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The Decline and Persistence of the Old Boy: Private Schools and Elite Recruitment 1897 to 2016*

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Abstract:
We draw on 120 years of biographical data (N = 120,764) contained within *Who's Who*—a unique catalogue of the British elite—to explore the changing relationship between elite schools and elite recruitment. We find that the propulsive power of Britain's public schools has diminished significantly over time. This is driven in part by the wane of military and religious elites, and the rise of women in the labor force. However, the most dramatic declines followed key educational reforms that increased access to the credentials needed to access elite trajectories, while also standardizing and differentiating them. Notwithstanding these changes, public schools remain extraordinarily powerful channels of elite formation. Even today, the alumni of the nine Clarendon schools are 94 times more likely to reach the British elite than are those who attended any other school. Alumni of elite schools also retain a striking capacity to enter the elite even without passing through other prestigious institutions, such as Oxford, Cambridge, or private members clubs. Our analysis not only points to the dogged persistence of the "old boy," but also underlines the theoretical importance of reviving and refining the study of elite recruitment.

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Introduction

Democratizing access to education was supposed to create more equal societies, where everyone had the same opportunities irrespective of who their parents were or the school they attended (Jefferson 1817; Mill 1859). Yet an extensive body of research now offers a sobering corrective to this lofty ideal. Even though the widespread provision of free schooling has certainly reduced inequalities in educational attainment (Breen and Jonsson 2005), scholars working across a range of national contexts—but particularly in the United Kingdom and the United States—have found that the expansion of public education has largely failed to equalize relative opportunities in the labor market (Goldthorpe 2016; Parman 2011; Pfeffer and Hertel 2015; Rauscher 2016).

One limitation of this work, however, is that it tends to look at rather broad categories of occupational or economic destination. We thus know a lot about how educational reforms affected entry into "big classes" of occupations or income thresholds, but little about how these shifts affected access to more specific destinations, such as the elite. Educational reforms may have been especially significant for this group because recruitment to elite positions has traditionally been strongly associated with certain educational pathways directly affected by the democratization of schooling (Khan 2012; Stanworth and Giddens 1974). For example, elites in the United Kingdom, United States, Australia, Canada, Japan, and France all have strong ties to a small set of private secondary schools that have historically acted as key training grounds for future leaders. The specific number of institutions differs across national contexts, but the core features are the same: a classical academic curriculum, distinct extracurricular activities, and a boarding school structure all combine to provide an unmistakable educational experience which signals elite status to occupational gatekeepers who grant advantages that are hoarded from outsiders (Bourdieu 1996; Carroll 2008; Goldfinch 2002; Hartman 2007; Kingston and Lewis 1990; Useem 1984).

Yet educational reform may have had particular ramifications for the signaling power of these elite schools; reforms both increased the pool of candidates able to compete for elite positions and introduced standardized national credentials that attempted to level the academic playing field. Although educational reforms may therefore have failed to increase aggregate rates of social mobility, they may have succeeded in weakening certain inequality-generating institutions within the education system and, in turn, reduced the relative advantage enjoyed by alumni of these elite secondary schools.

The United Kingdom is an ideal context to explore these questions. Not only does it have a history of radical educational reforms, but it also possesses a centuries-old legacy of gendered public schools, which carry a remarkable legacy for incubating male leaders. For example, of the 54 Prime Ministers elected to office in Great Britain, 36 (67 percent) were educated at one of just nine elite schools. During the nineteenth and early-twentieth centuries, this small set of Clarendon schools[1] —consecrated as the "Great Schools" by the Clarendon Commission in 1861—were widely considered "the chief nurseries" of the British elite, defining institutions

[1]These schools, which cater primarily for children aged between 13-18, are: Charterhouse, Eton, Harrow, Merchant Taylor's, Rugby, Shrewsbury, St Paul's, Westminster, and Winchester College.

that prepared their male-only alumni (old boys) to take up positions of power across politics, law, business, culture, and the military (Honey 1977; Steedman 1987; Walford 2012). Today, the distinct characteristics of these schools remain largely unchanged and their alumni continue to exert a profound influence. For instance, the two key politicians on either side of the "Brexit" debate—David Cameron and Boris Johnson—both attended the most prestigious Clarendon school, Eton College.

Yet although these elite schools continue to confer advantage, the degree to which they are able to propel "old boys" into elite destinations, and how this has changed over time, is largely unknown. Until now, the kind of large-scale longitudinal data source needed to answer this kind of question simply has not been available in Britain, or indeed anywhere else. The extraordinary dataset we draw on here—120 years of biographical data contained within *Who's Who*, an unrivalled catalogue of the British elite—therefore provides a unique opportunity.

Specifically, we use *Who's Who* to explore the degree to which Clarendon schools, along with a wider group of elite "HMC schools," have remained pivotal to elite recruitment over time. We then go a step further to examine the institutional channels through which these schools propel their alumni, documenting the independent and cumulative advantages that flow from attending Britain's elite public schools, Oxford and Cambridge Universities, and private members clubs.

Taken together, our results indicate that the power of Britain's elite schools has declined significantly over the past 120 years. This, we argue, has been driven partly by the weakening representation of military and religious elites and the rise of women in the labor force. However, we also find that the most dramatic periods of decline followed the implementation of educational reforms increasing access to the credentials needed to achieve elite destinations. Educational reforms also helped standardize and differentiate the nature of these credentials.

Notwithstanding this decline, our analysis also underlines that elite schools remain tremendously powerful channels of elite recruitment. Even today, alumni of the nine Clarendon schools are about 94 times more likely to reach the British elite than are individuals who attended any other school. Moreover, their propulsive power is not necessarily contingent on funnelling their alumni into Oxbridge or private members clubs. Public schools endow their students with a striking capacity to reach the elite even without the aid of these other institutions.

Reviving and refining the sociology of elite recruitment

Elites have disproportionate access to, and control over, a range of economic, social, cultural, and political resources (Khan 2012). Accordingly, a long-standing concern in the sociology of elites has been who gets to deploy those resources and, more specifically, their social and educational composition (Hartmann 2007; Mills 1956). The key issue at stake in this literature is the degree to which processes of elite recruitment enact forms of social closure, or how

social collectives restrict access to resources and opportunities to a limited circle of the eligible (Parkin 1979; Tilly 1998; Weeden 2002).

Elites' social and educational backgrounds are not the only the grounds on which closure may be enacted in processes of recruitment. Closure can take place around any social or physical attribute, "whatever suggests itself most easily" (Weber [1922] 1978:342). However, where the skew in elites' social or educational origins is especially striking, scholars have long considered this highly suggestive of the axes on which closure occurs (Giddens and Stanworth 1974). In the context of education, closure is often connected to particular educational institutions (Barberis 1996; Bourdieu 1996; Cookson and Persell 1985) Here passage through prestigious schools acts as a status marker in and of itself and also as a proxy for collectively valued dispositions, skills, and knowledge inculcated via rarefied curricula and extracurricular activities. In turn, gatekeepers, such as employers, recognize these signals and provide individuals with access to elite positions that are hoarded from outsiders (Bol and Weeden 2015).

Elite closure has wide theoretical significance. When elites are drawn from narrow educational backgrounds, they are more likely to develop "a unity and cohesion of consciousness and action" which, in turn, may have profound implications for the exercise of power (Scott 2008:35; see also Domhoff 2006; King and Crewe 2013). This thesis is most prominently associated with Mills (1956:64–67; 278–83), who argued that the shared experience of elite schooling played a key role in "fusing psychological and social affinities" among the U.S. "Power Elite." This commonality, he argued, "tends to make members of the power elite more readily understood and trusted by one another," to "sympathise with one another's point of view"; in short, "to say to one another: he is, of course, one of us." In Britain, Scott (1991: 102-117) has made similar arguments about the role of elite private schools in maintaining the "cohesion" and "solidity" of Britain's "upper circle," and Jones (2015: 5-6) has developed this through the idea of an "Establishment," bound together "by common economic interests and a shared set of mentalities" oriented around "protecting the concentration of wealth in very few hands."

For these reasons, elite recruitment was central to sociological inquiry through much of the twentieth century. In particular, a number of classic studies—particularly in the United Kingdom and United States—probed the social origins of elite groups and how passage through particular elite schools, universities, and clubs facilitated a later entry to elite positions (Dahl 1961; Domhoff 1967; Giddens and Stanworth 1974; Guttsman 1974; Kelsall 1955; Mills 1956; Useem 1984; Useem and Karabel 1986). However, from the 1980s onward, this tradition of elite studies was somewhat eclipsed by class-structural approaches to social stratification—particularly in the United Kingdom. Goldthorpe, Llewellyn, and Payne (1980), for example, argued that by focusing on the social composition of "who gets ahead," earlier approaches failed to place patterns of elite recruitment within the context of broader shifts in the class structure, particularly the postwar expansion of the salariat. This class-structural approach instead emphasized mobility rates between "big social classes" using nationally representative survey data. Given the relatively small size of these surveys, and the corresponding invisibility of elite groups within them, elites have thereby largely "slipped from view" (Savage and Williams 2008:3).[2]

[2]A number of Scandinavian researchers are an exception (see Ellersgaard, Larsen, and Munk 2013; Flemmen

Rising inequality during the latter part of the twentieth century—particularly at the top of the income distribution—has prompted a strong renewal of interest in (mainly economic) elites across the social sciences (Savage 2014). Yet analysis of the educational composition of such groups has been largely absent from this new research agenda. We attempt to revive the sociology of elite recruitment and underline its importance to elite studies and scholars of education. In doing so, we also aim to refine the way the topic is studied in two important ways.

Schools, Elite Recruitment, and Educational Reform

First, work on elite recruitment has been hampered by an insufficient focus on how the composition of elites changes over time. Most prior studies provide a cross-sectional snapshot of elite composition (Dargie and Locke 1999; Domhoff 1967) or examine a single profession (Barberis 1996; Kelsall 1974; Thompson 1974). We remedy this by providing a much richer temporal perspective and a more wide-ranging measure of the British national elite.

Our analysis focuses on the preparatory power of elite secondary schools. Such schools, we argue, offer an especially useful lens through which to look at elite recruitment over time (Kelsall 1955). This is because most enjoy long histories and persistent levels of prestige, yet belong to a sector—education—that has experienced significant change over the course of the twentieth century. Across advanced economies, widespread educational reforms have democratized access to education[3] and, according to some, promoted greater social mobility (Breen 2010; Lambert et al 2008; Prandy and Bottero 2000). This may have had important ramifications for the signaling power of elite schools. For example, in a U.K. context, a number of historians have suggested that expanding access to education significantly increased the pool of candidates able to compete with public school boys for elite positions (Turner 2015; Walford 1986; Weinberg 1967).

We add conceptual precision to this hypothesis. In particular, we stress that educational reforms both standardized and differentiated the credentials offered by U.K. schools (Kerckhoff 2001). When credentials are not standardized (i.e., tests are not judged according to the same criteria), elite gatekeepers are more likely to make decisions based on informal criteria and impute "talent" to candidates based on the perception their school represents a status marker (Lamont, Beljean, and Clair 2014). The standardization of educational credentials at a national level, however, partially neutralizes these school-level effects, meaning a "pass" becomes, at least in theory, more comparable across schools (Kerckhoff 2001). Moreover, introducing finely graded differences in the quality of the credential (i.e., differentiating credentials) further pushes evaluators to move beyond the school in recruitment decisions (Roach 1979). Of course, this does not fully eradicate school-level effects; an A from Eton likely remains more powerful than an A from elsewhere. However, processes of standardization and differentiation certainly made credentials more comparable and therefore, in turn, may have undermined the relative advantage of elite schools in securing elite destinations for their alumni.

2009; Hansen 2014; Hjellbrekke et al. 2007; Larsen, Ellersgaard, and Bernsen 2015; Ljunggren 2016; Strømme and Hansen 2017).

[3] For example, in 1830, around 27 percent of British children were enrolled in a primary school; by the late-1960s, this had risen to almost 100 percent (Lindert 2004).

However, many scholars have resisted this hypothesis. As noted in the introduction, the consensus view is that extensive educational reform has been remarkably ineffective in improving relative life chances, particularly in the United Kingdom (Boliver and Swift 2011; Goldthorpe 2016). Many argue that elite schools have been particularly adept at adapting and responding to such reform (Domhoff 2006; Levine 1980; Scott 1991; Stanworth and Giddens 1974). For example, Khan (2011) argues that although radical social change across the 20th century applied pressure on elite schools to increase access to minority groups, this did not necessarily dent their propulsive power for the dominant majority. Elite preparatory schools in the United States, he notes, responded to the collectivist movements of the 1960s by opening their doors to previously excluded groups, such as women and ethnic minorities, and then presented themselves as the torchbearers for meritocracy, rewarding ability rather than ascribed characteristics. However, this adoption of meritocratic rhetoric obscured the fact that these schools continued to admit mainly individuals from privileged backgrounds, and continue to be powerful vehicles for elite recruitment (Kennedy and Power 2008; Khan 2012). The promise of greater equality through increasing access to education has thus "proven to be a fiction" (Khan 2011:17).

The United Kingdom—with its centuries old legacy of Great Schools and radical educational reforms—is an ideal context to adjudicate this debate. Over the past 140 years, the structure of British education has shifted significantly from a voluntary system combining fees and charitable institutions to a compulsory system that is largely state-funded with a small fee-paying sector. This transition began in earnest with the 1890 Elementary Education Act, which reduced fees for state elementary schools, and was extended under the Fisher Act of 1918 and then the Education Act of 1944, which raised the compulsory school leaving age to 15 (later 16) and abolished all fees. These reforms also introduced a standardized qualification, the School Certificate, which became the first unified secondary school examination system for the country, and differentiated credentials by providing subject specific grades.[4]

Until now, the type of data required to understand how these reforms affected elite recruitment (i.e., containing a large number of observations, significant temporal reach, and individual school information) have not been available. Instead, scholars on both sides of the elite schooling debate have largely speculated on processes of change, drawing on limited archival material (Turner 2015), context-specific observational data (Khan 2011), or theoretical argumentation (Miliband 1969). The *Who's Who* data we draw on here thus provides an unprecedented opportunity: we can explore both the degree to which schools have remained channels of elite recruitment, and to what extent any shifts in their power coincide with major educational reforms.

[4]The territorial extent of these reforms varies somewhat. For example, the 1890, 1918, and 1944 reforms all initially applied only to England and Wales, but similar reforms were implemented in Scotland within one to two years.

Channels of Elite Recruitment: Between Schools and Destinations

The second limitation of existing work on elite recruitment is that it fails to disentangle the relationship between the different institutions through which elite formation may take place. Most empirical work, for example, examines the association between one type of institution and recruitment, such as elite schools (Cookson and Persell 1985; Maxwell and Aggleton 2016), elite universities (Clark 2014; Rubinstein 1986), or private members clubs (Bond 2012; Domhoff 1974).[5] This relationship has been most clearly developed, theoretically, by sociologists of education, in terms of the functioning of elite educational institutions. Summarizing work in this area, Stevens and colleagues (2008) explain that institutions like elite schools and universities perform four main functions: first, they are "sieves" for regulating the mobility processes that underlie the eventual allocation of elite positions; second, they are "incubators" where elite identities coalesce and take shape; third, they are "temples" that provide entrants with legitimate forms of official academic and cultural knowledge; and fourth, they are "hubs" that bring together and commingle a wide array of elites.

We develop these conceptual tools further, arguing that they are not only useful for understanding the functioning of discrete institutions, but they also help us understand connections between elite institutions. Specifically, we argue that they are useful in elucidating channels of elite recruitment that often describe an individual's passage between, or pathway through, successive elite institutions. Elite schools are often theorized as the institutional starting point of elite trajectories, but their ability to act as such is often strongly mediated by their connections to elite universities and private members clubs. Here we briefly explore these channels.

The most established pathway connecting elite schools with elite destinations is the intermediary of a prestigious university (Putnam 1977). Historically, the sieve function of elite universities has rested on admission procedures that inherently advantage elite school alumni (Gamsu 2016). This can happen either via particular school–university sponsorship relationships, by privileging sporting or extracurricular activities disproportionately incubated in elite schools (Bernstein 1977; Van Zanten 2009), or by demanding consecrated academic knowledge, such as Latin and Greek, only inculcated in certain schools (Karabel 2005). Finally, this elite pathway rests on the hub function performed by elite universities, whereby individuals from elite schools use elite universities to further cultivate networks and incubate particular worldviews initially established at school (Persell and Cookson 1985). This illustrates that the contribution of elite university attendance to an eventual elite destination may often be contingent on pre-university experiences; and it is precisely this dual incubation—school and university—that provides distinct cumulative advantages later in life. As Mills (1956) famously remarked, there are "two Harvards": one for a closely networked set of "old boys" and one for everyone else.

Private members clubs also perform this elite hub function (Domhoff 1974). Clubs, like universities, are sieves, often directly selecting new members based on school background (Bond 2012) or indirectly through resources incubated at such schools (Scott 1991). More impor-

[5] Some studies, such as Stanworth and Giddens (1974) and Maclean, Harvey, and Chia (2010), do combine data on all three institutions, but the impact of each on elite recruitment is only considered independently.

tantly, work in this area has focused on the way clubs bring these old boys together, providing an institutional apparatus for them to convert homophily established at school or university into a more tangible form of social capital (Taddei 1999; Useem 1984). In the U.K. context, this process has traditionally been captured through the folk concept of the "old boys' network," which describes an enduring set of social connections and an ethos of mutual support among former pupils of elite public schools. According to Scott (1991), London's male-only members clubs represented the key mechanism through which the old boy networks forged at school (and often further nurtured at Oxbridge) could be maintained. Many clubs had links with particular schools, with Eton alumni more likely to join clubs with larger numbers of Eton "old boys" (Bond 2012).

Finally, elite schools may incubate resources that pupils draw on in an unmediated way to gain access to elite pathways. Early sociological work, for example, emphasized how elite boarding schools function as "total institutions" that provide, through formal and hidden curricula, a strong secondary socialization (Wakeford 1969; Weinberg 1967). Central to this socialization is the inculcation of what Bourdieu (1986) calls "embodied cultural capital," that is, highly valuable dispositions manifest "in vocabulary and inflection, styles of dress, aesthetic tastes, values and manners" (Collins 1979:126–27). In the U.K. context (and to a lesser extent the United States), this set of dispositions was historically embodied in the understated, cultured figure of the gentleman. Mastery of this cultural identity, with its attendant set of appropriate behaviors, values, and recreations, was seen as a key signal of elite status in the late-nineteenth and early-twentieth centuries (Honey 1977; Scott 1991). Many of the cultural coordinates of this gentlemanly motif have eroded in the contemporary era, particularly those associated with the comportment of the aristocracy. However, Miles and Savage (2012) argue that a modern strand of gentility—deftly combining modesty and a knowing mode of cultural consumption—remains highly valued in elite circles.

In sum, sociological and historical literature points toward a range of channels through which elite schools propel their pupils into elite positions. Yet most of this work focuses on particular institutions, and we know of no work that explores, empirically, the different institutional pathways to recruitment that flow from elite schools. Here again, *Who's Who* offers a unique opportunity; it provides data not just on specific schools but also particular universities and clubs. This allows us to examine the extent to which elite schools deliver elite destinations via, or independent of, other institutions and how these different elite channels have changed over time.

Who's Who: A Consecrated National Elite

Before we move to our analysis, it is important to explain how we conceptualize national elites. The recent revival of elite studies—much of it inspired by the work of Piketty and Saez (2006)—is dominated by economic definitions of elites. In particular, this work tends to focus on economic thresholds, such as the 1 percent, the super-rich, the wealth elite, high net-worth individuals, or members of various Rich Lists (Burrows et al. 2017; Keister 2014; Piketty 2013). Such conceptualizations have the virtue of being precise, but at the same time ignore the importance of elites operating in fields such as politics, culture, media, and academia, where the

command of disproportionate resources is not always or only economic (Khan 2012).

Here we draw on a wider conception of elites that represents a powerful cross-fertilization of both positional and reputational definitions. Mosca (1939) famously argued that elites are best understood as "ruling minorities," empowered through relations of authority and usually occupying formal top positions in organizational hierarchies (Scott 1997, 2001). This was the theoretical logic informing Mills's (1956:4) understanding of the elite as individuals occupying "pivotal positions . . . in command of the major hierarchies and organizations of modern society." Others argue that elites are more usefully identified in reputational terms as those thought to be powerful or important by those "in the know" (Hunter 1953) or as individuals occupying some form of centrality in high-status networks (Ellersgaard, Larsen, and Bernsen 2015).

We base our analyses on *Who's Who*, the leading biographical dictionary of "noteworthy and influential" people in the United Kingdom, published in its current form every year since 1897. *Who's Who* primarily documents a positional elite; 50 percent of entrants are included automatically upon reaching a prominent occupational position in one of multiple professional fields. For example, Members of Parliament, Peers, Judges, Ambassadors, FTSE100 CEOs, Poet Laureates, and Fellows of the British Academy are all included by virtue of their office (for a list of occupational titles, see Part A of the online supplement).[6] In this way, *Who's Who* incorporates most of the Mosca-Millsian ruling minorities who occupy pivotal positions in British society.

The other 50 percent are selected each year by a board of long-standing advisors who make decisions based on a long-list of potential entrants compiled by *Who's Who* editorial staff. This part of the selection process has long been shrouded in mystery and the subject of much media speculation (Crick and Rosenbaum 2004; Paxman 2007). Katy McAdam, Head of Yearbooks at Bloomsbury, explained to the authors in an interview that this process is not influenced by politicking and entries cannot be purchased:[7] "It's our job to reflect society, not to try and shape it." Instead, she underlined that the long-list is based on independent research into individuals who have recently achieved a noteworthy professional appointment or sustained prestige, influence, or fame. This therefore adds an important reputational dimension, with *Who's Who* making assessments of importance and noteworthiness based on a person's perceived impact on British society.

Moreover, although *Who's Who* may make selections based on a mix of positional and reputational grounds, all entrants are united by inclusion in the book itself, which acts as a marker of consecration in its own right. Indeed, *Who's Who* does not simply catalogue those who attain particularly prominent positions or reputations, but it further adds to this recognition by publicly constructing them as important through their inclusion. In this way, *Who's Who* plays a uniquely performative role in reflecting and actively constructing a national British elite widely recognized throughout British society. This legitimacy or symbolic capital has been

[6] *Who's Who* also includes hereditary members of the Aristocracy (Dukes, Marquesses, Earls, Viscounts, and Baronets).

[7] In certain countries, including the United States, there are long-standing concerns that some entrants pay for inclusion in *Who's Who* (Carlson 1999).

underlined at various points in history. For example, during the Second World War, Winston Churchill personally intervened to ensure the publication of *Who's Who* was not affected by the paper shortage, regarding its full circulation to be of "national importance" (Oxford University Press 2017). Even today, new entrants are the subject of widespread national media attention (Fitzwilliam 2010; Oxford University Press 2017), and the book's title has passed into everyday parlance as a casual byword for eliteness.[8]

Who's Who has been used extensively by elite scholars in the past (Boyd 1973; Denord et al. 2011; Griffiths, Miles, and Savage 2008; Kirby 2016; Miles and Savage 2012). However, this work typically extracts small subsamples from the dictionary or looks at data from only a few time points (Priest 1982). In contrast, we draw on all entrants from all editions, lending our analysis unprecedented temporal and empirical scope.

Methods

Data sources

In November 2016, after extensive discussions with Oxford University Press and Bloomsbury Publishing—the two publishing companies producing *Who's Who*—we successfully brokered access to all data collected by the publication since it began including full biographical details in 1897.[9] No researcher that we know of has ever gained access to the entire historical contents of the database.

Who's Who contains two separate but connected data sources: (1) *Who's Who* and (2) Who Was Who. *Who's Who* is the current directory of every individual included in the published version of the book, consisting of around 33,000 short biographies. This represents approximately .05 percent of the current U.K. population (or 1 in every 2,000 people).[10] When a person included in *Who's Who* passes away, their record is transferred into Who Was Who. We combine these datasets and treat them as one, referring to it collectively as *Who's Who*. Together, these two datasets contain 135,319 records.

A nontrivial number of individuals are known by two or more names and therefore have multiple entries (e.g., name changes due to marriage). We exclude duplicate records (identified using a matching algorithm) and retain only those that contain full and current (or latest available) information for each individual. There is also some missing data. For example, a small number do not provide their year of birth; we removed these individuals from our cohort analysis. This gives us a final sample of 120,764 individuals.

[8] *Who's Who* is widely used as a noun denoting "a group of the most important people involved in a particular subject or activity." In the Merriam-Webster dictionary, the most prominent synonym for the term is "elite" (http://www.merriam-webster.com/dictionary/who's%20who).

[9] The two lead authors (AR and SF) signed a nondisclosure agreement with the publishers, so the data will not be made publicly available.

[10] The size of *Who's Who*, relative to the U.K. population, has remained remarkably stable over time. The 1905 edition had around 16,500 entrants, accounting for about .04 percent of the U.K. population. *Who's Who* has certainly expanded in size over this period, but it still constitutes only about .05 percent of the U.K. population.

We provide descriptive statistics of the sample by birth cohort in Part B of the online supplement. Notably, women constitute only 23 percent of the most recent birth cohort, even though this number has grown steadily over time. The number of foreign-born entrants has also increased, making up 5 percent of the most recent birth cohort (1965 to 1969). The average age at which individuals are included in *Who's Who* is 50, but this is only available for the past 30 years. Part C of the online supplement shows cohorts by nine occupational fields.

Key variables

We are principally concerned with data within *Who's Who* that help us explore elite schools, universities, and private members clubs. First, we turn to schools. Respondents provide details of the specific pre-university schools they attended. Here we are particularly interested in four types of secondary schools: (1) Clarendon schools (currently around .17 percent of school pupils age 13 to 18), (2) private schools in the Headmasters' and Headmistresses' Conference (HMC) (currently 2.5 percent of all pupils), (3) other private schools (currently 4.5 percent of all pupils), and (4) any other school. The Clarendon schools are the nine male-only public schools most synonymous with the term "old boys,"[11] and we therefore refer to them as constituting the building block of a strong version of elite schooling. The HMC schools constitute a wider network of 209 largely male-only public schools (including the Clarendon schools); together, we refer to them as representing the weak version of elite schooling. Finally, we derive a list of other private schools from two sources: (1) the current list of registered private schools in the United Kingdom and (2) available histories of previously private schools.[12]

Second, we look at university education. Here we are principally concerned with Oxford and Cambridge, as they were, and still are, the most prestigious universities in the United Kingdom. Third, we consider memberships of private, members-only clubs. The vast majority of the clubs listed are private and London-based, such as The Athenaeum, The Carlton, The Reform Club, and White's; they were, until recently, male-only (some, like the Beefsteak Club, are still male-only).

Analysis

To explore whether the relationship between schooling and elite recruitment has changed over time, we conduct a cohort analysis based on a series of birth cohorts born between 1830 and 1969. This allows us to cover over a century of British society, ranging from approximately 1897 (when the oldest people in our sample would have been about 67) until the present day. We define cohorts as five-year periods, for example, 1830 to 1834 and 1835 to 1839. We take this approach to maximize the sample size for each cohort and to smooth out any year-on-year

[11] Today, not all Clarendon schools are male-only. Westminster (since 1973), Shrewsbury (since 2008), and Charterhouse (since the mid-1970s) now take women in the sixth form (ages 16 to 18). Rugby has been fully co-educational since 1992. However, across the period we are interested in (1830 to 1969), these schools were male-only. Even HMC schools—the weaker version of the old boys' network—only provided about 3 percent of places to women during the 1970s (Walford 1986).

[12] We focus on current private schools because they were the ones able to survive the shift to state-funded schools in the 1970s.

fluctuations. The smallest cohort contains 1,397 individuals, and the largest contains 5,773. Most cohorts (20 out of 28) have more than 4,000 individuals (see Part B of the online supplement). We restrict our analysis to these birth cohorts because the number of individuals born either side of this period is smaller (fewer than 1,000 individuals).

We conduct the cohort analysis by plotting trends over time for different groups. These time series plots allow us to narratively explore changes in elite recruitment. To formally assess whether there are changes in the composition of *Who's Who* between cohorts, we estimate structural break models for each school type. A structural break represents a durable shift in the data generating process of a time series. In particular, we use endogenous techniques for detecting structural breaks, where the algorithm uses only the data to learn and detect where the breakpoints lie.[13] Methods testing for multiple structural breaks therefore assume the timing and number of structural breaks are unknown a priori and are ideal for testing "the effectiveness of policy changes," such as educational reforms, by comparing "the estimated break date with the effective date of a policy change" (Bai and Perron 1998a: 3). This does not mean we are testing the impact of specific reforms; instead, we are searching the data inductively for shifts.

We use annual data (140 observations) with a three-year moving average to estimate these models. Following the applied econometric literature (Bai and Perron 1998a, 1998b), we stipulate that (in all models) the minimal number of observations between structural breaks is 21 years, which represents a trimming percentage of 15 percent. This ensures that estimated break points are not random noise but significant shifts in the series. There are more than 12,000 possible combinations for each time series (Bai and Perron 1998a); we select the best fitting model according to the Bayesian Information Criterion and the residual sum of squares.

We calculate odds ratios to estimate the association between different types of schooling and entry into *Who's Who*. To do this, we compare the composition of *Who's Who* with a baseline population drawn from Census data. Our baseline comparison is the over-35 population, because very few people in *Who's Who* are under age 35 (around .6 percent of current members of *Who's Who*) and this is commonly considered the age at which occupational trajectories solidify (Goldthorpe et al. 1980). To avoid sampling on the dependent variable, we use this data to calculate the number of people born in particular cohorts and then to estimate the odds ratios of reaching *Who's Who* by school type. More details on the data used to estimate these odds ratios are provided in Part D of the online supplement.

We also situate the importance of schools in relation to other elite institutions. Here, we are particularly interested in whether attending Oxbridge or a private members club is a helpful step in reaching the elite, regardless of whether an individual attended an elite school. To estimate these odds ratios, we draw on archival sources, such as university admissions data from Clarendon and HMC schools along with publicly available data on entrants to Oxford

[13] We use the pre-eminent test in applied research, which was proposed theoretically in Bai and Perron (1998b) and then further developed empirically in Bai and Perron (1998a). This is based on a dynamic programming algorithm that obtains global minimizers of the sum of squared residuals, whereby a large set of breaks are estimated from the possible sets of breaks to see which combination produces the best fit.

and Cambridge. Finally, we utilize data from Whitaker's Almanack, which has recorded the number and size of elite clubs since the 1850s (for details on all sources, see Part D of the online supplement).

Archival sources and census data may still contain measurement error, leading to imprecise estimates of odds ratios. As a robustness check, we therefore calculate upper and lower intervals for our estimates, assuming that the true value may be between 10 percent above or below the value reported in archival sources. Estimates of these upper and lower intervals are not confidence intervals and do not necessarily function in the same way (discussed in more detail in Part E of the online supplement); rather, they are sensitizing devices to help capture the degree of uncertainty in our estimates and account for potential measurement error in the ratio of Clarendon alumni in *Who's Who* compared to those who are not.

Results

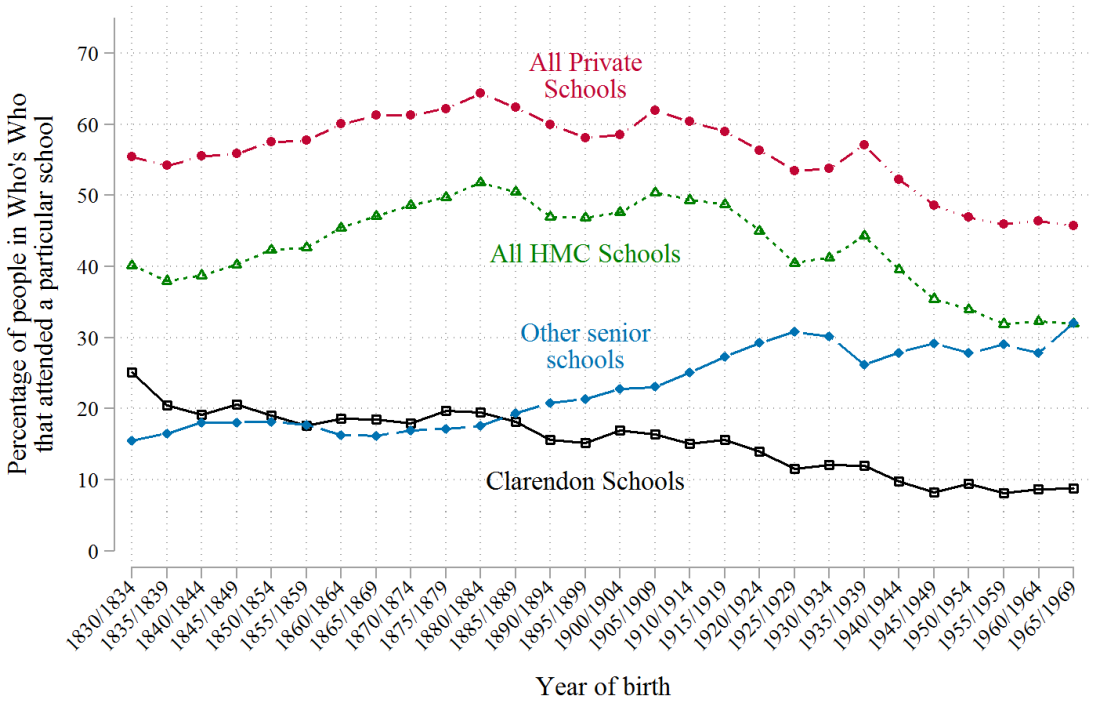
The Decline of the Old Boy

We begin our analysis by exploring the changing educational composition of *Who's Who* across birth cohorts born between 1830 and 1969. Specifically, in Figure 1, we plot the proportion of entrants in each cohort who report attending Clarendon, HMC, private, or all other schools.

There is a clear downward trend over this period in the proportion of *Who's Who* entrants who have attended a Clarendon school (Figure 1). Among those born in the 1840s, approximately 20 percent had attended one of these nine schools, whereas the figure has dropped to 8 percent among the most recent birth cohort. Compare this with all HMC schools (the Clarendon plus other HMC schools): during the Victorian era, as these schools expanded in number and size, they supplied a larger share of the elite. This peaked among individuals born between 1905 and 1914, when around 50 percent of *Who's Who* had attended an HMC school. After this peak, just prior to WWI, there was a relatively modest fall, which has stabilized since WWII at 31 to 32 percent of all entrants.

Of course, these data do not incorporate the underlying population from which the people in *Who's Who* are drawn, and so do not necessarily reveal anything about the changing role of elite schooling in elite recruitment. To address this issue, we compare individuals who attended Clarendon schools with all others in that birth cohort by calculating the number of people born over a five-year period from census records. Among people born between 1845 and 1849, the odds ratio of being included in *Who's Who* for Clarendon school students versus all others is 273.69 (lower = 248.50; upper = 303.31). This means that someone born in 1847 who attended a Clarendon school was approximately 274 times more likely to end up in *Who's Who* than someone born in the same year who did not attend one of these nine schools. If we move forward to our last cohort (those born between 1965 and 1969), we see a significant decline: someone born in 1967, for example, who attended a Clarendon school is approximately 67 times more likely to end up in *Who's Who*.

Figure 1: *Who's Who* Entrants by School Type, 1830 to 1969 Cohorts

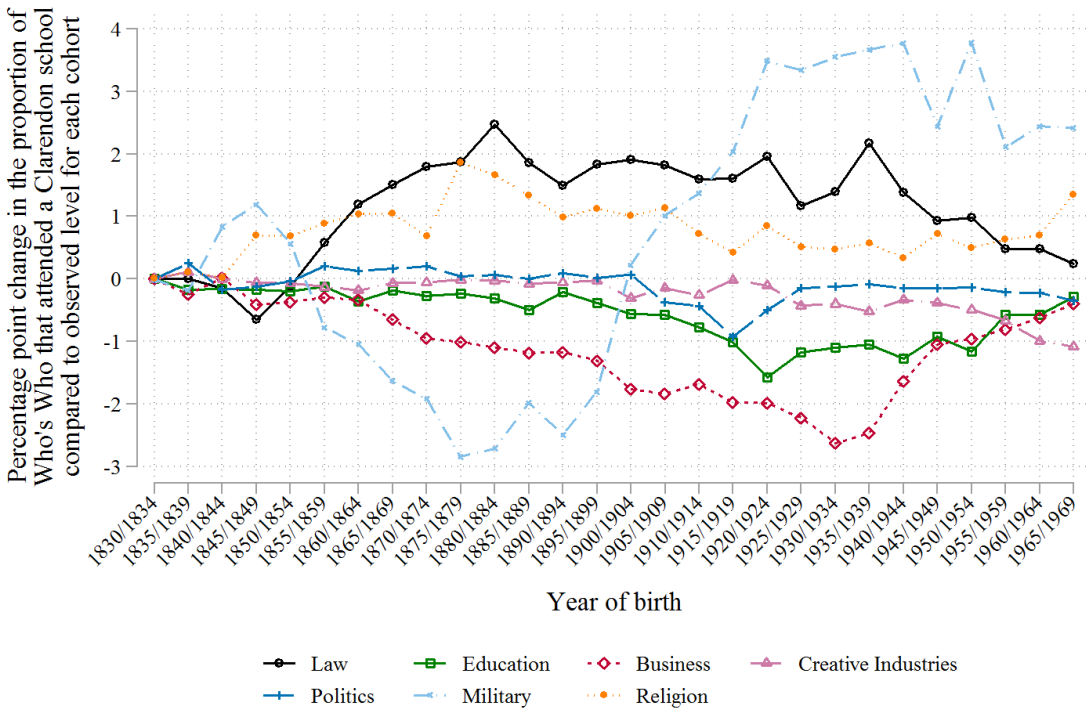


Explaining the Decline of the Old Boy

One possible driver of this downward trend may be the changing occupational composition of the British elite and, in particular, the waning significance of the military and the clergy. Reflecting the decline of the British Empire, the military elite in *Who's Who* fell precipitously throughout the twentieth century (for full details, see Part C of the online supplement). This is significant because military elites have a well-established and long-standing connection with Clarendon schools (Cookson and Persell 1985; Macdonald 1980); a connection that, as Part F of the online supplement illustrates, has been consistently stronger than other sectors. Similarly, the secularization of British society since the Victorian era coincides with substantial declines in the number of religious leaders in *Who's Who*, another sector with long-standing links to Clarendon schools (Bishop 1957). To unpack the potential significance of these declines, we conduct a counterfactual analysis (Part G of the online supplement) estimating the proportion of *Who's Who* that would have come from Clarendon schools if the relative size of the clergy, the military, and all other occupational sectors had remained unchanged. In Figure 2, we plot the percentage-point difference between the counterfactual and actual proportion of Clarendon school alumni in each cohort.

Figure 2 confirms the modest compositional significance of religion and the military relative to other occupational changes in *Who's Who*. In particular, among the 1965 to 1969 cohort, our

Figure 2: Counterfactual Analysis of the Percentage of Clarendon School Alumni in *Who's Who* Had the Relative Size of All Occupations Remained Constant over Time



Notes: To calculate the counterfactuals, we assume that the military, for example, constitutes the same proportion of Who's Who in each cohort. This in then applied sequentially to each field. More details are available in Part G of the online supplement.

counterfactual suggests that the proportion of Clarendon school alumni in *Who's Who* would have been 1.35 percent higher if the relative size of the clergy had remained the same over time, and 2.42 percent higher if the relative size of the military had remained the same over time. However, if we freeze the entire occupational structure of *Who's Who* in 1830 and assume it was completely stable for the entire period (i.e., we sum every line in Figure 2), we find that only a small part (around 10 percent) of the change in the proportion of Clarendon school alumni in *Who's Who* is attributable to changes in the occupational composition of the elite (see Part G of the online supplement).

Aside from occupational shifts in *Who's Who*, there have also been profound changes in the number of women and foreign-born entrants (see Part B of the online supplement). During this period, the Clarendon schools remained male-only and largely British. Increases in the number of female and international entrants in *Who's Who* may thus reflect an important increase in the competition faced by Clarendon alumni. We test this by comparing the main time trend for Clarendon schools with the same time trend if we exclude all women and foreign-born

entrants (see Part H of the online supplement). We find that these changes make only a small difference (around 2 percentage points among the 1965 to 1969 cohort).

Beyond compositional shifts, another potential driver of change may be the combined effect of educational reforms in Britain. As outlined in the introduction, these reforms transformed access to education, eventually enabling nearly all young people to attend school (until age 16), and potentially undermining the signalling power of elite schools. To investigate this hypothesis, we conduct a series of structural break tests that first examine inductively when potential breaks in the recruitment of old boys emerge, and second, whether the number and temporality of the breaks in these time series coincide with three key education reforms: (1) the 1890 reforms to the Elementary Education Act (affecting most keenly those born from 1880 onward), (2) the 1918 Fisher Act (implemented in the mid-1920s and affecting individuals born from 1915 onward), and (3) the 1944 Education Act (implemented between 1949 and 1951 and affecting those born after 1935).

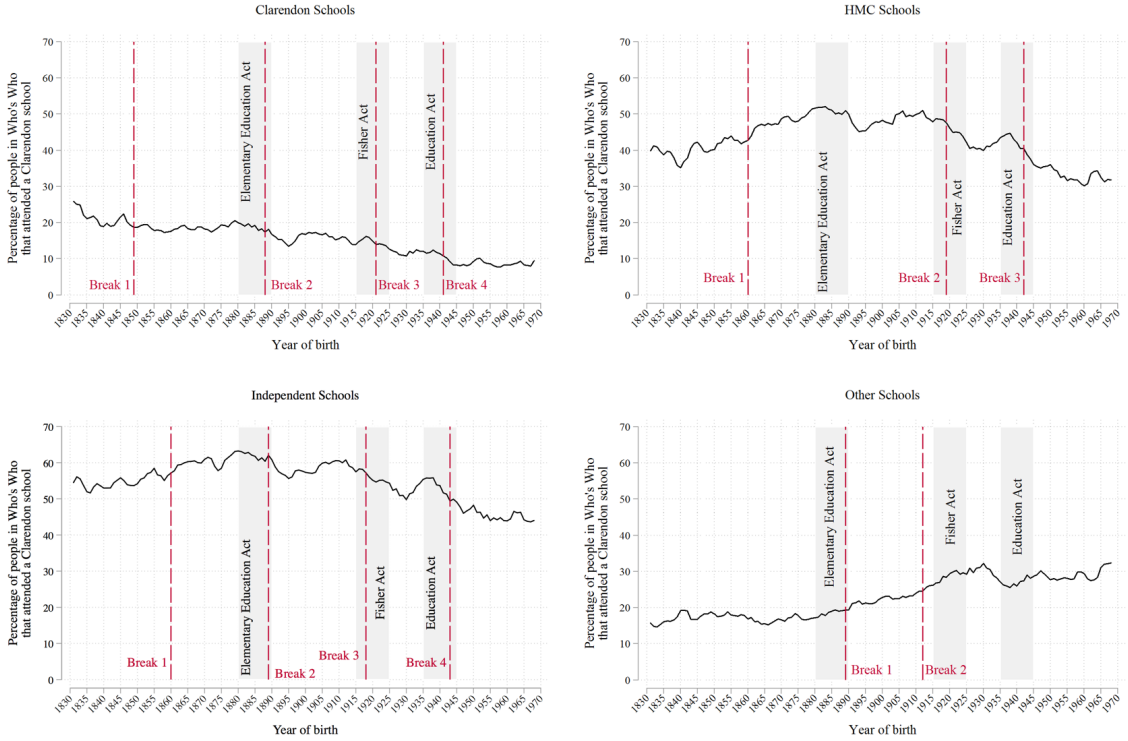
In each case, the staggered nature of the reforms suggest that if they meaningfully altered the power of the Clarendon schools, then any change would most likely appear once the reforms were fully implemented. In fact, Figure 3 shows that, despite the large number of possible combinations for each time series (over 12,000), the estimated structural breaks occur in periods remarkably similar to the timing of two main education reforms. Alumni of all three types of private schools experienced substantial declines in elite recruitment following introduction of the 1918 Fisher Act and the 1944 Education Act.[14]

Simply identifying structural breaks in these time series does not reveal that the decline in Clarendon alumni is strongly associated with educational reform. To explore this hypothesis further, we estimate time series regression models (see Table 1) examining whether the long-run decline is associated with four measures of educational outcomes that can be viewed as proxies for these reforms: (1) the proportion of government spending on education (percent GDP) when any given cohort was age 10, (2) the proportion of the adult population without any formal schooling when any given cohort was age 35, (3) the number of children enrolled in school when any given cohort was age 10 (as a proportion of children age 0 to 14), and (4) the number of people attending university when any given cohort was age 20 (as a proportion of the population age 15 to 24). We use proxies because if the decline in Clarendon schools is explained by educational reforms, then we would expect it to be temporally correlated with other education-related outcomes that should also be affected by these policy changes. In each case, these proxies are correlated with the decline in Clarendon alumni.

Of course, other covariates may also explain these associations between educational outcomes and the decline in elite schools. We therefore include four possible confounding covariates in our regression models, each of which feature in the historical literature on this topic. First, public school boys were frequently recruited to help govern colonies via the civil service or

[14]We re-estimated the structural break tests using annual data and a five-year moving average (instead of a three-year moving average); the breaks occur in almost exactly the same years (see Part N of the online supplement).

Figure 3: Structural Break Tests and Educational Reform (Clarendon Schools, HMC Schools, All Private Schools, and Other Nonprivate Schools).



Notes: The three education reforms are the1890 reforms to the Elementary Education Act (affecting most keenly individuals born from 1880 onward), the Fisher Act of 1918 (affecting those born from 1915 onward), and the Education Act of 1944 (affecting those born after 1935). We use annual data (140 observations) with a three-year moving average for these analyses.

other government-sponsored enterprises (Skidelsky 2003). The decline of the empire from the mid-1800s onward may thus have restricted certain elite trajectories for Clarendon alumni (Honey 1977). To examine this, we use the geographic size of the British Empire (as a percent of the world's land mass) when a cohort was age 35 as a measure of its decline. Second, as mentioned earlier, the Clarendon schools had strong and explicit links with the military. Major international conflicts, however, would have required many alumni to become officers, again potentially altering elite trajectories for those required to serve (Honey 1977). We explore this relationship more formally by looking at defense spending as a percentage of national GDP. Finally, Savage and Williams (2008) argue that changes in the economy, such as increased financialization, restructured the power of certain elite factions away from the traditional elites associated with Clarendon schools and toward a more open and diffuse business elite. To examine this, we measure (1) the international circulation of the pound sterling when a cohort was age 35 and (2) the net surplus of the financial sector as a percent of GDP when a cohort was age 35.

Table 1: Time Series Regression Analysis of the Association between Education Outcomes and the Proportion of Who's Who That Attended a Clarendon School.

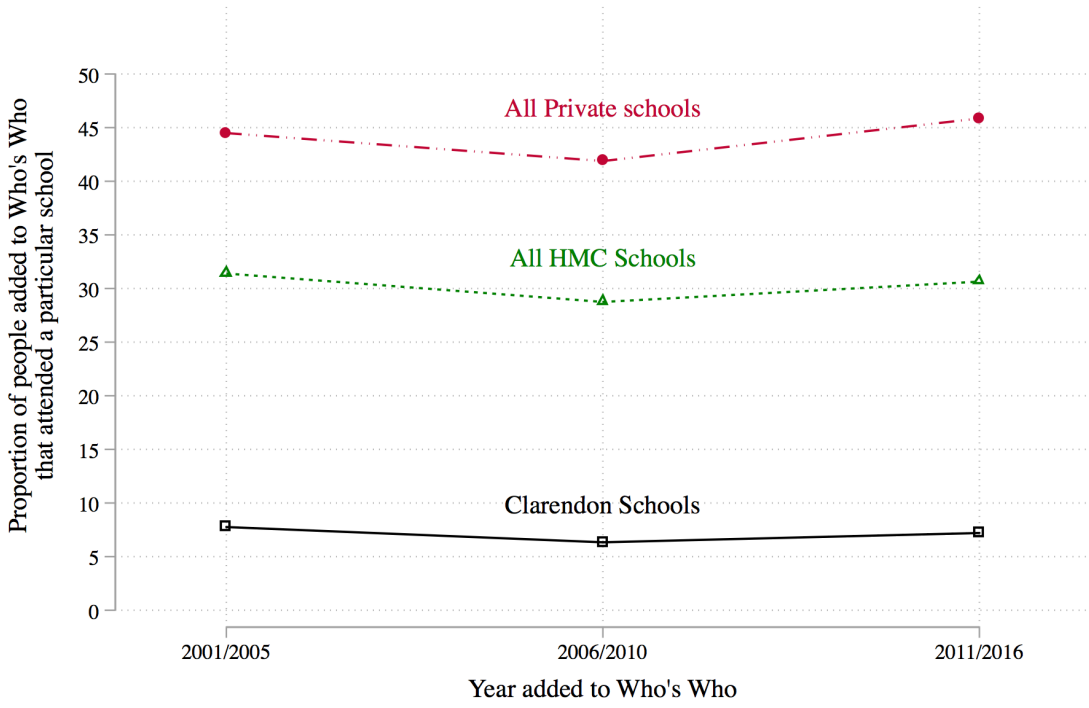
	Proportion of Who's Who That Attended a Clarendon School (t-statistic)			
Covariates	(1)	(2)	(3)	(4)
Education spending (% GDP) when cohort was 10 years old†	−1.302** (−4.81)			
Adult population with no formal schooling, cohort age 35 (% of population age 15 to 65)†		1.238** (4.51)		
Number of children enrolled in school (% of children age 0 to 14), cohort age 10†			−1.087** (−2.92)	
Number of university students (% of population age 15 to 24), cohort age 20†				−2.718* (−2.51)
Size of the empire (% of land mass), cohort age 35†	Y	Y	Y	Y
Money circulation (% GDP), cohort age 35	Y	Y	Y	Y
Defense spending (% GDP), cohort age 20	Y	Y	Y	Y
Net surplus of the financial sector (% GDP) cohort age 35	Y	Y	Y	Y
Observations	140	140	128	68
R^2	0.84	0.82	0.85	0.85

Notes: Estimates with Newey-West standard errors to adjust for autocorrelation and heteroscedasticity in the time series data up until the second lag. Results are the same if we difference the non-stationary covariates (see Part I of the online supplement). We used non-differenced covariates here to use the same variable structure across all independent variables. The results are also consistent with Granger Causality based F-tests, where lagged measures of educational outcomes are significant with respect to the proportion of Who's Who that attended a Clarendon school over and above the proportion of Clarendon school alumni in the previous period (see Part J of the online supplement). Education variables are logged to adjust for skew.
Variable sources: Defense spending (% GDP) and education spending (% GDP): Mitchell 1988 and public expenditure statistical analyses. Adult population with no formal schooling (percent of population age 15 to 65): Barro and Lee 2013; missing data has been linearly interpolated. Number of primary school students, number of university students, and money circulation (% GDP): Mitchell 2013. Size of the empire in kilometers: Dalio 2015; missing data has been linearly interpolated. Net surplus of the financial sector (% GDP): Thomas and Dimsdale 2017. † - logged outcomes. T-statistic are in parentheses. * $p < 0.05$, ** $p < 0.01$

Even adjusting for these four potential confounders (see Table 1), our models indicate that greater government spending on education, more people with some formal schooling, more children in primary school, and more university students predict fewer Clarendon alumni in *Who's Who*.[15] In short, although the decline of the military and clergy, the emancipation of women, and other unmeasured factors contributed to the decline of the Clarendon schools, our structural break and regression analyses are consistent with the timing of educational re-

[15] As a sensitivity test, we re-estimated these models using the first-difference of the non-stationary variables; our results are broadly the same (see Part I of the online supplement). We also explored whether these models are consistent with Granger causality (Wooldridge 2010) based tests of statistical significance: a more stringent test of a temporal association. In each model, our results are consistent with Granger causality (see Part J of the online supplement). The reverse is not true; that is, the proportion of Clarendon school alumni in *Who's Who* does not Granger-cause future education spending.

Figure 4: The Persistence of Old Boys in Who's Who, 2001 to 2016.



forms. This suggests that patterns of elite recruitment were meaningfully altered following the democratization and standardization of education.

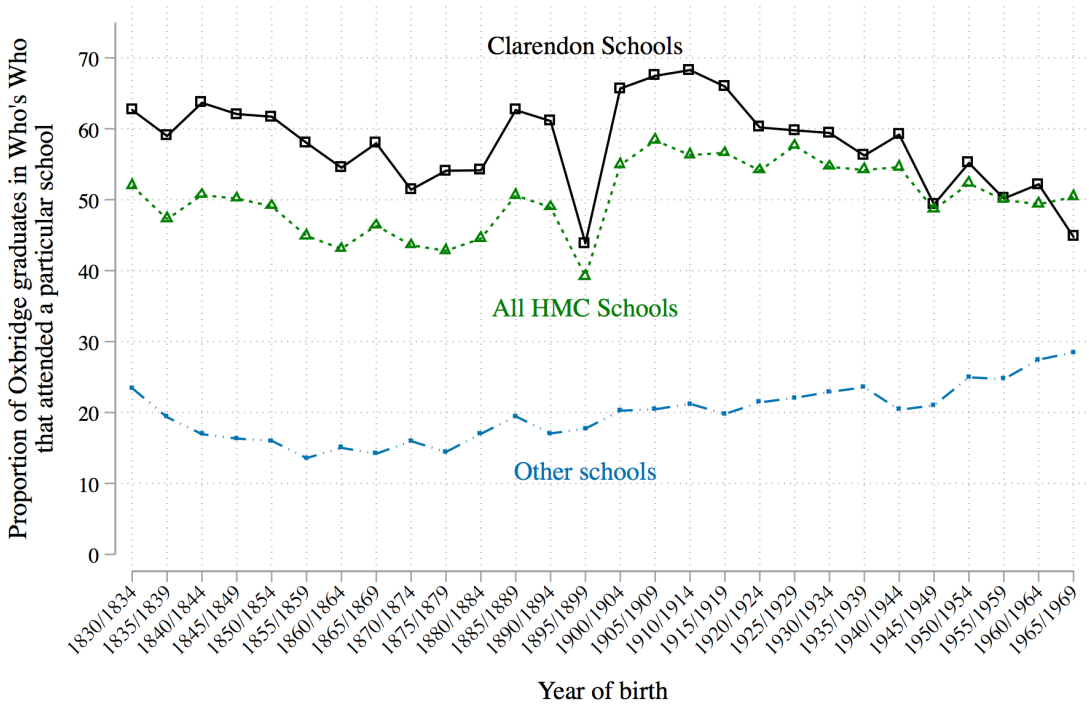
The Persistence of the Old Boy

So far our results point toward a significant decline in the reproductive power of Britain's elite schools over time, and a concomitant opening up in terms of the composition of the British elite. Yet it is important to stress that this decline must be viewed in a wider context of persistence rather than cessation. Indeed, considering the radical changes to British society that occurred during this period, Figure 1 underlines remarkable continuity in the force of Britain's elite schools. Put simply, even at their lowest ebb, nine small Clarendon schools (representing less than 1 in every 500 pupils) still produced nearly 1 in 10 of all *Who's Who* entrants.

The persistence story is further supported by Figure 4, which examines the educational background of individuals added to *Who's Who* since 2001, splitting them into three distinct periods (2001 to 2005, 2006 to 2010, and 2011 to 2016).[16] The figure shows the proportion of new entrants from the Clarendon schools, all HMC schools, and all private schools together, plotting these educational categories by the year in which individuals were added to *Who's*

[16] Data on the year of entry is systematically available only for fairly recent additions to *Who's Who*, hence the focus on the past 16 years.

Figure 5: Oxbridge Graduates within Who's Who by School Type, 1830 to 1969.



Notes: The 1895 to 1899 cohort is a clear outlier among alumni from elite schools. This group turned 18 during WWI, and therefore may have been conscripted rather than going to Oxbridge. They still reached Who's Who in large numbers (see Figure 1), but they did so without attending Oxbridge.

Who. Over the past 16 years, the proportion of new entrants from these elite schools remained relatively constant (around 8 percent for Clarendon schools and around 30 percent for other HMC schools). This suggests, then, that the decline in the reproductive power of elite schools has largely stalled.

Finally, it is important to contextualize the profound relative advantage still enjoyed by the alumni of elite schools. Within the current edition of *Who's Who*—which naturally combines a range of birth cohorts—9 percent of entrants attended a Clarendon school, and 32 percent attended one of the other HMC schools. This remains a large, even gross, overrepresentation. Comparing Clarendon graduates to individuals who attended all other schools (conservatively assuming that .17 percent of the population have attended a Clarendon school), the alumni of these nine elite schools are 94 times more likely to be a member of the British elite. Even alumni of the other HMC schools—our weaker definition of elite schooling—are 35 times more likely to be a member of *Who's Who*. Notably, Goldthorpe (2016: 100)—who is not known for sensationalist rhetoric—has described odds ratios of 6 as "unacceptably extreme" in terms of relative mobility. The connection between elite schooling and an individual's chances of

reaching the British elite is therefore clearly somewhere far beyond "unacceptable."

Eton and Then Oxford: Old Boys and Elite Universities

Our results indicate both decline and persistence in elite schools' ability to propel individuals into the British elite. However, it remains unclear precisely how this takes place. Is elite school attendance alone sufficient as a channel of elite recruitment, or does the power of schools lie more in their ability to place alumni in other elite institutions that then have the more decisive impact on elite recruitment? We address this issue by examining the connection between elite schools and the elite universities of Oxford and Cambridge.[17]

Table 2: The Association between Clarendon Schools, Oxbridge, and the Elite

	1910	**Now**
	Odds ratio	Odds ratio
Different groups	[Lower and Upper Interval]	[Lower and Upper Interval]
Baseline: People who have not been to Clarendon or Oxbridge		
Attended Oxbridge but did not	136.80	88.33
attend Clarendon school	[118.75 – 161.48]	[78.93 – 99.53]
Attended Clarendon but not	270.78	68.00
Oxbridge	[242.99 – 310.38]	[64.40 – 79.19]
Attended Clarendon and	314.32	145.18
Oxbridge	[280.20 – 360.88]	[131.98 – 163.61]

Notes: For 1910, we draw on a sample of Who's Who entrants who died after 1910—and were thus still included in the dictionary—but were born before 1875 and were therefore at least age 35 in 1910. We use published data sources to estimate that in 1910, .3 percent of the adult population (age 35 and over) attended Oxbridge and .14 percent of the adult population attended a Clarendon school. Among the current cohort, .66 percent attended Oxbridge and .17 percent attended a Clarendon school. These data triangulate with other published statistics on how many Clarendon students attend Oxbridge. Figures in parentheses are not confidence intervals. They are simulated upper and lower intervals for the odds ratio assuming that the standard deviation of the error is 5 percent. These figures represent the odds ratio if the number of both Clarendon and Oxbridge students were 10 percent lower (higher) than assumed for the point estimate (for more details, see Part E of the online supplement.

Oxbridge graduates have always comprised between 30 and 40 percent of the people in *Who's Who*.[18] However, as Figure 5 shows, looking at these Oxbridge graduates by the school they attended reveals stark within-group differences. The majority of Clarendon alumni in *Who's Who* reached the elite via Oxbridge (58 percent), whereas alumni from other schools were far

[17] Although other U.K. universities are now regarded as elite, such as the London School of Economics, this status has largely been acquired in recent decades, and therefore the birth cohorts we examine were largely unaffected. If we look at the non-Oxbridge, Russell Group universities (equivalent to R1 schools in the United States), around 5 percent of cohort members born at the end of the nineteenth century attended these universities; among individuals born in our last cohorts, this has almost quadrupled to around 20 percent, and most of this rise occurred since WWII.

[18] If anything, there has been a slight rise in the importance of attending Oxbridge over time, which seems consistent with the rising importance of universities more generally.

more likely to reach *Who's Who* via other universities (71 percent). The relative power of different institutional pathways in delivering elite destinations is less clear, however. Does everyone attending Oxbridge have an equal chance of getting into *Who's Who*? Or do old boys from specific schools have a better chance of achieving elite destinations (Rubinstein 2008)?

Drawing on published data sources (see Part D of the online supplement), we compare the chances of reaching *Who's Who* among Clarendon school students who did and did not attend Oxbridge in two time periods (see Table 1). First, we look at individuals who would have been included in *Who's Who* in the first decade of the twentieth century. Compared to those who did not attend either Clarendon or Oxbridge (our reference group), attending both elite institutions dramatically increased the odds of reaching *Who's Who* (OR = 314.32). Moreover, Clarendon alumni at Oxbridge were twice as likely as Oxbridge graduates who had not attended a Clarendon school to reach *Who's Who*. In fact, Table 2 shows that the singular power of attending an elite school significantly outweighed the power of attending an elite university at this point in history.

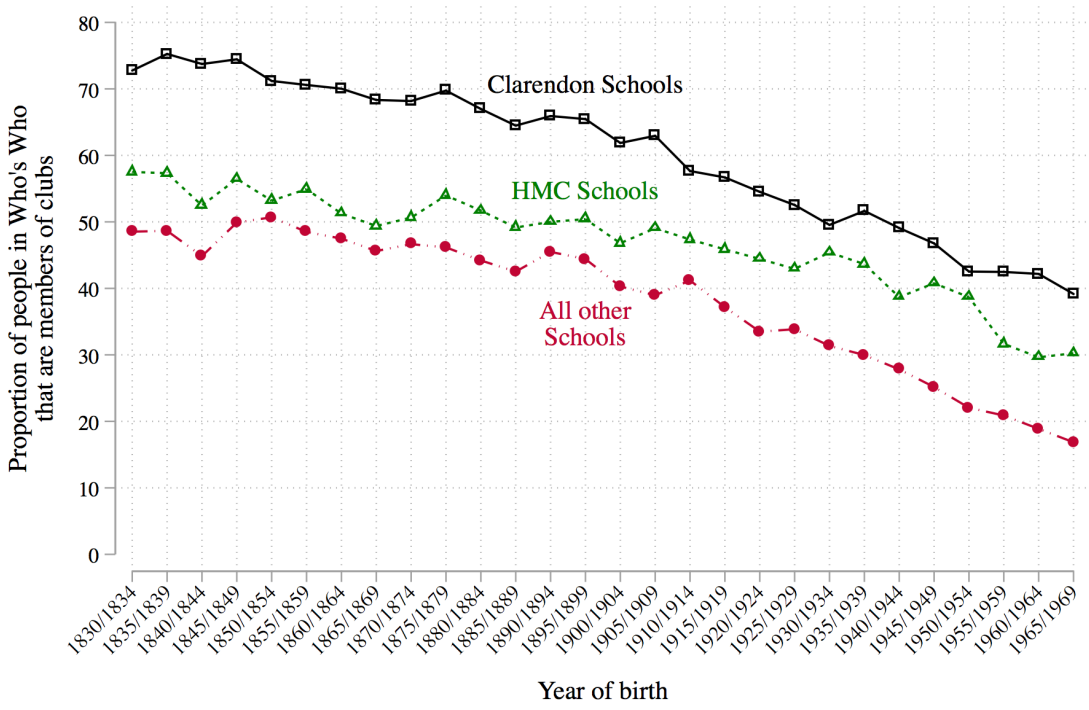
Among current members of *Who's Who*, the relationships are different in some respects but there are also important similarities. Consistent with earlier analysis, the force of all institutional channels has declined somewhat, suggesting elites are more frequently drawn from other institutions, including other universities. The sharpest decline has been among Clarendon school alumni who did not attend Oxbridge. However, despite this decline, attending a Clarendon school is still remarkably powerful. Independent of attending Oxbridge, graduates of Clarendon schools are nearly 68 times more likely to reach *Who's Who* than people who attend different schools (and also do not go to Oxbridge). Moreover, Clarendon school alumni at Oxbridge continue to be approximately twice as likely to reach the elite as Oxbridge graduates without the good fortune to attend a Clarendon school. This shows the distinct cumulative advantages that flow from following this particular elite pathway.

Old Boys and Private Members Clubs

Another way in which elite schools are thought to propel their alumni into elite positions is via their links to members-only clubs. Although club membership appears to be declining over time among members of *Who's Who*, Clarendon school alumni (and alumni of HMC schools) are consistently more likely to hold memberships than are other entrants (see Figure 6). Looking across the whole of *Who's Who*, approximately 60 percent of Clarendon school alumni report being a member of a club, compared to 46 percent of HMC school graduates and 37 percent of graduates of other schools. But, are Clarendon school graduates who are also members of clubs more likely than other groups to reach the elite?

Again, in Table 3, we draw on published data sources to compare the chances of reaching *Who's Who* among Clarendon school students who are, and are not, members of an elite club in two time periods. Here we see a strikingly similar pattern to our results for universities. According to our estimates, at least 72 percent of Clarendon alumni in *Who's Who* in the earliest period of the publication were members of a club. Compared to people who did not attend a Clarendon school and were not club members, Clarendon alumni who were club members were far more

Figure 6: Club Membership by School Type, 1830 to 1969.



likely to be in *Who's Who* (OR = 441.75). Looking at the most recent picture, we see some striking differences. The declining power of Clarendon schools is more apparent here, even though old boys who are club-men still have high odds of reaching *Who's Who* (OR = 160.89).[19]

Limitations of the Data and Analysis

It is important to acknowledge that our results raise a number of theoretical and methodological questions that our data do not allow us to fully address. First, *Who's Who* lacks a measure of social origin. This means we are unable to explore the relationship between elite school attendance and a person's class background, and therefore whether changes in the class composition of elite schools explains the decline of Clarendon schools. However, we can partially address this issue by using a proxy for class origin; that is, whether entrants' parents hold post-nominal letters, such as the aristocracy, British orders or decorations, PhDs (but not MAs or BAs), or fellowships to learned societies or professional bodies. Such titles do not indicate class position

[19] Perhaps most surprising is the rising odds of reaching *Who's Who* for those who did not attend a Clarendon school but are members of a club. This may reflect two processes: club membership may precede or follow inclusion in the elite. Critically, our results do not suggest club membership follows inclusion. If club membership increased after joining *Who's Who*, we would expect long-standing entrants to have higher rates of club membership than more recent entrants, adjusted for year of birth. Instead, more recent members are slightly more likely than older members to be club members (see Part K of the online supplement).

in a definite way, but they do suggest these entrants come from fairly privileged occupational backgrounds. In Part L of the online supplement, we show the proportion of Clarendon school alumni in *Who's Who* from titled and untitled backgrounds. Reassuringly, both groups show a similar pattern of decline. This suggests the changing class origins of Clarendon alumni does not entirely explain the decline we see in our results.

Table 3: The Association between Clarendon Schools, Clubs, and the British Elite

	1910	**Now**
	Odds ratio	Odds ratio
Different groups	[Lower and Upper Interval]	[Lower and Upper Interval]
Baseline: People who have not between to Clarendon and are not members of clubs		
Member of a club but did not	112.12	156.51
attend Clarendon school	[100.08 – 127.52]	[141.73 – 179.30]
Attended Clarendon but not	430.09	68.73
a member of a club	[365.43 – 472.94]	[60.29 – 80.43]
Attended Clarendon and is	441.75	160.89
a member of a club	[405.31 – 528.38]	[146.05 – 180.64]

Notes: For 1910, we draw on a sample of Who's Who who died after 1910—and were thus still included in the dictionary—but who were born before 1875 and were therefore at least age 35 in 1910. We use published data sources to estimate that 1 percent of the adult population (age 35 and over) were members of clubs, and .14 percent of the adult population attended a Clarendon school. Using data from Who's Who, we assume that 9 percent of club members came from Clarendon schools during this period. For the current period, published sources confirm that .33 percent of the adult population (35 and over) are club members, and .17 percent of the adult population attended a Clarendon school. Using data from Who's Who, we assume that 14 percent of club members came from Clarendon schools during this period. Figures in parentheses are not confidence intervals. They are simulated upper and lower intervals for the odds ratio assuming that the standard deviation of the error is 5 percent. These figures represent the odds ratio if the number of both Clarendon students and Club members was 10 percent lower (higher) than assumed for the point estimate (for more details, see Part E of the online supplement).

Second, the reputational criteria used to select *Who's Who* entrants are ambiguous. This opacity helps maintain the editorial independence of the publication, but it also limits our ability to scrutinize the validity of selection criteria, which others argue underrepresent certain elites, such as the super-rich and stars of popular culture (Fitzwilliam 2010; Paxman 2007). Moreover, the demographic composition of the Board of Advisors, and how this has changed over time, may also have affected who gets included. To partly address these uncertainties, we selected a sample of entrants who were automatically included based on occupational position[20] and compared them to all others in *Who's Who* (see Part M of the online supplement). The pattern of decline is similar for both groups, indicating that our results are not entirely due to changes in the Board of Advisors or their preferences.

[20]These include Members of Parliament; Fellows of the British Academy; Queen's (King's) Counsels, Poet Laureate, or Fellow of the Royal Society for Literature; Member of the Royal Academy; religious leaders in the Anglican church (i.e., Archbishops); Majors, Colonels, or Generals; Directors of the Bank of England; and Judges.

Third, educational reform emerges as one important contributor to the weakening of Clarendon schools. However, we acknowledge the challenges of using time series models to estimate gradual rather than abrupt changes in the process of elite recruitment. For example, it is unlikely that short-term (year-on-year) fluctuations in the number of children receiving a primary education—one of our proxies for meaningful education reform—will directly affect changes in the number of Clarendon school students in *Who's Who* many years later. Rather, of interest here is the gradual impact of reforms that slowly changed who was able to access elite trajectories, something time series models struggle to identify.

We would reiterate that this highly complex phenomenon may also be driven by factors that are hard to measure. For example, during this period many elite schools lost their sponsorship relationship with Oxford and Cambridge, potentially undermining their propulsive power. However, as these relationships were often informal and unrecorded, it is difficult to pinpoint when these changes took place. Moreover, many potentially important drivers require a different empirical lens. In particular, our analysis is hampered by a lack of data on how elite recruitment actually takes place in practice. A focus in future work on more concrete moments of recruitment, as demonstrated in Hartmann (2000), is thus pivotal for understanding the precise grounds on which closure may be enacted, and how this has changed over time. For example, the routinization of hiring and promotion processes within elite professions may have weakened nakedly nepotistic recruitment processes based on old boy networks (Savage and Williams 2009).

Finally, we recognize that our data are not without their limitations. It is worth noting, for example, that *Who's Who* entrants can refuse to be included. According to Katy McAdam (Head of Yearbooks at Bloomsbury Publishing), this is very rare, but it may matter because elites value anonymity (Khan 2012). Relatedly, biographical entries sometimes vary in the level of detail provided because individuals—as in other survey settings—retain some discretion over how they complete the questionnaire. As a result, pre-university education is unavailable in a small number of cases. However, if anything, the bias created by failing to mention schooling will almost certainly mean we underestimate the proportion of Clarendon-educated entrants: an Eton alumnus may fail to report their schooling, but it is very unlikely that someone reports attending Eton, if they, in fact, did not.

Discussion and conclusion

This article capitalizes on a dataset with unprecedented temporal and empirical scope to examine the patterns and channels of elite recruitment in Britain over the past 120 years. The analysis reveals two key results. First, we show that the ability of Britain's elite public schools—both Clarendon and HMC—to deliver elite destinations has declined significantly over time. Similarly, the institutional channels of elite recruitment that traditionally flow from attendance at these elite schools have also experienced a decline in relative power.

This weakening of old boy recruitment channels adds new insight to long-standing debates about how the composition of elites shapes the exercise of power. We begin our reflections

here by registering our skepticism that it is ever possible for sociologists to simply infer shared cognitive dispositions from shared educational origins. This is ultimately an empirical question, and one that much previous work tends to assume rather than investigate (Domhoff 2006; Miliband 1969; Mills 1956). However, we echo Scott (2008) in arguing that when elites are drawn from very specific educational channels, it is plausible that they are more likely to possess a unity and cohesion of consciousness. Yet our results question even this more qualified assertion. Put simply, no single educational trajectory has been entirely dominant in the British case. Individuals who attended elite schools—Clarendon and HMC—have barely ever comprised a majority within *Who's Who*, and in the current edition they represent approximately one in three. Even elite sectors most consistently associated with old boys, such as law, have never drawn more than a third from Clarendon schools. This is not to say that particular pockets or fractions of Britain's elite—past and present—have not been meaningfully dominated by Clarendon alumni (David Cameron's inner circle, for example, was notoriously dominated by Eton old boys).[21] This also does not mean that the elite as a whole fails to share a commitment to general ideals, such as the value of liberal democracy and the core principles of capitalism (Miliband 1969). Yet, beyond these rather obvious exceptions, our data certainly raise doubts that education plays, or has ever played, a decisive role in fostering widespread cognitive unity among the British elite.

The decline we observe also helps adjudicate between competing accounts of how elite schools have fared as the societies around them have undergone radical change. A long line of elite scholars in the United States and the United Kingdom have argued (or strongly implied) that the power of elite schools has remained remarkably stable over time. Most recently, Khan has argued that elite schools have successfully maintained their advantage by enacting a rhetorical sleight of hand: skillfully repositioning themselves not as upholders of ascribed social advantage, but as sites of meritocracy, admitting students based on individual educational excellence and hard work, and then propelling them on the same premise. This "ruse of elite rhetoric," in turn, obscures the ways in which these schools continue to reward privilege, "making differences in outcome appear a product of who people are rather than a product of the conditions of their making" (Khan 2011:185). Our results both support and problematize this account. While we concur that deploying the rhetoric of meritocracy successfully masks many of the contemporary functions of elite schools – a point we develop below - it is also clear that adaptation to radical structural change has not been seamless in the United Kingdom, and has led to a meaningful decline in the relative power of elite secondary schools.

Moreover, rather than situating this change in the context of the political movements of the 1960s, as Khan does in a U.S. context, we trace the meritocratic turn to the impact of much earlier educational reforms, and specifically the way they expanded access to, and standardized and differentiated the form of, credentials needed to oil elite trajectories. These changes shifted the symbolic power of the Great Schools from generalized status markers to incubators of educational excellence. But in this new, more competitive environment, although elite

[21] Although the roles played by these figures have changed over time, this group has included Oliver Letwin (former minister for government policy), Jo Johnson (former head of Cameron's policy unit), Ed Llewellyn (former chief of staff), Boris Johnson (Shadow Minister for Higher Education), and Rupert Harrison (George Osborne's former chief economic adviser).

schools have become effective producers of educational attainment, their relative power is far weaker than when the school itself acted as an unquestioned proxy for status. In other words, elite schools may no longer provide educationally less meritorious alumni—epitomized in the U.K. context by the caricatured comic figure of old-boy Tim-Nice-But-Dim[22]—with the same guarantee of a future elite position.

The implications of these findings stretch beyond elite studies to the sociology of education, public policy, and social stratification more broadly. In these fields, the overwhelming consensus is that educational reform has largely failed to reduce economic and social inequalities, particularly intergenerational mobility. Of course, our analysis cannot directly address the issue of social mobility. However, our results do suggest that educational reform was successful in undermining particular inequality-generating institutions, such as male-only elite schools. This does not necessarily contradict work on mobility; old boys may well continue to reach high aggregate class positions, but their ability to reach the very highest elite positions has been significantly undermined. Put more provocatively, whereas Tim-Nice-But-Dim could have conceivably become a Judge in 1916, he may only become a lawyer in 2016. This demonstrates how big class or other aggregate outcome variables can obscure more localized impacts of policy changes, as well as providing at least a partial rejoinder to the established scholarly narrative on the power of educational reform.

Our second key result stresses the dogged persistence of the old boy. Elite schools remain extraordinarily successful at producing Britain's future elites; Clarendon school alumni remain 94 times more likely to take up an elite position than individuals attending other schools. Moreover, alumni of elite schools are often very successful even when they do not pass through other elite institutions, such as Oxford, Cambridge, or private members clubs. Thus while a reduction in elite recruitment from public schools is certainly noteworthy, it is important to situate this decline in the wider contemporary context of the continuing, "unacceptably extreme" (Goldthorpe 2016), relative advantage enjoyed by these old boys.

The explanatory power of Khan's (2011) work lies in clarifying the mechanisms enabling this persistence. His account shows how elite schools deploy the narrative of "individual self-cultivation" to cover their students in a sheen of earned excellence, and thereby shroud the social conditions that made their excellence possible. We would add that to further understand this shift, it is useful to deploy Bourdieu's (1996) distinction between family- and school-mediated forms of social reproduction. Bourdieu used these concepts to understand France's elite universities, but in the U.K. context, they can be usefully extended to understand changes in elite schooling.

In the past, the reproductive power of Britain's public schools operated in much the same way as for elite families; families ensured reproduction by the direct transfer of economic resources whereas schools transferred a widely recognized elite status (to all students). However, as ed-

[22]Tim-Nice-But-Dim is a well-known TV comic character created by the British comedian Harry Enfield. He is an alumni of a fictional elite public school who goes on to be a banker in the City of London, despite being demonstrably dim in academic terms. His success is premised, instead, on being affable or nice.

ucational reform and other democratizing interventions threatened elite schools' institutional status, they wholly embraced the school-mediated mode of reproduction. This rests on the transfer of pedagogical resources, or cultural capital, which can then be cashed in for meritocratically legitimated credentials. Echoing the decline we observe in our data, Bourdieu (1996: 288) explains that this mode of reproduction is necessarily "less effective," as not all pupils will be educationally successful. Nevertheless, "this academic transfer compensates for its lesser reproductive return through an increased effectiveness in its concealment of the work of reproduction." The irony is thus that educational reforms may have undermined the power of elite schools, but doing so may actually have cemented their long-term status. After all, the school-mediated mode of reproduction—with its opaque cloak of meritocratic legitimacy—is arguably much harder to challenge than older but more transparent forms.

Khan's work also elucidates how this meritocratic turn has obscured the non-educational resources that continue to flow from elite schools. Of course, elite schools do more than prime students to achieve credentials; they also endow alumni with a particular way of being in the world that signals elite status to others (Lamont et al. 2014). To be clear, Britain's elite schools no longer engender the antiquated embodied style of the British Gentleman. Rather, as Ashley and colleagues (2015) argue, they are now more focused on cultivating broader (yet similarly gendered) dispositions of self-presentational polish that have currency across a range of prestigious occupational settings. This polish manifests in particular ways of speaking and dressing but also in more diffuse "ways of knowing"; it is "not what you learn in classes but how you know it," as Khan notes (2011:180). Alongside this, schools continue to develop and nurture valuable extracurricular interests and practices, particularly in terms of sport, cultural participation, and taste.[23] These dispositions and practices do not necessarily guarantee entrance to the elite, but they do smooth trajectories, especially in hyper-competitive settings where informal notions of cultural fit are used to distinguish between candidates who are otherwise similar in terms of credentials and experience (Ashley et al. 2015; Rivera 2012).[24]

Beyond these substantive concerns, our analysis also has implications for how elites are studied in the social sciences. Our use of *Who's Who* illustrates the gains that flow from investigating new, more fine-grained empirical sources that may be more accessible in a digital era. Similarly detailed datasets are being assembled elsewhere via administrative, tax, and geodemographic sources, but so far these have largely concentrated on economic elites (Burrows et al. 2017; Young et al. 2016). Alongside these valuable studies, we also need sources that allow us to understand broader or more comprehensive elite populations (for an exemplar, see Accominotti, Khan, and Storer forthcoming). In this regard, we encourage analyses of *Who's Who* in other national contexts, as well as sources such as Debrett's in the United Kingdom or American

[23]This concerted cultivation is revealed clearly in the current structure of Eton's school week: the average student spends at least 16 hours per week formally pursuing extracurricular activities, including sport and music. This is three times the amount spent by the average student attending any other state school in the United Kingdom.

[24]This may explain why we find a stall in the decline of the old boy after WWII, and why scholars examining the impact of more recent U.K. educational reforms, such as the introduction of comprehensive schooling (Boliver and Swift 2011), find little evidence of an equalizing effect. We should reiterate that our data preclude us from examining the effect of recent reforms on elite recruitment.

National Biography in the United States.

Finally, these analyses underline the importance of understanding the precise channels through which elite recruitment takes place. In the sociology of education, for example, an extensive body of work documents how elite universities act as incubators of social and cultural capital that have lasting effects on occupational outcomes (Steven et al. 2008). However, this literature often neglects the potential duality of such institutions, whereby individuals entering from specific places—such as elite secondary schools—may be better situated to take advantage of opportunities once inside (for a recent exception, see Jack 2016). For example, no empirical work that we know of has tried to calculate the joint relationship between specific schools and universities in delivering elite destinations. We stress that this represents an important task for education scholars in the future. As our results indicate, Oxbridge (and to a lesser extent clubs) may act as elite switchboards for all, but their propulsive power is greatly enhanced if one is doubly consecrated by a Clarendon school. In this way, we echo Mills (1956) in stressing that there remains two distinct trajectories through Britain's elite institutions: one for old boys and one for everyone else.

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Online Supplement

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Part A: List of Automatic Appointments to Who's Who

The authors requested a list of automatic appointments to Who's Who from Bloomsbury Press but they did not provide a fully exhaustive list. Instead, they offered an indicative guide to the types of appointments that warrant automatic inclusion. These are listed below:

- Members of Parliament
- Members of the devolved assemblies for Wales, Scotland, and Northern Ireland
- Heads of local government authorities
- Judges
- Queen's Counsels
- Senior civil servants (e.g., Head, Permanent Secretaries, Permanent Under Secretaries)
- Top level military appointments (e.g., Major, Colonel, Admiral)
- Top level religious appointments (e.g., Archbishop, Bishops, Chief Rabbi)
- Ambassadors
- Chairmen and chief executives of FTSE 100 companies
- Chancellors and vice chancellors of British universities
- Heads of subsidiary university bodies such as Oxbridge colleges (e.g., Christchurch) or schools within the University of London (e.g., Imperial College)
- Heads of public bodies (NHS England, UK Statistics Authority)
- Heads of arts, culture, and heritage organizations (British Museum, Science Museum, National Trust, Royal Opera House, RSC)
- Heads of science, medical, and technology organizations (British Medical Association)
- Members of the peerage and baronetage
- Heads of sports bodies (All Lawn Tennis Association, Football Association, MCC)
- Heads of certain secondary schools (e.g., Clarendon schools)
- Heads of media organizations (e.g., News Corporation, BBC, Channel 4)
- Winners of specific prizes (e.g., Booker Prize, Nobel, Turner Prize)
- Fellows of key professional bodies or institutions (e.g., British Academy, Royal Society)
- Dames and Knights

Part B: Descriptive Statistics of the Sample by Cohort

Cohort	N	% Female	% Who Was Who	% succession	% Foreign	% respond to education field
1830/1834	1,397	1.43	100	10.31	3.65	73.09
1835/1839	1,958	1.74	100	8.32	5.57	73.65
1840/1844	2,568	2.1	100	7.28	5.14	76.52
1845/1849	3,063	2.19	100	8.00	5.48	79.50
1850/1854	3,516	1.51	100	7.37	5.23	80.26
1855/1859	4,433	2.32	100	6.68	4.8	78.57
1860/1864	5,245	2.12	100	5.80	4.78	79.37
1865/1869	5,286	2.15	100	6.09	4.61	79.85
1870/1874	5,411	1.87	100	5.47	3.38	79.74
1875/1879	5,279	2.67	100	6.10	4.08	82.40
1880/1884	5,099	2.46	100	6.41	3.48	86.08
1885/1889	4,704	2.82	100	6.36	3.62	89.16
1890/1894	4,361	4.03	100	6.35	3.43	91.10
1895/1899	4,126	4.96	100	7.46	3.35	92.56
1900/1904	4,381	4.67	100	8.29	3.22	95.28
1905/1909	4,767	4.55	100	7.74	3.53	96.43
1910/1914	4,827	4.28	99.79	7.60	5.37	96.87
1915/1919	4,325	4.93	97.28	7.17	7.91	97.62
1920/1924	4,795	4.84	86.99	6.44	9.25	97.46
1925/1929	4,883	5.33	64.16	6.45	11.83	97.93
1930/1934	4,607	6.14	41.05	6.06	12.45	97.83
1935/1939	4,665	7.88	22.27	6.50	11.8	98.01
1940/1944	5,093	10.83	11.57	5.16	11.76	97.68
1945/1949	5,773	13.67	5.9	5.32	8.99	97.80
1950/1954	4,673	17.45	3.55	5.48	8.6	97.99
1955/1959	3,771	21.39	1.6	5.49	8.25	97.22
1960/1964	2,747	23.62	0.81	4.88	7.74	97.09
1965/1969	1,689	24.78	0.37	5.92	7.74	96.15

Part C: Fields of Occupation by Cohort

Cohort	Education	Military	Law	Politics	Business	Creative Industries	Celebrity	Religion	Aristocracy
1830/1834	5.53	28.17	24.25	12.43	8.52	7.98	.15	11.51	1.46
1835/1839	6.37	27.19	24.53	11.24	9.63	7.14	.17	11.18	2.55
1840/1844	7.12	22.53	24.82	13.72	8.81	8.17	.51	12.41	1.91
1845/1849	7.27	19.86	27.37	12.95	11.22	8.96	.04	9.84	2.50
1850/1854	7.33	22.12	25.43	12.84	11.17	8.66	.34	9.72	2.38
1855/1859	6.80	28.10	21.94	11.08	11.86	9.53	.34	8.20	2.14
1860/1864	8.39	29.67	19.19	11.65	11.15	9.74	.27	7.64	2.30
1865/1869	7.06	32.06	18.21	11.40	13.16	8.97	.31	6.64	2.18
1870/1874	7.44	34.12	16.23	11.42	14.07	8.36	.27	6.12	1.96
1875/1879	7.60	35.73	14.91	12.16	15.45	8.18	.39	3.52	2.05
1880/1884	8.04	34.56	13.74	12.12	15.40	8.44	.28	5.66	1.77
1885/1889	9.24	31.11	14.78	12.65	16.05	8.99	.35	4.93	1.90
1890/1894	8.48	33.52	14.10	12.19	17.51	9.10	.07	3.33	1.69
1895/1899	10.32	30.95	14.02	12.73	17.48	9.08	.26	3.35	1.80
1900/1904	13.02	20.96	15.34	12.34	20.13	10.92	.17	4.81	2.32
1905/1909	13.44	17.97	14.80	15.49	20.05	10.28	.27	4.76	2.93
1910/1914	14.77	16.26	14.46	15.87	20.67	10.58	.52	4.86	2.00
1915/1919	17.79	14.40	13.20	19.71	19.52	8.65	.79	3.97	1.97
1920/1924	21.90	9.63	12.53	17.63	22.40	9.54	.85	3.82	1.69
1925/1929	21.72	6.22	13.18	14.88	23.68	12.66	1.12	4.72	1.82
1930/1934	22.03	5.13	12.57	14.41	24.54	12.42	1.14	5.06	2.71
1935/1939	25.19	3.75	11.20	13.82	24.35	13.03	1.34	4.74	2.58
1940/1944	27.81	2.36	13.17	15.22	21.09	12.41	1.46	3.94	2.54

1945/1949	28.30	1.98	15.60	15.69	18.45	13.07	1.21	3.21	2.50
1950/1954	27.30	2.44	17.01	16.79	15.38	13.19	1.07	3.90	2.92
1955/1959	22.07	3.24	18.19	16.81	15.27	15.72	1.17	4.14	3.40
1960/1964	18.23	2.92	19.91	17.87	14.77	18.42	1.39	3.17	3.32
1965/1969	13.92	1.48	21.62	21.15	11.26	21.03	1.66	2.25	5.63

Note: Rows may not equal 100 due to rounding. Who's Who categorizes individuals into 25 fields. Many of these fields are quite small, so we created nine larger aggregate categories to document the broad patterns over time. Education contains 'Education and learning,' 'Medicine,' 'Scholarship and research,' and 'Science.' Military contains 'Armed forces and intelligence.' Law contains 'Law and crime.' Politics contains 'Politics and government' and 'Social welfare and reform.' Business contains 'Business and finance,' 'Trade and retailing,' 'Agriculture and food,' 'Building and heavy engineering,' 'Manufacture and industry,' 'Technology,' and 'Transport and Communication.' Creative industries contains 'Art,' 'Film, broadcasting, publishing,' 'Music,' 'Theatre and entertainment,' and 'Literature and journalism.' Celebrity contains 'Individuals,' 'Travel and exploration,' and 'Sports and games.' Religion contains 'Religion and belief.' Aristocracy contains 'Royalty and aristocracy.'

Part D: Data Sources Used to Calculate Odds Ratios

We calculate odds ratios in the standard way, but the data sources behind those calculations are drawn from a variety of sources. In the table below, we outline some of the variables and assumptions used to calculate different odds ratios in the article. Who's Who is the population of interest, so we compare the Who's Who data to the wider population (over the age of 35). The main point of uncertainty is how many, for example, Clarendon students there are in the population or how many Oxbridge graduates there are in the population. To generate these estimates, we use a variety of official or published sources, as detailed below.

Consider the Clarendon school students as a proportion of the population. In 1962 there were approximately 6,322 students at Clarendon schools age 13 to 18. We want to generalize this number to the whole population in Who's Who now, so we calculate the number of young people age 13 to 18 using Census data. With these two figures, we then can calculate the proportion of the population who attended Clarendon schools at that time and apply this same number to the adult population in the present. This same technique can be applied to other key variables. Of course, to understand the joint probability of reaching Who's Who—conditional on attending both a Clarendon school and Oxbridge—we need to know what proportion of Oxbridge students are from Clarendon schools. These data are available for some years or periods, and these are also reported below.

Most of these estimates rely on published sources. There are two exceptions. The data on clubs are less certain. We derive the proportion of club members who attended a Clarendon school from Who's Who data. This is a conservative approach because we might assume that Clarendon school alumni who are also members of clubs may have a greater chance of reaching Who's Who, and therefore assuming the proportion observed in Who's Who is the same as the underlying population may lead to an underestimate of the link between Clarendon schools and clubs. Approximately, 14 percent of club members in Who's Who were Clarendon school alumni in 2010. However, we assume that the proportion of club members from Clarendon schools was lower than this number for two reasons: first, the total number of club members was larger in 1910 (denominator) while the number of Clarendon school graduates (numerator) is largely stable and consistently smaller than the total number of club members; second, even if every Clarendon school graduate was a club member they would still only account for 13 percent of all club members. We therefore suggest that around 9 percent of all Clarendon school graduates were club members, which is consistent with the high levels of club membership we see in Who's Who among Clarendon alumni during the nineteenth century.

At each step we tried to take a conservative approach to ensure our estimates, while certainly containing some measurement error, are not unduly inflated.

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Variables and assumptions	Current data	Source	1910 data	Source
All adults >35	36024200	2011 Census	12547337	1911 Census
Clarendon students as % of the population	.168%	In 1962 there were approximately 6,322 students at Clarendon schools age 13 to 18 (Bamford 1967). Census data for the proportion of the population age 13 to 18 in 1961 were taken from International Historical Statistics 1750 to 2010 (Palgrave Macmillan 2013).	.137%	In 1845 there were around 3,500 Clarendon students; in 1864 there were around 2,750. Census data for the proportion of the population age 13 to 18 in 1841 and 1861 were taken from International Historical Statistics 1750 to 2010 (Palgrave Macmillan 2013). We calculated the average proportion of Clarendon students as percent of the population across these two data points.
Oxbridge students as % of the population	.66%	Total Oxbridge undergraduates in 1971 was 16,282. In 1949 it was around 13,000. Again, Census data for the proportion of the population age 19 to 21 in 1951 and 1971 were taken from International Historical Statistics 1750 to 2010 (Palgrave Macmillan 2013).	.312%	Total Oxbridge undergraduates in 1890 was 5,440. In 1870 it was 4,016. Again, Census data for the proportion of the population age 19 to 21 in 1871 and 1891 were taken from International Historical Statistics 1750 to 2010 (Palgrave Macmillan 2013).
Proportion of Clarendon students attending Oxbridge	39%	In 1955, 39 percent of Clarendon students were admitted to Oxbridge (Bishop 1957). Between 1930 and 1944, a small sample of students suggests around 44 percent had attended Oxbridge (Wakeford 1969).	>50%	Data on the proportion of Clarendon students who attended Oxbridge is scarce and mixed. If we take official data—which indicates the proportion of Oxbridge graduates from Clarendon schools and the size of Oxbridge at the time—then we estimate that over 50 percent (around 57 percent) of Clarendon graduates attended Oxbridge (Honey and Curthoys 2000).

Clarendon students as % of Oxbridge	20%	Between 1920 and 1939, 25 percent of Oxford students were from Clarendon schools (the number was slightly lower in Cambridge) (Greenstein 1994). This has declined since WWII; Clarendon schools now constitute around 10 percent of students (Sutton Trust 2008). On average, we assume around 20 percent of Oxbridge students were from Clarendon schools.	25%	Before 1850, around 33 percent of Oxford undergraduates attended Clarendon schools, and this was about the same in 1867 (Bishop 1957; Honey and Curthoys 2000). Just before WWI this had fallen to around 25 percent (Honey and Curthoys 2000). We therefore take a conservative approach and assume that approximately 25 percent of Oxbridge graduates attended a Clarendon school across this period.
Club members as % of the population	.29%	We use Whitaker's Almanack to estimate the number of clubs today. There are 62 clubs listed in the 2010 version of Whitaker's, a marked decline from 105 in 1910. We assume the average club membership increased slightly from 1,307 in 1910 to 1,700 in 2010. We therefore estimate there are 117,800 club members among these elite London clubs.	1.03%	Taddei (1999), using Whitaker's Almanack and other sources, estimates there were 129,434 club members in 1910.
Proportion of club members attending Clarendon	14%	Derived from Who's Who data.	9%	The club population was larger in 1910 and the number of Clarendon school alumni was smaller. We therefore assume, using Who's Who data as a guide, that the proportion of club members who attended a Clarendon school was around 9 percent in 1910.

Part E: Calculating the Upper and Lower Intervals for the Odds Ratios

To calculate odds ratios, we relied on data from publicly available sources describing the number of Clarendon school graduates, Oxbridge graduates, and club members in the population. We acknowledge that these data may not precisely reflect the true values in the population. To account for this uncertainty, we calculated upper and lower intervals for our estimates using a consistent set of assumptions. The estimated upper and lower intervals are not confidence intervals and so do not behave in the same way; rather, they are sensitizing devices to help capture the degree of uncertainty in our estimates and highlight the magnitude of our findings. Here we describe this procedure and provide some empirical examples of the results it generates.

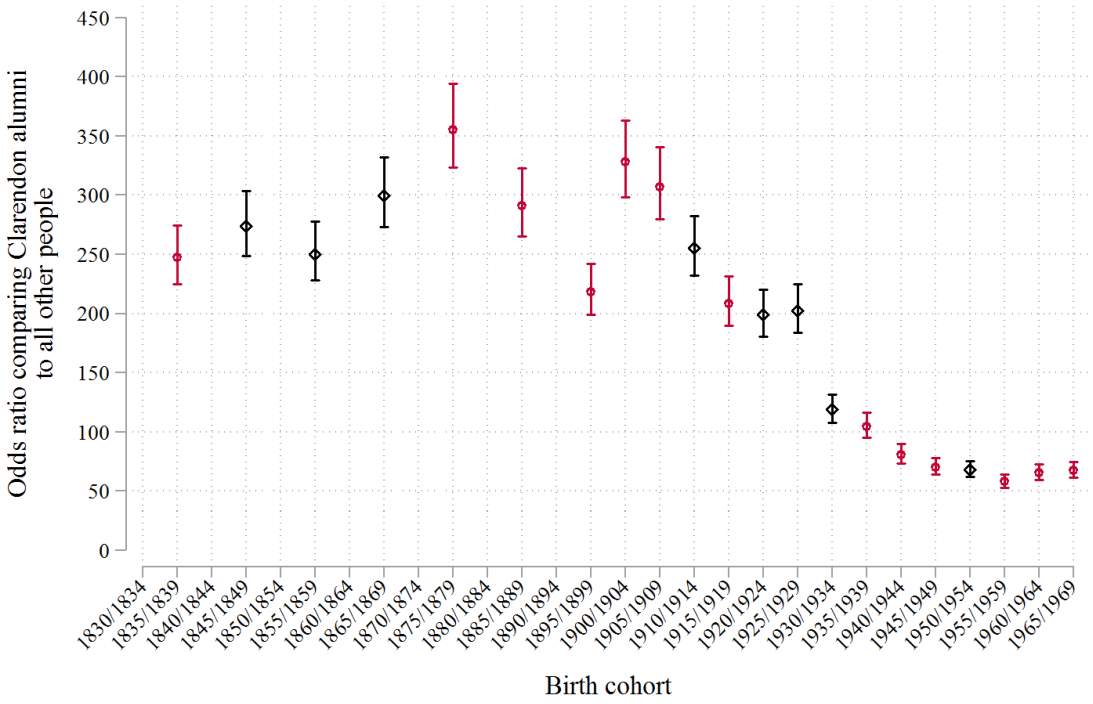
Consider the odds ratios for Clarendon school students. Here we know (1) the number of Clarendon school students in Who's Who, (2) the number of non-Clarendon school students in Who's Who, and (3) the size of the underlying population. We also need to know the number of people in the population who attended a Clarendon school (call this X), and we have publicly available sources that can tell us what this figure (X) might be. However, this figure is more uncertain.

Here, then, we use a simulation procedure to estimate what the odds ratio might look like if the total number of Clarendon school students in the population was either higher or lower than the number obtaine from published sources. To do this, we assume that error in X is normally distributed with a standard deviation of 5 percent of the estimate based on publicly available data. Assume that the estimated number of Clarendon school graduates in the population is 60,000. We then take 10,000 random draws from this distribution such that the mean is around 60,000 and 95 percent of the observations are between 54,000 and 66,000 (two standard deviations either side of the mean or 10 percent above and below the mean value). The estimated odds ratios if X = 54,000 and if X = 66,000 become our upper and lower intervals – 10 percent above and 10 percent below the mean value.

We can apply this same technique to calculate the odds ratios for specific cohorts over time. In this case, the uncertainty is the number of Clarendon students over a five-year period. We have this data for some but not all cohorts. For example, the cohorts reported in the main text are based on publicly available sources. We linearly interpolate the missing data on the number of people attending a Clarendon school in a particular cohort but, again, recognize this may have some inaccuracies. We then use the same procedure described above, except now we estimate these upper and lower intervals for each cohort and plot them (see Part E, Figure 1). If we look at the trend rather than the specific point estimates we can see that, consistent with our main results, the odds ratio are very high in the nineteenth century but decline during the beginning of the twentieth century and then flat-line for cohorts born after WWII. Even with these generous measures of uncertainty, the main story of our results still holds.

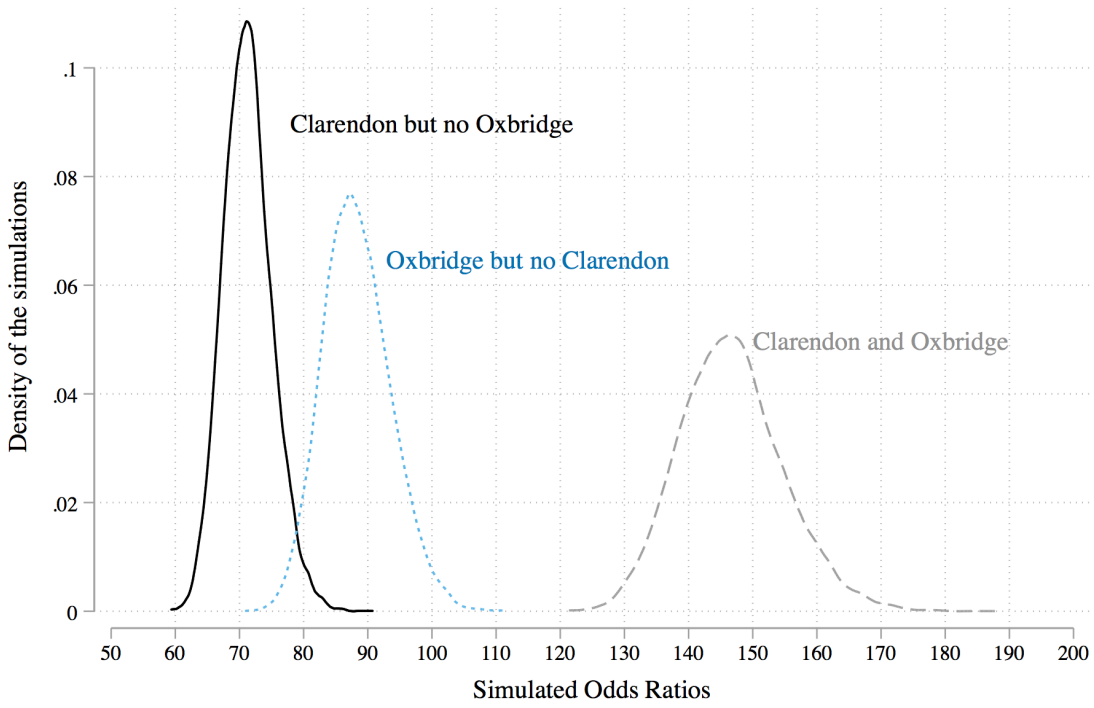
Next we estimate the odds ratios for the joint relationship between attending a Clarendon school and, for example, attending an Oxbridge university. In this instance, rather than simply estimating the total number of Clarendon students, we estimate both the number of Clarendon

Part E, Figure 1: Odds Ratio of Clarendon School Alumni Reaching Who's Who with Estimates of the Upper and Lower Intervals



Notes: The capped, vertical lines capture the range of possible estimates assuming that the number of Clarendon students in any given cohort was somewhere within the range of 10 percent above or below the reported value. Data on the number of Clarendon school students are not available for every cohort. For the cohorts where it is missing, it has been linearly interpolated based on the gap between publicly available data between time points. Black observations are based on observed data. Red observations are based on linearly imputed data. Note that the upper and lower intervals do not function as confidence internals. Here the upper and lower intervals get narrower for reasons that are unrelated to the precision of the estimate; rather, changes in the upper and lower intervals reflect changes in the ratio of Clarendon school students who end up in Who's Who.

Part E, Figure 2: Kernel Density Estimates of the Simulated Odds Ratios for the Joint Relationship between Clarendon and Oxbridge



students and the number of Oxbridge students using the same simulation procedure, where the standard deviation of the assumed error is equal to 5 percent of the mean (or estimated number of Clarendon/Oxbridge students). In Part E, Figure 2 we plot the kernel density estimates from the simulations for each odds ratio. Here it is clear that even with substantial allowance for measurement error, the differences between these odds ratios are still quite different from each. Of course, it is possible that the degree of error is larger than 10 percent of the mean in one direction, so these graphs should not be read in the same way as confidence intervals. These graphs do, however, provide a sense of the degree to which these results are contingent on the assumptions of our analysis.

Note that this procedure creates an artefactual decline in the upper and lower interval as the ratio of Clarendon school alumni who end in Who's Who falls. Consider the following two examples:

1. There are 6,000 Clarendon students in the population and 100 Clarendon students in Who's Who.
2. There are 6,000 Clarendon students in the population and 200 Clarendon students in Who's Who.
    a) In both scenarios, there are 4.8 million people in the underlying population and

1,500 of these people are in Who's Who.

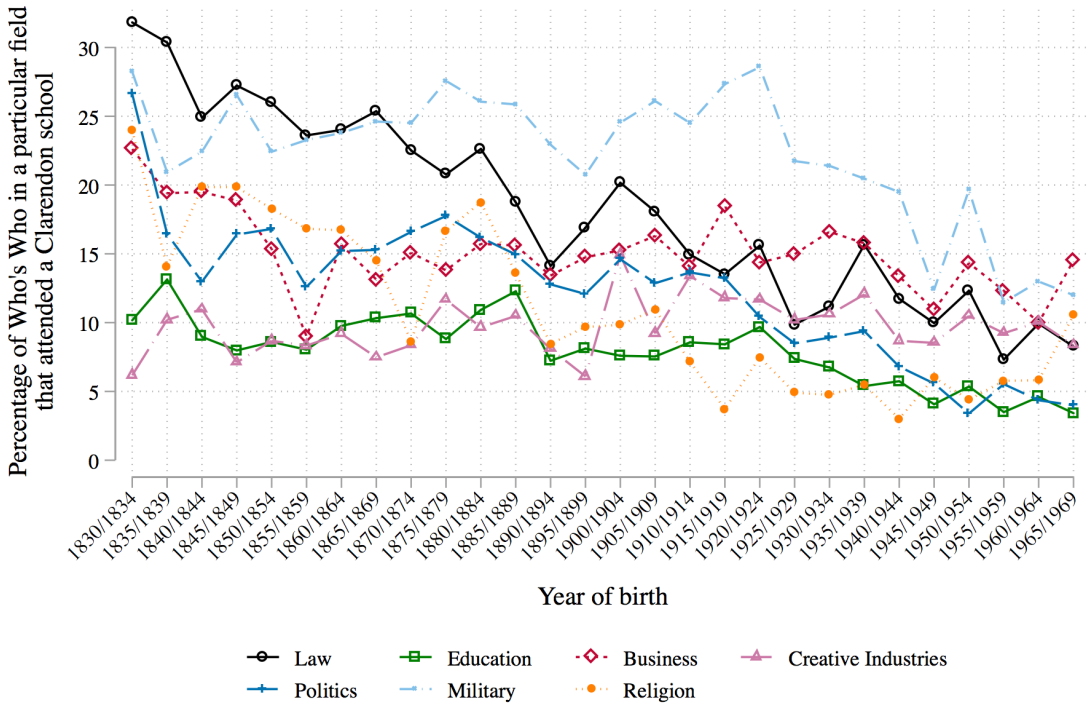
In scenario 1, the odds ratio of being in Who's Who compared to everyone else is 53.47 and the upper interval (i.e., if the number of Clarendon school students in the population was 6,600 rather than 6,000) is 59.16. The lower interval (i.e., if the number of Clarendon school students in the population was 5,400 rather than 6,000) is 48.61.

In scenario 2, the odds ratio of being in Who's Who compared to everyone else is 106.94 and the upper interval (i.e., if the number of Clarendon school students in the population was 6,600 rather than 6,000) is 97.02. The lower interval (i.e., if the number of Clarendon school students in the population was 5,400 rather than 6,000) is 118.49.

The upper and lower intervals are twice as large in the second scenario simply because the numerator is higher.

Although more complex procedures exist that would address this artefact—that is, scaling the upper and lower intervals by the inverse of the number of Clarendon students in Who's Who (the numerator in the ORs)—these are less transparent and less directly interpretable. For these reasons, we continue to use the simple but transparent approach to calculating the upper and lower intervals.

Part F: Percentage of Clarendon School Alumni by Occupational Background, 1830 to 1969



Notes: We do not report data from the Aristocracy because many of them are automatically included in Who's Who and a far larger proportion attended Clarendon schools (65 percent among the 1830/1835 cohort and 48 percent among the 1965/1969 cohort). Celebrities are also not reported here because they are such a consistently small part of Who's Who.

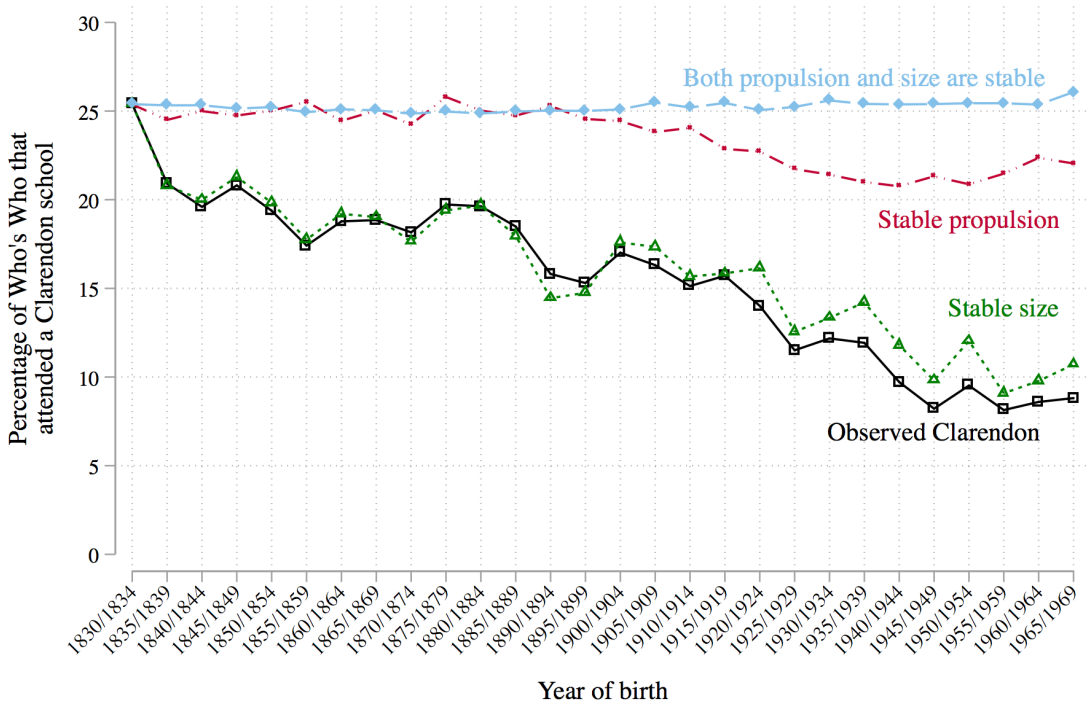
Part G: Counterfactual Analysis of the Percentage of Clarendon School Students in Who's Who

Who's Who is not entirely stable over time. For example, the proportion of military entrants falls dramatically over this period. This is because fewer people served in the military, and the size of the military fell as the empire shrank. To test whether the decline of the military explains the fall in the number of Clarendon school alumni, we conducted a counterfactual analysis. Here we estimate what Who's Who would have looked like if the relative size of the military – as a proportion of Who's Who – had remained constant (around 22 percent of Who's Who). This calculation is based on the following procedure:

1. In the 1840/1844 cohort there were 74 people in Who's Who in the military field who attended a Clarendon school. These 74 people constituted around 22 percent of all military people. There were 330 military entrants in Who's Who (around 18 percent of all Who's Who members born in that cohort).
2. In the 1830/1834 cohort 22 percent of all Who's Who members were military entrants.
3. We then estimate the number of Clarendon school alumni there would have been in Who's Who if 22 percent (the proportion of military people in Who's Who from the military in the 1830/1834 cohort) rather than 18 percent were in the military field (the proportion of military people in Who's Who from the military in the 1840/1844 cohort).
4. We assume that the proportion of military entrants in Who's Who that attended a Clarendon school is the same as the actual data in Who's Who (74/330 = 22 percent).
5. If 22 percent of those in Who's Who in the 1840/1844 cohort were in the military (399 people) and 22 percent of these people attended Clarendon schools, we can estimate there would have been 89 military people in Who's Who that attended a Clarendon school. This is 15 more than actually observed.
6. If we then assume these 15 people are in fact Clarendon alumni, then Clarendon school graduates comprise 20.43 percent of Who's Who in that cohort rather than 19.60 percent, which is what we actually observe in the data.
7. In the final step we subtract the difference between the counterfactual and the actual percentage (20.43 – 19.60 = .83 percent) and then plot this difference in Figure 2.
8. We repeat this procedure for each cohort and for every field of occupation to produce the data in Figure 2.

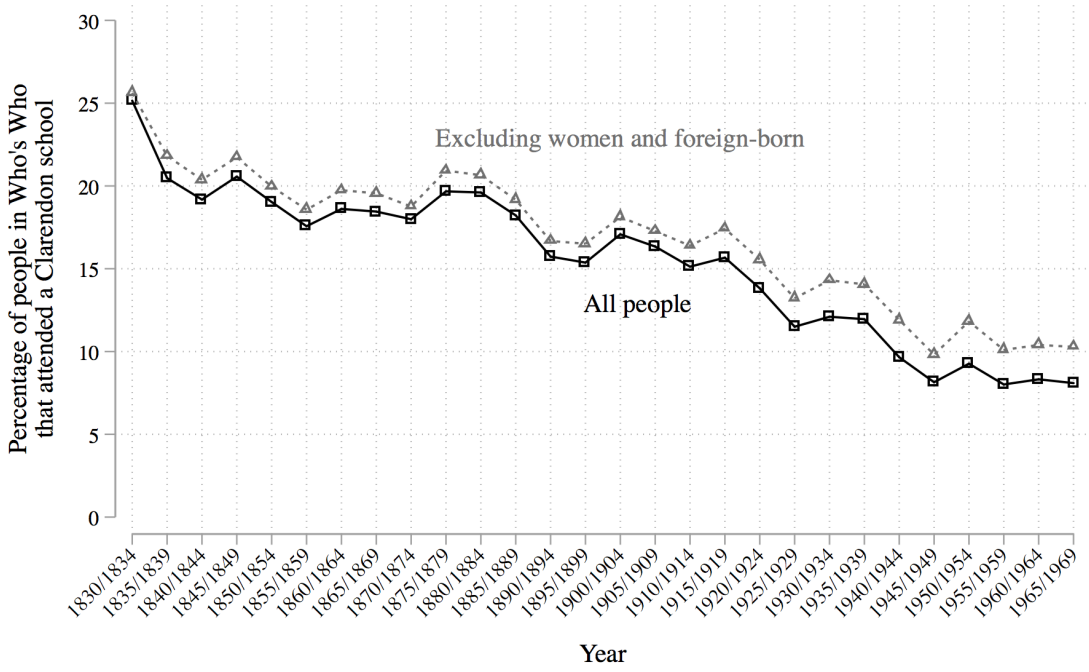
We also conduct a formal counterfactual analysis across all fields. Here we follow the same procedure but consider all fields simultaneously. In the figure below we report the original data (i.e., the percentage of Clarendon school alumni in Who's Who) and we report three counterfactuals: (1) we hold the size of the fields within Who's Who constant, (2) we hold the propulsive power of the schools constant (i.e., we assume that the proportion of Clarendon school students in any given field remains stable), and (3) we hold the size of the field the same and we hold the propulsive power of the schools the same.

Part G, Figure 1: Counterfactual Analysis of the Percentage of Clarendon School Alumni in Who's Who



The black line is the observed data reported in Figure 1. The green line reports what the percentage of Clarendon school alumni in Who's Who would have been if the composition of Who's Who had been stable over time. Here we see that the percentage of Clarendon school students in Who's Who would have been slightly higher if the composition of Who's Who had remained unchanged. However, if we compare the stable size (green) line with the line that holds everything stable (blue line) we see a sizeable gap. The gap between these two lines reflects changes in the ability of these schools to send their alumni into the elite. Clearly, it is changes in the propulsive power of these schools that explains most of the decline in Clarendon schools in Who's Who.

Part H: Proportion of Who's Who That Attended a Clarendon School, with and without Women and Other Nationalities



Part I: Time series regression analysis of the association between education outcomes and the proportion of Who's Who that attended a Clarendon school, adjusting for non-stationarity in the predictors.

We determine stationary time series using Augmented Dickey-Fuller tests to explore whether each time series had a unit root. Following these tests, we re-estimate the main regression model but now taking the first-differences of those variables with a unit root, that is: number of university students, size of the empire (percent of world land mass), money circulation (percent GDP), and the net surplus of the financial sector (percent GDP).

	Proportion of Who's Who That Attended a Clarendon School (t-statistic)			
Covariates	(1)	(2)	(3)	(4)
Education spending (% GDP) when cohort was 10 years old†	-2.504** (-9.25)			
Adult population with no formal schooling, cohort age 35 (% of population age 15 to 65)†		3.193** (8.58)		
Number of children enrolled in school (% of children age 0 to 14), cohort age 10†			-3.246* (-3.37)	
Number of university students (% of population age 15 to 24), cohort age 20†				-15.31** (-3.19)
Size of the empire (% of land mass), cohort age 35†	Y	Y	Y	Y
Money circulation (% GDP), cohort age 35	Y	Y	Y	Y
Defense spending (% GDP), cohort age 20	Y	Y	Y	Y
Net surplus of the financial sector (% GDP) cohort age 35	Y	Y	Y	Y
Observations	139	139	128	67
R^2	0.66	0.69	0.44	0.44

Notes: Estimates with Newey-West standard errors to adjust for autocorrelation and heteroscedasticity in the time series data up until the second lag. Results are the same if we difference the non-stationary covariates (see Part I of the online supplement). We used non-differenced covariates here to use the same variable structure across all independent variables. The results are also consistent with Granger Causality based F-tests, where lagged measures of educational outcomes are significant with respect to the proportion of Who's Who that attended a Clarendon school over and above the proportion of Clarendon school alumni in the previous period (see Part J of the online supplement). Education variables are logged to adjust for skew.
Variable sources: Defense spending (% GDP) and education spending (% GDP): Mitchell 1988 and public expenditure statistical analyses. Adult population with no formal schooling (percent of population age 15 to 65): Barro and Lee 2013; missing data has been linearly interpolated. Number of primary school students, number of university students, and money circulation (% GDP): Mitchell 2013. Size of the empire in kilometers: Dalio 2015; missing data has been linearly interpolated. Net surplus of the financial sector (% GDP): Thomas and Dimsdale 2017. † - logged outcomes. T-statistic are in parentheses. * $p < 0.05$, ** $p < 0.01$

Part J: Granger causality regression analysis of the association between education outcomes and the proportion of Who's Who that attended a Clarendon school.

We estimate lagged dependent variable models while including all other predictors as lags too. We take the first lag because the model fit (using the BIC statistic) was higher for models including additional lags.

Part J, Table 1: Fit Statistics for the Models Testing Granger Causality

	Bayesian Information Criterion		
	1st Lag	1st and 2nd Lag	1st, 2nd, and 3rd Lag
Variables	(1)	(2)	(3)
Education spending (%GDP) when cohort was 10 years old (logged)	565.24	583.82	599.75
Adult population with no formal schooling, cohort age 35 (% of population 15 to 65) (logged)	570.58	583.84	593.51
Number of children enrolled in school (% of children age 0 to 14), cohort age 10 (logged)	511.99	530.07	552.40
Number of university students (% of population age 15 to 24), cohort age 20 (logged)	251.86	272.20	288.14

Notes: Includes lags of the dependent variable of the same order.

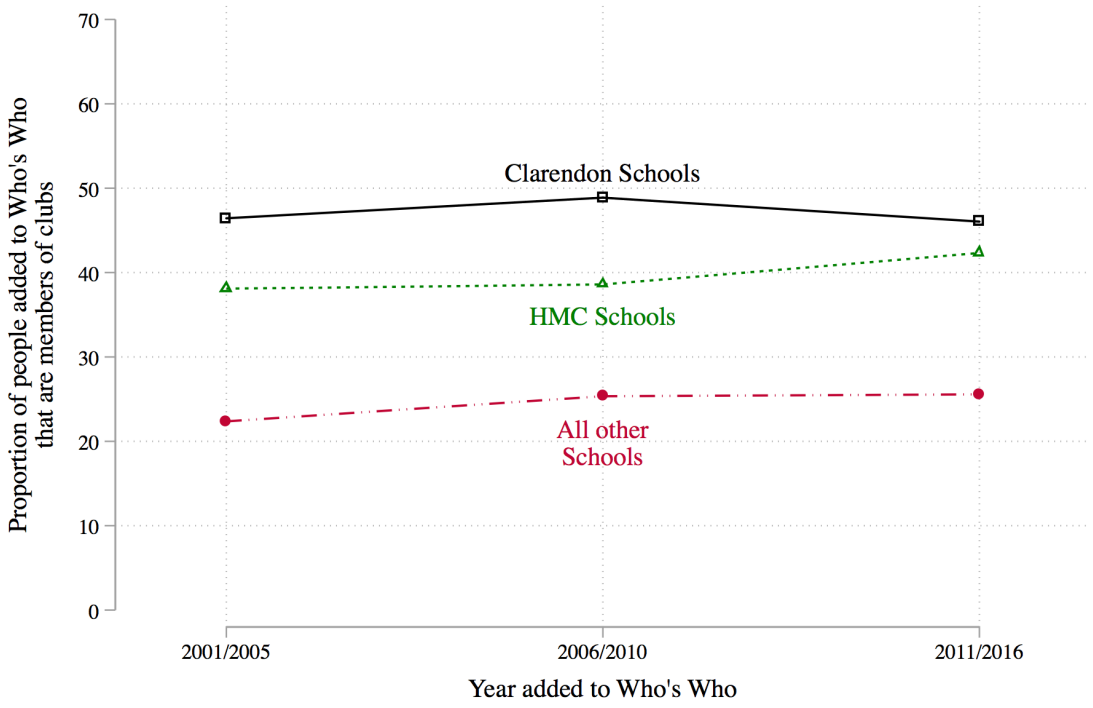
We also tested the reverse relationship—namely, whether, for example, education spending was correlated with the proportion of Who's Who that attended a Clarendon school in the previous year over and above education spending in the previous year. In each case, we found no clear correlation between lagged observations of Clarendon school alumni in Who's Who and future education spending.

Part J, Table 2: Granger Causality Regression Analysis

	Proportion of Who's Who That Attended a Clarendon School (t-statistic)			
Covariates	(1)	(2)	(3)	(4)
Proportion of Who's Who that attended a Clarendon school	.436**	.485**	.386**	.237
	(4.60)	(4.97)	(3.55)	(1.62)
Education spending (% GDP) when cohort was 10 years old†	-.765**			
	(-4.36)			
Adult population with no formal schooling, cohort age 35 (% of population age 15 to 65)†		.674**		
		(4.22)		
Number of children enrolled in school (% of children age 0 to 14), cohort age 10†			-.917**	
			(-3.60)	
Number of university students (% of population age 15 to 24), cohort age 20†				-2.672**
				(-3.09)
Size of the empire (% of land mass), cohort age 35†	Y	Y	Y	Y
Money circulation (% GDP), cohort age 35	Y	Y	Y	Y
Defense spending (% GDP), cohort age 20	Y	Y	Y	Y
Net surplus of the financial sector (% GDP) cohort age 35	Y	Y	Y	Y
Observations	139	139	128	67
R^2	0.87	0.86	0.87	0.83

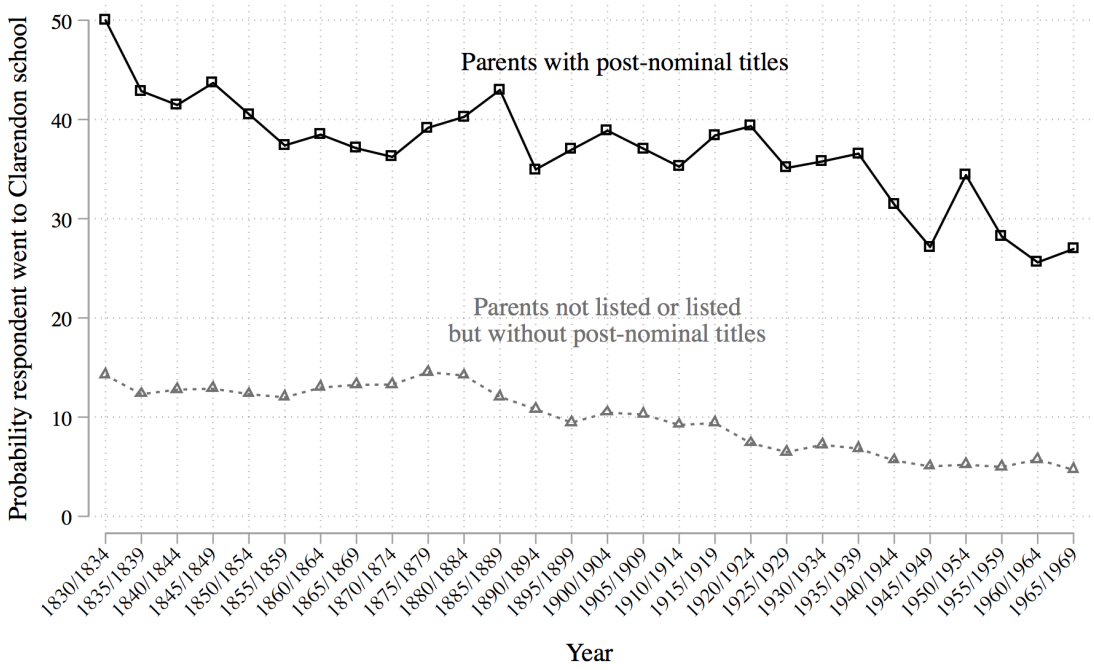
Notes: Estimate with Newey-West standard errors to adjust for autocorrelation and heteroscedasticity in the time series data up until the second lag. Education variables are logged to adjust for skew. *Variable sources*: Defense spending (% GDP) and education spending (% GDP): Mitchell 1988 and public expenditure statistical analyses. Adult population with no formal schooling (percent of population age 15 to 65): Barro and Lee 2013; missing data has been linearly interpolated. Number of primary school students, number of university students, and money circulation (% GDP): Mitchell 2013. Size of the empire in kilometers: Dalio 2015; missing data has been linearly interpolated. Net surplus of the financial sector (% GDP): Thomas and Dimsdale 2017. † - logged outcomes. T-statistic are in parentheses. * $p < 0.05$, ** $p < 0.01$

Part K: Club Membership Is Not Higher among Those Who Have Been Members of Who's Who Longer, 2001 to 2016

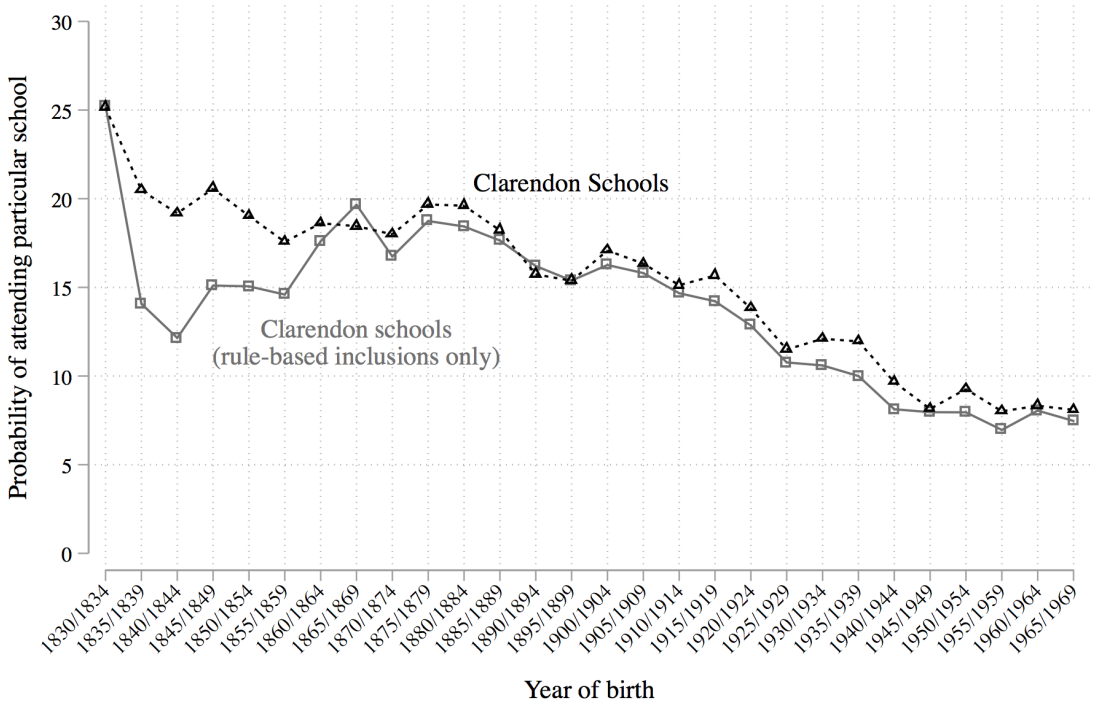


Notes: These estimates are derived from a regression model that descriptively calculates the proportion of people in each education category for each group of new entrants, adjusted for year of birth.

Part L: Probability of Attending a Clarendon School by Whether the Parents Are Listed with a Post-nominal Title



Part M: Comparing the Probability of Attending a Clarendon School among the Members of Who's Who Using a Rule-Based Inclusion Criteria and the Whole Sample



Notes: The occupations or positions used for the rule-based inclusion are taken from the main occupational sections of Who's Who and include Queen's or King's Counsels, Judges, Members of Parliament, Fellows of the British Academy, Fellows of the Royal Society for Literature, Fellows of the Royal Academy, Officers in the Anglican Church, officers in the Bank of England, and Majors or Generals in the military. These comprise approximately 23 percent of the whole sample of Who's Who.

Part N: Structural Breaks for Clarendon Schools Using Different Moving Averages

3-year moving average (main)	1849 (1848 to 1859)	1888 (1886 to 1889)	1921 (1920 to 1923)	1941 (1940 to 1942)
Annual data (1-year)	1849 (1846 to 1864)	1889 (1886 to 1892)	1921 (1919 to 1924)	1941 (1940 to 1943)
5-year moving average	1851 (1850 to 1859)	1888 (1886 to 1889)	1921 (1920 to 1922)	1941 (1940 to 1942)

Notes: In each iteration of the model, the 4 break version was the best fit.