly, the expected share of colonial wealth retained by the colony is lower for C_1 than for C_2 , since extraction is no greater in C_2 than in C_1 for all realization of μ , with strict inequality prevailing for $\mu \in (\bar{\mu}_2, \underline{\mu}_1)$. The reason for these differences lies entirely in the different global environment that the two colonies find themselves in: while the world around C_1 can be expected to react with hostility to a colonial rebellion, the world around C_2 can be expected to react favorably.

This discussion suggests that the economic forces illustrated in this paper also matter for the formation of F 's broader *foreign policy* stance. On one hand, F 's commercial support to the rebel colony (or the lack of) has clear political implications. This is, first, because it affects the outcome of secession - a political event taking place within a foreign country - as described above. Second, commercial support may at times be seen as a proxy for formal diplomatic recognition: by helping the secessionist region acquire sovereign rights in front of the international community, this may create an additional link between commercial support and the outcome of secession. On the other hand, we have noted earlier in this section that revolution is always welfare improving for F : this may then provide an economic rationale for F to actively favor revolution, for example by arming the rebels, or by granting them diplomatic support within the international community.

While the economic forces described in this paper may affect F 's broader foreign policy stance, the converse may also be true: political considerations may determine whether F grants commercial support to a rebel colony or not, and these may even matter more than economic forces. For example, F and M may be at war with each other, and to provide commercial support to C may represent a way for F to weaken M . As I go through the historical evidence in the next section, I will be particularly careful at highlighting this link between economic forces and foreign policy, and in trying to separate out the role of the former in determining trade policy.

The parameter $\frac{\delta}{\gamma}$ captures the economic fundamentals that shape the structure of international trade patterns. Thus, Proposition 6 spells out the link between international trade patterns and the sustainability of empire in global perspective. In the next section, I investigate the relevance of its results in the case of a few decolonization experiences.

5 Historical evidence

In the previous section, I have built a theory on the sustainability of empire in global perspective. In this section, I put the theory at work to explain the timing and some of the key

features of a few important cases of decolonization. Of course, for its rather specific focus - on cases of decolonization that were driven by colonial rebellion, and on the global determinants of the latter - the paper has no pretense to be able to explain the entire historical process that led to the demise of European empires.²⁷

5.1 The American Revolution and the Seven Years War: the link reconsidered

The colonial US was a key component of the British Empire in the 18th century, and stood at the heart of a flourishing North Atlantic economy. This was based on a complex trade system: from the West Indies and North America, Europe imported large amounts of warm-weather commodities (such as sugar, tobacco, indigo, and rice) and smaller amounts of temperate commodities and foodstuff (such as grain and fish); these were paid for using manufactures from Europe, a few commodities from the East (such as tea), and slaves, which the Europeans purchased along the coast of West Africa. Within this system, the US South had a well-defined role as an exporter of indigo and rice (Lower South) and tobacco (Upper South) to Europe (see Table 2). As for the US North, it specialized in the production of temperate commodities and foodstuff - grains in the Middle Colonies, and fish, livestock and wood products in New England - both to Europe and to the large markets represented by the slave populations of the West Indies. The latter accounted for, respectively, 43% and 63% of the exports of the Middle Colonies and New England.²⁸

Until the early 1770s, this flourishing North Atlantic economy was politically organized in colonial empires - British, French and, to a lesser extent, Spanish and Dutch - centered on their European metropolises. This political equilibrium changed with the American Revolution of 1776, and with the recognition of US independence in 1783. Following to a period of international turmoil (due to the war between France and Britain in 1792-1815), this led to the emergence of a new political equilibrium, characterized by the existence of an independent (and increasingly strong) power in the Western hemisphere.

In this case study, I argue that the economic origins of the American Revolution can be best understood if seen in the context of the trade conditions prevailing in the North Atlantic

²⁷Decolonization happened in two large waves, the first in the late 18th-early 19th century - when most of colonial America successfully rebelled against European rule - and the second in the three decades following to World War II. The historical evidence presented in this section focuses on the first wave of decolonization. Notice that, in many historical accounts, the second wave of decolonization was driven more by a loss of interest in empires on the side of the imperial powers, than by colonial rebellion. See Bonfatti (2012) for a theory relating such loss of interest to contemporary economic conditions.

²⁸These figures are likely to underestimate the importance of the West Indies, since much trade between the colonial US and the non-British West Indies was illegal (and thus non recorded) in this period.

Lower South				
	Great Britain & Ireland	Southern Europe	West Indies	Total
Rice	0.36	0.09	0.10	0.55
Indigo	0.20	0.00	0.00	0.20
Naval Stores	0.06	0.00	0.00	0.06
Total	0.72	0.10	0.18	1.00
Upper South				
	Great Britain & Ireland	Southern Europe	West Indies	Total
Grains, grain products	0.03	0.09	0.07	0.19
Tobacco	0.72	0.00	0.00	0.72
Iron	0.03	0.00	0.00	0.03
Total	0.82	0.09	0.09	1.00
Middle Colonies				
	Great Britain & Ireland	Southern Europe	West Indies	Total
Grains, grain products	0.05	0.33	0.34	0.72
Flaxseeds	0.07	0.00	0.00	0.07
Wood products	0.01	0.01	0.04	0.06
Total	0.23	0.35	0.42	1.00
New England				
	Great Britain & Ireland	Southern Europe	West Indies	Total
Fish	0.00	0.13	0.22	0.35
Livestock, beef, pork	0.00	0.00	0.20	0.21
Wood products	0.01	0.00	0.13	0.15
Total	0.18	0.15	0.63	1.00

Table 2: **US regions, share of main commodities and destinations in total exports, 1768-1772.** Source: McCusker and Menard (1985), Tables 6.1, 8.2, 5.2 and 9.3. Lower South: Georgia and the Carolinas; Upper South: Virginia and Maryland; Middle Colonies: Delaware, New Jersey, New York, Pennsylvania; New England: Connecticut, Massachusetts, New Hampshire, Rhode Island. The table reports the three main exported commodities and destinations for each US region.

economy in the mid 18th century, and their evolutions. In particular, I show that, by the mid 1770s, the markets for some key US exports had grown large beyond the reach of British sanctions. This was the result of both long-run evolutions, and of the expulsion of the French from North America following to the Seven Years War (1756-1763). I use the results of the model to argue that these trade conditions contributed to creating a global environment that was favorable to US emancipation, tilting the balance of power between the colonial US and Britain in favor of the former. Failure by Britain to recognize this resulted in revolution and conflictual separation.

To better spell my argument, it is useful to highlight the parallel between the Atlantic economy in the years around 1750, and the simple world described in the model. I denote

the colonial US by C , the rest of the British Atlantic empire by M , and the French Atlantic empire (and other minor European empires) by F . The rest of the British Atlantic empire consisted of Britain, the British West Indies, and small parts of Canada; the French Atlantic empire consisted of France, the French West Indies, large parts of Canada, and the current US Mid-West.²⁹ As in the model, the colonial US exported foodstuff and raw materials (x) to both the British and French Empire, both in their European and West Indies components. Revolution was, for the colonial US, a way to get rid of British extraction (to set $T = 0$), as well to affirm principles of freedom and self-determination (to gain B). However revolution was costly for two reasons: first, it entailed a cost in terms of loss of property or life, stemming from the need to fight against the British army (μ); second, it entailed a trade costs, due both to the fact that military confrontation would disrupt trade between the US and Britain, and to the fact that an independent US would lose preferential access to the markets of the British empire.

My argument is that thanks to long-run evolutions in the American trade as well as to the outcome of the Seven Years War, δ became high for a majority of US colonies in the 1760s. As predicted by the model, that implied that US exports were largely protected from the consequences of a revolutionary war, both because, mechanically, they were largely directed towards extra-imperial destination, and because it could be expected that foreign nations would provide strong commercial support to a revolutionary US. This change in economic conditions tilted the balance of power between the colonial US and Britain in favor of the former, increasing the probability that important groups of colonial citizens would support a revolution against British rule. Failure by Britain to recognize this - particularly in responding to the first revolutionary challenges of the mid 1770s - resulted in an all-out revolution, and in conflictual separation.

I begin the case study by reviewing the historical evolutions that led to a high δ for a majority of US colonies in the 1760s, and I will then consider a few pieces of evidence that are consistent with interpretation of the economic origins of the American Revolution.

We have seen that the colonial US exported foodstuff and raw materials to both Europe and the European West Indies. But how were US exports divided between *British* and *foreign* markets? In the South, a clear pattern had existed for decades, that put the Lower South in a very different position from the Upper South. While indigo - one of the key export commodity of the Lower South - was almost exclusively consumed in Britain (where it even benefited from a preferential tariff), tobacco - the key export commodity of the Upper North - was mostly

²⁹While all European colonial powers had a foothold in the West Indies, Britain and France were the two major players in the region. Their key possessions included, for Britain, Jamaica and Barbados, and, for France, St Domingue, Martinique and Guadalupe. Because of the success of their sugar economies, some of these islands were among the richest places in the world in the mid 18th century (Acemoglu *et Al.*, 2002).

consumed in continental Europe.³⁰ This reflected the fact that, while large supplies of high-quality indigo existed in most other European empires,³¹ American tobacco was much cheaper and of higher quality than that found anywhere else (Price, 1964, p. 499). This pattern was only partially compensated by the fact that rice - the second important export commodity of the Lower South - was partly consumed in Continental and Southern Europe.³²

In the model, this pattern of colonial trade can be captured by attributing a low δ to the Lower South, and a high δ to the Upper South. Proposition 1 then suggests that, had trade between the US South and Britain been disrupted by war or sanctions, the Lower South would have suffered much more severe direct trade losses than the Upper South. Furthermore, other European empires would be hostile to exports from the Lower South, but welcoming of exports from the Upper South. This is because indigo would face the opposition of a strong class of domestic producers (net sellers) in other European empires, while tobacco, being a predominantly-imported commodity, would be welcome by a strong class of domestic consumers (net buyers),³³ and could be very lucratively exchanged for European manufactures.

In the US North, trade conditions were more complex. Although a majority of colonial exports were consumed in Britain and the British West Indies, markets in the *foreign* West Indies were playing an increasingly important role for colonial exports in the 1750s. In particular, the French West Indies - the most important sugar-producing islands in the Caribbean, and the heart of the rapidly growing French commercial empire (Eccles, 1972, p. 172) - represented an increasingly important market for the Northern colonies.³⁴ Trade between the US North and the foreign West Indies faced a number of hurdles, however. On one hand, it was discouraged, or even outlawed, by Britain, so that much of it had to be smuggled.³⁵ On the other, it was

³⁰This pattern cannot be directly inferred from Table 2, that does not consider re-exports of colonial produce from Britain. Although all American tobacco was required by law to be exported to Britain, more than 80% of it was re-exported in 1770-1774 (Schumpeter, 1960, Table 18). France in particular was an exceptionally buoyant market for American tobacco in the mid 18th century (Price, 1964). British imports of indigo, on the contrary, were entirely retained for the British market.

³¹Most of the indigo used in the booming European textile industries was produced in the French and Spanish empires (Louisiana and St. Domingo; Guatemala, Caracas and even mainland Spain); see Garrigus (1993, p. 26).

³²Beside some direct exports to these regions (see Table 2), also part of the rice exported to Britain was re-exported to continental Europe. In the 1760s and 1770s, however, there was a clear upward trend in the importance of retained British imports (Nash, 1992, p. 691).

³³Particularly influential consumers of American tobacco in several European countries (including France) were the governments themselves: these held a lucrative monopoly of the manufacturing of tobacco, and had therefore a strong interest in securing a stable and abundant supply of raw materials.

³⁴Again, this pattern cannot be directly inferred from Table 2, since this does not break down the West Indies market into British and foreign, and does not take into account the large smuggling trade between the US colonies and the foreign West Indies. Although there exists no reliable data on the total amount of US exports to the foreign West Indies before the revolution, the anecdotal evidence suggests that this was very large indeed (see, for example, Greene, 1980, p. 88.)

³⁵For example, the import of foreign West Indies molasses - a by-product of sugar used in New England for

outlawed by France *as well*. The latter saw the exclusion of US exports from the French West Indies as a key instrument to protect her metropolitan food producers and merchants, and help her own food-producing regions of North America (mostly Canada) to develop their own export trade.³⁶ While this policy was openly adversed by the sugar planters of the French West Indies - who were net buyers of cheap US foodstuff - the political economy of French trade policy was clearly in favor of domestic net sellers in the 1750s (Goebel, 1963).

In terms of the model, an important and growing role of the French West Indies as a trade partner for the US North must be captured with a large and increasing δ for this colony. However the protectionist attitude adopted by France in the 1750s suggests that it was still $\delta < \delta^*$ in this period. According to Proposition 1, then, had trade between the US North and Britain be disrupted by war or sanctions, the US North would not only lose preferential access to markets in Britain and the British West Indies; it would also not be welcome in markets in the French West Indies.³⁷

To summarize, the model suggests that, until the 1750s, revolution against Britain - and thus, potentially, war and sanctions - would lead to large trade disruption for most US regions, with the notable exception of the Upper South. This state of affairs was changed by the Seven Years War (1756-1763), however.

The Seven Years War was a major conflict between Britain and France, following to which France lost most of her North American empire (most notably, Canada) to Britain. While this transfer of territory had broader repercussions on the balance of power in North America,³⁸ my focus here is in understanding its impact through a specific economic channel, that is the redistribution of factor endowments.

Because French Canada was an exporter of foodstuff - mostly fish, wheat and wood products - its loss made the French empire (F) more scarce in foodstuff, while it made the British empire (M) more abundant. While this would need to be captured through an increase in x^F and a decrease in x^M in the model, its qualitative impact can be gauged by considering an increase in

the preparation of rum - was outlawed by British laws.

³⁶While French Canada was less successful an exporter than the US, there was a widespread belief (or aspiration) among French policy makers that the trade of this colony could be developed, to the point of making the French North American empire self sufficient in food (see Gould, 1939, p. 489; Goebel, 1963, p. 335; and Dewar, 2010, pp. 649 and 651). The main exports of French Canada to the French West Indies were fish, wheat and wood products (Mathieu, 1972, p. 488).

³⁷It can be argued that French food producers and merchants were *particularly* influential with the French government, and so were Canadian producers, given the French government's desire to encourage self-sufficiency in her American Empire. This would configure a situation in which the government of F is not a welfare maximizers, but cares disproportionately about net sellers of x . It is easy to show that such a modification of the simple model presented in section 3 would result in a higher δ^* , or in a higher probability that F denies access to C 's exports after a revolution.

³⁸I discuss below the consequences of such repercussions for the American Revolution.

δ instead.³⁹ Thus, the loss of Canada increased the δ faced by the US North, and, since Canada was particularly strong in the fish and wood industries, particularly so for the colonies of New England.⁴⁰ The model then suggests that, mechanically, an increase in δ made the French empire a larger buyer of US foodstuff; more importantly, however, a large enough increase in δ (above δ^*) may also have fundamentally improved the French attitude towards US exports of foodstuff, creating the expectation that these would be more welcome in the French West Indies following to revolution (Proposition 1). Intuitively, the loss of Canada removed one of the key rationales for the French government to accord protection to its domestic producers of foodstuff.

Assume for the moment that, indeed, the Seven Years War increased the δ faced by some of the Northern colonies above δ^* . According to Proposition 6, then, the 1760s brought in a more favorable global environment for the US colonies to revolt against Britain - they tilted the balance of power in their favor. *Ex ante*, we expect that this should have resulted in the US being granted more autonomy in the aftermath of the Seven Years War, or at least some decrease in the level of British extraction.

Did Britain actually go in this direction in the 1760s and 1770s? The historical evidence seems to suggest that it did just the opposite. Not only did the British government not grant any additional autonomy to the colonial US; but, faced with a looming budget crisis triggered by massive war expenses, it even introduced a series of new taxes on the colonies, such as the famous Stamp Act of 1765 and Townshend Acts of 1767. These taxes triggered large discontent in the colonies, leading to a traditional historiographical interpretation which sees the American Revolution as a reaction to the burden of British extraction. Whether the burden of existing⁴¹ and new extractive measures was large enough to trigger the American Revolution is still the subject of a historiographical debate (see, for example, Thomas, 1965; Sawers, 1992; and Magra, 2006, pp. 148-156 for a review). What's important for us, however, is that British extraction clearly did not *decrease* in the 1760s and 1770s. We can then conclude that, if there was indeed a shift in the balance of power that decreased the maximum acceptable level of extraction, this was not properly appreciated by the British government.

It should be noted the different approach that this paper takes to understanding the economic determinants of the American Revolution, relative to the above-mentioned debate. Whereas the latter has focused on whether extraction was larger than tolerable, given an

³⁹Proof of this is available from the author upon request.

⁴⁰Presumably, the French West Indies sourced a large share of their wheat imports from France directly, and continued to do so after the loss of Canada. This provides an additional reason why the loss of Canada may have increased δ for New England more than it did for the Middle Colonies.

⁴¹Even before the introduction of new taxes in the 1760s, the colonial US was subject to a vast array of restrictions and regulations - the so-called Navigation Laws - designed to transfer part of the value of colonial trade to the mother country. The main characteristics of these regulations are described in Thomas (1965).

alternative world with no extraction, my model suggests that the maximum tolerable level of extraction may in itself change, depending on the balance of power between the colony and the mother country.

The logic of the argument should now be clear, but it will be useful to summarize it. Because of long-run evolutions in the trade of the Upper South, and because of the impact of the Seven Year War on the trade of the US North, the colonial US came to face a more favorable global environment for revolting against Britain in the 1760s. Of course, this did not *per se* provide a sufficient condition for revolution to take place, since the colonies' capacity to rebel was conditioned by a number of other factors that determined their relative military strength vis-a-vis Britain. However the model suggests that, at least *ex-ante*, such a change in the balance of power should have resulted in more autonomy being granted to the colonies, or at least in a decrease in British extraction. But no additional autonomy was actually granted, and the level of British extraction probably rose in the 1760s. One can then hypothesize that the economic origins of the American Revolution lie in a fundamental mismatch between the trade-shaped balance of power between the two sides of the Atlantic, and British colonial policy.

This trade-based explanation for the origin of the American Revolution is supported by a number of facts. First, that trade considerations could shape the incentives to revolution is consistent with the importance of trade for the revolutionaries' economy. Although the share of exports to colonial income was lower for the US than for other colonies,⁴² most historians agree that trade occupied a central role in the colonial economy.⁴³ Furthermore, the American Revolution was initiated by a minority of colonial citizens, whose sources of income were disproportionately relying on the international economy (Sawers, 1992). Given this, it is natural to expect that the perspectives for trade after independence should play a role in determining the incentives of these groups to rebel. In fact, the concern about future trade relations was paramount in the minds of the revolutionaries. Possible European alliances (particularly with France) were explored as early as June 1776. In the revolutionaries' minds, these were to have a primarily *commercial* nature. This emphasis on commerce was due to the importance of trade for the colonial economies, and by the fear that revolution would substantially deteriorate commercial relations with Britain (see, for example, the diaries of John Adams, reported by Hutson, 1980, p. 30). At the same time - consistent with the idea that the colonial US faced a favorable global environment - the revolutionaries anticipated that the importance of the American trade would give them a considerable leverage in negotiating a commercial treaty with France (Hoffman and Albert, 1981, p. 4).

Second, the proposed structure of economic incentives to revolution squares well with the

⁴²McCusker and Menard (1985, p. 85-86) estimate this share at nearly 20%.

⁴³See for example Jensen (1969, p. 108); Greene (1980, p. 542); McCusker and Menard (1985, Ch. 4, in particular pp. 85-86).

pattern of political radicalism at the outbreak of the American Revolution, and with its earlier evolutions. Consistent with the idea that the Upper South and New England faced a particularly favorable global environment for rebellion, the standard historical interpretation of the politics of 1774-1776 is that New England radical representatives, seconded by a group of Southern representatives led by representatives from Virginia, "...first pushed a reluctant Congress into active resistance, then forced an open declaration of independence (Jillson and Wilson, 1994, p. 177)". This compares with the prudent attitude of the Lower South and, to a lesser extent, the Middle colonies.⁴⁴ My interpretation also fits well with the pattern of political radicalism fits well with the pattern of radicalism across various economic interests: the tobacco planters of Virginia were among the most fervent supporters of revolution, and so were the merchants of New England and this region's influential fishing industry (Magra, 2006). Among the other groups who supported the revolution - though with less fervor - were the rice planters of the Carolinas (Sawers, 1992, p. 266).⁴⁵

Looking at the historical evolutions that led to the formation of the Upper South-New England coalition, one finds that New England became much more radicalized in the years after the Seven Years War. This latter fact has led historians to hypothesize a link between the Seven Years War and the American Revolution. One leading argument in this literature is that the expulsion of the French from North America reduced the threat that these would pose to an independent US, thus making revolution more attractive. My interpretation is broadly consistent with this story, although it emphasizes an underestimated aspect of it: namely, that the Seven Years War also reduced the threat posed by the French, in that it transformed them from competitors in the North American trade, into partners. That better trade perspectives in the French West Indies were partly responsible for the radicalization of New England is consistent with the pattern of radicalism prevailing among the Boston merchants in the 1760s: Tyler (1986) finds that merchants that were involved in trade with the foreign West Indies were more likely to be patriot than their counterpart involved in trade with the British West Indies and Europe. Furthermore, the former merchants' position became increasingly "influential" during the 1760s.

A third fact that is consistent with my interpretation is that, as predicted by the model, France did provide substantial commercial support to the rebel colonies. This culminated in

⁴⁴While Virginia declared her own independence months before the joint declaration of July 4th, 1776, Georgia was last in sending her representatives to Congress in June 1776. In the vote on the joint declaration, South Carolina and Pennsylvania were the only two who initially voted against the declaration of independence, while Delaware and New York abstained.

⁴⁵An alternative (and complementary) explanation for this pattern is that the most radicalized groups were also those hit hardest by British extraction. I do not intend to dispute this argument, which is both convincing and useful to explain the pattern of patriotism across other colonial groups (Sawers, 1992, p. 266-267). Here, I simply point out that some of these groups were - or became after the Seven Years War - also in a position of strength vis-a-vis Britain.

the “crucial” (Eccles, 1972) Treaty of Amity and Commerce of 1778, which - together with a series of temporary regulations - granted the Americans freer access to the French West Indies. Was the extension of French commercial support *entirely* dictated by economic considerations? The answer is, clearly, no: by providing commercial support to the rebel colonies, the French also hoped to facilitate the collapse of the British empire, and thus weaken their long-standing rival and take revenge for the crushing defeat of the Seven Years War. In fact, this is a salient example of how political considerations may also matter for F 's decision to grant commercial support to C (see the discussion at the end of section 4).

There is, however, evidence that French commercial support was, at least in part, motivated by economic considerations, along the lines suggested by the model. To see this, we need to take a closer look at the economic evolutions in the French West Indies in the aftermath of the Seven Years War. Immediately after the war, the French government attempted to maintain intact the protectionist regime that had historically regulated the islands' trade. Soon, however, this continued protectionist policy resulted in a high level of economic distress in the islands, whose planters suffered from the loss of markets for imports (foodstuff) and exports (sugar and molasses) in Louisiana and Canada (Goebel, 1963). The effect of such a shrinkage of markets is evident in the high prices of foodstuff and low prices of molasses that were prevailing in the French West Indies in the 1760s, compared to those prevailing in the neighboring British West Indies.⁴⁶ Not surprisingly, such a change in prices was partially mitigated by a sharp increase in the illicit trade between the US North and the French West Indies in the 1760s (Goebel, 1963). This was particularly true for the New England fishing industry, since New England fishermen had also acquired a freer hand at expanding in what had been the French fisheries of Canada (see Magra, 2006).⁴⁷ In terms of the model, as δ increased for some of the colonies of the US North, her exports to the French empire increased.

Perhaps more important, however, is the fact that economic distress in the French West Indies finally induced the French central and colonial governments to relax restrictions on imports of US foodstuff in the late 1760s. Interestingly, Goebel (1963) describes how this relaxation took place despite the continued attempts by the merchants of Old France to defend the old protectionist regime. Arguably, by eliminating the dream of a self-sufficient French American empire, the loss of Canada also decisively increased the weight of net buyers of

⁴⁶For example, Magra (2006) argues that “...100 quintals of refuse grade dried cod could be exchanged for slightly more than 21 hundredweights of sugar in the British islands, while the same amount of cod could fetch almost 28 hundredweights in the French islands” (p. 162); at the same time, “The shrinkage of available markets made French planters very willing to sell to New England buyers, and such pressures continually drove down the price of French West Indian molasses.” (p. 161).

⁴⁷Referring to the loss by France of the fisheries of Canada, Brook Watson (an eyewitness called before the House of Commons in 1775) testified “That the most inferior fish is exported to the neutral or French islands, and exchanged for molasses on very advantageous terms, as the French are prohibited from fishing. [...]” Magra (2006, p. 124).

foodstuff in French imperial calculations: in terms of the model, it pushed δ above δ^* .

That French trade policy towards the US was relaxed already in the 1760s, and for mainly economic reasons, is consistent with the interpretation that the Seven Years War unleashed *economic* factors that created a more favorable global environment for a US revolution. This link is explicitly suggested by Goebel (1963), who suggests that the strengthening of trade between New England and the French West Indies in the 1760s contributed to creating, in the French West Indies colonies, a valuable external ally for New England during the American Revolution. In particular, “[d]ependent on the New England trade, the French colonials were to favor the American cause; French colonial officials were to open the island ports to American agents and to urge on the home authorities a liberal trade policy.” (p. 372). While geopolitical calculations must have played a role in determining the actions of the French imperial government, it is harder to believe that they mattered for the attitude of the French West Indies colonists, and for the impact that these had on the formation of French imperial policy in this period.

Finally, a last piece of evidence that is consistent with my interpretation is that the American Revolution did lead to substantial disruption in the trade between the US and Britain. While such disruption hit particularly hard on the Lower South, however, its impact on the Upper South and New England were largely mitigated by an increase in trade with foreign countries, and France in particular. Trade between any part of the British Empire and the thirteen colonies was prohibited from 1776 to 1783. After that, a number of restrictions remained in place, such as the prohibition to export meat and fish to the British West Indies, the prohibition for any American vessels to trade with the islands, and the loss of the subsidy on indigo and the preferential tariff on rice and wheat on the British market. Figure 2 illustrates that, as a result, US exports to the British Empire were essentially annihilated in 1776-1780, and exports to Britain did not recover to 65% of their pre-war value until 1791-1795, that is a full 15 years after the revolution. As for its exports to the British West Indies, these were at two thirds of the pre-war level in 1785-1787, and even lower in 1793. These figures are particularly significant if one considers fast population growth in the US in this period.⁴⁸

Trade disruption between the US and her former empire hit hard on the Carolinas and Georgia, who were able to obtain only very limited relief from non-British markets (Bjork, 1964). Most notably, following to the loss of access to the British market, the indigo industry of the Lower South was essentially annihilated (Sharrer, 1971).⁴⁹ In contrast, the exports of

⁴⁸To extend the series to the period 1796-1800 would reveal a substantial recovery in trade between the US and Britain. This, however, was largely due to the outbreak of war between England and France, and to the fact that the US decided to remain neutral in this conflict. Arguably, these evolutions were more of a fortunate coincidence, than something the 1776 revolutionaries could count on.

⁴⁹The Carolinas’ exports to Britain fell from a combined £579,000 in 1775 to £75,000 in 1783 and £282,000 in 1788. For Georgia, these figures were £103,477 in 1775 and £25,057 in 1788 (Bjork, 1964, p. 557). With



Figure 2: **US exports, 1771-1795.** Sources: Schumpeter (1960) and Bjork (1964). The three figures for exports to the British West Indies are for 1771-1773, 1785-1787 and 1793.

Maryland and Virginia quickly recovered from the losses of the war period, experiencing a period of real prosperity in the 1790s. In fact, despite a significant re-orientation of trade away from the British market, the price of tobacco remained high throughout this period.⁵⁰ As for the Middle and New England colonies, these were severely hit by trade restrictions in Britain and in the British West Indies. Still, New England's trade with the West Indies was buoyed by increased trade with the French West Indies.⁵¹

The scale of the impact of revolution on US trade patterns suggests that the revolutionaries - who had all reasons to care about trade, and anticipated the British reaction to revolution - must have taken this into account in 1776. In fact, the observation that some of the most radical colonies in 1776 were also among those who suffered least from trade disruption in the decades that followed, seems to suggest that they actually did. More broadly, the role played by foreign markets in facilitating the American revolution is often highlighted by historians.

the onset of the industrial revolution in the early 19th century, the Lower South converted into a major cotton exporter, and trade between this region and Britain expanded massively. Arguably, these developments were hard to predict in the mid 1770s, when the industrial revolution was still in its infant stages.

⁵⁰Virginia's tobacco exports increased from 55,000 hogsheads prior to the war, to an average 57,125 in 1783-1789. At the same time, total US tobacco exports increased from 102,000 hogsheads to 110,000 in 1790-1792, confirming that Maryland's exports must have also done well (Bjork, 1964, p. 540). Total US tobacco exports to Britain declined from an annual average of 55.2 M lb in 1771-1775 to 35.1 M lb in 1783-1789 (Schumpeter, 1960, Table 18).

⁵¹For example, annual exports of fish to the British West Indies fell from \$226,000 in 1771-1773 to almost zero in the 1780s and early 1790s (Bjork, 1964, p. 552). Still, total fish exports to the West Indies stood at \$684,000 in 1790; of these, \$610,000 went to the French West Indies (Pitkin, 1835, Table VII). Also, estimating the total value of exports to the West Indies in 1790, Jefferson came up with a figure of \$2.2m going to the British West Indies, and \$3.2m going to the French West Indies (Bjork, 1964, p. 553). While the importance of smuggling in colonial times makes it impossible to compare these figures with pre-independence ones, it seems safe to conclude that trade with the French gave substantial relief to New England's export industries.

My point here is to show that the reason why this favorable global environment materialized in the 1760s and 1770s, was that a set of specific evolutions in international trade patterns made that possible.

5.2 International factors leading to Latin American Independence, 1808-1824

The Spanish and Portuguese American empires were established in the early 16th century, and progressively expanded to include most of current-day Latin America.⁵² After an initial period devoted to plundering and subjugating the local population, the Europeans set out to rationalize the extraction of the mineral and agricultural wealth of the colonies. The social structure that they created had at its bottom the natives and the imported slaves, that were forced to work for little or no compensation in the mines and plantations. In the middle stood a local aristocracy of *creoles* - the locally-born descendants of European settlers - who were the legal owners of the colonial assets. On top were the Europeans, who administered the colonies as temporary residents.

Various regulations were in place through which the Europeans - both residing in the colonies and in Spain and Portugal - extracted a substantial portion of colonial wealth. Prominent among these, at least in the 18th century, were the so-called “national monopolies”, that is the regulation that most colonial exports to or imports from Europe had to be intermediated and taxed by the mother country, independently on their their final destination or origin.⁵³ In the second half of the 18th century, a high perceived level of extraction generated much discontent among the Latin American *creoles* (Lynch, 1973).

In 1807-1808, Napoleon invaded the Iberian Peninsula, putting his own brother on the throne of Spain and driving the Portuguese royal family in exile to Brazil. In Latin America, the *creoles* took advantage of this situation to set out a process that would ultimately lead to colonial independence. They replaced the existing colonial governments - which were made up of Europeans directly nominated by the imperial governments - with *juntas*. Claiming to be loyal to the deposed king, these proceeded to make to themselves a series of concessions, ranging from economic concessions to the recognition of enhanced administrative independence.⁵⁴

⁵²The exception to this were various Caribbean islands and a few small regions on the Latin American mainland, that became the colonies of other European powers.

⁵³The Portuguese monopoly was always considerably looser than the Spanish one: for example, a series of 17th century “unequal treaties” between England and Portugal had given some English merchants the right to trade with Brazil directly (see, for example, Graham, 1994, pp. 4-5).

⁵⁴In Brazil, the arrival of the Portuguese king - whose permanence lasted until 1821 - led to the colony’s elevation to the status of a separate kingdom. This sanctioned Brazil’s *de facto* independence from Portugal, with no further action needed on the side of the creoles. After the king went back to Portugal, however,

As the restored Spanish and Portuguese kings failed to recognize such concessions after 1815, a bitter struggle followed, which saw the Europeans actively fight to re-establish their authority, and a series of struggles between “independentists” and “royalists” both among and within the various colonies. In the end, the independentists had the upper hand, obtaining the independence of Rio del Plata (1816), Mexico and Central America (1821), Gran Colombia (1822), and Brazil (1822).⁵⁵ By the mid 1820s, all of Spanish and Portuguese America - with the exception of Cuba, Puerto Rico and Hispaniola - had become independent. The standard historical interpretation of the Latin American revolutions is that these were essentially *creoles* revolutions, that is they were engineered by dominant colonial groups who wished to break free from the burden of European rule, while preserving their dominant position in colonial societies (e.g. Lynch, 1973; Graham, 1994).⁵⁶ Thus, as discussed in section 3.2, the model seems to provide an appropriate theoretical framework to study the Latin American revolutions.

I argue that the impact of War in Europe on Latin American independence must be seen in the context of contemporary economic conditions, and the pattern of international trade that they determined. In particular, the combined effect of the industrial revolution and the loss of the USA (1776) vastly amplified Britain’s need to buy raw materials from, and sell manufactures to, regions outside of her own empire. This strengthened Britain’s propensity to strike commercial deals with foreign regions that, like Latin America, had become largely complementary to her own trade. Furthermore, the expectation that colonial rebellion would destroy the Spanish and Portuguese colonial system to the benefit of industrializing European countries, implied that Britain could be expected to actively facilitate colonial rebellion. Both of these facts tilted the balance of power between Spain/Portugal and the colonies in favor of the latter, making them more likely to take advantage of war-time disruption in Europe to establish greater autonomy. Failure by Spain and Portugal to recognize the new status quo at the onset of the Restoration resulted in the outbreak of war, and in conflictual separation.

As in the previous section, it is useful to draw a clear parallel between the world in the early 19th century and the simple world described by the model. Latin America is represented by C in the model, while Spain and Portugal are represented by M . As for F , this represents the other European countries that were competing with Spain and Portugal to trade with Latin America, and most notably Britain. As in the model, Latin America exported raw materials (x)

the Portuguese tried to re-establish Brazil’s colonial status. As elsewhere in Latin America, this triggered a *creole* rebellion, which led within a few years to Brazil’s formal independence (Graham, 1993, pp. 103-104 and 128-133).

⁵⁵Rio del Plata and Gran Colombia were two polities that encompassed, respectively, present-day Argentina, Uruguay, Paraguay, and Bolivia; and Colombia, Venezuela, Ecuador, Panama, northern Peru and northwest Brazil. They lasted for a few years after independence, before disintegrating in the various polities that exist today.

⁵⁶There were Latin American colonies where the fear of internal rebellion was much larger than elsewhere: this was, for example, the case of Peru.

to both Spain and Portugal and Britain. The mirror image of this export trade was, of course, Latin America's imports of manufactures from these European countries (y). In the background was colonial extraction in Latin America (T) - both through the trade monopolies and through other tools⁵⁷ - and all of the exogenous factors that determined the military cost of rebellion to the colonies (μ). Because of the importance of trade to the Latin American colonies, however, revolution did not only have a military cost: it also had a trade costs, resulting from the possibility that a revolutionary war, sanctions, or simply the erosion of colonial trade linkages would disrupt the consolidated trade between the colonies and their metropolitan markets.

By temporarily weakening the capacity of Spain and Portugal to react to colonial rebellion, the Napoleonic invasion clearly decreased μ for the colonies.⁵⁸ I argue that the fact that this eventually led to colonial independence is best understood in the context of contemporary economic conditions, that made δ high, and higher than δ^* , for the Latin American colonies. This implied that Latin America would not suffer much from a disruption of trade with Spain and Portugal, both because these had become marginal markets by the early 19th century, and because industrializing countries like Britain could be expected to provide substantial commercial support to the rebel colonies. In this favorable global environment, important colonial groups became willing to back the demand for greater independence, even if this implied fighting a costly revolution: in other words, $\underline{\mu}$ became rather high. By pushing μ below $\underline{\mu}$, the Napoleonic invasion started a process that could only be peacefully managed by granting greater autonomy to the Latin American colonies. Because Spain and Portugal failed to do so, what could have been a simple rebalancing of power within the Spanish and Portuguese empires, degenerated into a conflictual separation.

Prima facie, this interpretation is consistent with some of the key facts of the Latin American revolutions, and of the world economy in this period. First, international trade had become an important source of wealth for the *creoles* by the end of the 18th century, and was thus likely to matter for their decision to rebel. Second, the economic changes that took place in Europe around this time had a very similar impact on international trade patterns as an increase in δ in the model. Third, as expected for the case in which $\delta > \delta^*$, Britain provided substantial commercial support to the rebel colonies, and was active in a number of diplomatic

⁵⁷The assumption that extraction is lump-sum, and does not therefore matter for how a change in political institutions affects the pattern of trade, is hardly realistic in this case. One sure consequence of the Spanish and Portuguese monopolies was to make trade between Latin America and the rest of Europe more costly. Because this would be avoided under independence, one consequence of the latter would be to increase the volume of trade between Latin America and the rest of Europe. While this may provide an additional motivation for why a high δ is associated with a high likelihood of independence, it does not, *per se*, compromise the validity of my mechanism. I conclude this case study by commenting on the relative importance of these two interpretations in explaining the historical experience.

⁵⁸Other major factors that are likely to have decreased μ are the American and French revolutions: the revolutionary ideals that these generated were widespread in the early decades of the 19th century, possibly supporting the capacity of the Latin American revolutionaries to co-ordinate into action.

and military ways to facilitate their revolutionary effort. I begin by expanding on these three basic facts, and I will the turn to some additional evidence in favor of my argument.

Trade between Latin America and Europe was at the heart of the Spanish and Portuguese colonial system. For centuries, the Latin American colonies - that is, the *creoles* who owned a majority of the colonial assets - had exchanged primary products for European manufactures. By the national monopolies, colonial products could only reach Europe via a few authorized Spanish and Portuguese ports, which were also where imported manufactures had to pass before being shipped to the colonies. In practice, however, there was always much illegal trade taking place between the colonies and European countries like England, France and the Netherlands, particularly through these countries' possessions in the Caribbean.

Until the 17th century, colonial exports were dominated by Mexican and Peruvian silver and by Brazilian sugar, while the other colonies specialized in supplying these countries with foodstuff and basic manufactures. In the 18th century, however, direct exports of raw materials and foodstuff to Europe became more important, and a number of colonies began to export significant amount of these products. This included present-day Argentina, Paraguay and Uruguay (hides and skins), Venezuela (cocoa and dyes), Central America and Mexico (dyes), Cuba (sugar), and Brazil (which complemented its traditional sugar exports with cotton in the second half of the 18th century). As a consequence of this commercial expansion, trade with Europe had become important for many Latin American colonies by the end of the 18th century (Dominguez, 1980; Graham, 1994), and "The international dimension [...] is vital to the explanation of changes in the Spanish American empire" (Dominguez, 1980, p. 116).

Most notably for our purposes, trade with Europe had become important for many of the groups of *creoles* that convincingly supported the struggle for independence. In Rio del Plata, the key groups that determined the course of events surrounding the struggle for independence were the intellectuals, the merchants and the cattle ranchers. The latter two groups had essential stakes in the hides and skins trade with Europe (*Ibid.*, pp. 41-42). In Venezuela, another proactive colony in the revolutions, the aristocracy of export-oriented landowners actively supported the revolution (*Ibid.*, pp. 47, 63). In Mexico, the coastal planters, the mine owners and various upward moving strata of the population were all aspiring for freer trade with Northern Europe (Graham, 1994, p. 52).

This rise in trade between Latin America and Europe took place in the context of rapid economic change in the latter continent. Such change was spurred by the industrial revolution in Britain, which from the second half of the 18th century vastly increased manufacturing production in this country.⁵⁹ As for an increase in F 's endowment of manufactures - an increase

⁵⁹Notice that the British industrial revolution was well underway by the early decades of the 19th century. For example, according to Bairoch (1989, p. 109), the industrial revolution's leading industry, cotton textiles, mechanized between 1767 and 1813, leading to an "enormous increase in productivity". Growth of the cotton textile sector is measured at 7% per annum between 1770 and 1815 by Crafts and Harley (1992, p. 713).

in δ - the industrial revolution bore four major consequences for international trade patterns. First, Britain increasingly specialized in the exports of manufactures and imports of foodstuff and raw materials, and her trade flows became much larger. Second, a secular increase in the price of foodstuff and raw materials relative to manufactures induced European countries such as Spain and Portugal - that had historically competed with Britain as exporters of manufactures to the rest of the world - to progressively specialize in the export of foodstuff and raw materials (e.g. Figure 3).⁶⁰ This was associated with a sharp re-orientation in the trade of these countries towards Britain and other industrializing parts of Europe (Figure 4). Third, this same change in relative prices made trade more important for world regions that, like Latin America, had a comparative advantage in the export of raw materials and foodstuff.



Figure 3: **Britain and Spain, pattern of specialization by type of commodity, 1785-1827.** Sources: Davis (1979) and Prados de la Escosura (1984). All data points in the British series are calculated as three-year averages of the values in $t - 1$, t and $t + 1$.

The fourth consequence of the industrial revolution was that the importance of Britain as a trading partner for Latin America became much higher. Crouzet (1980, p. 75) reports that most of the increase in British trade in the early decades of the industrial revolution took place in new markets such as Latin America. In fact, trade between Britain and Latin America increased dramatically in the early decades of the industrial revolution - both in absolute and relative terms - although it then suffered a sharp decline in the decade or so after independence.

Bairoch (1989, p. 10) estimates that the British share in European manufacturing went up from 15% in 1800 to 28% in 1830, and that per-capita industrialization in Britain exceeded in 1830 that of Europe by 250%, compared to 110% in 1800.

⁶⁰Total British exports increased by 303% over the period considered by the figure, while total British imports increased by 292% (Davis, 1979, pp. 88-93). While the relative decline in Spain's imports of raw materials and exports of manufactures can partly be explained with the loss of a preferential trade relationship with Spanish America, the deep cause of this pattern was Spain's loss of competitiveness vis-a-vis Britain (Prados de la Escosura, 1984, p. 140). This is evident from the fact that de-industrialization forces were already in place in Spain in the 1780s (Prados de la Escosura and Tortella Casares, 1983, pp. 355-356).

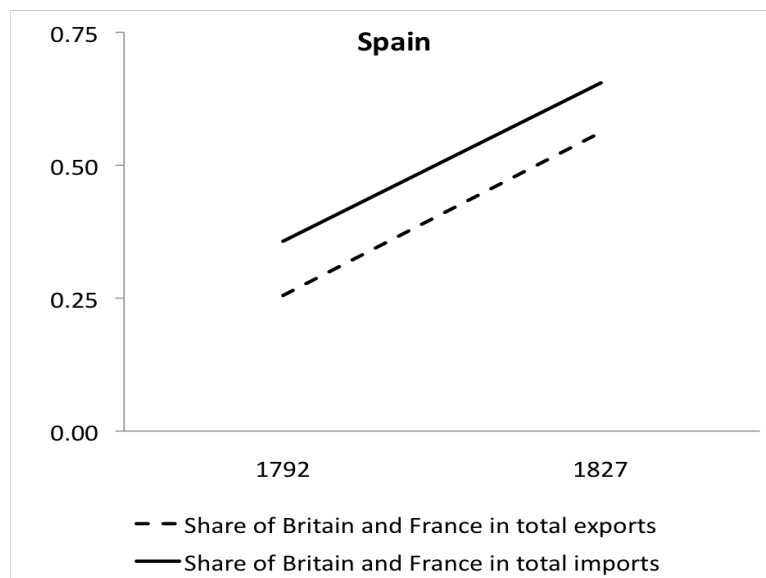


Figure 4: **Spain, pattern of specialization by geography, 1792-1827.** Unit: thousands of pounds. Source: Prados de la Escosura (1984).

As is well known, such decline was primarily due to the internal political instability and civil wars that plagued Latin America in the few decades after independence.⁶¹

This pattern is described in Figure 5. The first panel represents an estimate of British “legal” (that is, non smuggled) imports from Latin America in 1785-1855. The figure shows that these grew exponentially between 1785 and 1815. Estimates of smuggling between Britain and Spanish America point to a similar pattern. The second panel of Figure 5 represents British imports from the British Antilles in 1785-1855. According to Prados de la Escosura (1984b, p. 125; see also Graham, 1994, pp. 5-6), this series can be expected to mimic closely the pattern of smuggling between Britain and Spanish America, since most of this was channeled through the British Antilles. Just like for their legal counterparts, smuggled British imports of Latin American products seem to have increased substantially between 1785 and 1815. While both panels report that British imports fell sharply in 1825 - to begin recovering by the end of the 1830s - all historical accounts suggest that, until early in 1825 - that is, until after most Latin American revolutions had essentially concluded - expectations on the future of trade between

⁶¹For example, in Uruguay, British commentators found that following to a period of political instability and invasion by Brazil, “...these once flourishing provinces are now exceedingly poor; the immense herds which in former times covered their rich pasture grounds have entirely disappeared”. In Peru, “silver was in relatively short supply relative to colonial days because of the wartime destruction of the mines”. And in Venezuela, “...the conflict [...] resulted in abandoned estates or only partially cultivated plantations because a large proportions of the slaves had been freed or had fled” (Graham, 1994, p. 138).



Figure 5: **British imports from Latin America and the British Antilles, 1785-1855.**

Unit: thousands of £. Sources: the series for British imports from Latin America is the sum of direct imports from Latin America as recorded in the British data (Davis, 1979, p. 93) and of the estimate provided by Prados de la Escosura (1984b, pp. 143-144) for imports from Latin America through Spain. The series for British imports from the British Antilles is also provided by Davis (1979, p. 93). The series are obtained by interpolating data points available for 1785 and every ten year thereafter. All data points are calculated as three-year averages of the values in $t - 1$, t and $t + 1$.

Britain and Latin America were overwhelmingly optimistic.⁶² Finally, Figure 6 reports the share of Latin America in British imports of a few raw materials in 1785-1855. The figure illustrates that, by 1815, Latin America had become a very important supplier of crucial raw materials such as cotton and hides & skins (although the importance of the former declined sharply in subsequent decades due the rise of US production). Other important imports from Latin America in this period included dyestuffs and train oil.

Thus, the evolution of international trade patterns around the time of the Latin American revolutions was consistent with a large increase in δ in this period. According to Proposition 1, then, if such an increase was large enough to push δ above δ^* , we should observe that Britain provided commercial and other support to the rebel colonies. Did this actually happen? There is abundant historical evidence that it did.

To put things in context, it is important to notice that various political considerations pushed Britain *against* providing commercial support to the rebel colonies. In particular, by being friendly to the rebel colonies Britain could end up alienating Spain, a war-time ally in 1808-1815 and an important player in maintaining the peace equilibrium in Europe during the restoration (Miller, 1993; Kaufman, 1951, p. 78).⁶³ More in general, to provide support to

⁶²For example, until early in 1825 “British mania for Latin America rose in crescendo [...]. Merchants with cargoes of manufactured goods, particularly cotton textiles, established themselves in ports along the Atlantic and Pacific coasts, while in London eager speculators invested their savings in loans to the young governments and in mining enterprises which promised a new El Dorado.” (Miller, 1993, p. 2).

⁶³Similar diplomatic difficulties were faced with Portugal, the oldest and most trustworthy British ally in

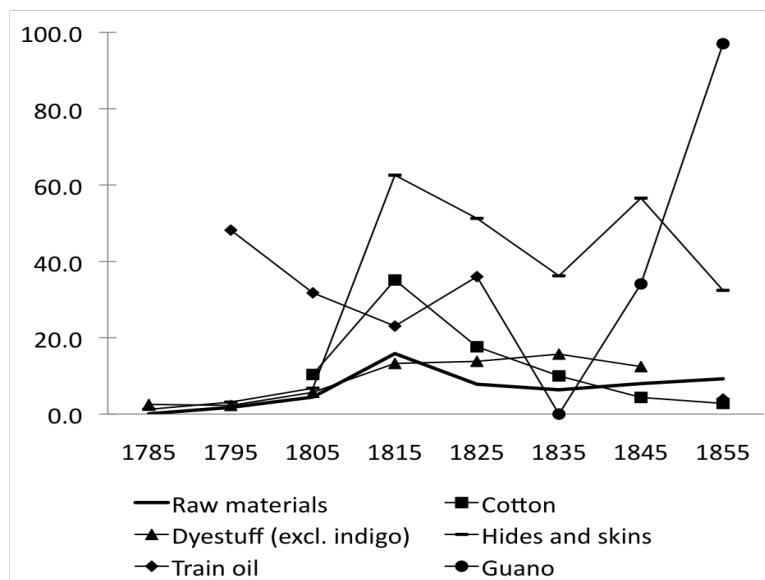


Figure 6: **Latin America, share of British imports of raw materials, total and selected commodities, 1785-1845.** Unit: thousands of pounds. Source: Davis (1979).

groups of revolutionaries was deeply at odd with the spirit of reaction that prevailed in Europe in this period (Paquette, 2004, p. 75), and it was feared it could help spreading dangerous Jacobin principles around the world (e.g. Harlow, 1964, p. 631). This is then an example of how, opposite to what we saw for France and the American Revolution, political considerations may discourage F from granting commercial support to C .

Despite these diplomatic and ideological difficulties, after 1810 the British government became increasingly in favor of providing commercial support to the rebel colonies (Miller, 1993). Eventually, this led to a series of important concessions. In 1822, Spanish American ships were granted, subject to reciprocity, direct access to British ports, a privilege that no foreign country other than the US had.⁶⁴ Also, commercial treaties were signed with Gran Colombia and Rio del Plata in 1825, with Mexico in 1826 and with Brazil in 1827 (Palmer, 1990, p. 52),⁶⁵ often representing a tool of *de facto* political recognition. There is also some evidence that, not only was Britain interested in creating commercial alliances with Latin America, but the latter could, to some extent, dictate terms: for example, the admission of Spanish American ships into British ports in 1822 was urged by the need to appease Gran Colombia, who had threatened commercial sanctions against nations that did not recognize it (Miller, 1993, p. 37).

continental Europe.

⁶⁴Under the British Navigation Acts, in force from the late 17th to the mid 19th century, almost all imports from America, Africa and Asia had to be carried by British ships (see, e.g., Palmer, 1990, p. 41).

⁶⁵These treaties gave the Latin American republics the most favored foreign nation treatment on the British market.

British involvement in the Latin American revolutionary cause did not stop to commercial support. While official military support of the kind that the French had given to the US was hardly conceivable in light of the diplomatic and ideological difficulties described above, Britain still played a role in facilitating the successful unfolding of the Latin American revolutions. At an official level, this included actions such as to refuse to help Spain and Portugal to subdue the revolts; to station warships in the South Atlantic in 1808, and thus, simultaneously, protect Latin American trade and prevent other European powers from getting involved (Miller, 1993, p. 36); to prevent, in two occasions in 1817 and 1823, the formation of a European coalition that would help Spain to subdue the colonies (Graham, 1993, p. 112); and to grant political recognition to the newly born republics.⁶⁶ Beyond official actions, Britain provided a safe heaven for some of the key Latin American conspirators of this period, some of whom are known to have had access to the highest spheres of British government.⁶⁷ Also, throughout the independence period, the British merchants were active behind the scenes to help the revolutionaries, often with the tacit support of British naval officers (*Ibid.*, p. 39).⁶⁸ This active British involvement in the Latin American revolutionary cause is consistent with one of the model's key finding: namely, that F gains from a conflictual separation between C and M , because trade disruption between the two implies a re-orientation of trade towards F .

In summary, we have seen that trade was important for the Latin American colonies in the early 19th century, and the δ that they faced had likely grown above δ^* by the early 19th century. We have also seen that Britain provided substantial commercial support to the rebel colonies, and was active in a number of other ways - both officially and unofficially - to facilitate the Latin American revolutions. These facts are consistent with the interpretation that, *ex ante*, Latin America faced a favorable global environment for rebellion (Proposition 6); *ex post*, given the colonies' lower cost of rebellion following the Napoleonic invasion, Spain and Portugal's decision not to grant them more autonomy was essentially wrong. Notice that such decision was, indeed, perceived as a strategic mistake by contemporaries, who weren't however successful at influencing the actions of Spain and Portugal. For example, the Spanish King was "[...] obsessed with the idea of returning the colonies to the position they had occupied

⁶⁶Britain's willingness to facilitate the revolutions is evident in the words of Lord Castlereagh, in 1807 Secretary of War and the Colonies, who declared himself "doubtful too about attempting to foment revolt against Spain, although should it occur British forces might act as auxiliaries and protectors" (Miller, 1993, p. 35).

⁶⁷Harlow (1964, pp. 642-645 and 652), reports that a series of Spanish-American conspirators began to turn up in London in the 1780s, many of which were directly representing the Spanish colonists. Among them was Francisco de Miranda - one of the key Latin American revolutionaries of this period - who intrigued London's polite society and had several meetings with the British prime minister. Also, Paquette (2004, footnote 78) describes what was a "mutual seduction" of Simon Bolivar - the most successful of the Latin American revolutionaries - and Britain.

⁶⁸For example, the British merchants lent Simon Bolivar more than £1 million to finance his military campaigns, contributing to determine his success after 1816 (Graham, 1993, p. 119).

before 1808. He turned a deaf ear to the entreaties of even the conservative monarchs of France and Russia, who urged him to grant more autonomy to the colonies in order to preserve them” Graham (1993, p. 109).

To provide further support to this interpretation, it is first of all important to demonstrate that calculations about trade did shape the mind of the Latin American revolutionaries, and of their supporters among British policy makers. Next, one may want to know whether the model’s counterfactual to the theoretical scenario that I am using to explain the Latin American revolutions - that is, an alternative scenario in which C faces a hostile global environment, and a fall in μ is thus much less likely to result in a break up of empire (Proposition 6) - could actually be imagined for the case of the Latin American colonies. If it didn’t, then the claim that economic conditions were responsible for the Latin American revolutions as outlined by the model would be somewhat weakened. Finally, the interpretation put forward in this paper needs to be put in context of some of the existing explanations for Latin American revolutions. I conclude this case study by reviewing these three points in turn.

Calculations about trade perspectives had a crucial role in shaping the mind of the revolutionaries according to Graham (1993): in most colonies, a majority of the pro-independence groups had not only substantial interests in trade, but were directly motivated, in their revolutionary effort, by the perspective that independence would bring a secure, as well as expanded, trade with Britain. That the revolutionaries cared about trade, and believed Britain would be an interested counterpart, is evident from the speed with which many of the newly-independent colonies opened up their ports to trade with Europe, offering some specific trade privileges to Britain.⁶⁹ That the belief in British commercial interest was strong is also evident in the fact that the revolutionaries used the promise of commercial treaties as a bargaining tool to secure some diplomatic support from Britain. Such bargaining strategy was adopted by some of the newly-installed revolutionary governments, such as that of Venezuela in 1810 and 1822.⁷⁰ But it was also the typical bargaining strategy adopted by Latin American conspirators in London since the 1780s, a signal that the belief in British commercial interest had been “in the air” for decades before the revolutions (Harlow, 1964, 642-644).

While the actions that Britain took towards Latin America were, at least until 1815, also determined by political considerations, economic forces were a key driver of British policy in this period. Harlow (1964, pp. 615-662) stresses that the view of the British industrialists on

⁶⁹For example, this was the case in Argentina (1810) and Venezuela (1810). In Venezuela, the revolutionary government granted preferential tariffs to Britain (Graham, 1993, pp. 80-81 and 89).

⁷⁰At the same time as he granted Britain preferential tariffs, the Venezuelan revolutionary government of 1810 sent emissaries to London, with the aim of securing some diplomatic support (Graham, 1993, p. 89). And as mentioned above, in 1822 the Venezuelan revolutionary Simon Bolivar used the threat of commercial retaliation to secure access for Spanish American ships to British ports, such concession being seen as a proxy for diplomatic recognition (Miller, 1993, p. 37.)

Latin American liberation, was, in the long-run, a key determinant of British policy, alongside political considerations about the balance of power in Europe.⁷¹ Winn (1976) reports Lord Castleraign (Secretary for Foreign Affairs in 1812-1822) as saying that Britain should direct her policy towards “[...] creating and supporting an amicable and local government, with which those commercial relations may freely subsist which it is alone our interest to aim at, and which the people of Latin America must equally desire”. Such approach was enthusiastically adopted by George Canning, Castleraign’s successor (1822-1827), to whose generation “[...] Latin America was a land of fabled resources, which English enterprise had only to deliver from Iberian control for its great potential to realize” (p. 102). In his review of the literature on this topic, Paquette (2004, pp. 75-76) identifies two main views on what spurred the decision by Britain to recognize the rebel colonies in the early 1820s. The first is that diplomatic conditions became more conducive in the early 1820s, thus joining forces with an underlying voracious appetite of the British merchants. The second is that the growth of British industry made recognition a more attractive option. Both views attribute the trade rationale a key role in determining British policy towards Latin America.⁷²

To better see how Latin American independence was facilitated by a favorable global environment, it is useful to imagine how its realization would have been more difficult under alternative economic conditions. One way one can try to do this is by “placing” the Latin American revolutions, rather than in the world economy of the early 19th century, in the pre-industrial revolution age of mercantilism, 1650-1780 (e.g. Findlay and O’ Rourke, 2007). In this period, the widespread belief that the wealth of a nation should be measured with the size of its stock of bullion induced governments to seek to maximize national trade balances. For European countries that imported foodstuff and raw materials, the two obvious ways to do so were to expand national empires in producing areas, and to accord strong protection to these industries within the empire. Of course, the latter strategy was only feasible for countries that had not yet undertaken the massive specialization in manufacturing brought about by the industrial revolution, but that case applied to all European countries in this period.

While the model assumes balanced trade and takes national stocks of x as given, F ’s trade policy attitude in the mercantilistic world could be simply captured by assuming that its government is not a welfare maximizer, but cares disproportionately about net sellers of x . As discussed elsewhere, this would lead to a higher δ^* , and thus to a higher probability that $\delta < \delta^*$.⁷³ Thus, the mercantilistic world offers a potential counterfactual to the global

⁷¹This view was outlined in a report put before the British prime minister in 1803. Such report stressed that the needs of Britain and Latin America were complementary, that only a fraction of the fertile land in South America was yet cultivated, and that there was enormous potential for mutual exchange (*Ibid*, pp. 658-659).

⁷²Paquette (2004) himself finds that “[...] grandiose fantasies of South America as an outlet for capital, a depot of raw materials, and a lucrative testing ground for technology and industry was a ubiquitous feature of the milieu from which recognition emerged” (p. 76).

⁷³It would then be possible that F ’s first best is to close down to trade with C , even if the former is a net

environment faced by the Latin American colonies in the early 19th century.

This discussion implies that, had those *same* Latin American colonies sought *independence* from Spain and Portugal in the mid 18th century, a lesser need to export manufactures in other European countries, coupled with the mercantilistic trade policy attitude that this afforded, would have resulted in a more hostile environment that the colonies would have to face.⁷⁴ While there aren't many examples of colonies that became independent in the mercantilistic period, the major case of the US seems to confirm this hypothesis: as discussed in the previous section, a significant share of US colonies were exporting commodities that existed in protected supplies in other European empires: partly as a consequence of that, these colonies faced large economic distress in the first few decades of independence. A different, but related, type of evidence is suggestive of how net sellers of x were influential in this period: at times, these managed to block not only the opening up to trade with competing foreign countries, but even their *imperial annexation*. For example, France's defeat in the Seven Years War (1763) did not result in Britain's annexation of the valuable French possessions in the Caribbean, partly because British sugar planters objected to the inclusion of competitors within the boundaries of the empire.

The economic trajectory of the British empire can then be more clearly seen as the main economic factor that contributed to creating a new global environment for the Latin American colonies. Because of the loss of the US and the onset of the industrial revolution, the British economy became less and less anchored to the ideal of self sufficiency from the last few decades of the 18th century, and increasingly dependent on foreign markets. This pattern is illustrated in Figure 7, which also looks at the case a few specific commodities that were particularly relevant for Latin America.⁷⁵ As foreign markets became increasingly important for the British economy, the mercantilistic practice of protecting domestic producers of foodstuff and raw materials became increasingly outdated, and the mercantilistic principles began to be replaced by free trade principles - that is, that imports of foodstuff and raw materials should be liberalized, so as to reduce consumer prices and induce other countries to liberalize

importer of x in the integrated world: in such a case, F would itself become an exporter of x to M . (for further discussion, see footnotes 9 and 37).

⁷⁴No such counterfactual can be very realistic. Here, there are at least two caveats: first, the Latin American colonies would have looked rather different in the mercantilistic period, since their specialization as exporters of foodstuff and raw materials was much accentuated by industrial developments in the latter part of the 18th century; second, other European Empires would still have had a strong rationale to facilitate the break up of the Iberian empires, but in order to annex their American possessions as *colonies*.

⁷⁵The figure reports the estimated share of the empire in British imports of raw materials and foodstuff, as well as of cotton, hides and skins, and dyes, from 1773 onwards. The share of empire is imports of raw materials and foodstuff declines from around 50% in 1773 to around 25% in 1855, with two rapid declines in 1773-1785 (due to the loss of the US) and in 1815-1855. Cotton and hides and skins clearly display an increasing reliance on foreign supply over time, while dyes were largely imported from outside of the British Empire throughout this period.

their imports of manufactures.⁷⁶ This evolution, which culminated with Britain's unilateral adoption of free trade in the 1840s, was associated with the progressive loss of power, in the British political economy, of producers of foodstuff and raw materials (the landed aristocracy), to the benefit of producers of manufactures.⁷⁷

From the standpoint of British trade policy attitude towards "new" countries in Latin America, this evolution is consistent with the finding that, as δ increases, F 's political economy becomes progressively less dominated by net sellers of x , and progressively more by net buyers of x (and net sellers of y). Furthermore, the switch from mercantilistic principles to free trade principles may have triggered a decrease in δ^* in this period. Both of these facts can then account for the fact that it was $\delta < \delta^*$ for the Latin American colonies in the early decades of the 19th century. Thus, a rapid change in economic conditions - and the change in the British political economy that these triggered - were responsible for the emergence of a more favorable global environment for Latin American independence in the early 19th century. This new environment marked an important discontinuity relative to the environment that had prevailed in the mercantilistic period.

My interpretation belongs to a strand of literature that emphasizes the importance of international conditions in precipitating Latin American independence, and in particular the role of Britain. My contribution to this literature consists in the fact that I analyze the deep economic determinants of such conditions, in the context of a formal model. This also helps putting Latin American independence in a broader historical context, and to better picture plausible counterfactuals. As far as the broader historical literature is concerned, my interpretation complements, rather than contradicts, the other main explanations for Latin American independence. Some authors point at the importance of exogenous factors that, around the first decades of the 19th century, shifted the balance of power between the Iberian powers and their empires in favor of the latter. These include the spreading of revolutionary ideologies from

⁷⁶The end of the 18th century is the period in which the principles of free trade began to be widespread in Britain, and to have a grip on British policy as well. For example, such new principles prevailed in the management of a "new" import industry, cotton. While imports of cotton were small until the 1760s, the industrial revolution in the production of cotton textiles led to a boom in the imports of this commodity from the 1770s onwards. Initially, the British government sought to create an imperial supply of cotton in the West Indies, by granting such imperially-produced cotton a subsidy on the British market. Such plans were rapidly abandoned, however, mainly because of the strong opposition of Manchester manufacturers in any scheme that would increase the domestic price of such a strategic import commodity (Harlow, 1964, pp. 281-287).

⁷⁷While free trade triumphed in the 1840s, the transition out of the mercantilistic era was a gradual process, that began at the end of the 18th century. This transition was prepared by a large intellectual front in favor of free trade, that took hold in Britain from the second half of the 18th century (see Semmel, 1970, for a review). By the early decades of the 19th century, the ideas of free trade had an important role in British policy making (e.g. Kindleberger, 1975, pp. 27 and 31; Grampp, 1987, p. 86; and Paquette, 2004, p. 78). Important trade reforms that progressively weakened the mercantilistic system were undertaken already in the 1760s (with the introduction of "free ports" in the Caribbean, where foreign produce could be imported), and then again in the early 1820s and the early 1830s (see Bairoch, 1989, pp. 9-10).

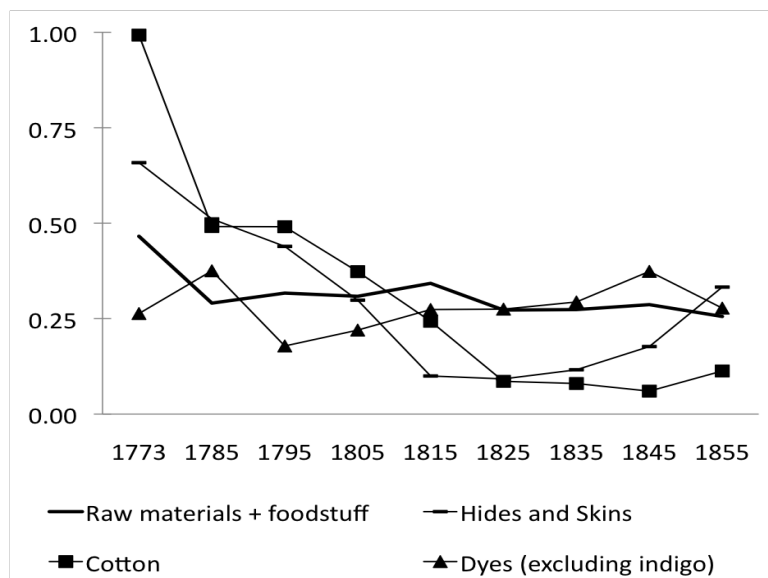


Figure 7: **Britain, estimated share of empire in imports of raw materials, total and selected commodities, 1773-1855.** Sources: Davis (1962, 1979), McCusker and Menard (1985). The construction of these estimates required making several assumptions, described in the Appendix.

North America and France, and the invasion of the Iberian peninsula by Napoleon.⁷⁸ While such exogenous factors are captured in the model with a decrease in μ , my emphasis is on the economic conditions that determined their final impact on Latin American independence. This is in tune with the view that the impact of exogenous factors must always be seen in the context of specific contemporary conditions.⁷⁹ Another interpretation holds that the root of revolution are to be found in a rapid increase in the level of European (particularly Spanish) extraction in the second half of the 18th century.⁸⁰ I suggest that the attempt by Spain and Portugal to maintain a high level of extraction in the early 19th century, and its consequences, must be seen in the context of a fundamentally changed balance of power within their empires.

⁷⁸For example, Graham (1993, p. 62) hypothesizes that “If Spain in 1820 and the years immediately thereafter had been able to marshal its full military might against the revolutionaries in America instead of dispatching only small reinforcements, events there might have been very different. [...] Evidently, a relatively small increase in Spanish power or an equally small decrease in insurgent strength might have eliminated all the foci of revolutionary attitudes and divided Americans from Spaniards, and maintained the Spanish Empire intact for perhaps another fifty years”.

⁷⁹For example, some authors have pointed at the fact that Spanish America witnessed the invasion of her metropole in an earlier occasion - at the time of the War of Spanish Succession, in the early 18th century - but did not rebel back then because of different contemporary conditions.

⁸⁰There is in fact substantial evidence that extraction increased in this period, as a series of reforms in Spain - the so called “Bourbon reforms” - set out to strengthen imperial control over the American colonies. Also, the permanence of the Portuguese King in Brazil and its forced return to Portugal in 1808-1822 were associated with a tightening of Portuguese extraction (Graham, 1993, pp. 103-104 and 128-133).

Finally, I should point out the subtle difference between my argument and a closely related one, also explaining Latin American independence with the change in trade patterns created by the industrial revolution. This other argument holds that, by increasing the volumes of trade between Latin America and Northwestern Europe, the industrial revolution increased the *size* and *inefficiency* of colonial extraction (Graham, 1993). To see the logic of this argument, recall that much of colonial extraction in the Spanish and Portuguese empires took place through the national monopolies, that required trade between the colonies (C) and the rest of Europe (F) to be intermediated by the metropolises (M). As the size of such trade increased, so did the size (T) and inefficiency (B) of the transfer from C to M . Such an argument is, of course, not present in my model, where T is instantaneously adjustable and B does not depend on trade patterns.

While this argument is both plausible and supported by the evidence,⁸¹ its approach is a partial one: in particular, the argument does not consider that the *future* value of trade between Latin America and Britain was also endogenous to contemporary economic conditions, and that the industrial revolution marked a fundamental change in British trade policy attitude towards foreign markets. By studying Latin American independence in the context of a formal, general equilibrium model of trade, my paper emphasizes these other factors, and their role in creating a better global environment for Latin American independence. Because they focus on essentially different channels, then, the two approaches are largely complementary.

6 Conclusions

This paper has investigated how the sustainability of colonial power depends on the structure of trade between a colony, her mother country, and the rest of the world. I have developed a model which links a colony's incentives to rebel to the economic fundamentals that determine the pattern of trade. My main result is that as the rest of the world switches from being a trade competitor of the rebel colony to being a trade partner, and as the attractiveness of its markets for the colony increases, the colony's terms-of-trade cost of revolution decreases. This is because optimal trade policy in the rest of the world becomes more benevolent towards a rebel colony, resulting in a stronger and more valuable external support. This fall in the cost of revolution shifts the balance of power between the colony and the mother country in favour of the former, reducing colonial extraction and increasing the likelihood of decolonization.

⁸¹Graham (1993) provides historical evidence according to which some of the pre-revolutionary groups had a lot to gain from the abolition of the colonial monopoly, while some of the anti-revolutionary groups - such as the merchants that traded with Spain and Portugal - had a lot to lose. This argument does not contradict mine, that suggests that a pre-condition for anyone to gain from the abolition of the trade monopoly was Britain's interest in opening up its markets to Latin American produce.

I have used my model to re-interpret the long-established link between the Seven Years War and the American Revolution. This link can be better understood by looking at the Seven Years War as a re-allocation of factor endowments (mainly land and sea) from the French to the British Empire, which made the former a better trade partner of the American colonies and thus a more reliable external supporter. I have then studied whether my model can help interpret the fall of the Spanish Empire in early 19th century. It is traditionally argued that the fall of the Spanish Empire was brought about by the invasion of Spain by Napoleon. My model suggests that a deepest economic factor at play was the increasing concentration of manufacturing capital in Britain, due to the industrial revolution.

These findings have potentially important implications for the debate on the economic legacy of colonial empires. On one hand, my results suggest that some of the most successful European economies may have become so because of a virtuous circle between colonial empires and the mother country's trade power. As Acemoglu, Johnson and Robinson (2005) have pointed out, the opening up of colonial trade in the 16th century affected the European countries involved in different ways. While countries such as Spain and Portugal depleted the wealth of colonial trade in public and private consumption, England used it to improve private incentives to investment in productive capacity. My paper suggests that, in turn, the resulting larger importance of the British market for colonial trade may have contributed at making Britain ultimately more successful at keeping a large empire under control, and at benefiting from it.

On the other hand, the paper suggests one possible rationale for why imperial powers may have wanted to hinder industrial development in colonies (as argued, for example, by dependency theorist, see Frank, 1971). By diverting resources from export-oriented sectors to import-competing sectors, industrial development would threaten to decrease the colony's exposure to international trade. In turn, this would decrease the relative economic power of the mother country, thus decreasing the profitability and sustainability of colonial power. In this interpretation, factor accumulation in colonies might well have been shaped by factors other than comparative advantage, carrying potentially important long-run consequences for colonial economic development.

To the best of my knowledge, this is the first paper to spell out the link between economic fundamentals and independence from external control, in the context of a general equilibrium model of trade. Because of its simplicity, the model can be generalized and extended. For example, one may want to use a continuous trade-policy version of the model to investigate how optimal trade policy is shaped by the need to preserve central control within an empire, a large centralized country, or an area of influence. In addition, one could modify the political model to account for heterogeneous colonial agents, and the possibility that decolonization affects post-independence politics.

The main prediction of the paper - that the amount of international support a rebel region

may expect to receive depends on whether the relevant foreign countries are trade competitors of the region, or trade partners - is likely to be relevant for secession more in general. When thinking about the international determinants of secession, economists have mostly focused on the price of natural resources, as determined by external demand conditions. While the case of extremely sought-after commodities is just a specific case in the model - one with a very high δ , implying that the rebel region's exports are in high demand on world markets, in little demand at home - the paper sheds some light on how, for a wider range of exported commodities, external demand shocks may twist the politics of the key foreign countries in favor of against the secessionist region's bid for independence. This may affect the amount of international support that the secessionist region receives, as well as the geography location of such support. Thus, the paper cries out for an empirical study of the international determinants of secessions, focusing not only on the price of exports, but also on the geographical distribution of foreign demand, and on the politics that it generates.

One obvious difficulty in conducting such a study is that one would need data not only on world prices, but also on external *and domestic* trade flows. While disaggregated international trade data exists for a majority of countries in recent years, this becomes very incomplete going back in time, and there is almost no data on trade between a secessionist region and its country of origin. One possible way out of this conundrum would be to exploit the model's prediction that, around the point where a foreign country switches from being a trade competitor of the secessionist region to being a trade partner, the amount of external support that the region receives changes discretely. One could begin by identifying major examples of cases in which a large trading country switched from exporting to importing a certain commodity, and then see if these were systematically connected to secessionist activities in regions specializing in the production of that commodity. Using existing data on inter-state dispute and alliances, one could also test directly for the prediction that secession should especially receive the external support of those countries where political conditions have changed, because of the observed change in trade patterns. Such an empirical investigation of secession in a global perspective is, I believe, an intriguing direction for future research.

Appendices

A Construction of Figure 7

Davis (1979) provides a continuous series for total imports of major/total raw materials/foodstuff in 1785-1855. He also provides the same series for some clearly imperial sources such as Australia, Canada and the West Indies. For other imperial sources, two complications arise: 1) Ireland drops out of the data after 1825, as the

British and Irish customs were merged. I have therefore opted for excluding Ireland as an imperial source from the beginning, but the pattern illustrated in the figure is robust to including it instead. 2) Asia is reported as a single block throughout the period, and we don't know what sources are imperial and what not; furthermore, China is included in the series until 1825, excluded thereafter. For consistency, I have included China in the Asia series after 1825 as well. To reflect progressive British expansion in India over the period 1773-1855, I have considered a (linearly) growing share of imports from Asia to be "imperial". For total raw materials and foodstuff, this share rises from 14% in 1773 to 70% in 1855, while for cotton, hides & skins and dyes (excluding indigo) it rises from 20% in 1773 to 100% in 1855. These different trends reflect the fact that China, that was not part of the British empire, was an important source of raw materials and foodstuff, but almost no cotton, hides & skins and dyes (excluding indigo) were sourced there in this period. For 1773, Davis (1962) only provides imports from a vast "America" aggregate, including the USA, Canada, the West Indies, Portuguese and Spanish America and West Africa. For total imports of foodstuff and raw materials, I have used data on US and Canadian exports in 1768-1772 (from McCusker and Menard, 1985) to infer British imports from these colonies, and subtracted this from total imports from America to infer British imports from the West Indies (assuming that direct imports from other parts of the America and West Africa were relatively small in this period). For imports of cotton, hides & skins, and dyes (excluding indigo), I have assumed that the share of USA, Canada and the West Indies was the same in 1773 as it was in 1785. This is likely to lead to under-estimation of the relative decline in imports from empire in 1773-1785, because of the trade disruption provoked by the American Revolution. To summarize, imports from empire are then calculated as the sum of imports from Australia, Canada, the US (for 1773 only, excluded thereafter) and the West Indies, and a share of imports from Asia calculated as described above.

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