Abstract

Keywords: Multiple Equilibria, Governance technology, human capital, elite, productivity.

JEL Codes: F54, I20, 015, N47.

Essays on the Political Economy of 20th Century Colonisation and Decolonisation in Africa

A thesis presented

by

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to

The School of Economics

in fulfillment of the requirements

for the degree of

Doctor of Philosophy

in the subject of

Economics

University of CapeTown

Supervisors: Johannes Fedderke & Nicola Viegi

March 2010

A living is made by what one earns, a life is made by what one gives...
Winston Churchill

Abstract

The focus of this dissertation is on colonisation and decolonisation as cornerstones in the development of sub-Saharan Africa's current institutions and how these historical institutions affect current economic growth outcomes. The dissertation consists of three main chapters besides the introductory and concluding chapters.

The first main chapter considers conditions of optimality in a co-optive strategy of colonial rule. It proposes a simple model of elite formation emanating from a coloniser's quest to maximise extracted rents from its colonies. The results suggest multiple optimal solutions, depending on the specification of the production function, the governance technology chosen by the coloniser and the technological parameters of the model. For instance, in agrarian colonial societies, the results suggest that under a technology of governance by numbers, a large elite population is a direct reflection of a high productivity-enhancing technology by the coloniser. In contrast, under a governance technology by quality, the better the productivity-enhancing technology, the lower the quality of human capital that is transferred to the elite. Additionally, under a composite governance technology, and given non-linearity conditions defined by the productivity distance $\left(\frac{A_e}{A}\right)$ threshold, the better the productivity-enhancing technology, the smaller the optimal elite size that is chosen by the coloniser. An alternative set of results is obtained assuming an industrial economic set-up (or interdependent production). These results suggest that

the long debate about the apparent superiority of one European colonisation experience over the other is much more intricate than is often perceived in the literature. This insight is useful in understanding why the stock of human capital available in countries emerging from colonisation might vary considerably across colonial experiences and from one country to another.

In the second main chapter, I argue that the pattern of decolonisation in West Africa was a function of the nature of human capital transfers from the colonisers to the indigenous elites of the former colonies. Underpinning the nature of these human capital transfers is the colonial educational ideology. Where this ideology emphasized the notion of "assimilation", the system generally tended to produce elites that depended highly on the coloniser for their livelihood, hence necessitating a continuation of the imperial relationship even after independence was granted. On the contrary, where the ideology emphasized the "strengthening of the solid elements" of the countryside, the system tended to produce a bunch of elites that were quite independent of the coloniser and consequently had little to loose from a disruption of the imperial relationship at independence.

The model raises several predictions based on a single assumption on the nature of the nationalist elite. The chapter's contribution, is in providing a framework for understanding the different paths of decolonisation in Africa in general, but more specifically in the British and French West African empires, an approach which unifies both the Eurocentric and Afrocentric perspectives.

The third main chapter investigates the channels through which colonial origin affects economic outcomes in sub-Saharan Africa (SSA). It focuses on four key channels of transmission namely, human capital, trade openness, market distortion and selection bias. In contrast with previous studies where only initial conditions at independence were held to influence the subsequent growth path, the methodology that I apply in this chapter combines (1) the pre-colonisation initial conditions, (2) the initial conditions at independence and (3) the subsequent post-colonial changes in explaining income differences amongst former SSA colonies. My sample comprises of 38 SSA countries studied over the period 1960-2000, and I use pooled OLS and Hausman-Taylor estimation techniques in a panel framework. The results suggest that former British colonies have had marginally higher income levels than former French colonies, and this is attributable to the legacy of British colonisation in trade openness and human capital. I do not find robust evidence in support of the market distortion and selection bias channels. Besides highlighting the importance of the trade openness channel, the study is also the first, to the best of my knowledge, to simultaneously examine a range of feasible transmission channels between colonial origin and economic growth performance.

Acknowledgments

I am grateful to my advisors, Johannes Fedderke and Nicola Viegi, for the pains taken in reading several drafts of this thesis and providing valuable suggestions. I also like to thank colleagues and staff members at the School of Economics for their encouragement and assistance when needed. With the usual disclaimer, I am indebted to Paul Romer, John Wallis, J-F Maystadt, Chandana Kularatne, Manoel Bittencourt, and three anonymous referees, for detailed and immensely helpful comments on different sections of this dissertation. The examiners of this thesis - Nathan Nunn, M. Mariotti, and R. Naraidoo, are also worth mentioning for their useful comments and suggestions.

I would also like to thank seminar participants at the following conferences - March 2010 Conference of the Centre for the Study of African Economies (Oxford), February 2010 Seminar Series of the Department of Economics (University of Pretoria), December 2009 UNU-WIDER Conference on African Development: Myths & Realities (Accra, Ghana), June 2009 Annual Conference of the International Society for New Institutional Economics (ISNIE) held at the University of California-Berkeley, June 2009 UNU-WIDER Conference on the Role of Elites in Economic Develpoment (Helsinki, Finland), May 2009 Workshop of the European Society on New Institutional Economics (ESNIE) held at Cargese (France), Sep-

tember 2009 Conference of the Economic Society of South Africa (Port Elisabeth) and the March 2009 Conference of the Centre for the Study of African Economies (Oxford), for helpful comments.

My wife, Belinda deserves much appreciation for not only working hard to provide for sustenance of the entire family during these laborious three years, but also for her unflinching moral, emotional and spiritual support. My children, Dorcas, Clancy, Paul and Chrisma stabilised me psychologically so that I can complete this thesis on time. I want to also acknowledge my dad and spiritual father, Pastor Chris Oyakhilome for the prophetic word spoken over me in 2009 that propelled me to success. Finally, the Holy Spirit of God has been with me all the way through my doctoral program and is my extraordinary strategist. Financial support for this research from the A.W. Mellon Foundation Fellowship and the African Economic Research Consortium (AERC) is gratefully acknowledged.

Contents

Chapter 1
General Introduction

1.1 Context and Motivation

The underlying theme of this dissertation is colonisation and decolonisation as cornerstones in the development of sub-Saharan Africa's current institutions and the influence that these historical institutions have on current growth and development outcomes. Economists have long been preoccupied with the search for the reasons as to why per capita incomes vary immensely across countries in the world. Recent empirical growth studies have identified differences in institutions as the main driver of income variations across the world.[1] For instance, Rodrik et al (2002) estimate the respective contributions of institutions, geography, and trade in determining income levels around the world and find that the quality of institutions trumps every other variable they consider. Acemoglu et al (2002) also find that a substantial amount of the cross-country differences in per capita income growth is traceable to differences in growth in total factor productivity (TFP) which in turn, is mainly driven by differences in institutions.[2]

With but a few exceptions, the institutions prevailing in most countries that emerged from colonisation tended to follow the pattern that was laid down by the colonial masters. In their seminal article, Acemoglu et al (2001a) not only traces the origins of current in-

[1] See for instance, Acemoglu et al (2001a, 2002), Glaeser et al (2004), Rodrik et al (2002) and Hall & Jones (1999).

[2] Hall & Jones (1999) and Ronald Coase (2002) broadly refer to differences in institutions and government policies as "social infrastructure".

come variation in most parts of the world to institutions implanted by the colonisers many centuries ago, but also provides reasons for the persistence of these colonial institutions.[3] Other studies notably by Cohen (1971), Suret-Canale (1971), Huillery (2006), and Martin (2005) suggest that colonisation played a significant role in shaping Africa's post independence political and social institutions, and the pattern laid down by the colonisers was generally maintained by the independent African states, with but few changes. Nunn (2007) has also shown that Africa's current underdevelopment can be linked to the legacy of its colonial heritage.

However, most of these previous studies tend to see the origin of colonial institutions as an exogenous deterministic choice of the colonisers, neglecting any possible endogenous creation process. By contrast, the present dissertation sees the formation and development of colonial institutions, as endogenous to the process of colonisation and decolonisation, an approach that is similar to the work by Engerman & Sokoloff (2002).

Specifically, the thesis seeks an understanding of the relationship between the paths of colonisation and decolonisation on the one hand, and the historical development of Africa's current institutions on the other hand. The ultimate goal of the thesis is to analyse the impact of different colonisation strategies pursued in Africa and their possible ramifications for current development paths. In doing so, the study seeks an understanding of why economic growth outcomes have been so different even among African countries.

The thesis is founded on the concept of rationality, which is central to Rational Choice Theory (RCT). RCT has applications in several disciplines including economics, and is

[3] Acemoglu et al (2001a) however argue that the colonial heritage (the coloniser) variable is not an important determinant of institutional development.

based on three fundamental premises namely, that (1) human beings base their behaviour on rational calculations, (2) they act with rationality when making choices, (3) their choices are aimed at optimization of their pleasure or profit.[4] In the context of this dissertation, I explain the process of formation of colonial institutions in terms of how self-interested individuals (or groups) engaged in strategic interaction bargain to maximise their individual advantage or gain, and to minimise their disadvantage or loss.

1.2 Outline of the thesis

Besides the introduction and conclusion, the thesis is divided into three main chapters, discussing successively, the entry and control strategies of the colonisers (chapter two); the exit strategies of the colonisers (chapter three); and the channels through which colonial legacies influence post independence economic outcomes (chapter four).

1.2.1 Outline of Chapter Two - A Theory of Colonial Governance

This chapter posits that the colonisers, in pursuit of their own self interest, often found it rational to transfer human capital, in the form of education, to a segment of the indigenous population of their colonies. This led to the formation of an "elite" group, whose distinguishing feature is the education received from the colonisers.

The purpose of human capital transfers to the indigenous elite is to enhance their productivity, which in turn, raises output and hence, the size of the pie from which the coloniser

[4] Its application in economics ranges from the works of Downs (1957), Buchanan & Tullock (1962) and Ricker (1962) who developed models of rational action in voting and coalition formation, to Becker (1976, 1981) who developed its application in theories of crime and marriage. Recently, RCT has been evident in the works of some Marxists economists who see rationality as the basis of a Marxist theory of class exploitation.

extracts rents. However, as previous studies, notably, by Fedderke & Kularatne (2008) have argued, human capital transfers raise the aspirations of the beneficiaries to a better level of welfare, which effectively reduces the rent flow to the colonisers. This suggests that the colonisers faced a trade-off between enhancing productivity gains and minimising rent (or more generally, power) loses. Hence, there necessarily exists a *threshold* level of human capital transfers that any coloniser would not allow.

Notwithstanding, elite formation in different colonies generally tended to be underpinned by a number of factors namely, the coloniser's choice of governance technology and the productivity parameters of the colonial economy. The governance technology of the coloniser in turn depends on its specific ideology of educational transfers, implying different models of governance, with different types of path dependence.

The chapter thus seeks to unravel the different models of governance by elite cooptation. The fundamental choice tension is finding the optimal elite characteristics, in terms of size and quality, that simultaneously maximise the colonisers objective of enhancing productivity gains and minimising rent loses.

1.2.2 Outline of Chapter Three - The Economic Origins of 20th Century Decolonisation in West Africa

The focus of this chapter is to use the different governance models that were formulated in the preceding chapter in explaining the contrasting patterns of decolonisation in the British and French West African empires. It depicts twentieth century decolonisation in West Africa as a logical consequence of the governance models chosen by the colonisers.

More generally, the chapter considers the motivating factors surrounding the concomitant decision by the colonisers to withdraw or disengage from empires.

The interest in a West African case study is mainly motivated by the fact that West Africa offers a suitable framework for analysing the impacts of different governance models on decolonisation. This is particularly interesting because decolonisation in West Africa engendered several puzzles. Firstly, while the French peacefully withdrew from all their West African empires in one day,[5] paving the way for a transition from colonialism to neo-colonialism, the British were unable to decolonise smoothly, and the transition to independence in British West African colonies was generally antagonistic, often culminating in complete independence from England.

Further, France unlike Britain,[6] still percieves its sub-Saharan African empires as permanent and the vitality of the *françafrique*[7] is still much evident today. At the political level, this is exemplified by regular French Presidential visits and the annual Franco-African summits. Successive French leaders have been more frequent visitors in Africa than their western peers. For instance, Nicolas Sarkozy has paid five visits to Francophone Africa in only three years of office as French President. His first visit to Francophone Africa was in July 2007, barely three months after his election into office.[8] As Chafer (2002) ar-

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5 Besides Guinea, which unilaterally withdrew from the French community in 1958, all French sub-Saharan African colonies received their political independence from Paris on the same date in 1960.

6 British decolonisations were generally accompanied by *substantial* British withdrawal from the colonies and the British government made a deliberate committment not to intervene in African affairs after independence was granted.

7 The basis of France's traditional relations with Africa, marked by personal ties with the ruling, often corrupt elites of its former colonies.

8 His predecessor, Jacques Chirac's first visit abroad as French President was to Francophone Africa and that came only six weeks after his election.

gues, while such visits have generally been considered as normal occurences both within French and Francophone African circles, it would be unimaginable for a newly elected British Prime Minister to undertake as his first official visit abroad a tour of Britain's former colonies in Africa.

On the economic front, Chafer (1995;556) notes that since 1960, former French sub-Saharan African (henceforth, SSA) colonies are a recipient of nearly two-thirds of all French bilateral aid, an amount far greater than British aid to its entire commonwealth containing fifteen times as large a population. On the monetary front, the Franc CFA continues to unite France to twelve of its former SSA colonies[9] while on the military front, accords of military cooperation signed between France and its former SSA colonies at the eve of independence are still in force today and France continues to maintain permanent military bases in almost all of its former SSA colonies. Of no lesser significance is the continued promotion of the French language and French culture in Africa through cultural cooperation and the organisation of *La Francophonie*.

Another interest in limiting the scope of the chapter to West Africa is because the "European settlers factor" did not significantly impact decolonisation processes there.[10] Therefore, this selection enables me to isolate the influence of other contributing factors.[11]

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[9] Guinea Bissua and Equatorial Guinea are the only non-French former colonies that are members of the Franc zone.

[10] Wieschhoff (1944:39) contends that both French and British West African colonies had relatively fewer European settlers (mostly employed in the colonial administration) compared to North and East or Southern African colonies (where a significant presence of European settlers concentrated in the mining and commercial professions). Darwin (1988:175), on the other hand, argues that the European settlers in West African colonies were not troublesome settlers.

[11] Thorn (2000:25) has argued that the presence of European minority settlers' interest was largely responsible for the violent French decolonisation in Algeria and the protracted British decolonisations in Southern Africa. Wieschhoff (1944:39) also supports this premise.

1.2.3 Outline of Chapter Four - How Does Colonial Origin Matter for Economic Performance in sub-Saharan Africa?

The focus of chapter four is on examining the different channels through which colonial legacies continue to impact post-independence economic performance in sub-Saharan Africa. Recent cross-country empirical evidence suggests that former British colonies have witnessed comparatively better economic performance than former French colonies. Yet the mechanisms of transmission of any such colonial legacies are still the object of much controversy amongst scholars.

Thus, the chapter carefully investigates some of the existing hypothesis regarding the transmission of different colonial legacies to modern day economic performance. It focuses on four key channels of transmission namely, the human capital, trade openness, market distortion and selection bias channels. The methodology applied in the chapter is slightly different to that of previous studies, where only initial conditions at independence were held to influence the subsequent growth path. In contrast, this study simultaneously examines the influence on post-independence income levels, of pre-colonisation initial conditions, the initial conditions at independence, and the subsequent conditions brought about by post-independence changes.

The findings suggest a strong persistence of the initial conditions at independence during the post-independence era and the persistence of these colonial legacies helps explain the observed income variation amongst former SSA colonies. The study specifically finds that only the colonial legacies in human capital and trade openness seem to matter for post-independence income differences amongst former SSA colonies. The pre-colonisation

initial conditions are not found to have a significant influence on SSA's post-independence income levels. This analysis is important in understanding why income differences exist even among African countries, where former British colonies appear to do marginally better. The implications of the study for colonial origins debate is that each region has its specificities and depending on the governance models pursued by the colonisers, the impacts of colonial legacies on current incomes are bound to differ. Finally, the study demonstrates that attention needs to be given to each region's specificities in finding the channels through which colonial legacies impart current economic performance.

1.3 Main contributions of the thesis

Three important contributions to methodology and theory are worth highlighting from this dissertation. Firstly, the study contributes to theory by analytically explaining colonisation and decolonisation in rational choice terms. An important theoretical contribution of the thesis is in explaining the origin of institutions in SSA, as endogenous to the process of colonisation and decolonisation. Specifically, the theoretical models that I propose, explains the dynamics of human capital formation in colonial societies as endogenous to the process of colonisation. The thesis shows that the choices made by colonisers during the colonisation of SSA continue to play a role today. In particular, the nature of education in the colonial period is a crucial determinant of income levels today. The insight from the model is useful in understanding why the stock of human capital available in countries emerging from colonisation might vary considerably across colonial experiences and from one country to another.

Another theoretical contribution of the thesis is in providing an alternative framework for understanding 20th century decolonisation, anchored on human capital transfers. The approach, inspired by the experiences of Britain and France in West Africa, unifies the Eurocentric and Afrocentric perspectives of decolonisation.

Finally, the thesis makes a methodological contribution to the empirics of "colonial origin - growth" by jointly examining the income influences of pre-colonisation initial conditions, the initial conditions at independence, and the subsequent conditions brought about by post-independence changes. This study is also the first, to the best of my knowledge, to simultaneously investigate a range of feasible transmission channels through which colonial origin affects current income levels.

Chapter 2
A Theory of Colonial Governance

2.1 Introduction

This chapter examines optimality conditions in a co-optive strategy of colonial rule in agrarian and industrial African economies. It assumes rationality on the part of all agents, namely - the colonisers, the indigenous elites and the general population. It assumes further that human capital transfers from the colonisers to the elites of the colonies occupy *centre-stage* in a co-optive governance strategy. The purpose of human capital transfers is to enhance the productivity of the elites, which in turn, increases the rents that accrue to the colonisers. However, human capital transfers to the elite also raises their aspirations to a greater wellbeing, which effectively reduces the rent flow to the colonisers.

This suggests that in the transfer of human capital to the elite, the colonisers face a choice tension between enhancing productivity gains for the economy on the one hand, and minimising power losses as a result of the rising aspirations of the elite on the other hand. How this choice tension is handled depends on a number of parameters, namely - the choice of governance technology, the productivity distance between elites and masses, the returns to human capital and the specification of the production function.

The coloniser's choice of governance technology is assumed to be a function of its pattern of human capital transfers, which in turn depends on its colonial educational ideology. It is worth acknowledging that the literature recognises the existence of an alternative hypothesis based on initial endowments of the colony, see notably, Engerman & Sokoloff (2002). However, unlike in Engerman & Sokoloff (2002) where the choice of governance technology is dependent on the colony's initial factor endowments, I explore a different hypothesis based on differences in colonial educational practices. This hypothesis is mo-

tivated by the West African experience, where, despite similarities in initial factor endowments, different governance models were followed by the colonial powers.[12]

Thus, while the Engerman & Sokoloff hypothesis is an important contribution to the understanding of colonial governance, it cannot account for cases where different governance models were pursued in regions with similar initial factor endowments. An alternative means of framing the modeling strategy of this chapter would be in hypothetical mode: are there circumstances under which two regions with similar initial endowments receive different governance models by rational colonial powers? As will be seen, this answer is in the affirmative. As such, the theory presented in this chapter raises prospects for more detailed empirical testing on which motivating force for the choice of governance structure by colonial powers applied, when and where. Certainly, the existence of at least two alternative models of rational colonial governance would carry implications for any empirical testing strategy of either model.

Since the basic premise here is that, the choice of governance model is endogenous to colonial educational practices, one possibility is that the educational practices in the Metropole determined the educational practices in the colonies. Accordingly, an extensive debate exists on the contrasting nature of educational approaches in twentieth century Britain and France. For instance, according to Gifford & Louis (1971) and Wallerstein (1959), educational policy in France in the early twentieth century is portrayed as discriminatory and

[12] It is worth noting that, according to Engerman & Sokoloff (2002), differences in style of administration of North and South America during the era of European colonisation emanated because the North was prone to small scale grain agricultural activities, whilst the South was more prone to large scale plantation agriculture. West Africa offers a puzzling contrast in the sense that, despite being characterised by similar plantation agricultural activities (notably, Gold and Cocoa for Ghana; Ivory and Cocoa for the Cote d'Ivoire) were governed following different models.

selective[13] whilst educational policy in Britain is portrayed as more democratic. This of course, may also have influenced the approach to educational provision in the colonies. However, since my model focuses on the choice of educational policy as an optimising instrument of governance, I abstract from this in the model.

To differentiate the governance technology options of the colonisers, I focus on the contrasting approaches to human capital transfers in the British and French sub-Saharan African empires in general, although specific reference is made to West Africa. But first a brief historical introduction is necessary to set the stage for the subsequent sections of the chapter.

2.1.1 Historical Background

The debate preceding the scramble for Africa suggests that colonies offered an expected return to the colonisers.[14] Once territories were acquired, it became imperative for the colonisers to choose the governance strategy that maximised their expected return. Historical evidence points to two major strategies of colonial governance, namely - absolute subjugation[15] and co-optation in governance.[16]

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[13] A typical example of the highly selective nature of French education is the persistent use, until recently, of competitive examinations into the "Grandes Ecoles" as channel of recruitment of colonial administrators and government cadres.

[14] Whilst on most occasions these payoffs could be expressed in economic terms, in other instances - they were cultural or geo-strategic.

[15] Absolute subjugation or military dictatorship generally entails the use of repression to appropriate the resources of the colonies, and is assumed to involve minimal redistribution to the population of the colonies. For instance, it is popularly claimed that the pioneer colonial governance strategy was by direct military rule.

[16] Co-optation in governance or better still, *indirect rule*, meant the retention of traditional authorities as agents of local government entrusted with power by the colonial administration and is based on the philosophy that it was possible to utilise traditional political institutions in development. The envisaged administrative role of co-opted agents was to ensure law and order, collect taxes and supply labour.

It is believed that towards the late nineteenth century, orthodox colonial ideology in Africa had shifted from absolute subjugation to the co-optation of elites.[17] Co-optation in governance - is presumably an idea first explored by Sir Arthur Gordon in Fiji (1874-80),[18] but it was not until Frederick Lugard governed in Nigeria during the first two decades of the twentieth century that it became orthodox colonial ideology, Bolton (1973:69). In its original conception, the British co-optation strategy aimed to provide western education only to the sons of chiefs, who would later inherit traditional authority as educated chiefs capable of intermediating between the British government and the indigenous population, Foster (1965), and McWilliam & Kwamena-Poh (1978).

The idea was that the newly educated chiefs were more likely to favourably appreciate British civilisation and defend the interests of the Crown in the colony. As such, Article 9 of the treaty of 1817 signed by the Kings of Ashanti and Juaben required that:

> *'The kings agree to commit their children to the care of the Governor-in-Chief for education at Cape Coast Castle, in full confidence of the good intentions of the British Government and of the benefits to be derived therefrom'.*

Just as the British established the Castle School for sons of chiefs at Cape Coast, the French also created the "Ecole des Hôtages" in 1854 in Senegal for the sons of chiefs.[19] This

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[17] It can be argued that this shift was a rational decision on the part of the colonisers, owing to the increasing costs associated with military dictatorship. These costs were rising rapidly as the presence of a military provoked resistance from the indigenous population, which necessitated the deployment of further resources to quell the rebellion. Furthermore, the lessons of the Indian revolt in 1857 made the option of military dictatorship even less appealing to the metropolitan powers. It is to be recalled that the 1857 Indian revolt was provoked by the British attempt at taking over native Indian states whose rulers had left no heirs. This provoked sections of both the Hindu and Muslim communities into rebellion. Meredith (2005), Piers Brendon (2005) and Maddison (1971:42) have argued that the Indian revolt in 1857, though unsuccessful, signalled to the British colonial power that the option of military intervention is not always optimal and the lessons of the revolt raised awareness that sparked off early nationalist activism in most parts of the British empire.

[18] Prior to this date, sources reveal that attempts were already made at training the to-be co-opted elites but the actual utilisation of these elites in governance was supposedly first experimented by Sir Arthur Gordon.

[19] See Foster (1965)

suggests that both the British and French colonial administrations pursued an "aristocratic" policy of recruitment into special institutions that trained elites for use in colonial administration. In addition, both British and French colonial masters maintained a relatively small administrative bureaucracy. This similarity naturally blurs the distinction usually made between "indirect rule" as administered by the British and "direct rule" as administered by the French colonial powers in their respective colonies.[20]

Furthermore, historical sources,[21] claim that during the 1920's and 1930's, there was a trend towards convergence in both theory and practice in the British and French west African colonial empires, and colonial administrators in both empires worked under similar material limitations. For instance, until very late in the colonial period, the colonies of both empires were expected to be financially self-sufficient, and the administrators had to manage their districts with meagre resources in money and technical personnel.

In spite of the observed similarities in the practice of co-optation, there were nevertheless some marked differences between the British and French approaches. It has been argued that the British system of co-optation differed from that of the French mainly in the area of educational transfers. The British had initially relegated educational provision to missionary bodies, who trained without regard for placement, whereas, the French admin-

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[20] Foster (1965:140-141) argues that, the British were never really consistent in their choice of "indirect rule". For instance, at the inception of "indirect rule", the British emphasised the role of traditional African chieftaincy institutions in the administration of their colonies at the expense of the educated African elites. But when discontent started mounting from the latter, the British reluctantly resorted to using the elites in administration, as the French originally did, and most of the elites utilised in the British colonies were not sons of Chiefs as was in the original plan.

[21] See for instance, Gann & Duignan (1970) and Gifford & Louis (1971).

istered education through state-owned schools and thus had a more strict management of educational turn-over than the British. Wallerstein (1959:59) notes that:[22]

> *"British educational policy was haphazard and neglected placement, in part because it was largely in the hands of the missions, whereas the French educational policy, conducted largely in state-owned schools, was more systematic. The French trained only those for whom they were willing to find a position in the colonial structure. But the British trained without regard for this, and they did not expand the positions available for African placement to meet the expanded supply".*

Because the British tolerated rival educational institutions, and emphasised village schools and the use of local vernacular languages as medium of instruction in their colonies, educational turn-over in British colonies tended to be comparatively higher than in French colonies where primary pupils needed to be boarded to far-away schools where they were taught by French teachers, using French textbooks and French language as medium of instruction.

Furthermore, it appears that the British were less stringent than the French in setting and pursuing their educational priorities. For instance, Foster (1965:60) and McWilliam & Kwamena-Poh (1978:23-24) document the first abortive British attempt at co-opting two Asante Princes (Ansa, the son of the former Asantehene and Inkwantabissa, son of the incumbent), who were sent to England for education in 1831 in order to become British agents on the Gold Coast. On return to the Gold Coast in 1841, neither of them agreed to stay in the court of the Asante chiefdom, choosing rather to settle permanently in Cape Coast on British government pensions. Hailey (1957:1197) argues that the French, by

[22] Hailey (1957:1197) shares a similar view.

contrast, were more purposeful than the British in both the provision of advanced education and in utilisation of their trained manpower.[23]

A quick review of the historical data on educational transfers in selected sub-Saharan African countries at independence, provided in Panel A of Figure 2.1 below, is consistent with the British opening access to education to a greater proportion of the population in their colonies than did either the French, Portuguese or Belgians. Panel A also suggests that the Portuguese and Belgians had the lowest educational transfers to the elite of their former SSA colonies. As Panel B of Figure 2.1 suggests, the percentage gross secondary enrolment rate at independence (SEC ENRO) in former British SSA colonies significant higher than in former French SSA colonies, although there seem to be no significant difference in the percentage of secondary school attained in the total population aged 15 and above (SEC15). Furthermore, Panel B suggests that the average schooling years in the total population over the age of 15[24] (TYR15), used as proxy for the quality of human capital transferred to the local elite, was significantly higher in former British, in comparaison to former French SSA colonies. This historical evidence provides independent support for the relevance of my model.

One of the most acclaimed merits of co-optation in governance, is that it was inexpensive and less distortionary on pre-existing traditional political institutions. However, co-optation had a major *unanticipated* consequence on empires, by raising the aspirations to power of the indigenous elites, which partly contributed to the demise of colonisation. A

[23] This is not to suggest that the quality of education in British colonies was necessarily poorer than in French colonies but rather, that education was provided on a relatively wider scale in the former, as opposed to the latter empire.

[24] All three variables are measured in the year of independence of the country.

Fig. 2.1. Comparative Statistics on Human Capital Transfers at Independence for selected SSA Countries by Colonial Experience.

PANEL A - DESCRIPTIVE STATISTICS

British Former Colonies in SSA					French Former Colonies in SSA					Portuguese Former Colonies in SSA					Belgian Former Colonies in S			
COUNTRY	Ind Date	SEC Enro	SEC15	TYR15	COUNTRY	Ind Date	SEC Enro	SEC15	TYR15	COUNTRY	Ind Date	SEC Enro	SEC15	TYR15	COUNTRY	Ind Date	SEC Enro	SEC15
Botswana	1966	3.8	3.02	1.68	Benin	1960	2	1.3		Guinea Bissau	1975	3	0.4		Rwanda	1962	2	4.86
Gambia	1965	6	5.3		Cameroon	1960	2	9.7	1.74	Mozambique	1975	3	1.6	0.64	Zaire	1960	3	1.4
Ghana	1957	0.2	1.6	0.97	Cape Verte	1960	2											
Kenya	1963	3.2	2.42	1.61	Cen Africa Rep.	1960	1	3.6	0.57									
Lesotho	1966	4.6	1.6	2.99	Congo, Rep.	1960	4											
Malawi	1964	1.8	0.78	1.98	Cote d'Ivoire	1960	2											
Mauritius	1968		19.5	3.92	Madagascar	1960	4											
Nigeria	1960	4			Mali	1960	1	0.1	0.36									
Sierra Leone	1961	2.6	2.64	0.67	Niger	1960	1	0.6	0.28									
Sudan	1956	2.2	1.5	0.41	Senegal	1960	3	4.4	1.74									
Swaziland	1968	14	6.96	2.36	Togo	1960	2		0.22									
Tanzania	1961	2	1.2	3.26														
Uganda	1962	3.4	3.8	1.17														
Zambia	1964	6	5.9	2.81														
Zimbabwe	1980	8	4.9	2.13														
Average		**4.41**	**4.36**	**1.99**	**Average**		**2.18**	**3.28**	**0.82**	**Average**		**3**	**1**	**0.64**	**Average**		**2.5**	**3.13**

Sources: World Development Indicators for % Gross Secondary Enrolments (SEC Enro); The Africa Research Program dataset for % Secondary School Attainment in the total Pop aged 15 and a
(SEC15), Average Schooling Years in the total Pop aged 15years and above (TYR15).

PANEL B - MEANS BY COLONIAL BACKGROUND

	FRENCH SSA	BRITISH SSA	PORTUGUESE SSA	BELGIAN SSA
SEC ENRO	2.18	4.41*	3	2.5
SEC15	3.28	4.36	1	3.13
TYR15	0.82	1.99**		

Notes: Asterisks indicate results of t-tests. The null hypothesis is that the mean is the same as the mean for former French SSA.
* Denotes significance at 10%, ** denotes significance at 5% and ***denotes significance at 1%.

possible reason for this is that, as Fedderke & Kularatne (2008) have argued, educational transfers from the elite (here denoted by the colonisers) to the poor in society (here denoted by the indigenous elite) raises the political aspirations of the latter, which in turn, erodes the power of the former. This suggests that, in the transfer of human capital to the indigenous elites of their colonies, the colonisers faced a trade-off between enhancing the productivity of these elites and minimising power losses to them.

2.1.2 Research Question

On the assumption that co-optive governance entails the transfer of human capital from the colonisers to the indigenous elites[25], and given the inherent trade-off between productivity

[25] See Foster 1965 and McWilliam (1978) for evidence in support of the use of education as tool of colonial

gains for the colony and power losses by the colonisers, a fundamental question that needs to be addressed is what *degree* of human capital should be transferred to the indigenous elite. In other words, what format of elite, in terms of size[26] and quality,[27] should be chosen by the colonisers?

This chapter seeks to answer the above question by presenting a simple model of elite formation emanating from the colonisers quest to maximise extracted rents from its colonies.

The chapter is organised as follows. Section 2.2 presents the theoretical framework, the core predictions of the model and a discussion of the results. Section 2.3 summarises the main predictions of the model, while section 2.4 concludes.

2.2 Theoretical Framework

I now outline a simple model to formalise the ideas discussed in the preceding section, the hope being to determine the likely optimal combinations of elite size and quality that satisfy the coloniser's objective of simultaneously enhancing productivity gains and minimising power losses. It is important to mention that the model I describe below is intended as a stylisation, depicting some aspects of history, though with obvious imperfections.

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governance in British West Africa.

[26] Refering to small or large elite dimension.

[27] Refering to the number of years of education to be given to a representative member of the elite population.

2.2.1 The Environment

The basic premise is that, acting as rational agents in pursuance of their own self-interest, the colonisers need necessarily to transfer human capital in the form of education to a select portion of the indigenous population of their colonies. The education received by this select group of individuals (whom I henceforth call the elite) distinguishes them from the rest of the population (henceforth referred to as the masses). The purpose of educational transfers to the elite is to raise their productivity and output, which in turn increases the size of the pie from which the coloniser appropriates.

In other words, under an elite co-optation governance strategy, the coloniser selectively redistributes some of its own human capital resources to the indigenous population with the sole intention of raising the latter's productivity for optimal extraction. Although Acemoglu & Robinson (2001b) assume human capital cannot be transferred, it is a legitimate assumption in this paper based on school enrolment levels. However, because educational transfers to the elite raises their aspirations to greater wellbeing, which in turn erodes the power of the colonisers,[28] there is a threshold level of educational transfers that any coloniser would not allow.

The coloniser's aim is to appropriate the maximum possible proportion of output produced in the colony and this is a function of its power. I express this power of the coloniser to appropriate the colony's resources in terms of three different types of governance technologies depending on the specific characteristic of the elite (size, quality or both) that

[28] The coloniser's power is defined in terms of its ability to appropriate the resources of the colony.

the coloniser emphasises. I refer to these as a technology of governance by numbers, a technology of governance by quality and a composite governance technology respectively.

In a technology of governance by numbers, it is assumed that the coloniser's emphasis is on getting the "right" size of the elite population that will maximise output. Given an elite that is productive, having many of them, as opposed to few, is plausibly a rational option for the colonisers. However, in spite of its potential productivity advantage, it makes sense for the coloniser to control the elite size because the bigger the latter, the more costly (in terms of power loss) it is to the coloniser. Accordingly, the concept of power is hereby defined solely in terms of relative population proportions, that is, the ratio of the population constituting the local elite in the total population.

In a technology of governance by quality, I assume that the emphasis of the coloniser is on transferring the requisite stock of human capital that the elites need in order to produce optimally. This is because the better the quality of human capital endowment of the elites, the more productive they are. However, there is a threshold stock of human capital transfers that the colonisers would not allow, because the greater the elite's endowment of human capital, the smaller will be the power of the colonisers.[29] Thus, in this case the concept of power is characterised in terms of the total stock of human capital which the group constituting the local elite holds relative to that held by the total population.

In a composite governance technology, the emphasis of the coloniser is on both the size of the elite and on the stock of human capital that it holds. Given an elite that is productive, having many of them who are endowed with high quality human capital enhances

[29] A more educated elite potentially has greater aspirations to wellbeing which in turn threatens the power of the coloniser.

society's productivity. However, increasing the size or quality dimension of the elite or both dimensions, also potentially decreases the power of the colonisers. Hence the need to specify the optimal level of the size and quality of these transfers.

Finally, the model rests on the following set of assumptions:

1) All agents are rational.

2) Members of each population group (colonisers, indigenous elites and general population) are homogenous.

3) Military dictatorship and co-optation strategies are mutually exclusive.

4) The colonisers and elites monopolise power while the population masses hold no power.[30]

5) The model also abstracts from remuneration of factors of production[31] and from the cost of human capital transfers to the elite.[32]

2.2.2 The Model

Consider a society that has been colonised by a foreign power. Suppose that initially the society is comprised of one group of individuals - the indigenous population masses (D). Members of this group are assumed to be homogenous. Assuming that there is no population growth, the total population in the society, L, is exactly equal to the indigenous

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[30] This is for purposes of simplification, although from an analytical standpoint, it still makes sense to neglect the power of the population masses, because, according to my assumptions, the masses hold a negligible amount of human capital, implying that their associated aspirations are equally negligible.

[31] For instance, wages to the elite and subsistence wages paid to the agrarian population.

[32] It might be the case that the colonisers transfer some of their own human capital to the elite of the colonies, hence internalising these costs onto themselves.

population, L^d, that is:

$$L = L^d$$

After the coloniser arrives, he creates a new group of individuals we term the elite (E), whose members are previous members of the indigenous population mass L^d, implying that the total population in the society is now given by:

$$L = L^d = L^e + L^p$$

and

$$L^p = \left(L^d - L^e\right) = (L - L^e)$$

where by definition:

$$0 < L^e < L^p < L$$

where L^e and L^p denote the population of the elite group and the new size of the population mass group respectively. At any point in time, the size of the elite population, L^e is determined by the coloniser, whereas the total population is exogenously given.

Prior to the arrival of the coloniser, all members of the indigenous population mass group, L^d, are endowed with a baseline human capital of $\overline{h}$. This baseline human capital can be thought of in terms of a fixed stock of basic knowledge acquired through traditional learning methods by each member of the indigenous population.

The primary objective of the coloniser is to maximise extraction of the colony's resources for the furtherance of its own empire.[33] In so doing, it selectively redistributes some

[33] Many historical sources have argued that an important motive for empire is the extraction of raw materials for use in production in the imperial economy. See for instance, Rhoda (1973:19), Bolton (1973:24) and

of its human capital resources to the indigenous population in order to raise the latter's productivity.

Thus in this model, the coloniser transfers human capital (δ) only to the elites who wind up with a higher proportion of human capital resources $(1+\delta)\,\overline{h}$ relative to the general population masses, who own $\overline{h}$. It is worth emphasising that the distinction between the elite and the general population is made solely in terms of their relative endowments of human capital, which stems from the fact that the coloniser redistributes human capital to the elite group only. This is exemplified, for instance, by the fact that the elite are offered the opportunity of formal schooling which is not available to the general population. However, human capital transfers made to the elite can be either of low quality $(low\ \delta)$, implying fewer years of formal schooling, or of high quality $(high\ \delta)$, implying comparatively higher number of years of formal schooling.

Co-optation of the elite has only one major cost to the coloniser, which is that it reduces the flow of rents to the coloniser, as the elites effectively appropriate some of it. These rent losses translate into diminishing power of the coloniser.

In pursuing its extraction strategy, the coloniser factors in two main concerns: - on the one hand, the returns from production in the colony, which are a function of human capital transfers to the elite. And on the other hand, the coloniser's ability to appropriate output that is produced in the colony, which is a function of it's power.

I examine both concerns in turn, starting first with the returns from productive activity in the colony. For simplicity, I start with an additively separable (or independent)

Douglas (1978:265).

production function which depicts a typical agrarian colonial economic set-up wherein the elite and population mass groups do entirely different things. Later, I consider a more advanced or industrial colonial economic set-up whereby the elite and mass sectors depend on each other in production (or better still, interdependent production).

Independent Production

Following Hirschleifer (1995) and Fedderke & Kularatne (2008), I assume an agrarian society wherein members of each segment (elite or general population) pursue separable production.[34] Assuming a simple production function with human capital as the only factor of production, output obtained from productive activity in such an economy is given as:

$$Y = A_e L^e \left[(1+\delta)\,\overline{h}\right]^{\theta} + A\left(L - L^e\right)\overline{h}^{\theta} \tag{2.1}$$

where A_e and A represents the technology that is available to the elite and mass sectors of the population respectively, and definitionally, $A_e > A$. It makes sense to distinguish the production technology of the elite from that of the masses, because the human capital received by the elites opens them access to new and superior technology of doing things. Y denotes output.[35] Finally, θ represents returns to human capital; such that[36]:

[34] Separable production function here helps depict an agrarian colonial economic set-up, wherein there is no division of labour or specialization in production, implying therefore that, elites and population masses are not dependent on each other in production.

[35] Observe that output under elite co-optation is higher than that obtained in the absence of human capital transfers, as long as the productivity of the elite is higher than that of the masses.

[36] As far as this model is concerned, the productivity parameters of the economy (i.e. $\frac{A_e}{A}$ and θ) are assumed exogenously given (for instance, by the colony's initial endowment).

$$\theta = \left\{ \begin{array}{c} > 1 \text{ represents increasing returns} \\ = 1 \text{ represents constant returns} \\ < 1 \text{ represents decreasing returns} \end{array} \right\}$$

One deduces from equation 2.1 above that a high return from production in the colony is obtained by giving a high number of years of formal schooling ($high\ \delta$), to as many elite (L^e), as possible while fewer years of formal schooling produces low return.[37]

The second preoccupation of the coloniser concerns its power or ability to appropriate output produced in the colony.

Operationalisation of the Concept of Power

Recalling the initial assumption that only the coloniser and elites hold power while the general population is passive, I characterise the power of the coloniser in terms of its ability to appropriate a proportion of the output produced in the colony. Correspondingly, the power of the elite is a function of its ability to appropriate effectively some of the rents that normally would have accrued to the coloniser.[38]

I express these concepts of power in terms of three different types of governance technologies, namely - technology by numbers, technology by quality and lastly as a composite technology which is a combination of numbers and quality.

[37] See that as long as $A_e > A$, $\frac{\partial Y}{\partial L^e} > 0$ and $\frac{\partial Y}{\partial \delta} > 0$.

[38] It therefore goes without saying that the power of the coloniser and that of the elites are mutually exclusive. I assume for simplicity that the two sum up to unity.

Technology of Governance by Numbers

Here the concept of power is defined solely in terms of relative population proportions, that is, the ratio of the population constituting the local elite in the total population. Thus the power of the elites, r^e is given as:

$$r^e = \frac{L^e}{L^p + L^e} = \frac{L^e}{L - L^e + L^e} = \frac{L^e}{L} < 1$$

Correspondingly, the power of the coloniser as a function of the technology by numbers, $r^c\left(L^e\right)$ is given as:

$$r^c\left(L^e\right) = 1 - r^e = \frac{L - L^e}{L} < 1 \tag{2.2}$$

It is easy to see from equation 2.2 above that the coloniser's power is a decreasing function of the elite dimension, L^e whilst, correspondingly, the elites' power is an increasing function of their numbers.

Given the output from productive activity in the colony as:

$$Y = \left[A_e L^e \left[(1+\delta)\,\overline{h}\right]^{\theta} + A\left(L - L^e\right)\overline{h}^{\theta}\right]$$

The coloniser uses its power, $r^c\left(L^e\right) = \frac{L - L^e}{L}$, to appropriate the maximum possible proportion of output. Formally, the extraction function of the coloniser is given as:

$$U\left(L^e\right) = \overline{h}^{\theta}\left(\frac{L - L^e}{L}\right)\left[A_e L^e\left(1+\delta\right)^{\theta} + A\left(L - L^e\right)\right] \tag{2.3}$$

where $A_e > A$.

The coloniser takes A_e, A, L, δ, θ and $\overline{h}$ as given[39] and selects L^e to maximise equation 2.3 above with the relevant first order condition being:

$$\frac{\overline{h}^{\theta}\left[2A\left(L^e-L\right)-A_e\left(1+\delta\right)^{\theta}\left(2L^e-L\right)\right]}{L}=0 \tag{2.4}$$

Solving for $\frac{L^{e^*}}{L}$ in equation 2.4 above gives the following relationship:

$$\frac{L^{e^*}}{L}=\frac{1}{2}\left[\frac{2A-A_e\left(1+\delta\right)^{\theta}}{A-A_e\left(1+\delta\right)^{\theta}}\right]<1 \text{ whenever } A_e>2A \tag{2.5}$$

Equation 2.5 suggests that the only logic for having an elite under a governance technology by numbers is that the elites are at least twice more productive than the masses.[40]

Normalising $A=1$ in equation 2.5 above for simplicity gives:

$$\frac{L^{e^*}}{L}=\frac{1-\frac{A_e}{2}\left(1+\delta\right)^{\theta}}{1-A_e\left(1+\delta\right)^{\theta}},\ A_e>2 \tag{2.6}$$

$$\frac{\partial\left(\frac{L^{e^*}}{L}\right)}{\partial A_e}=\frac{\left(1+\delta\right)^{\theta}}{2\left[A_e\left(1+\delta\right)^{\theta}-1\right]^2}>0 \text{ and } \frac{\partial^2\left(\frac{L^{e^*}}{L}\right)}{\partial A_e^2}<0 \tag{2.7}$$

$$\frac{\partial\left(\frac{L^{e^*}}{L}\right)}{\partial \delta}=\frac{A_e\theta\left(1+\delta\right)^{\theta-1}}{2\left[A_e\left(1+\delta\right)^{\theta}-1\right]^2}>0 \text{ and } \frac{\partial^2\left(\frac{L^{e^*}}{L}\right)}{\partial \delta}<0 \tag{2.8}$$

$$\frac{\partial\left(\frac{L^{e^*}}{L}\right)}{\partial \theta}=\frac{A_e\left(1+\delta\right)^{\theta}\log\left(1+\delta\right)}{2\left[A_e\left(1+\delta\right)^{\theta}-1\right]^2}>0 \text{ and } \frac{\partial^2\left(\frac{L^{e^*}}{L}\right)}{\partial \theta}<0 \tag{2.9}$$

[39] δ is not a choice dimension here because it could be the case that the coloniser has a fixed education technology. Say, for instance, it always trains the elite of its colonies in village schools or at the *Grandes Ecoles*.

[40] Observe also that the denominator of equation 2.5 is always negative. Hence, in order for $\frac{L^{e^*}}{L}>0$, the numerator of equation 2.5 must necessarily be negative as well, and this is defined only for $\left[A_e\left(1+\delta\right)^{\theta}\right]>2A$.

Equation 2.7 suggests that there is concavity in the relationship between the optimal elite size $\left(\frac{L^e}{L}\right)$ and productivity distance between the elite and the masses $\left(\frac{A_e}{A}\right)$. Thus, equation 2.7 suggests that the optimal elite size $\left(\frac{L^e}{L}\right)$ tends to zero whenever the productivity distance $\left(\frac{A_e}{A}\right)$ is small, and tends to one, whenever $\left(\frac{A_e}{A}\right)$ is large.

The same symmetrical interpretation holds for equations 2.8 and 2.9 above. *In other words, equations 2.7, 2.8 and 2.9 above suggest that under a governance technology by numbers in agrarian colonial economies, large elite formation is a direct reflection of a sufficiently high productivity-enhancing technology by the coloniser. Symmetrically, a small elite size suggests an inefficient technology of co-optation/governance by the coloniser. The implication of this is that, under a technology of governance by numbers, productivity gains from co-optation always dominate power loss.*

The intuition behind these results is that, under a technology of governance by numbers in agrarian colonial economies, the coloniser with a more effective technology (represented by high $\frac{A_e}{A}$, θ, and δ) is able to co-opt more elites than the one with a less effective technology (represented by low $\frac{A_e}{A}$, θ, and δ). In agrarian African societies, where the British, in comparison to the French, are known to have educated a relatively large segment of the population of their colonies, this insight suggests that the British probably had a more effective governance technology than the French.[41]

[41] It is important to emphasise that, at this stage, this dissertation presents a theoretical model which establishes that under its specified assumptions, a better technology of governance can lead to higher levels of human capital transfers. The empirical evidence in the introduction suggests that the British did engage in higher levels of human capital transfers than did the French or other European colonial power. It remains for subsequent empirical work to test whether this can be causally linked to the governance technology. Such empirical testing lies beyond the scope of the present work.

Technology of Governance by Quality

Here the concept of power is characterised solely in terms of the total stock of human capital that the group constituting the local elite holds relative to that held by the total population. The elites' power in this case is defined as:

$$r^e = \frac{\delta}{1+\delta} \text{ and } \quad r^c(\delta) = 1 - r^e = \frac{1}{1+\delta} < 1 \tag{2.10}$$

Observe from equation 2.10 above that the coloniser's power is a decreasing function of the quality of human capital that it transfers to the elite and, correspondingly, the elites' power is an increasing function of the quality of human capital that it receives. In particular, more years of schooling given to the elites enhances their ability to appropriate some of the rents that normally would have accrued to the coloniser.

The coloniser uses its power, $r^c(\delta) = \frac{1}{1+\delta}$, to appropriate the maximum possible proportion of output produced in the colony. Formally, the extraction function of the coloniser under a technology of governance by quality is given as:

$$U(\delta) = \overline{h}^{\theta}\left(\frac{1}{1+\delta}\right)\left[A_e L^e (1+\delta)^{\theta} + A(L - L^e)\right] \tag{2.11}$$

where all the parameters are the same as defined in equation 2.3 above.

The coloniser takes A_e, A, L, L^e, θ and $\overline{h}$ as given[42] and selects δ to maximise equation 2.11 above, with the relevant first order condition being:

$$\frac{\overline{h}^{\theta}\left[A(L^e - L) + A_e(1+\delta)^{\theta} L^e(\theta - 1)\right]}{(1+\delta)^2} = 0 \tag{2.12}$$

[42] L^e is not a choice dimension here. It might be the case, for instance, that an ethnic group is chosen as the elite.

Solving for δ^* in equation 2.12 above gives the following relationship:

$$\delta^* = \left[\frac{A\left(L - L^e\right)}{A_e L^e\left(\theta - 1\right)}\right]^{\frac{1}{\theta}} - 1 \tag{2.13}$$

where

$$\frac{\partial \delta^*}{\partial\left(\frac{L^e}{L}\right)} = -\frac{L\left[\frac{A(L-L^e)}{A_e L^e(\theta-1)}\right]^{\frac{1}{\theta}}}{\theta L^e\left(L - L^e\right)} = \left\{\begin{array}{l} < 0,\ iff\ \ \theta > 1 \\ > 0,\ iff\ \ \theta < 1 \end{array}\right\} \tag{2.14}$$

also

$$\frac{\partial \delta^*}{\partial\left(\frac{A_e}{A}\right)} = \left\{\begin{array}{l} < 0,\ iff\ \theta > 1 \\ > 0,\ iff\ \theta < 1 \end{array}\right\} \tag{2.15}$$

and

$$\frac{\partial \delta^*}{\partial \theta} < 0 \tag{2.16}$$

Equation 2.14 above suggests that under a governance technology by quality in agrarian colonial economies, a bigger elite size $\left(\frac{L^e}{L}\right)$, *necessarily demands the transfer of low quality human capital under high-productivity conditions* $(\theta > 1)$. *On the other hand, a smaller elite size demands the transfer of high quality human capital under low-productivity conditions* $(\theta < 1)$.

Similarly, equations 2.15 and 2.16 suggest that the better the productivity-enhancing technology (represented by $\frac{A_e}{A}$ and θ respectively), the lower the quality of human capital transferred to the elite of the colonies.

The intuition behind these results is that under a technology of governance by quality in agrarian colonial economies, a coloniser with an effective technology does not need to

transfer high quality human capital to the local elite. It might be the case, for instance, that the coloniser is able to adapt technology transfer to local realities.[43] Symmetrically, the coloniser with a less effective technology of governance need necessarily to transfer high quality human capital to the local elite (due, for instance, to poor technological adaptation).

Composite Technology of Governance

Finally, under a composite technology of governance, both the size of the elite and the quality of human capital given to them matter in the power structure. The power of the elite is expressed as a function of both their numbers and the quality of human capital that they have. Here, r^e is defined as:

$$r^e = \frac{L^e \overline{h}\,(1+\delta)}{\overline{h}\,(L+\delta L^e)} = \frac{L^e\,(1+\delta)}{L+\delta L^e} < 1$$

Correspondingly, the power of the coloniser as a function of a composite governance technology, $r^c\,(\delta,\, L^e)$ is defined as:

$$r^c\,(\delta,\, L^e) = 1 - r^e = \frac{L - L^e}{L+\delta L^e} < 1 \tag{2.17}$$

Equation 2.17 above shows that $\frac{\partial r^c}{\partial L^e} < 0$ and $\frac{\partial r^c}{\partial \delta} < 0$ and:

$$\frac{\partial^2 r^c}{\partial L^e \partial \delta} = \frac{2LL^e\,(1+\delta) - L\,(L+\delta L^e)}{(L+\delta L^e)^3} = \left\{ \begin{array}{l} < 0,\ iff\ \ \delta + 2 < \frac{L}{L^e} \\ = 0,\ iff\ \ \delta + 2 = \frac{L}{L^e} \\ > 0,\ iff\ \ \delta + 2 > \frac{L}{L^e} \end{array} \right\}$$

[43] One way of thinking about this is perhaps, the administration of formal educational instruction in the local vernacular languages of the native populations.

implying that the rate of change in the coloniser's power due to the change in elite size increases at high levels of transfer, δ, and decreases otherwise.

The coloniser uses its power, $r^c(\delta, L^e) = \frac{L-L^e}{L+\delta L^e}$, to appropriate the maximum possible proportion of output produced in the colony. The extraction function of the coloniser under a composite governance technology is given as:

$$U(\delta, L^e) = \overline{h}^{\theta}\left(\frac{L-L^e}{L+\delta L^e}\right)\left[A_e L^e(1+\delta)^{\theta} + A(L-L^e)\right] \tag{2.18}$$

The coloniser takes A^e, A, L, θ and $\overline{h}$ as given and selects δ and L^e to maximise equation 2.18 above, with the relevant first order conditions being:

With respect to δ :

$$-\left\{\frac{\overline{h}^{\theta} L^e(L-L^e)\left\{A(L-L^e) + A_e(1+\delta)^{\theta} L^e\right\}}{(L+\delta L^e)^2}\right\} + \frac{\overline{h}^{\theta} A_e \theta (1+\delta)^{\theta-1}(L-L^e)L^e}{L+\delta L^e} = 0 \tag{2.19}$$

and with respect to L^e :

$$\frac{\overline{h}^{\theta}(L-L^e)\left\{-A + A_e(1+\delta)^{\theta}\right\}}{L+\delta L^e} - \frac{\overline{h}^{\theta}\delta(L-L^e)\left\{A(L-L^e) + A_e(1+\delta)^{\theta} L^e\right\}}{(L+\delta L^e)^2} -$$

$$-\frac{\overline{h}^{\theta}\left\{A(L-L^e) + A_e(1+\delta)^{\theta} L^e\right\}}{L+\delta L^e} = 0 \tag{2.20}$$

Expressing $\frac{L^{e^*}}{L}$ in terms of δ^* in equations 2.19 and 2.20 gives the following relationship:

$$\frac{L^{e^*}}{L} = \frac{1 - \frac{\delta^*\theta}{1+\delta^*} - \frac{2}{(1+\delta^*)^{\theta}}\left(\frac{A_e}{A}\right)^{-1}}{2 - \frac{\delta^*\theta}{1+\delta^*} - \frac{2}{(1+\delta^*)^{\theta}}\left(\frac{A_e}{A}\right)^{-1}} > 0 \tag{2.21}$$

where

$$\frac{\partial\left(\frac{L^{e^*}}{L}\right)}{\partial\left(\frac{A_e}{A}\right)} = \frac{2}{(1+\delta^*)^{\theta}\left(\frac{A_e}{A}\right)^2\left[2-\frac{\delta^*\theta}{1+\delta^*}-\frac{2}{(1+\delta^*)^{\theta}}\left(\frac{A_e}{A}\right)^{-1}\right]^2} > 0 \tag{2.22}$$

and

$$\frac{\partial^2\left(\frac{L^{e^*}}{L}\right)}{\partial\left(\frac{A_e}{A}\right)^2} < 0 \tag{2.23}$$

Also

$$\frac{\partial\left(\frac{L^{e^*}}{L}\right)}{\partial\delta^*} = -\frac{\frac{A_e}{A}\theta(1+\delta^*)^{\theta}\left[\frac{A_e}{A}(1+\delta^*)^{\theta}-2-2\delta\right]}{\left[2(1+\delta^*)+\frac{A_e}{A}(1+\delta^*)^{\theta}\left[\delta^*(\theta-2)-2\right]\right]^2} = \left\{\begin{array}{l} <0,\ iff\ \ \frac{A_e}{A} > \frac{2(1+\delta)}{(1+\delta)^{\theta}} \\ >0,\ iff\ \ \frac{A_e}{A} < \frac{2(1+\delta)}{(1+\delta)^{\theta}} \end{array}\right\} \tag{2.24}$$

$$\frac{\partial\left(\frac{L^{e^*}}{L}\right)}{\partial\theta} = \frac{\frac{A_e}{A}(1+\delta^*)^{\theta+1}\left[2(1+\delta^*)\log(1+\delta)-\frac{A_e}{A}\delta(1+\delta)^{\theta}\right]}{\left[2(1+\delta^*)+\frac{A_e}{A}(1+\delta^*)^{\theta}\left[\delta^*(\theta-2)-2\right]\right]^2} = \left\{\begin{array}{l} <0,\ iff\ \ \frac{A_e}{A} > \frac{2(1+\delta)\log(1+\delta)}{\delta(1+\delta)^{\theta}} \\ >0,\ iff\ \ \frac{A_e}{A} < \frac{2(1+\delta)\log(1+\delta)}{\delta(1+\delta)^{\theta}} \end{array}\right\} \tag{2.25}$$

Equations 2.22 and 2.23 tell us that there is concavity in the relationship between elite size and productivity distance between the elites and the masses, implying, in principle, that a large elite size is feasible whenever the productivity distance between elites and masses is large enough. Equation 2.24 suggests that there is a range of feasible values of the optimal elite size over which an increase in the quality of human capital transfers necessitates an increase in the elite size, and another range over which it reduces the elite size.[44]

[44] This suggests that there is a trade-off between the optimal elite size and the quality of human capital transfers that maximise the coloniser's extraction function. Numerical simulations of the optimal combination of elite size and human capital transfers that maximise the coloniser's objective function were also attempted, but, due to the complexity of equation 2.21, these optimal solutions were difficult to find.

Table 2.1. Optimality Conditions under Composite Governance Technology in Agrarian Societies - Quality of Human Capital (HC) Transfers versus Elite Size

	Low Quality HC	**High Quality HC**
Poor Governance Technology $\left(\frac{A_e}{A} < \frac{2(1+\delta)}{(1+\delta)^{\theta}}\right)$	Small Elite Size, $\frac{L^{e^*}}{L}$	Large Elite Size, $\frac{L^{e^*}}{L}$
Effective Governance Technology $\left(\frac{A_e}{A} > \frac{2(1+\delta)}{(1+\delta)^{\theta}}\right)$	Large Elite Size, $\frac{L^{e^*}}{L}$	Small Elite Size, $\frac{L^{e^*}}{L}$

Equation 2.24 also enables us to deduce the following analytical results which are summarised in Table 2.1 above. The results in Table 2.1 suggest that a coloniser with a poor technology of governance (represented by an $\frac{A_e}{A} < \frac{2(1+\delta)}{(1+\delta)^{\theta}}$), can either transfer low human capital to a small elite or high human capital to a large elite. On the other hand, a coloniser with an effective governance technology (represented by an $\frac{A_e}{A} > \frac{2(1+\delta)}{(1+\delta)^{\theta}}$), is able to transfer either low human capital to a large elite or high human capital to a small elite.

Also, equation 2.25 suggests that there is a range of feasible values of the elite size over which an increase in the returns to human capital necessitates an increase in the elite size and another range over which it reduces the elite size. Furthermore, equation 2.25 enables us to deduce the following analytical results which are summarised in Table 2.2 below. The results in Table 2.2 suggest that a coloniser with a poor technology of governance (represented by an $\frac{A_e}{A} < \frac{2(1+\delta)\log(1+\delta)}{\delta(1+\delta)^{\theta}}$), is able to constitute a small elite only when the returns to human capital are low. In contrast, when the returns to human capital are high, a coloniser with a poor technology is able to co-opt a large elite. On the other hand, a coloniser with a good or effective governance technology (represented by an $\frac{A_e}{A} > \frac{2(1+\delta)\log(1+\delta)}{\delta(1+\delta)^{\theta}}$), is able to constitute a small elite only when the returns to human capital are high and a large elite only when the returns to human capital are low.

Table 2.2. Optimality Conditions under Composite Governance Technology in Agrarian Societies (Returns to Human Capital versus Elite Size)

	Low Returns	**High Returns**
Poor Governance Technology $\left(\frac{A_e}{A} < \frac{2(1+\delta)\log(1+\delta)}{\delta(1+\delta)^{\theta}}\right)$	Small Elite Size, $\frac{L^{e^*}}{L}$	Large Elite Size, $\frac{L^{e^*}}{L}$
Effective Governance Technology $\left(\frac{A_e}{A} > \frac{2(1+\delta)\log(1+\delta)}{\delta(1+\delta)^{\theta}}\right)$	Large Elite Size, $\frac{L^{e^*}}{L}$	Small Elite Size, $\frac{L^{e^*}}{L}$

These results suggests that the governance-by-quality story also dominates in a composite technology of governance. In general, as the productivity dimensions $(i.e.\ \theta, \delta,$ and $\frac{A_e}{A})$ *rise, the optimal elite size* $\left(\frac{L^{e*}}{L}\right)$ *decreases. However, there are now non-linearities defined by the* $\frac{A_e}{A}$ *threshold.*

Interdependent Production

Continuing to use a simple production function with human capital as the only factor of production, I now assume that the elites and general population are dependent on each other, represented by the interaction of their respective productions.[45] This feature is obtained by using a general form of the production function wherein output produced in the colony is given as:

$$Y = \left[A_e L^e (1+\delta)\,\overline{h}\right]^{\alpha} \left[A\,(L - L^e)\,\overline{h}\right]^{\beta} \tag{2.26}$$

which after simplification gives:

$$Y = \overline{h}^{\alpha+\beta} A^* \left\{\left[L^e (1+\delta)\right]^{\alpha} \left[L - L^e\right]^{\beta}\right\} \quad \text{where} \quad A^* = A_e^{\alpha} A^{\beta} \tag{2.27}$$

[45] Due to division of labour and specialisation, this production setting might depict an industrial colonial economy, whereby elites and population masses depend on each other in the production process.

where also, A_e and A represent the technology that is available to the elite and mass sectors of the population respectively, and definitionally, $A_e > A$, and Y denotes total output. Finally, α and β represent returns to human capital in the elite and mass sectors of society respectively; such that:

$$\alpha + \beta = \left\{ \begin{array}{c} > 1 \text{ represents increasing returns} \\ = 1 \text{ represents constant returns} \\ < 1 \text{ represents decreasing returns} \end{array} \right\}$$

I assume as before that the power of the coloniser (or elites) is a function of three different types of governance technologies.

Technology of Governance by Numbers

As before, under this technology, the coloniser takes A_e, A, L, δ, θ and $\overline{h}$ as given and selects L^e to maximise the following extraction function:

$$Max\ U\left(L^e\right) = \left(\frac{L - L^e}{L}\right)\left\{\overline{h}^{\alpha+\beta} A^* \left[L^e\left(1+\delta\right)\right]^{\alpha}\left[L - L^e\right]^{\beta}\right\} \tag{2.28}$$

with the relevant first order condition being:

$$\frac{A^*\left(1+\delta\right)^{\alpha}\overline{h}^{\alpha+\beta}\left(L - L^e\right)\left[L - L^e\left(2+\beta\right)\right]}{L} = 0 \tag{2.29}$$

solving for $\frac{L^{e^*}}{L}$ in equation 2.29 above gives the following relationship:

$$\frac{L^{e^*}}{L} = \frac{1}{2+\beta} > 0 \tag{2.30}$$

Equation 2.30 above suggests that the optimal elite size depends solely on the *returns to human capital* in the mass sector of society and does not depend on the technological parameters of the model. *In particular, a rise in the returns to human capital in the mass*

sector necessitates a reduction in the size of the optimal elite population and vice versa. The implications of this result is that under a governance technology by numbers in industrial colonial economies, the optimal elite size never exceeds 50% of the total population. In other words, even if the general population were to be totally unproductive (i.e. $\beta = 0$), the coloniser would still not constitute a 100% elite.

Technology of Governance by Quality

As before, under this technology, the coloniser takes A_e, A, L, L^e, θ and $\overline{h}$ as given and selects δ to maximise the following extraction function:

$$Max\ \ U(\delta) = \left(\frac{1}{1+\delta}\right)\left\{\overline{h}^{\alpha+\beta} A^* \left[L^e(1+\delta)\right]^{\alpha}\left[L - L^e\right]^{\beta}\ \right\} \tag{2.31}$$

with the relevant first order condition with respect to δ being:

$$\frac{(\alpha-1)\, A^* \overline{h}^{\alpha+\beta}\left[L^e(1+\delta^*)\right]^{\alpha}\left[L - L^e\right]^{\beta}}{(1+\delta)^2} = 0 \tag{2.32}$$

which simplifies to:

$$(\alpha-1)\, A^* \overline{h}^{\alpha+\beta}\left[L^e(1+\delta^*)\right]^{\alpha}\left[L - L^e\right]^{\beta} = 0 \tag{2.33}$$

Notice that the first order condition represented by equation 2.32 above is either always positive (under increasing returns) or always negative (under decreasing returns). Hence, there is no optimal quality of human capital (δ^*), given $\frac{L^e}{L}$, that maximises equation 2.31 above. In stead, this scenario suggests two extreme outcomes which are to either transfer an infinite amount of human capital to a defined elite size when there are increasing returns, or to transfer no human capital at all when there are decreasing returns.

A plausible intuition behind this result is that, under a technology of governance by quality in industrial colonial societies, the colonisers do not necessarily govern by elite formation. Rather, they could either completely assimilate the colony into the imperial (or metropolitan) population[46] (in which case - they transfer an infinite amount of human capital to the indigenes of the colony) or they could simply adopt a target group (e.g. ethnic group) to whom they do not give any preferential human capital transfers ($\delta \to 0$).

Composite Technology of Governance

As before, under this technology, the coloniser takes A_e, A, L, θ and $\overline{h}$ as given and selects L^e and δ to maximise the following extraction function:

$$U\left(\delta, L^e\right) = \left(\frac{L - L^e}{L + \delta L^e}\right)\left\{\overline{h}^{\alpha+\beta} A^* \left[L^e\left(1+\delta\right)\right]^{\alpha}\left[L - L^e\right]^{\beta}\right\} \tag{2.34}$$

with the relevant first order condition being with respect to L^e:

$$\frac{\left\{A^*\left(1+\delta^*\right)^{\alpha}\overline{h}^{\alpha+\beta}\left(L - L^e\right)^{\beta}\left[\delta^* L^{e*^2}\left(1+\beta\right) + L\left\{L^{e*}\left(2+\beta\right) - L\right\}\right]\right\}}{\left(L + \delta^* L^{e*}\right)^2} = 0 \tag{2.35}$$

and with respect to δ:

$$\frac{A^* L^{e*}\overline{h}^{\alpha+\beta}\left(L - L^e\right)^{1+\beta}\left(1+\delta^*\right)^{\alpha-1}\left\{L^{e*}\left[\delta^*\left(\alpha - 1\right) - 1\right] + \alpha L\right\}}{\left(L + \delta^* L^{e*}\right)^2} = 0 \tag{2.36}$$

Expressing $\frac{L^{e^*}}{L}$ in terms of δ^* in equations 2.35 and 2.36 above, results in the following relationship:

[46] An example of this might be France's extension into Europe.

$$\frac{L^{e^*}}{L} = \frac{1}{\left[(1+\beta)\,\delta^* + \frac{(2+\beta)[1+(1-\alpha)\delta^*]}{\alpha}\right]^{\frac{1}{2}}} > 0 \tag{2.37}$$

which is defined for:

$$\delta^* > 0 \text{ and } \alpha < 1$$

where,

$$\frac{\partial\left(\frac{L^{e^*}}{L}\right)}{\partial\left(\delta^*\right)} = \frac{\frac{1}{2}\left(\alpha-\beta\right)-1}{\alpha\left[\frac{2+\beta+\delta^*(2+\beta-\alpha)}{\alpha}\right]^{\frac{3}{2}}} < 0 \text{ for } \delta^* > 0 \text{ and } \alpha < 1 \tag{2.38}$$

Also

$$\frac{\partial\left(\frac{L^{e^*}}{L}\right)}{\partial\alpha} = \frac{1+\delta^*\left(1+\frac{\beta}{2}\right)+\frac{\beta}{2}}{\alpha^2\left[\frac{2+\beta+\delta(2+\beta-\alpha)}{\alpha}\right]^{\frac{3}{2}}} > 0 \text{ for } \delta^* > 0 \text{ and } \alpha < 1 \tag{2.39}$$

and

$$\frac{\partial\left(\frac{L^{e^*}}{L}\right)}{\partial\beta} = -\frac{\frac{1}{2}\left(1+\delta\right)}{\alpha\left[\frac{2+\beta+\delta(2+\beta-\alpha)}{\alpha}\right]^{\frac{3}{2}}} < 0 \text{ for } \delta^* > 0 \text{ and } \alpha < 1 \tag{2.40}$$

Equation 2.38 above tells us that under a composite governance technology in industrial colonial economies, it is always optimal to transfer high human capital to a small elite or low human capital to a large elite.

Similarly, equation 2.39 suggests that under a composite governance technology in industrial colonial economies, whenever the returns to human capital in the elite sector (α) are high, the coloniser tends to constitute a large elite and vice versa.

Also, equation 2.40 suggests that whenever the returns to human capital in the mass sector of society (β) are high, the coloniser tends to constitute a small elite and vice versa.

In summary, the results suggest that under a composite governance technology in industrial colonial economies, there is a necessary trade-off between raising the quality of human capital transfers (δ) *to the elite, and increasing the optimal elite size* $\left(\frac{L^{e*}}{L}\right)$.

2.3 Summary of the Predictions of the Model

The results from the model suggest that the optimal elite characteristics that maximise the coloniser's objective function depend on a number of parameters, namely - the choice of governance technology, the productivity distance between elites and masses, the returns to human capital and the specification of the production function. In particular, the optimal elite characteristics vary with the type of production in which the economy is specialised.

For instance, given a technology of governance by numbers or quality in agrarian colonial economies, the model suggests that whenever the coloniser is in possession of an effective technology of governance (represented by a high $\frac{A_e}{A}$), or whenever the returns to human capital in the colony are high, it generally tends to constitute a bigger elite than otherwise.

In contrast, under a composite technology of governance in agrarian societies, a coloniser with an effective technology can either transfer low human capital to a large elite or high human capital to a small elite. Similarly, the coloniser with an ineffective technology can either transfer low human capital to a small elite or high human capital to a large elite.

In line with the predictions of the model, one might plausibly conclude that in general, the British imperial power had a more effective governance technology in Africa than

either their French, Portuguese or Belgians counterparts. However, when considering a case-by-case comparison of former colonies, this statement will have to be properly qualified, as the British were probably more effective (compared to the French) in some colonies but less effective in others.

2.4 Conclusion

In this paper, I examined the conditions of optimality in a co-optive strategy of colonial rule. The central premise of the paper is that, as rational agents, the colonisers often had to make decisive choices from amongst conflicting options. One of these choices is the optimal size and quality of the indigenous elite with whom they governed the colonies together. This is as a result of the fact that human capital transfers to the elite engender both productivity gains and power loses to the colonisers.

I have thus proposed a simple model of elite formation emanating from a coloniser's quest simultaneously to enhance productivity gains and minimise power losses. The results of the model suggest multiple optimal solutions, depending on the specification of the production function, the governance technology chosen by the coloniser, the returns to human capital, as well as the parameterisation of the productivity distance between elites and the population masses.

For instance, in agrarian colonial societies, the results suggest that under a technology of governance by numbers, a large elite population is a direct reflection of a high productivity-enhancing technology by the coloniser. Symmetrically, a small elite size suggests an ineffective technology of co-optation/governance by the coloniser. Under a gov-

ernance technology by quality in agrarian colonial societies, the better the productivity-enhancing technology, the lower the quality of human capital that is transferred to the elite. Additionally, under a composite governance technology in agrarian societies, and given non-linearity conditions defined by the productivity distance $\left(\frac{A_e}{A}\right)$ threshold, the better the productivity-enhancing technology, the smaller the optimal elite size that is chosen by the coloniser. An alternative set of results is obtained assuming an industrial economic set up (or interdependent production).

These results suggest that the long debate about the apparent efficacy or superiority of one European colonisation experience over the other is much more intricate than is often perceived in the literature. For instance, in comparing colonisation experiences, it matters the type of colony considered (agrarian or industrial) and which type of governance models were pursued by the colonisers. This insight is useful in two respects. In the first instance, it sheds light on the type of work force that a colonised economy faces once independent. The insight is also useful in understanding why the stock of human capital available in countries emerging from colonisation might vary considerably across colonial experiences and from one country to another.

Chapter 3
The Economic Origins of 20th Century Decolonisation in West Africa

3.1 Introduction

The pattern in which decolonisation took place in sub-saharan Africa was quite intriguing. While the French peacefully withdrew from their sub-Saharan African (henceforth abbreviated as SSA) empires in one day,[47] paving the way for a transition from colonialism to neo-colonialism, the British were unable to decolonise smoothly, and the transition to independence in British SSA colonies was generally antagonistic, often culminating in complete independence from England. Most of the explanations of decolonisation[48] emphasises long run processes of changing economic incentives for the colonisers[49], the rise of new nationalist movements in the colonies and the change in balance of power in international relationships, Thorn (2000). However, these traditional reasons fail to account for the contrasting decolonisation patterns in SSA.

The objective of this chapter is to attempt an explanation of why the pattern of decolonisation in the French SSA empires differed significantly from that in the British SSA empires. The chapter argues that the pattern of decolonisation in SSA was a function of the nature of human capital transfers from the colonisers to the indigenous elites of the former colonies. Underpinning the nature of these human capital transfers is the colonial educational ideology. Specifically, the study models the role of human capital transfers from the

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[47] Besides Guinea, which unilaterally withdrew from the French community in 1958, all French sub-Saharan African colonies received their political independence from Paris on the same date in 1960.

[48] These reasons have been regrouped into three major schools, namely, the *Eurocentric*, *Afrocentric* and *Liberal* explanations of decolonisation, Thorn (2000). The Eurocentric school basically argues that the colonisers themselves sought to withdraw from empires because it was no longer in their economic or political interest to continue colonial rule, while the Afrocentric view argues that the colonisers were forcefully evicted from empires by elite-led nationalist movements. The liberal view on its part, places the fulcrum of change within shifts in international relations.

[49] See for instance, Gartzke and Rohner (2010)

colonisers to the indigenous elites of the colonies in the process of decolonisation. This approach, it is hoped, will forge a unified economic interpretation of decolonisation which might in turn, contribute to a fuller understanding of the dynamics of change that brought about twentieth century decolonisation processes.

But first a working definition of the concepts of colonisation and decolonisation is in order. The term "colonisation" in this study is understood to mean the process of creation of empires,[50] whilst "decolonisation" describes the process of European withdrawal from empires, whether they be empires of sovereign administration or of trusteeship administration.[51]

Because decolonisation is a profoundly complex historical process with multi-faceted determinants, it makes intellectual sense to limit this study both in time and in space. This study thus proposes to model the decolonisation processes in West Africa during the twentieth century and the focus is naturally on the British and French decolonisation processes, although the model also provides useful insight into other decolonisation processes outside the region.

A quick look at the historical data presented in Figure 3.2 below provides some justification for the choice of this model.

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[50] Historians have generally distinguished colonisation from imperialism, the latter referring to the process of creation of empires and the former referring to only those parts that were actually settled in by the people of the imperialist power, Thorn (2000). Modern day historians have used the term "formal empires" to denote colonisation and "informal empires" to describe territories that were not settled in by Europeans. For simplicity, I make no distinction between either forms of empires and I will use the terms colonisation and imperialism interchangeably.

[51] In spite of the fact that the decolonisation of UN trust territories established after World War II was supposed to be predetermined and smooth, it often wasn't the case which is why we include them in this category.

Fig. 3.2. Historical Evidence Comparing British and French West African States

French West African States							British West African States						
	INDEP	COUPS[a]	TMIS[b]	PRISON[c]	INC DIST[d]	REPRESS[e]		INDEP	COUPS[a]	TMIS[b]	PRISON[c]	INC DIST[d]	REPRESS[e]
Burkina Faso	1960	13	39		362		Gambia	1965	3	11			0
Benin	1960	15	45		9.39	0	Ghana	1957	22	54	0.03	38.2	21
Central A. Rep	1960	10	32		102.9	1	Nigeria	1960	12	40		30.6	15
Chad	1960	5	13		9.6	1	Sierra Leone	1961	16	48		14.9	3
Congo Rep	1960	10	26			9							
Gabon	1960	4	6			0							
Guinea	1958	12	22		131.6	0							
Ivory Coast	1960	6	14	0.07	14.5	1							
Mali	1960	7	15		348.2	9							
Mauritania	1960	10	24		705.1	7							
Niger	1960	6	22		47.4	1							
Senegal	1960	1	3		39.8	1							
Togo	1960	11	31			10							
Average	1959.8	8.5	22.5		177.1	3.3	Average	1960.7	13.2	38.2		27.9	9.7

a: Coups include the number of plots, failed and successful coups from 1956 to 2001, McGowan (2003).

b: Total Military Intervention Score (TMIS) captures trends in coup behaviour during 1956-2001, McGowan (2003).

c: Average number of prisoners of criminal offences in 1936 as a percentage of country's population. Source: Asiwaju (2000:53) for Ivorian figures, Kay & Stephen (1972) for Ghanaian figures.

d: Income distance at independence, calculated by taking the ratio of income of top 10% and bottom 10% of population, figures available rom World Income Inequality datasets

e: Number of cases of repression recorded between 1950 and year of independence, obtained from Alesina et al (1992) datasets

For instance, columns 2 and 9 of Figure 3.2 suggest that independence was achieved on average much faster in French West Africa than in British West Africa. Furthermore, columns 3, 4, 10 and 11 confirm that post independence French West African states witnessed less coup d'états and less military interventions, thus were generally more politically stable than their British counterparts. Also, prior to independence, British West African states witnessed more acts of repression (thus, instability) than their French counterparts as columns 7 and 14 suggest.

Columns 5 and 12 gives us the per capita number of prisoners of criminal offences in 1936 (far in the period of colonial rule) for Ivory Coast and Ghana respectively. These figures suggest that there were more politically motivated prisoners in the Ivory Coast,

in comparison with Ghana.[52] In addition to this evidence, several historical sources also confirm that French colonial rule was not only highly repressive but also heavy in terms of the fiscal burden.[53] For instance, Crowder (1968:185), cites the *"code d'indigénat"* as clear evidence of the repressiveness of French colonial rule. The code, which applied to the African masses only and in existence from the early 20th century, envisaged about fifty punishable offences.

Besides these offences, under the code, each adult African was liable to an annual tax in labour equivalent to 12 days labour, redeemable at 1-3 Franc CFA a day. Due to the repressiveness of French colonial rule, Asiwaju (2000) contends that, there were massive exodus of peoples from Ivory Coast and the neighbouring French colonies into Ghana during the 1930s.

Finally, columns 6 and 13 suggests that the income distance between the elites and the masses were furthest in former French colonies in comparison with former British colonies, which lends some credence to the basic assumption of the model to be discussed - that Francophone West African elites were more disconnected from the masses than their Anglophone counterparts.

Table 3.3 below, provides evidence in support of the premise that francophone West African elites were more professionally inclined to government occupations during the period between 1947-1952. The figures show that averagely about three-quarters of francoph-

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[52] For the years 1933, 1934 and 1935, the per capita number of prisoners in Ivory Coast was 0.05, 0.05 and 0.07, respectively, while in Ghana it was 0.03 throughout those years, Asiwaju (2000) and Kay & Stephen (1972).

[53] Crowder (1968:186) contends that the idea which seemed best to the French colonial system for achieving the employment of native labour, was to impose relatively high taxes on blacks, and in default of payment they would incur a sentence of forced labour.

Table 3.3. Professional Background of Francophone West African Leaders during 1947-1952. Source: Morgenthau (1964)

Country	No. in Territorial Assembly	% Employed by Government	% in Liberal Professions
Ivory Coast	27	78	15
Mali	28	86	15
Upper Volta	40	87	2
Niger	20	90	-
Senegal	50	42	18
Guinea	16	75	25

one West African leaders represented in the territorial legislative assembly were colonial government employees.[54] In other words, these elites largely depended for their livelihood on colonial government employment or patronage. In the former British colony of the Gold Coast, in contrast, an investigation into the background of 32 active members of the pioneer nationalist movement - the National Congress of British West Africa (NCBWA) Gold Coast branch - in the 1920s, reveals that about 90% of them were employed in the liberal professions, Gifford & Louis (1971).

The chapter is organised as follows. Section 2 briefly highlights the major distinguishing features of British and French colonial education policies in West Africa and also contrasts the different perceptions and reactions of Anglophone and Francophone West African elites to post-World War II (WWII) colonisation and decolonisation discourse. Section 3 presents the model, discusses the results and the theoretical implications while section 4 summarises the core predictions of the model. Section 5 concludes.

[54] The French sociologist, George Balandier, has coined the term *"administrative bourgeoisies"* to describe Francophone African elites.

3.2 Distinguishing Aspects of British and French Colonial Education Practices

Historians generally believe that the major distinguishing features between the British and French colonisation in black Africa are rooted in their divergent objectives and approaches to colonial education. Whereas French colonial education ideology emphasized the notion of *assimilation*, British colonial education is believed to have emphasized instead the *"strengthening of the solid elements of the countryside."*[55] I now consider each of these ideologies separately.

3.2.1 French Colonial Ideology of Educational Transfers

The French assimilatory policy in education was rooted in an imperial ideology that colonies were *one and indivisible* with France. In the official French mind, France had no colonies, but departments, Thorn (2000:27). Several authors argue that French colonial education, was aimed at making Frenchmen of Africans.[56] Hence, the way in which education was generally administered in French African colonies was by boarding primary pupils in far-away schools, where they were taught by French teachers, using the French language and French textbooks.[57] These pupils only returned to their villages during the long vacations. It has also been argued that, the content of educational programs in French African colonies aimed essentially at alienating the elites from their own culture and society.

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55 See Gifford & Louis (1971:700), Thorn (2000:25) and Cain & Hopkins (1993:218-19).

56 See for instance, Anne Raffenel (1856), Gifford & Louis (1971:552) and Mazrui & Tidy (1984:377).

57 Gifford & Louis (1971:552) have argued that the main idea behind the insistence on French as the medium of instruction is because French colonial authorities believed that by speaking French, the natives would ultimately end up thinking in French and feeling French.

For instance, Gifford & Louis (1971:697) report that history textbooks in use in French African colonies were written in such a way as to encourage Africans to deny the validity of their own cultural traditions and to admire instead those of the French. Gifford & Louis (op.cit) further contend that while attempts were made to teach the African about their own milieu, they were nevertheless continuously reminded that everything about their environment was inferior to France and the French way of life. Therefore, if African students did master their lessons well, it should be difficult to imagine how they could have done so without internalising the assumptions, standards and prejudices of French culture and society.

In addition, through well tailored educational curricula, black francophone African elites were systematically led into believing in France's superiority in the military, technical, scientific, economic and cultural fields, and it was therefore logical for these elites to seek to share in the benefits of this superiority through continued imperial relationship with France, Chafer (2002).

Furthermore, it is claimed that an important offshot of the assimilatory education offered to Francophone African elites was that these elites became alienated from the rest of their countrymen, resulting in an idyllic sense of dependency of these elites on France. For instance, Francophone African elites were given French citizenship, and some of them even became ministers and paliamentarians in the French cabinet and legislature in Paris whilst the general population was subjected to the punitive *"code d'indigénat"*.[58] This discriminatory code not only denied rights to French citizenship to the population masses,

[58] The *indigénat* was a legislative code that allowed colonial officials to punish any African subject with a prison sentence or a fine, as a matter of discipline and without trial, Chafer (op.cit).

but also subjected them to a punitive taxation system and forced labour. This discriminatory treatment of elites probably explains why Chipman (1989:86) has argued that in French black Africa:

> *"independence was intentionally granted as a "gift" whose acceptance by the newly created states was implicitly meant to ensure a close relationship with France".*

Finally, some authors have argued that French colonial education was designed to create an 'administrative bourgeoisie' that depended highly on the colonial bureaucracy for its survival. The protagonist of this viewpoint is Moumouni (1968:46)[59] who described French colonial education as:

> *"cut rate, designed to secure subordinate officials by impoverishing their spiritual life and detaching them completely from their own people, and that it produced an anti-national, bureaucratic neo-bourgeoisie"*

Based on the preceding, two important inferences can be made about French colonial education practice in black Africa. Firstly, it created an elite that was *least* inclined to entering into violent confrontation with France. Put alternatively, French assimilatory educational practice produced a bunch of elites who were naturally inclined to favouring a continuation of the imperial relationship with France, instead of advocating for "real" independence as their anglophone peers did.

The second major inference about French colonial education is that it contributed in destroying the traditional and cultural ties of the elites with their countrymen,[60] implying that francophone elites were more likely to face serious collective action problems in rally-

[59] Gann & Duignan (1970) also argue that the type of education given to Francophone African graduates made them more inclined to government employment than their counterparts in British colonies.

[60] Both Suret-Canale (1971) and Cohen (1971) have supporting evidence to this hypothesis.

ing the support of the general population in rebellion against the French. A few anecdotes will help elucidate these points.

In 1951, during the peak of independence struggles in Africa, the "to-be" first Ivorian President Houphouët Boigny is quoted to have declared that:

"*independence was not the best solution for Africa*"[61]

Another emblematic figure of French assimilation in West Africa, Leopold Senghor of Senegal,[62] who together with Houphouët Boigny became ministers in the French government and staunch advocates of the French Union ensuring that French interests prevailed even when the empire started crumbling, is quoted to have declared in an interview in 1955 that:

> *"What I fear is that, in the future, under the fatal pressure of African liberation, we might be induced to leave the French orbit. We must stay not only in the French Union but in the French Republic*[63]"

Yet another prominent francophone West African elite, Blaise Diagne, who became Senegal's black deputy to the French Paliament between 1914-1934, is quoted after a meeting of the second Pan-African Conference held in 1921 in Paris to have declared that:

"his loyalty to France came ahead of his loyalty to other blacks[64]"

Evidently, the French were more successful in cultivating a small black elite to whom they accorded full rights of citizenship in France, on condition of course, that these elites accept assimilation into French society and reject their African heritage, family law and

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61 See Meredith (2005:63)

62 Senghor is also reputed to have made the famous remark that *"To be a Frenchman above all is an excellent prescription on the political level"*. Meredith (2005:59).

63 Quoted in Meredith (2005:61).

64 Quoted in Gifford & Louis (1971:842).

customs. No doubt these elites saw themselves and were seen as Frenchmen brought up in a tradition of loyalty to France, willingly accepting its government, its language and culture, which was not the case with Anglophone West African elites.[65] Cohen (1971:204) concludes that:

> *"independence has by no means broken the close ties between France and its former colonies. The legacy of assimilation has continued. France more than any other former colonial power feels committed to aiding her dependencies and the French government gives her former colonies in Black Africa more aid than does Britain to her entire commonwealth, which contains fifteen times as large a population".*

3.2.2 British Colonial Ideology of Educational Transfers

British colonial education practice was firmly inscribed in a colonial governance philosophy of "indirect rule". As Gifford & Louis (1971:700) have argued, the idea of indirect rule was firmly rooted in the fears expressed by the colonial administration of releasing a pool of "unemployable" school leavers and the potential threat that constituted members of this group on the rest of the population. This view is confirmed in this statement in 1920 by the Colonial Governor of Berber Province (Sudan):

> *"our purpose is to strengthen the solid elements in the countryside...before the irresponsible body of half-educated officials, students and town riff-raff takes control of the public mind*[66]"

As Gifford & Louis (1971) argue further, the un-intended consequence of wanting to strengthen the *"solid elements*" in the countryside was that British colonial education policy became tailored to emphasize village schools and the preservation of local realities as well

[65] Thomas Hodgkin (1954) in Meredith (2005) posits that any black African who was politically conscious in British West Africa was automatically an anti-colonial nationalist of some kind.

[66] Quoted in Gifford & Louis (1971:700) and also in Thorn (2000:25) from Cain & Hopkins (1993:218-19).

as the *indigenous* way of thinking. Thus, the strengthening of the *"solid elements"* was manifested through the administration of instruction at the elementary and primary levels in the villages, using native teachers and the local vernacular languages of the indigenous populations.

Unlike French colonial education, the preservation of the indigenous patterns of thinking and traditions were a key priority of British colonial education ideology as can be observed from this recommendation from the Advisory Committee on Native Education in the British Tropical Dependencies in 1925[67]:

> *"Education should be adapted to the mentality, aptitudes, occupations and traditions of the various peoples, conserving as far as possible all sound and healthy elements in the fabric of their social life; adapting them where necessary to changed circumstances and progressive ideas as an agent of natural growth and evolution..."*

In addition, British colonial education policy allowed a preponderant role to missionary bodies in educational provision which largely accounts for the widespread expansion of education in British colonies as opposed to French colonies. This also increased the likelihood of inclination of anglophone nationalist elites to anti-capitalist political ideologies (or betterstill, socialist philosophies) due to improper monitoring. As Foster (1965:139) puts it:

> *"Western education was indirectly responsible for creating a group to whom access into the highest levels of the bureaucracy was denied and who constituted the core of the early nationalist movement on the Gold Coast. It was this minority of professional lawyers and intelligentsia who supplied the leadership of nationalist activities throughout most of the colonial period".*

Finally, it is arguable that the most important un-intended consequence of the British education policy of "strengthening the solid elements of the countryside", was the forma-

[67] Quoted in Gifford & Louis (1971:688).

tion of an anglophone elite that was independent in thought and less dependent on the colonial bureaucracy for its livelihood.

Based on the foregoing, two important inferences can be made about British colonial education practice in black Africa. Firstly, the elite that was created was more inclined to entering into violent confrontation with the British colonial authorities since they never really depended on the latter for their livelihood. Secondly, British colonial education contributed in reinforcing the traditional and cultural ties of the elites with their countrymen, implying that anglophone elites were less likely to face serious collective action problems in rallying the support of the general population in rebellion against the British. A few anecdotes will help elucidate these points.

Within anglophone West African nationalist elite circles, the feeling was generally shared that European colonisation has brought about inequalities, and exploitation of the African. Thorn (2000:5) recounts a much told African joke which runs thus:

> *"When the whiteman came to Africa, we (the Africans) had the land and he (the whiteman) had the bibles. He said, let us close our eyes and pray. When we opened them again, he had the land and we had the bibles!"*

As short as the joke might appear, it is nonetheless very profound. It depicts the impression in the anglophone African mind, that colonisation was theft, aided and abetted by the Christian religion. Both Nkrumah and Nyerere, the leading pro-socialist anglophone anti-colonial nationalists were of the firm conviction that colonisation has destroyed the essential values of African society and needed to be repealed. In an essay on African socialism in 1962, Nyerere gave an idyllic account of pre-colonial African society:

> "Everybody was a worker...Not only was the capitalist or the landed exploiter unknown...[but] capitalist exploitation was impossible. Loitering was an unthinkable disgrace...The advent of colonialism has changed all

> this. In the old days, the African had never aspired to the possession of personal wealth for the purpose of dominating any of his fellows. He never had labourers or factory hands to do his work for him, but then came the foreign capitalists. They were wealthy and powerful. And the African naturally started wanting to be wealthy too. While nothing seems inherently wrong with that, it has unfortunately led to exploitation. There was now need for Africans to "re-educate" themselves, to regain their former attitude of mind...in rejecting the capitalist attitude of mind which colonialism brought into Africa, we must reject also the capitalist methods which go with it".[68]

In summary, the story of colonial education ideologies seems to suggest that colonial educational transfers contributed to the demise of the British empire in black Africa, whereas it paradoxically fostered the continuation of France's imperialism (or neo-colonialism) in the region.

As evidence, France unlike Britain,[69] still percieves its sub-Saharan African empires as permanent and the vitality of the *françafrique*[70] is still much evident today. At the political level, this is exemplified by regular French Presidential visits and the annual Franco-African summits. On the economic front, Chafer (1995;556) notes that former French SSA colonies are a recipient of nearly two-thirds of all French bilateral aid since 1960. On the monetary front, the Franc CFA continues to unite France to twelve of its former SSA colonies while on the military front, France continues to maintain permanent military bases in almost all of its former SSA colonies. Of no lesser significance ofcourse, is the continued promotion of the French language and French culture in Africa through cultural cooperation and the annual summits of *La Francophonie*.

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68 Quoted in Meredith (2005:145).

69 British decolonisations were generally accompanied by *substantial* British withdrawal from the colonies and the British government made a deliberate committment not to intervene in African affairs after independence was granted. See for instance, Gifford & Louis (1971).

70 The basis of France's traditional relations with Africa, marked by personal ties with the ruling, corrupt elites of its former colonies.

3.3 The Model

I now outline a simple model to formalise the idea that the pattern of decolonisation is a function of the nature of human capital transfers from the colonisers to the indigenous elites. I consider a colonised society with three players namely, the coloniser, indigenous elites (henceforth referred to simply as, the elite) and the general population (henceforth referred to as the masses). Colonisation is exemplified by the extraction of rent from output (Y) by the coloniser. The size of the elite population is defined as L^e, while the size of the general population is defined as $(L - L^e)$ where L is the size of the total population of the country.

The elite receives a transfer X from the coloniser, in the form of education, in order to enhance the productivity of the colony (as illustrated in the previous chapter). The masses instead receive a basic subsistence salary. Thus Y is the total output from the colony, net of subsistence payments to the masses.

The strategy of the coloniser is to either continue colonial rule or transfer power to the elite (implying decolonisation). Continuing with colonial rule procures to the coloniser a rent, which is equivalent to (Y) minus the cost of transfers to the elite (X) and minus whatever is necessary to maintain stability in the colony. Alternatively, the coloniser can decide to leave the country to its own destiny.

The strategy of the elite during both colonisation and decolonisation, is to either co-operate or not cooperate with the coloniser. Cooperation with the coloniser during colonisation offers a fixed payoff to the elite equivalent to $X > 0$. Non-cooperation (or rebellion), on the other hand, results in a war of independence, whose outcome is uncertain. The prob-

ability of a successful rebellion depends critically on the attitude of the masses. When the masses are in cooperation with the elite in rebellion, the probability of success is much higher than otherwise. The relationship between the elite and the masses also critically affects the strategic choices faced by the elite during decolonisation.

During decolonisation (or betterstill, after independence), the elite might choose to ask for the coloniser's protection against any future subversion of their power by the masses[71] or not cooperate with the coloniser in this regard.[72] If the elite choses cooperation with the coloniser post independence, it will have to pay an amount, $Q > 0$, to the coloniser. Q is the cost of purchasing the coloniser's protection against possible subversion of the power of the elite by the masses.

Alternatively, if the elite choose not to cooperate with the coloniser post independence, Q is zero. However, in this case, the elite will have to incur whatever costs that is necessary in order to maintain stability in the country.

The strategy of the masses during both colonisation and decolonisation is to either cooperate with the elite in all the choices that the elite make or never cooperate with them in this regard. The decision of the masses to cooperate or not cooperate with the elite is a function of the credibility of the elite, generically intended as the degree of trust that the masses have in the elite's promises. Credibility of the elite in turn, is a function of the nature of human capital transfers that they receive from the coloniser. Accordingly, the elite

[71] The consensus between the elite and the colonisers post independence implies cooperation in the context of this model.

[72] It is important to emphasize that cooperation between the post independence governing elites and the colonisers is a *quid pro quo* whereby the elites give up some amount of the former colony's resources in exchange for the coloniser's military backing of their regimes. An example of such a deal could be the military accords of cooperation signed between France and its former colonies in black Africa at independence.

is perceived as credible by the masses whenever the nature of human capital transfers to the elite emphasize "local adaptation" or "non-alienation".[73] In contrast, the elite is perceived as non credible whenever the nature of human capital transfers emphasize "assimilation" of the elite.[74]

When the elite is credible, the optimal strategy of the masses is to always cooperate with them, both during colonisation and decolonisation. Cooperation with the elite during colonisation results in a fixed payoff to the masses, equivalent to a basic subsistence salary. Cooperation with the credible elite during decolonisation, instead procures an expected income to the masses, based on a promise by the elite to share the gains of decolonisation with them.[75] By definition, the option of the masses not cooperating with a credible elite is excluded.

In the opposite scenario of a non credible elite, the optimal strategy of the masses is always non-cooperation with these elite both during colonisation and decolonisation. Cooperation of the masses during colonisation always yields a basic subsistence salary received from the coloniser, whereas cooperation during decolonisation also yields a basic salary, received this time from the elite. Non-cooperation of the masses during colonisation

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[73] This is a reasonable axiom in the sense that when human capital transfers emphasize local realities, the traditional ties of the elite with the masses are maintained, implying that the elite is less likely to face serious collective action problems.

[74] Similarly, this is a reasonable axiom in the sense that an assimilated elite is detached from the masses and consequently, more likely to face serious collective action problems.

[75] Theoretically, this expected income is higher than the subsistence salary received by the masses during colonisation.

and decolonisation also procures a fixed income to the masses[76] with the added difference that the coloniser now incurs an extra cost for repressing the masses denoted by C_m^c.

Assumption 1 When the coloniser follows an "assimilation" strategy ("French"), the elite is alienated from the masses and is therefore perceived by the latter as non-credible. Thus, the coloniser incurs a cost of repression, C_m^c, associated with the fact that the masses are not cooperating with the elites.

Thus, during colonial rule, the payoff for the coloniser is $(Y - X - C_m^c)$ and the payoff for the elite is $\frac{X}{L^e}$

Assumption 2 When the coloniser follows a "non-alienation" strategy ("British"), the elite is more connected with the masses, and is therefore perceived by the latter as credible. In this case, the size of the elite, $L^{e'}$ is larger $\left(L^{e'} > L^e\right)$, and the cost of repression for the coloniser is zero, for simplicity.

Thus, during colonial rule, the payoff for the coloniser is $(Y - X)$ and the payoff for the elite is $\frac{X}{L^{e'}}$

Given this simple set up, the stage game can be summarised as follows:

- The society starts in colonisation
- The coloniser decides whether to continue with colonisation or leave the country
- Under colonisation, the elite decides whether to start a revolt while under decolonisation, the elite decide whether to pay for the coloniser's protection

[76] The fixed salary to the masses in this case is expected to be lower than the salary when the masses are cooperating.

- In both colonisation and decolonisation, the masses have to decide whether to cooperate with the elite.

- Nature defines the order of probabilities as follows: $0 < p''_w < p_w < p'_w < 1$, where

  - p''_w is the probability of non-credible elites winning a war of independence against colonisation,

  - p_w is the probability of non-credible elites winning a post-independence war of rebellion engaged by the masses,

  - p'_w is the probability of the "non-credible elite - coloniser" front winning a post-independence war of rebellion engaged by the masses.

  And p'''_w is the probability of credible elites winning a war of independence against colonisation. By definition, $0 < p''_w < p'''_w < 1$.

The intuition for this order of probabilities is that, non-credible elites, by virtue of the fact that they lack the support of the general population, might find it more difficult to overturn the colonial regime than credible elites (who have the support of the masses behind them). An example of such a scenario include, the Nkwame Nkrumah rebellion in 1951 that easily brought down the British Gold Coast Empire whilst, similar rebellion by the revolutionary leaders - Um Nyobe, Ernest Wandji and Felix Moumie in French Cameroon during the late 1950s, were systematically crushed down.

Likewise, the intuition for supposing that the probability of non-credible elites winning a war of independence against colonisation (p''_w) should be lower than the probability of the same elites winning a post-independence war of rebellion waged by the masses (p_w),

is based on the simple logic of fighting technologies. Here, it is explicitly assumed that the colonisers have a more efficient fighting technology than by the masses. Similarly, a joint "coloniser – non-credible elites" front is much more likely to crush any subversive attempts by the masses, than if non-credible elites alone were to face the masses, justifying why $p''_w < p'_w$.

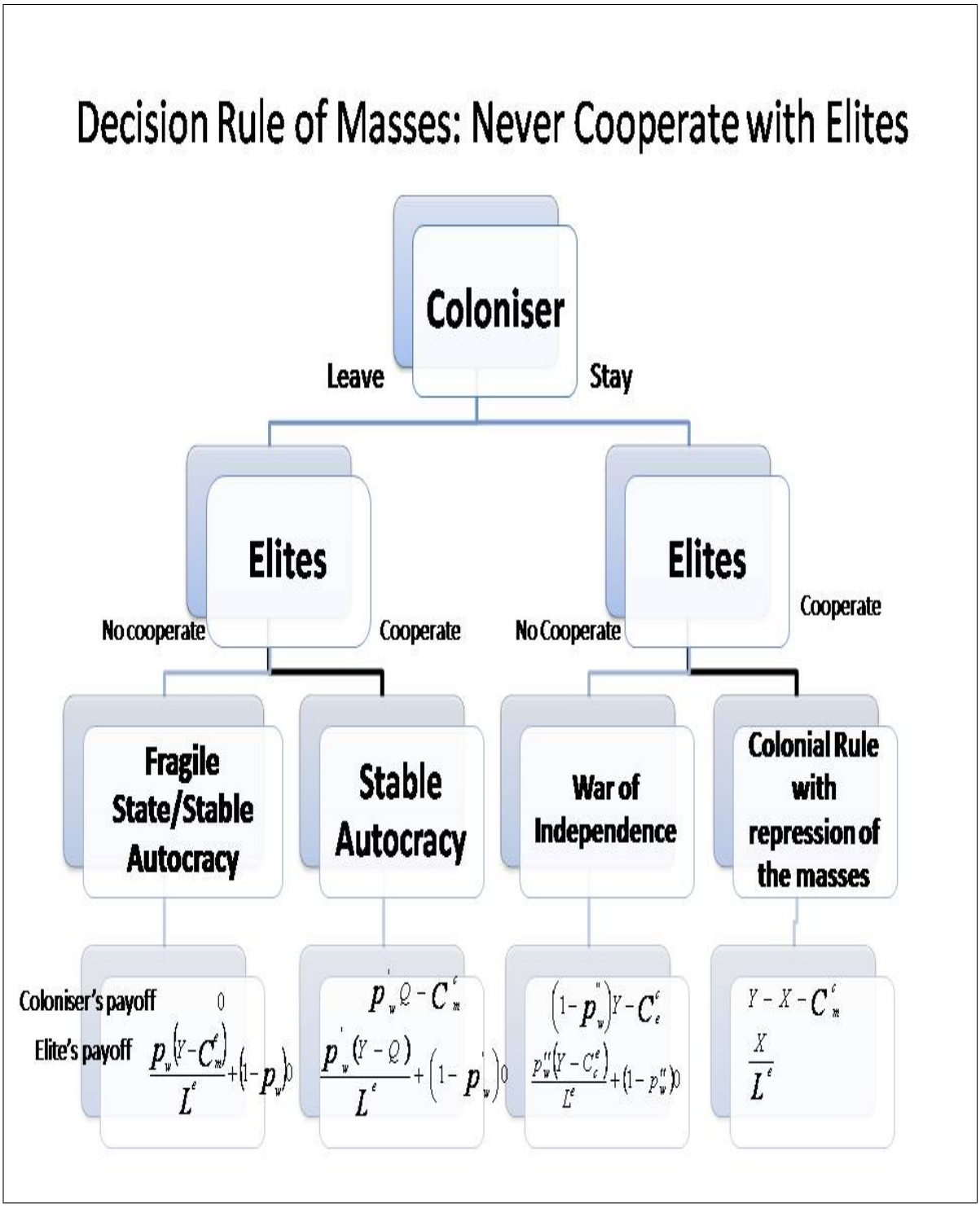
To simplify the exposition, I assume that the decision of the masses to cooperate with a credible elite (or not cooperate with a non-credible elite) is irreversible.

Given the set up of the game described above, I now divide the game into two depending on the strategic choices of the masses. In the first subgame, I analyse the payoffs when the masses are never cooperating with the elite during colonisation and decolonisation (that is, the case of assimilated or non-credible elite), while in the second subgame I analyse the payoffs when the masses always cooperate with the elite (independent or credible elite scenario). I then solve each subgame by backward induction.

3.3.1 Subgame I - Colonisation and Decolonisation with Assimilated or Non-Credible Elite

Refering to the game tree of assimilated elites illustrated in Figure 3.3 below, the coloniser has the choice of continuing colonial rule (stay) or decolonising (leave). If the coloniser chooses to stay and the elite cooperate with them, there is colonial rule with repression of the masses as a result of the fact that the masses are not cooperating with the elite. The payoffs to the coloniser and non-credible elites in this case are respectively, $Y - X - C_m^c$ and $\frac{X}{L^e}$.

Fig. 3.3. Game Tree of Assimilated or Non-Credible Elites



If instead the coloniser stays and the elite refuses to cooperate with colonial rule, a war of independence will ensue in which the coloniser attempts to depose, replace or even exterminate the elites.[77] In this case, the pay-off to the coloniser is $(1 - p''_w)\, Y - C^c_e$ where p''_w is the probability of non-credible elites winning a war of independence against the coloniser, and C^c_e is the cost to the coloniser of making war with the elites alone. Correspondingly, the pay-off to non-credible elites is $\frac{p''_w(Y - C^e_c)}{L^e}$, where C^e_c is the cost that assimilated elites incur for engaging the coloniser in a war of independence. C^e_c is defined for the range $0 < C^e_c < \infty$ because of the likelihood of extermination of rebellious elites.

Alternatively, if the coloniser chooses to leave and the elites ask for continued cooperation thereafter, a stable autocracy is installed in the country. The pay-off to the coloniser in this case is $p'_w Q - C^c_m$, where C^c_m is the costs that the coloniser incurs in maintaining stability in the country post independence.[78] p'_w is the probability of the "non-credible elite - coloniser" front successfully suppressing any post independence rebellion by the masses, and Q is the cost to elites of maintaining the post independence imperial relationship with the coloniser. Correspondingly, the pay-off to non-credible elites is $\frac{p'_w(Y - Q)}{L^e}$.

Finally, in the event that the coloniser leaves and the elite choose to go without the coloniser's protection, two outcomes are feasible depending on the character of the elite (or its ability to effectively repress the masses). If the elite is able to effectively repress the masses (probably because of its military capabilities), a stable autocracy will emerge in the country. However, if the elite's ability to repress the masses is questionable, a fragile state

[77] For simplicity, I assume that the elites always get a payoff of zero for loosing either in the war of independence against the coloniser or in a post independence war of rebellion engaged by the masses.

[78] I have assumed for simplicity, that the costs the coloniser incurs in maintaining stability in the country is the same during colonisation and decolonisation.

will emerge post independence. The pay-offs to the coloniser and non-credible elites in this instance are 0 and $\frac{p_w(Y-C_m^e)}{L^e}$ respectively, where p_w is the probability of non-credible elites winning a post independence war of rebellion against the masses, and C_m^e is the cost that non-credible elites incur in waging war with the masses post independence.

Solution of the subgame

Since the strategy of the masses is never cooperate with the elites during colonisation and decolonisation, the elite is faced with two choices - either cooperate or not cooperate with the coloniser.

Cooperation is always a dominant strategy for non-credible elites if and only if the latter's payoff from cooperation during colonisation (and correspondingly, during decolonisation) is higher than its payoff from non cooperation. Referring to Figure 3.3 above, this implies that:

$$\frac{X}{L^e} > \frac{p_w^{"}(Y - C_c^e)}{L^e} \tag{3.41}$$

and

$$\frac{p_w'(Y - Q)}{L^e} > \frac{p_w(Y - C_m^e)}{L^e} \tag{3.42}$$

Given the non-credible elite's dominant strategy of cooperation, decolonisation is a dominant strategy for the coloniser if and only if:

$$p_w'Q - C_m^c > Y - X - C_m^c \tag{3.43}$$

Proposition 1 *There exists a range of feasible values of Q, that is, $\left(\frac{Y-X}{p'_w} < Q < C^e_m\right)$, for which the payoff from decolonising are higher than those from colonial rule.*

Proof. Equation 3.41 above simply says that, non-credible elites will cooperate with colonial rule as long as the per capita transfer that they recieve from the coloniser is greater than their expected gains from not cooperating.

Equation 3.42 implies that: ■

$$p'_w\left(Y-Q\right) > p_w\left(Y-C^e_m\right) \implies Q < \frac{p_w}{p'_w}C^e_m + \frac{p'_w - p_w}{p'_w}Y$$

defining $\frac{p_w}{p'_w} = -\left(\frac{p'_w - p_w}{p'_w} - 1\right) = 1-\alpha$ where $\alpha = \frac{p'_w - p_w}{p'_w};\ 0 \leq \alpha \leq 1.$

$$\implies Q < \left(1-\alpha\right)C^e_m + \alpha Y \tag{3.44}$$

Equation 3.44 above suggests that there exists an upper bound of Q, that is, $(Q < C^e_m)$ when $\alpha = 0$, or when $p'_w = p_w$ for which decolonisation is rational for the coloniser.

Equation 3.43 above implies that:

$$Q > \frac{Y-X}{p'_w} \tag{3.45}$$

Hence, equation 3.45 suggests that there exists a lower bound of Q, equal to $\frac{Y-X}{p'_w}$, for which the coloniser is willing to decolonise.

Combining equations 3.44 and 3.45 above gives:

$$\frac{Y-X}{p'_w} < Q < C^e_m \tag{3.46}$$

Equation 3.46 above defines the feasible range of Q, for which decolonisation occurs. In other words, equation 3.46 defines the range of feasible gains which the coloniser is willing to accept in exchange for its protection of the power of the post independence governing elites from subversion by the masses.

Intuition and Implications of the Results

Given the elite's dominant strategy of always cooperating with the coloniser, the main factors that determine the switch from colonisation to neo-colonialism are namely, the output from the colony (Y), the amount of transfers made by the coloniser to the elite (X), and the probability of the "non-credible elites - coloniser" alliance successfully suppressing future subversion by the masses (p'_w), as demonstrated in equation 3.45 above.

The above named parameters are largely at the appreciation of the coloniser, suggesting that the initiative to decolonise in this case primarily originates from the coloniser. Consequently, this analysis fits well with the Eurocentric explanation of decolonisation, which claims that the colonisers left mainly because the utility from being a coloniser was declining.

Accordingly, this scenario best depicts the French decolonisation process in sub-Saharan Africa where France is known to have suddenly and *unilaterally* transformed all of its 16 former colonies[79] into independent republics in the same year (1960).[80]

[79] Except for Guinea that had earlier bolted out of the French Community.

[80] See for instance, Birmingham (1995:26) where the author argues that French colonialism had given way to neo-colonialism as the ties between France and the new republics is no longer constitutional but cultural and commercial.

3.3.2 Subgame II - Colonisation and Decolonisation with Independent or Credible Elite

Refering to the game tree of independent elites illustrated in Figure 3.4 below, the coloniser has the choice of either staying or leaving. If he stays and the elite cooperate with him, there is colonial rule without repression of the masses. Accordingly, the payoffs to the coloniser and credible elites are respectively, $Y - X$ and $\frac{X}{L^{e\prime}}$.

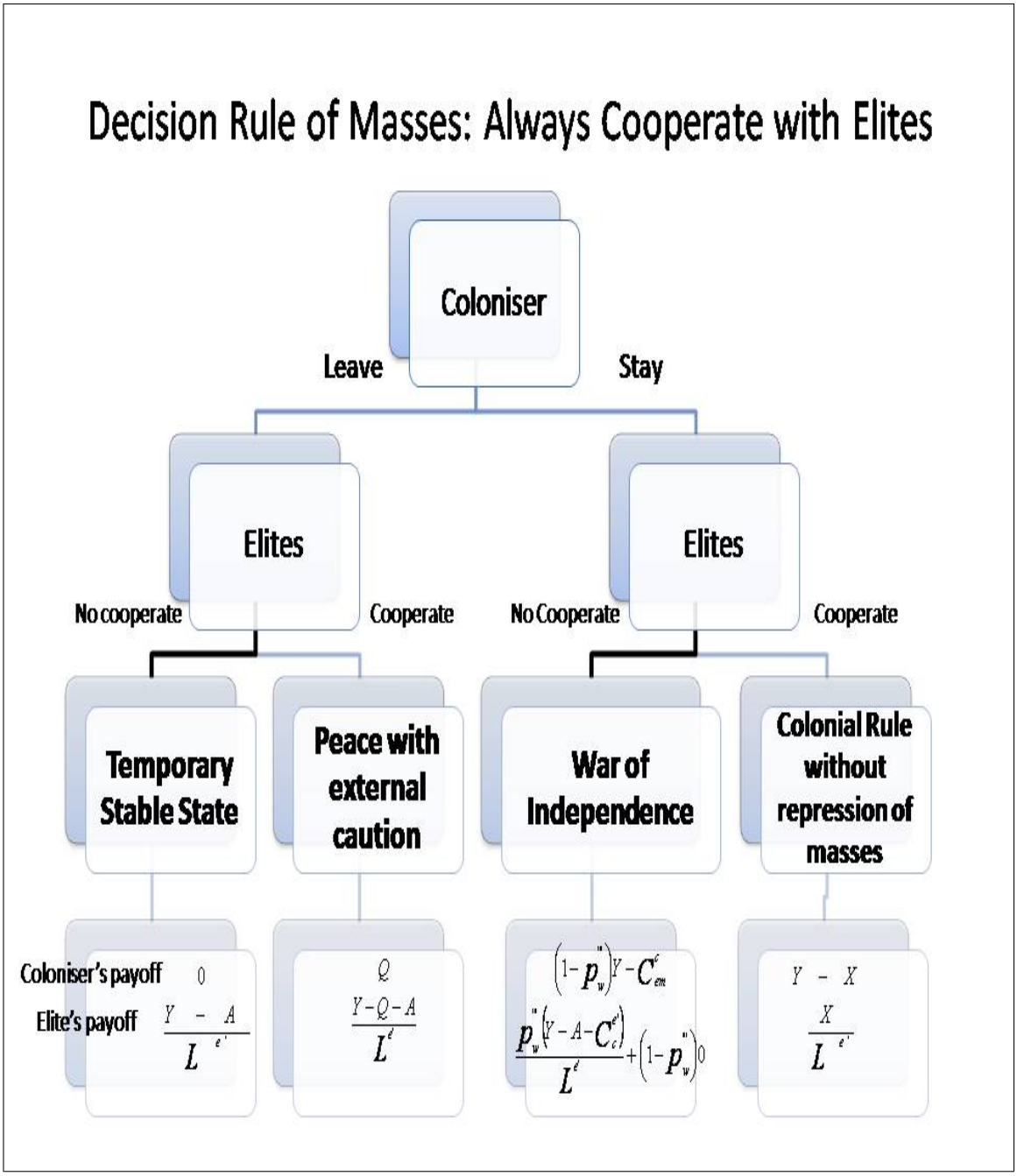
If instead the coloniser stays and the elite refuse to cooperate with colonial rule, a war of independence will ensue in which the coloniser attempts to depose, replace or even exterminate the elites. In this case, the pay-off to the coloniser is $(1 - p_w''')\, Y - C_{em}^c$ where C_{em}^c is the cost the coloniser incurs in waging war against a joint elite-mass nationalist front and p_w''' is the probability of credible elites winning a war of independence against the coloniser. Correspondingly, the pay-off to credible elites is[81] $\frac{p_w'''\left(Y-A-C_c^{e\prime}\right)}{L^{e\prime}}$, where $A > 0$, is an indirect cost that credible elites incur in rebellion against the coloniser (specifically, it is a fixed transfer that they pay in order to purchase the cooperation of the masses) and $C_c^{e\prime}$ is the cost that credible elites incur directly for fighting against the coloniser.

Alternatively, if the coloniser chooses to leave and the elites ask for continued cooperation thereafter, the outcome of this scenario might be peace cautioned by external protection from the coloniser and the pay-offs are Q, and $\frac{Y-Q-A}{L^{e\prime}}$ to the coloniser and credible elites respectively.[82] Q is as defined in the preceding scenario of non-credible elites.

[81] Note that as before, I assume for simplicity that the payoff to the elites for loosing the war of independence is always zero.

[82] Following the initial premise that the masses always cooperate with independent elites, an implicit assumption has been made that A, the cost to independent elites of purchasing the cooperation of the masses, is the same during colonisation and decolonisation.

Fig. 3.4. Game Tree of Independent or Credible Elites



Finally, in the event that the coloniser leaves and the elite choose to go without the coloniser's protection, this might result in "complete" independence, although the cooperation ties existing between the elites and masses might not necessarily be sustained afterwards.[83] The resulting pay-offs are thus 0 and $\frac{Y-A}{L^{e\prime}}$ for the coloniser and credible elites respectively, where A in this case, is the amount of transfers needed by the elites to purchase peace with the masses after the coloniser departs.

Solution of the subgame

Since the strategy of the masses is always cooperation with the elites during colonisation and decolonisation, the elite is faced with two choices - either cooperate or not cooperate with the coloniser.

Non-cooperation is always a dominant strategy for credible elites if and only if the latter's payoff from non-cooperation during colonisation (and correspondingly, during decolonisation) is higher than its payoff from cooperation. Referring to Figure 3.4, this implies that:

$$\frac{p_w'''\left(Y-A-C_c^{e\prime}\right)}{L^{e\prime}} > \frac{X}{L^{e\prime}} \Rightarrow p_w'''\left(Y-A-C_c^{e\prime}\right) > X \tag{3.47}$$

which simplifies to:

$$Y > \left(\frac{X}{p_w''} + A + C_c^{e\prime}\right) \tag{3.48}$$

[83] It is worth mentioning that a new form of strategic bargaining for the control of resources might likely arise between the elites and the masses post independence which might probably jeopardize the "entente" between the two groups. Fedderke & Kularatne (2008) have a nice exposition of this scenario.

and

$$\frac{Y-A}{L^e} > \frac{Y-Q-A}{L^e} \tag{3.49}$$

Observe also that as long as $Q > 0$, equation 3.49 is always true.

Given the credible elite's dominant strategy of non-cooperation, decolonisation is a dominant strategy for the coloniser if and only if:

$$0 > (1-p'''_w)\,Y - C^c_{em} \tag{3.50}$$

Proposition 2 *As the probability of elite nationalist movements winning a war of independence against the coloniser approaches unity, the coloniser is better-off quiting the scene and there exists a range of feasible values of output, Y, that is, $\left(\frac{X}{p'''_w} + A + C^{e'}_c\right) < Y < \frac{C^c_{em}}{(1-p'''_w)}$ for which the coloniser is better-off decolonising.*

Proof. Equation 3.48 above defines the minimum bound of output produced in the colony, Y, which guarantees elites non-cooperation with colonial rule. It suggests that as long as the output produced in the colony is at least greater than the combined costs to the credible elites of, buying the support of the masses in rebellion against the coloniser (A) and making war with the coloniser (C^e_c), the elites will always rebel against colonisation. ■

On condition that $C^c_{em} > 0$, equation 3.50 implies that as the probability of success of elite-led war of independence against the coloniser rises, (i.e. $p'''_w \longrightarrow 1,$), the coloniser is better off leaving. Equation 3.50 also suggests that decolonisation might become a rational option for the coloniser when nationalism is strong, that is, as $C^c_{em} \longrightarrow \infty$.

Equation 3.50 can also be re-arranged in the following way:

$$Y < \frac{C_{em}^{c}}{(1 - p_{w}^{\prime\prime\prime})} \tag{3.51}$$

Combining equations 3.48 and 3.51 above yields:

$$\frac{X}{p_{w}^{\prime\prime\prime}} + A + C_{c}^{e^{\prime}} < Y < \frac{C_{em}^{c}}{(1 - p_{w}^{\prime\prime\prime})} \tag{3.52}$$

Equation 3.52 above defines the range of feasible values of output produced in the colony, Y, for which it is no longer expedient for the coloniser to stay.

Intuition and Implications of the Results

The solution of the preceding subgame suggests that, when the elites are credible, they will always find it optimal to rebel against the coloniser as long as the output produced in the colony is at least greater than $(A + C_{c}^{e\prime})$.

The results above suggest that the coloniser might attempt to resist the rebellion of the elites, as long as the coloniser's cost of engaging in a war of independence, C_{em}^{c}, is less than a fraction $(1 - p_{w}^{\prime\prime\prime})$ of total output, Y. However, as C_{em}^{c} rises indefinitely, or as the probability of nationalist elites winning a war of independence approaches unity $(p_{w}^{\prime\prime\prime} \longrightarrow 1)$, there is no other option left for the coloniser but to switch from fighting a war of independence to granting full independence. Equation 3.52 above defines the range of feasible values of total output produced in the colony that guarantees the switch from colonisation to independence.

The way that these results should be understood is that, in contrast with the preceding case of assimilated elites, human capital transfers from the coloniser to the elites in this case

serve also in resolving elites' collective action problems which potentially raises both C^c_{em} and p'''_w, until it is no longer feasible for the colonisers to stay. This scenario therefore upholds the Afrocentric explanation of decolonisation.

Typical examples of decolonisation processes depicted by this scenario are the British decolonisations in most of sub-Saharan Africa, where Britain characteristically engaged in wars of independence with nationalist movements before finally conceding to independence.[84] It is perhaps worth recalling that independence in many former British colonies in Africa was generally followed by political instability as a result of the emergence of a new strategic bargaining between the elites and the masses.

Other examples include the decolonisation of the Lusophone states of Guinea-Bissau, Angola and Mozambique where nationalist organisations engaged in protracted guerrilla warfare with Portugal before the latter finally conceded to independence. Furthermore, independence in the Lusophone African countries generally resulted in fragile states as prolonged post-colonial wars ensued between rival nationalist factions seeking to control economic resources.

3.3.3 Variants of Subgame I - Colonisation & Decolonisation with Assimilated Elite

Continuing to refer to Figure 3.3 above, I now discuss scenarios whereby cooperation with the coloniser is no longer a dominant strategy of non-credible elites. I distinguish three cases namely, where assimilated elites cooperate with the coloniser during colonial rule

[84] The characteristic pattern of transfer of power by Britain in sub-Saharan Africa consisted first in procrastination, followed by a phase of violence begets violence, then finally conceding to complete independence, Thorn (2000).

but refuse cooperation after independence, where assimilated elites always refuse cooperation with the coloniser both during colonial rule and after independence, and where assimilated elites do not cooperate with the coloniser during colonial rule but cooperate after independence.

1st Variant: Assimilated elites cooperate with the coloniser during colonial rule but refuse cooperation after independence. The independence outcome is either a stable autocracy or a fragile state depending on the character of the elites.

From Figure 3.3 above, cooperation with the coloniser during colonial rule is a dominant strategy for assimilated elites if and only if:

$$\frac{X}{L^e} > \frac{p_w^{"}\left(Y - C_c^e\right)}{L^e} \Rightarrow X > p_w^{"}\left(Y - C_c^e\right)$$

On the other hand, non-cooperation with the coloniser post independence is a dominant strategy for assimilated elites if and only if:

$$\frac{p_w\left(Y - C_m^e\right)}{L^e} > \frac{p_w'\left(Y - Q\right)}{L^e}$$

which simplifies to:

$$C_m^e < \left(1 - \beta\right)Q + \beta Y \qquad \text{where } \beta = \frac{p_w - p_w'}{p_w} \tag{3.53}$$

Given the above choices of the elites, the coloniser's dominant strategy is to decolonise if and only if:

$$0 > Y - X - C_m^c \Longrightarrow \left(X + C_m^c\right) > Y \tag{3.54}$$

Equation 3.53 above suggests that assimilated elites' dominant strategy of non-cooperation with the coloniser post independence is largely dependent on the elites' ability to effectively repress the masses. As long as the elites cost of repressing the masses, C_m^e, is less than what is needed to purchase the coloniser's protection, Q, the elite always refuses cooperation with the coloniser post independence.

Equation 3.54 suggests that whenever the costs of colonial rule is greater than the coloniser's derived utility from empire, it makes sense to decolonise.

The combined interpretation of equations 3.53 and 3.54 above suggests that the pattern of decolonisation whereby elites cooperate with the coloniser during colonisation but refuse cooperation after independence is feasible under two simultaneous conditions namely,

1 - whenever the colony is no longer profitable to the coloniser

2 - and as long as the elites are capable of effectively suppressing any post independence subversion by the masses.

This could be the case that the elites form part of the military. This scenario unifies both the Eurocentric and Afrocentric explanations of decolonisation because the utility derived from empires as well as the character of the elite (or specifically, its ability to repress the masses) both matter in the decision to decolonise.

2nd Variant: Assimilated elites always refuse cooperation with the coloniser both during colonial rule and after independence. The independence outcome could either be a stable autocracy or a fragile state depending on the character of the elite.

Referring to Figure 3.3 above, non-cooperation with the coloniser during colonisation is a dominant strategy for assimilated elites if and only if:

$$p''_w \left(Y - C^e_c\right) > X \Longrightarrow p''_w > \frac{X}{\left(Y - C^e_c\right)} \tag{3.55}$$

On the other hand, non-cooperation with the coloniser post independence is a dominant strategy for assimilated elites if and only if:

$$\frac{p_w \left(Y - C^e_m\right)}{L^e} > \frac{p'_w \left(Y - Q\right)}{L^e}$$

$$\Longrightarrow C^e_m < \left(1 - \beta\right) Q + \beta Y \tag{3.56}$$

where β is as previously defined.

Given the above choices of the elites, the coloniser's dominant strategy is to decolonise if and only if:

$$0 > \left(1 - p''_w\right) Y - C^c_e$$

$$\Longrightarrow p''_w > 1 - \frac{C^c_e}{Y} \tag{3.57}$$

Equation 3.57 above suggests that the coloniser will leave whenever the probability of elites winning the war of independence rises above $\left(1 - \frac{C^c_e}{Y}\right)$. Notice also that as the coloniser's cost of fighting the war of independence with the elites, C^c_e, rises indefinitely, it is much preferable for the coloniser to leave.

The combined interpretation of equations 3.55, 3.56 and 3.57 above suggests that the pattern of decolonisation whereby assimilated elites never cooperate with the coloniser during colonisation and after independence is feasible under two simultaneous conditions namely,

1 - whenever the elites' probability of winning the war of independence against the coloniser, p''_w, is greater than both $\frac{X}{(Y-C_c^e)}$ and $\left(1-\frac{C_e^c}{Y}\right)$.

2 - and as long as the elites are capable of effectively suppressing any post independence subversion by the masses.

The above conditions could either be the result of some personal revolutionary characteristic of the nationalist elites, or its appartenance to the military. This is a variant of the Afrocentric explanation of decolonisation because the character of the elite (or specifically, its ability to threaten the colonial system and repress the masses at the same time) does matter in the decision to decolonise.

An example of decolonisation that might represent this scenario is the British disengagement of Uganda where independence was achieved not so much because of the strength of nationalist movements, but precisely because of the personal charisma of military leaders such as Milton Obote and Idi Amin Dada.[85]

3rd Variant:Assimilated elites do not cooperate with the coloniser during colonial rule but cooperate after independence. The independence outcome is a stable autocracy.

[85] See Thorn (2000:54) for this evidence. Another example of decolonisation that depended much on the personal character of the elite could be the Belgians and General Mobutu of the Congo, although the post-colonial imperial relationships that Mobutu maintained do not clearly fit in this scenario.

Referring to Figure 3.3 above, non-cooperation with the coloniser during colonisation is a dominant strategy for assimilated elites if and only if:

$$p''_w \left(Y - C^e_c\right) > X \Longrightarrow p''_w > \frac{X}{\left(Y - C^e_c\right)}$$

On the other hand, cooperation with the coloniser post independence is a dominant strategy for assimilated elites if and only if:

$$Q < \left(1 - \beta\right) C^e_m + \beta Y \tag{3.58}$$

where β is as defined before. When $\beta = 0$, Q has an upper bound defined by C^e_m.

Given the above choices of the elites, the coloniser's dominant strategy is to decolonise if and only if:

$$p'_w Q - C^c_m > \left(1 - p''_w\right) Y - C^c_e$$

$$\Longrightarrow Q > \left(\frac{1 - p''_w}{p'_w}\right) Y + \frac{1}{p'_w}\left(C^c_m - C^c_e\right) \tag{3.59}$$

Equation 3.59 above suggests a minimum bound of Q, for which decolonisation followed by the cooperation of assimilated elites occurs.

The combined interpretation of equations 3.58 and 3.59 above, suggests that the pattern of decolonisation whereby elites obtain independence through conflict with the coloniser yet cooperate with the latter post independence, is feasible under the following conditions namely:

1 - the elite's cost of repressing the masses (post independence) is at least greater than its cost of purchasing the coloniser's protection against the masses.

2 - and whenever the cost of purchasing the coloniser's protection, Q, lies within the range defined by: $\left[\left(\frac{1-p''_w}{p'_w}\right) Y + \frac{1}{p'_w}\left(C^c_m - C^c_e\right)\right] < Q < (1-\beta)\, C^e_m + \beta Y$

This scenario upholds both the Eurocentric and Afrocentric explanations of decolonisation. This is because the character of the elite and the expectations of the coloniser both matter in the decision to decolonise. An example of a decolonisation process that followed this route could be the French decolonisation of Algeria where the emerging nationalist leader, Ben Bella, was compelled to accept proposals of limited continuity of French imperialism after having fought one of the longest wars of decolonisation in Africa.[86] Of course, Ben Bella was quickly overthrown three years later and an authoritarian rule under Boumédienne was established in the country for almost a quarter of a century.

3.3.4 Variants of Subgame II - Colonisation & Decolonisation with Independent Elite

Referring to Figure 3.4 above, I now discuss the unique scenario whereby non-cooperation with the coloniser is no longer a dominant strategy of independent elites.

Unique Variant: Independent elites cooperate with the coloniser during colonial rule but refuse cooperation after independence. The independence outcome could be a stable monarchy.

[86] The Evian agreement of March 1962 between the French colonial authorities and leaders of the Algerian Liberation Front (FLN) provided for (1) a transitory period of three years for French settlers to decide whether they wanted to remain French citizens or become Algerian citizens (2) French companies to maintain their leasing rights to develop oil fields (3) and France was allowed to maintain the important naval base at Mers-el-Kebir for a minimum of fifteen years (although she withdrew as early as 1968), Thorn (2000:84).

Cooperation with the coloniser during colonisation is a dominant strategy for independent elites if and only if:

$$X > p_w''' \left(Y - A - C_c^{e\prime}\right) \tag{3.60}$$

On the other hand, as previously observed, non-cooperation with the coloniser is always a dominant strategy for independent elites post independence.

Given the above choices of the elites, the coloniser's dominant strategy is to decolonise if and only if:

$$0 > Y - X \tag{3.61}$$

As observed from equation 3.61 above, the decolonisation decision is largely the initiative of the coloniser, and is precisely because colonial rule has become unprofitable. This scenario is a classic representation of the Eurocentric perspective of decolonisation and the transfer of power is expected to occur in an amicable atmosphere.

However, in this scenario, the post-colonial elite changes its attitude towards the coloniser and becomes radical or uncompromising once independence is acquired. An example of decolonisation that depicts this scenario could be the British disengagament in Egypt whereby imperial relationship with the nationalist elites changed dramatically for the worse after independence.[87] Harold Macmillan, British Prime Minister of the early 1960s, is quoted to have regretted the change in attitude of Nasser, the post-colonial Egyptian leader whom Britian had trusted, as he lamented:

[87] Colonel Nasser, shortly after independence in July 1956, nationalised the Suez Canal, which was vital to Britain's trade and oil supplies.

"the collapse of the agreeable, educated, Liberal, North Oxford society to whom we have transferred power"[88]

3.4 Summary of Core Predictions of the Model

The results of the model predict four important differences between the French and British models of colonisation and decolonisation in West Africa:

1 - French colonisation was generally more repressive than British colonisation. On the other hand, French decolonisation was smooth and peaceful while British decolonisation was often protracted and violent. Also, the pace of transition to independence in French West Africa was generally faster than that in British West Africa.

2 - Former French West African colonies are generally more stable politically than their British counterparts after independence.

3 - During colonisation, francophone West African elites were more professionally inclined to government occupations than their Anglophone counterparts.

4 - Francophone West African elites were more disconnected from their countrymen than their Anglophone counterparts.

3.5 Conclusion

The first endeavour of this study has been to highlight the differences in British and French colonial education practices. I then used these *distinguishing* features in outlining a simple model which throws light into why the approaches to, and outcomes of decolonisation in

[88] Quoted in Thorn (2000:48).

these two empires have differed significantly the one from the other. Using game theoretic analysis, the study argues that the pattern of decolonisation was a function of the nature of human capital transfers from the colonisers to the indigenous elites of the former colonies, and this shaped the strategic relationship between these two groups.

Where the colonial education ideology emphasized the notion of "*assimilation"*, the system generally tended to produce elites that depended highly on the coloniser for their livelihood, hence necessitating a continuation of the imperial relationship even after independence was obtained. On the contrary, where the ideology emphasized the strengthening of the "*solid elements*" of the countryside, the system tended to produce a bunch of elites that were quite independent of the coloniser and consequently had little to loose from a disruption of the imperial relationship at independence.

The model raises several predictions based on a single assumption on the nature of the indigenous elite. Specifically, the results of the model shed light into why the French decolonisation process in West Africa was generally smooth and transited from colonialism to neo-colonialism whereas British decolonisations in West Africa were generally antagonistic, often culminating in complete independence from England. The model also throws light into the different paths of decolonisation on the African continent. The contribution of the study has been in providing a framework for understanding the different paths of decolonisation in Africa in general, but more specifically in the British and French West African empires, an approach which unifies both the Eurocentric and Afrocentric perspectives.

Chapter 4
How Does Colonial Origin Matter for Economic Performance in sub-Saharan Africa?

4.1 Introduction

A further question that merits concern is the legacy of the colonial period on subsequent post-colonial economic performance. Accordingly, both the nature of governance structures, as well as, the exit strategies of colonial powers is of possible relevance here. To the extent that differences in colonial governance technologies and the exit strategies of colonisers matter, one would reasonably anticipate seeing differential post-colonial economic performances across British and French (as well as, other) former colonies.

Over the past decades, a substantial volume of literature has dwelled on the subject of colonisation and economic performance of former colonies. Economists became interested in colonial legacies in their search for the reasons why some countries have grown relatively slower than others. Notably, recent cross-country empirical evidence suggests that the identity of the colonising power (or colonial origin) might help explain the observed growth differential amongst former colonies around the world.[89] In particular, it is claimed that, on average, former British colonies have grown faster than former French colonies, although much controversy still surrounds the likely mechanisms of transmission of any such colonial legacy.

For instance, some economists have attempted to establish a causal relationship between one aspect of colonial legacy - the coloniser's legal tradition (or legal origin) and a broad range of variables that are important for economic growth.[90] A key feature in many

[89] See for instance, the works by Klerman *et al* (2008), Rostowski & Stacescu (2006), Bertocchi & Canova (2002), and Grier (1999).

[90] These cross-country studies show that countries that followed the English Common Law legal tradition (henceforth referred to as Common Law countries) by colonisation or conquest, have on average grown faster than countries that followed the Civil Law tradition (henceforth, Civil Law countries), specifically, the French Civil Law countries. The protagonists of this debate are Raphael La Porta, Florencio Lopez-de-

of these empirical studies is that, when regional dummies for sub-Saharan Africa and Latin America are introduced in the regressions[91] or when other aspects of colonial policy such as human and physical capital indicators at the end of colonial rule are controlled for,[92] the coefficient of the legal origin dummy generally tends to diminish in magnitude and significance. Interestingly also, when one considers only the sub-Saharan African (henceforth, SSA) dataset, the internationally observed growth differential between Common Law and Civil Law countries disappears.

Furthermore, most of these empirical studies have fallen short of establishing a direct impact of legal origin on economic growth. In their recent findings, Acemoglu & Johnson (2005) and Klerman *et al* (2008) have concluded that legal origin cannot explain economic growth performance. Roe & Siegel (2009), also present a range of conceptual and factual evidence in support of why the legal origins explanations are flawed.

Even supposing that the evidence on legal origins is robust, as Klerman *et al* (2008) have argued, it will still be difficult to attribute the differences in economic performance between Common Law and Civil Law countries *uniquely* to legal origin (or law) because other aspects of colonial policy such as education, trade, exchange regimes, fiscal and monetary policies or the style of local governance might also matter. Against this backdrop, the present study seeks to investigate the channels through which colonial origin affects

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Silanes, Andrei Shleifer and Robert Vishny - henceforth LLSV (1997, 1998, 1999) & LLS (2008). See also Levine *et al* (2000, 2002).

91 Mahoney (2001:517) reports a drop in the coefficient of the Common Law dummy from 0.714 (significant at the 1% level) to 0.561(significant at the 5% level) when dummies for sub-Saharan Africa and Latin America are introduced in the regressions. It is equally important to note that, the dummies for these two regions are each highly statistically and economically significant.

92 See Grier (1999), Bertocchi & Canova (2002) and Klerman *et al* (2008).

income, using SSA as a case study. But first the historical foundations of the study is in order.

4.2 Historical Foundations

This section provides the historical basis for my choice of the different transmission mechanisms between colonial origin and economic growth performance.

Historical sources claim that as of the late nineteenth century, Britain was the only imperial power that was committed to free trade, whilst the other European powers, notably France, were still building up their rival industries through protectionism.[93] Correspondingly, whilst British colonial economies were not under the obligation to export only to England, French colonial economies were compelled to trade mainly with France.[94] As such, it can be argued that one of the important legacies of British colonisation on its former colonies has been a long exposure to world competition through trade openness,[95] which might possibly explain why former British SSA colonies adjusted more rapidly to structural adjustment programmes implemented in the late 1980's in comparison with their French counterparts.[96]

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[93] Grier (1999:320) reports that, Britain had had a free trade policy from 1830, and as from 1846, British colonies were no longer forced to give British goods preferential treatment. Hence these colonies have had a long history of free trade, while the French enforced mercantilist and protectionist measures throughout the colonial period. For additional evidence see also, Maddison (1971:35), Bolton (1973:24) and Duignan & Gann (1975).

[94] See Fieldhouse (1966:306)

[95] During the inter-war period, Nigeria alone exported five times as much as all the French colonies in West Africa, Rostowski & Stacescu (2006:12).

[96] The evidence also points to the fact that former British SSA colonies grew much faster than French SSA colonies after structural adjustment.

Another channel through which the legacy of colonisation might have been perpetuated, which does not yet seem to find expression in the literature, is the distortionary impact of different colonial taxation systems on private investment incentives. Historical sources[97] claim that the dual system of administration of their colonies, characterised by punitive taxation and forced labour on the general population, was a distinctive feature of French colonial rule in sub-Saharan Africa.[98] The implications of this unique approach to local administration is to be found in the colonial legacy of taxation pursued in the post-colonial era.

By contrast, Maddison (1971) has argued that one of the important legacies of British colonisation is that its former colonies inherited relatively lower levels of taxation, because indirect rule is cheaper to administer compared to direct rule. Austin (2008:1011) also argues that until very late in the colonial period, there was no direct taxation in southern Ghana and Nigeria - two of the most successful British colonies in tropical Africa. If this is true, then it could imply that former British colonies are associated with relatively lower degrees of distortions of economic activity through taxation, which could in turn imply greater private investment incentives or more free trade on the domestic scale.

Furthermore, it is well documented that educational policy was potentially the area of greatest distinction between different imperial colonial administrations. It is generally claimed that England pursued more enlightened educational policies in its colonies than did

97 See for instance, Crowder (1968:185) and Asiwaju (2000).

98 Crowder (1968:186) argues that the "code d'indigénat", which was instituted in French sub-Saharan Africa aimed at achieving the employment of native labour through the imposition of relatively high taxes on blacks and in default of payment they would incur a sentence of forced labour.

France, whose educational objective aimed essentially at training personnel for the colonial bureaucracy. For instance, Gann & Duignan (1970:354), argue that:

> "mission teachers in British Africa not only taught their pupils how to read and write, but also taught them how to try their hands at many different jobs because the teachers themselves, besides giving lessons, were also engaged in such diverse activities as constructing their own buildings, cultivating their own crops, experimenting in agriculture and building roads".

In addition, it is widely held that primary instruction in former British colonies was administered through village schools using native teachers and the local vernacular languages of the people, whilst in former French colonies, pupils were generally boarded from their homes to far away schools where they were taught in the French language, using French textbooks, and by French teachers. This is suggestive of a different approach to educational provision with different repercussions on post-independence human capital accumulation and development.

Yet another important factor that shaped colonial institutions and hence the colonial heritage, that has often been overlooked in the colonisation and growth literature, is geography[99] or initial endowments. The importance of initial endowments in determining current development paths is well established in the literature, notably in the work by Engerman & Sokoloff (2002). As Acemoglu *et al* (2001) have shown, the major colonial powers did not choose empires randomly. Klerman *et al* (2008) argue that England, being the dominant colonial power in the late nineteenth century tended to colonise places of strategic advantage[100] such as coastal locations or colonies with natural resource endowments. This

[99] Sachs (2003) and Engerman & Sokoloff (2002) have shown that geography matters for economic growth and that its effect could either be direct or indirectly through institutions.

[100] Britain in Egypt is often quoted as a good example as it provided a naval vantage point in the Mediterranean, as well as a gateway to India through the Suez Canal, Thorn (2000:11).

first-mover advantage or "selection bias" might possibly suggest that British colonies were endowed with better initial conditions, consistent with the Acemoglu & Johnson (2005) hypothesis.[101]

As evidence, Klerman *et al* (2008) show that colonial origin does not matter after geographical factors are controlled for, which lends support to the selection bias hypothesis that differences in pre-colonisation initial conditions rather than in colonial policy (legal, educational, or other) are the best explanation for different growth rates amongst former colonies. However, Klerman *et al* (2008) results on geography are inconclusive as they themselves admit.[102]

Finally, an important colonial legacy that also merits attention in the empirical literature is the impact of the Franc CFA[103] currency board which links France to most of its former SSA colonies. The Franc CFA currency board, it is argued, has been instrumental in lowering inflation and the black market exchange premium while enhancing the contribution of imports to GDP growth. However, as the evidence also suggests, the impact of the currency board on market distortion could go the other way.[104] Considering the fact that almost all former British SSA colonies have floating exchange regimes, these differ-

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101 According to this hypothesis, the depth of colonial engagement in moulding growth-conducive institutions is a function of the first-mover advantage.

102 For instance, Klerman *et al* (2008:19) admit that their results controlling for geographical factors are highly dependent on their definition of the regional dummies for Latin America and sub-Saharan Africa and on which set of countries is analysed.

103 The Franc CFA stands for Franc de la Communauté Financiere en Afrique meaning Financial Community of Africa Franc.

104 For instance, one of the main arguments for devaluing the Franc CFA by 50% in January 1994, was because of its excessively distortionary effects on the economies of those countries. See Collier & Gunning (1999).

ent exchange regime structures might well serve as a plausible channel for explaining the different growth outcomes in the two former empires.

From the preceding discussion, it is clear that the legal origins theory, no matter how elaborate and expansive its proponents make it to be,[105] is unlikely to be the *sole* or even the main source of influence of colonial legacy on the post-independence economic performances of former colonies. Klerman *et al* (2008:4) also agree that there is no rationale for broadening the conception of legal origin to include all aspects of colonial policy since this is equivalent to substituting this broad conception of legal origin with the identity of the colonial power.

Because colonial origin encompasses all aspects of colonial legacy including legal origin, studies seeking a holistic understanding of the influence of colonisation on former colonies' post-independence economic performances should instead be analysing the impact of colonial origin on growth alongside its different transmission channels, rather than just the impact of one channel (i.e. legal origin).

The tasks of this chapter therefore, is to investigate further the channels through which colonial origin affects economic outcomes, using only the SSA dataset. The interest in a SSA case study is based on two main reasons.

The first and most important reason why a separate study of SSA might prove insightful to the current debate is that SSA offers a more balanced framework of analysis than the world pool of colonies owing to the fact that nearly all French colonies studied in the world

[105] Following the persistent lack of significance of legal origins in growth regressions, La Porta *et al* (2008:286) in their latest article, have adopted a somewhat broader and seemingly ambiguous conception of the notion of legal origin *"as a style of social control of economic life"* implying legal origin should stand for "strategies of social control that can either support private market outcomes or implement specific state policies".

sample are from SSA, while British colonies in the sample are spread more evenly across the globe.[106] The preceding point is dramatised by the fact that nearly all SSA countries experienced poor growth performances during most of the period of these cross-country studies. To eliminate this possible selection bias against former French colonies, it is appropriate not only to compare them with other countries in the same region, but also with countries that faced similar growth challenges such as structural adjustment programmes, during the same period of time.

Secondly, as mentioned earlier, one of the currently contentious issues in colonial origins debate is the influence of geography or "selection bias". Because European powers did not choose empires randomly, the possibility of "selection bias" explaining the observed growth differential amongst former colonies is plausible. However, previous studies have either not given a thorough examination of this transmission mechanism or the existing evidence is inconclusive.

Therefore, by focusing on a sample of countries with similar geographical conditions,[107] a SSA case study isolates "pure" geographical conditions from other forms of selection, thereby allowing for a thorough exploration of the different transmission mechanisms between colonial origins and economic outcomes.

In summary, this chapter will investigate the following likely channels of transmission between colonial origin and economic growth outcomes:

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[106] For instance, in Grier's (1999) study, the only non-African former French colonies included are Reunion and Haiti.

[107] The summary descriptive statistics in Figure 4.1 in the Appendix show that 20% of former French SSA colonies are endowed with natural resources as opposed to 25% in former British colonies. Also, 30% of former French colonies are landlocked, as opposed to about 44% landlock rate in British colonies.

■ *The human capital channel*: which will be proxied by two variables, namely, secondary enrolment rates during 1960-2000 (SEC), and the average schooling years in the population aged 15 and above during 1960-2000 (AYS).

■ *The trade openness channel:* which will be proxied by two variables namely, openness to international trade during 1960-2000 (OPEN) and export share in GDP during 1960-2000 (EXP).

■ *The market distortion channel:* which will be captured by the black market exchange rate premium during 1960-2000 (BMP).

■ *The selection bias channel:* which will be captured by the interaction of two variables namely, natural resource endowments dummy[108] and ethno-linguistic fractionalisation index (ETHNIC). The dummy for natural resource endowments (DNRES) captures the presence of natural resources in the country and takes the value 1, if the country has a rich endowment of either oil, gold, diamonds or cocoa and zero otherwise. Some historical sources claim that colonial policies in black Africa tended to succeed most in societies that are both ethnically divided and resource rich.[109] Hence the intuition to interact natural resources with ethnic diversity in capturing this specific type of selection bias.[110] The product of the interaction of these two variables is denoted by ETHNRES.

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[108] Rhoda (1973:19), Bolton (1973:24) and Douglas (1978:265) have argued that an important motive for acquiring colonies was the search for raw materials for use in production in the imperial economy.

[109] According to Asiwaju (2000), the colonial policy of "divide and rule" was most effective in ethnically divided societies because, by pitting one ethnic group against another, the colonisers were able to extract a greater share of the colony's resources.

[110] Furthermore, the association between natural resources and ethnic diversity, as institutional determinants of growth, is not new in the empirical growth literature. For instance, Mauro (1995) shows that natural resources-rich countries which are also ethnically divided tend to grow much slower. Collier *et al* (2006) identify the presence of natural resources as one of the main drivers of societal conflict which can be negatively associated with growth. Svensson (2000) provides evidence to show that countries that are both commodity (like cocoa or oil) producers and ethnically divided are likely to be more corrupt.

It is also important to note that in 1960, former British SSA colonies had, on average, lower per capita GDP than former French colonies, which suggests that convergence might also be part of the story. However, in the context of this study, I do not directly investigate the convergence channel, although I control for convergence effects by including the natural logarithm of real per capita GDP in 1960 (LOGGDP60) in my regressions.[111]

Table 4.4 above presents results from partial correlations of the different causal mechanisms on colonial origins. Panel A shows the association or correlation between the different causal mechanisms and colonial origin, controlling for initial income levels in 1960. Panel B performs the same exercise but further controls for initial colonial conditions, in other words, the level of each transmission channel at the end of colonial rule. The initial colonial condition variables are measured in the year of independence of the country or in 1960 for countries where pre-1960 data is not available (e.g. Sudan, Ghana and Guinea). For notational purposes, these variables are associated with the symbol "60", in order to distinguish them from their post independence counterparts. The intended goal is to differentiate the effects due to the legacy of colonisation from those resulting from the actions of the independent nations themselves.

The results in Panel A show that, in comparison with former French colonies, former British colonies are strongly associated with high human capital endowment as proxied by the two human capital measures listed above. Panel B also suggests that this high human capital endowment is largely the result of the legacy of colonisation and not so much the result of post-independence policies. In fact, the positive sign on SEC60 in

[111] Quah (1993) argues that the sign on initial per capita income can either be positive or negative depending on the sample.

Table 4.4. Partial Correlations of Different Transmission Mechanisms on Colonial Origins

PANEL A							
	SEC	AYS	OPEN	EXP	BMP	ETHNRES	LANDLOCK
BCORG	11.38***	1.57***	26.23***	8.64***	69.90***	9.33***	0.06**
	(1.52)	(0.13)	(2.89)	(1.07)	(13.24)	(1.99)	(0.03)
OCORG	-3.75***	-0.17	0.46	-2.48*	156.76***	28.06	-0.03
	(1.30)	(0.12)	(4.03)	(1.39)	(55.86)	(3.27)	(0.03)
LOGPCGDP60	8.00***	0.55***	3.45	12.12***	27.02**	18.81***	-0.21***
	(1.43)	(0.11)	(2.69)	(0.99)	(13.66)	(1.52)	(0.02)
CONSTANT	-41.58***	-2.55***	41.30**	-60.09***	-176.36*	-119.1***	1.88***
	(1.43)	(0.86)	(2.69)	(0.99)	(13.66)	(1.52)	(0.02)
No. OBS	781	612	1382	1199	1071	1271	1394
R-SQUARED	0.18	0.38	0.07	0.20	0.03	0.14	0.08
PANEL B							
	SEC	AYS	OPEN	EXP	BMP	ETHNRES	LANDLOCK
BCORG	1.56	0.82***	12.77***	-4.87***	61.57***		
	(1.99)	(0.12)	(2.33)	(1.25)	(15.99)		
OCORG	-7.38***	0.004	1.14	-9.19***	13.42		
	(1.35)	(0.11)	(3.58)	(1.31)	(21.73)		
SEC60	1.20***						
	(0.13)						
AYS60		0.61***					
		(0.04)					
OPEN60			0.40***				
			(0.03)				
EXP60				0.67***			
				(0.03)			
BMP60					0.48**		
					(0.22)		
LOGPCGDP60	-1.36	0.39***	9.88***	-0.96	-20.33*		
	(1.75)	(0.07)	(1.98)	(1.20)	(11.60)		
CONSTANT	22.95*	-2.04***	-27.15*	21.58**	150.22*		
	(12.86)	(0.48)	(14.42)	(8.36)	(82.04)		
No. OBS.	776	558	1382	1149	994		
R-SQUARED	0.33	0.64	0.33	0.40	0.08		

Robust standard errors are presented in parentheses. 1% level of significance is denoted by ***, 5% by ** and 10% by *

(1) These results are robust to the exclusion of Botswana. French Colonial Origin (FCORG) is the omitted category.

N.B. BCORG (British Colonial Origin dummy), FCORG (French Colonial Origin dummy)

OCORG (Other Colonial Origin dummy). ETHNRES and LANDLOCK remain unchanged in Panel B.

Panel B suggests a strong persistence of the colonial legacy of human capital in the post-independence era.

The results in Table 4.4 also suggest that former British colonies are associated with greater trade openness than former French colonies and this performance is linked to the colonial legacy of trade openness. Panel B also suggests a strong persistence of the colonial legacy of trade openness in the post independence era.

Table 4.4 further suggests that former British colonies are associated with greater market distortion than former French colonies, as proxied by the black market exchange premium. Furthermore, this market distortion reputation, as Panel B suggests, is partly as a result of the legacy of colonisation.

Finally, Panel A suggests that, in comparison with the French, the British Crown generally tended to choose colonies that are both resource rich and ethnically divided. This also suggests that former British colonies are more prone to the "natural resource curse" than former French colonies.

The chapter is organised as follows. Section 4.3 is the methodology section. Section 4.4 presents my most important results and checks for their robustness. Section 4.5 compares my results to those in the literature, notably by Klerman *et al* (2008), Rostowski & Stacescu (2006), Bertocchi & Canova (2002) and Grier (1999). Section 4.6 concludes.

4.3 Methodology

This section describes the empirical model, the estimators, the estimation strategy and also presents the variables and datasets used in the study.

4.3.1 Empirical Model

The question I seek to answer is whether colonial origin really matters for income in SSA during 1960-2000. If yes, what are its channels of transmission?

To answer this question, I specify the regression model as follows:

$$\ln Y_{it} = \alpha + \beta_i COLO_i + \gamma_i TRANSM_{it} + \delta_i X_{it} + \mu_i + \varepsilon_{it} \tag{4.62}$$

where $\ln Y_{it}$ is income (natural logarithm of per capita GDP Purchasing Power Parity). $COLO_i$ is a matrix of colonial origin dummies comprising $BCORG$ (which takes the value 1 for British colonial origin and zero otherwise), $FCORG$ (which takes the value 1 for French colonial origin and zero otherwise) and $OCORG$ (which takes the value 1 for non-British and non-French colonial origins and zero otherwise).[112] $TRANSM_{it}$ is a matrix of control variables that serve as likely transmission channels between colonial origin and growth, while X_{it} is a matrix of other control variables that are standard in the growth literature, notably - initial real per capital incomes, population growth, investment, inflation and ethnolinguistic fractionalisation. μ_i is a vector of individual-country effects reflecting unobservable country heterogeneity and ε_{it} is a vector of error terms. The advantage of using panel data is that it allows for individual country heterogeneity, in addition to the fact that it also allows for less collinearity among the variables, more degrees of freedom and more efficiency, Baltagi (2005:5).

[112] Of course, only two of the colonial origin dummies enter the regression at a time, while the third dummy serves as base.

4.3.2 Choice of Estimator

I perform the analysis on the empirical model specified in equation 4.62 above, using a core dataset of thirty-eight (38) SSA countries during 1960-2000. A key consideration in choosing a suitable estimator for the model is how well the estimator handles the problem of endogeneity resulting from the fact that some of the explanatory variables might be correlated with the un-observed country effects. As Baltagi (2005:125) argues, the fixed effects (within) estimator assumes that all the explanatory variables are related to the individual effects and the within-estimator is a best linear unbiased estimator (BLUE) once the individual effects are modelled as a linear function of all the explanatory variables. Using the within-transformation (henceforth, FE) in estimating equation 4.62 above, results in the elimination of the μ_i term, and hence the bias. However, the FE also eliminates the time-invariant regressors, and is therefore incapable of giving estimates of β_i.[113]

The random-effects (RE) model, on the other hand, assumes no correlation between the explanatory variables and the individual effects, implying that, in the presence of endogeneity RE will yield biased estimates. Hence, inferences from the RE model are likely to be misleading. This is equally true for the OLS estimator, which also assumes exogeneity of all regressors and the random individual effects.

Against these two contrasting worlds of all or nothing correlation between the individual effects and the regressors, Hausman and Taylor (1981) in Baltagi *et al* (2003) proposed a model where *some* of the regressors but not all, are correlated with the indi-

[113] Baltagi (2005:13) argues that the within estimator is incapable of estimating the effect of any time-invariant variable like colonial origins, sex, race, religion, schooling or union participation because these time-invariant variables are wiped out by the deviations from mean transformations.

vidual effects. The Hausman-Taylor (HT) model thus bridges the two extreme worlds of all (FE world) or nothing (RE world) choice of correlation between the individual effects and the regressors. As Baltagi *et al* (2003:362) have argued, the HT model is preferable whenever the model requires *some* of the regressors, but not all, to be correlated with the individual effects.

The HT model can be written as:

$$y_{it} = X_{it}\beta + Z_i\eta + \alpha_i + \mu_{it} \tag{4.63}$$

where $i = 1, 2, ..., N$ and $t = 1, 2, ..., T$. α_i is *IID*$(0, \sigma_\alpha^2)$ and μ_{it} is *IID*$(0, \sigma_\mu^2)$. Both α_i and μ_{it} are independent of each other and among themselves. The Z_i are individual time-invariant variables.

Hausman and Taylor split $X = [X_1, X_2]$, and $Z = [Z_1, Z_2]$ into two sets of variables such that X_1 is $n \times k_1$, X_2 is $n \times k_2$, Z_1 is $n \times g_1$, Z_2 is $n \times g_2$ and $n = NT$.

X_1 and Z_1 are assumed exogenous and not correlated with α_i and μ_{it}, while X_2 and Z_2 are endogenous due to their correlation with α_i but not with μ_{it}.

Under equation 4.63 above, OLS will yield biased and inconsistent estimates, while the FE (or within-transformation) estimator gives consistent estimates. The FE *sleeps* the α_i and removes the bias, but, in the process, it also eliminates the time-invariant variables, Z_i. Hence it cannot yield estimates of η. The RE estimator, which is Generalised Least Square (GLS) estimation on equation 4.63, ignores the endogeneity due to the presence of the α_i term and will therefore yield biased though consistent estimates.

To get around the shortcomings of the within-estimator in estimating the time-invariant regressors, Hausman and Taylor suggest an instrumental variable estimator which premultiplies equation 4.63 by $\Omega^{\frac{-1}{2}}$ where Ω is the variance-covariance term of the error component $\alpha_i + \mu_{it}$, and then performs two-stage least squares (2SLS) using as instruments $[Q, X_{1,} Z_1]$. Q is the within-transformation matrix with $\widetilde{y} = Qy$ having a typical element $\widetilde{y_{it}} = y_{it} - \overline{y_i}$ where $\overline{y_i}$ is the individual mean. As Baltagi *et al* (2003) show, this turns out to be equivalent to running 2SLS with $\left[\widetilde{X}, \overline{X_1}, Z_1\right]$ as the set of instruments.[114] It should be noted that $\widetilde{X}$ and $\overline{X}$ have the same properties as $\widetilde{y}$ and $\overline{y_i}$.

It is important to emphasize that the order of identification $(k_1 \geqslant g_2)$ must hold for equation 4.63 to be non-singular. In other words, the number of time-varying exogenous regressors $X_{1,}$ must be at least as large as the number of individual time-invariant endogenous regressors Z_2. Specifically, the model is said to be just-identified, when $k_1 = g_2$ and in this case, the HT estimates of η are equivalent to estimates obtained from 2SLS estimation. The model is said to be over-identified, when $k_1 > g_2$ and in this case, the HT estimates of η are more efficient than estimates obtained from the FE estimator. Finally, the model is under-identified when $k_1 < g_2$ and in this case, the HT model cannot provide estimates of η.

[114] Baltagi *et al* (2003) also argue that the HT estimator is based on an instrumental variable estimator which uses both the between and within variation of the strictly exogenous variables as instruments. More specifically, the individual means of the strictly exogenous regressors are used as instruments for the time-invariant regressors that are correlated with the individual effects, as in Baltagi (2005).

4.3.3 Estimation Strategy

The empirical strategy consists of two stages. Stage one is based on simple OLS estimation while stage two employs the HT estimator.

Stage One

In the first stage, I test the hypothesis that colonial origin matters for income in SSA, using simple ordinary least squares (OLS) regression with robust standard errors.[115] I estimate twenty different model specifications of the OLS model with per capita GDP purchasing power parity levels (constant 1995 international $) as the dependent variable in all specifications. Model 1 includes only colonial origin dummies as the explanatory variables. Models 2 to 6 investigate the influence of the market distortion transmission channel using black market exchange rate premium as proxy. In particular, model 2 controls only for the level of market distortion at the end of colonial rule (or initial colonial conditions). Model 3 includes, in addition to all the variables in model 2, the interaction terms of colonial origin with initial levels of black market exchange premium. The reason for introducing the interaction terms is to find out whether differences in growth as a result of market distortion can be attributed to differences in colonial origins.

More generally, the interaction terms for each transmission channel are obtained by multiplying each colonial origin dummy by the variable that proxies for the channel of interest. Its purpose is to tell us whether the impact of that channel on economic perfor-

[115] The OLS results are intended merely as a benchmark comparator for other more reliable results. I believe them to be useful to the reader since some of the literature still presents this estimator (see for instance, La Porta et al (2008) and Thorsten et al (2002)). Furthermore, my results show the extent of the bias that is feasible.

mance in a specific colonial origin context is more important than in another colonial origin context.[116]

Model 4 controls only for variations in the black market premium during 1960-2000. The objective is to capture possible changes in the colonial legacy of market distortion, brought about by changes in post-independence policies. Model 5 includes, in addition to all the variables in model 4, the interaction terms of colonial origin with black market exchange rate premium during 1960-2000. Model 6 includes all the variables used in models 1 to 5. The purpose for this is to distinguish whether what really mattered was the persistence of initial conditions left by the colonisers, or whether the evolution of the society after independence has had any impact on post independence economic performance. In other words, "removing" the impact of the history of the coloniser so as to see whether the changes that the newly independent nations "added on" could separately explain the economic performance path of different countries.

Models 7 to 11 investigate the influence of the trade openness transmission channel using openness to international trade as proxy. The approach followed is similar to that in models 2 to 6 above.

Models 12 to 16 follow a similar approach to models 2 to 6, in investigating the influence of the human capital transmission channel, while models 17 and 18 investigate the influence of the selection bias channel. Model 19 includes, besides the colonial origin dummies, the levels of all four transmission channels at independence, and their evolution

[116] The growth model with interaction terms can be expressed as: $Y = a + bX_1 + cX_2 + dX_1X_2 + \mu_i$, where X_1 and X_2 represent the matrix of transmission channels and the vector of colonial origin dummies respectively. $\frac{\partial Y}{\partial X_1} = b + dX_2$ tells us whether the impact of a channel, X_1, is different in British colonies as opposed to French colonies.

during 1960-2000. In addition, model 19 also includes the interaction terms of colonial origin dummies with the respective time elements of the different transmission channels. Model 20 includes, in addition to all the variables in model 19, a set of five control variables that are standard in empirical growth models, namely, initial real per capita income, population growth, investment, inflation growth and ethnolinguistic fractionalisation. Model 20 also includes a variable called DUREE, which captures the duration of colonial rule.

Considering the fact that the results obtained under OLS estimation are biased and inconsistent, inferences made on them are likely to be misleading. Thus, the second stage of the estimation strategy will consist of submitting the above strategy to an alternative and more appropriate estimator namely, the HT estimator.

Stage Two

Stage two estimation comprises four model specifications of the HT model with the natural logarithm of per capita GDP PPP (levels) as the dependent variable in all specifications, as before. Model 1 includes only the four transmission channels, besides the colonial origin dummies. Model 2 includes all the interaction terms of the four channels explored in model 1, in addition to the channels themselves. Model 3 includes the levels of each transmission channel at independence, in addition to all the variables in model 2. Model 4 controls for the standard determinants of growth (the same five controls used in stage one above) and includes all the variables in model 3. Model 4 also controls for the duration of colonial rule (DUREE).

4.3.4 Variables and Data

I classify SSA countries into three broad colonial origin families, namely - British colonial origin (BCORG) for colonies that acquired their independence from Britain, French colonial origin (FCORG) for countries that acquired independence from France and other colonial origin (OCORG) for countries that acquired independence from European powers other than Britain and France. By basing colonial origin on the identity of the coloniser through which independence was acquired, I am assuming in line with the tradition in the literature, that it is the colonial power that granted independence that significantly shaped the country's post-colonial future.[117]

The decision to bundle all the non-British and non-French SSA colonial origins (mainly Portuguese, Belgian, Italian and Spanish) into one common group (Other Colonial Origins) is for purely practical reasons as the number of countries in these categories are relatively small. Countries that witnessed a relatively short period of colonisation (e.g. Ethiopia) or which were never colonised (e.g. Liberia) are excluded from the sample. Furthermore, countries that had multiple colonisation experiences with the experience of the previous colonisers impacting for a significant period of the country's colonial history (e.g. South Africa) are also excluded. I also exclude Cape Verde and the Comoros Islands for

[117] This might be a significant limitation, especially for those countries that had more than one European colonial experience. This is especially true for Cameroon and all the former German colonies (Togo, Tanzania and Namibia). One way to get around this limitation is to add another set of dummy variables capturing "prior colonisers". However, this option leaves me with another problem - that of a small sample - as a result of the reduced degrees of freedom. Furthermore, this detail adds less to the analysis. Admittedly, including the "prior colonisers" would add substantially to the results only where the first coloniser stayed for a significant period. This is perhaps true only for South Africa, which had a long Dutch tenure followed by extended British rule, but I have excluded this case from my sample.

lack of consistent data. See Appendix 4.A.1 for a classification of the countries in the dataset.

The dependent variable in all regressions is the natural logarithm of per capita GDP PPP (constant 1995 international $) obtained from The Africa Research Program datasets. I use annual data for all variables covering the period 1960-2000.[118] Annualised data in a panel framework such as this, is suitable for differentiating the effects of initial colonial conditions[119] from those brought about by changes in post-independence policies.

Besides the colonial origin dummies, my other choice explanatory variables are a set of variables that capture the four different transmission mechanisms between colonial origin and growth. These are:

- The gross secondary enrolment rates during 1960-2000 (SEC) to capture the human capital transmission channel. The conventional growth literature suggests that human capital enhancement is good for growth either because it raises the overall productivity of the economy or because it favours the development of pro-growth institutions.[120] However, this evidence is inconclusive as other empirical studies, notably by Pritchett (2001) suggest that growth in human capital can be detrimental for per capita GDP growth. The interaction terms of colonial origin with secondary enrolment rates during 1960-2000, are SECBRI, SECFRE, and SECOTH, for British, French and Other colonial origins respec-

[118] I use the levels of the dependent variable instead of rates, as is the tradition in the literature, because most of our explanatory variables are in levels.

[119] Although the impact of initial colonial conditions is a cross-country issue that is better captured in cross-sectional studies, by including the initial conditions alongside the annualised data in a panel framework, I effectively isolate the impact of initial colonial conditions from subsequent post-independence changes.

[120] For instance, Easterly & Levine (1997) and Glaeser *et al* (2004) find a positive contribution of human capital to GDP growth in their regressions.

tively. Similarly, the interaction terms of colonial origin with initial secondary enrolment rates in the year of independence of the country (SEC60), are SEC60BRI, SEC60FRE, and SEC60OTH, for British, French and Other colonial origins respectively.

- The average share of exports and imports in GDP during 1960-2000 (OPEN) to capture the trade openness transmission mechanism. The literature suggests that SSA countries that were more open to trade have indeed grown faster than those that were not.[121] Rodrik (2002) however holds a dissenting view. Thus, there is no unanimity as to the expected sign of the openness variable in the growth regressions. The interaction terms of colonial origin with openness during 1960-2000 are OPENBRI, OPENFRE and OPENOTH, for British, French and Other colonial origins respectively. Similarly, the interaction terms of colonial origin with initial openness measure in the year of independence of the country (OPEN60), are OPEN60BRI, OPEN60FRE, and OPEN60OTH, for British, French and Other colonial origins respectively.

- An annual index of the black market exchange rate premium during 1960-2000 (BMP) to capture the market distortion mechanism. Easterly & Levine (1997) find a strong negative association between black market premiums and growth. The interaction terms of colonial origin with market distortion during 1960-2000 are BMPBRI, BMPFRE and BMPOTH, for British, French and Other colonial origins respectively. Similarly, the interaction terms of colonial origin with initial market distortion measures in the year of independence of the country (BMP60), are BMP60BRI, BMP60FRE, and BMP60OTH, for British, French and Other colonial origins respectively.

[121] See for instance, Sachs & Warner (1997).

■ Finally, a time-invariant index (ETHNRES) obtained from the interaction of the natural resource endowment dummy with the ethnic fractionalisation index to capture the selection bias transmission channel. The expected sign of ETHNRES in the growth regression is negative, according to the evidence from Mauro (1995). The interaction terms of colonial origin with "selection bias" channel are ETRESBRI, ETRESFRE and ETRESOTH, for British, French and Other colonial origins respectively.

In addition to this set of transmission mechanisms, I introduce a variable, DUREE, to capture the duration of colonial rule. DUREE is obtained by subtracting the respective country independence year from the year that the country was first colonised.[122]

Furthermore, I introduce another set of five control variables that are standard in the growth literature. These are:

■ The natural logarithm of initial real per capita GDP in 1960 (LOGPCGDP60) to capture convergence effects. Quah (1993) argues that due to the problem of reversion to the mean, the sign on initial per capita income can either be positive or negative depending on the sample.

■ The growth rate of population during 1960-2000 (GPO) to control for the effect of demographic factors on growth. I follow the endogenous growth literature, notably by Kremer (1993), in suggesting a possible correlation between labour force growth (proxied by population growth) and income growth. The two are expected to be positively correlated. Solow (1956) and Swan (1956) suggest the opposite.

[122] It would have been consistent to take into account only the year that the last coloniser arrived (for those countries that had multiple colonisation experiences), but this detail would not add much to the present analysis.

■ The growth rate of inflation during 1960-2000 (INFL) to capture the negative effects of price instability on growth. Hayek (1944) and Friedman (1977) in Grier (1999:322) both claim that inflation uncertainty increases price variability, thus harming economic growth.

■ The average share of real investment[123] in GDP purchasing power parity during 1960-2000 (INV) to account for the contribution of physical capital accumulation in GDP growth. The standard neoclassical growth literature suggests that investment in physical capital is good for growth during transitional dynamics, although this might not be the case at steady states. The expected sign on INV in the regressions should therefore be positive.

Finally, I indicate the *à priori* classification of these variables into the various HT categories. The HT model requires classification of variables into the following four categories, namely, time-variant exogenous variables, time-invariant exogenous variables, time-variant endogenous variables and time-invariant endogenous variables. However, the latter category need not be included for the model to be correctly specified.

Based on economic theory, I classify my variables in the HT model as exogenous due to their *supposed* non-correlation with both the un-observed individual effects (α_i) and with the error term μ_{it}. Similarly, I classify some variables as endogenous in the model because of their *supposed* correlation with α_i but not with μ_{it}. I thus regroup the variables into the following four HT categories viz.

■ *Time-Variant Exogenous Variables:* The black market exchange rate premium during 1960-2000 (BMP), and the interactions of colonial origin with black market premi-

[123] The variable includes both private and public investment.

ums, BMPBRI, BMPFRE and BMPOTH. Following Easterly & Levine (1997), I classify black market exchange premium as exogenous in the HT model because it tends to capture growth-inhibiting institutional imperfections that might not necessarily be correlated with the individual country effects.

- *Time-Variant Endogenous Variables:* Secondary enrolment rates during 1960-2000 (SEC), Openness during 1960-2000 (OPEN), Investment during 1960-2000 (INV), Inflation during 1960-2000 (INFL), and Population growth during 1960-2000 (GPO). Accordingly, I also include the following interaction terms, SECBRI, SECFRE, SECOTH and OPENBRI, OPENFRE, OPENOTH for schooling and openness variables respectively. Following the tradition in the empirical growth literature, I classify these variables as endogenous in the HT model.[124]

- *Time-Invariant Endogenous Variables:* Secondary enrolment rates at independence (SEC60), and openness at independence (OPEN60).

- *Time-Invariant Exogenous Variables:* British colonial origin countries (BCORG), French colonial origin countries (FCORG), other colonial origin countries (OCORG),[125] duration of colonial rule (DUREE), the black market exchange rate premium at independence (BMP60), the ethnic fractionalisation - natural resource endowment index (ETHNRES), and the natural logarithm of initial real per capita income (LOGPCGDP60). I also include the following interaction terms for ethnic fractionalisation - natural resource endowment index, ETRESBRI, ETRESFRE, and ETRESOTH.

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[124] For instance, Glaeser *et al* (2004) treat human capital as endogenous while Rostowski & Stacescu (2006) treat both human capital and openness as endogenous in their regressions.

[125] The intuition for placing colonial origin dummies in this category is mainly because of selection effects.

Figure 4.1 in the Appendix provides summary descriptive statistics for each variable that I use in the regressions. Panel A of Figure 4.1 describes statistics for the full SSA sample, while Panel B compares the means of variables by colonial origins. Most of my data comes from The Africa Research Program dataset, and Global Development Finance and World Development Indicators. Appendix 4.A.2 provides a full list of variable definitions and sources.

Considering the initial conditions at independence, Panel B of Figure 4.1 suggests that former British colonies had a lower initial GDP in 1960 than former French colonies. The evidence also suggests that at independence, former British colonies were more open to trade, had higher secondary enrolment rates and greater market distortion than former French colonies.

During the post-independence period from 1960-2000, Panel B suggests that former British colonies continued to experience greater openness to trade, higher secondary enrolment rates and greater market distortion than former French colonies. It is also striking to note that, in comparison with French colonial origin, British and Other colonial origins witnessed significantly longer durations of colonisation.

4.4 Results

This section presents results from the two-stage estimation strategy followed by checks for their robustness. A discussion of the results concludes the section.

4.4.1 Results using OLS estimator

Figure 4.2 in the Appendix reports results of twenty panel estimations of income (natural logarithm of per capita GDP PPP) on colonial origin sequentially controlling for each of the transmission channels (models 2 - 18), then controlling for all the transmission channels together (model 19), and finally controlling for other determinants of income and the duration of colonisation (model 20).

The results in model 1 of Figure 4.2 suggest that colonial origin does matter for income levels in SSA during 1960-2000, such that former British colonies have an income level slightly higher than former French colonies (about 0.2 times higher). The introduction of the colonial initial black market exchange premium conditions at independence in model 2 completely eliminates the economic and statistical significance of the British colonial origin dummy (BCORG), and the coefficient on initial black market premium is highly statistically significant although economically unimportant. Controlling for differences in initial market distortion conditions across colonial origins in model 3 gives no useful insight, as all of the variables are either economically unimportant or statistically insignificant. This suggests that initial market distortion conditions can not be held in explaining income differences amongst former SSA colonies during 1960-2000.

Controlling for only the post-independence market distortion conditions during 1960-2000 (BMP) in model 4, slightly reduces both the economic and statistical significance of BCORG, although the market distortion variable (BMP) is economically unimportant (although significant at the 1% level). This suggests that the post-independence market distortion policies of the former colonies might be partly responsible for the observed income

differences amongst these countries. The results in model 5, which controls for possible differences in post-independence market distortion policies across colonial origins, does not alter the magnitude or statistical significance of BCORG, and all the distortion interaction terms (BMPBRI, BMPFRE & BMPOTH) are economically and statistically insignificant.

The results in model 6, which controls for the impact of both the colonial initial market distortion condition as well as the post-independence market distortion conditions, gives no useful insight as all of the variables are either economically unimportant or statistically insignificant. The tentative conclusion from models 2 to 6 is that, market distortion reduces income in SSA during 1960-2000 but that differences in both the initial colonial market distortion conditions as well as in the post independence market distortion policies across colonial origins, can not explain the observed income differences amongst former SSA colonies.

The results in model 7, where the initial colonial openness condition (OPEN60) alongside colonial origin dummies explain income, suggest that in general, the initial openness conditions of SSA countries at independence are not important in explaining post independence income differences amongst them. Controlling for differences in initial openness conditions across colonial origins in model 8, completely eliminates the economic and statistical significance of the British colonial origin dummy (BCORG), while the initial openness (OPEN60) and British colonial origin initial openness interaction term (OPEN60BRI) are both statistically significant at 1%. The sign on OPEN60BRI is positive, suggesting that the initial conditions of openness are a strong predictor of income in former British colonies. In other words, the legacy of trade openness might have contributed to the mar-

ginally higher income levels in former British SSA colonies. The results in model 9, where the post-independence openness conditions (OPEN) alongside colonial origin dummies explain income, suggest that the post-independence openness conditions of the countries are important in explaining post-independence income differences amongst former SSA colonies.

Controlling for differences in post independence openness conditions across colonial origins in model 10 restores the statistical significance of BCORG,[126] while the post independence openness variable (OPEN) and British colonial origin post independence openness interaction term (OPENBRI) are both statistically significant at 1%. OPENBRI has a positive sign, suggesting that the post independence openness policies of former British SSA colonies are also important in explaining the observed marginal differences in income levels between former British and former French SSA colonies.

The results in model 11 which controls for the impact of both the colonial initial openness condition (OPEN60) as well as the post-independence openness conditions (OPEN),[127] show a slight reduction in the magnitude and statistical significance of BCORG, and both OPEN60 and OPEN are highly statistically significant. Model 11 results also suggest that for former British colonies, the colonial initial openness conditions (OPEN60BRI) mattered more than the post-independence openness conditions (OPENBRI). The tentative conclusions from models 7 to 11 are that:

- The colonial initial openness condition (OPEN60) influences post-independence income levels negatively, whereas the post-independence openness conditions (OPEN) pos-

[126] BCORG also becomes economically meaningful, though assuming a negative sign.

[127] In addition to the respective interaction terms of the post independence variables.

itively affects income. This suggests that differences in both OPEN60 and OPEN across colonial origins, might help explain the observed differences in income levels amongst former SSA colonies.

- Furthermore, the colonial initial openness condition has had a far greater impact on income levels in former British colonies, than the post-independence openness conditions.[128]

The results in model 12, where initial colonial education condition (SEC60) alongside colonial origin dummies explain growth, show that BCORG is no longer economically and statistically significant, whereas SEC60 is highly statistically significant. This suggests that the initial education conditions of SSA countries at independence are important in explaining post independence income differences amongst these countries. Controlling for differences in initial education conditions across colonial origins in model 13 restores some statistical significance to BCORG, while completely diminishing SEC60 in both magnitude and statistical significance. However, both the British and Other colonial origin initial education interaction terms (SEC60BRI & SEC60OTH) are positive and highly significant at 1%. This suggests that, in comparison with former French colonies, the colonial initial education conditions in former British and Other colonies origins have been more favourable to income during 1960-2000.

The results in model 14, where the post-independence education conditions (SEC) alongside colonial origin dummies explain income, eliminate the statistical and economic

[128] This could be explained by the fact that the marginal effects of openness in countries with more open initial conditions is lesser than otherwise.

significance of BCORG. This suggests that the post-independence education conditions of SSA countries are an important predictor of post-independence income.

Controlling for differences in post independence education conditions across colonial origins in model 15 restores the statistical significance of BCORG, while diminishing the magnitude and statistical significance of SEC. Furthermore, both the British and Other colonial origin post independence education interaction terms (SECBRI & SECOTH) are economically and statistically significant at 1%. This suggests that, in comparison with former French colonies, the post-independence education conditions in former British and Other colonies origins have been more favourable to income.

The results in model 16, which controls for the impact of the colonial initial education condition (SEC60), the post-independence education conditions (SEC), as well as the respective interaction terms of the latter, show a slight reduction in the magnitude of BCORG and SEC.[129] The British colonial origin initial education interaction term (SEC60BRI) is however, no longer significant while the British colonial origin post-independence education interaction term (SECBRI) remains significant at the 1% level. The sign on SECBRI is positive, suggesting that, in comparison with former French colonies, the post-independence education policies of former British colonies have been a good predictor of income. Also, model 16 results suggest that both the colonial initial education conditions as well as the post-independence education conditions, mattered for income in Other colonial origin countries.

The tentative conclusions from models 12 to 16 are that:

[129] SEC also reduces in statistical significance, to the 10% level.

- Both the colonial initial education condition (SEC60) and the post-independence education conditions (SEC) positively influence post-independence income levels. Also, both the initial and the post-independence education conditions in former British colonies have contributed positively to income, with the contribution of post-independence education policies outweighing that at independence. This suggests that differences in both SEC60 and SEC across colonial origins, can help explain the observed income differences amongst former SSA colonies.

The results in model 17, where pre-colonisation initial conditions or selection bias (ETHNRES) alongside colonial origin dummies explain income, show that BCORG is no longer economically and statistically significant, whereas ETHNRES is highly statistically significant. This suggests that the initial conditions of SSA countries at the beginning of colonisation are an important predictor of post independence income levels. Controlling for differences in these pre-colonisation initial conditions across colonial origins in model 18 restores the statistical significance on BCORG, and both ETHNRES and the British colonial origin selection interaction term (ETRESBRI) are highly statistically significant. However, the sign on ETRESBRI is negative, suggesting that the pre-colonisation initial conditions have had a net detrimental impact on post independence income levels in former British colonies.

The results in model 19, which includes besides the colonial origin dummies, all the four transmission channels (with their respective interaction terms) alongside the initial levels of each transmission channel at independence, suggest the following:

- Both the initial and post-independence market distortion conditions are important predictors of post independence income levels in SSA, although the magnitude of their impacts is marginal. In comparison with former French colonies, market distortions have had more detrimental impacts on income in former British colonies.

- Only the colonial initial openness condition can help in explaining income differences amongst SSA countries, and the magnitude of its impact is marginal.

- Both the initial and post-independence education conditions can help in explaining income differences amongst SSA countries. In comparison with former French colonies, post-independence education policies in former British colonies have had a far more positive impact on income.

- In comparison with former French colonies, pre-colonisation initial conditions (selection bias) have had more detrimental impacts on post independence income in former British colonies.

These results significantly change upon controlling for the set of six conditioning variables included in model 20. Model 20 results now suggest that:

- *The initial market distortion conditions and not the post-independence conditions, are important in explaining income differences amongst SSA countries*

- *Both the initial and post-independence openness conditions are important in explaining income differences*

- *Both the initial and post-independence education conditions are important in explaining income differences*

- *The pre-colonisation initial conditions (selection bias) are important in explaining income differences.*

The findings from these different model specifications give an idea of the possible transmission channels between colonial origin and income in SSA. However, because of the bias and inconsistency of OLS estimation, this evidence is inconclusive and requires further investigation using alternative techniques and measurement.

4.4.2 Results using an Alternative Technique - The HT Estimator

Figure 4.3 in the Appendix provides results of four model specifications of the HT estimation of income on colonial origins. In model 1, where colonial origin dummies and the four post-independence transmission variables alone explain income, the results suggest that the post-independence policies of market distortion, openness and education, are important predictors of income levels in former SSA colonies during 1960-2000.[130] The results also suggest that the pre-colonisation initial conditions weakly account for income levels in former SSA colonies. In other words, there is weak evidence in favour of the selection bias channel.

The results in model 2, which includes, in addition to all the variables in model 1, the interaction terms for the respective transmission channels considered, suggest that differences in post-independence openness and education policies are important in explaining income differences amongst former SSA countries. In particular, the results suggest that, in

[130] However, only the openness and education channels are economically important.

comparison with former French colonies, the post-independence openness and education policies of former British colonies have contributed positively to income during 1960-2000.

After controlling further, for the colonial initial conditions, the results in model 3, suggest that, the post-independence openness and education policies in former British colonies (OPENBRI & SECBRI respectively) are responsible for the marginal income differential between former British and former French SSA colonies.[131]

However, the results in model 4, which controls for the set of six conditioning variables used in stage one above, suggest that the education channel matters only for former British colonies while openness seems to matter only for Other colonial origin countries. More specifically, the results suggest that post-colonial education policies have been more favourable to growth in former British colonies, in comparison with former French colonies, which probably explains the marginally higher income levels in former British colonies. Similarly, post colonial openness policies have been more beneficial to income in Other colonial origin countries, in comparison with former French colonies.

4.4.3 Robustness Checks

I use alternative proxies, namely, the average export share in GDP during 1960-2000 (EXP) and the average schooling years in the population aged 15 and above during 1960-2000 (AYS) to check for robustness of the openness and human capital channels respectively.

[131] The non-significance of the initial colonial openness and education variables (OPEN60 & SEC60) need not necessarily suggest that these do not matter. It could simply be that their effects have been "caught up" in the post independence variables. This is plausible considering the fact that earlier in the chapter, we noted a strong persistence of the British legacy of openness and human capital.

Figure 4.4 in the Appendix provides results of four model specifications of the HT estimation following the same strategy employed in stage two above.

The results in Figure 4.4 uphold the previous HT results, suggesting that the post-colonial human capital and openness policies are important in explaining the observed income differences amongst former SSA colonies. More specifically, former British colonies have marginally higher income levels than former French colonies because of the favourable contribution of post-independence human capital and openness policies. Also, the results suggest that, in comparison with former French colonies, Other colonial origin countries perform comparatively worse because of the negative contribution of human capital to income.

It is worth mentioning that I repeated the empirical strategy used in this study using five year averages of all variables that span through 1960-2000 and obtained similar results. I do not report these results here due to space constraints. However, they are available on request.

In conclusion, it is worth recalling that only two of the four transmission channels explored have emerged after subjection to alternative techniques and to alternative proxies, namely - the openness and human capital channels. I do not find robust evidence in support of the market distortion and selection bias channels.

4.5 Comparative Review of Prior Literature

The most recent work that is closest to mine in the literature is an article by Klerman *et al* (2008). They investigate the influence of colonial and legal origins on growth during 1960-

2003 using a sample of 49 former colonies around the world. Their results unambiguously show that colonial origins matter for growth more than legal origin, and former British colonies have grown faster than former French colonies.

An important similarity between my results and those of Klerman *et al*, is that colonial origin matters because of differences in educational policies. It is important to mention that although we share this same result, I use a slightly different methodology from that used by Klerman *et al*. While Klerman *et al* use only initial conditions at independence to explain the subsequent growth path, this study analyses the pre-colonisation initial conditions, the initial conditions at independence, as well as the post-colonial changes. Furthermore, my results suggest that openness also matters, alongside education, in explaining the post colonial income differences amongst former SSA countries.

This study is also similar to the work of Rostowski & Stacescu (2006) which explores the empirical relationship between legal and colonial origin on growth. Like Klerman *et al* (2008), Rostowski & Stacescu also find that colonial origin matters more than legal origin and that education is the likely channel through which colonial origin affects growth. In the context of this study, the main problem with the Rostowski & Stacescu paper, as with the Klerman *et al* paper, is that they do not probe into the different mechanisms through which colonial origin affects income and their analyses are limited to the initial conditions at independence. For instance, Rostowski & Stacescu conclude their paper with this remark: "examining the channels through which colonial origin could affect growth is therefore the first priority for future research".

The results of this study are also consistent with prior work by Grier (1999) and Bertocchi & Canova (2002), who find that former British colonies have better economic performance than former French colonies. Grier (1999) focuses part of his results on the African sample and finds that French ex-colonies performed 1.38 percentage points worse on average than their British counterparts, and this growth differential is attributable to differences in educational policies at independence. Although this result concords with mine, Grier considers only initial conditions at independence.

In short, this study goes beyond the three previous studies not only by simultaneously investigating a range of feasible transmission channels between colonial origin and income, but also in jointly examining the pre-colonisation initial conditions, alongside the initial conditions at independence and the subsequent post-independence changes.

4.6 Conclusion

This study sought to investigate whether colonial origin really matters for economic performance in SSA during 1960-2000 and, if it does, what its likely transmission mechanisms are. The methodology that has been applied in this study is slightly different to that of previous works, where only initial conditions at independence were held to influence the subsequent growth path. This study combines both the pre-colonisation initial conditions, alongside the initial conditions at independence and the subsequent post-independence changes in explaining income differences amongst former SSA countries.

The results suggest that former British colonies have had marginally higher income levels than former French colonies during 1960-2000, and that this is attributable to the

favourable contribution of the legacy of British colonisation in trade openness and human capital. I do not find robust evidence in support of the market distortion and selection bias channels.

The empirical literature has recently emphasised the specific colonial policy of education as the likely transmission mechanism between colonial origin and growth but, to the best of my knowledge, none of the previous studies have explored systematically a range of feasible channels simultaneously. Besides highlighting the importance of the trade openness channel, the study also makes a novel contribution by jointly examining the income influences of pre-colonisation initial conditions, the initial conditions at independence, and the post-colonisation changes brought about by the independence states themselves.

4.A Appendix

4.A.1 SAMPLE OF SSA FORMER COLONIES (38 COUNTRIES)

I. Former British SSA Colonies (16 COUNTRIES)

Botswana, Gambia, Ghana, Kenya, Lesotho, Malawi, Mauritius, Namibia, Nigeria, Sierra Leone, Sudan, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe.

II. Former French SSA Colonies (15 COUNTRIES)

Benin, Burkina Faso, Cameroon, Central Africa Republic, Chad, Congo Rep, Cote D'Ivoire, Gabon, Guinea, Madagascar, Mali, Mauritania, Niger, Senegal, Togo.

III. Former Portuguese, Belgian, Italian or Spanish SSA Colonies (7 COUNTRIES)

Angola, Burundi, Congo Dem, Equatorial Guinea, Guinea-Bissau, Mozambique, Somalia.

4.A.2 VARIABLE DEFINITION AND SOURCES

BCORG: Former British Colony dummy variable taking the value of 1 for countries that acquired their independence from Britain and 0 otherwise.

FCORG: Former French Colony dummy variable taking the value of 1 for countries that acquired independence from France and 0 otherwise.

OCORG: Other non-British and non-French former colony dummy taking the value of 1 for countries that acquired independence from any other European power besides Britain and France, and zero otherwise.

$\ln Y_{it}$: Annual levels of the natural logarithm of real GDP PPP during 1960-2000 (Africa Research Program datasets)

DUREE: The duration of colonial rule, obtained by subtracting the respective country independence year from the year of colonisation. Source of colonisation dates is from Wikipedia (http://en.wikipedia.org/wiki).

LOGPCGDP60: The natural logarithm of real per capita gross domestic product in 1960 (Penn World Table, Mark 5.6)

GPO: Annual growth rates of population during 1960-2000 (Global Development Finance & World Development Indicators-GDF&WDI)

ETHNIC: Ethno-linguistic fractionalisation (William Easterly & Ross Levine, Africa's Growth Tragedy: Policies & Ethnic Division, 112 Q.J. Econ. 1203 (1997).

SEC: Secondary enrolment rates during 1960-2000. (GDF & WDI)

INV: Annual shares of real investment in GDP PPP, 1960-2000 (Africa Research Program datasets)

BMP: Annual growth rates of the black market exchange rate premium, 1960-2000. (GDF & WDI)

EXP: Annual levels of export share in GDP during 1960-2000 (GDF&WDI)

OPEN: Annual levels of the combined share of exports and imports in GDP during 1960-2000 (Africa Research Program datasets).

INFL: Annual % changes in consumer prices during 1960-2000 (GDF & WDI)

LIFE: Annual levels of the average life expectancy during 1960-2000 (Africa Research Program datasets).

DNRES: A dummy variable taking the value of 1 for natural resource-rich (oil, cocoa & diamonds) countries, and zero otherwise. Countries included are Gabon, Equatoria Guinea, Ghana, Ivory Coast, Angola, DRC, Nigeria and Botswana.

Fig. 4.5. Summary Descriptive Statistics

PANEL A - DESCRIPTIVE STATISTICS FOR FULL SAMPLE OF 38 FORMER SSA COLONIES					
Variable	Obs.	Mean	Std. Dev.	Min	Max
Natural Logarithm of GDP PPP, 1960-2000	880	22.59	1.07	19.68	25.31
Real per Capita GDP in 1960 (log)	1394	7.05	0.61	5.95	8.09
Black Market Premium at Independence	1271	51.49	167.18	-0.49	857.41
Openness at Independence	1435	72.45	64.47	4.48	291.06
Secondary enrolment at Independence	1517	4.74	7.76	1	43.8
Life expectancy at Independence	1189	40.87	6.33	33.68	76.19
Export/GDP share at Independence	1435	25.42	18.85	4.86	78.92
Dummy Natural Resource Rich Countries	1558	0.26	0.44	0	1
Population Growth, 1960-2000	1520	2.59	1.07	-6.1	11.03
Ethno-linguistic Fractionalisation	1394	65.15	24.18	0	93
Inflation Growth Rate, 1960-2000	986	36.82	233.14	-13.05	4145.11
Black Market Premium, 1960-2000	1170	61.01	274.54	-89.16	4806.89
Secondary enrolment rates, 1960-2000	865	19	16.16	1	93.12
Openness to Trade, 1960-2000	1425	76.07	47.28	2.64	440.56
Export share in GDP, 1960-2000	1341	28.04	17.53	1.94	92.37
Investment share in GDP, 1960-2000	1490	10.83	9.6	2.81	72.41
Average life expectancy, 1960-2000	662	46.15	6.62	31.61	71.67
Dummy Landlockedness	1558	0.37	0.48	0	1
Duration of Colonisation (in years)	1558	70.26	14.74	55	111

PANEL B - MEANS BY COLONIAL ORIGIN			
Variable	French Former SSA Colonies	British Former SSA Colonies	Other Former SSA Colonies
Natural Logarithm of GDP PPP, 1960-2000	22.5	22.80***	22.19***
Real per capita GDP in 1960 (Log)	7.19	6.86***	7.07***
Black Market Premium at Independence	5.37	13.27***	272.35***
Openness at Independence	54.63	99.04***	54.96
Secondary enrolment at Independence	1.93	7.91***	3.14***
Life expectancy at Independence	38.19	45.17***	42.31***
Export/GDP share at Independence	18.17	33.67***	23.43***
Black Market Premium during 1960-2000	17.82	75.18***	155.61***
Openness to Trade, 1960-2000	66.1	90.85***	54.96
Export share in GDP, 1960-2000	26.78	32.21***	20.39***
Secondary enrolment rates, 1960-2000	15.72	24.57***	9.9***
Average life expectancy, 1960-2000	45.1	48.58***	42.71***
Dummy Landlockedness	0.33	0.44*	0.28
Dummy natural resources	0.2	0.25	0.43**
Investment share in GDP, 1960-2000	8.57	13.61***	9.53
Population Growth, 1960-2000	2.58	2.64	2.30*
Ethno-linguistic Fractionalisation	66.27	69.71	49***
Inflation Growth Rate, 1960-2000	15.02	15.54	113.8***
Duration of Colonisation (in years)	59.27	81.44***	68.28***

Notes: Asterisks indicate results of t-tests. The null hypothesis is that the mean is the same as the mean for former French SSA colonies.

* Significant at 10%; ** Significant at 5%; *** Significant at 1%.

Fig. 4.6. Stage One Results using simple OLS

Dependent Variable: Per Capita GDP PPP (Log)																				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16	Model 17	Model 18	Model 19	Model 20
BCORG	0.178***	0.071	-0.078	0.110**	0.114**	-0.121	0.145***	0.043	0.045	-0.292***	-0.233**	0.008	-0.087*	-0.010	-0.652***	-0.637***	-0.007	0.176***	-0.641***	0.322**
	(0.049)	(0.053)	(0.092)	(0.052)	(0.055)	(0.113)	(0.056)	(0.077)	(0.049)	(0.109)	(0.123)	(0.039)	(0.052)	(0.054)	(0.061)	(0.059)	(0.045)	(0.049)	(0.085)	(0.149)
OCORG	-0.187***	-0.003	(1)	-0.234***	-0.227***	(1)	-0.187***	-0.167**	-0.198***	-0.281***	0.053	-0.135***	-0.399***	-0.016	-0.685***	-0.873***	-0.396***	-0.434***	-0.021	0.751***
	(0.057)	(0.081)		(0.083)	(0.085)		(0.057)	(0.088)	(0.049)	(0.101)	(0.109)	(0.050)	(0.079	(0.054)	(0.078)	(0.079)	(0.043)	(0.031)	(0.089)	(0.133)
BMP60		-0.000***	-0.005			0.014													-0.000**	-0.001**
		(0.000)	(0.015)			(0.020)													(0.000)	(0.000)
BMP60-BRI			0.013			-0.004														
			(0.015)			(0.020)														
BMP60-OTH			0.004			-0.015														
			(0.015)			(0.020)														
BMP				-0.000***	0.000	0.000													0.002***	0.000
				(0.000)	(0.000)	(0.000)													(0.000)	(0.001)
BMP-BRI					-0.000	-0.000													-0.002***	-0.001
					(0.000)	(0.000)													(0.000)	(0.001)
BMP-OTH					-0.000	-0.000													-0.002***	-0.001
					(0.000)	(0.000)													(0.000)	(0.001)
OPEN60							-0.000	-0.000***			-0.003***								-0.002***	-0.004***
							(0.000)	(0.000)			(0.000)								(0.000)	(0.000)
OPEN60-BRI								0.001***			0.004***									
								(0.000)			(0.001)									
OPEN60-OTH								-0.000			-0.002									
								(0.001)			(0.001)									
OPEN									0.007***	0.005***	0.009***								0.001	0.005***
									(0.001)	(0.001)	(0.001)								(0.001)	(0.001)
OPEN-BRI										0.004***	-0.000								0.001	-0.004***
										(0.002)	(0.002)								(0.001)	(0.001)
OPEN-OTH										0.001	-0.002								-0.003	-0.008***
										(0.001)	(0.002)								(0.002)	(0.001)
SEC60												0.052***	0.001			-0.009			0.089***	0.077***
												(0.002)	(0.016)			(0.023)			(0.021)	(0.015)
SEC60-BRI													0.051***			0.032				
													(0.016)			(0.023)				
SEC60-OTH													0.103***			0.082***				
													(0.018)			(0.028)				
SEC														0.025***	0.005**	0.004*			0.004	0.019***
														(0.002)	(0.002)	(0.002)			(0.002)	(0.003)
SEC-BRI															0.030***	0.024***			0.023***	-0.005*
															(0.003)	(0.003)			(0.003)	(0.003)
SEC-OTH															0.048***	0.044***			-0.013	-0.023**
															(0.007)	(0.008)			(0.013)	(0.009)
ETHNRES																	0.007***	0.011***	0.007***	-0.027***
																	(0.001)	(0.001)	(0.000)	(0.003)
ETRES-BRI																		-0.009***	-0.006***	-0.009***
																		(0.001)	(0.001)	(0.001)
ETRES-OTH																		-0.001	0.002	0.003
																		(0.001)	(0.002)	(0.002)
DUREE																				0.000
																				(0.004)
INV																				0.016***
																				(0.003)
GPO																				0.053**
																				(0.027)
INFL																				-0.000***
																				(0.000)
DNRES																				2.626***
																				(0.231)
ETHNIC																				0.000
																				(0.002)
LOGPCGDP60																				0.429***
																				(0.053)
CONSTANT	7.117***	7.107***	7.132***	7.136***	7.131***	7.043***	7.136***	7.167***	6.622***	6.762***	6.664***	6.898***	6.997***	6.612***	6.956***	6.983***	6.995***	6.929***	6.681***	3.086***
	(0.029)	(0.029)	(0.076)	(0.033)	(0.036)	(0.102)	(0.032)	(0.034)	(0.042)	(0.074)	(0.069)	(0.020)	(0.037)	(0.030)	(0.042)	(0.043)	(0.021)	(0.018)	(0.052)	(0.279)
No of Obs.	895	755	755	699	699	597	843	843	834	834	828	869	869	699	699	696	806	806	464	355
R-Squared	0.04	0.01	0.05	0.03	0.03	0.09	0.03	0.03	0.19	0.21	0.24	0.39	0.39	0.42	0.55	0.62	0.18	0.24	0.57	0.88

Standard Errors are presented in parentheses. 1% level of significance, 5% by ** and 10% by *. The omitted category is French Colonial Origin (FCORG).

(1) Variable dropped due to multicollinearity

Fig. 4.7. Stage Two Results using HT Estimator

Dependent Variable: Per Capita GDP PPP (Log)				
	Model 1	Model 2	Model 3	Model 4
Time Variant Exogenous Variables				
BMP	-0.000***	-0.000	-0.000	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)
BMPBRI		0.000	0.000	0.000
		(0.000)	(0.000)	(0.000)
BMPOTH		0.000	0.000	0.000
		(0.000)	(0.000)	(0.000)
Time Variant Endogenous Variables				
OPEN	0.002***	0.001**	0.001*	0.001
	(0.000)	(0.001)	(0.001)	(0.001)
OPENBRI		0.002**	0.002**	0.000
		(0.001)	(0.001)	(0.001)
OPENOTH		-0.002	-0.002	-0.003**
		(0.002)	(0.002)	(0.002)
SEC	0.007***	-0.002	-0.002	-0.004
	(0.001)	(0.002)	(0.002)	(0.003)
SECBRI		0.013***	0.011***	0.014***
		(0.002)	(0.003)	(0.003)
SECOTH		-0.003	-0.004	0.001
		(0.010)	(0.011)	(0.009)
GPO				0.034*
				(0.021)
INV				0.014***
				(0.002)
INFL				-0.000
				(0.000)
Time Invariant Endogenous Variables				
OPEN60			-0.003	-0.008
			(0.003)	(0.018)
SEC60			0.188	-0.045
			(0.126)	(0.358)
CONSTANT	6.785***	6.963***	6.655***	3.078
	(0.146)	(0.151)	(0.321)	(10.393)
Time Invariant Exogenous Variables				
BCORG	-0.038	-0.320	-0.651*	-0.671
	(0.198)	(0.221)	(0.357)	(1.618)
OCORG	-0.313	-0.348	-0.079	-0.215
	(0.331)	(0.383)	(0.606)	(1.980)
ETHNRES	0.005*	0.008**	0.007	0.006
	(0.003)	(0.004)	(0.005)	(0.014)
ETRES-BRI		-0.007	-0.003	-0.003
		(0.006)	(0.008)	(0.021)
ETRES-OTH		0.002	-0.001	0.004
		(0.008)	(0.010)	(0.025)
BMP60			-0.003	-0.001
			(0.003)	(0.003)
DUREE				0.033
				(0.066)
LOGPCGDP60				0.303
				(1.509)
No of Obs.	526	526	464	355
No Groups	31	31	26	24

Standard Errors are presented in parentheses. 1% level of significance, 5% by ** and 10% by *. The omitted category is French Colonial Origin (FCORG)

Fig. 4.8. Robustness Checks using Alternative Proxies for Human Capital & Openness

Dependent Variable: Per Capita GDP PPP (Log)				
	Model 1	Model 2	Model 3	Model 4
Time Variant Exogenous Variables				
BMP	-0.000**	0.000	0.001	0.001
	(0.000)	(0.002)	(0.003)	(0.003)
BMPBRI		-0.000	-0.001	-0.001
		(0.002)	(0.003)	(0.003)
BMPOTH		-0.000	-0.001	-0.001
		(0.002)	(0.003)	(0.003)
Time Variant Endogenous Variables				
EXP	0.009***	0.007***	0.006**	0.006**
	(0.001)	(0.002)	(0.003)	(0.003)
EXPBRI		0.005	0.010***	0.012***
		(0.003)	(0.004)	(0.004)
EXPOTH		0.006	0.006	0.005
		(0.010)	(0.011)	(0.009)
AYS	0.048**	-0.008	-0.029	0.092
	(0.024)	(0.039)	(0.048)	(0.078)
AYSBRI		0.138***	0.194***	0.206**
		(0.049)	(0.059)	(0.085)
AYSOTH		-0.338**	-0.318*	-0.414**
		(0.168)	(0.180)	(0.171)
GPO				0.018
				(0.031)
INV				0.015***
				(0.002)
INFL				-0.000
				(0.000)
Time Invariant Endogenous Variables				
EXP60			-0.006	-0.004
			(0.071)	(0.052)
AYS60			-1.610	-1.999
			(2.011)	(3.357)
CONSTANT	6.555***	6.744***	7.890***	-5.611
	(0.195)	(0.214)	(1.940)	(28.096)
Time Invariant Exogenous Variables				
BCORG	0.113	-0.384	1.509	3.239
	(0.238)	(0.283)	(3.454)	(6.811)
OCORG	-0.205	-0.216	-12.608	-13.291
	(0.415)	(0.529)	(11.569)	(28.118)
ETHNRES	0.008**	0.008	0.028	0.025
	(0.003)	(0.006)	(0.029)	(0.037)
ETRES-BRI		-0.001	-0.047	-0.037
		(0.007)	(0.067)	(0.080)
ETRES-OTH		0.008	0.119	0.140
		(0.009)	(0.125)	(0.305)
BMP60			0.014	0.016
			(0.014)	(0.036)
DUREE				-0.031
				(0.071)
LOGPCGDP60				2.109
				(3.997)
No of Obs.	315	315	255	168
No Groups	23	23	17	14

Standard Errors are presented in parentheses. 1% level of significance, 5% by ** and 10% by *. The omitted category is French Colonial Origin (FCORG)

Chapter 5
Concluding Remarks and the Way Forward

Through a conscious attempt at combining economic theory and history, this dissertation has achieved one major goal, which is to analyse the effects of current institutions on economic performance, paying particular attention to the historical development of these institutions. The thesis demonstrates that the formation and development of institutions (specifically, institutions of human capital) in former SSA colonies is partly endogenous to the process of colonisation and decolonisation. Considering the fact that different colonial strategies were pursued in various territories, it therefore implies different types of institutions with different path dependence emanated from the heritage of colonisation. The thesis shows that the choices made by colonisers during the colonisation of SSA continue to play a role today. In particular, the nature of education in the colonial period is a crucial determinant of income levels today.

Chapter two of the dissertation suggests a number of determining factors in order to have an elite that is both productive and "politically" manageable, given a context of colonial rule. In this line, the future orientation of my research would be on increasing the amount of evidence in justification of some of the assumptions of the model, as well as extending the model to account for elite formation in societies that have not previously been colonised.

Chapter three raises several predictions on the pattern and outcome of decolonisation based on the sole assumption of the nature of the indigenous elite. In other words, whether

the general population perceives these elites as credible or not. My future research would be to narrow down the sample of study to two suitable case studies, for instance, Ghana and the Côte d'Ivoire, respectively epitomising the British and French colonisations in West Africa. Within this narrow framework, I will then be able to empirically test some of the predictions of the model.

Chapter four of the dissertation demonstrates the benefits of investigating the causes of economic growth against long term history. One of these benefits is that it helps an understanding of why income differences exist even among African countries, where former British colonies appear to do marginally better. I jointly considered the pre-colonisation initial conditions, the initial conditions at the end of colonial rule and the post-colonial subsequent changes in investigating four channels through which colonial legacies might influence current income paths. The channels considered were namely, education, openness, market distortion, and selection bias. Again the way forward is to move from cross country to country specific comparative analysis, which will ensure a thorough disentanglement of the effects of inherited colonial institutions from the effects brought about by the independent countries themselves.

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