War and Peace: The European Decolonization Process *

Nuno R. Garoupa
Universitat Pompeu Fabra
Barcelona, Spain

João E. Gata
Instituto Superior de Gestão
and UECE/ISEG
Lisbon, Portugal

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Correspondence addresses:
Nuno R. Garoupa: Department d'Economia i Empresa, Universitat Pompeu Fabra, Ramon Trias Fargas 25-27, 08005 Barcelona, Spain.
Email: nuno.garoupa@econ.upf.es
João E. Gata: Departamento de Economia, Instituto Superior de Gestão, Rua Vitorino Nemésio 5, 1750-306 Lisboa, Portugal.
Email: jgata@isg.pt

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Abstract

Current historiography on the European decolonization processes has developed no general theory of these processes, but is rather a collection of case-based studies. Moreover, there is no consideration for counter-factual possibilities, including the analysis of those cases where independence has not occurred. In this paper we aim at constructing a rational theory approach to decolonization that can encompass the majority of historical cases. Our rational theory is constructed by considering the possible convergence, or divergence, of interests between central and local administrations, and the weight that each carries in the decolonization decision-making process.

Our theory predicts that a high value colony will be more likely to experience a colonial war, whereas a low value colony is more likely to achieve independence in a peaceful manner. This observation has to be refined once we allow for the existence of a domestic game between hawks (pro-colonialism) and doves (pro-independence). We then study the strategic relations between the two players, native political organizations and the colonial power, and the domestic outcome.

Keywords: colonialism, decolonization, colonial war, colonizer's rent, extensive form game, subgame perfect equilibrium.
JEL Classification: C71,C72, N00

1 Introduction

Decolonization is taken to mean the process by which former colonies, or non-self-governing territories, become self-governing states. Using this broad definition, we can include the independence of the United States and Haiti two centuries ago (in 1776 and in 1804) alongside the independence of St. Lucia or the Seychelles in the past two decades. However, this broad definition cannot help us much in analyzing the sequence of changes in the relationship between colonizers and colonized before and during the decolonization process. In fact, such a definition describes neither the form nor the causes and content of such changes.

In content, decolonization must be the undoing of a colonial relationship. The decolonization process operates at four levels. First, an independent government with full power within the boundaries of the colony is created. The colonial power will no longer control the political structure of the colony. A new elite takes over. Second, the provision of public goods and government services is decided and managed by the new government. The colonial power will no longer bear the cost of running the colony. Third, new social and economic institutions are eventually created, aiming at the establishment of political rights and at improving the levels of economic and social well-being of the population. Fourth, there may be a process of incorporating culturally distinct groups in the community, including non-native settlers and different native population groups. This process can be a violent one due to one group's attempt to dominate others.

During the fifteen years or so after World War II a wave of newly independent countries swept across Asia and Africa. Both the scope and speed of the dismantling of the European colonial empires were unforeseen. Several historical developments came together to bring about such a speedy decolonization process. The war itself caused strains on the European colonial powers, which led them to lose grip on their overseas empires. Some of them had lost their colonies during the war and found it difficult to restore control over them afterward, while others were so depleted economically by the war that they might have come to view the maintenance of a colonial empire as

too great a burden.[1] Another factor might have been the emergence of an educated elite among the natives of the colonies who commanded political power locally and who sought independence for their homeland.[2] Finally, the post WWII restoration of freedom and self-rule in Europe certainly strengthened the pursuit of similar goals in Europe's colonies.

Many authors (see McWilliams and Piotrowski, 1997) refer to the end of colonialism forgetting that many colonies do exist today even though with different names such as "dependent territories", "associated territories", "overseas departments", or even "assimilated states" and "provinces" with a high degree of political autonomy.[3] In particular, island developing regions are generally regarded as a new category of territories meriting special attention and not under any international legal colonial status (see Hintjens, 1995).

[1] However, it is worthwhile noticing that the decolonization process, especially in Africa, was contemporary to the fast economic rise and the increasing economic integration of Europe during the 1950's and 1960's - in 1960 alone, 17 former African colonies gained their independence from both France and Britain - and not to the economic hardship of the late 1940's, when the European colonial powers felt a strong need to call in their colonial resources to finance their post war reconstruction. During the 50's and 60's there was a clear shift of European priorities, in particular British priorities, away from their colonies and towards Europe itself - see Hobsbawm (1994), Birmingham (1995), and White (2000).

[2] Notice that this emergence had taken place in India, as in some other colonies, sometime before the outbreak of WWII. In India, the resistance to British rule began back in the nineteenth century with the founding of the Indian National Congress (INC) in 1885. In 1906 the INC adopted for the first time the policy of 'self-rule' for India. Prior to World War II, the British were already committed to eventual self-government and independence for their largest colony - see Hobsbawm (1994).

[3] *Dependent territories* (UK): Anguilla, Bermuda, British Virgin Islands, Cayman Islands, Montserrat, Pitcairn Islands, St. Helena, Diego Garcia Island, Turks and Caicos Islands. *Associated territories* (UK): Channel Islands, Gibraltar, Falklands. *Associated territories* (Australia): Christmas Island, Cocos Islands, Norfolk Island. *Overseas departments* (France): Martinique, Guadeloupe, French Guiana, French Polynesia, Mayotte, New Caledonia and Dependencies, St. Pierre and Miquelon, Réunion Island, Wallis and Futuna Islands. *Self-Governing Overseas Administrative Divisions* (Denmark): Faeroe Islands, Greenland. *Self-Governing Territories in Free Association* (New Zealand): Cook Islands, Niue, Tokelau. *Associated Territories* (US): American Samoa, Baker and Howland Islands, Guam, Jarvis Island, Midway Islands, Navassa, Northern Mariana Islands, Puerto Rico, US Virgin Islands, Wake Islands. *High Degree of Autonomy*: Hawaii, Portuguese Madeira and Azores, Spanish Ceuta and Melilla, Canary Islands, Dutch Aruba and Netherlands Antilles, Norwegian Svalbard Islands.

In other words, not all colonies engaged in a struggle for independence as usually perceived, and some, even if constituting a small minority, accepted a post-colonial status.

Finally, the interaction between the colonial power and the settlers' community is often overlooked. In fact, Furedi, 1994 argues that considering what he calls a "second colonial occupation", that is, the shift from central to local administration, does not alter the main historiography of colonial wars because decolonization is still the product of either a conscious or an unconscious policy of government.

In this paper we aim at constructing a rational theory approach to decolonization and colonial wars encompassing the different historical cases. The criticism towards current historiography stems from the fact that it develops no general theory of decolonization but rather presents a collection of case-based studies. Moreover, there is no consideration for counter-factual possibilities, including the analysis of those cases where independence has not occurred.

Our theory is constructed precisely by considering the possible convergence, or divergence, of interests between central and local administrations, and the weight that each carries in the decolonization process. Game theory provides us with the tools needed to study the strategic interaction between those agents with differing interests, i.e., players who do not typically agree on the ranking of all the possible strategy profiles. Our model predicts that the independence of a 'high value' colony will almost inevitably end up in a colonial war, whereas a 'low value' colony will achieve independence in a peaceful manner. This observation has to be refined once we allow for the existence of political struggles within the colonial power.

The paper proceeds as follows. In the next section we present a brief summary of the current history literature on decolonization. In sections 3 and 4 we present our model by discussing two possible decolonization games. Section 5 concludes the paper.

2 Related Literature

The relation between the historical facts and the different experiences on decolonization has been at the root of a debate within the current history literature on the subject (see Holland, 1987, and McWilliams and Piotrowski, 1997).[4] This debate has taken place between four different views on decolonization namely: (*i*) the *Commonwealth View*; (*ii*) the *Imperialistic View*; (*iii*) the *Romantic Nationalistic View*; and (*iv*) the *Political Economy View* - see Twaddle (1986), and Furedi (1994).

Authors adopting the *Commonwealth View* look at decolonization as the natural conclusion of a long process of power delegation. A colonial war is regarded as a 'mistake' caused by disagreements over the timing of such process. This view is clearly influenced by the decolonization of British India. It also fits the process of post WWII decolonization in the former British Southeast Asia colonies of Ceylon, Burma, Sarawak and North Borneo, and Brunei.[5]

For the authors adopting the *Imperialistic View*, decolonization is a consequence of the weakening of imperial control in the aftermath of the destruction in physical capital brought about by World War II, and of moral changes in the wake of the rise to power of leftwing parties in Europe. Colonial wars are seen as a consequence of the violent resistance by the colonial powers to the breakdown of imperial isolation, i.e., maintenance of an exclusive or quasi-exclusive trading area. This theory seems to find support in the Dutch and French decolonization of their Southeast Asia colonies and decolonization in Africa in general, but not in the case of British decolonization in Asia.

For authors adopting the *Romantic Nationalistic View*, decolonization is seen a consequence of the rise of a nationalistic movement caused basi-

[4] For concise and recent works on the European decolonization processes, see e.g. Birmingham (1995), Betts (1998), and White (2000).

[5] The Malayan union's independence was delayed until 1957 because of internal strife between Malays and Chinese who were the majority in Singapore, which became independent in 1959.

Table 1: Summary of Decolonization Experiences: **Britain**

Colony	Observations
Dominions	Self-governing colonies
Ireland	Ulster conflict
Malta	No war
Afghanistan, Egypt, Libya, Iraq	No war
British India	Civil War follows
British Southeast Asian Colonies	No war
Palestine and Transjordan	Israeli conflict follows
British African Colonies	No war
Rhodesia	Struggle 1963-1979
Kenya	Struggle 1952-1963
Pacific Colonies	No war
Caribbean Islands	No war
Federation of Malaya	Chinese communist guerrilla
Cyprus	Struggle; Civil war follows
British Guyana	Secessionist movement
Vanuatu (New Hebrides)	Secessionist movement

NB: Dominions include Australia, Canada, New Zealand, South Africa. British Southeast Asian Colonies include Burma, Ceylon, Brunei, Bahrain, Kuwait, Mauritius, Qatar, United Arab Emirates, Yemen. British African Colonies include Botswana, The Gambia, Ghana, Lesotho, Malawi, Nigeria, Seychelles, Sierra Leone, Somalia, Sudan, Tanganyika, Uganda, Swaziland, Zambia, Zanzibar. Pacific Colonies include Fiji, Kiribati, Nauru, Papua New Guinea, Solomon Islands, Tonga, Tuvalu. Caribbean Islands include Bahamas, Jamaica, Trinidad and Tobago, British Honduras (Belize), Barbados, Grenada, St. Lucia, Antigua and Barbuda, St. Christopher and Nevis, Saint Vincent and Grenadines.

Table 2: Summary of Decolonization Experiences: Others

Colonial Power	Colony	Observations
France	French Morocco and Tunisia	No war
	Syria and Lebanon	No war
	French Africa and Madagascar	No war
	Indochina (Laos, Vietnam)	First war in 1945-1954
	Algeria	War in 1954-1962
Netherlands	Dutch East Indies (Indonesia)	Struggle 1945-1949
	Suriname	No war
Belgium	Belgian Congo (Zaire)	Civil war follows
	Burundi	Civil war follows
	Rwanda	Struggle 1959-1962
Portugal	Portuguese Africa	War in 1961-1974
	Portuguese Timor	Civil war follows
Spain	Spanish Morocco	No war
	Equatorial Guinea	No war
	Spanish Sahara	Struggle
South Africa	Namibia	Secessionist movement
New Zealand	Western Samoa	No war
United States	Philippines	No war
	Marshall Islands and Palau	No war

NB: French Africa includes Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Comoros, Congo, Djibouti, Gabon, Guinea, Ivory Coast, Mali, Mauritania, Niger, Senegal, Togo. Portuguese Africa includes Angola, Mozambique, Guinea-Bissau, Cape Verde, São Tomé and Principe.

cally by politicization of the colonial masses. Colonial wars are legitimized as independence struggles for equity, fairness, and freedom. As a matter of analysis, most new governments in the former colonies gave way to dictatorships characterized by serious political and economic mismanagements including widespread corruption, and by both internal violence, often ethnically motivated, and external violence.

For authors adopting the *Political Economy View* colonial wars are evidence of violent competition for the control of natural resources. Under this view, decolonization was a direct consequence of competition between the Western allies and the Communist world. Most independence movements were supported by Moscow, and the U.S. billed out some of the colonial struggles with foreign aid and political support.[6] This view is also supported by the observation that, in several cases, the guerrilla war between the colonial master and the colonized was followed, after independence, by a civil war where one party was supported by Moscow and the other by Washington. As examples one can point out the cases of Vietnam (1963-1975), the Belgian Congo (1960-1965), Nigeria (1967-1970), Angola (1975-1994) and Mozambique (1975-1992).

Finally, there is a growing literature in economics on the formation of countries, their size and shape, and on their political and economic integration and breakup[7]. As can be expected, this literature relies very much on trade, input mobility, taxation and the provision of public goods as the main determinants of the formation, integration and breakup of countries. Barro (1996) defines a country's optimal size in terms of the trade-off between the per capita cost of public goods provision, which decreases with a country's size, and the cost to the central government of satisfying its population demands, which increases with a country's size due to an increased population diversity. Friedman (1977) studies the shaping of European nations through

[6] As mentioned above, WWII weakened politically and economically most former colonial powers, such as Britain, France, Belgium and the Netherlands. However, one former colony, the USA, came out of the war stronger than ever, economically, militarily, and politically, and the USSR, even if seriously crippled economically, came out of the war politically and militarily stronger, successfully marketing itself as the foremost "anti-imperialist" power.

[7] See Bolton, Roland and Spolaore (1996) for a short survey.

history by assuming that the value to a nation of a territory is the increase in revenues from taxes levied on trade, land, and labor, net of collection costs, which are made possible by the control of that territory. Alesina and Spolaore (1997) study the equilibrium determination of the number of countries in different political regimes, and in different economic environments, with more or less economic integration, by focusing on the trade-off between the benefits of large jurisdictions and the costs of heterogeneity of large and diverse populations. They show that under certain rules of country formation, the equilibrium number of countries is higher than the efficient one. Le Breton and Weber (2000) extend Alesina and Spolaore's work by analyzing compensation schemes, which redistribute wealth among different regions within a country, that can accommodate quite stringent secession constraints. Bolton and Roland (1997) develop a model of the breakup and unification of nations by focusing primarily on redistribution conflicts and income differences across regions as the source of the breakup of nations. Dagan and Volij (2000) model the endogenous formation of nations in a world economy where nations apply income redistributive policies. They conclude that stronger redistributive policies may lead to greater inequality in the world's income distribution, whereas a weaker redistributive policy is a necessary condition for stable economic integration of nations.

Contrary to the papers mentioned above, our model is very much focused on the European decolonization processes. These processes were not peaceful affairs for the most part. In many cases decolonization was the result of a bitter conflict, not the outcome of democratic decision-making processes presiding over the breakup of colonial empires and the creation of new nations. Hence our reliance on the economics literature on conflict. Our results hinge very much on the relation between the different war costs and the colonies' economic value. Ours is not a paper where trade, input mobility, taxation and the provision of public goods are the main determinants of the integration and breakup of nations. However, and as in the papers mentioned above, the formation of nations is endogenously determined in our paper. Finally, it is not our goal to conduct a normative analysis of this formation process by deriving endogenously the 'optimal' number and size of nations, as in e.g. Alesina and Spolaore (1997).

In his 1995 book, Birmingham concludes that the African revolution that led to decolonization in this continent, was the result of (i) nationalist campaigning for independence, (ii) imperialist retreat, and (iii) superpower pressure to gain access to a continent guarded by Europeans. Betts (1998) regards decolonization as an arrangement of three parts of similar significance: (a) national politics (within the colonial powers), (b) international developments, and (c) colonial protest movements. In this paper we address both (i) and (ii), as well as (a) and (c).

3 The Model

Our model builds on the current economic theory of conflict.[8] We construct an extensive form game to analyze the strategic interaction between the colonial power and a native political movement and, within the colonial power, between pro-colonialism (possibly the community of non-native white settlers) and pro-independence groups, or lobbies. All players might have divergent interests in that their preference rankings over the different terminal nodes are not identical. We start by analyzing a two-player extensive form game, called *decolonization game I*, to examine the possible divergence of interests between the colonial power and a native political movement. The main conclusion obtained is that the more valuable is a colony the more likely is the eruption of a colonial war between these two players.

We then proceed by analyzing a two-level extensive form game with imperfect information, called *decolonization game II*, to examine the possible divergence of interests between the native political movement and the colonial power, whose ultimate colonial policy is itself the result of a contest between two groups with differing views over colonialism[9] .

Our approach to conflict is similar to that of Putnam (1988), in that we

[8] See Brams (1985) and Bueno de Mesquita and Lalman (1992) for a good introduction.

[9] E.g., the interests of the community of non-native settlers might diverge from both the interests of the colonial power administration and the interests of the native movement - as, for example, in former Rhodesia or in French Algeria.

aim at capturing the possible conflict between a central adminstration and local constituencies (the domestic game in Putnam's paper) and its effect on the decolonization process (the international game in Putnam's paper). We also show that the conflict between central government and colonial non-native settlers may explain some stylized facts that a one-level game cannot.

On the other hand, our paper differs from that of Grossman and Iyigun (1995, 1997) in the sense that these authors aim at explaining the end of colonialism as a consequence of the effect of population increase on the allocation of time by the natives between productive and subversive activities. We are not concerned about an economic explanation for the end of colonialism in Africa and Southeast Asia, but rather the form that such end can take. Also in their work, Grossman and Iyigun (1997) use the general equilibrium approach to conflict whereas we use a game theoretic approach: our concern is not the explicit analysis of how an economy's resources are allocated between different activities, but how different claim profiles over economic resources determine the set of equilibria in the decolonization games under study.

3.1 Decolonization Game I

We present a two-player perfect information extensive form decolonization game played by the native movement (player M) and the colonial government (player G) - see Fig. 1. Player M can declare independence (action i) or not (action ni). To play action ni means to accept the maintenance of the colonial status quo (*MCS*). If M declares independence, G can either grant independence (action gi), in which case colonial independence (*CI*) is achieved, or not grant it (action ngi), in which case a colonial war (*CW*) will ensue between the two players. A colonial war will result in one of two possible outcomes: either G wins the war and it remains the colonial power (outcome *MCS*), or M wins the war and colonial independence is achieved

(outcome ***CI***).[10], [11]

Let $p \in [0,1]$ denote the probability of G winning a colonial war, $v > 0$ denote the colony's value, i.e., its endowments' market value, and let $d > 0$ and $c > 0$ denote the costs of such war for players G and M, where $c, d < v$ Probability p is assumed to be common knowledge. Henceforth, we will assume both players are risk-neutral.

There are three possible outcomes, each corresponding to a terminal node in this extensive form game:

Outcome 1: *Colonial Independence* **CI**

Player M's payoff equals the colony's value v. Player G's outcome equals zero.

Outcome 2: *Colonial War* **CW**

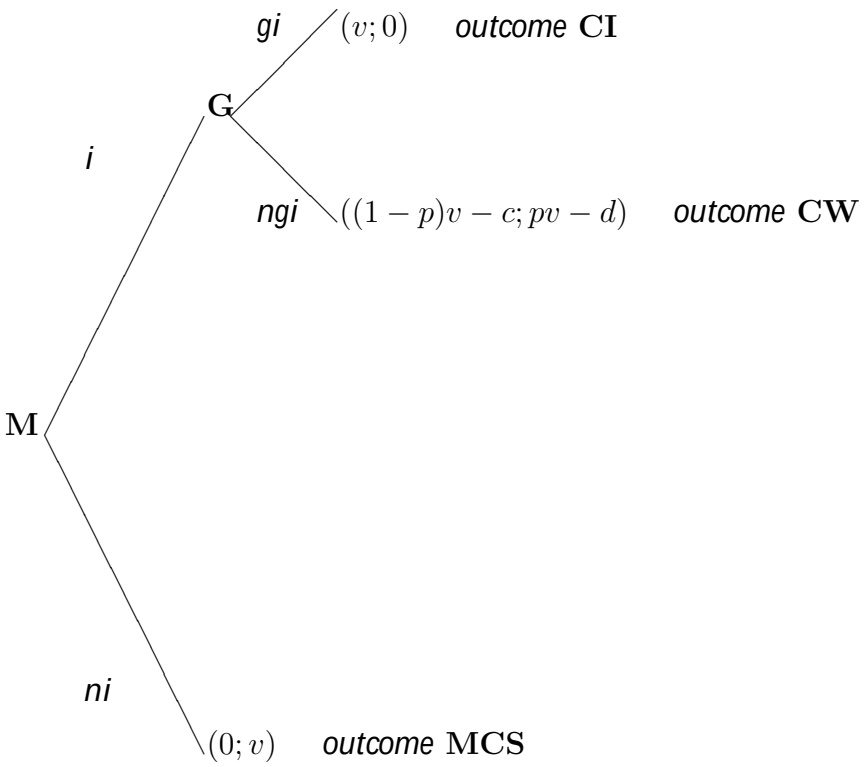
Player M's payoff equals $(1-p)v - c$ and player G's payoff equals $pv - d$.

We are assuming that a colonial war is non-destructive, i.e., in the event it does occur, the colony's value remains constant at v. The possible destructiveness of a colonial war can be accommodated by redefining G's share of value v as $(1-\beta)p$, and M's share as $(1-\beta)\cdot(1-p)$, where $0 \leq \beta \leq 1$ is a parameter measuring the destructiveness of war. If $\beta = 0$ then a colonial war will be non-destructive and we are back to the original case. Obviously, under this redefinition shares $(1-\beta)p$ and $(1-\beta)\cdot(1-p)$ could not be interpreted anymore as probabilities. In any case, the introduction of parameter

[10] In Bester and Wärneryd's 1998 paper on conflict resolution under asymmetric information, their goal is to characterize the space of Bayesian incentive compatible and individually rational (direct revelation) mechanisms, interpreted as a binding contract offered to two contenders by a third party mediator. The contract specifies the division of the surplus between the two contenders under a peaceful settlement and the probability of conflict between them. However, contract enforcement by such third-party mediator is taken as exogenously given.

[11] A colonial war between M and G can take many forms, from a conventional type of war to a guerrilla war involving terrorist attacks by M. See Lapan and Sandler (1988) for a study of terrorism, and of how a society which is the target of such actions ought to respond.

Figure 1: *Decolonization Game I*



β does not change in any significant way the results in this section.

Outcome 3: *Maintenance of Colonial Status* **MCS**

Player G's payoff equals the colony's value v. Player M's outcome equals zero.

The colony's value v corresponds to a "colonizer's rent," and *Decolonization Game I* (henceforth denoted by *DGI*) can be regarded as the contest by which this rent becomes allocated between the two players, G and M. Our model takes value v as given; alternatively, and as in Grossman and Iyigun (1995), v will be determined by endogenous investments made by both players, conditional on the technology of appropriation.

3.1.1 Solving Decolonization Game I

Solving this extensive form game, three different subgame perfect equilibria (henceforth SPE) emerge:

Outcome **CI**: When $p < d/v$, the unique SPE is (i, gi): M declares independence and G grants it. This is so because to wage a colonial war is too costly for the colonial power, hence independence will be granted.

Outcome **CW**: When $p > d/v$ and $p < 1 - c/v$, the unique SPE is (i, ngi): M declares independence and G will wage war against M. One can interpret this outcome as follows: given probability p of G winning a colonial war, the endowment v is valuable enough relative to the costs of war to justify M declaring independence knowing that G will declare war. Notice that $d/v < p < 1 - c/v \iff pv - d > 0 \ \& \ (1-p)v - c > 0$, where the last two inequalitites state that the expected net benefit from waging a war is positive for both players.

Outcome **MCS**: When $p > d/v$ and $p > 1 - c/v$, the unique SPE of the game is (ni, ngi): G does not grant independence and M is deterred by the (credible) threat of war. This results in M accepting its colonial dependence with the consequent maintenance of the colonial status quo.

3.1.2 Interpretation of Our Results

For a given set of possible decolonization experiences, assume p is uniformly distributed over the interval $[0, 1]$. Then, given the above characterization of subgame perfect equilibria in this game, and for given values of d, c and v, where $0 < d, c < v$, it follows that (1) $Prob(CI) = d/v$, and that:

$$(2) \qquad Prob(MCS) = \begin{cases} c/v, & \text{if } 1 - \frac{c}{v} \geq \frac{d}{v} \\ 1 - d/v & \text{if } 1 - \frac{c}{v} < \frac{d}{v} \end{cases};$$

and,

$$(3) \qquad Prob(CW) = \begin{cases} 1 - c/v - d/v, & \text{if } 1 - \frac{c}{v} \geq \frac{d}{v} \\ 0 & \text{if } 1 - \frac{c}{v} < \frac{d}{v} \end{cases};$$

Hence, we can state the following claim:

Claim 1: *Let the war costs c and d be given. Then,*

(i) Suppose that $1 - c/v \geq d/v$ (i.e., $\frac{c+d}{v} \leq 1$). Then, $\frac{\partial\, Prob(CI)}{\partial v} < 0$, $\frac{\partial\, Prob(MCS)}{\partial v} < 0$, and $\frac{\partial\, Prob(CW)}{\partial v} > 0$. Hence, the higher is the colony's value v the likelier will be the eruption of a colonial war between M and G.

(ii) On the other hand, suppose that $1 - c/v < d/v$ (i.e., $\frac{c+d}{v} > 1$). Then, $\frac{\partial\, Prob(CI)}{\partial v} < 0$, $\frac{\partial\, Prob(MCS)}{\partial v} > 0$, and $Prob(CW) = 0$. Hence, the higher is the colony's value v the likelier will be the maintenance of the colonial status between M and G.

(iii) Moreover, for both cases $1 - c/v \geq d/v$ and $1 - c/v < d/v$, and for any given v, higher war costs, as represented by higher values for parameters d and c, will imply a lower likelihood of a colonial war taking place. Furthermore, the higher is cost d, i.e., the costlier is for G to wage a war, the likelier will be the achievement of colonial independence.

Proof: Immediate from equalities (1) and (2) above which define the probabilities of the different outcomes.

Under the first case $1 - \frac{c}{v} \geq \frac{d}{v}$, Claim 1 states that the higher is the colony's value v, the likelier is for the two players to engage in a colonial war,

Table 3: Comparative statics (*Case 1*: $1 - \frac{c}{v} \geq \frac{d}{v}$)

	CI	MCS	CW
$v \nearrow$	$\searrow$	$\searrow$	$\nearrow$
$c \nearrow$	$\rightarrow$	$\nearrow$	$\searrow$
$d \nearrow$	$\nearrow$	$\rightarrow$	$\searrow$

Table 4: Comparative statics (*Case 2*: $1 - \frac{c}{v} < \frac{d}{v}$)

	CI	MCS	CW
$v \nearrow$	$\searrow$	$\nearrow$	$\rightarrow$
$c \nearrow$	$\rightarrow$	$\rightarrow$	$\rightarrow$
$d \nearrow$	$\nearrow$	$\searrow$	$\rightarrow$

(NB: in this *Case 2*, $Prob(CW) = 0$.)

and the less likely are the two other possible outcomes, namely *MCS* and *CI*. This much is clear. For the case where $1 - \frac{c}{v} < \frac{d}{v}$, a higher v increases the likelihood of outcome *MCS*, makes *CI* less likely, and has no effect on the likelihood of *CW*, which has a zero probability in this case. Now, either $p < \frac{d}{v}$, or $p \geq \frac{d}{v}$. First, if $p < \frac{d}{v}$ then the players end up in outcome *CI*, in which case if v increases then the inequality $p < \frac{d}{v}$ becomes less likely and, hence, outcome *CI* becomes also less likely. Second, if $p \geq \frac{d}{v}$, then the players end up in outcome *MCS*, in which case if v goes up then $(pv - d)$ will increase and it becomes more attractive for player G to play action ngi if given the chance. But because $(1 - p)v - c < 0$, which follows from the inequalities $1 - \frac{c}{v} < \frac{d}{v}$ and $p \geq \frac{d}{v}$, player M would be less likely to play action i since they would both end up in outcome *CW*. But then outcome *CI* becomes less likely. So, in both cases an increase in v increases the likelihood of outcome *MCS*. Finally, the way changes in the war costs parameters c and d affect the likelihood of all three outcomes are self-explanatory. Tables 3 and 4 summarize Claim 1.

It is worthwhile investigating what happens when both players are evenly

matched in strength, i.e., $p = 1/2$, and when their costs of waging a war are identical, i.e., $c = d$. The following result obtains:

Claim 2: *For $p = 1/2$ and $c = d$, if $c/v(= d/v) > 1/2$ then outcome* CI *will result. If on the other hand $c/v(= d/v) < 1/2$, then outcome* CW *will result and, ex-post, outcomes* CI *and* MCS *are equally likely to occur.*

Hence, if $c/v(= d/v) < 1/2 = p$ then it is worthwhile for both players to take a chance on a colonial war since each player's expected payoff from such a decision is positive. The reverse is true for $c/v(= d/v) > 1/2 = p$, inwhich case ***CI*** will follow because player G would never play action ngi. But then M will play action i.

Going back to the characterization of SPE in 3.1.1., let us assume alternatively that the vector $(c/v, d/v)$ is uniformly distributed in the unit square - see Fig. A. Then, for each given probability value $p \geq 0$, the probability distribution over the outcome space in ***DGI*** is defined as follows: $Prob(CI) = (1-p)$, $Prob(MCS) = p^2$, and $Prob(CW) = (1-p)p$ - see Fig. B for a graphical representation. It follows that:

Claim 3: CW *is never the likeliest outcome. In fact, for $p < (\sqrt{5}-1)/2 \approx 0.618$, outcome* CI *is the likeliest, whereas for $p > (\sqrt{5}-1)/2$ outcome* MCS *is the likeliest.*

Observing Fig. A below, it is clear that the area given by $p \times (1-p)$ is never the largest of the three areas as p varies between 0 and 1, with the intersection point sliding up and down along the 45° diagonal as shown.

(***Figs. A and B here***)

Not surprisingly, for a 'small' probability p of G winning the war, the most likely outcome of the game is for the colony to be granted independence without a struggle. When that probability is 'quite high', the most likely outcome of this game is for the colony to maintain its colonial status quo because M is deterred from declaring independence. A colonial war is never the likeliest outcome.

When $p = 1/2$, the likelihood of outcome ***CW*** is at its maximum (taking

the value 1/4), but still less likely than outcome ***CI*** (the likelihood of which is 1/2).

Ex-post, i.e., once a colonial war is over if it occurs at all, the probability of observing outcome ***CI*** is given by $1-p+(1-p)^2p = 1-2p^2+p^3$. Hence, the probability of observing outcome ***MCS*** is given by $1-(1-p)(1+p(1-p)) = 2p^2-p^3$ - see Fig. C. Therefore, for 'small' values of p, ***CI*** is the likeliest outcome, whereas the reverse is true for 'high' values of p, the critical value being 0.6 approximately.

(*Fig. C here*)

Furthermore, for $p = 1/2$, again interpreted as saying that players G and M are evenly matched in military strength, ***CI*** is a more likely outcome than ***MCS***. The same conclusion holds true for values of p in a neighborhood of 1/2, i.e., this conclusion is robust to small variations around the point of equal military strength between the conflicting parties. The intuition for this bias in favor of independence in an evenly matched military contest comes from M's first-mover advantage in the above perfect information decolonization game I. When a colonial war is too costly for both players and the probability of a victory by M is not very 'high', this player can still declare independence knowing that G will not engage in a conflict. By being a Stackelberg leader, M can successfully win independence even though the likelihood of winning a colonial war is not very 'high.' [12]

[12] Analysing this game's strategic form, and depending on whether $p > d/v$ or $p < d/v$ and $p > 1-c/v$ or $p < 1-c/v$, the set of Nash equilibria changes in a similar way to what happened with the set of SPE in the extensive form game with perfect information. In particular, if $p < d/v$ and $p > 1-c/v$, both MCS and CI are NE outcomes (in pure strategies). However, only CI is a 'reasonable' NE in that the outcome MCS involves a 'non-credible' threat in the extensive form game. This is a typical situation leading to the refinement of the NE notion so as to weed out non-credible threats. Doing so reestablishes CI as the only 'reasonable' NE when $p < d/v$, and reestablishes the conclusion that, in a small enough neighborhood of p = 1/2, CI is a more likely outcome than MCS.

3.2 Decolonization Game II

In this section we expand on the previous game by including Nature as a passive player who chooses, with some probability, one of two possible actions. These actions, denoted by H and D, define the colonial power as one of two possible *types*: a colonial power controlled by group H (for "hawks") composed by those who favor the maintenance of the colonial status (*MCS*), or a colonial power controlled by group D (for "doves") composed by those who favor colonial independence (*CI*). Our goal is to analyze how equilibria outcomes depend on which of these two groups controls the colonial power (or the colonial administration).[13]

In this new game, Nature - player N - plays first and chooses either action H (or h) or action D (or d). Player M, representing the native anti-colonialism movement, moves second and, without having observed Nature's choice, chooses an action from the set $\{i, ni\}$ where, as in the previous game, action i stands for "declaring independence" from the colonial power, and ni stands for not doing so, ie., for choosing the maintenance of the colonial status quo. Player M does have an *a priori* belief about Nature's choice of action, or type, in that it believes action H is chosen with some probability t, $t \in [0, 1]$. This assumption reflects M's uncertainty about who controls the colonial government and, hence, what type of colonial policy they can expect having to deal with. Finally, player G, representing the colonial power which, as assumed, can be of type H or D, chooses action gi or action ngi conditional on M's choice of i or ni.[14]

[13] For example, the presence of significant populations of non-native settlers can be seen as introducing an extra complication into the decolonization process. This was the case e.g. of French settlers in Algeria, as well as of British and other white settlers in former Rhodesia or in Kenya. Their views on decolonization were frequently at odds with those of pro-independence colonial governments. Similar complications occurred in Angola and Mozambique, both being home to significant numbers of white settlers.

[14] We do not consider here the possibility of non-native (white) settlers declaring independence on their own. Non-native white settlers are regarded as a group within the colonial power structure. However, we recognize that such attempts at independence did occur in the past. For example, in the last decade of the 19th century, the republic of Transvaal did try to gain a wide degree of independence from Britain, but without success, as the ensuing Boer war was to show. Also, a similar attempt was carried out in the white dominated Southern Rhodesia, and in its struggle to extend dominion to Northern

Player G's payoffs and, hence, its strategic choices, depend on which of the two groups controls the colonial administration. Again, we let $p \in [0,1]$ denote the probability of G winning a colonial war, independently of which group is in control. G's cost of waging a colonial war, denoted by d as in the previous game, with $d > 0$, is split between groups H and D according to shares a and $(1-a)$, with $0 \leq a \leq 1$, reflecting their shares in the total population, or the way property rights over their country's wealth are assigned between them. Similarly, the colony's value $v > 0$ is split between H and D according to shares 1 and 0, i.e., H appropriates the entire colonizer's rent. The cost for player M of waging a colonial war is denoted by c as before, with $c > 0$. By modeling the decolonization game this way, the non-alignment of groups H and D's interests will affect the allocation of costs and the colonizer's rent, rather than the probability of winning the war. If $t = a = 1$ we are back into ***DGI***.

We now identify six terminal nodes or outcomes in *Decolonization Game II* (henceforth ***DGII***) - see Fig. 2 for a representation of the game tree:

Outcome 1: *Colonial Independence* (**CId**)

M's payoff equals the colony's value v. Player G is of type D and earns a zero payoff.

Outcome 2: *Colonial War* (**CWd**)

G engages in a colonial war when of type D. G's payoff equals group D's payoff. The colonizer's rent is appropriated by group H; hence, G's payoff is the war cost borne by this pro-independence group.

Outcome 4: *Colonial Independence* (**CIh**)

M's payoff equals the colony's value v. Player G is of type H and earns a zero payoff.

Outcome 5: *Colonial War* (**CWh**)

Rhodesia and Nyasaland so as to control the so-called 'copper belt.'

G engages in a colonial war when of type H. G's payoff is group H's payoff, defined to be the colonizer's rent minus the cost of war borne by this pro-colonialism group.

Outcomes 3 and 6: *Maintenance of Colonial Status* (**MCS**)

G stays in control of the colony, and M gets a zero payoff. G's payoff depends on its type, i.e., on which group controls the colonial administration.

3.2.1 Solving Decolonization Game II

We now caracterize the SPE of this game:

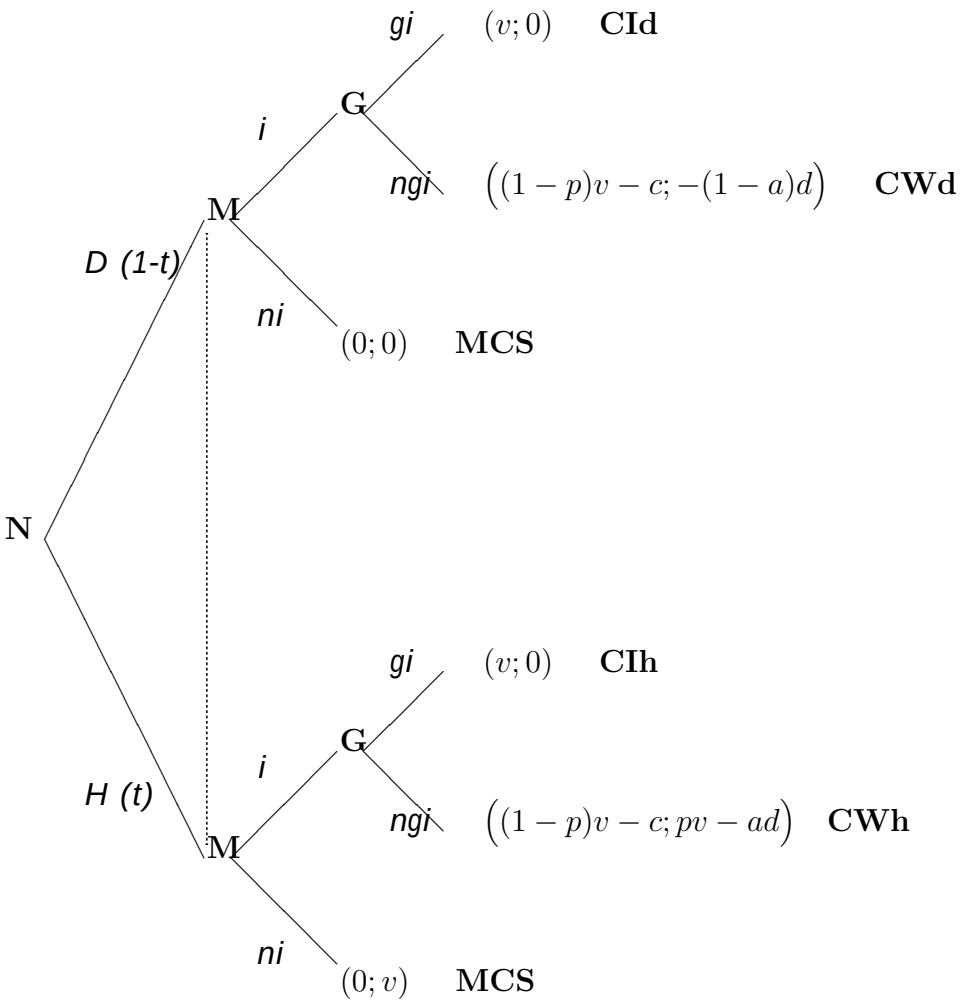
Outcomes **CId** and **CIh**: Let $0 \leq a < 1$. If $p < ad/v$, then strategy profile $(i; gi|D \,\&\, gi|H)$ is the unique SPE: colonial independence is achieved peacefully. Because H is not willing to fight for the colonizer's rent (D never gets the colonizer's rent), M opts for independence.

On the other hand, if $a = 1$, $p < ad/v$ and $(1-p)v - c > 0$, then $(i; gi|D \,\&\, gi|H)$ and $(i; ngi|D \,\&\, gi|H)$ are both SPE. Hence, in this case, CWd, CId, and CIh are all SPE outcomes.

Outcome **CWd**: Let $a = 1$, $p < ad/v$, and $(1-p)v - c > 0$. Then, since profile $(i; ngi|D \,\&\, gi|H)$ is a SPE, it follows that CWd is a SPE outcome. This is the case when a 'D controlled' colonial administration is indifferent to whether a colonial war breaks out or not, since war costs are borne entirely by group H.

Now, let $a = 1$, $p < ad/v$, and $(1-p)v - c < 0$. Then, if N plays D and M plays i, G is indifferent between playing gi or ngi since it gets a zero payoff either way. On the other hand, if N plays H and M plays i, since $p < ad/v$ player G will play gi, which results in a payoff v for player M. What strategy player M will play depends on what action he believes player G will play in case the top node is reached, ie., the node reached with N playing D and M playing i. We will asssume G will play gi if indifferent between playing gi and ngi. Then, if $a = 1$, $p < ad/v$, and $(1-p)v - c < 0$, strategy profile

Figure 2: *Decolonization Game II*



$(i; gi|D \,\&\, gi|H)$ is the unique SPE and colonial independence is achieved peacefully, since CId and CIh will be the only SPE outcomes.

For the remaining outcomes, assume that $0 < \frac{1}{t} - \frac{c}{v} < 1$. It then follows that:

Outcomes **CWh** and **CId**: If $p > ad/v$ and $p < 1/t - c/v$, then strategy profile $(i; gi|D \,\&\, ngi|H)$ is the unique SPE: a colonial war between M and G will erupt if the colonial administration is controlled by H; alternatively, independence is granted if the colonial administration is controlled by D.

It can happen that $pv < d$ and yet $pv > ad$, i.e., a colonial war can erupt even though the colonial power's expected gain is lower than its (expected) cost. This is so because the colonial administration ignores part of the burden. More precisely, a colonial administration controlled by H ignores a share $(1 - a)$ of the cost d of waging war against M.

Outcome **MSC**: If $p > ad/v$ and $p > 1/t - c/v$, then strategy profile $(ni; gi|D \,\&\, ngi|H)$ is the unique SPE: M is deterred by the credible threat of war from a pro-colonialist G.

The occurrence of outcome *CWh* suggests an interpretation to distinguish the Rhodesian case, where the British government did not intervene to support the white settlers, from the cases of French Algeria or Portuguese Africa, where both colonial administrations engaged in a colonial war. In the Rhodesian case, because the colonial administration was controlled not by the pro-colonialism group (H), represented by the white settlers, but by the pro-independence group (D), independence was granted by the colonial government. In the other two cases the colonial governments were controlled by pro-colonialism groups and, as a consequence, both governments opted for a colonial war.[15]

[15] As stated in Birmingham (1995; page 89), 'The delay in finding a decolonizing solution in French Algeria was not due to just the bitter rivalry of Algerian interests, but also to the aspiration of the French army to expunge the memory of their defeat in Vietnam and refuse any compromise, even when pressed to do so by one of their own men, General de Gaulle.' We can assume that the French army, or a significant part of it, together with French settlers, formed a pro-colonialism group within French society.

Table 5: Comparative statics (*Case 1*: $\frac{1}{t} - \frac{c}{v} \geq \frac{ad}{v}$)

	CI	MCS	CWh
$v \nearrow$	?	$\searrow$	$\nearrow$
$c \nearrow$	$\searrow$	$\nearrow$	$\searrow$
$d \nearrow$	$\nearrow$	$\rightarrow$	$\searrow$
$a \nearrow$	$\nearrow$	$\rightarrow$	$\searrow$
$t \nearrow$	$\searrow$	$\nearrow$	$\searrow$

3.2.2 Interpretation of Our Results

For a given set of possible decolonization experiences assume, as in *DGI*, that p is uniformly distributed over the interval $[0, 1]$. Then, given the above characterization of subgame perfect equilibria in this game, and for given values of d, c, v, t and a, where $0 < d, c < v$, $0 \leq t, a \leq 1$, and such that $0 < \frac{1}{t} - \frac{c}{v} < 1$ continues to hold, it follows that:

$$(4) \qquad Prob(CI) = ad/v + (1-t) \times \begin{cases} 1/t - c/v - ad/v, & \text{if } \frac{1}{t} - \frac{c}{v} \geq \frac{ad}{v} \\ 0 & \text{if } \frac{1}{t} - \frac{c}{v} < \frac{ad}{v} \end{cases};$$

where $Prob(CI) \equiv Prob(CId) + Prob(CIh)$;

$$(5) \qquad Prob(MCS) = \begin{cases} 1 - 1/t + c/v, & \text{if } \frac{1}{t} - \frac{c}{v} \geq \frac{ad}{v} \\ 1 - ad/v & \text{if } \frac{1}{t} - \frac{c}{v} < \frac{ad}{v} \end{cases};$$

and,

$$(6) \qquad Prob(CWh) = t \times \begin{cases} 1/t - c/v - ad/v, & \text{if } \frac{1}{t} - \frac{c}{v} \geq \frac{ad}{v} \\ 0 & \text{if } \frac{1}{t} - \frac{c}{v} < \frac{ad}{v} \end{cases};$$

Tables 5 and 6 summarize the comparative statics with respect to parameters v, c, d, a and t, which follow from the above equalities.

Table 6: Comparative statics (*Case 2*: $\frac{1}{t} - \frac{c}{v} < \frac{ad}{v}$)

	CI	MCS	CWh
$v \nearrow$	$\searrow$	$\nearrow$	$\rightarrow$
$c \nearrow$	$\rightarrow$	$\rightarrow$	$\rightarrow$
$d \nearrow$	$\nearrow$	$\searrow$	$\rightarrow$
$a \nearrow$	$\nearrow$	$\searrow$	$\rightarrow$
$t \nearrow$	$\rightarrow$	$\rightarrow$	$\rightarrow$

(NB: in this *Case 2*, $Prob(CWh) = 0$.)

Notice that the comparative statics results concerning outcomes *MCS* and *CWh* and parameters v, c and d are similar to the ones for *DGI* and outcomes *MCS* and *CW*. However, some important differences can be established when comparing the equilibrium outcomes of these two games, as the next section will show.

3.2.3 Comparing Decolonization Games I and II

It is clear that for any given values for t, c, a, d, where $0 < a, t < 1$, the value v for which the equality $\frac{1}{t} - \frac{c}{v} = \frac{ad}{v}$ holds is smaller than the value v for which the equality $1 - \frac{c}{v} = \frac{d}{v}$ holds. Hence, by comparing equations (2) and (5), we conclude that, as v increases, the sign of the partial derivative $\frac{\partial Prob(MCS)}{\partial v}$ switches from $(+)$ to $(-)$ in *DGII* "sooner" than in *DGI* - see Fig. D. Furthermore, by comparing equations (3) and (5),we conclude that, as v increases, the sign of the partial derivative $\frac{\partial Prob(CWh)}{\partial v}$ switches from 0 to $(+)$ in *DGII* "sooner" than the sign of the partial derivative $\frac{\partial Prob(CW)}{\partial v}$ in *DGI*. Hence, the negative effect of an increase in v over the likelihood of a peaceful outcome (*CI* or *MCS*) is 'more pronounced' in *DGII* than in *DGI*.

(*Fig. D here*)

Let us now go back to section 3.2.1. Assume, as in *DGI*, that the pair $(c/v, d/v)$ is uniformly distributed in the unit square. Furthermore, assume

that $a \geq p$, $0 < a, t < 1$, and that $t \geq 1/(1+p)$.[16] Then, for each given probability value $p \in (0,1)$, the probability distribution over the outcome space in ***DGII*** is defined as follows - see Fig. E for a graphical representation:

$Prob(CI) = (1-\frac{p}{a}) + (1-t)\cdot\frac{p}{a}\cdot(1-p-(1-\frac{1}{t})) = (1-\frac{p}{a}) + (1-t)\cdot\frac{p}{a}\cdot(\frac{1}{t}-p);$

$Prob(MCS) = \frac{p}{a}\cdot(2-\frac{1}{t}-(1-p)) = \frac{p}{a}\cdot(p+1-\frac{1}{t});$

$Prob(CWh) = t\cdot\frac{p}{a}\cdot(1-p-(1-\frac{1}{t})) = t\cdot\frac{p}{a}\cdot(\frac{1}{t}-p).$

If $a < p$ then $Prob(CI) = (1-t)\cdot(\frac{1}{t}-p)$, $Prob(MCS) = (1+p-\frac{1}{t})$, and $Prob(CW) = 1-t\cdot p$. If $t < \frac{1}{1+p}$, then $Prob(CI) = 1-t\cdot\frac{p}{a}$, $Prob(MCS) = 0$, and $Prob(CW) = t\cdot\frac{p}{a}$. If $a = t = 1$ we are back to the results for ***Game I*** as portrayed in Figs. A and B.

(***Fig. E here***)

We now compare the outcome probability values for ***DGII*** with the ones for ***DGI***. Starting with outcome ***CI***, for any given a and p in $(0,1)$ the allocation of war costs between H and D is equivalent to lowering them for the colonial government, since the pro-colonialism lobby H ignores a fraction of these costs. However, that does imply outcome ***CI*** is less likely in ***DGII*** than in ***DGI***. Whether or not that is the case depends on the relative values taken by parameters a and t, i.e., on the level of uncertainty concerning the government's type, as represented by t, and on the rule for the allocation of the colonial government war costs between groups D and H, as represented by a. In fact, for any given a and p in $(0,1)$, if t is sufficiently small, then $Prob(CI)|_{DGI} < Prob(CI)|_{DGII}$. Regarding outcomes ***MCS*** and ***CWh***, one can only state that $Prob(MCS)|_{DGI} \lessgtr Prob(MCS)|_{DGII}$ and $Prob(CWh)|_{DGI} \lessgtr Prob(CWh)|_{DGII}$. Again, the final result depends on the relative values taken by parameters a and t.

We also obtain the following partial derivatives: $\frac{\partial CI}{\partial a} = \frac{p}{a^2}\cdot(2-\frac{1}{t}+p(1-t)) \lessgtr 0$, and $\frac{\partial CI}{\partial t} = -\frac{p}{a}\cdot(\frac{1}{t}-p)+(1-t)\cdot\frac{p}{a}\cdot(\frac{-1}{t^2}) < 0$. For outcome ***MCS***, $\frac{\partial MCS}{\partial a} = \frac{-p}{a^2}\cdot(p+1-\frac{1}{t}) \lessgtr 0$, and $\frac{\partial MCS}{\partial t} = \frac{p}{at^2} > 0$. Finally, for outcome ***CWh***, $\frac{\partial CWh}{\partial a} =$

[16] Assuming that $d/v, c/v \sim U(0,1)$, and that $0 < a, t, < 1$ and $0 \leq p \leq 1$, it follows that: (i) $-\infty < 2 - 1/t \leq 1$; (ii) $-\infty < 1 - 1/t \leq 0$; (iii) $-\infty < 1 - 1/t + c/v \leq 1$; (iv) $p \leq p/a < \infty$; (v) $1 - 1/t + c/v \sim U(1 - 1/t, 2 - 1/t)$; and (vi) $ad/v \sim U(0, a)$.

Table 7: Comparative statics for given $p \in [0,1]$

	CI	MCS	CWh
$a \nearrow$	?	?	$\rightarrow$ *or* $\searrow$
$t \nearrow$	$\searrow$	$\nearrow$	$\searrow$

$t \cdot \frac{-p}{a^2} \cdot (\frac{1}{t} - p) \leq 0$, and $\frac{\partial CWh}{\partial t} = \frac{-p^2}{a} < 0$. Obviously, $\frac{\partial CI}{\partial a}(a,t,p) + \frac{\partial MCS}{\partial a}(a,t,p) + \frac{\partial CWh}{\partial a}(a,t,p) \equiv 0$, and $\frac{\partial CI}{\partial t}(a,t,p) + \frac{\partial MCS}{\partial t}(a,t,p) + \frac{\partial CWh}{\partial t}(a,t,p) \equiv 0$. Table 7 summarizes these comparative statics results:

We can state the following facts:

Claim 4: *The likelihoods of outcomes CWh and of CI are both decreasing in t, whereas the likelihood of MCS is increasing in t.*

As the likelihood t of the colonial government being co3elir(foed(t)-428(3elyin)]TJ/F1211.9

outcome - see Fig. F [17]. The intuition comes from the fact that, as both a and t decrease, the likelihood of *CWh* increases, whereas the final effect on the other two outcomes depends on which of the two effects is the strongest.

(*Fig. F here*)

4 Final Remarks

In this paper, our aim has been to construct an "economic rationality" approach to the different decolonization processes in recent history, that can encompass the majority of historical cases. Our approach is an alternative to case-based studies.

By employing game theoretic tools, we analyze how the possible convergence, or divergence, of interests between the different players - colonial power, independence native movements, and different interest groups within the colonial power itself - affect the final outcome of the decolonization game. In particular, we study the consequences of a possible divergence of interests between pro-independence and pro-colonialism lobbies within the colonial power, and the effect their different lobbying weights have over the equilibrium outcome.

In the first decolonization game, we conclude that as the value of a colony increases, a colonial war never becomes a less likely event. However, for a reasonable range of values for the different parameters, a colonial war is never the likeliest outcome. Furthermore, once a colonial war is over in case it occurs at all, and assuming evenly matched strength between the two players (colonial power and independence native movements), colonial independence is a more likely outcome than the maintenance of colonial status.

[17] In Fig. F, we continue to assume that $a \geq p$, $0 < a, t < 1$, and that $t \geq 1/(1+p)$. Assume, in particular, that $a = t = 0.75$. Then, since $t \geq \frac{1}{1+p}$, we only consider the case $p \geq 1/3$; and since $a \geq p$ we only consider the case $p \leq 3/4$. Then, given equations (4), (5), and (6), and assuming case 1 holds, it follows that $Prob(CI) = 1 - \frac{1}{3}p^2 - \frac{8}{9}p$, $Prob(MCS) = \frac{4}{3}p^2 - \frac{4}{9}p$, and that $Prob(CWh) = \frac{4}{3}p - p^2$. With $p = 2/3$ it follows that $Prob(CI) = 0.2593$, $Prob(MCS) = 0.2963$, and that $Prob(CWh) = 0.4444$.

In the second decolonization game, we explicitly model the lobbying efforts carried out by pro-independence and pro-colonialism lobbies within the colonial power. In contrast with the results from the first game, and for a reasonable range of values for the different parameters, a colonial war can now become the likeliest outcome of the game. Nevertheless, as the pro-colonialism lobby increases its influence over the colonial administration, only the maintenance of colonial status becomes more likely outcome; both colonial independence as well as a colonial war become less likely outcomes.

For now, we have left out some issues concerning the strategic interactions between the different players, such as possible coalition formations between these different players. This issue requires further research.

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