

The Political Economy of the End of Empires

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January 2015

Abstract

Current research in international relations mostly takes for granted the state-based structure of world politics, but historically empires dominated the landscape. Why did empires vanish after World War II, and why then? Their demise was facilitated by changes in the political economy of metropolises. Many imperial powers crossed a threshold of motorization and energy consumption nearly simultaneously, leading to three changes: the balance of economic winners and losers from imperialism changed to the detriment of empire; the net fiscal costs of empire increased; and changes in foreign investment reduced the need for colonialism. These economic changes supported an ideational shift in favor of anti-colonial norms. A political economy-based explanation also helps to account for some of the variation in the timing of decolonization, across both metropolises and types of colonies.

Introduction

Between 1945 and 1973, imperial powers granted independence to over seventy colonies, a rate of decolonization far exceeding any previous or subsequent period (Philpott 2001, 155). Why did this occur, and why then? Cyclical theories offer an explanation for the rise and fall of individual empires over the centuries, but do not explain the sudden demise of multiple empires at once, virtually eliminating empire as a polity type (Gilpin 1981; Kennedy 1987; Gartzke and Rohner 2011). The demise of empires completed a long transition by which the sovereign state triumphed as the principal unit of world politics. Some scholars attribute the rise of the sovereign state to the changes associated with the Peace of Westphalia in 1648, but this ignores the fact that empires continued to exist and even grew in prominence through the 18th and 19th centuries (Spruyt 1994). Current research in international relations mostly takes for granted the state-based structure of world politics, without asking how that structure came to be and how it might change in the future.

I argue that economic transitions within the metropolises contributed to the end of empire, and that the shift towards motorization was central to those transitions. Motorization, which I also call energy modernization, is a stage of development that occurs when engines powered by fossil fuels or electricity become the predominant basis for transportation and physical economic output. Motorization is distinct from industrialization, a stage in which fossil fuels provides industrial heat but only rudimentary forms of agricultural and industrial power. It contributed to the demise of empires via three causal mechanisms: (i) it shifted the balance within the metropole between economic winners and losers from imperialism to the detriment of imperial supporters; (ii) it increased the net fiscal costs of empire; and (iii) it led to changes in foreign investment that made colonialism less desirable. Motorization also lowered transportation costs, which one might think would actually facilitate imperialism, but low transportation costs turn out to be equally supportive of non-imperial forms of global economic integration and exploitation. Crucially, many imperial metropolises motorized nearly simultaneously in the period 1945-1973, including Britain, Belgium, Holland, and France. The transition facilitated decolonization. Notably, the United States motorized c.1903 and became

the first major power to turn away from imperialism – though not before its own imperial period just prior to motorization.¹

The end of empire is too large a historical process to have a single cause. David Abernethy (2002), Jeffrey Frieden (1989), and others (e.g. Gartzke and Rohner 2011; Kahler 1984; Strang 1990) provide a compelling case that its causes were complex and multiple.² Many accounts of decolonization point especially to a change in ideas and norms following World War II (Philpott 2001; Crawford 2002). Clearly this change occurred and contributed to decolonization. Yet an explanation resting only on normative changes is not wholly satisfying, because it leaves open deeper questions such as why the norms were accepted, and why at that particular moment (Gartzke and Rohner 2011, 530). Without denying that norms had independent causal force, one can also view material changes in the political economy of metropolises as shedding light on the proximate cause (normative change) as well as the outcome (decolonization). The fact that several metropolises almost simultaneously motorized after 1945 created a fertile environment for anti-colonial norms to take root.

Motorization offers a lens on imperial demise that highlights unobserved patterns of variation and generates new insights. Three points stand out. First, motorization helps explain why some metropolises turned away from imperialism earlier than others, variation that often goes unnoticed and unexplained in purely normative accounts. Second, motorization helps explain why empires have stayed dead – rather than experiencing a new period of imperial expansion, a pattern suggested by the historical record and cyclical theories. Third, motorization helps explain why some colonies achieved independence later than others: notably, some colonies had valuable oil reserves that the imperial powers were reluctant to give up. This finding is striking compared to the relative ease with which metropolises released colonies with other valuable natural resources like gold or copper, but makes sense in light of motorization. More broadly, my argument offers a corrective to recent research on energy politics, most of which casts energy in a negative light as a potential source of conflict (Ross 2012; Glaser 2013; Kelanic 2012; Horowitz 2009; Cheon and Urpelainen forthcoming). My

¹ Roughly 1865-1918; see Narizny 2007

² On empires generally, see Doyle 1986; Nexon and Wright 2007; Dietz 2012; Blanken 2012; Buzan and Lawson 2012

argument here views it more positively, showing how energy modernization generates disincentives to imperialism, thereby reducing the desire of great powers to fight for territory.

Tracing even a narrow theme like motorization through such broad empirical terrain is challenging. This paper focuses mainly on developing the theory, then probing its plausibility using a nested research design: first quantitative analyses to test for correlation and generalizability, then qualitative analysis to investigate causality by process tracing (Lieberman 2005). The quantitative analysis strongly suggests that energy modernization facilitated decolonization, even when controlling for the normative changes after 1945. The qualitative analysis focuses on the largest and most important empire, the British. Using original source documents and a substantial body of micro-level data, it shows how the British economy changed in ways that reduced the political support for imperialism, in part because the proportion of Britons deriving economic benefits from the Empire shrank.

To clarify, my argument is not that motorization explains all instances of imperial decline. Clearly some empires ended in military defeat (Ottoman, Austro-Hungarian, German, Japanese, and Italian), but this type of demise is not unique to the 20th century and does not explain empire extinction. What makes the 20th century special is that seven major empires ended without such a defeat: Britain, France, Belgium, Holland, Portugal, the United States, and the USSR. Never before had multiple massive empires crumbled in such a way. Motorization helps explain this momentous change.

Puzzle and Research Context

I use Doyle's (1986, 19) definition: "Empires are relationships of political control imposed by some political societies over the effective sovereignty of other political societies." The term metropole indicates the polity controlling the empire (e.g., Britain), and I use the term colony to include all protectorates and mandates that did not have their own internationally recognized sovereignty. The term informal influence indicates situations where a metropole guides and constrains a state that has formal sovereignty, such as Britain's role in Iraq after 1932.

Some would say that imperialism continues today under different guises (e.g. Lutz 2009). Various forms of international inequality and coercion indeed persist. Using the term

empire to refer to the current practices of major powers can be useful, but it is misleading for the purposes of this paper because it diminishes the significance of decolonization and the achievement of independence. Following Doyle and others, I find it useful to define empire in a way that distinguishes it from other forms of hierarchy, coercion, and international sovereign contracting (Cooley and Spruyt 2009; Nexon and Wright 2007). After 1945, European empires declined so dramatically that we can refer to them as having ended. Some empires continued to exist but with only a tiny fraction of their former colonial holdings.

The decline of empires and the triumph of the sovereign state as the principal unit of world politics has been called the most important contextual change in the last thousand years (Ruggie 1983). Scholars have offered various explanations for this fundamental shift. Hendrik Spruyt (1994) offers perhaps the leading econocentric explanation, arguing that the state was more efficient than alternative forms of polity, such as city-states and city leagues. Tilly and others argue that the military revolution in the early modern period in Europe (c.1560-1660) made it necessary for polities to have sufficient size to provide the financial and administrative capability to raise armies using firearms (Tilly 1992, 15; Downing 1992). The central problem with these explanations is that they do not deal with empires. Spruyt's work, for instance, essentially ends in 1648, after which he claims that the sovereign state was on its way to victory as the only viable form of polity. The argument ignores the fact that colonial empires were actually increasing in size and prominence through the 18th and 19th centuries, and did not decline as a major form of polity until later.

Other scholars, more focused on decolonization after 1945, emphasize the role of ideas, norms, and nationalist movements (Philpott 2001; Crawford 2002; Abernethy 2002). Daniel Philpott, for instance, argues that ideas were central to decolonization, while acknowledging that economic and military factors played a role (2001, 154). One limitation with ideational explanations, noted earlier, is that they do not account for why nationalist ideas caused decolonization to occur in the post-1945 period even though ideas of nationalism had been discussed for a very long time, at least since the French Revolution.³ As Gartzke and Rohner put

³ Crawford (2002: 7-8) points out that normative rhetoric opposing colonialism extends back to at least 1550.

it, normative arguments “face a heavy burden in explaining the persistent impotence of anti-colonialist ideas, as well as their sudden salience” (2011, 530). Moreover, normative explanations offer little explanation for the variation in timing between early decolonizers (United States) and later ones that were just as rhetorically committed to anti-colonial norms (USSR). It seems plausible that material changes in the metropole might have facilitated normative change.

A third potential explanation for the collapse of empires after WWII was the high cost of the war for Britain and other metropolises.⁴ There is no doubt that the war was costly, but that does not mean that policymakers decided that their best response was to jettison the empire. In fact, there is considerable evidence that policymakers took the opposite view: that an empire was crucial to rebuilding the metropole’s economy (Louis 1977; Darwin 2006). John Darwin (2006, 45) shows that British policymakers were desperate for foodstuffs and raw materials not priced in dollars, so they turned to their colonies and tried to swiftly develop them. Primary documents show that the British cabinet viewed the costs of empire as being offset by the economic benefits as late as the 1950s.⁵ Thus the costs of the war are not, on their own, an explanation for the subsequent collapse of empires.

To what extent did economic profits generate incentives for imperialism – and conversely, did declining profits motivate decolonization? Lenin (1917/1999), Hobson (1938), and others argued that empire was driven by economic motives, but a second wave of scholars suggested that colonialism was not profitable, and that policymakers doubted its economic merits even as the “scramble for Africa” was unfolding (Davis and Huttenback 1986; Offer 1993). A recent third wave of research revived the view that economic motives played a crucial role in colonial expansion, though not as Lenin proposed (Cain and Hopkins 2001; Pomeranz

⁴ Darwin 2006, 43-45; this is also part of Abernethy’s (2002: 40-41) explanation, but his view is more nuanced.

⁵ See, for instance, CAB 134/1556, CPC(57)30 “Future constitutional development in the colonies: memorandum for Cabinet Colonial Policy Committee by Sir N Brook,” 6 Sept 1957, reprinted in Hyam and Louis 2000: 28-34; CAB 129/53, C(52)202 “British overseas obligations: Cabinet memorandum by Mr. Eden,” 18 June 1952, reprinted in Goldsworthy 1994a: 6; and CAB 129/52, C(52)196 “Economic policy: Cabinet memorandum by Mr. Macmillan,” 17 June 1952, reprinted in Goldsworthy 1994b: 44.

2001; Grossman and Iyigun 1995). Ultimately, the question of the overall profitability of colonialism is less important than the recognition that imperialism created economic winners and losers within the metropole (Kahler 1984; Davis and Huttenback 1986). Even skeptics of the aggregate profitability of colonialism agree on this point (Davis and Huttenback 1986). Not surprisingly, economic winners and losers typically had different preferences over imperial policy. The choice to build, maintain, or eliminate an empire thus rests in large measure on the political contest within the metropole between the winners and losers from imperialist policy (Narizny 2007).

Theory

Motorization helps explain the timing, near-simultaneity, and persistence of the global demise of empires. Prior to the 20th century, rising economic and military capability initially facilitated imperialism, but further economic development (i.e., motorization) created large disincentives for empires.

Energy and Motorization

As defined earlier, motorization occurs when engines become the dominant basis for transportation and physical economic output. Motorization is most obvious in the transportation sector, where cars become the dominant form of transportation. During the pre-motorized stage of industrialization in the 19th century, horseback and foot travel were still the dominant forms of day-to-day civilian transportation, though railways and steamboats clearly existed. Non-motorized travel dominated day-to-day practices in Europe until World War II, when horses were still in use for military and civilian purposes.

Motorization and energy modernization also transformed economic production in the agriculture and manufacturing sectors, allowing machines to substitute for land and labor. Gasoline-powered tractors and other mechanized equipment transformed agriculture; and while steam-powered tractors existed earlier, they were less economical than a team of horses. Artificial fertilizers and pumped water for irrigation also allowed energy to substitute for land in agricultural production. In manufacturing, the exact moment when industrialization ended and motorization began is harder to identify with precision. The hallmark of motorized

manufacturing is that it generates strong physical forces without relying on human or animal labor: construction vehicles and power tools are examples. Industrialization prior to motorization, by contrast, used fossil fuels for industrial heat but only rudimentary or weak forms of industrial power (e.g., pulling cotton thread in the spinning jenny). Prior to motorization, only watermills or windmills could generate strong forces, and their applications were limited by the need to bring work to a geographically fixed energy source. Motorized power, by contrast, generates strong, concentrated forces for any work, anywhere.

Motorization and energy consumption are fundamentally interrelated. Modern energy makes motorization possible; motorization leads to increased energy consumption. Strictly speaking, one might claim either that (i) energy consumption is simply a good proxy for measuring motorization or (ii) that the availability of low-cost energy supply actually plays a causal role in motorization (even as motorization also causes energy consumption). I restrict my argument to the first, weaker claim. Still, there is a large body of research that supports the second, stronger claim (Pomeranz 2001; Wrigley 2010).

Motorization Undermines Imperialism

Energy modernization and motorization undermine imperialism via three causal mechanisms. First, motorization shifts the balance of winners and losers from imperialism within the metropole. The economic winners from imperialism are owners of overseas assets and certain types of exporters: those who gain directly from imperial protectionism, or indirectly by facing less competition from colonies. (Imperial policy often prevented the colonies from developing their own infant industries.) The losers are generally everyone else, as taxpayers who pay the cost of imperial defense and administration. Motorization in the metropole causes the winners from imperialism to decline in strength (first economically, then politically) compared to those who pay the costs of imperialism, principally because the comparative advantage of the metropole shifts to more sophisticated industries and services. Key supporters of imperialist policy, such as the textile and steel industries in 19th century Britain, decline in relative terms, especially as they face increasing global competition as early-stage industrialization spreads. Note that what matters is each sector's share of the

metropole's economy, not its share of the world economy. Likewise, investors benefiting from imperialism, like the owners of colonial plantations and mines, also decline in economic importance as the primary sector shrinks in relative terms. As their economic importance declines, so too does their political clout. These trends are not monolithic (Kahler 1984), but motorization generally shifts the balance away from supporters of empire.

Second, motorization decreases the net fiscal payoff to empire, as the real and opportunity costs of imperial administration and defense increase. A metropole taxes private investments in the colonies and gains certain other revenues, but it must pay for imperial defense and administration. In a sense, the state incurs military expenses as a type of investment, expecting to receive revenues that partially or fully offset those expenses. The state's investment includes not only the direct military costs but also the opportunity cost of not having the military personnel at home as taxpayers. This opportunity cost exists regardless of the actual wages paid to soldiers: military conscription does not eliminate it. Motorization increases the opportunity cost by boosting domestic economic productivity. Motorization means that if workers were at home rather than in the colonies, they would have private sector wages to tax (rather than government wages), and higher wages than in a pre-motorized era.

Crucially, this second mechanism of rising military and administration costs should be understood in the context of state fiscal budgets, not the overall economy. Empires often function on various forms of indirect rule, and need not be labor-intensive as a proportion of the overall metropolitan economy. However, imperial labor often consumes a significant portion of the state's budget, and represents an opportunity cost in terms of lost taxes. These costs become especially important when the metropole faces fiscal constraints for exogenous reasons. In postwar Europe, several metropolises experienced repeated fiscal crises despite strong economic growth, largely for reasons not directly related to motorization (e.g., Cold War military rivalry, growing welfare state). Separately, rising nationalism in the colonies increased the demands of imperial occupation. Motorization in this context sharpened the metropolises' fiscal tradeoffs, creating incentives for decolonization as a way to reduce the rising military wage expense and free up metropolitan military labor to become taxpaying citizens. Thus

motorization is not necessarily the cause of fiscal constraints, but when such constraints are present, it alters an empire's fiscal desirability.

Motorization also acts via a third mechanism: it changes the nature of investment in ways that make colonialism less advantageous. As Frieden (1994) argues, some types of investment are more susceptible to expropriation than others. Site-specific assets like mines and plantations, which typically produce primary commodities, are highly vulnerable to expropriation by the colony/host. Investment in the manufacturing sector, however, is much less susceptible to expropriation because it relies on managerial, marketing, or technological inputs that cannot be easily captured. This difference has political consequences: we should expect investors in colonial mines and agriculture to lobby against decolonization, but manufacturing interests in the colonies to be less likely to do so. As a metropole's economy motorizes, the owners of capital become more interested in manufacturing and less interested in primary sectors. This weakens investors' support for imperialism. Again, economic changes allows for ideological change. Individual investors might not change their minds, but as the composition of the investor class changes, there are more investors who have little to gain from imperialism. This third mechanism is related to the first, but it focuses on how motorization changes the interests and composition of investors (independent of the relative size of investment income in the economy), whereas the first focuses on the relative decline of the winners from empire, which would be a factor even if investors' interests were not also changing.

Beyond these three mechanisms, motorization had other effects that one might think would actually facilitate imperialism, like lowering transportation costs. Indeed, the railroad and other 19th century forms of transportation facilitated colonialism by allowing metropolises to extend their power and reach new markets. Ultimately, however, low transportation costs are equally supportive of non-imperial forms of economic integration and exploitation, such as neoliberal trade networks and global supply chains. Low transportation costs certainly made it desirable for metropolises to have economic exchange with weaker territories, but the question of whether the metropole needs or wants to politically control such territories to govern that exchange turns out to be quite distinct.

Motorization and the End of Mercantilism

Motorization not only supported the acceptance of anti-colonial norms, but also contributed to changes in economic ideology after 1945. Mercantilism and imperialism reinforced each other: as some states developed mercantilist empires that shut out foreign competition, other states had incentive to build their own empires (Gartzke and Rohner 2011). Yet as economic ideology began to favor free trade over mercantilism after World War II, the rationale for imperialism also declined. Motorization allowed advanced industry and services to become prominent parts of a metropole's economy, thereby shrinking the importance of the primary sector and early-stage manufacturing. The newly prominent sectors were globally competitive and did not need the protected markets offered by mercantilism. Thus energy modernization supported the ideological shift from mercantilism to liberalism in the 1940s.⁶

Motorization and Energy Supplies: The Demand for Petro-Colonies

While motorization in the imperial metropole created incentives for decolonization for most colonies, there was one set of colonies for which there was a significant countervailing incentive: those with oil reserves. Multiple energy resources can provide electricity, but oil is far superior for transportation. Access to oil reserves was thus a critical economic and military imperative for motorized states. European metropolises understood that any petroleum investments they made were at risk of being expropriated by local governments. Direct colonialism, mandates from international organizations, and other forms of political control reduced the risk that European assets would be seized or the oil supply interrupted. Consequently metropolises were especially reluctant to grant independence to oil-rich colonies ("petro-colonies"). Moreover, even when formal independence was eventually granted,

⁶ Intriguingly, this repeated an earlier political contest: the repeal of the Corn Laws in 1846 was substantially a fight between protectionist agricultural landowners and anti-protectionist manufacturers. In both cases, the spread of machines using modern energy gave British producers of the "new" products a comparative advantage that motivated their preference for free trade.

outside powers sought to maintain informal influence within the petrostates (Yergin 2008; Bronson 2006; Marcel 2006).

As soon as one thinks to pay attention to petroleum, one might think that it follows rather trivially that a metropole would be reluctant to let go of petro-colonies. Yet imperialism gave metropolises ownership or privileged control of many valuable primary commodities from their colonies, ranging from copper and gold to coffee and cotton. What made oil special was not merely the profits from exploiting the resource, but also the metropolises' intense desire to have security of supply. Interruptions in the gold or coffee markets might be inconvenient, but in a motorized economy, an interruption of a motorized state's oil supply could be economically or militarily catastrophic. Oil shortages in Japan and Germany during World War II illustrated how crippling they could be (Yergin 2008). Further, while other fuels like coal and natural gas can substitute for each other in the production of electricity, oil has essentially no substitute in the transportation sector, raising the importance of secure supplies. Motorization changed not only the economic value of petroleum, but also its strategic value.

The incentive to hold petro-colonies increased once petroleum became the essential fuel for modern militaries in the 20th century (Kelanic 2012). Winston Churchill's decisions in 1912-1914 to convert the British Navy's fleet from coal to oil, for instance, created a military incentive for Britain to extend imperial control, formal or informal, over petroleum-producing territories (Yergin 2008). Not surprisingly, the British government invested heavily in this effort. One of the world's largest oil companies, today known as BP, began its life as a government-owned project called the Anglo-Iranian Oil Company. Similarly, the French oil giant Total began as an imperial project. European political control in the Persian Gulf and other oil-producing regions expanded after 1918, in contrast to the gradual halt of imperial growth elsewhere.

Testable Hypotheses

The preceding discussion suggests the following two testable hypotheses:

H1: Decolonization is more likely to occur once a metropole's economy motorizes.

H1A: Motorization shifts the balance of economic winners and losers from imperialism to the detriment of empire's supporters

H1B: Motorization increases domestic productivity in the metropole, which in turn increases the opportunity costs of deploying military personnel to maintain colonies

H1C: Motorization shifts the metropole's investment profile in favor of sectors that benefit little from colonization

H2: Motorization increases the value of foreign oil resources, causing metropolises to be slower and more reluctant to decolonize petro-colonies than other kinds of colonies

In addition, a series of empirical implications follow from these central hypotheses, which differ from existing theories and help highlight previously unnoticed patterns of variation. They are summarized in Table 1 and discussed after the empirical analysis.

Operationalizing Motorization and Energy Modernity

One might crudely characterize motorization as the shift from coal to oil as the primary source of an economy's energy, but this is not fully faithful to the concept or to its history. The threshold of motorization (or energy modernity) is the point at which modern fuels become the dominant energy sources for transportation and physical economic output. Oil is central in transportation, but in industrial production, electricity is the key form of energy, which can be produced by any of the modern fuels: coal, oil, natural gas, and uranium. In practice, I operationalize the threshold of energy modernity as 20 barrels of oil-equivalent energy consumed per capita annually, roughly equal to the energy consumed when cars first become widely affordable.⁷ This threshold should be understood somewhat loosely: energy modernization is a gradual continuous process, and energy consumption is only a crude proxy. Most of the world's great powers made the transition to energy-modernity 1945-1973, except the United States, which had already crossed that threshold around 1903. The United Kingdom was actually the first to cross the threshold of energy consumption (circa 1900), but its consumption then fell and fluctuated around the threshold level for decades, so it was still making the transition to energy modernity until about 1950.

⁷ Defining the threshold in terms of energy-equivalence has the advantage of including all sources of energy such as coal and natural gas, as it can be mathematically calculated based on energy content.

Crucially, energy modernization occurred in Britain (1950), Belgium (1956), Holland (1961), and France (1970) in the period 1945-1973.⁸ I call this period the Energy Revolution, in which world energy consumption increased ten-fold, the largest percentage gain in recorded history.⁹ This period of accelerating energy consumption was sudden and its effects were dramatic. Global trade grew rapidly; living standards rose; electrification and cars transformed cities and later villages. As Eric Hobsbawm (1996, 288) puts it, for 80 percent of humanity, the Middle Ages abruptly came to an end in the 1950s and 60s. Energy modernization contributed to economic changes that fundamentally shifted the political economy of empire.

Empirical Analysis

The empirical analysis loosely follows a nested research design to test each hypothesis (Lieberman 2005). First, a quantitative model shows that there is strong correlation between the independent and dependent variables, and that there is generalizability across empires. This first stage establishes correlation but not causation, and identification strategies like randomized experiments cannot be applied. Therefore the second stage of the analysis traces the processes qualitatively within the British Empire, probing the hypothesized causal mechanisms. I test some of the mechanisms multiple times: for instance, I trace the behavior of each of the three key economic winners from the British Empire. While no single piece of evidence is determinative on its own, collectively they provide strong support for the theory.

It is worth specifying what is *not* expected by the theory. First, it does not predict the precise onset of decolonization. Motorization and decolonization are both processes that unfold gradually and are measured by imperfect proxies, so we should expect only loose correlation. Second, metropolitan policymakers do not necessarily know the net economic benefits of empire, which are typically too difficult to calculate. Instead, they are more likely to be aware of mounting economic challenges related to empire.

⁸ Appendix Table A-1

⁹ Appendix Figures A-3 and A-4

H1: Collapse of Empires

Table 2 shows the results of a statistical analysis of hypothesis H1. The analysis focuses on the number of colonies or dependencies controlled by a state during the period 1816-1992.¹⁰ The dependent variable is the net number of territories that were decolonized by the metropole in a given year. The analysis uses negative binomial regression, appropriate for count variables (Long 1997). Years in which a metropole's colonies increased are coded as zero, to focus the analysis on decolonization rather than conflating the distinct process of empire building. (Nonetheless, a modified dependent variable that is simply the net change in the number of colonies was also analyzed, and the results were similar.) Most of the models include country fixed-effects, in part to control for time-invariant factors in the metropole. Fixed-effects also eliminate all states that never had an empire from the analysis, which helps control for any potential selection effects. Still, models without country fixed-effects yield substantially similar results.

The main independent variable is energy modernization, which is measured dichotomously when the state consumes at least 20 barrels of oil-equivalent energy per capita. As an alternative, the dichotomous measure is replaced with a continuous linear measure of energy consumption per capita in some models. The other variables in the model are drawn from existing research (Gartzke and Rohner 2011; Goldsmith and He 2008; Ravlo et al. 2003). The literature suggests, for instance, that militarily strong, large metropolises are less likely to let go of their empire by decolonizing, but democratic metropolises might be more likely to do so. Thus the analysis controls for characteristics of the metropole: democracy (measured dichotomously, when Polity >6), military capability (measured by the Composite Index of National Capabilities), and population (logged). Crucially, I also include in the analysis a dichotomous variable indicating the post-1945 period, during which anti-colonial norms took root. Data sources are given in the appendix.

All models in Table 2 show a positive and statistically significant correlation between energy modernization and decolonization. Model 1 shows a simple bivariate regression without controls. Model 2 is the reference model, which includes the control variables for

¹⁰ Data from Ravlo et al. 2003

plausible confounding factors. The results suggest that even when we control for the post-1945 period in which anti-colonial norms are believed to have taken hold, energy modernization is still statistically associated with decolonization. Model 3 uses the continuous linear measure of energy consumption per capita, and the results are similar – though interestingly, the post-1945 variable is no longer statistically significant, suggesting that energy consumption per capita fully accounts for the rate of decolonization. Model 4 removes the country-fixed effects, which greatly increases the number of observations; the results do not change substantively.

Substantively, the effect of energy modernization is significant. On average the rate of decolonization is 2.6 times higher when the metropole is motorized than when it is not, all else equal (estimated from Model 2). Moreover, this includes all types of decolonization, even though non-motorized states are disproportionately likely to decolonize unwillingly because of a major military defeat. If the analysis focused only on decolonization events for unconquered metropolises, the results would be stronger still. The results are robust to a number of changes to model specification, including: using a different form of the dependent variable that is weighted by colony population; adding year fixed-effects or a linear temporal measure to control for a possible time trend in decolonization; adding a “recent decolonization events” variable to control for demonstration effects or diffusion; using a continuous measure of democracy instead of a dichotomous indicator; including a measure of military technological sophistication of the metropole; adding a measure of the metropole’s regime longevity. Results of robustness checks are in the appendix.

Importantly, the spread of motorization among metropolises led to a corresponding wave of decolonization. The trend is graphically illustrated in Figure 1. As more metropolises developed motorized economies, the number of territories under colonization swiftly declined. The two variables are highly and negatively correlated ($r=-0.86$).

This quantitative evidence is supported by historical observation of the seven major metropolises of the 20th century that decolonized without having been defeated militarily. Consider four cases first: the British, French, Belgian, and Dutch empires. WWII weakened them, but they might have survived had political support for imperialism in the metropolises not shrunk following the war (Darwin 2006, 43-45). Energy modernization, which occurred in all

four metropolises in the period 1945-1973, took place at the right time to explain declining political support for imperialism. The correlation of timing creates a *prima facie* case that once a metropole motorizes, the incentive for colonial empire weakens.

The correlation between energy modernization and decolonization becomes stronger when one considers two outlier cases among overseas empires: the United States, an early decolonizer, and Portugal, a late decolonizer. Americans typically explain their country's lack of empire building in the 20th century, rather self-flatteringly, as a result of American exceptionalism and moral beliefs stemming from its own colonial history. Yet American foreign policy was actually quite imperialistic during the 19th century, especially c.1865-1918 (Narizny 2007; Frieden 1989). Recall that the United States waged dozens of wars against Native American tribes while settling its Western Frontier, adding 30 states to the Union in the 19th century, as well as capturing the Philippines, Cuba, Guam, and other overseas territories as colonies or protectorates. It is therefore noteworthy that the United States was the first great power to motorize its economy in a sustained fashion, circa 1903. It then turned away from imperialism, granting Cuba its independence in 1909 and more actively opposing imperialism after 1918. Like all empires, the United States did not let all of its possessions go immediately: it was imperialistic in Central America through the 1920s and did not grant the Philippines independence until 1946. Nonetheless, America increasingly opposed empire, notably in 1918 in Woodrow Wilson's "14 points" promoting national self-determination and the development in 1933 of the Good Neighbor Policy of non-intervention. Overall, America's policy was markedly different from European metropolises, which had not yet energy-modernized.

At the other end of the spectrum, Portugal did not motorize until the 1980s. Its economy therefore continued to be oriented towards the primary sector and early-stage industrialization, making imperialism economically attractive to a substantial segment of its political elite even as other European states were decolonizing. Portugal actively resisted decolonizing its African possessions until 1974, resulting in a violent colonial war in Angola and severe repression in other Portuguese possessions such as Mozambique and Guinea. In India, Portugal maintained its claim on Goa long after the British and French had granted independence to their colonies. Note that decolonization is not entirely determined by

motorization, but instead occurs somewhat faster (the Portuguese case) or slower (the US case) depending on the international political environment and how legitimate various audiences see imperialism. Overall, however, the cross-national variation suggests decolonization of overseas empires is correlated with energy modernization.

The last of the seven major empires, the USSR, is a partial exception to the overall correlation between motorization and decolonization. Measured by energy consumption per capita, the Soviet Union motorized sometime around 1970, but did not collapse until two decades later. In the long view of history, this gap in timing is relatively small but noticeable. Two factors help account for the gap. First, the Soviet Union was contiguous by land, not an overseas empire, meaning that the security costs are lower for maintaining it and political cohesion is higher within it. Second, the international political environment again played a role: the USSR was able to legitimize its empire, for a while, in terms of defending itself from the evils of Western capitalism.

H1a-c: Mechanisms of Decolonization

Consider now the empirical evidence for the three hypothesized causal mechanisms. First, perhaps the single most important economic cause of decolonization was the decline of the economic winners from imperialism as compared to other sectors of the economy (Narizny 2007). In Britain, primary source documents show that policymakers were attentive to changes in the net benefits of empire: for instance, Prime Minister Harold MacMillan explicitly called for “something like a profit and loss account for each of our Colonial possessions.”¹¹ In the British Empire, the three largest groups of beneficiaries were (i) the landowners of colonial mines and plantations, (ii) the textile industry, and (iii) the iron and steel manufacturers. They benefitted in different ways: the landowners from colonial administration that allowed them to extract large rents without fear of expropriation or heavy taxation; the textile industry from imperial policies that blocked the development of competing colonial infant industries; and the steel

¹¹ CAB 134/1555, CPC(57)6 “Future constitutional development in the colonies: minute by Mr. MacMillan to Lord Salisbury,” 28 Jan 1957. Reprinted in Hyam and Louis 2000: 1-3.

manufacturers from protectionist tariffs that secured colonial markets. The economic importance of all three groups declined over time.

Figure 2 provides a conceptual illustration of how political support for the British Empire ebbed over time. The vertical axis indicates influence over British politics, based on the share of the electorate associated with a particular industry and the political and economic clout of the individuals involved. The three key support groups for the Empire – landowners, the textile industry, and iron and steel manufacturers – gradually lost their economic and thus political significance, whereas those who did not economically benefit from colonialism grew in significance. The figure is purely illustrative; specific empirical evidence is as follows.

In the 19th century, the landowners of colonial mines and plantations extracted large profits from overseas investments, approximately 10 percent of national income (Doyle 1986, 268), and they feared that decolonization would ruin these investments. Their fear was justified: when decolonization finally did occur, mines were often rapidly nationalized or heavily taxed, even where solemn promises not to do so had been made by the future leaders of newly independent states (Faber and Potter 1971). The Cecil family dynasty typified the imperial landowners' preferences: the third, fourth, and fifth Marquess of Salisbury were all substantial owners of colonial assets, influential Conservative politicians, and staunch supporters of the Empire (Cecil 1973). In the nineteenth century, the sheer size of colonial landowners' profits, which gave them strong preferences to support imperialism, combined with the entrenched advantages that landowners had in Parliament at this time, helped assure that their preferences prevailed over the lukewarm support for empire from the manufacturers and middle classes (who had to bear much of the costs of empire). In the twentieth century, however, both the relative size of landowners' profits and their representation in Parliament shrank. Overseas income fell from being roughly a third the size of Britain's gross exports in 1900 to about a tenth in 1950 (Cain and Hopkins 2001, 431).¹² This was driven by the modernization of Britain's economy, which meant that other sectors were growing more rapidly than the primary sector (Lee 1979; Mitchell 1988, 427-429). In the 20th century, fortunes were increasingly being made in the manufacturing and financial sectors, not by extracting

¹² See also Appendix Figure A-7

profits from colonial holdings (Cain and Hopkins 2001, 115, 419).¹³ Moreover, landowners' influence in Parliament declined significantly as political representation shifted towards manufacturing interests (Cain and Hopkins 2001, 132).¹⁴ In sum, one of the groups that had the strongest economic stakes in the British Empire, and thus resisted decolonization most fiercely, experienced both economic and political decline in the period 1900-1950.

The British textile industry was doubly unfortunate. It opposed (or only weakly supported) imperial expansion for much of the 19th century at a time when business interests were politically weak compared to the landed aristocracy, then opposed decolonization in the 20th century as business interests grew politically stronger but the textile industry's importance waned. Only in the period 1880-1940 did British imperialist policy align roughly with the preferences of this once-mighty industry (Cain and Hopkins 1980, 485).¹⁵ In 1841, it employed 33 percent of the British male labor force and made over 80 percent of the world's textile exports.¹⁶ Centered in Manchester and Lancashire, it was significantly more cost-effective than its competitors around the world until about 1880. Exports were the industry's lifeblood: by 1900, the cotton industry exported almost four-fifths of its production by value. In the 20th century, the industry's cost advantage fell as British wages rose and industries overseas compete fiercely. Consequently, the Manchester School, the 19th century champions of free trade and reluctant imperialists until about 1880, became the Lancashire lobby in the 20th century, champions of the empire to preserve market access for British textiles in the colonies. For example in the period 1900-1947, the Lancashire lobby bitterly resisted moves to give India more control over its economic policy, because India sought to raise tariffs on British textiles to develop its own infant industry (Dewey 1978). The limited political clout of the Manchester

¹³ For example, in 1860-1879 there were 44 individuals with large fortunes from the manufacturing and mining sector, compared to 280 from the landed classes. By contrast in 1920-39, 153 came from the manufacturing and mining sector, and just 91 from the landed classes.

¹⁴ Based on the economic interests of British Members of Parliament (MPs) – the proportion of landowning MPs fell in half between 1868 and 1910.

¹⁵ By 1880, industrial interests were supporting the expansion of empire in Asia and Africa in the search for new markets.

¹⁶ Wrigley (2010: 211) reports 250,941 in textiles and 277,562 in clothing and footwear out of a total 1,608,423.

School in the 19th century, in comparison to the later influence of the Lancashire lobby, is indicated by the change in economic interests of British Members of Parliament (MPs) over time. In 1868, less than 10 percent of British MPs were linked to manufacturing interests; by 1910, that proportion was 25 percent (Cain and Hopkins 2001, 132). In contrast, the MPs linked to the landowning classes and military service declined precipitously over the same period. The net effect was that while the Manchester School had limited success resisting imperial expansion in the 19th century, the Lancashire lobby was initially influential in maintaining imperial economic policies in the early 20th century.

Yet over time, the textile industry grew isolated within a British business community that favored a postwar free trade policy. Britain's motorized manufacturing base left behind the labor-intensive textile industry to take advantage of ever-cheaper electricity and energy as inputs: the average price of industrial power plummeted by 60 percent from 1945 to 1965 (Fouquet 2008, 416-417). Britain's economy shifted towards motorized manufacturing where it had a comparative advantage and thus did not need protected colonial markets. The textile industry shrank rapidly, both in absolute terms and relative to the rest of the British economy: the number of cotton spindles in operation fell in half from 1913 to 1951 (see Figure 3) (Mitchell 2003, 511). Consequently, its lobby group the Empire Industry Association (EIA) was forced as early as 1949 to modify its support for imperialism to a general defense of free enterprise, to try to retain the support of its industrial base. That shift created ideological tensions and inconsistencies, leading to declining membership and financial support for the EIA, which undermined its political clout. The effect was like an avalanche: a gradual erosion of support, followed by a rapid collapse. In 1954 some 267 Conservative Members of Parliament were still nominally members of the EIA; just five years later, the Executive Committee reported that it would soon be necessary to wind up the EIA's activities due to lack of funds (Kahler 1984, 276). Declining political clout created a feedback cycle of shrinking membership, and "the once powerful [EIA] was reduced to shifting its political appeals [away from imperialism] in an effort to win financial support from increasingly skeptical businessmen" (Kahler 1984, 312). Note that what mattered here was the industry's share of Britain's economy and labor force, not its share

of the world textile market (which had been declining since about the middle of the 19th century).

Finally there were the iron and steel manufacturers. Along with textiles, iron and steel lay at the heart of the British industrial revolution. At their height in 1871, metal manufactures employed 12 percent of the British industrial workforce (Lee 1979; Doyle 1986, 263). Even in the 19th century, however, British industry was losing ground to its international competitors.¹⁷ Increasingly it relied on markets protected by tariffs for its sales (Hobsbawm 1969, 161; Doyle 1986, 275). Moreover, the British iron and steel industry remained focused on relatively simple metal products like railway track, for which they faced increasing global competition. This continued into the 20th century, creating an incentive for the British metal industry to favor imperialism to sustain protected colonial export markets. Consequently, the industry was “the heart” of the Tariff Reform League, a pro-Empire lobby that resisted giving the colonies greater autonomy, especially over economic policy (Semmel 1960, 102). Only relatively late in the game (during WWII) did Britain’s manufacturing base shift toward the more advanced manufacturing specialties of motor vehicles, airplanes, electrical equipment, and chemical industries (Hobsbawm 1969; Lee 1979). Once this shift was underway, the traditional metal manufacturing industry represented a declining share of British business interests. Again, what mattered most was the decline relative to other British sectors – not its share of the world market, which declined earlier. As with the textile industry, the makeup of the British economy shifted away from an industry that had gained from imperialism and resisted decolonization.

The second hypothesized causal mechanism is that the fiscal payoff to empire declined over time, as the real and opportunity costs of imperial administration and defense rose significantly. One authority reports “between 1870 and 1913 Britain spent an average of about 3 percent of her national income on defence ... [which was small] compared with 5 or 6 percent of a much larger economy after 1945” (Offer 1998, 704-705). In 1952, the British cabinet pegged the cost of imperial defense even higher, at 10 percent of national product, and rising

¹⁷ See Figure A-6

personnel costs were a concern.¹⁸ Military costs increased for multiple reasons, but one reason was that wages increased dramatically after 1945 due to motorization. Rising civilian wages were not just a problem because they put upward pressure on soldiers' wages; they also reflected domestic labor productivity, which represented the opportunity cost of deploying soldiers for imperial occupation.

Newly available data demonstrate the rapid increase in wages in Britain and Western Europe due to energy modernization (OECD 2014, 80). Figure 4 shows the trend in daily real wages of unskilled laborers in Western Europe over time. The increase in real wages in the three decades of energy modernization (1940s - 1970s) was as large as the increase over the entire previous century (1820s-1930s). Figure 4 also shows the growth of energy consumption per capita in Western Europe. Not only is there high correlation between the two variables ($r=0.88$), but energy consumption per capita rose before wages, suggesting that the causal arrow runs primarily from energy to wages, not the reverse. Country-specific data confirm that the increase in UK wages was similar (OECD 2014, 81). The rising wages represented a growing opportunity cost of imperial occupation and defense. Simply put, British young men could be put to use more profitably at home than ever before.

Archival evidence suggests that policymakers were aware of the opportunity costs of defense, though not necessarily the underlying structural forces of the declining economics of colonialism. For example, British policymakers noted "it is not in fact possible to recruit large bodies of men for defence purposes without prejudicing the supply of labour to local industrial and agricultural projects whose output is important ... in the economic sphere."¹⁹ Britain's military also grew after 1945 in response to global competition in the Cold War (external threats) and the rise of nationalism (internal threats). Yet even without these changes in the international threat environment, the secular change in the opportunity costs associated with deploying soldiers would have increased the fiscal costs of empire.

¹⁸ CAB 129/52, C(52)166 "Economic policy: Cabinet memorandum by Mr. Butler," 17 May 1952, reprinted in Goldworthy 1994b: 31.

¹⁹ DEFE 7/415, no. 5a "The share of the colonies in defence: memorandum by Trafford Smith," 24 Oct 1951, reprinted in Goldworthy 1994a: 1-2. Other examples abound; see for instance CAB 129/54, C(52)253 "The Defence programme: Cabinet memorandum by Lord Alexander," 22 July 1952, reprinted in Goldworthy 1994a: 20.

The third hypothesized mechanism suggests that energy modernization changed the nature of overseas investment, lowering the demand for colonialism as a form of protection against asset expropriation (Frieden 1994; Narizny 2007). Investment can be crudely categorized by the difficulty by which it can be expropriated: “seizable” investments such as plantations and mines in the primary sector and physical assets like railroads, and “non-seizable” investments such as manufacturing and service companies (Frieden 1994, 568). Frieden (1994) shows that British investors preferred to make seizable investments within its Empire, and non-seizable investments in the rest of the world, suggesting that colonialism served to protect overseas investments. As the theory predicts, investors in colonial mines and agriculture lobbied against decolonization, whereas manufacturing interests in the colonies generally did not (Kahler 1984, 280-294).²⁰ For instance, the British South Africa Company and Tanganyika Concessions, Ltd., two of the largest primary commodity producers in Africa, bitterly opposed decolonization. Kahler describes the agriculture sector as the “core of resistance to declonization” (1984, 282). However, energy modernization in the metropole meant that the balance gradually shifted away from those with seizable investments towards non-seizable investments. For instance, while manufacturing and commerce made up just 15 percent of British outward investment in the period 1918-1931 (Frieden 1994, 581), it increased rapidly with motorization, and by 1965, the manufacturing sector accounted for half of all British outward direct investment (Shepherd et al. 1985, 15-20). Consequently, motorization reduced the demand for empire by causing relative decline in the type of investments that most benefited from it.

H2: Petro-Colonies

Turning now to the second hypothesis, namely that metropolises were especially reluctant to release their control of petro-colonies, I again follow a nested research design. The quantitative analysis is conducted using a simple but powerful test comparing the year of independence for various states. Looking only at the post-1945 period, oil-rich colonies were

²⁰ Note that this was less a factor in the French empire, because colonial manufacturing investment was minimal.

slower on average by eight years to achieve independence than colonies without oil. Table 3 shows that this time lag is statistically significant ($p < 0.03$) (Goldsmith and He 2008).²¹ If we expand the analysis to look at all instances of state independence in the 20th century, the discrepancy grows: oil-rich colonies were slower on average by twelve years to breakaway.

For the second stage of the research design, the British Empire is again illustrative. Britain's imperial expansion mainly occurred 1700-1900. In the 20th century, its last gasp of expansion focused on the acquisition and control of a single resource: petroleum. In the closing days of World War I – actually after the armistice ending the war – the British military extended its Mesopotamian Campaign in modern-day Iraq to seize the oil fields near Mosul (Kelanic 2012, 145). British control of Iraq was formalized in the Anglo-Iraq treaty of 1920. Britain also exerted increasing influence over Iran, ultimately militarily occupying it (along with Russia) in 1941 and forcing Reza Khan to abdicate the throne in favor of his more compliant son. The UK acquired resource-rich Qatar as a protectorate in 1916. It already had control of Kuwait, Bahrain, Aden, and the Trucial States (UAE) from the late 19th century. Thus Britain exerted hegemonic control (via “mandates” and other mechanisms) over much of the Middle East after 1918. Britain never colonized Saudi Arabia but did its best to exert influence there. All of these territories had oil. By contrast, Britain's long occupation of Egypt, which did not produce oil in significant quantities, came to an end in 1922.

Oil supply was the reason for the late surge in colonization, even as momentum was beginning to swing against imperialism in other parts of the world (Yergin 2008). For example, India obtained increasing autonomy from 1919 onward, as did the British Dominions like Canada, which obtained full foreign policy independence in 1934. Thus while rising energy consumption in the imperial metropolises was lowering the relative payoff to colonization in most cases, that was not true of territories containing oil. For a while, the benefits of maintaining political control of oil-rich territories, or at least influence in them, were too valuable to ignore.

Consequently, the oil-rich colonies were among the last to be decolonized. Britain fought to retain its political influence over the Middle East countries for as long as possible, and

²¹ See the appendix for data sources and more details.

the Foreign Office reminded Cabinet that British interests were “above all the security of oil supplies” (Goldsworthy 1994, xxxiii). Numerous primary documents reveal that the principal British interest in the Middle East was oil.²² The small and oil-rich British protectorates were among the last to be granted independence: Bahrain in 1971, Qatar and UAE in 1973, and Brunei not until 1984. Of course, not every oil-rich protectorate was slow to leave the Empire’s grasp: Iraq gained independence in 1932, Kuwait in 1961. In the main, however, Britain was still fighting hard to keep its control and influence in petro-colonies even after it was decolonizing in India and Africa. Moreover, even after former colonies or protectorates obtained formal independence, Britain often attempted to retain informal influence. Nowhere was this more dramatically illustrated than in Iran, where in 1953 Britain (with US support) successfully orchestrated a coup against Mossadegh, who wanted to nationalize the oil industry, and returned power to the Shah, who was more friendly to British and Western oil interests (Yergin 2008).

Ultimately, though, even the valuable oil fields were not sufficient to justify imperialism. Nationalist movements following World War II made occupation increasingly costly. British officials observed in 1960 that the costs of protecting British interests militarily would be too high to justify, despite the value of the oil.²³ Moreover, rising industrial capacity made it more cost-effective to simply buy the oil and energy supplies rather than militarily seizing them. These trends, along with ongoing fiscal strain, culminated in the British withdrawal of its presence in territories “east of Suez.”

²² CAB 129/78, CP(55)152 “Middle East oil: Cabinet note by Mr. Macmillan” 14 Oct 1955, reprinted in Goldsworthy 1994a: p.135; FO 371/170165, no 17 “Review of Middle East policy, objectives and strategy: memorandum by Sir R Stevens to Sir H Caccia” 19 July 1963, reprinted in Hyam and Louis 2000:269-274; CAB 134/1315, PR(56)40 “Overseas investment policy: memorandum by Treasury for Cabinet Policy Review Committee” 30 July 1956, reprinted in Goldsworthy 1994c: 120-121

²³ CAB 129/100, C(60)35 “Future Policy Study, 1960-1970: Cabinet memorandum, report of officials’ committee” 24 Feb 1960, reprinted in Hyam and Louis 2000: 99. Also see PREM 11/4679, ff56-59 “Aden, the Yemn, and Middle East policy: minute by J O Wright” 8 Apr 1964, reprinted in Hyam and Louis 2000: 640.

Capstone evidence: the choice not to occupy Saudi Arabia

The high cost of maintaining an empire in an era of motorized economies and colonial nationalism was demonstrated vividly in the wake of the 1973 Arab oil embargo. Control over oil fields in the Persian Gulf had never looked so important. Britain had just pulled back from the area, but they could have returned or the United States could have colonized the Gulf. Militarily defeating the local defenses posed little challenge for the metropolises. Why did they choose not to do so?

Rarely does history provide direct answers to such questions, but in this case policymakers explicitly considered the costs and benefits of invading Saudi Arabia to seize its oil fields. A study by the US Congressional Research Service (1975, 76) concluded that such an operation would combine “high costs with high risks”. Occupying just the oil fields (never mind the rest of the country) would require enormous manpower, imposing huge costs on taxpayers (Congressional Research Service 1975, 75). What might have been desirable in an earlier era of cheap American labor was prohibitively expensive (and politically infeasible) in a modern era with highly productive domestic labor. The costs rendered it far more sensible for Western metropolises to abide a certain amount of economic volatility. Further, the Congressional report concluded (1975, xi) that sustained sanctions by OPEC could at most “disrupt” America’s lifestyle, and “survival would never be at stake”. Moreover, the oil producers themselves had no interest in a long embargo, which would reduce their central source of export revenues (Bronson 2006; Yergin 2008). Thus imperial control was not necessary to maintain the flow of oil, and could not be justified by the profits of oil field ownership alone. It is little wonder that the Western powers have ever since avoided trying to take direct ownership of Middle Eastern oil fields, even when subsequent wars in the Persian Gulf in the 1990s and 2000s afforded them that opportunity.

Comparison to Alternative Explanations

To summarize, there is substantial evidence to support the theory that energy modernization facilitated the process of imperial decline. Of course other factors, including the rise of nationalism in the colonies and the after-effects of World War II, played a major part.

Yet energy modernization offers insights into the process that are not obvious from alternative theories.

Table 1 maps six empirical implications against existing theories, illustrating how a focus on energy modernization complements them and adds value. For instance, a normative explanation (based on the rise of nationalism in the colonies) can easily account for the wave of near-simultaneous imperial dissolutions and the lack of imperial resurgence since that time (Philpott 2001; Crawford 2002). However, on its own it does not predict the special reluctance of metropolises to grant petro-colonies their independence, and it struggles somewhat to explain why imperialism ended in some metropolises earlier or later than others. Cyclical theories of empire, on the other hand, fully expect variation in the timing of empires' rise and fall, but do not explain why so many empires fell in the 20th century, nor why contemporary powerful states have chosen not to build empires (Gilpin 1981; Kennedy 1987). Finally, the economic costs of WWII neatly explains the wave of European decolonizations but are hard to reconcile with the evidence that Britain, France, and Belgium sought to rebuild and reinvest in their colonies even in the late 1940s and 1950s; they also do little to explain the variation between early (US) and late (Portugal) decolonizers. While Table 1 is only a partial read of the empirical record, it illustrates that focusing on energy modernization adds explanatory value.

Perhaps most strikingly, none of the alternative explanations draw attention to the systematic variation in the timing of decolonization for petro-colonies, as compared to other colonies. Oil is now such an important part of the modern economy, it is perhaps not surprising that metropolises would be reluctant to release their petro-colonies, but this pattern of variation has largely been missed and underappreciated by existing theoretical accounts of imperial dissolution.

Conclusion

The global collapse of empires was driven in part by energy modernization and motorization in the imperial metropolises. This argument supplements existing accounts of decolonization, in part by highlighting how motorization facilitated the acceptance of normative changes following World War II.

Motorization helps us explain not only the timing of the end of empires, but also why anti-

imperialist norms gained acceptance in some metropolises and some colonies earlier or later than others.

As motorization spread among the world's most powerful states, it created a significant obstacle to the viability of empire as a form of political organization: for the most part, either a state is non-motorized and thus too weak to be an imperial power, or it is motorized and has economic incentives to accept anti-colonial norms. Importantly, however, this obstacle to empire is not absolute. As Russia's annexation of Crimea in 2014 demonstrated, a powerful state might still act imperially – especially if its domestic politics are shaped by the resource curse, as Russia's are. Indeed, several scholars suggest that empires have disappeared only temporarily and might re-emerge at any time.²⁴ Such conjectures, however, rest uneasily with the evidence that motorization changes the political economy of imperialism, making it unlikely that empires will re-emerge systematically. That evidence has important implications for the rise of potentially imperialistic states like China, which is just now motorizing.

If the argument here is correct, it implies that state behaviors in pursuit of energy consumption can be important for international peace, even when those behaviors have negative consequences in other areas of world politics (e.g., resource curse, oil geopolitics, carbon emissions). Unless it is possible to greatly reduce the energy intensity of economic output, scholars and policymakers should recognize that modern energy consumption plays an important role in stabilizing the international order and reducing incentives for imperial conquest. Artificially cutting off a state's energy supply can actually increase the incentive for imperialism – as the US discovered in 1941 when it placed an oil embargo on Japan. This, too, could have important implications for future US-China relations.

²⁴ Tilly, Hobsbawm, and Motyl (three separate chapters) in Barkey and von Hagen 1997

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Table 1: Summary of various complementary theoretical accounts of the end of empires

Observation	Energy modernization	Normative shift	Cyclical theory	WWII econ. aftershock
Wave of multiple imperial dissolutions, nearly simultaneously	✓	✓	✗	✓
Wave of imperial dissolutions occurs 1945-1973, not at some other time	✓	--	✗	✓
Variation in timing of imperial decline, with some early metropolises (US) and some late (Portugal)	✓	✗	✓	✗
Petro-colonies were late to achieve independence compared to non-petrocolonies	✓	--	--	--
No major resurgence of empires since 1960s (e.g., no invasion of Saudi Arabia after oil embargo)	✓	✓	✗	--
European metropolises' decision to rebuild and reinvest in colonies after WWII	--	--	--	✗

✓ indicates that the theory explains the observation

✗ indicates that the theory is not easily reconciled with the observation

-- indicates that the theory might be compatible with the observation, but fails to predict it

Table 2: Effect of Motorization on Probability of Decolonization

DV=# States Decolonized	Model 1	Model 2	Model 3	Model 4
Energy Modernization	1.50*** (0.27)	0.94*** (0.32)		0.93*** (0.3)
Energy consumption per cap			0.17** (0.08)	
Democracy		0.35 (0.29)	0.28 (0.31)	0.76*** (0.29)
Military Capability		-5.11* (2.7)	-6.26** (2.62)	-6.92** (2.85)
Population (logged)		-0.08 (0.25)	-0.1 (0.25)	0.78*** (0.17)
Post-1945 period		0.61** (0.31)	0.53 (0.33)	-0.12 (0.28)
Constant	-3.15*** (0.21)	-2.61*** (0.86)	-2.43*** (0.91)	-5.76*** (0.62)
Country fixed effects?	Yes	Yes	Yes	No
Observations	3,005	2,622	2,620	10,080
Number of states	22	20	20	167

Notes: 1. Negative binomial regression used in all models
2. Time period of analysis = 1816-1992
3. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 3: Petro-colonies and the timing of decolonization

	Post-1945, major colonies*		All data in GH dataset	
	Avg. Indep. Date	n	Avg. Indep. Date	n
Oil-rich colonies	1974	88	1972	126
Non-oil colonies	1966	17	1960	18
Difference		8 years		12 years
p-score		0.0251		0.0399

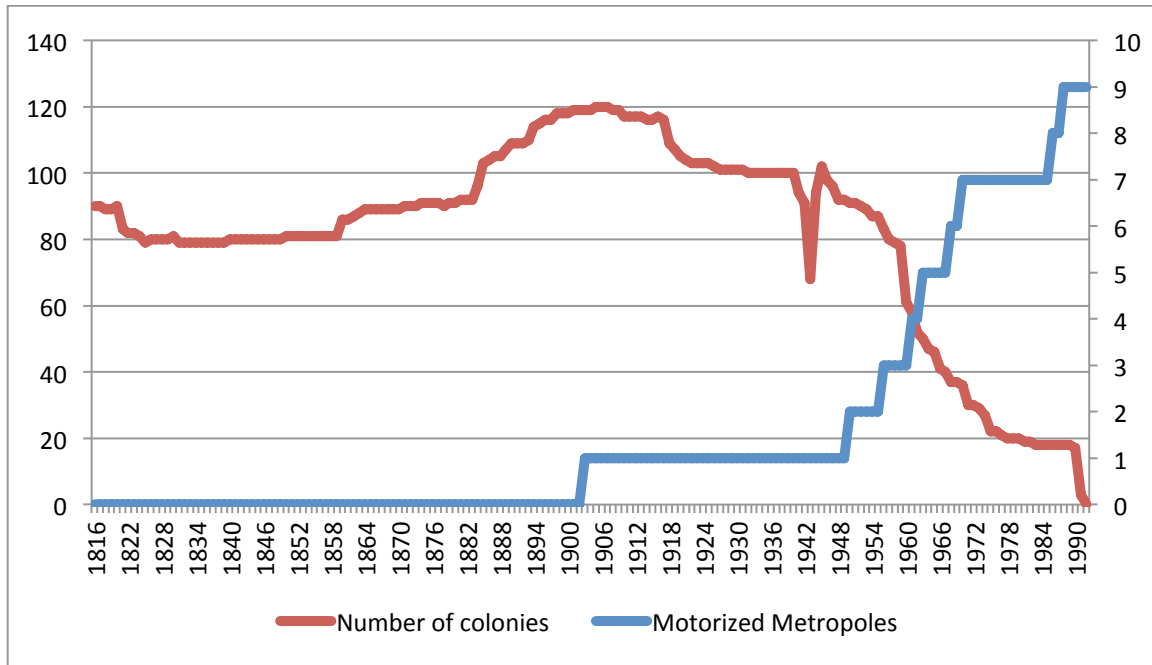
* Includes only colonies with population >100,000

* Does not include break up of Yugoslavia as a decolonization process

Note: Colonies classified as oil-rich if producing oil at the time of decolonization.

Data: BP Statistical Review of Energy; Goldsmith and He 2008.

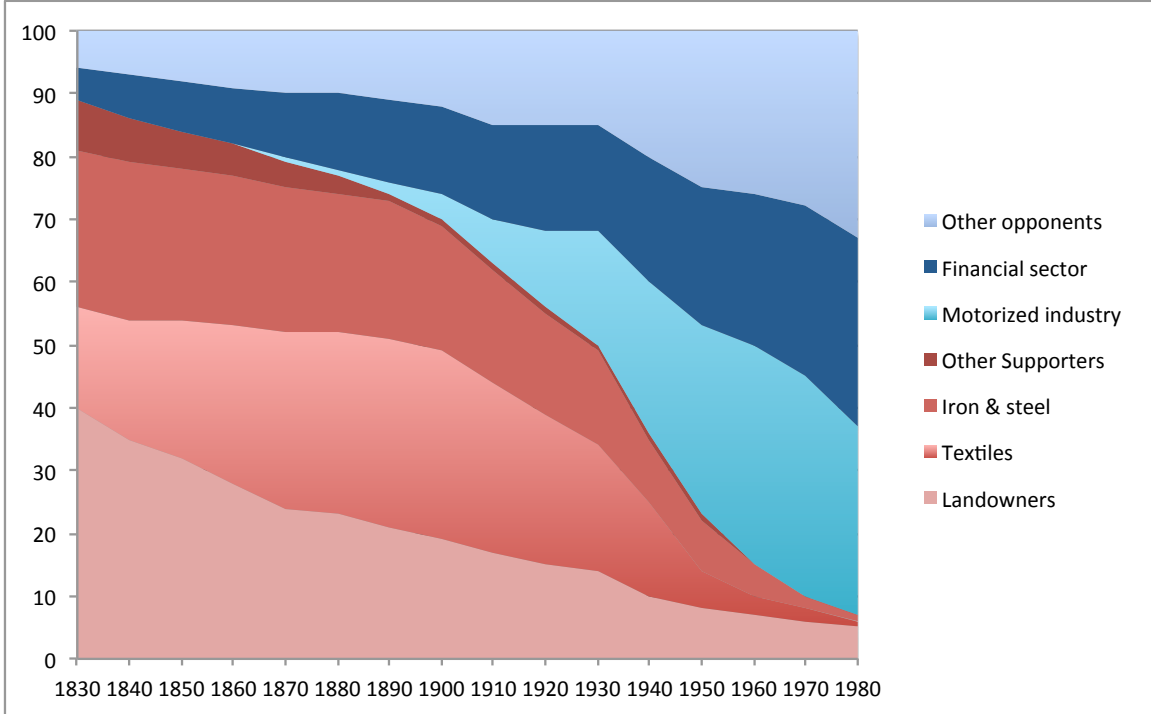
Figure 1: Colonies and motorized metropolises over time



Notes:

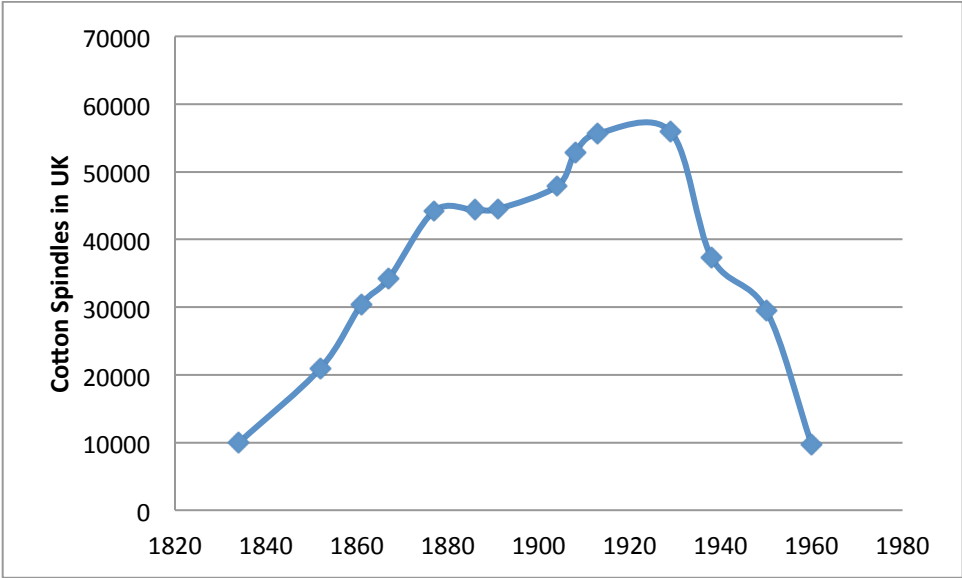
1. Correlation, motorized metropolises and # colonies: $r=-0.86$
2. Primary axis: colonies in existence (Ravlo et al. 2003)
3. Secondary axis: Number of motorized metropolises or former metropolises (states that had at least one colony in 1900)

Figure 2: Political support for the British Empire, 1830-1980



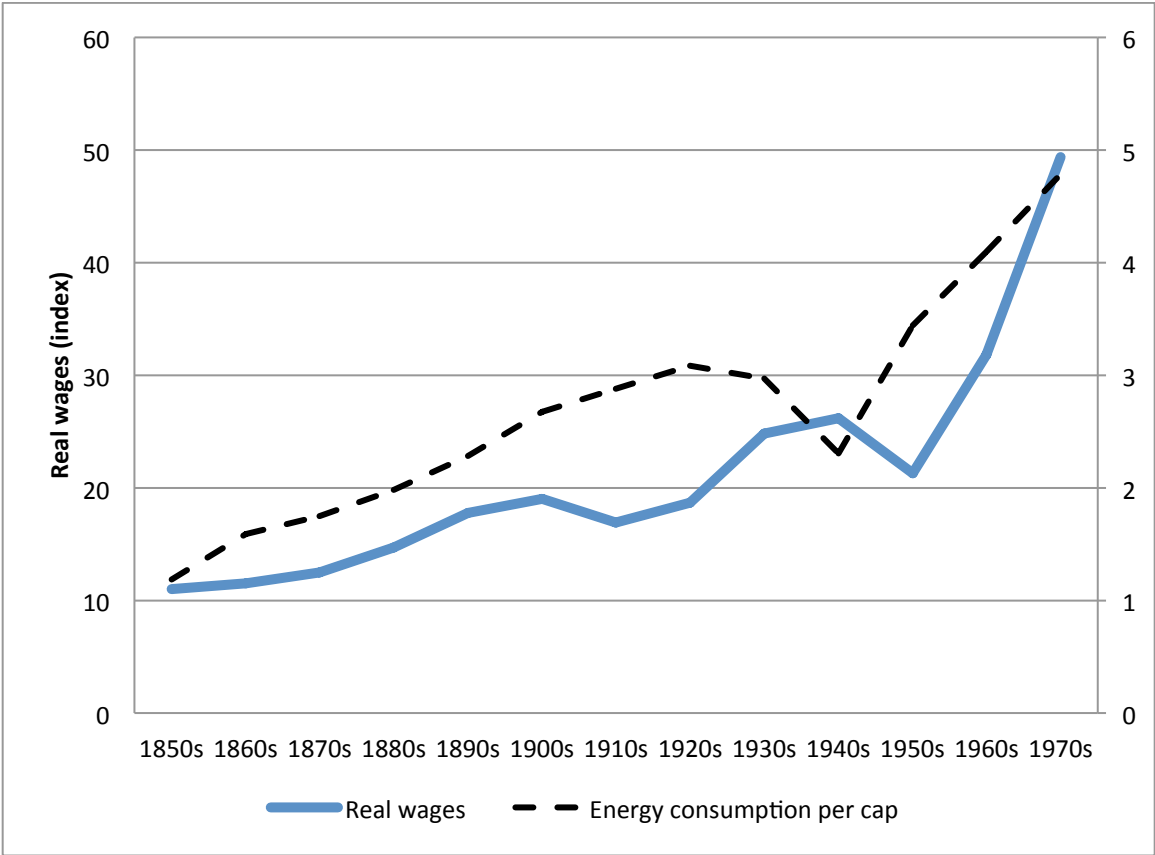
Note: Red sectors indicate economic winners from empire; blue sectors indicate non-beneficiaries. Figure is conceptual.

Figure 3: British industrial cotton spindles, 1830-1960



Source: Mitchell 2003: 511

Figure 4: Real wages of laborers in Western Europe, 1850s-1970s



Correlation $r=0.88$

Data: OECD 2014: 80; Correlates of War