

# Switching to English in Rwanda's Educational Curriculum: Estimating the Return on Investment\*

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## Abstract

In 2008, Rwanda elevated English as the medium of instruction for all schools, replacing Kinyarwanda (the universally shared indigenous language) at the primary and French at higher levels. The primary justification for this policy change was centered on economic development, as English is seen as a requirement for active participation in the global economy. Additionally, English was seen as key to Rwanda's regional and global integration, including its joining of the East African Community and the Commonwealth, with the hope that an English-literate population would bolster trade, development, and investment. However, these benefits require that the population can effectively acquire human capital in English despite having little knowledge and exposure to the language in daily life. Our analysis of the educational effects of this policy shift compares Burundi and Rwanda by combining differences across countries in the language of schooling with differences across cohorts induced by the timing of the change in the medium of instruction. Our results suggest that this change resulted in reducing literacy, the probability of entering secondary schooling, and consequently the average years of completed schooling for the generation most affected by the change.

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# 1 The Linguistic Choice for New Nations: Indigenous vs. Colonial

The medium of instruction in education is a crucial policy area, with important implications for human capital, health, income and productivity (Tollefson and Tsui, 2003; Laitin and Ramachandran, 2016). In 2008, Rwanda instituted a change in its language-use-in-education, where English became the primary medium of instruction in schools, replacing Kinyarwanda at the lower levels, and French at the higher levels (Samuelson, 2012). This shift, though intended to promote English proficiency and international integration, sparked debates about its effectiveness and potential drawbacks. Given the importance of education in shaping a nation's future, understanding the consequences of such a policy change is essential.

This study aims to assess the impact of Rwanda's language policy change, which in 2008 introduced English as the primary medium of instruction, on human capital development. Specifically, we investigate how this policy shift affected educational attainment, literacy levels, and the transition to secondary schooling among the cohort affected by the change in the policy.

To be able to assess the impact of the policy change, we employ nationally representative data from the Demographic and Health Surveys (DHS), and compare Rwanda and Burundi using a difference-in-differences (DID) estimator. Burundi, the neighbor of Rwanda has a very similar demographic makeup with almost the entire population having the same mother tongue as in Rwanda, as well as a very similar language-use-in-education policy with their shared indigenous language being employed for the first 3-5 years of primary schooling before transitioning to using French as the medium of instruction. In the time period of our study Burundi did not change its language-use-in-education policy and forms the control group of interest. By comparing cohorts affected by the language policy change in Rwanda with similar aged cohorts in Burundi, which did not undergo such a policy change, we can isolate the effect of the policy on human capital outcomes.

Our analysis reveals several key findings. First, we find that the introduction of English as the primary medium of instruction in Rwanda led to a significant decrease in years of education for the affected cohort compared to what would have been the case without the reform. Specifically, cohorts exposed to the policy change experienced, on average, a reduction of 0.54 years in schooling, indicating a negative impact on educational attainment. Second, the policy change also had a detrimental effect on literacy levels. We observe a

7.2-percentage-point decline in the probability of individuals being able to read an entire sentence following the policy implementation. This suggests that the language shift may have hindered literacy development among students in Rwanda. Third, we find evidence of a decline in the transition rate to secondary schooling among cohorts affected by the policy change. The probability of entering secondary schooling decreased by 4.7 percentage points, indicating potential barriers created by the language policy shift. We find qualitatively similar patterns, though the economic magnitudes are larger, when we restrict the comparison to individuals who reside close to the border, enabling us to account for the role of other unobservables.

Our study is directly related to the small but growing literature that tries to estimate the impact of language-use-in-education policies on human capital in postcolonial states. The large bulk of the evidence finds that reliance on the former colonial language whose knowledge is restricted to a small section of the society, and not used for day-to-day communication, has negative effects on educational attainment and learning outcomes; see Eriksson (2014) and Taylor and Coetzee (2016) in the context of South Africa; Ramachandran (2017) in the context of Ethiopia; Laitin et al. (2019) in the context of Cameroon; Laitin and Ramachandran (2022) for evidence from sub-Saharan Africa. The switch in the medium of instruction that we analyze herein, although attributed to several factors, would not have occurred without the genocide in 1994 that brought in a political regime hostile to the linguistic status quo. Since the genocide and the subsequent civil war was not fought over language choice, we can consider it somewhat exogenous and useful for a case involving language shift and human development, amenable to empirical analysis.

The most closely related papers Eriksson, 2014; Laitin et al., 2019 show that English acquisition in fact improved when indigenous languages are employed as mediums of instruction and English is taught as a subject. These papers, and our findings, are consistent with the work of authors such as Phillipson (1992) who highlights the fact that it is a oft repeated fallacy that English acquisition is best promoted through using it as a medium of instruction, whereas evidence suggests that competence in the first language can in fact help acquisition of a second language (Cummins, 1979, 1991). Our findings also offer insights into the trade-offs associated with language policies aimed at promoting international integration and proficiency in global languages like English. While such policies may have strategic benefits, they can also have unintended consequences for educational outcomes, particularly in settings where the existing medium of instruction is the principal language of communication at home, and the society at large.

The policy change, while advertised by the incumbent regime and its Ministry of Education and validated by international donors as bringing Rwanda into the modern technocratic age, the switch from Kinyarwanda and French to English, as many regime critics foresaw, has been an educational setback, one that has placed the growth of Rwanda's production of human capital behind Burundi, its nearly impoverished neighbor. Rwanda serves as a poster child for Africa's development future; but now it must recover from its less than successful language policy reform. The rest of the paper is organized as follows: Section 2 provides the background to language-use-in-education policy in Rwanda and the political economy surrounding the change in 2008. Section 3 introduces the data and the empirical strategy to estimate the impact of the policy change. Section 4 presents the results. Section 5 discusses the implications of our findings for policy and Section 6 provides concluding remarks in reference to the concept of institutional coherence.

## 2 Media of Instruction in Rwanda

The official languages of Rwanda (Constitution of the Republic of Rwanda, 2003, p.5) are Kinyarwanda (an indigenous Bantu language), French (the colonial language after the colony was awarded to the Belgians as a League of Nations Mandate after World War I), and English (the language of international business and that of the country's president who as an exile grew up in Uganda, whose colonial language was English). An estimated 99% of the population can speak Kinyarwanda, and 90% speak only Kinyarwanda. Estimates of the total number of English speakers range from 1.9% - 5%. Approximately 5% to 15% of the population speaks French (Samuelson, 2012). Educational policies in regard to media of instruction in Rwanda have switched among these three languages (see Table 1), moving between Kinyarwanda, French, and English.

This paper focuses on the switch in 2008. Point 11 of the Council of Ministers announcement (author translation) "asked the Minister of Education to set up an urgent program of teaching in English at all levels of public and subsidized free education. He has also asked the Minister of the Civil Service to set up a program aid allowing all State agents, first and foremost those in high positions, to learn English" (Tuvuzimpundu, 2014). Thus, for the first time, the government gave sole status to English the medium of instruction for both private and public education in Rwanda's Primary 1-3, as well as from primary 4 through secondary education to English, while giving only secondary status to French. As of 2008, French was still compulsory in public education, but the courses are not subject to examination for

promotion, and therefore not taken seriously by most students. Furthermore, (author translation) “the majority of higher education institutions no longer provide French departments. The National University of Rwanda, for example, was forced to abolish the French Language and Literature department due to a lack of candidates. The Kigali Higher Educational Institute (known as KIE: Kigali Institute of Education) is the only public institution where a French affiliate can still be found” (Tuvuzimpundu, 2014) .

There are two theories accounting for this historic switch. Most often heard was the political story. During the post-war period (1994-present), French has suffered from negative attitudes due to the alleged involvement of the French army in lending support to the Hutu genocidaires in the mass killing of Tutsis and those alleged to support them (Prunier, 1997). After the victory of the Tutsi-led exiled forces, many of these English-speaking returnees, including President Paul Kagame, have shown little interest in learning French, which they view as the language of the French allies and supporters of the Francophone genocidaires. Meanwhile, the Hutu population, only recently facing exile, has had minimal exposure to English. It is difficult to know their preferences, however, as due to the genocide of 1994, the Rwandan Senate passed legislation prohibiting “genocidal ideology” or “divisionism” (Republic of Rwanda, 2006), thereby suppressing public dialogue about language preferences which have been considered ethnic and scorned by authorities.

The French press interpreted this switch as a frontal attack on francophonie, a core policy goal of their country’s foreign policy, one that would bring international status and trade to France. In a typical analysis in *Le Monde*, the switch is interpreted as a foreign policy decision (author translation): “The questioning of French in Rwanda, a country belonging to the traditional French-speaking area, is a consequence of the political crisis which has been affecting relations between Paris and Kigali for years. The Rwandan authorities accuse France of having helped the Hutu militias responsible for the 1994 genocide (800,000 deaths in three months among Tutsis and moderate Hutus)”<sup>1</sup>. But francophonie faced deeper problems; data from Tuvuzimpundu (2014) before the switch to English reveal that the spread of French in Rwanda was shallow, with most domains (novels, news, theatre, and poetry) rendered in Kinyarwanda, with English surpassing French in the diffusion of news on radio and TV. And few Rwandans heard any French outside the classroom. Similarly, Albaugh (2014) drawing on various sources estimates that around 12% of the Rwandas could speak French.

With critics of the government, the political story has had a more personal touch. Pres-

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<sup>1</sup>See here for further details.

ident Kagame's once ally, David Himbara, analyzes this switch not as politically motivated, but done out of personal gain or hubris. He writes on social media "Kagame said adieu to the French language in 2009. Fast forward to 2022 – he sang *bienvenue to le français*. What made the notoriously truth-allergic strongman eat his words?" He continues, "General Paul Kagame's flip-flipping on education proves that he does doesn't give a damn about human capital and the future of Rwanda's young people. It is stating the most obvious to say that it is human capital that drives individual self-fulfillment and national socioeconomic development. To repeat, without human capital – meaning education, knowledge, skills, and health – neither can a country's citizens realize their own potential, nor can informal economies transform into productive and prosperous nation states. The Rwandan strongman's legacy is the reverse – destroying the already dismal education, thereby creating a generation of broken youths in their millions." A similar indictment of the policy from the point of view of the francophone teaching corps by a former Secretary of State for Education, Théoneste Mutsindashyaka, called the policy shift a fiasco that will hinder the educational progress of a generation. Still others claimed the decision was a politics of "elite closure," where the move to English was a means of disenfranchising French-speaking former Hutu elites (Tuvuzimpundu, 2014).

The official explanation was different, with the notion that "adopting English as the official language can promote better communication for business, foreign investment, development, and technology transfer" (Samuelson). English was portrayed as key to Rwanda's regional and global integration, including its joining of the East African Community (July 2007) and the Commonwealth (November 2009), with the hope that an English-literate population and business community would bolster trade, development, and investment. However, these benefits require that the population can effectively acquire human capital in English despite having little knowledge and exposure to the language in daily life.

This concern came out clearly in an evaluation report on Rwanda's educational reforms that were supported by USAID. In a collaboration with the Rwandan Ministry of Education (MINEDUC), USAID and technical partners, the Literacy, Language and Learning (L3) Initiative worked with pre-service and in-service facilitators to introduce proven reading and mathematics teaching strategies. Among the five intermediate results, the third (IR-3) offered support for English that involved inter alia a revision of the existing ESL curriculum (Rurangirwa, 2012).

This initiative revealed some basic issues in implementing IR-3. It reported, "based on meetings and training sessions organized recently with teachers...from rural schools in

Bugesera, teachers' ability to follow training sessions facilitated only in English is a concern. During the recently organized sessions, the vast majority of teachers had difficulty following English language explanations or instructions, even when the explanations/instructions were offered in simplified English. Although Rwandan [School-based Mentors] SBMs will be able to fall back on Kinyarwanda in cases where teachers do not understand, SBMs recruited from Kenya or Uganda will not. It will be necessary to monitor the use of English and Kinyarwanda in school-based mentoring/training activities to Bugesera to identify the appropriate mix of language usage in video (and non-video) based trainings" (Rurangirwa, 2012).

Reaching the level of English language skills students need before making the transition to English as a language of instruction has proven to be a challenge. A consultant at the Global Partnership for Education (GPE) Conference stressed the need for students to have acquired a vocabulary of between 5000 and 7000 words before transitioning to English as a language of instruction. Unfortunately, she stressed, "the current P1 to P3 English curriculum does not allow students to build anywhere near this level of vocabulary." For the Curricular and Pedagogical Materials Development department in the MINEDUC, "her presentation was a revelation and brought home the need to revisit the primary English curriculum in order to ensure that students have the language skills necessary to begin learning in English at the start of P[rimary]4" (Rurangirwa, 2012).

Similar issues were brought to the fore in a seminal Master's thesis submitted by a leading official in the MINEDUC (Umulisa, 2022). In this study, several concerns were registered. A 2012 assessment of teachers' proficiency in English revealed that a mere 2.9% of the corps had reached an intermediate level of English proficiency. The government invested heavily in teacher training and yet in a World Bank (2020) assessment of the training program, less than half of teachers scored intermediate level in English (Kraay, 2019).<sup>2</sup> This exacerbated Rwanda's rural disadvantage, as there was a dearth of print media and opportunities outside the capital for students to hear and speak English.

In light of the rapid shift, educational results were hardly surprising. Summary statistics show that repetition rates in early grade primary were higher during the period of English language of instruction (59% of students) than during the period of Kinyarwanda language of instruction (37% of students). Using OLS with a battery of controls, early grade students taught in English were approximately 17 percentage points more likely to repeat than early grade students taught in Kinyarwanda and results are statistically significant at all levels.

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<sup>2</sup>Find the Rwanda specific report here.

Surprisingly however (and this may be due to selection in which only the best equipped students survived the English medium in Primary 1-3, and therefore were most able to complete secondary education in English), students who were taught strictly in English in earlier and upper grades were approximately 21 percentage points less likely to repeat than those taught in Kinyarwanda in early grades and taught in English in upper grades (Umulisa, 2022).

This overview of Rwanda’s educational policy in regard to media of instruction reveals experimentation without clear metrics for success. Here we are able to estimate the returns on human capital for one of the reforms, viz. the switch from Kinyarwanda to English as the medium of instruction in P1-3 instituted in 2008. We can thus measure the effects of a switch from indigenous to an international language for educational success.

### **3 Data and Identification Strategy**

#### **3.1 Data**

To be able to examine the impact of the switch in the medium of instruction on human capital, we employ data from the Demographic and Health Surveys (DHS). The DHS are nationally representative datasets providing information on education, health and population in developing countries. We draw on data from the men and women’s round of the DHS for Rwanda from the years 2014-15 and 2019-20 and from Burundi from 2016-17. The Rwanda data has information on 13,497 women and 6217 men aged 15-49 in 2014-15, and 14,634 women and 6513 men aged 15-49 in 2019-20. For Burundi, there is data on 17,269 women and 7552 men aged 15-49 in 2016-17.

The children attend primary school from the ages of 6-12 in Rwanda and Burundi. The language of instruction in Rwanda and Burundi was characterized by the use of the same indigenous language for the first 5 grades of primary schooling (Albaugh, 2014). However, in 2008 the change in language altered the language of instruction in primary schooling in Rwanda from Kinyarwanda to English: initially right from Grade 1, and then from 2011 from Grade 3 onwards. We thus consider the cohorts aged less than 12 years old in 2008 in Rwanda as the treated cohort as regards the change in the medium of instruction in primary schooling. The individuals who were aged older than 19 were unaffected by the language policy change. We thus consider the cohorts aged 19-25, 26-32, 33-39 and 40-46 as the



untreated cohorts. The number of observation by cohort and country is shown in Table 2.

The cohort aged 13-18 was already in secondary schooling at the time of the language policy change in 2008. Delayed school entry could imply that some of these students were also affected by the change in the medium of instruction. In addition, the switch to English meant that they were also affected by the change in the medium of instruction in secondary schooling. We thus omit this cohort when analysing the implications of the change in the language of instruction in primary schooling.

### **3.2 The Dependent Variables**

We are interested in estimating the impact of the language policy change on human capital. With regards to the change that occurs at the primary schooling level, we focus on two key quantity based proxies for human capital: (i) a dummy for entering secondary schooling; and (ii) completed years of education. In addition, the DHS also has information available on a quality based indicator, that is whether an individual can read an entire sentence based on an actual test of reading comprehension rather than being self-reported. More specifically, the DHS interviewer coded the respondents as: (1) cannot read at all; (2) able to read only parts of the sentence; (3) able to read the whole sentence; (4) no card with required language. We code individuals who are able to read a whole sentence in any language chosen by the interviewee as literate and those who cannot read at all or only able to read parts of the sentence as illiterate. We thus also consider the ability to read an entire sentence as the third proxy for human capital.

Table 3 shows the mean values for the three dependent variables, as well as for some key characteristics: rurality, distance to the capital, demographic composition and ownership of assets. We see that on all indicators Rwanda does better than Burundi, and that these differences are statistically significant.

### **3.3 The Difference-in-Differences Estimator**

To be able to estimate the effect of the policy change we compare individuals in Rwanda and Burundi. Burundi, which is a neighbor of Rwanda, has not only a very similar demographic composition with almost everyone being a Kirundi speaker, virtually the same language as Kinyarwanda. Moreover, Burundi and Rwanda had similar language use-in-education

policies prior to 2008: use of Kirundi as the medium of instruction up till the upper primary grades and then a switch to French for the rest of the educational system. They thus constitute our control group of interest.

In Rwanda, the language policy change affects all individuals aged 12 and younger in 2008 in Rwanda, and they form our treated cohort. On the other hand, the cohorts aged 19-46 had already finished secondary schooling and were unaffected by the language policy change. They form our control cohorts. In other words, the treatment is defined by the interaction of the country dummy with the cohort dummy.

More specifically, we compare the cohorts aged 6-12, 19-25, 26-32, 33-39 and 40-46 across Burundi and Rwanda using a difference-in-differences estimator. In particular, we estimate the following estimating equation:

$$H_{ikrp} = \sum_{k=1}^{k=4} (Rwanda_i * C_k) \delta_k + \zeta_k Cohort_k + X_{ikrp} + X_{krp} + \Phi r + \epsilon_{ikrp} \quad (1)$$

where  $H_{ikrp}$  is the human capital outcome for individual  $i$  from cohort  $k$ , region  $r$  and cluster  $p$ . The coefficients  $\zeta_k$  are the one associated with the cohort dummy for the cohort aged 40-46, 33-39, 26-32 and 6-12 in 2008 and captures the time trend in the dependent variable, and where the omitted cohort is the one aged 19-25 in 2008. The cluster level controls are denoted  $X_{rcep}$  and account for geographical features – growing season length, proximity to water, slope, proximity to national borders, latitude and longitude – that affect economic opportunities (Nunn and Puga, 2012), and thus have a bearing on human capital outcomes. Finally,  $X_{ircp}$  represents a set of individual-level controls for age, distance from the border and urban residence. The standard errors,  $\epsilon_{ikrp}$ , are clustered at the level of the primary sampling unit to account for spatial correlation.  $\Phi r$  is a set of administrative unit 1 fixed effects.

The principal coefficients of interest are  $\delta_k$ , the ones associated with the interaction of the dummy  $Rwanda_i$  that takes the value 1 when the individual  $i$  is from Rwanda and 0 when is from Burundi, and the the cohort dummy  $C_k$ . The use of a D-I-D estimator assumes that the groups being compared have parallel trends in absence of the change in policy. The omitted cohort is the individuals aged 19-25 in 2008 . This should imply that  $\delta_k = 0$  for  $k = \{2, 3, 4\}$ , that is the cohorts aged 26-32, 33-39 and 40-46 in 2008. On the other hand,

$\delta_1$  the coefficient associated with the interaction between the dummy for the cohort aged 6-12 in 2008 and the dummy for the individual being from Rwanda captures the effect of the change in language policy on the proxy for human capital.

We estimate Equation 1 for the entire country, as well as by restricting the comparison to individuals who are residents with a certain distance from the border. This allows us to restrict our comparison to contiguous areas ensuring maximum comparability between the treated and control groups.

## 4 Results

### 4.1 Descriptive

Figure 1 shows the evolution on the three proxies for human capital by cohort and country. We observe that there is an increase in educational achievement in both countries over the 34 year period the data spans. For the older cohorts, for all three proxies, Rwanda has a substantial lead over their Burundian counterparts. These gaps tend to remain largely constant, or slightly even increase, before the youngest cohort aged 6-12 in 2008 in Burundi catches up with their Rwandan counterparts, or in fact on one indicator even overtakes Rwanda. For instance, for the cohort aged 40-46 the average years of schooling for Burundi and Rwanda was 2.26 and 4.27, respectively. However, for the youngest cohort aged 6-12 the average years of schooling stands at 5.97 and 6.38 for Burundi and Rwanda, respectively. Turning to the category of an individual having at least entered secondary schooling, for the cohort aged 40-46 in 2008, the shares for Burundi and Rwanda stood at 0.08 and 0.095, respectively. These for the youngest cohort aged 6-12 in 2008 increases to 0.47 and 0.45 in Burundi and Rwanda, respectively; so in fact, Burundi overtakes Rwanda on this indicator. The descriptive evidence thus suggests that Rwanda had better human capital outcomes compared to Burundi and maintained more or less a constant lead till for the youngest cohort aged 6-12 in 2008, Burundi closes the gap. Thus, the evidence suggests that the change in language policy had a negative effect on educational attainment in Rwanda.

## 4.2 Difference-in-Differences Estimates

Table 4 shows the results of estimating Equation 1. The dependent variables in columns (1)-(2), (3)-(4) and (5)-(6) are years of education, a dummy for literacy and dummy for entering secondary schooling, respectively. Column (1), (3) and (5) includes administrative level 1 fixed effects and a dummy for being rural, whereas columns (2), (4) and (6) in addition include geographical controls at the level of the primary sampling unit: distance to the country’s capital, location equipped for irrigation, growing season length and global human footprint, which is “created from nine global data layers covering human population pressure (population density), human land use and infrastructure (built-up areas, nighttime lights, land use/land cover), and human access (coastlines, roads, railroads, navigable rivers)” (Mayala et al., 2018, 18).

On all three indicators, the cohort in Rwanda is negatively affected by the change in language policy. It reduces years of education by around 0.54 years, the probability of being able to read an entire sentence by 7.2% points, and the probability of entering secondary schooling by 4.7% points relative to the cohort aged 19-25 in 2008. These are relative to the average for the years of education, literacy and a dummy for entering secondary schooling for the cohort aged 19-25 in Rwanda being 5.04; 0.69 and 0.19, respectively.

These estimates can be interpreted as the effect of the language policy change conditional on the assumption that Burundi and Rwanda exhibit parallel trends prior to the change in language policy. The coefficients on the interaction between the Rwanda and the cohorts aged 26-32, 33-39 and 40-46 provide a test of this assumption. The cohort aged 26-32 is seen to show parallel trends relative to the cohort aged 19-25 for all three proxies for human capital. In fact, for the category for entering secondary schooling all 3 cohorts in the range of 26-46 show parallel trends relative to the cohort aged 19-25 in 2008. For the other two indicators, the cohorts aged 33-39 and 40-46 in 2008 from Rwanda do not exhibit parallel trends, and in fact, are positive and significant. These suggest that Rwanda was in fact outpacing Rwanda till the cohort aged 33-39, after which they exhibit parallel trends till they fall behind.

Table 5 again estimates Equation 1 but now restricts individuals who live within 50kms of the border from Burundi/Rwanda; where 50kms is the median distance from the border to Burundi/Rwanda in the data. Qualitatively the results are similar to Table 4, however, the negative effects of the language policy change are between 1.5 to 2 times in magnitude. The key coefficients of interest, that is, the ones associated with the interaction of the Rwanda

dummy with the cohort dummy, accounting for all fixed effects and control is shown in Figure 2, and correspond to columns (2), (4) and (6) of Table 5. The switch to English is seen to reduce years of schooling by 1.08 years, the probability of being able to read an entire sentence by 9.1% points, and the probability of entering secondary schooling by 6.5% points.

## 5 Discussion

The results presented in Tables 4 and 5 provide evidence that is consistent with the change in language policy in Rwanda having had negative effects on human capital formation. It is difficult to say whether the policy shift was decreed for the acquisition of English for economic advance or motivated by ideological sentiment. The fact that only twelve years have passed since the implementation also implies that we cannot ascertain whether the results we have outlined signify a short-term setback during the transitional phase before all the issues are resolved within the policy, or a long-term descent into linguistic incoherence. But we do know that at least a generation of Rwandan children have suffered, not realizing the level of human capital gains that earlier generations were realizing.

If English acquisition was indeed one of the key motivations behind the current policy, one can ask if there a better way to promote English fluency among the population? One of the important binding constraints for the the ministry of education was teachers with adequate language skills to be able to use English as the medium of instruction (Rurangirwa, 2011). With that in mind, one potential route would be to have extended the use of Kinyarwanda as the medium of instruction, at least through the entire span of primary schooling, and focused on teaching English as a subject. The scant existing evidence from sub-Saharan Africa seems to suggest that such a policy could have had higher returns both in promoting generalized human capital, as well as better English language skills. For instance, Eriksson (2014) employs the the Bantu Education Act, which intended to restrict knowledge of English from the black population in apartheid South Africa, as a natural experiment and finds that the he provision of an extra 2 years of local language instruction — instead of in English or Afrikaans— had a positive effect on wages, the ability to read and write, educational attainment, and the ability to speak English. Taylor and Coetzee (2016), again in the context of South Africa, find that that provision of mother tongue instruction in the early grades

significantly improves English acquisition, as measured in grades 4–6. Laitin et al. (2019) study an experimental program in the English speaking part of Cameroon that provided local language instruction instead of English as the medium of instruction for the first three years of schooling. They find that use of local languages as the medium of instruction had positive effects not only on math test scores but also significantly improved English language skills. This suggests that the objective of English language acquisition could have been better achieved through using the available resources to train a small cadre of English-language teachers, and the rest of resources bring devoted to improving pedagogical practices using the language in which both teachers and students are fluent.

Here it is important to stress that there is no rigorous empirical evidence that allows us to evaluate at which stage of schooling, and if at all, transition to English would be the optimal policy from the point of view of maximizing human capital and English language skills in the population. The existing practices from economically successful nations across the globe suggest that investing into Kinyarwanda as the language-of-education across the entire schooling system and teaching English as a subject might be the best way forward. In this regard, we have in mind the equilibrium in the small states of northern Europe where the indigenous languages (Dutch, Norwegian, Swedish, Danish) serve as media of instruction through the schooling system, along with several disciplines of tertiary education, with English taught throughout as a subject. These also could have other benefits for postcolonial states ranging from reclaiming cultural identity, empowering marginalized communities, challenging colonial legacies and fostering a sense of cultural pride and autonomy (Wa Thiong’o, 1986).

Finally, it is also important to note that one of the key constraints in promoting indigenous languages as official, that is, primary mediums for education, governance, and politics, in contexts such as sub-Saharan Africa is the high levels of linguistic diversity. It has been often claimed that high levels of diversity imply that the only way to assuage competing group claims is by retaining an ethnolinguistically neutral language as the primary language of education. In fact, in recent work, Laitin and Ramachandran (2024), provide a conceptual framework, and empirical evidence, consistent with higher levels of linguistic diversity within a country resulting in a higher probability of retaining the colonial language. This solution through ethnolinguistically neutral languages promotes the interest of a small section of elites with knowledge of the former colonial language at the expense of the large majority of the population (Laitin and Ramachandran, 2022). In this regard, Rwanda stands out as a special case as it is characterized by the entirety of the population speaking a single language, Kinyarwanda. This implies the political economy of which group’s language is to

be employed is a challenge that does not need to be surmounted. In fact, given that the entire population of Burundi speaks the same language as in Rwanda, suggests there might even be economies of scale for regional cooperation to invest into language standardization, translation and teacher training.

## 6 Conclusion

The underlying idea of instrumental incoherence, and here summarizing J.P. Faguet’s statement that informs this special issue and (Faguet and Shami, 2022), is that institutional reform is often driven not by its main effects, but rather by its side effects, which are often orthogonal to the main effects, but which solve some specific, short-term problem for those pushing reform. So politicians propose a change in institutional structure not to enhance public goods at lower cost, but because they want to serve short-term political goals such as for pay-back to political enemies. This approach allows us to distinguish between unintended consequences in institutional reform, which are unforeseen effects that are unsystematic, and instrumental incoherence. In the latter, reformers’ incentives map onto the specifics of reform design via their side effects, which in turn lead to the medium and long-term consequences that are eventually realized.” In sum, Faguet’s instructions underline that “The goal [of submitted papers] is to highlight differences between the short-term incentives driving a reform vs. its main effects.

In this paper, we have pointed to the mixed political motives that drove the 2008 language reform in Rwanda from Kinyarwanda as the medium of instruction to English, and on the side, marginalizing French at later points in the curriculum that was the principal language of higher education of the teaching corps. In one fell swoop, President Kagame was able to marginalize the Hutu professionals that had no foundation in English and French diplomats who were charged with the promotion of *francophonie*. On these goals, he has been successful.

But as the data in this paper show, a generation of Rwanda students paid a cost in human capital. The overall growth in Rwanda’s educational achievements flattened and a generation of students faced a setback in their human capital. Moreover, Rwanda’s rural students and those living close to the border fell behind with a lack of competent English speakers in their schools and no social networks to provide them with exposure to English. All Rwanda students of that period of transition found that their counterparts in Burundi (a country with the same language but a weaker economy) were catching up on educational

achievement relative to Rwanda.

This pattern of results – political success hiding failure in the optimum provision of public goods – is a telling example of institutional incoherence.

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Table 1: The Changing Media of Instruction in Rwanda Public Education

Year	Primary 1-3	Primary 4ff	Note
1917	French	French	Belgium gets trusteeship
1967	Kinyarwanda	French	
2003	Kinyarwanda	French or English	English added by new Tutsi leadership as an official language
2008	English	French or English	Teachers given crash course in English with implementation in 2009
2011	Kinyarwanda	English	Failure to get teachers at a proper level of English and only 2-5% of the population fluent in English
2019	English	English	Apparent input from private schools

Table 2: Cohorts and sample sizes: Burundi and Rwanda

Age in 2008	Burundi (1)	Rwanda (2)
6-12	7074	11893
19-25	4903	8593
26-32	3784	6575
33-39	2621	4195
40-46	1007	1592
Total	19389	32848

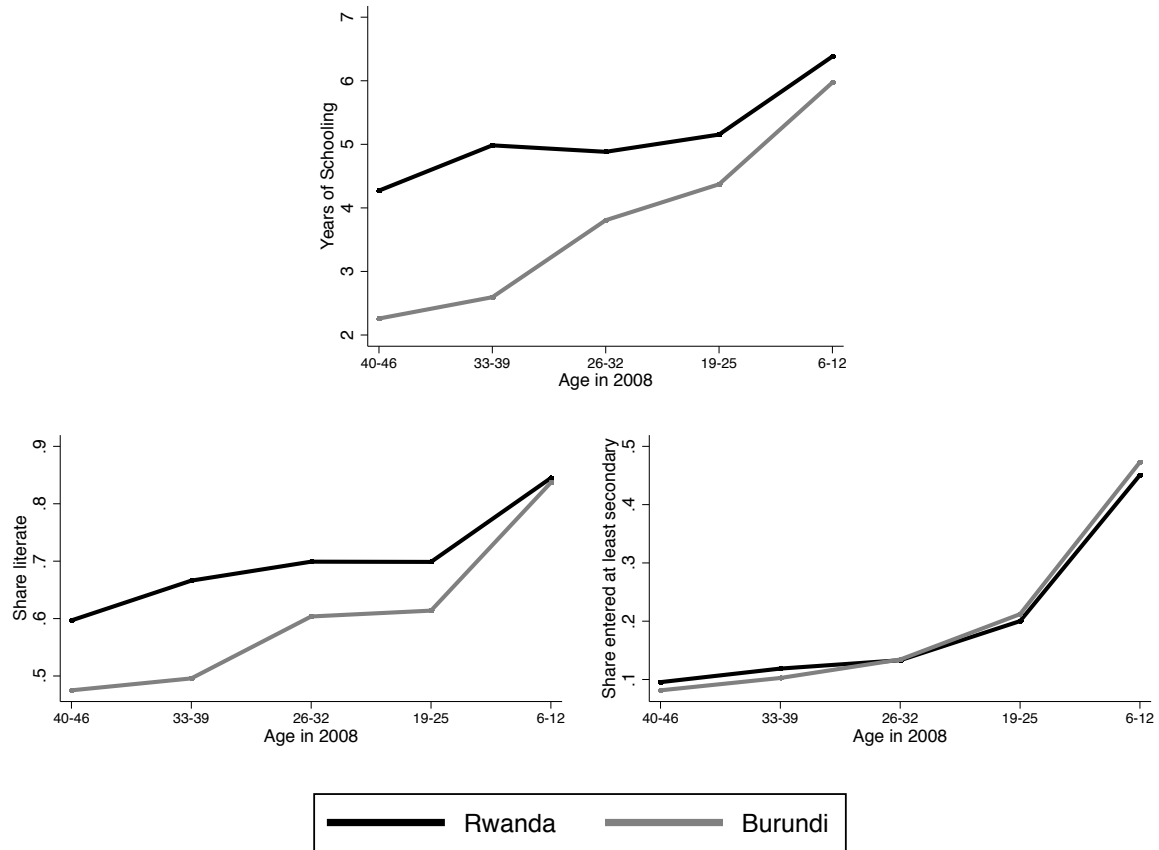
Notes: The table shows the number of observations for each of the five cohorts included in our analysis for Burundi and Rwanda, respectively. The data is drawn from the DHS: Burundi from the year 2016-17 and for Rwanda from the years 2014-14 and 2019-20.

Table 3: Key characteristics of the sample: Comparing Burundi and Rwanda

	Burundi	Rwanda		
	Mean		Diff.	P-value
	(1)	(2)	(3)	(4)
Completed years of education	4.496	5.480	-0.984	0.000
Dummy can read an entire sentence	0.670	0.743	-0.072	0.000
Dummy entered secondary education	0.270	0.262	0.008	0.034
Rural residence	0.784	0.762	0.022	0.000
Distance to capital (Kms.)	80.003	57.100	22.902	0.000
Age at time of survey	29.904	30.366	-0.462	0.000
Age of household head	44.029	44.361	-0.333	0.014
Household has: television	0.142	0.275	-0.133	0.000
Household has: radio	0.471	0.606	-0.136	0.000
Household has: television	0.142	0.275	-0.133	0.000
Household has: refrigerator	0.071	0.144	-0.072	0.000
Household has: bicycle	0.268	0.262	0.006	0.535
Household has: motorcycle/scooter	0.078	0.138	-0.060	0.000
Household has: car/truck	0.068	0.137	-0.069	0.000
Number of household members	6.137	5.348	0.789	0.000
Number of children under-5 in Household	1.097	0.857	0.240	0.000

Notes: The table shows the mean values on key variables for the sample of cohorts aged 6-46 in 2008. The data is drawn from the DHS: Burundi from the year 2016-17 and for Rwanda from the years 2014-14 and 2019-20. The sample sizes are shown in Table 2

Figure 1: Evolution of three proxies of human capital by country and cohort



Notes: The sample consists of individuals aged 6-46 in 2008. The data is drawn from the DHS: Burundi from the year 2016-17 and for Rwanda from the years 2014-14 and 2019-20. The sample sizes are shown in Table 2

Table 4: Effect of language of instruction on human capital: Difference-in-Differences estimates comparing Burundi and Rwanda

	Years of Education		Literacy Dummy		Entered Secondary Schooling Dummy	
	(1)	(2)	(3)	(4)	(5)	(6)
Rwanda*Age 6-12 in 2008	-0.54*** (0.15)	-0.54*** (0.15)	-0.072*** (0.014)	-0.072*** (0.014)	-0.047*** (0.016)	-0.047*** (0.016)
Rwanda*Age 26-32 in 2008	0.10 (0.12)	0.087 (0.12)	0.0075 (0.014)	0.0062 (0.014)	-0.0046 (0.0099)	-0.0051 (0.0099)
Rwanda*Age 33-39 in 2008	1.43*** (0.14)	1.42*** (0.14)	0.088*** (0.017)	0.087*** (0.017)	0.0065 (0.011)	0.0057 (0.011)
Rwanda*Age 40-46 in 2008	1.09*** (0.16)	1.10*** (0.16)	0.032 (0.024)	0.033 (0.024)	0.012 (0.012)	0.012 (0.012)
Age 6-12 in 2008	1.65*** (0.18)	1.64*** (0.18)	0.20*** (0.018)	0.20*** (0.018)	0.23*** (0.018)	0.23*** (0.018)
Age 26-32 in 2008	0.0072 (0.12)	0.025 (0.12)	0.0041 (0.014)	0.0056 (0.014)	-0.0077 (0.010)	-0.0069 (0.010)
Age 33-39 in 2008	-0.86*** (0.17)	-0.82*** (0.17)	-0.099*** (0.023)	-0.097*** (0.023)	0.023 (0.016)	0.025 (0.016)
Age 40-46 in 2008	-0.85*** (0.23)	-0.82*** (0.23)	-0.11*** (0.032)	-0.11*** (0.032)	0.052** (0.021)	0.053** (0.021)
Age	-0.048*** (0.011)	-0.049*** (0.011)	-0.0011 (0.0012)	-0.0013 (0.0012)	-0.0075*** (0.0010)	-0.0075*** (0.0010)
Distance to Capital		-6.4e-06*** (2.0e-06)		-7.6e-07*** (2.0e-07)		-8.8e-08 (1.8e-07)
Geographical Controls	No	Yes	No	Yes	No	Yes
Region Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Rural Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Constant	6.07*** (0.34)	5.79*** (0.39)	0.69*** (0.039)	0.72*** (0.043)	0.41*** (0.032)	0.36*** (0.037)
Observations	42,768	42,768	42,709	42,709	42,777	42,777
R-squared	0.216	0.219	0.086	0.087	0.223	0.224

SE clustered by PSU

\*p<.05; \*\*p<.01; \*\*\*p<.001

Notes: Standard errors are clustered at the level of the primary sampling unit. \*p<.05; \*\*p<.01; \*\*\*p<.001. The control group is Burundi and the omitted cohort is the individuals aged 19-25 in 2008. In columns (1)-(2), (3)-(4) and (5)-(6) the dependent variables are years of completed schooling; a dummy for being able to read an entire sentence; and a dummy for entering secondary schooling, respectively. The geographical controls refer to controls for irrigation, growing season length and global human footprint. The region fixed effects refer to administrative 1 level fixed effects.

Table 5: Effect of language of instruction on human capital: Difference-in-Differences estimates comparing Burundi and Rwanda within 50kms from the Border

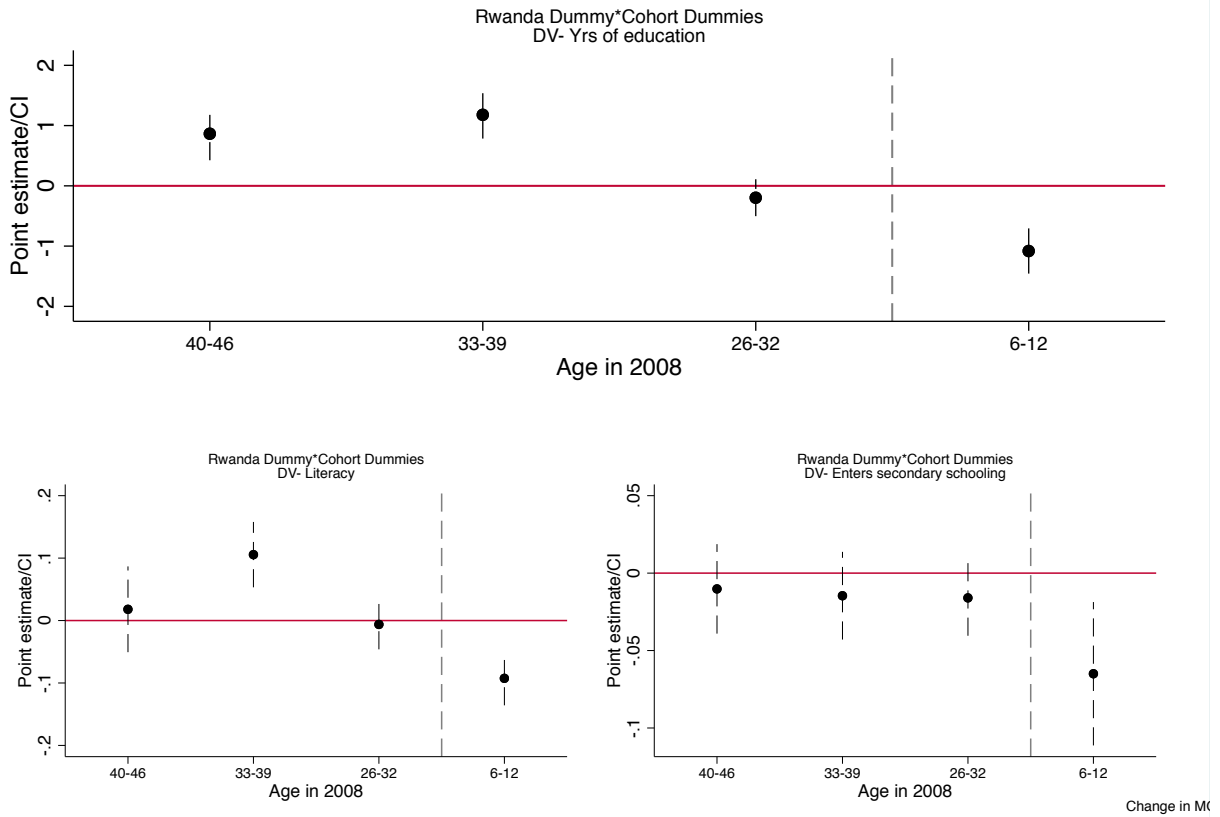
	Years of Education		Literacy Dummy		Entered Secondary Schooling Dummy	
	(1)	(2)	(3)	(4)	(5)	(6)
Rwanda*Age 6-12 in 2008	-1.09*** (0.19)	-1.08*** (0.19)	-0.093*** (0.022)	-0.091*** (0.022)	-0.066*** (0.024)	-0.065*** (0.024)
Rwanda*Age 26-32 in 2008	-0.18 (0.15)	-0.20 (0.16)	-0.0062 (0.020)	-0.0079 (0.020)	-0.015 (0.012)	-0.016 (0.012)
Rwanda*Age 33-39 in 2008	1.18*** (0.20)	1.18*** (0.20)	0.11*** (0.027)	0.11*** (0.027)	-0.014 (0.014)	-0.015 (0.014)
Rwanda*Age 40-46 in 2008	0.86*** (0.23)	0.86*** (0.22)	0.018 (0.035)	0.020 (0.035)	-0.0096 (0.015)	-0.010 (0.015)
Age 6-12 in 2008	1.99*** (0.22)	1.96*** (0.21)	0.23*** (0.026)	0.22*** (0.026)	0.22*** (0.025)	0.22*** (0.025)
Age 26-32 in 2008	0.35** (0.15)	0.38** (0.15)	0.016 (0.022)	0.020 (0.022)	0.00087 (0.012)	0.0020 (0.012)
Age 33-39 in 2008	-0.41 (0.25)	-0.37 (0.25)	-0.095*** (0.034)	-0.088** (0.034)	0.043** (0.022)	0.045** (0.021)
Age 40-46 in 2008	-0.32 (0.32)	-0.29 (0.32)	-0.073 (0.044)	-0.067 (0.044)	0.084*** (0.028)	0.086*** (0.028)
Age	-0.054*** (0.014)	-0.057*** (0.014)	-0.00092 (0.0017)	-0.0014 (0.0016)	-0.0081*** (0.0014)	-0.0082*** (0.0013)
Distance to Capital		-0.000010*** (2.4e-06)		-1.5e-06*** (2.6e-07)		-5.2e-07** (2.0e-07)
Geographical Controls	No	Yes	No	Yes	No	Yes
Region Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Rural Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Constant	6.19*** (0.43)	4.89*** (1.25)	0.67*** (0.051)	0.44*** (0.14)	0.44*** (0.043)	0.44*** (0.11)
Observations	21,245	21,245	21,214	21,214	21,249	21,249
R-squared	0.243	0.247	0.097	0.103	0.227	0.228

SE clustered by PSU

\*p<.05; \*\*p<.01; \*\*\*p<.001

Notes: Standard errors are clustered at the level of the primary sampling unit. \*p<.05; \*\*p<.01; \*\*\*p<.001. The control group is Burundi and the omitted cohort is the individuals aged 19-25 in 2008. In columns (1)-(2), (3)-(4) and (5)-(6) the dependent variables are years of completed schooling; a dummy for being able to read an entire sentence; and a dummy for entering secondary schooling, respectively. The geographical controls refer to controls for irrigation, growing season length and global human footprint. The region fixed effects refer to administrative 1 level fixed effects.

Figure 2: Difference-in-differences estimates- Comparing Burundi and Rwanda for sample living within 50kms from the border



Notes: The above plots the coefficients associated with the interaction of the cohort dummy with the Rwanda dummy shown in columns (2), (4) and (6) of Table 5. The gray dashed line refers to when the policy change is introduced in Rwanda and thus affects the cohort aged 6-12 in 2008.