When the Sorting Hat Sorts Randomly: A Natural Experiment on Culture

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ABSTRACT

Culture is a central but elusive concept in the social sciences, and so are its effects. We leverage a natural experiment in the oldest university in East Africa — a cradle of economic and political

elites — where students are randomly assigned to live in halls of residence that have maintained distinct student cultures since the 1970s. A broad consensus at the university characterizes certain halls as sociable and activist, and others as academically minded and respectful. Using an original survey of current students and behavioral games, we find that hall cultures influence a mixture of individual and interpersonal outcomes, specifically students' time preferences, identity, and interpersonal trust and generosity. However, they do not influence students' academic performance, social habits, or political preferences. An alumni survey suggests that cultural influence wanes but some effects endure, notably participation in activism. Our results provide novel evidence that cultural influence extends to several social domains.

JOAN: Samuel, why is there this red graffiti on the wall? [The graffiti reads: "LUMUMBA BLOCK-C MUST BE RE-OPENED NOW!!!]
SAMUEL: *(smiles)* It's these guys at Lumumba Hall, they are activists.
JOAN: Oh, so if you get into Makerere and want to be an activist you choose Lumumba Hall?
SAMUEL: No, no! What Hall [of residence] you go to is random.
JOAN: [...] Then why are these guys so activist?
SAMUEL: It's the cultures of the halls, they're very strong.
          (Conversation at Makerere University. Kampala, June 2012.)

How does our sociocultural environment shape us? Are young adults still malleable enough to shift their level of civic and political engagement, academic performance, interpersonal trust, or generosity in response to their cultural environment? And how enduring might be the influences of a new culture at this stage of life? Culture is a central concept in the social sciences but it is also one of the most elusive, its definitions broad and contested. Partly to surmount definitional and methodological challenges, researchers sometimes study cultural influence by isolating the influence of a particular aspect of culture, such as religion (Weber, 1905) or family environment (Sacerdote, 2007). Here, we study the causal role of culture in shaping young adults (university students) and adults (alumni) without reducing the broader cultural environment to its constituent parts.

In the world of Harry Potter (Rowling, 1999), the sentient sorting hat at Hogwarts assigns incoming students to one of the four school houses based on each student's character. What if the sorting hat assigned students randomly

instead? How would the different cultures of the houses have influenced incoming students?[1] Makerere University in Uganda, the cradle of East Africa's economic, social and political elite since its foundation in 1922, provides an ideal setting in which to investigate cultural influence for two reasons. First, conditional on gender, newly admitted students have been randomly assigned since 1970 to one of its nine halls of residence, where university socialization takes place.[2] Second, some halls have their own distinct cultures, which were established around 1970 and transmitted from one generation of students to the next. By culture, we mean a set of values, norms, and institutional narratives (e.g., regarding academics or campus politics) linked to a set of shared behaviors and practices (e.g., rowdy or demure group traditions) (Sewell Jr., 1999). The combination of these two facts results in a randomized natural experiment that allows us to explore the exogenous influence of culture on a set of values and behaviors in a setting where the broader social environment of Makerere and Uganda are shared. We focus on the effects of hall cultures, but understanding their origins and evolution is interesting in its own right given that assignment has long been random.[3]

Two hall cultures in particular have a reputation for being more outgoing and involved in campus affairs (Lumumba Hall for males and Mary Stuart Hall for females), while two others are characterized as gentle, respectful, and academically minded (Livingstone Hall for males and Africa Hall for females). We study cultural influence in these four halls on outcomes such as academic performance, time preferences, social activism, and interpersonal trust. By not restricting our attention to one particular outcome, we are able to determine the extent — and limits — of cultural influence among young adults. We do not intend to adjudicate the nature vs. nurture debate, since much research establishes that both matter for life outcomes (e.g., Behrman and Taubman, 1989; Bouchard *et al.*, 1990; Henrich, 2017). Rather, we seek to measure whether important preferences, traits, and behaviors can be affected by a cultural environment into which young adults are immersed for three to four years, a relatively brief period.

To do so, we first conducted in-depth interviews with key informants at Makerere University about the cultures of the halls of residence. Then we surveyed the student population (with an 85% success rate) living in the halls of residence to measure self-reported traits, attitudes, and behaviors, all of which we categorize into either individual or interpersonal outcomes. We also

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[1] We thank an anonymous reviewer for suggesting this paragraph verbatim.

[2] The Dean of Students, George Kihuguru, implemented alphabetically random assignment in 1970. The Academic Registrar implemented a computerized random process in JavaScript in 2006.

[3] Online Appendix D.2 and a companion paper (Ricart-Huguet, 2022) examine cultural formation and persistence at Makerere's halls. Online Appendix D.1 suggests anecdotally that, unlike at Makerere but as one might expect, random assignment leads to cultural homogeneity between dorms at top universities in the United States.

conducted a dictator game and a public goods game with a non random subsample of current students to measure and compare behavioral trust and generosity across halls. Finally, we test whether the effects of hall culture are enduring by surveying a sample of alumni that joined Makerere University as undergraduate students between 1970 and 1999.

We argue that the strength of cultural influence depends on two theoretical dimensions. First, *interpersonal outcomes* (e.g., trust, activism) are relational and more directly influenced by social forces than *individual outcomes* (e.g., academic grades, personality traits). Integration into any culture is an inherently social process, particularly over the short term. Second, we also argue that cultural influence should be higher for outcomes or life domains that are part of the hall's *daily life* vs. those that are *not* (Paller, 2020). For example, life in the hall involves issues of trust and identity daily while academic issues gravitate around the department rather than the hall and activism is not a daily occurrence.

We find that cultural influence is weakest for individual outcomes that are not part of the hall's daily life and strongest for interpersonal outcomes that are part of the hall's daily life. For example, we show that a hall's culture has no impact on student academic performance. By contrast, we show that interpersonal trust and generosity change in ways that are largely consistent with the culture of the hall of residence to which a student is randomly assigned.

We find mixed evidence of cultural influence for individual outcomes that are part of the hall's daily life (e.g., identity, personality traits) and for interpersonal outcomes that are not part of the hall's daily life (e.g., campus activism). Culture affects some daily life individual outcomes such as hall identity and time preferences among current students. These results are typically consistent in the alumni sample, although their magnitude and significance decreases, suggesting that some cultural effects decrease over time. Finally, hall culture does not impact current students' levels of social and political activism in spite of the reputation of some halls as activist. However, we find that alumni from Lumumba Hall, with a history of social and political engagement, report greater levels of activism during their time on campus and even after leaving campus. This result is consistent with interviews indicating that political activism was high on campus but emanated mainly from Lumumba Hall in the 1970s (during Idi Amin's rule) and 1980s (Ugandan Bush War). The influence of hall culture on activism was strong in the past but has likely diminished over time.

Interviews and survey evidence point consistently to hall upperclassmen leaders as the intergenerational transmitters of culture in their respective halls. Student leaders are a key mechanism of cultural influence: leaders are socialized into the hall culture as freshmen and in turn reproduce a culture they value via institutionalized practices and activities that we discuss below.

This paper offers three unique perspectives on the current state of knowledge about cultural influence. First, most experimental research on cultural

influence has been conducted in the laboratories of Western universities because of feasibility and data availability. By contrast, this natural experiment takes place in a developing country. Second, our study examines the immediate and enduring effects of a *multifaceted cultural environment*, rather one particular facet of culture. Students sleep, eat, and socialize in their halls; they memorize hall songs and chants and participate in hall politics and rituals. For instance, residents of each hall elect a hall cabinet composed of peers that includes a Chairperson and a Minister of Culture. This type of "bundled" or multidimensional treatment (Dunning, 2010) is often viewed as a weakness in social science, because it is difficult to identify the single most important driver of any effect. In our case, we view this broad-based treatment as a strength, given that culture itself is a multidimensional phenomenon.[4] Third, and related, the multiple ways in which hall cultures are characterized allows us to test both interpersonal and individual outcomes from this cultural "treatment", such as academic achievement, activism, identity, and trust.

What is Culture, and What is Cultural Influence?

Culture is a central concept in the social sciences and yet there is no general agreement on its definition. Political scientists have tried to understand how cultural processes shape citizens and the relationship between culture and a country's political economy. In doing so, they have conceptualized culture in multiple ways and argued that culture is "the basis of social and political identity that affects how people act on a wide range of matters" (Ross, 2000, p. 39).

An early class of seminal works argues for the long-term role of culture on political economy and citizenship. Weber (1905) provides an early example whereby new religious values increase individual anxiety directly and increase higher work effort and savings indirectly. Almond and Verba (1963) argued that a "civic culture" is necessary for democracy, and Putnam (1993) argued that differences in medieval political culture between Northern and Southern Italy persistently affects levels of social capital, interpersonal trust, and ultimately contemporary government performance. Finally, Huntington's (1993) "clash of civilizations" espoused the primordialist view that some religions and cultures are too different to peacefully cohabit, leading to intergroup conflict.

Recent work in political science defines culture and identity more dynamically, extending early research on culture as a set of symbols and values of a group (Geertz, 1973). Cultural symbols and values are dynamic, at times ambiguous (Wedeen, 2002), and are susceptible to disagreement (Ross, 2000, p. 65). Some cultural cleavages become politically salient and others do not because of factors such as group size (Posner, 2004) and colonial rule (Laitin,

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[4]As Dunning (2010) explains, natural experiments are often best described as bundled treatments. It is precisely the bundle of values, norms, and institutional narratives that we investigate here as "cultural influence."

1986). Yet others conceive of culture as "common knowledge" (Aumann, 1976; Chwe, 2003) that can shift over time. This group of definitions broadly connects to sociological definitions of culture as fragmented, inconsistent at times, used strategically, and internally varied (DiMaggio, 1997). In these accounts, culture leaves "much opportunity for choice and variation" (DiMaggio, 1997, p. 265), which means that cultural influence is much less static than the earlier class of accounts suggest.

We define culture as a system of meaning (i.e., shared values, social norms, and institutional narratives) linked to a set of available behavioral practices (i.e., customary, traditional, or socially approved behaviors) (Sewell Jr., 1999). As in Ross (2000), our definition grants importance to the symbolic and normative aspects of culture without ignoring its behavioral components. For example, a hall of residence at Makerere University may have a longstanding culture in which the history of the hall (preserved through written and oral history, such as songs and speeches) upholds activism and social engagement as values and current members publicly approve of these values. These are examples of institutional narratives, values, and norm communication. The hall may offer occasions on which to demonstrate these values by supporting students running for office or participating in student government, as well as informal mentoring from older to younger students. These are examples of cultural practices passed to group members.

One persistent problem for research that attempts to uncover the causal effects of cultural influence is the lack of a plausible counterfactual. Cultures typically evolve over long periods and "shocks" that allow for before and after comparisons, as in Mead (1956), are extremely rare.

As a result, social scientists have long debated (Mortimer and Simmons, 1978) the extent to which culture and socialization affect individual and interpersonal values and behaviors like tolerance for diversity, trust, and political participation. Some emphasize the importance of childhood and family (Parsons and Bales, 1955); others claim that we keep changing those values throughout adulthood (Becker and Strauss, 1956, p. 263); and yet others provide observational evidence for an intermediate position (McFarland and Thomas, 2006, p. 402).

A number of studies leverage random roommate assignment to identify peer effects. Sacerdote (2011) reviews the education literature on the topic and finds that peers affect academic outcomes modestly, but they affect social behavior such as discrimination, generosity, and drinking habits.[5]

While random roommate assignment is not uncommon, random assignment to a family or a cultural environment is very uncommon. In a notable exception,

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[5]In other work, Laar *et al.* (2005) find that university students assigned to live with a roommate of a different ethnicity show diminished ethnic prejudice, while Scacco and Warren (2018) show that discrimination toward a religious out-group in Nigeria is lower in heterogeneous classes compared to homogeneous ones.

Sacerdote (2007) takes advantage of a quasi random adoption program of Korean children into American families to show that some characteristics of the adopting family — notably parental education and number of children in the family — affect the subsequent education, earnings, and social habits — like smoking and drinking — of the adoptee.[6] Otherwise, most studies have been observational or lacked a comparison groups. For example, Newcombe (1943) famously documented that women attending Bennington College espoused more liberal political values after attending the left-leaning liberal arts college. However, his study suffered from selection issues such as a secular change in political values. In the fictional realm, Harry Potter's "sorting hat" assigns students to one of the four Houses at Hogwarts School based on their character (Rowling, 1999), likely reinforcing their existing values and behaviors.

Our study is arguably unique because entering a new culture randomly is rare. Our setting, a university with residential halls defined by longstanding distinct cultures, allows us to conceptually and empirically separate culture ex ante from the effects it may have on individuals ex post.

Context

Makerere University was founded in 1922 and is the oldest and one of the premiere institutions of higher education in East Africa. Makerere University was already a knowledge hub in colonial times and is a long-time cradle of African leadership. Several heads of state have attended Makerere, including Joseph Kabila (Democratic Republic of Congo), Julius Nyerere and Benjamin Mkapa (Tanzania), Mwai Kibaki (Kenya), and Milton Obote, Yusuf Lule and Godfrey Binaisa (Uganda). In this section, drawing on six months of fieldwork and over 50 interviews, we describe the hall cultures and how they differ.

What is Residential Hall Culture?

Makerere University contains nine halls of residence within its main campus. The three female halls are Africa, Mary Stuart (also known as Box), and Complex, while the six male halls are Lumumba, Livingstone, Mitchell, Nkrumah, Nsibirwa (formerly Northcote), and University Hall. The halls provide structure for students' daily life, including who they encounter and where they eat, sleep, and socialize. They organize social activities and structure students' involvement in campus-based civic and political activities.

Hall social identities are built from the week freshmen arrive on campus in August. Orientation Week activities are aimed at strengthening freshmen's

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[6]Benmelech and Frydman (2015, p. 43) exploit "exogenous variation in the propensity to serve in the military" to show that CEOs with military experience follow more conservative corporate policies and engage in less fraudulent behavior.

social ties with the hall. They learn about the norms and values of their hall for the first time, some of which are written rules (see Figure A.12 for an excerpt of Livingstone Hall's Code of Conduct). "Morning jogs," organized separately by each hall student leadership, constitute one of the central activities (see Figure A.13). Student leaders of each hall, usually juniors and seniors, wake freshmen residents at dawn to jog around campus while singing hall-specific songs. Other social events take place in the evening: "porridge nights", where students drink and eat at their hall, and "megabenching", where male students circulate through the hall to court women in the female hall paired with their own. Finally, Culture Week closes the academic year. Students celebrate their hall culture with these and other events that require a larger budget such as fashion shows and karaoke (see Figure A.10).

Each hall is headed by student leaders and by a Warden. Each March, student residents democratically elect a hall cabinet composed solely of students. Students can run for a dozen positions that include Chairman or Chairlady, Speaker, Minister of Interior, and Minister of Culture. Elections are usually contested and can be heated.[7] Makerere provides a larger identity that is salient when common threats (e.g., reduced public funding) affect all halls. A consensus among our interviewees, from current students to 1970s alumni, is that the strength and distinctiveness of hall cultures has diminished since the early 2000s for various simultaneous reasons: decreased funding for residential life, large increases in overall student body size (today most students live off-campus), and the election of student leaders by college (e.g., Social Sciences, Health Sciences) alongside hall leaders. Thus, while there are nine halls at Makerere University and our preregistration analysis mentions all nine, we focus on the four hall cultures that remain distinctive as we discovered during the research process: Africa, Lumumba, Livingstone, and Mary Stuart halls.

Distinctive Hall Cultures

Based on our fieldwork, the two male halls with clearly defined cultures are Lumumba (a reputedly outgoing and activist hall) and Livingstone (a reputedly quiet and gentle hall). These two halls have a "solidarity" or sibling relationship with two female halls, Mary Stuart and Africa Halls, which mimic the respective male hall cultural profile. Lumbox and Afrostone are the portmanteaus that symbolize the cultural ties and social solidarity between these two pairs of halls (Table 1).

While many cultural activities take a similar *shape* across halls, the *content* of these activities varies according to halls' norms, values, and specific behavioral practices. For example, all halls organize early morning jogs during

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[7]Former Makerere Student Guild presidents include many Ugandan MPs, political party leaders, and former UN under-secretary general Olara Otunnu.

Table 1: Common adjectives and nickname for each hall.

Hall name	Africa	Livingstone	Lumumba	Mary Stuart (Box)
Name of solidarity	Afrostone		Lumbox	
Nickname	Ladies	Gentlemen	Lumumbists	Boxers
Common adjectives	Calm	Calm	Noisy	Noisy
	Humble	Humble	Stubborn	Stubborn
	Disciplined	Disciplined	Vibrant	Outgoing
	Respectful	Respectful	Solidary	Active
	Lady(like)	Gentle(man)	United	Social
	Quiet	Organized	Patriotic	Crazy

Note: The table lists the adjectives most commonly mentioned by students in a pilot survey when asked to describe the students of their own hall: "Please think of 3 words to describe the students in your Hall!"

Orientation and Culture Weeks and all halls elect a Chairman or Chairlady. However, the early morning jogs differ *substantively* between Afrostone and Lumbox, as we experienced ourselves.[8] The Afrostone jogs were quieter and less entertaining and interactive than the Lumbox jogs, arguably building less social cohesion than Lumbox's. These differences result from persistent differences in hall leadership styles: Lumbox's is much more active and even aggressive while Afrostone's is rather passive. As we discuss in the next section, social cohesion and the agency of hall leaders are key to explain the persistence of cultural differences between halls.

Male Halls: Lumumba and Livingstone

Lumumba Hall opened its doors in 1971 Students named it after the independence leader of the Democratic Republic of Congo, Patrice Lumumba. Residents refer to themselves as "Lumumbists". Consistent with its eponym, activism and student rights are two of the hall's cherished values. The hall has maintained a reputation for organizing and leading campus protests since the 1970s, when Idi Amin was president. Today, Lumumba Hall often leads student opposition to funding shortages and tuition increases that have become increasingly common (see Figure A.14).

Livingstone Hall opened in 1959, prior to independence, and is named after the British missionary and explorer David Livingstone. Its cultural reputation stands in contrast to that of Lumumba Hall. Livingstone Hall's symbol is a statue of a gentleman sitting in its courtyard. Students call themselves

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[8]Online Appendix D.3 elaborates further on each hall's culture and the differences among them.

"Gentlemen" and are expected to behave as such, including respecting students regardless of their hall, and having a quiet and calm demeanor. Livingstone residents have a reputation for being less involved in collective action.

As a Livingstone student leader explained in an interview, "I would be more confident being rowdy [had I been assigned to Lumumba]. Being in Livingstone instilled this pride in me of being calm, collected, and rational. [...] In my first year only did I identify with the 'way' of the Lumumbists but right now I believe the chaos can be avoided" (Online Appendix D.3.2). "Chaos" may be purposeful, however. During a focus group, students from Lumumba and Livingstone discussed a water shortage on campus in 2012. Lumumba had regained water access after complaining to the University Administration. A talkative Lumumba participant addressed a quiet Livingstone participant: "When we had our water back but you didn't, who came to Livingstone to take you to the main building [University Administration]?" The Livingstone student assented and added that running water returned two days later.

Female Halls: Mary Stuart and Africa

Mary Stuart and Africa were established in 1953 and 1971, respectively. The former is named after Mary Stuart, a British nurse who promoted female education during colonial rule. The motto is in sync with its eponym: "Train a woman, a nation trained," and echoes Mary Stuart residents' reputation for proud and assertive behavior. Africa Hall opened in 1971, after independence, and was the second female hall of residence. The origins of its motto "Walk in the Light" are less clear.

Male-Female Hall Solidarities

Since the 1970s, due to gendered dynamics and their longevity on campus, the two male halls have influenced these two female halls through organizational ties called "solidarities": "Afrostone", a portmanteau of Africa and Livingstone, and "Lumbox", a portmanteau of Lumumba and Mary Stuart (also known as Box). The architecture of Mary Stuart Hall resembles a box and they are supposedly "stubborn" and activist, like Lumumba hall, so residents call themselves "Boxers." Africa Hall residents call themselves "Ladies" due to their ties to Livingstone Gentlemen.

Activities for the two hall solidarities differ markedly, as we witnessed during our fieldwork. Porridge nights at Lumbox are loud and somewhat disorganized, while at Afrostone they are quiet and organized ("boring", according a Mary Stuart resident present at the event). Similarly, the energy and singing of Lumbox jogs starkly contrasts with the tranquility of the Afrostone jogs.

Random Assignment to Halls

Assignment to halls became alphabetically random in 1970. The previous system "brought a lot of politics into the allocation. [...] When I took up the office in 1970, I changed the system from making choices to random" to eliminate differences between halls, said 1970–1995 Dean of Students George Kihuguru (interview, May 12 and July 26, 2016; see Online Appendix D.2 for further details). Kihuguru would assign the first student to Africa Hall, the second to Mary Stuart, the third again to Africa, etc. The process for male halls was analogous. Surnames from ethnic groups cluster around certain letters of the alphabet in Uganda, so a random system prevented ethnic clustering — or any other clustering — by hall (interview with Bernard Kayiggya, May 6, 2016).

Since 2006, the school has assigned admitted students to halls at random using a JavaScript algorithm controlled by the university's Information and Technology Department. The students relevant to our sample, government-funded students, are those required to live on campus (Online Appendix C.1 discusses private vs. government students). Our final sample consists of roughly 100 students per hall (government compliers). The inclusion of private students and noncompliers increases the sample to roughly 200 students per hall (see intention-to-treat results in Online Appendix C.3).

Each year, a minority attempt to switch halls. Some succeed — mostly private students, who do not risk losing a government scholarship by switching halls — and become noncompliers even though the administration is opposed to this practice.[9] We cannot perfectly observe this behavior, but the confidential self-administered survey shows culture is rarely the reason for switching (Table A.19). Further, knowledge of hall culture upon arriving on campus is low: only 7.5% of all students surveyed reported being familiar with hall cultures upon arriving on campus (Figure A.3). Finally, there are almost no private students in the alumni sample because in the 1970–1999 period almost all were government students and hence compliance is over 97% (Online Appendix C.1).

Theory and Hypotheses

Cultural influence could affect multiple life domains. We draw from existing work in social psychology and political science to theorize what outcome categories should be more or less influenced by hall culture. Our primary distinction is between individual (e.g., one's personality, identity) and interpersonal domains (e.g., trust, activism). We expect cultural influence to be stronger in interpersonal outcomes for two reasons. In general, interpersonal

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[9]Prominent parents may pressure the hall Warden, for instance. An oft-repeated story on campus is that the son of dictator Idi Amin (1970s) was the only student on campus with a single room with TV.

outcomes are more likely to be influenced by relational or social forces and therefore cultural influence might be higher for those outcomes. Social psychologists have labeled these leading influences "social referents", defined as individuals who are "highly connected and chronically salient actors in group" (Paluck and Shepherd, 2012, p. 899). At Makerere, interpersonal behavior at the halls of residence is highly visible because residents tend to gather in public spaces such as the dining hall and the central courtyard. Hall leaders, who are the social referents in each hall, are well-placed to shape residents' social and public behavior.

We provide a secondary conceptual distinction that should moderate the expectations of the first. We argue that cultural influence should be higher for domains that concern "daily life" (Paller, 2020) in the hall compared to domains that do not. Hall residents observe actions related to their social life in the hall every day (e.g., hall social activities) whereas other issues (e.g., activism) often occur outside the hall and are less likely to be a daily topic of conversation (e.g., activism concerning national politics). This distinction underlines what happens daily in the hall vs. elsewhere: for example, while students discuss academic issues frequently, the center of gravity for these issues is the department or the school rather than the hall. The resulting Table 2 provides a framework that can be used to hypothesize for which outcomes culture should have the greatest influence on individual values and behaviors.

We note two considerations before describing our hypotheses. The strength of our predictions is tempered by the fact that respondents share the same Makerere-wide cultural environment. The setting arguably makes our study a "hard case" to examine the distinctive cultural influence of residing in one hall or another, compared to joining the military or not (Benmelech and Frydman, 2015), or compared to being adopted by different families (Sacerdote, 2007). Also, we predict that cultural influence is stronger in male than female halls. Male halls have historically initiated and dominated events in campus life, reflecting the gendered distribution of power in Uganda more broadly, while female halls have more often been in supportive roles.

Hypotheses for Interpersonal Outcomes

1. *Sociality and clubs.* Lumbox students and alumni should engage in more social activities and belong to more hall clubs than those in Afrostone because hall leaders are more active and social cohesion is higher in Lumbox. Dating on campus and even later marriage patterns among alumni could be affected by the so-called "solidarities": Livingstone Gentlemen might have married more Africa Ladies while Lumumbists might have married more Mary Stuart Boxers (see Section D.3.3 for anecdotal evidence).

Table 2: Strength of cultural influence based on domain type and relevance for daily life at the hall of residence.

	Daily life	Not daily life
Individual outcomes	— Personality traits (Big Five): Talkative, clever, disorganized, always calm, cooperative — Identity: Hall identity, ethnic identity — Time preferences: now vs. in 1 week, now vs. in 1 month	— Academic performance: Grades (CGPA) — Academic behavior: Class participation, Sharing notes, Hallmates noisy in class, Hallmates study hard
Interpersonal outcomes	— Sociality: Religious association, ethnic association, hall association, number of clubs/associations — Generosity: hall allocation and partner hall allocation (survey), offer to hall peer (behavioral) — Trust: Hall residents, partner hall, Makerere students, Makerere police, dean of students, Vice-Chancellor, academic misconduct	— Campus activism: sign a petition, Attend a demonstration, join a strike — Political interest and preferences: Interest in Ugandan politics, approval of Uganda's President, approval of ruling party and of opposition party

Note: This table provides categories of outcomes that fit in each cell (e.g., Identity) as well as outcome variables associated with each category and tested in the article. The measurement of each outcome (e.g., indicator variable, ordinal variable) is included in the caption of the results tables. The outcome names correspond to the variable labels used in each table, with parentheses used as needed here for clarification.

2. *Generosity.* Prosocial behavior toward the hall and hall peers should be higher in Lumbox than in Afrostone because social cohesion is higher in Lumbox. The survey asked students to allocate funds between their hall and Makerere at large. We then measure generosity behaviorally. In a dictator game, offers to hall peers should be higher in Lumbox than in Afrostone. In a public goods game, we expect contributions to the public pool to be higher in Lumbox. In the public goods game, we allow students to donate any share of their gains to their hall. We expect these donations to be higher in Lumbox.

3. *Trust.* Afrostone students and alumni should be more trusting of campus authorities because of their culture's respect for authority, while Lumbox students and alumni should be more trusting toward other students because of their higher social cohesion. Lumbox leaders actively build that cohesion in social events that feature much interaction between them and freshmen, such as morning jogs. Generosity and trust are attitudes and behaviors that should be affected by the many daily life social interactions.

4. *Campus activism and politics.* Lumumba and Mary Stuart (Lumbox) students and alumni should be more activist than those in Livingstone and Africa (Afrostone) because of their tradition of activism dating back to the 1970s. We measure activism by the number of petitions, demonstrations, and strikes in which students and alumni report participating on campus and, in the case of alumni, also since they left campus. Differences in activism may extend to heightened interest in Ugandan politics or political behavior more generally, although we note that many interviewees explained that campus activism is today largely separated from most national political issues and that politics is not a daily topic of conversation for many students.

Hypotheses for Individual Outcomes

1. *Hall identity.* Lumbox students and alumni should identify more with their hall than Afrostone students because social cohesion is higher in Lumbox and their leaders are more active in promoting hall identity.

2. *Personality traits.* Afrostone students and alumni should rate themselves and their hall peers as humbler, calmer, and more respectful while Lumbox students as more outgoing and talkative, consistent with their respective reputations and multiple interviews. We included the Big Five personality scale in both surveys.

3. *Time preferences.* Afrostone students and alumni, because of their calm and quiet reputation, should be better at delaying gratification (i.e., more "patient") than their more outgoing and even frenzied Lumbox peers. Patience was measured by two hypothetical monetary discounting questions.

4. *Academic outcomes and behavior.* Afrostone students might have higher grades and be more studious than Lumbox, although our priors are weak. While some interviews suggested that Afrostone residents are more "bookish", most students care about grades. Further, academic issues primarily concern classmates (with whom students share courses) rather than hallmates and thus is less commonly a topic of daily life.

We argue that differences in outcomes between halls result from differences in hall leadership and in levels of social cohesion. Student leaders are a *common* mechanism of cultural influence across halls. All act as intergenerational transmitters of hall culture. However, not all hall leaders are equal. Our fieldwork suggests that Lumbox leaders have long been more active than Afrostone leaders in organizing cultural activities and in sustaining higher social cohesion. The two mechanisms are likely related: higher social cohesion at Lumbox facilitates leadership roles and, also, Lumbox leaders are more active at fostering social cohesion.

Student Survey and Sample

To measure the impact of the randomly assigned hall of residence on present-day students, we distributed self-administered paper surveys in April 2015 to the population of Makerere students living in the halls. A team member introduced the survey as research conducted by US-based researchers with the approval of Makerere University and with the goal of "knowing more about the life of students on campus." To avoid priming the topic of hall culture, questions about the halls were concentrated in the second half of the survey. The survey posed multiple questions about the topics listed in the hypotheses, notably involvement with campus activism, social practices and habits, generosity, and trust (interpersonal outcomes); as well as hall identity, political preferences, academic behaviors, and time preferences (individual outcomes).[10]

We also conducted behavioral games with a subsample of students in each hall to measure generosity and cooperation. In the dictator game, students were asked to allocate 3USD between themselves and a generic recipient in their hall. We used this game to measure interpersonal generosity and group cohesion, expecting that students in halls with higher group cohesion should make a higher offer to their peers. In the second game, the initial setup was that of a standard public goods game with four participants at a time. Each participant separately distributed another 3USD between themselves and a common pool ("group pot").[11] We then allowed participants, as a group, to donate between 0% and 100% of the common pool money to their hall for a purpose of their choice. This allowed us to measure group generosity with the hall.[12]

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[10]See Online Appendix F for all survey items and for details on the administration of the survey.

[11]Allocations were private because plastic walls separated students' desks in both games (see Figure A.16).

[12]See Online Appendix F for instructions and recruitment procedures for the behavioral games.

As discussed earlier, we focus on the preregistered analyses for the four halls with highly distinctive cultures.[13] The population of the four halls in the 2014–15 academic year was approximately 1,490. Our survey response rate was 86% (Table A.20). Average self-reported compliance (living in the hall to which you were randomly assigned) is 79% (Table A.20). Slightly over half of the respondents were private students, supported by their family or a private donor, and the rest were government students supported by a full scholarship. As expected, compliance is very high among government student participants (91%). Among private student participants, it is only 74%. We take a conservative approach and exclude noncompliers and private students to focus on government students, therefore increasing internal validity at the cost of lower sample size.

We conduct a comprehensive balance test of pretreatment demographic and socioeconomic covariates for our student sample of male halls (Table A.29) and female halls (Table A.30). Africa and Mary Stuart residents are balanced in all observed covariates, including age, parental education, family income proxies, and department. We find three imbalances in male halls: age (students in Livingstone are half a year older than in Lumumba), two of the income proxies (families of Lumumba residents have more motorbikes and those in Livingstone more cars), and region of origin (Livingstone has more students from the Central region, while Lumumba has more Easterners). We control for all observed imbalances in the models as well as other preregistered covariates. We conduct analogous balance tests for behavioral games participants (Tables A.31 and A.32).

Empirical Strategy

The empirical strategy consists in comparing the two male halls to one another and the two female halls to one another. The linear models are analogous and have the following form:

$$Y_{ik} = \beta_0 + \beta_1 Lumumba_{ik} + X^T \beta_2 + \epsilon_{ik} \tag{1}$$

$$Y_{ik} = \beta_0 + \beta_1 Mary\ Stuart_{ik} + X^T \beta_2 + \epsilon_{ik} \tag{2}$$

Y is the outcome of interest for individual i in hall k. β_1 is the local average treatment effect (LATE) and the main coefficient of interest. In Equation (1), the Lumumba indicator equals 1 for Lumumba and 0 for Livingstone. For female halls (Equation (2)), the Mary Stuart indicator equals 1 for Mary Stuart and 0 for Africa. X is a matrix of controls that includes age, parental

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[13]We registered an early research design (preanalysis plan or PAP) at the Experiments in Governance and Politics Network (EGAP) website (ID 20150915AA). However, we failed to update the PAP as the research progressed. Therefore, many deviations exist from the PAP, which was only used for guidance (see Online Appendix G for a detailed discussion).

education, income proxies, year of studies, and region of origin. We include only government compliers in our sample.[14] Including private students in an intention-to-treat framework changes the size and precision of the estimates but rarely their statistical significance (Online Appendix C.3).

Student Results

We begin by examining whether, consistent with our theoretical predictions, most students characterize their campus peers in Lumumba and Mary Stuart Halls as significantly more social and political, while Livingstone and Africa Halls are seen more often as academic and respectful. Figure 1 confirms the cultural reputations of the four halls of interest by including responses from residents in nine halls. The way same-hall peers perceive one another's personalities is also consistent with the hall reputations and with our in situ interviews and focus groups. Afrostone students see their same-hall peers as more disciplined, respectful and calmer but less activist, brave, and outgoing than Lumbox students (Figure 2).

Figure 3 overviews our survey results. As we mentioned above, the figure shows that cultural influence is more visible in male than female halls, where the outcomes are mostly null. Regarding interpersonal outcomes, as we predicted, Lumumba students are more generous and display higher interpersonal trust, and Mary Stuart students are more activist (though not Lumumba students, counter to our expectations). Regarding individual outcomes, we observe no difference in academic performance or in most sociality measures and personality traits (Big Five), in line with important work in social psychology suggesting that personality traits are hard to change in the short-run (Srivastava *et al.*, 2003). We do find that Lumumba and Mary Stuart students identify more strongly with their hall than Livingstone and Africa (although the difference for female halls fall short of statistical significance). Finally, and consistent with our predictions and their peer traits (Figure 2), Livingstone students are better at delaying gratification (are more patient). We discuss this mix of predicted positive and null findings below and in Online Appendix A.

Interpersonal Outcomes

Campus activism and politics Student levels of activism were proxied by the number of petitions they signed and the number of demonstrations and strikes they join (Table A.1). Mary Stuart Boxers demonstrate and strike more than Africa Ladies, but there is no difference between male halls. An analogous pattern emerges for political questions. Mary Stuart residents report being

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[14] A few government students are allowed to switch halls based on disabilities (e.g., some halls have stairs and others do not). We also exclude those students.
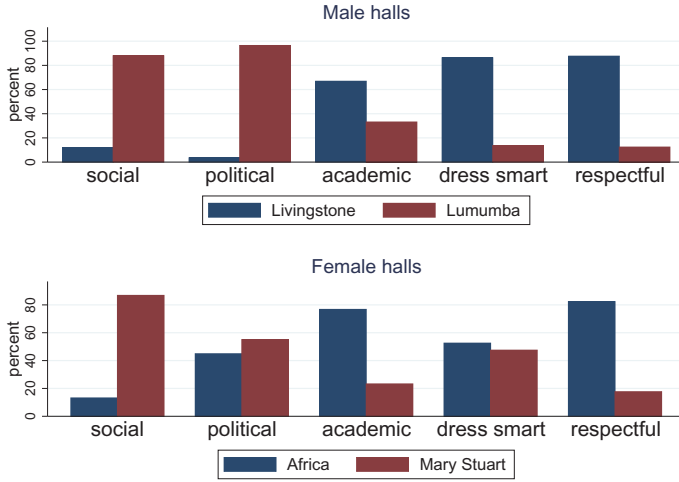
Figure 1: Hall reputations.
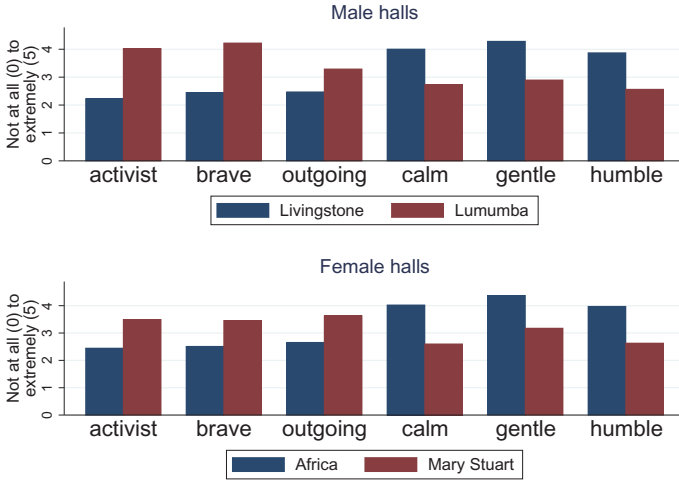
Figure 2: Personality characterization of same-hall peers.

Note: $p < 0.05$ in all paired comparisons. We include the entire sample of compliers in the nine halls including private students, but some responses are missing in each category ($N \leq 2,797$). We exclude the minority of respondents ($\leq 25\%$) that chose another hall to focus the comparison on the four halls of interest. In Figure 1, respondents were asked to decide what were the most well-known male and female halls for each of the five attributes above: "Which one of the female and male halls on campus would you say is the most [attribute here]?" In Figure 2, respondents were asked to rate their same-hall peers: "Residents in my hall are [adjective]".

Figure 3: Summary of results for current students.

Note: The graph includes only one representative outcome for each category for visualization purposes. Bars present 95% and 90% confidence intervals. Within the interpersonal vs. individual outcomes categories, we list outcomes that are not part of the halls' daily life (the first one) followed by those that are (the next three).

slightly more interested in Ugandan politics, but there is no difference between male halls (Table A.2). These findings do not match the predictions stemming from our qualitative interviews, 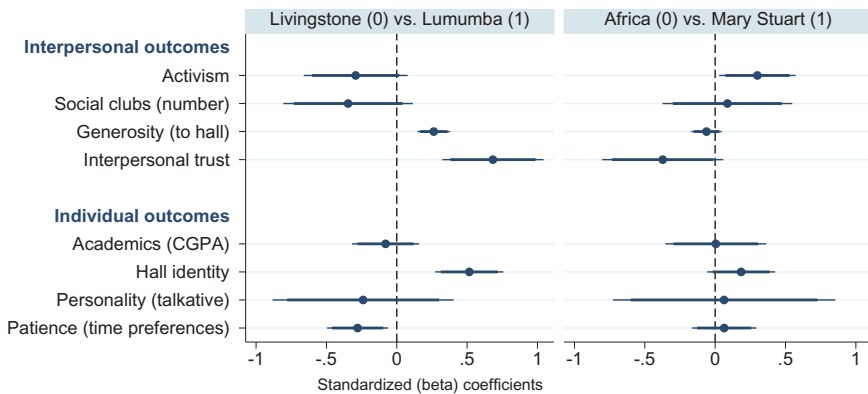which strongly suggested that Lumumba students were more involved in campus events and protests, and with the greater number of campus-wide student leaders who hailed from Lumumba. There are two explanations for this null finding for male halls. One is that the reputations of activism at Lumumba and of lack thereof at Livingstone do not actually affect the behavior of most hall residents, in part because displays of activism — while they occur more or less regularly campus-wide — are not part of the halls' *daily* life. Another is that Lumumba respondents under-reported their activism because they know the Administration opposes their activism (e.g., Figures A.8 and A.11). Two of our enumerators raised concerns that some Lumumba students, while not concerned about the survey in general, were wary about noting their activism in a written survey. This would explain the null results on this somewhat sensitive question. While we do not have systematic evidence to that effect, we find some survey evidence consistent with it. Lumumba respondents are less likely than Livingstone respondents to share their name and student ID number but not less likely to share their phone number, which changes more often and is less easily used as an identifier (Table A.23). Such differences in response rates do not exist for female halls, where activism results are as expected.

Sociality Hall differences in type and number of memberships in social clubs are largely null, counter to our expectations given that many aspects of sociality

are part of the halls' daily life. For instance, Lumbox residents do not belong to more clubs that than Afrostone residents (Table A.3). However, as we discuss below, Lumbox residents are more socially engaged with their hall in ways that foster social cohesion (e.g., participating in jogging organized by the hall leadership).

Trust We observe higher levels of interpersonal trust and generosity among Lumumba residents, two interpersonal outcomes, compared to Livingstone students in our survey and behavioral games. These findings are consistent with our qualitative observations that Lumumba's culture may be more socially cohesive or "immersive". Students in Lumumba trust more in their hall peers, in their partner hall (Mary Stuart), and in their Makerere University peers (models 1 to 3) than students in Livingstone. They are also more likely to side with a student as opposed to the administration in a hypothetical case of potential academic misconduct (model 7). Lumumba Hall is often the administration's target of bans or restrictions on campus (e.g., Figure A.11), and correspondingly the survey results reveal greater distrust of the relevant campus authorities. In female halls, we observe mixed results: Africa residents are more trusting of their peers and partner hall (unexpected) but Mary Stuart residents are more trusting of Makerere students overall (expected).

Generosity Lumumba students are more generous toward their peers and their hall than Livingstone's (Table 4). This is consistent with the findings that Lumumba students trust each other more and identify more with their hall (Tables 3 and 5). Livingstone students divide (hypothetical) funds for infrastructure improvements equally between hall and university at around 50%, while students in Lumumba gave 75% to the hall and only 25% to the university. We also measure generosity behaviorally using the dictator game and a public goods game. In the dictator game, Lumumba students gave a generic hall peer approximately 15% more than the students in Livingstone (4,300UGX vs. 2,900UGX, out of a pool of 10,000UGX or 3USD) (Table 4).[15] In the public good games, individual contributions to the "group pot" are larger in Lumumba Hall compared to Livingstone but not significantly. We allowed each group of students to donate any share of their gains to their hall. We find that group donations are marginally higher in Lumumba Hall (expected) but somewhat lower in Mary Stuart (unexpected) (Table A.4).

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[15]We embedded a public vs. private condition experiment in the dictator game (see Online Appendix A.1.1 for details) to show that differences are not simply the result of extrinsic motivation such as social pressure, but the result of intrinsic motivation, such as altruism. Ariely *et al.* (2009, p. 544) define extrinsic motivation as "any material reward associated with giving", image motivation as "the tendency to be motivated by others' perceptions, and intrinsic motivation as "the value of giving per se, represented by private preferences for others' well-being."

Table 3: Trust toward students and campus authorities.

	(1) Hall residents	(2) Partner hall	(3) Makerere students	(4) Makerere police force	(5) Dean of Students	(6) Vice-Chancellor	(7) Academic misconduct
Lumumba	0.68**	0.59**	0.62**	0.09	−0.63**	−0.27	0.25*
	(0.18)	(0.19)	(0.18)	(0.19)	(0.17)	(0.20)	(0.11)
Mary Stuart	−0.37†	−0.38†	0.36†	0.13	−0.04	−0.02	0.25
	(0.22)	(0.22)	(0.21)	(0.21)	(0.20)	(0.20)	(0.16)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	116/94	115/95	113/91	115/89	116/85	111/86	72/55
R^2	0.18/0.16	0.13/0.25	0.16/0.20	0.09/0.15	0.29/0.34	0.19/0.34	0.19/0.23

Notes: †$p < 0.10$, *$p < 0.05$, **$p < 0.01$. The number before (after) the slash corresponds to the model for male (female) halls. Lumumba and Mary Stuart (Livingstone and Africa) are the male and female halls respectively with a reputation for being more socially active (quieter and gentle) and are coded as 1 (0). A positive coefficient indicates more trust in a 4-point scale. Model 1 measures trust in hallmates; model 2 in residents of the partner hall or "solidarity" (Mary Stuart in the case of Lumumba and Africa in the case of Livingstone). Models 4–6 measure trust in campus authorities. Model 7 measures respondent trust of an accused student instead of the administration in a case of academic misconduct.

Table 4: Generosity: self-reported allocation and behavioral donation.

	Survey		Behavioral games	
	(1) Hall allocation	(2) Partner hall allocation	(3) Offer to hall peer	(4) Offer to hall peer
Lumumba	26.31**	18.53**	1366.07*	1574.69
	(5.94)	(6.08)	(578.75)	(1071.96)
Mary Stuart	−6.14	−2.48	−619.88	−258.19
	(5.50)	(5.74)	(400.75)	(766.25)
Controls	Yes	Yes	No	Yes
N	110/94	110/90	84/95	43/37
R^2	0.27/0.21	0.15/0.23	0.06/0.03	0.27/0.42

Notes: $\dagger p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$. The number before (after) the slash corresponds to the model for male (female) halls. Model 1 (2) asks respondents to divide and allocate 1 million UGX between their hall (partner hall) and Makerere university in percentages (e.g., 70% and 30%). Coefficients represent differences in hall percentage allocation. Models 3 and 4 measure offers to hallmates resulting from the participant's dictator game allocation of 10,000UGX ($\approx$3USD) between himself and a hallmate. Coefficients represent differences in the amount offered to the hallmate. Both behavioral models use the full sample, including private students, and model 2 uses the standard set of controls. Adding controls reduces sample size because not all behavioral participants were matched to survey respondents — some concerned with confidentiality chose not to share their identifying information in the survey.

Individual Outcomes

Academics While Afrostone's reputation is to be studious, scholarly issues are more closely tied to one's department than to the hall's daily life. We find that academic performance and self-reported academic behaviors, such as frequency of note sharing and participation in class, do not differ based on hall assignment for males (Table A.6). Afrostone students' GPA is slightly higher, but the difference is not significant. Mary Stuart Boxers *report* their hall peers to be noisy in class to a greater extent than Africa Ladies, who in turn are more likely to report that their hall peers study hard. In sum, culture may influence class behavior in front of peers (a more "social" outcome), but hall culture would have to be more pervasive to affect individual academic outcomes.

Hall identity Daily life interactions affect one's identity. We find that residing in Lumumba increases one's hall identification by around 0.5 in our five-point scale, compared to Livingstone (Table 5). Interestingly, their stronger hall identity does not compete with their existing ethnic identity, i.e., it does not come "at the cost" of weaker ethnic identity (Hornsey and Hogg, 2000), another salient form of self-categorization at Makerere. The differences in strength of hall identity do not extend to female halls, in spite of the Lumbox solidarity,

Table 5: Hall identity and time preferences (immediate vs. delayed payment).

	(1) Hall identity	(2) Ethnic identity	(3) Now vs. in 1 week	(4) Now vs. in 1 month
Lumumba	0.52**	0.06	−0.28*	−0.10
	(0.12)	(0.15)	(0.11)	(0.11)
Mary Stuart	0.18	0.05	0.06	0.16
	(0.12)	(0.17)	(0.12)	(0.12)
Controls	Yes	Yes	Yes	Yes
N	115/90	110/94	113/92	113/91
R^2	0.27/0.16	0.11/0.07	0.16/0.10	0.15/0.10

Notes: †$p < 0.10$, *$p < 0.05$, **$p < 0.01$. The number before (after) the slash corresponds to the model for male (female) halls. Model 1 (2) compares hall and university (ethnic and national) identities. A positive coefficient indicates higher hall (ethnic) identity. Model 3 (4) is a linear probability model and respondents choose between 15USD "now" and 20USD (27USD) "a week (month) from now" (1). A positive coefficient indicates preference for immediate payment (0) over delayed payment (1).

Table 6: Mechanisms of cultural transmission: social and cultural activities.

	(1) Reading hall announcements	(2) Attending social events	(3) Hall jogging	(4) Strength of hall culture	(5) Activity of hall leaders
Lumumba	2.10**	0.23	0.98**	1.31**	0.57**
	(0.60)	(0.20)	(0.27)	(0.22)	(0.15)
Mary Stuart	0.81	0.08	0.50†	0.75**	0.36*
	(0.81)	(0.26)	(0.28)	(0.23)	(0.15)
Controls	Yes	Yes	Yes	Yes	Yes
N	106/88	116/91	116/91	116/91	115/91
R^2	0.29/0.16	0.08/0.13	0.31/0.24	0.45/0.23	0.28/0.17

Notes: †$p < 0.10$, *$p < 0.05$, **$p < 0.01$. The number before (after) the slash corresponds to the model for male (female) halls. The first three questions report frequency with which students engage in each of the activities, from "almost never" (1) to "almost always" (5). Question four reports respondent's perception of the strength of his/her own hall culture, from "no culture" (1) or "very weak" (2) to "very strong" (6). The last question measures whether "the hall leadership actively promotes the culture of the hall", from "not at all" (1) to "yes, absolutely" (4).

and in spite of the finding that Mary Stuart residents are more likely to claim that their hall culture is "strong" compared to the claims of Africa residents (Table 6).

Personality traits We asked respondents to rate themselves along the Big Five traits (Table A.7), but we find few hall differences that mirror the differences in which residents characterize their hall peers except for the fact that Livingstone

students rate themselves as calmer than Lumumba students, consistent with their higher impatience. While some research shows that personality can change in response to external events and contexts (Roberts and Helson, 1997), personality change over a short time period is rarely observed (Srivastava *et al.*, 2003).

Patience (*time preferences*) The ability to delay gratification ("patience") improves life outcomes such as mental health and educational attainment (e.g., Mischel *et al.*'s (1989) "marshmallow experiment"). We observe the predicted differences in patience between the two male halls. We just noted that Livingstone students describe themselves as calmer than Lumumba students (Table A.7). This self-report corresponds to their intertemporal choice in the survey: Lumumba residents are 28% more likely to prefer 15USD now as opposed to 20USD in a week (Table 5). Contrary to predictions, Africa students are not more patient compared to Mary Stuart students.

Mechanisms of Cultural Transmission

Hall Leadership

Ample qualitative evidence (Online Appendix D) and interviewees emphasized the role of elected upperclassmen as the key agents of cultural reproduction. As an alumna wrote, she disliked some of the freshmen activities during Orientation Week, but "one of the [hall] ministers told us that that was the hall culture which had to be respected" (Section D.4.2). This finding is in line with research showing that social referents are key to determine group norms and behavior (Paluck and Shepherd, 2012, p. 899). Indeed, we find that hall student leaders are more involved than regular residents in hall activities, as proxied by the number of hall meetings and social events they attend such as early morning jogs (Table A.8).

The content of their speeches and actions, however, differs between halls: Lumumba Hall leaders participate "in acts of violence" as part of campus campaigns (Figure A.9) while Livingstone leaders distribute leaflets of their hall's proper Code of Conduct (Figure A.12). In sum, hall leaders play a common role as agents of cultural reproduction but *how* they play this role differs across halls.

Social Cohesion

We found that leaders in some halls are more engaged than others. Hornsey and Hogg (1999, p. 544) argue that people "prefer to identify with more rather than less cohesive groups." We find that Lumbox is better at cultural promotion and activities that induce social cohesion than Afrostone (Table 6).

Consequently, Lumumba students are more informed about hall events and participate in morning jogs more often. Social cohesion and hall leadership are probably not the only mechanisms that explain differences between halls, but they are more central than alternatives such as differences in hall material conditions or time spent in the hall (Table A.9).

Student Findings: Summary

Our mixed findings for the impact of hall culture on interpersonal and individual outcomes are often — but not always — consistent with the halls' reputations. Regarding interpersonal outcomes, hall culture has little or not impact on levels of social or political activity, but it affects activism (for female halls) and generosity and trust (for male halls). Regarding individual outcomes, culture has little or no impact on academic performance or on most Big Five personality measures but it affects impatience — an important personality trait we measure using time preferences — and identification with the hall. Some findings are consistent with Lumumba's sociable culture (generosity), while others with Livingstone's calm culture (patience). Findings for female halls are much weaker, consistent with their halls importing little more than their male partners' cultural reputations.

We next investigate whether these effects endure by turning to a survey we conducted among alumni that attended Makerere between 1970 and 2000 (i.e., individuals who graduated 15 to 45 years before taking our survey). We ask identical or equivalent questions for most outcomes, but there are two limits to comparison between samples. First, almost all students lived in the halls until the mid-1990s because class sizes were much smaller, while most live off-campus today. Second, since the 2000s students elect student leaders not only by hall but also by department, resulting in two parallel leadership structures. Both of these differences suggest that the culture "treatment" was stronger before 2000 because halls played a uniquely central role on campus.

Alumni Survey and Sample

There is no existing database of Makerere alumni, so we built our own database by targeting organizations where employees need university degrees: the public sector (e.g., government ministries), the formal private sector (e.g., industries), and the nonprofit sector and associations (e.g., charities, educational institutions). Since Makerere was the only university in Uganda for most of the 20th century, degree-holders were almost invariably Makerere alumni. We obtained alumni contacts from 90 organizations in various sectors, including

the Uganda Law Society, Ugandan Parliament, Ugandan Manufacturers Association, Ugandan police, Uganda Episcopal Conference (Catholic church), Rotary Club, Private Sector Foundation, and several government ministries such as Land, Finance and Gender. Our sampling strategy under-samples unemployed alumni and women. Alumni focus groups explained that a greater proportion of women did not seek employment after graduation, had fewer opportunities for post-university employment, or did not graduate, usually due to pregnancy or marriage. Consequently, our male alumni are a more representative sample than females.

Out of 1,173 alumni contacted and eligible to participate, 98% reported complying with the hall to which they were assigned, and 96% of our respondents reported that they were students on a government scholarship (Table A.21). Government students risked losing their scholarship if they did not live in their assigned hall of residence, while private students only bore the risk of being expelled from the hall. That likely explains why 7 out of the 44 private students in our sample "cheated the system" compared to only 15 out of 1,129 government students. We drop the minority of noncompliers and private students in our models as in our student survey, so the final sample size for the four halls totals 1,114. The alumni survey mirrors the procedure, structure, and questions of the student survey (see Section "Student Survey and Sample"). In some sections, we added questions about later life outcomes, such as post-campus activism and current spouse's previous hall of residence.

Our alumni sample is largely balanced between the male and female hall samples on demographic, income, residential, and other self-reported items. Male and female respondents in each hall are comparable in terms of the year they joined Makerere, parental education and occupation, most birth regions, most ethnicities, and most colleges while at Makerere. However, with respect to age, female alumni are balanced but Livingstone alumni are a year older than Lumumba alumni ($p < .08$) (Tables A.33 and A.34). We control for all observed imbalances as well as available pre-treatment covariates, such as father's education. We exclude postuniversity outcomes from the balance test to avoid posttreatment bias (Angrist and Pischke, 2009).

Empirical Strategy

The empirical strategy consists in comparing the two male halls to one another and the two female halls to one another. It is analogous to that of the student sample (see Subsection "Empirical Strategy" of Section "Student Survey and Sample") but we include interviewer fixed effects. While current students filled out the survey themselves, the alumni survey was on the phone.[16] The linear

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[16]Calls were assigned to interviewers based on availability, although in practice interviewers usually conducted a similar number of surveys across halls (Tables A.33 and A.34).

models are analogous and have the following form:

$$Y_{ik} = \beta_0 + \beta_1 Lumumba_{ik} + X^T \beta_2 + \delta_i + \epsilon_{ik} \qquad (3)$$

$$Y_{ik} = \beta_0 + \beta_1 Mary\ Stuart_{ik} + X^T \beta_2 + \delta_i + \epsilon_{ik} \qquad (4)$$

Y is the outcome of interest for individual i in hall k and β_1 is the local average treatment effect (LATE) and the main coefficient of interest. In Equation (3), the Lumumba indicator equals 1 for Lumumba and 0 for Livingstone. In Equation (4), the Mary Stuart indicator equals 1 for Mary Stuart and 0 for Africa. All models include a matrix of controls (X) that contains year of birth as well as sets of indicators for region of birth, ethnic group, father's occupation, and college of study while at Makerere (e.g., Medicine, Engineering).[17] Interviewer fixed effects are denoted by δ. The error term (ϵ) is clustered by data source (e.g., Uganda Law Society, Rotary Club, etc.) since individuals in each list are not independently drawn.

Alumni Results

The examination of interpersonal and individual outcomes in the alumni survey leads us to three main observations. First, we replicate multiple patterns from the student survey, such as the hall difference in time preferences and the largely null pattern for levels of social activities. Second, some hall differences for current students (generosity and hall identification) retain the same sign but diminish in magnitude. Third, we find two new results in male halls. Lumumba alumni report higher past and present levels of political activism compared to Livingstone's alumni, an expected difference we failed among students. Interpersonal trust among
Lumumba than Livingstone alumni, which is unexpected and inconsistent with our student results. Below we provide a concise discussion of these results (see Online Appendix B for a longer discussion). Figure 4 overviews our alumni findings.

Interpersonal Outcomes

The alumni survey provides evidence that Lumumba alumni were more activist than Livingstone's throughout the 1970–2010 and remain more activist after leaving campus, as proxied by self-reports of signing a petition, attending a demonstration, and joining a strike (Table 7, Figure A.1). This is consistent with multiple witness accounts — including 1970s activist and current Vice Chancellor Barnabas Nawangwe (interview, June 15, 2016) — explaining that

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[17]The major is chosen in high school following the British system, minimizing the risk that controlling for college induces posttreatment bias.
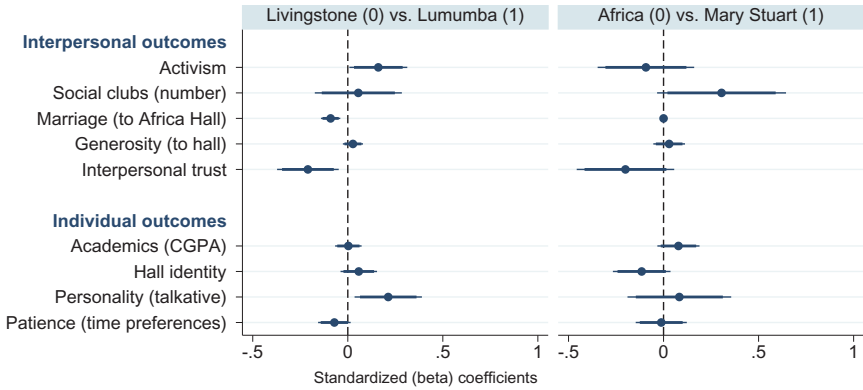
Figure 4: Summary of results for the alumni sample.

Note: This graph includes only one representative outcome for each category for visualization purposes. Bars present 95% and 90% confidence intervals. Within the interpersonal vs. individual outcomes categories, we list outcomes that are not part of the halls' daily life (the first one) followed by those that are (the next three).

Table 7: Activism.

	On campus			Today		
	(1) Sign a petition	(2) Attend a demonstration	(3) Join a strike	(4) Sign a petition	(5) Attend a demonstration	(6) Join a strike
Lumumba	0.10†	0.30**	0.20*	0.16*	0.10†	0.04
	(0.06)	(0.11)	(0.08)	(0.07)	(0.06)	(0.08)
Mary Stuart	0.05	0.07	−0.02	−0.09	0.09	0.04
	(0.05)	(0.11)	(0.09)	(0.13)	(0.11)	(0.15)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	613/263	616/264	617/264	616/264	617/265	617/265
R^2	0.05/0.10	0.07/0.12	0.06/0.08	0.06/0.14	0.10/0.07	0.09/0.12

Note: †$p < 0.10$, *$p < 0.05$, **$p < 0.01$. The number before (after) the slash corresponds to the model for male (female) halls. The three proxies for activism range from 0 (respondent never undertook or has undertaken that action) to 3 (respondent undertook it or has undertaken it more than twice).

the few (risky) protests that did occur during Idi Amin's regime started at Lumumba Hall. Hall cabinet ministers were even more important transmitters of culture (mechanisms) and social activism skills for pre-2000 alumni because the importance of hall leaders was higher then than it is now. Activism then was probably more important to the hall's daily life than it is now.

We replicate the largely null pattern of results for engagement with social activities and clubs (Table A.11), although Lumumba and Mary Stuart alumni appear to have been more active overall. A new interesting finding is that "solidarities", Lumbox and Afrostone, induce interhall marriage even though all halls are very near each other (Figure A.18). As in the student sample, Lumumba alumni would give 53% of the money to their former hall and 47% to Makerere, while Livingstone alumni split it equally. This difference is in the expected direction but not significant and smaller than the 26% difference among students (Table A.13). Between-hall differences in pro-social behavior may wane over time.

Finally, Livingstone alumni report they would trust their former hallmates to conduct a fair deal more than Lumumba alumni would, and they would loan money to more hallmates than Lumumba alumni (Table A.13). This result on trust runs counter to our expectations and to our results for current students, which show that Lumumba students trust their hall and even Makerere peers more. It is also puzzling because Livingstone alumni do *not* show higher levels of hall identity or pro-social behavior, whether measured by activism or generosity. One explanation for this differing pattern between current student and alumni stems from question wording. Unlike in other questions, where question wording between the two samples is comparable, we changed the trust question in the alumni survey. In the student survey we ask about interpersonal trust while in the alumni survey we ask about financial trust. Our goal was to make the survey more realistic to alumni, but this new wording may have captured a different dimension of interpersonal relations, centered around money, as opposed to trust in hallmates more generally.

Individual Outcomes

As in our current student sample, we do not observe self-reported differences in terms of alumni's recalled academic performance (Table A.14). However, Lumumba alumni continue to identify more highly with their hall than Livingstone's while Livingstone alumni continue to be better at delaying gratification, i.e., are more patient (Table A.17). The difference in attachment to hall identity among alumni is now not significant however, suggesting that — as in the case of generosity above — some between-hall differences wane over time.

In terms of personality self-assessments, measured by the Big Five traits and adjectives commonly used on campus, Lumumba alumni describe themselves as more talkative and outgoing, while Livingstone alumni rate themselves as calmer (Tables A.15 and A.16). This is largely consistent with our predictions and our finding that Livingstone alumni report being quieter in class, suggesting that hall culture affected social behavior but not academic performance (Table A.14).

Conclusion

Cultural influence and socialization experiences have long been studied by social scientists. We leverage the residential halls of Makerere University in Uganda to examine the extent — and limits — of cultural influence among young adults.

We argue and find that interpersonal outcomes, such as interpersonal trust, are more affected than individual ones, such as personality traits (Big Five), because socialization into any culture is an inherently social process. Additionally, "daily life" outcomes — domains that are part of daily discussions in the hall, such as issues of trust — are more affected than those that are not, such as issues of national politics that are discussed campus-wide or academic issues discussed in departments rather than halls. Variation explained by hall culture ranges from 0% in academic performance (individual outcome, not daily life) to 18% in behavioral generosity in the dictator game (interpersonal outcome, daily life).

The influence of hall culture on interpersonal trust and generosity and on individual identity and patience is important, especially in the context of findings by other scholars. Trust, and civic involvement more generally, is important for economic development (Algan and Cahuc, 2014; Fukuyama, 1995) and for well-functioning institutions (Putnam, 1993). In turn, generosity increases interpersonal trust and cooperation (Klapwijk and Van Lange, 2009). For instance, a generous strategy is associated with higher cooperation in an iterated prisoner's dilemma (Stewart and Plotkin, 2013). Behavioral differences in generosity between halls did not diminish when we made the game decisions strictly private, suggesting these differences are not simply the result of extrinsic or image motivation (e.g., social pressure), but the result of intrinsic motivation (e.g., altruism). Identity and generosity among alumni also vary according to hall culture as predicted, even if differences are not statistically significant because they wane over time. In our alumni survey, the average respondent graduated 25 years ago.[18]

We also find that, among alumni, hall culture affects levels of activism, some personality traits and time preferences, effects that seem to endure after students have graduated. While social habits differ little across halls, alumni marriage partners depend on the hall, such that hall pairs with shared cultures (so-called "solidarities") date and marry each other more. This second set of findings can inform literature across the social sciences that studies the links between culture and social behavior (Swidler, 1986), delayed gratification (Mischel *et al.*, 1989), and political activism (Norris, 2009). Personality traits

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[18]Most results change little when we split the alumni sample between the older and the younger half, although standard errors do become larger. Differences between the 1995 and 2015 cohorts are much larger than between the 1975 and 1995 cohorts, consistent with the larger institutional changes started in the mid-1990s.

are not easy to change during adulthood (Srivastava *et al.*, 2003), yet we observe differences by hall in the extent to which alumni are talkative, patient, and outgoing.

We argue that hall governments — composed of democratically elected student leaders — are the central mechanism for the intergenerational transmission of values, norms, and behaviors. However, we find that some halls are better at cultural promotion than others because their leaders take a more active role and organize more social activities, which leads to higher social cohesion.

The role of structural explanations for our findings — such as different hall size, institutional structure, and location — seems minimal. All halls have accommodated close to 400 students in recent years (Table A.22), hall budgets are provided by the university on a per capita basis, and institutional and governing structures are identical across halls. Architectural differences were not mentioned even once among interviewees as a factor explaining cultural differences. Proximity likely affected the formation of male-female "hall solidarities", but all halls are at most a 10-minute walk from each other and roughly equidistant to the main campus sites: Freedom Square, where students gather and demonstrate, and the Main Administration Building (see Figure A.18).

While the setting of Makerere is unique because it combines randomization and cultural differences between halls, the broader question of cultural influence is ever-present across the world and extends to other educational organizations, to political organizations (e.g., parties) and professional organizations (e.g., labor unions). The University of Ghana, for example, provides a comparable setting of young elite socialization: "Legon Hall was my first choice", writes recent Ghanaian President John Mahama (2012, p. 199), "because I was told it was peaceful and quiet, a hall of gentlemen." He was nonetheless assigned to Commonwealth Hall, where "a lot of the political ferment, activism, and rebellion that took place on campus was usually hatched." The parallels are striking except for the fact that, according to Mahama, administrators at the University of Ghana purposely assigned rowdy student to Legon and calm students to Commonwealth to reduce these cultural differences between halls. More generally, our research may allow political and social scientists studying socialization in Africa and beyond to draw parallels and consider how the organizations they study may affect sociopolitical values and behavior.

Nonetheless, there are several limitations in this study. First, while our setting allows us to examine culture as a treatment, mechanisms are harder to disentangle due to the "bundled" nature of the treatment. Second, we present two cross-sections rather than a 20- or 30-year longitudinal study. Third, halls have experienced campus-wide changes, such as the large increase in the student body and the election of department leaders alongside hall leaders. This erosion of hall cultures and norms may explain the higher activism among

Lumumba Hall alumni but also complicates determining the reasons why some effects endure but others do not. A fourth limitation is that we are forced to rely on self-reported measures of academic performance and hall compliance in both samples. For the alumni sample, pre-2000 records were not computerized. For the student sample, it was impossible to be granted access to student records. Finally, the alumni database is necessarily a convenience sample because Makerere University does not possess its own — we try to compensate by sampling alumni from over 90 different organizations in the public, private, and non-profit sectors. These limitations, while not unusual in natural experiments, should be kept in mind when considering our findings.

On balance, what can we conclude from our findings regarding cultural influence? Existing work shows that most variation in life outcomes is explained by a combination of individual characteristics (Behrman and Taubman, 1989; Bouchard *et al.*, 1990) and primary socialization, notably family environment (Sacerdote, 2007). In spite of this, we show that adult (secondary) socialization into a culture can still affect domains as diverse as interpersonal relations (trust, generosity), individual identity, and social activism. Our setting is arguably a "hard case", and hence our cultural effects may be lower bounds, because all students are embedded in the broader culture and institutions of Makerere and Uganda.

In sum, this natural experiment uniquely allows us to use a micro approach to investigate cultural influence, a macro phenomenon that many political and social scientists consider as interesting as it is difficult to study. We shed light on the possibilities — and on the limits — of culture-induced change among young adults (students) and among not-so-young adults (alumni). Short-term cultural change is limited in our setting as it is in most, yet our results reject an essentialist or static view of culture and identity: hall culture is not fixed over time and neither are its effects, as the comparison of our two samples suggests. Instead, our results are more consistent with a constructivist account where individuals possess multiple cultural identities, where the salience of each depends on the context (Adida *et al.*, 2017; Chandra, 2012; Posner, 2005), and where Ugandan, ethnic, and hall identities supply different "tool kits" (Swidler, 1986) for individuals to use depending on the environment.

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