

The Long-Term Impact of Universal Primary Education: Evidence from Nigeria

Abstract

This study examines the long-run impact of Universal Primary Education in Nigeria using a difference-in-differences strategy exploiting temporal variation in exposure of cohorts to the programme and spatial variation in treatment intensity. While the effects on primary school and secondary school enrolment and completion rates, literacy rates and formal school attendance to be large, positive and persistent, the effects on employment, marriage and family planning and health outcomes are found to be weak or even negative and not persistent. Since the effects on education persist even after tuition fees were reintroduced, school resource expansion is seen as the more important component of the programme. Boys and regions with lower Muslim concentration are found to have benefited from the programme more. The findings point to labour market discrimination and the Islamic institutional environment as possible drivers of the effects on employment and broader outcomes.

1 Introduction

The Millenium Development Goals sparked the adoption of Universal Primary Education (UPE) in Afirca (Oketch and Rolleston 2007; The World Bank and UNICEF 2009). With studies finding that fee elimination leads to a substantive improvement in education (Barrera-Osorio, Linden, and Urquiola 2007; Filmer and Schady 2008; Filmer and Schady 2011; Gajigo 2016; Lucas and Mbiti 2012), costs of education may appear to be a binding constraint for African households and may explain Africa’s low primary school enrolment rates.

While policy debates are shifting towards eliminating fees for secondary schools, little is known about the long-term impact such reforms. A novel study by Duflo, Dupas, and Kremer (2021) uses a randomised controlled trial to evaluate the effects of providing secondary school scholarships to

Ghanian students on education, life and employment outcomes. However, their programme operates on a small scale and they only have data up to 12 years after the programme started. Likewise, most of the existing studies on UPE only discuss the short- to medium-term effects (Delesalle 2019; Osili and Long 2008; Oyelere 2010). Given the end-goal of education is presumably to improve earnings and welfare, identifying the long-run effects of UPE is crucial to informing policymaking throughout Africa.

Against this backdrop, this study aims to identify the causal effects of UPE on a variety of outcomes. The canonical Mincer model implies that optimal schooling increases in an education subsidy. Even then, it is not clear *a priori* how free education would influence long-term outcomes as students might drop out of school, or the supply of jobs for educated young individuals may be scarce, leading to the prevalence of “overly-educated” young people (Duflo, Dupas, and Kremer 2021; Murphy, Shleifer, and Vishny 1991). To shed light on this issue, I draw on the natural experiment provided by Nigeria’s implementation of UPE, which combined fee removal with school resource expansion. I adopt a similar identification strategy to that in Larreguy and Marshall (2017), using difference-in-differences to estimate the reduced-form policy impact. Specifically, I exploit the regional variation in potential treatment intensity, measured by the baseline average primary school non-enrolment rates, as well as temporal variation from the rollout of UPE.

The start of UPE in some states led to a 0.127sd (-36.0% of the mean among pre-UPE cohorts which is negative; henceforth all percentages reported in this section are relative to the baseline mean) greater increase in the summary index for education outcomes for every 1sd increase in UPE intensity. This effect became even larger when nationwide UPE was implemented. UPE also improved formal school attendance rates by 18.9pp (49.3%) to 23.7pp (61.9%), literacy rates by 13.0pp (27.1%) to 17.0pp (35.4%), primary school enrolment rates by 19.8pp (52.4%) to 25.0pp (66.1%), primary school completion rates by 15.2pp (49.1%) to 20.5pp (66.3%), secondary school enrolment rates by 4.7pp (34.7%) to 5.7pp (42.0%), secondary school completion rates by 4.6pp (38.3%) to 6.0pp (50.4%) and years of education by 1.4 (32.0%) to 2.1 (47.6%) for every 1sd increase in UPE intensity for treated cohorts. Crucially, the effects on primary education continued growing stronger following the withdrawal of UPE, suggesting resource expansion was more important than fee removal.

I do not find evidence that the programme substantially improved outcomes in other domains. In

fact, the employment effects are negative. The effects of UPE on health are modest and diminish post-UPE. However, cohorts affected by UPE are more likely to enjoy greater media access and own more household enterprises.

Boys benefited from the programme more than girls. While the effects on education compared to the Islamic North were stronger in the Mid-Western and Eastern Region, individuals living in these regions had a lower chance of being employers and higher chance of being self-employed, as well as owned fewer household enterprises, suggesting that Islamic institutions might play a key role in shaping job opportunities.

My paper contributes to the existing literature on the impact of Nigeria’s UPE reform (Osili and Long 2008; Oyelere 2010) and free education programmes (Al-Samarrai and Zaman 2007; Blimpo, Gajigo, and Pugatch 2016; Deninger 2003; Delesalle 2019; Gajigo 2016; Keats 2018). Unlike these studies, I examine the impact on those affected by the programme more than 30 years after the programme ended and for a broader range of outcomes. A key innovation is to isolate the impact of resource expansion from that of tuition fee elimination by exploiting the timing of UPE withdrawal.

The closest study would be Larreguy and Marshall (2017). Using a similar identification strategy, they find that Nigeria’s nationwide UPE implementation increased political participation up to 37 years after individuals were educated. Unlike their analysis, I include the period of UPE implementation in individual states and use both local government area (LGA) and state-by-cohort fixed effects to isolate the impact of the programme¹. Furthermore, I use baseline primary school non-enrolment instead of non-completion rates to define treatment intensity, which might be more appropriate given policymakers primarily targeted enrolment.

More broadly, my paper contributes to the recent literature examining the long-run impact of education programmes in developing countries (Akresh, Halim, and Kleemans 2018; Hahn et al. 2017; Hamory et al. 2021). It also adds to the evidence on the impact of demand-side education policies, such as merit scholarships (Duflo, Dupas, and Kremer 2021; Kremer, Miguel, and Thornton 2009), cash transfers and subsidies (Barrera-Osorio, Linden, and Urquiola 2007; Filmer and Schady 2008; Filmer and Schady 2011) and resource expansion (Akresh, Halim, and Kleemans 2018; Duflo 2001).

¹Larreguy and Marshall (2017) rely on parametric state trends interacted with a post-reform dummy which may inadequately control for the effects of other state reforms.

The remainder of the paper is structured as follows. Section 2 gives the context of Nigeria’s education system and UPE programme. Section 3 describes the data and methodology. Section 4 presents the main results. Section 5 concludes.

2 Context

Under British colonialism, Nigeria was divided into the Northern, Eastern and Western Regions, with Muslims concentrated in the North and Christians in the East. British education spread predominantly via Christian missionaries since 1842, with less success in the North because of resistance from Islamic leaders (Csapo 1983; Fafunwa 1974; Imam 2012; Osili and Long 2008).

The 1952 Education Ordinance transferred power to regional authorities (Imam 2012). With ministers envisioning Nigeria to be self-sufficient and catch up with advanced economies, UPE began in the Western Region in 1955 (Krieger 1987), resulting in the number of primary schools in this region increasing from 3,550 in 1952 to 6,274 by 1954. While the government had been planning the programme since 1952, its announcement was still unexpected as enrolment doubled from 429,542 in 1953 to 811,432 in 1955 (Ajayi 2008).

Other regions soon followed, with UPE being rolled out in the Lagos and Eastern Regions by 1957, though the policy was not universally enforced (Oyelere 2010). In the North, school construction increased and the government removed tuition fees in public schools by 1957 (Imam 2012). Furthermore, the Mid-Western Region was carved out from the Western region in 1963 such that UPE was halted temporarily there. As of 1967, out of the 12 states that existed then, only the Western and Lagos states had fully eliminated fees (Chuta 1986). Problems with implementation were widespread and most severe in the East which faced a shortage of teachers, insufficient budget and Catholic opposition, while in the North, female enrolment remained low because of gender bias and government budget constraints (Achor 1977; Csapo 1983). With the country gaining independence in 1960, state and local governments were formed, and overtime the number of states has grown to 36 excluding the Federal Capital Territory, while there are now 774 LGAs².

²LGAs are essentially districts within a state.

In 1976, UPE was extended nationwide primarily due to revenues from the oil boom (Larreguy and Marshall 2017; Oyelere 2010). The government provided free education for kids aged 6 to 12 (Imam 2012). Figure A1 depicts the sharp rise in number of public primary schools constructed especially in the Western Region in 1955 and the Northern Region around 1957 and 1976. Coincidentally, the number of private schools also increased likely due to demand spillovers from public schools. Again, implementation problems were rife with a shortage of teachers and high teacher-to-pupil ratios (Asagwara 1997). In the 1980s, the federal government dissolved power to states. Upon realising oil revenue forecasts were inaccurate, these rulers suddenly withdrew funding for UPE in 1981, though the West maintained free education under the rule of the United Nigeria Party till 1983 (Oyelere 2010).

3 Data and Methodology

3.1 Data Sources

The main data source is the 2009 wave of the Nigerian General Household Survey (GHS)³. The GHS samples a nationally representative cross-section of households using two-stage, replicated and rotated cluster sampling. The first stage units are enumeration areas (EAs) stratified by state and households form the second stage units. In total, 16,650 households are sampled in the GHS. All individuals present in the household were interviewed and the response rate was 100% at the household level (Nigerian National Bureau of Statistics, Central Bank of Nigeria, and Nigerian Communications Commission 2010). I treat household weights as individual weights⁴.

Only 3 out of 11 modules in the GHS questionnaire are used in my analysis⁵: the main module collecting information on demographics, education, employment and media access for all individuals within the household, the health module which only pertains to individuals who were sick or injured in the past 7 days, and the module which collects information on household enterprises. Another

³The GHS was conducted yearly from 2007 to 2010, after which the survey format was changed and a longitudinal sample was collected. I select the 2009 wave of the GHS because of two reasons. First, the quality of data collection and processing was poor in the earlier waves but gradually improved. Second, the small panel sample is insufficient for analysis and there are greater concerns about selective migration biasing the estimates of the treatment effects as migration rates increase over time.

⁴Only household weights are available in the data, but given individuals were sampled at a rate of 100% and response rates were high, this should not pose an issue.

⁵The other modules are excluded mainly because they do not pertain to the population of interest. For example, the vaccination and child nutrition modules only recorded responses for children aged one year and below and thus are excluded from the analysis which focuses on cohorts born before 1986. The survey module on births also only records information on infants born in the past 12 months and so we would not be able to compare outcomes in LGAs with different treatment intensities for the older cohorts since women in these cohorts would not be of child-bearing age and thus would not provide any responses.

issue is inconsistent or missing identifiers (IDs)⁶. Therefore, I performed “fuzzy” matching using other identifiers such as sector of residence and household, LGA and state IDs when merging the datasets⁷.

There are further limitations to the GHS. First, I do not observe the actual region of primary education and thus have to assume that it is the same as the current region of residence. Selective migration may bias the estimates if migrants and nonmigrants differ in outcomes in absence of UPE. However, Larreguy and Marshall (2017) argue that only 23% of individuals had not always lived in their current town or village, and 40% of migrants did not move across states so they may have moved to a nearby LGA with similar UPE intensity. Furthermore, the 2010 Internal Migration Survey indicates that 75% of migration occurred *within* the urban or rural sectors which tend to be relatively homogeneous in UPE intensity. Osili and Long (2008) show that migration in the 1999 Nigerian Demographic Health Survey is not correlated with respondents’ education.

Second, age seems to be rounded off to the nearest five based on spikes in the distribution (see Figure A2). I therefore create five-year cohort bins for my analysis⁸. Third, we do not observe wages nor different income sources, limiting the analysis on employment outcomes. Fourth, imputations and re-coding are necessary for some variables to be more consistent with other variables and to resolve coding errors⁹.

Fifth, the confidence intervals for estimates for older cohorts might not be reliable because the sample size is small¹⁰, but the main analysis, which pools cohorts together, is unaffected. Finally, there are many missing values especially for employment variables, so I allow zero values of binary outcomes to include non-responses. For income and hours worked, I also define indicators based on whether respondents exceeded specific thresholds.

⁶Unfortunately, the technical documentation is poor and does not outline the procedures used to process the data following data collection by the field team. I attempted to merge datasets based on different combinations of IDs and checked whether the matches were correct based on overlapping demographic variables (e.g. gender and age). While for certain merges this procedure produced reasonable matches, there were some cases where too many false positives were generated and so I abandoned the attempt to merge entirely. The household-level datasets also have to be matched to individuals since age is needed to determine the birth cohort which is crucial to the identification strategy. Unfortunately, this was not possible with the module recording basic household characteristics, access to sanitation, amenities and ICT equipment because the household IDs did not match with the main dataset.

⁷The main reason for merging the datasets (rather than analysing them separately) is to identify individuals who were in good health near the time of the survey (based on their lack of appearance in the health dataset).

⁸Specifically, I centre the bins around 25, 30, 35 years, and so on. This means that individuals aged 23 to 27 are grouped together, and individuals aged 28 to 32 are grouped together, and so on. The assumption is that individuals tend to round off their age to the nearest number ending with a “0” or “5”.

⁹See the Appendix section on Data Handling for details on the changes to the values of these variables.

¹⁰Most respondents are born between 1949 and 1986.

The analysis sample is restricted to cohorts born from 1922 to 1986. For regression controls, I use additional information from the 2009-2010 Harmonised Nigeria Living Standards Survey (HNLSS) on Christian and Muslim shares of the population in each LGA¹¹.

3.2 Sample Characteristics

Table 1 reports summary statistics by below- or above-median treatment intensity¹² LGAs and cohorts affected by each phase of UPE. Cohorts born in 1944 to 1975 would be at least partially treated by UPE. However, because I bin cohorts, I treat cohorts born in 1942 to 1946 and 1972 to 1976 as partially treated. The Before UPE period therefore includes birth cohorts from 1922 to 1941 and After UPE period includes those reportedly born in 1977 to 1986. Table 1 highlights that the proportions of non-missing values for all variables are low. Additionally, it presents simple difference-in-difference estimates with standard errors clustered by LGA.

Primary education-related variables seem to be improving faster in high-intensity (with low baseline education levels) regions whereas secondary school attendance seems to grow faster in more highly-educated regions. Surprisingly, labour force participation rates, hours worked and income in above-median-intensity LGAs seem to be higher in all periods. However, these workers are more concentrated in agriculture. Individuals tend to shift towards industry and services over time, with the shift being more pronounced for above-median-intensity LGAs.

3.3 Empirical Strategy

My identification strategy is similar to that in Larreguy and Marshall (2017) and Duflo (2001). I exploit the variation in exposure to UPE. Cohorts born before 1942 are considered “never-treated”, and those born between 1942 and 1961 are considered at least “partially-treated”¹³ by the start of UPE in some states. I term these the “pre-UPE” and “partial-UPE” cohorts respectively. Cohorts born from 1962 to 1976 are considered at least “partially-treated” by nationwide UPE and are termed “UPE” cohorts, while cohorts born after 1976 are considered as “post-UPE” cohorts. The second source of variation comes from regional variation in programme intensity: the gains from UPE are expected to be highest in areas with higher baseline primary school non-enrolment rates. Hence, I compute the LGA-specific intensity measure as the fraction of kids who did not enrol in primary school from 1924 to 1943¹⁴. I am able to construct the intensity variable for 84% of LGAs and exclude the rest

¹¹This data, along with data from the 2008 Primary School Census used to construct Figure A1, is kindly provided by Horacio Larreguy on the Harvard Dataverse at <https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/JZKKZB> as part of the replication package for Larreguy and Marshall (2017).

¹²The intensity measure is described in the next section.

¹³Fee removal extended to cohorts born in 1943 as well because they were aged 12 at the time of implementation and might still have been in primary school.

¹⁴This cohort range was chosen based on sensitivity to the number of LGAs excluded because there was insufficient data on older cohorts in these LGAs to compute the intensity measure.

from the remaining analysis¹⁵. Figure A3 shows that most LGAs have high intensity scores because enrolment is very low for pre-UPE cohorts.

The basic difference-in-difference (DID) specification is:

$$Y_{ilsc} = \alpha_l + \psi_{sc} + \beta_1 \text{UPE Begins}_c \times \text{Intensity}_l + \beta_2 \text{Nationwide UPE}_c \times \text{Intensity}_l + \beta_3 \text{UPE Ends}_c \times \text{Intensity}_l + X'_{ilsc} \gamma + \varepsilon_{ilsc} \quad (1)$$

where α_l and ψ_{sc} are LGA and state-by-cohort-bin fixed effects which, respectively, control for time-invariant differences across LGAs and state-specific differences across cohorts. UPE Begins_c and Nationwide UPE_c are indicators for whether individuals in birth cohort bin c are exposed to the start of UPE in some states or nationwide UPE respectively, while UPE Ends_c is an indicator equal to one if the individual is in a cohort that entered primary school following the withdrawal of UPE. X_{ilsc} is a vector of individual- or LGA-by-cohort-bin-specific controls. Specifically, these are gender, as well as the interactions of cohort bin dummies with the Muslim and Christian shares of the LGA population¹⁶, average LGA population in 1937 to 1941, average female share of the population in 1937 to 1941 and average urban share of the population in 1937 to 1941¹⁷¹⁸. Unlike previous studies on Nigeria's UPE, I do not control for sector of residence (urban or rural) since this may be endogenous to education. The coefficients of interest are β_1, β_2 and β_3 , which represent the average treatment effects of each phase of UPE on the outcome Y_{ilsc} . The estimation procedure is usually Ordinary Least Squares but for censored variables, I use a Tobit specification. The main identifying assumption in this framework is that the outcomes would not have trended differently among LGAs with different treatment intensities *within the same state*, conditional on the other variables in the model. The models used in Section 4.7 augment equation 1 with an additional interaction between the DID interactions and a variable used to divide the population into subgroups (e.g. gender dummy or regional dummies), in order to estimate heterogeneity in treatment effects.

The generalised version of equation 1 is:

$$Y_{ilsc} = \tilde{\alpha}_l + \tilde{\psi}_{sc} + \sum_{c \in C} \tilde{\beta}_c D_c \times \text{Intensity}_l + X'_{ilsc} \tilde{\gamma} + u_{ilsc} \quad (2)$$

¹⁵These LGAs tend to have small rural populations.

¹⁶To mitigate concerns over the use of 2009-2010 religion shares of the LGA population from the HNLSS, I perform additional robustness checks (not reported) excluding these controls, and find that the estimates are virtually unchanged except the statistical significance for the effect on being sick or injured in the past 7 days disappears.

¹⁷All controls involving population shares are estimated using the sum of sample weights except for Muslim and Christian shares which are obtained directly from the 2009-2010 HNLSS as a proxy for baseline religious shares

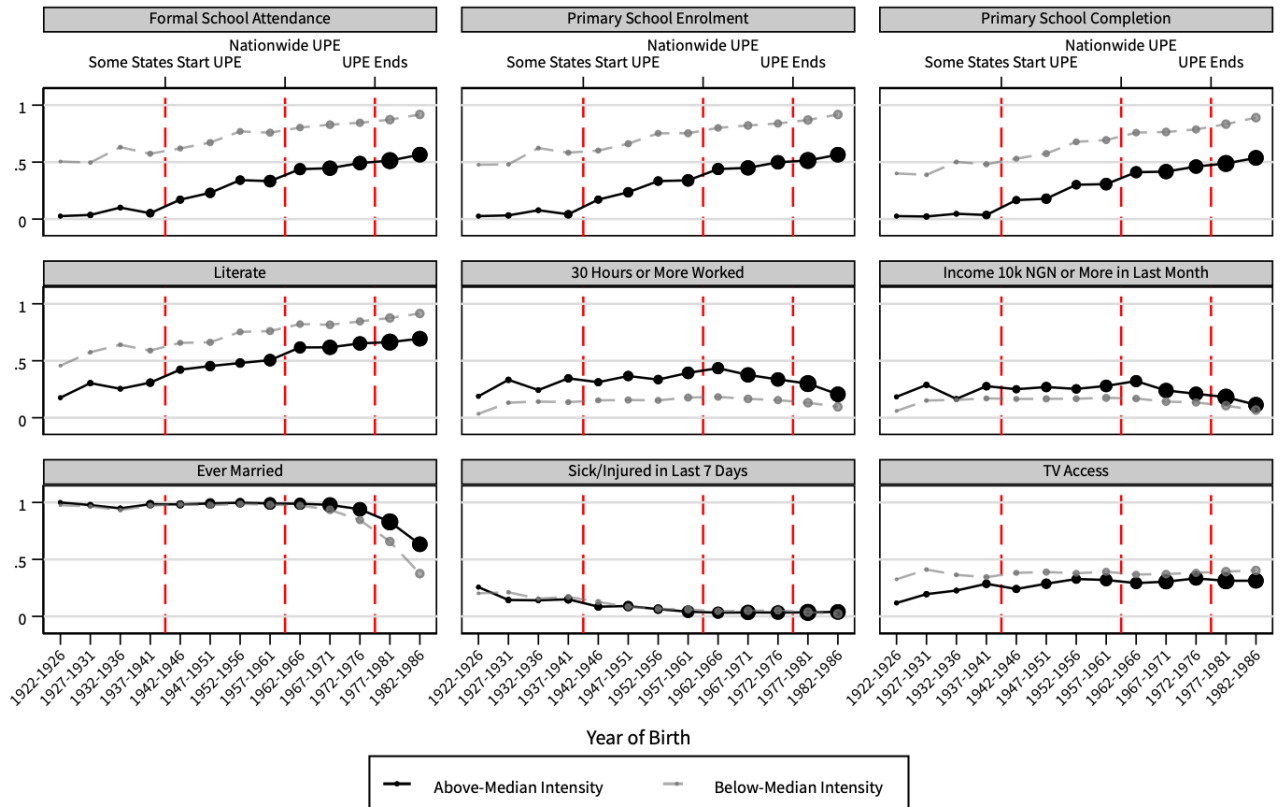
¹⁸Unfortunately, there is a lack of data on religious shares before 2009 but given the low migration rates across areas with differing treatment intensities, as well as deeply entrenched culture and religious views within each region, the religious shares are unlikely to change substantially over time.

where D_c is an indicator equal to one if individual i belongs to cohort c . The coefficient $\tilde{\beta}_c$ represents the average treatment effect for cohort bin c .

To deal with the issue of multiple hypotheses testing, I follow Kling, Liebman, and Katz (2007) in creating summary indices. Specifically, I first code the variables such that higher values correspond to positive effects. I then impute missing values for each outcome using the average value in the cohort bin c and LGA l that individual i belongs to if he or she were born after 1942, or the average among all cohorts born before 1942 in the same LGA l as the individual if he or she were born before 1942. I then subtract the LGA average for cohorts born before 1942 from the recoded value and divide by the standard deviation which is calculated in a similar way. To construct the summary index, I take the simple average of these standardised scores in a given category of outcomes.

3.4 Preliminary Evidence

Figure 1: Trends Average Outcomes by UPE Intensity



Each point represents proportion of individuals achieving each outcome by birth cohort group in above- and below-median UPE intensity LGAs. Some states (West, Lagos, East and North) began UPE reforms from 1955 and so would have affected birth cohorts from 1944 onwards (birth cohort bin 1942-1946 taken to be partially treated). UPE was declared nationwide in 1976 and withdrawn in 1981, so birth cohorts which are affected would be from 1965 to 1975 (birth cohorts 1962-1966, 1967-1971 and 1972-1976 would be at least partially treated). Cohort bins after 1976 thus consist of individuals born after the end of UPE. Household weights are used to compute averages. Size of the points represents the population size (sum of weights). See notes to Table 1 for description of the treatment intensity variable and outcomes.

Figure 1 shows the trends in proportion of the population achieving different outcomes¹⁹. Even

¹⁹The outcomes are all binary indicators so their mean is the proportion of individuals with indicator value equal

without controlling for national- or state-level trends, most variables seem to exhibit parallel trends between the above- and below-median-intensity groups, lending support to the identifying assumption. Immediately following the start of UPE reforms in some states, the education gap closed and never reverts to pre-reform levels even with the withdrawal of UPE.

In contrast to education, the initial UPE reforms seemed to have little to no impact on employment trends in all LGAs, though nationwide UPE seemed to increase the proportion of individuals who reported working a total of 30 hours or more in the past week and earning 10,000 nairas or more in the last month. Note that in the regressions, I include LGA and state-by-cohort-bin fixed effects to control for confounding shocks instead of using the entire variation across LGAs. Nevertheless, Figure 1 offers useful preliminary evidence especially for parallel trends.

4 Results

4.1 Education Outcomes

Table 2 reports the effects of UPE on education. The estimates in the first column are for the regressions which include only state-by-cohort-bin fixed effects, while the estimates in the second column account for LGA fixed effects and those in the third column account for the full set of controls in equation 1. Standard errors are clustered at the LGA level. Across all outcomes, the magnitudes of the estimates fall when LGA fixed effects are included, but do not change substantially when further controls are added. When interpreting the coefficients, I multiply them by the standard deviation (sd) of UPE intensity (0.319) to interpret all policy effects as the effects per 1sd increase in intensity. I focus on the estimates from the preferred specification which includes all controls.

Column 3 of Table 2 shows a 0.127sd (-36.0%; henceforth all percentages refer to percentages of the baseline mean) greater increase for every 1sd increase in UPE intensity for partial-UPE cohorts relative to pre-UPE cohorts. This effect persists even for post-UPE cohorts, which saw a 0.162sd (-45.9%) increase in the value of the index for every 1sd increase in intensity. Columns 6, 9, 12, 15, 18 and 21 show that, compared to pre-UPE cohorts, partial-UPE cohorts had 18.9pp (49.3%) higher formal school attendance rates, 13.0pp (27.1%) higher literacy rates, 19.8pp (52.4%) higher primary school enrolment rates, 4.7pp (34.7%) higher secondary school enrolment rates, 15.2pp to one.

(49.1%) higher primary school completion rates and 4.6pp (38.3%) higher secondary school completion rates for every 1sd increase in treatment intensity. The effect sizes increased slightly when UPE was declared nationwide. Therefore, it seems likely that the programme effectively brought more kids into primary school rather than spurred kids who would have attended anyway to progress to secondary school. These estimates are comparable to similar programmes evaluated in the literature. For example, Duflo, Dupas, and Kremer (2021) find that merit scholarships offered to girls in Ghana boost secondary school enrolment rates by 27pp (60% of the control mean) for scholarship winners. Moshoeshoe, Ardington, and Piraino (2019) find that free primary education in Lesotho boosted net primary school enrolment rates by 19.1pp between 1999 and 2002.

Columns 22 to 24 report the Tobit regression²⁰ coefficients for years of education, which is censored at an upper limit of 13 years because respondents did not record the exact number of years of post-secondary education, but only whether they pursued such opportunities. The estimates represent the average marginal effects on the uncensored variable. With increased primary and secondary school enrolment and completion rates, it is not surprising that, for every increase in treatment intensity by 1sd, average (uncensored) years of education increased by 1.4 (32.0%) to 1.6 (36.6%) years for partial-UPE cohorts and by 1.7 (39.2%) to 2.1 (47.6%) years for UPE cohorts relative to pre-UPE cohorts. These numbers are comparable to Osili and Long (2008)’s estimate of 1.54 higher years of schooling for women from non-Western states²¹ compared to women in other states due to Nigeria’s UPE.

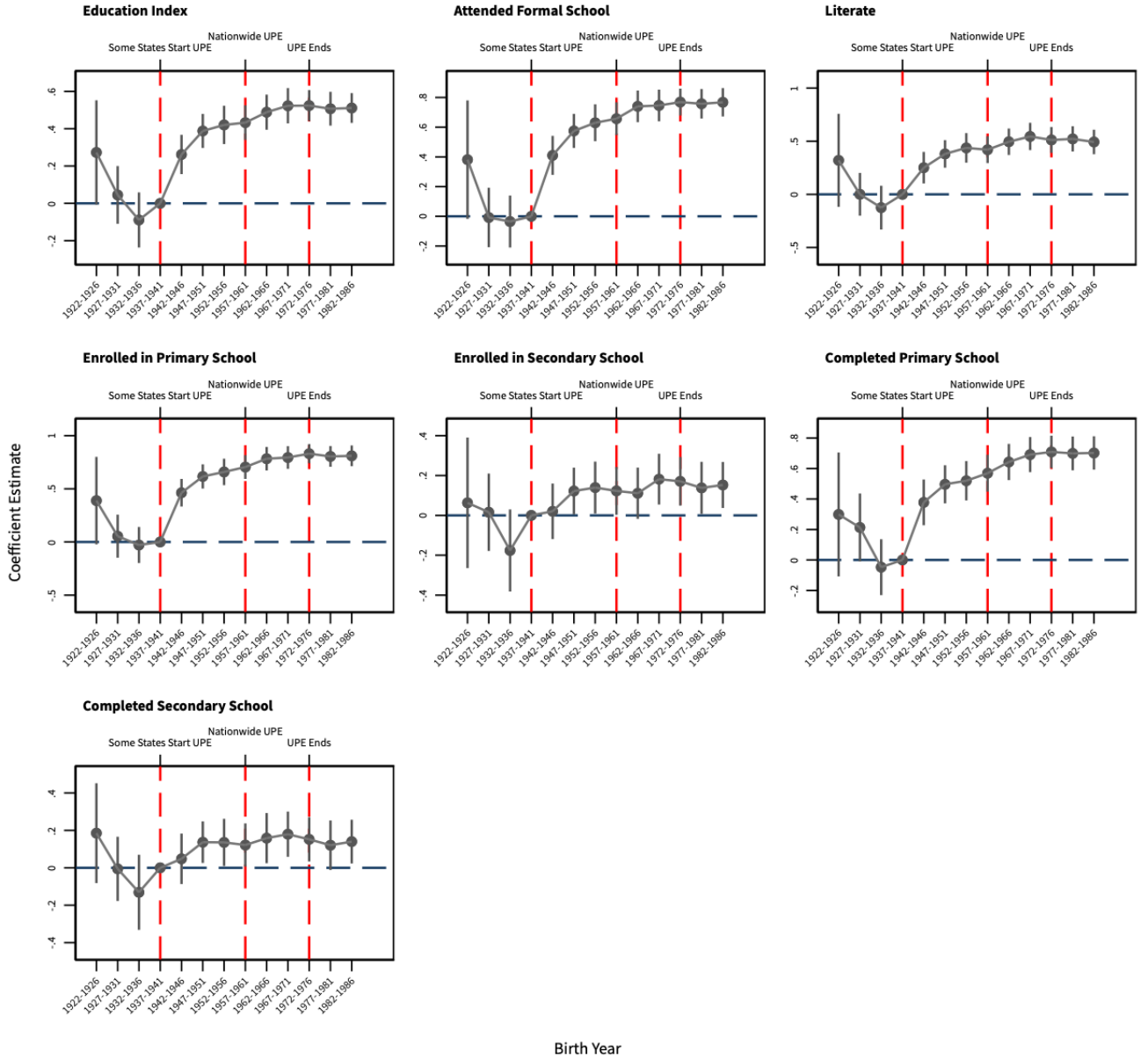
The above estimates are not only statistically significant at the 1% level, but also economically significant. Furthermore, these effects on primary education persisted and even grew stronger for post-UPE cohorts, whereas gaps in secondary education partially converged back to pre-UPE levels, though the overall effects remain positive. Therefore, in contrast with previous literature suggesting that financial constraints result in limited ability to send kids to school (Duflo, Dupas, and Kremer 2021; Kremer, Miguel, and Thornton 2009), the evidence suggests that fee removal as much of an effect on education compared to resource expansion. My findings echo Larreguy and Marshall (2017) who discover that enrolment effects did not decline post-UPE. Unlike their study, however, I estimate the impact of different phases of UPE implementation, and find the strongest effects coming from

²⁰The incidental parameters problem is not a concern here because the number of parameters to be estimated via Maximum Likelihood is not increasing proportionally with the sample size; there are no individual fixed effects in the specification.

²¹Their intensity measure is an indicator for residing in these states.

the early implementation by individual states rather than nationwide UPE. It is likely that UPE had lost its “novelty” by 1976 and had already been implemented in some areas, so that nationwide UPE did not attract as many individuals into primary education.

Figure 2: Impact of Reforms on Education Outcomes by Birth Cohort Bin



Each point represents the coefficient estimate for the interaction term between a given birth cohort dummy and the intensity measure in a regression of individual outcomes on these interaction terms, state by cohort bin fixed effects, LGA fixed effects and additional controls (see the preferred specifications in Tables 2 to 6). The full sample comprises birth cohorts from 1922 to 1986. 95% confidence intervals using standard errors clustered at the LGA level are plotted as error bars. The omitted birth cohort group is 1937 to 1941. See Figure 1 notes for a description of the different time periods and Table 2 notes for the description of the variables.

Figure 2 displays the coefficient estimates for the generalised DID specification²². The error bars represent the 95% confidence intervals. As a placebo test, the confidence intervals for the estimated coefficients for pre-UPE cohorts mostly include zero, which means we cannot reject the null of no pre-trends. By contrast, partial-UPE cohorts experienced large gains in education. The fact that the

²²Only coefficients estimated via OLS are shown as the Tobit marginal effects require substantial computing time to estimate when there are this many interaction terms.

estimates become positive and statistically significant at the 5% level immediately after the start of the reform and again jump upwards following the introduction of nationwide UPE lends support for the identification strategy. The estimates are generally consistent with those in Table 2.

4.2 Employment Outcomes

A methodological issue in this section is the choice of indicators to include in the summary index since for some outcomes like whether income or hours worked exceeds a certain threshold²³, it is not clear if a value of one should count positively or negatively towards the index. Furthermore, since the indicators exhaust all possibilities of a (non-ordinal) categorical variable, we should exclude one of the categories. The final indicators chosen to compute the index are described in the footnotes to Table 3.

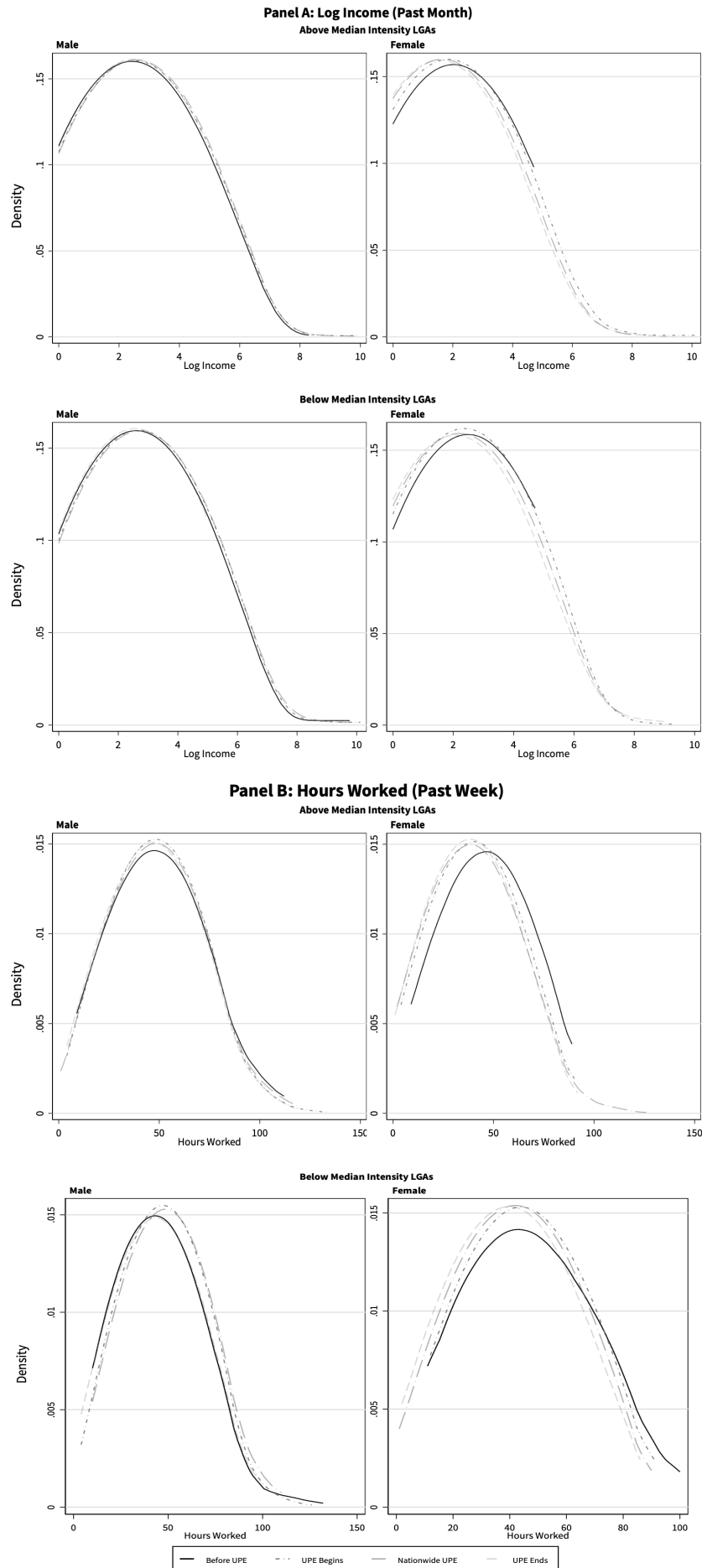
The estimates for the summary index in Table 3 are statistically indistinguishable from zero for UPE and post-UPE cohorts but are quite precise. Turning to the individual measures, from column 6, there is a 2.3pp (8.2%) lower propensity to earn positive income for every 1sd increase in UPE intensity for partial-UPE cohorts compared to pre-UPE cohorts, though this effect diminishes to 1.7pp (6.1%) for post-UPE cohorts. Furthermore, almost all estimates in columns 7 to 21 are negative for different income thresholds, and the effects are similar across thresholds up to 10,000 nairas, beyond which they no longer achieve statistical significance.

Figure 3 shows the kernel densities of log income (panel A) and hours worked (panel B) by gender and LGA group (above- and below-median-intensity). From panel A, the income distribution did not change substantially for males, but it shifted to the left for females with UPE, and more so for above-median-intensity LGAs.

Partial-UPE cohorts were 2.5pp (11.2%) less likely to report working a positive number of hours in the past week per 1sd increase in intensity compared to pre-UPE cohorts. This negative effect worsened to 2.7pp (12.0%) for UPE cohorts. Both estimates are statistically significant at the 1%

²³Note that the use of such indicators for income serves to avoid problems with sample selection into whether a positive income is observed. This selection may be based on characteristics which are correlated with education and thus bias the results if we only examine the effects of UPE on income for the sample of positive income earners. The missing values problem is exacerbated by the presence of many zeros in reported income, which are converted to missing values when taking the natural logarithm (to account for skewness and outliers in the distribution). Column 1 of Table 5 shows the p-value of the F test of joint significance of coefficients in a similar regression model as the preferred specification (with full controls) but with an additional triple interaction between gender and the DID interaction term. We can reject the null of the coefficients all being equal to zero at the 0.1% level, indicating selection into the sample of positive income earners and those with positive hours worked is indeed a concern.

Figure 3: Distribution of Income and Hours Worked by Sex and Period



level. Like income, the effect on hours worked is negative regardless of the threshold used (columns 22 to 39) but diminishes slightly for post-UPE cohorts. Once we include individuals who worked zero hours, the sample size is almost the same as the full sample because individuals who are schooling and non-employed have zero hours of work recorded. The Tobit estimates in columns 40 to 42 represent the differences between the average marginal effects when the indicator for the given reform period is set to one and when all indicators for the three periods are set to zero (i.e. the baseline is pre-UPE cohorts). The estimates are negative and statistically significant at the 10% level, and imply that hours worked declined by 4.57 (43.7%) and 4.46 (42.7%) on average for every 1sd increase in intensity due to the start of UPE and nationwide UPE respectively. However, these estimates should be interpreted with caution because they are not very robust to specification.

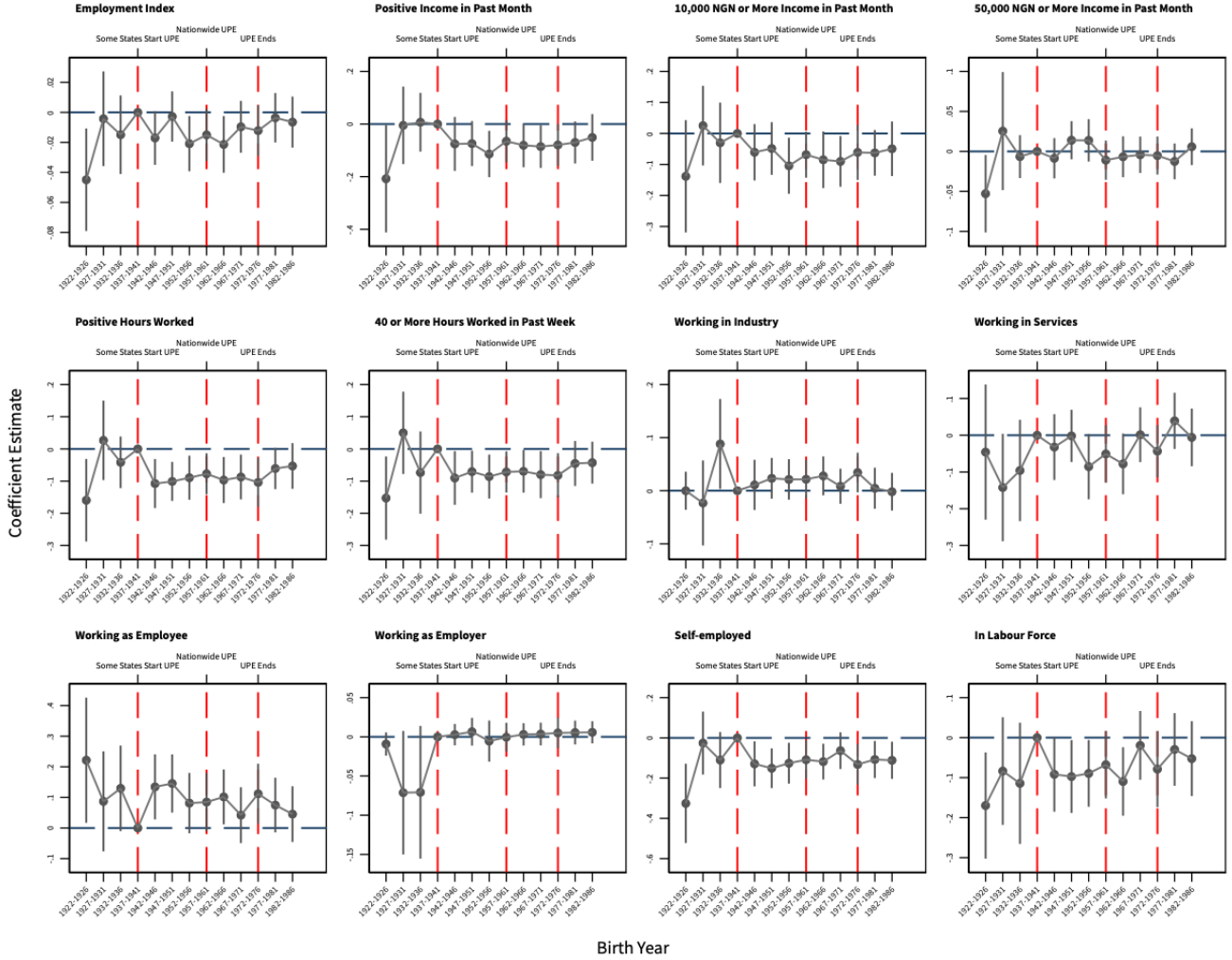
The above findings are in sharp contrast to the previous literature on UPE which tends to find positive returns to schooling (Delesalle 2019; Oyelere 2010). It is possible that the decline in income and hours worked may simply be a measurement issue, with more affluent individuals being more distrusting of enumerators. Figure 3 suggests there might be some form of upper-censoring of outcomes especially for females in pre-UPE cohorts. This is likely to be self-censoring because there is no evidence of such truncation for other cohorts. Females may be less inclined to divulge information due to fears of discrimination by authorities or concerns that their spouse might be upset if they shared sensitive information.

Another explanation is a lack of well-paying jobs especially in high-intensity, rural areas (Imam 2012). Ajayi (2008) and Krieger (1987) report massive unemployment for those who left primary school in the UPE era, with most children returning to their families to help on the farm. Regarding labour supply, while UPE boosted school attendance, it is unlikely to have resulted in a proportionate increase in skill attainment. Indeed, the curriculum was not focused on helping children develop skills for the job market (Asagwara 1997; Krieger 1987). Moreover, education quality suffered from insufficient planning. Perhaps, since UPE did not incentivise many kids to attend secondary school, they would not have gained sufficient skills to enter the labour market.

The estimates for outcomes relating to sectoral choice and employment status in columns 43 to 54 and 58 to 60 are mostly statistically insignificant. On the other hand, the estimates in column 57 imply that partial-UPE and UPE cohorts are more likely to be employers compared to older

cohorts. The estimates in column 63 show that that the greater propensity to run a firm is not due to more engagement in self-employment activities. Finally, the effects on labour force participation and unemployment rates are imprecisely estimated, but the magnitudes are close to zero. These estimates should be interpreted with caution because the variables are derived ²⁴ and subject to misclassification.

Figure 4: Impact of Reforms on Employment Outcomes by Cohort Bin



See Figure 2 notes for details.

Figure 4 shows the estimates for key employment outcomes by cohort bin. While there is some evidence of pre-trends, it is likely due to the small sample size for the oldest cohorts²⁵ which may result in unreliable confidence intervals. There may also be greater misreporting because these cohorts were much less educated²⁶. Moreover, the pre-trends are, if anything, reversed for UPE cohorts for most of the variables, suggesting that the estimates are conservative. Overall, the estimates are similar to those in Table 3.

²⁴Refer to the Appendix section on Data Handling for details.

²⁵There were only 139 individuals born between 1922 to 1926 in the sample.

²⁶In Section 4.8, I perform several robustness checks to account for shocks that may explain some of these pre-trends, as well as perform placebo tests by pooling cohort bins together and creating a “fake treatment” dummy.

4.3 Health Outcomes

Columns 1 to 3 of Table 4 show the impact on a summary index of health measures²⁷ with components described in the table footnotes. Cohorts affected by UPE had 0.0077sd (-0.34%) to 0.0086sd (-0.38%) higher index values for every 1sd increase in treatment intensity. These coefficients are statistically significant at the 10% level. This effect becomes statistically indistinguishable from zero for post-UPE cohorts, though standard error remains small.

Column 6 shows that the partial introduction of UPE resulted in a statistically significant (at the 10% level) 1.9pp (11.2%) decrease in the propensity to report being ill or injured in the past 7 days for every 1sd increase in UPE intensity, and this negative effect grew slightly to 2.1pp (12.4%) for UPE cohorts but becoming statistically insignificant for post-UPE cohorts. From column 7 to 18, partial-UPE and UPE cohorts are less likely to miss work or school in the past 7 days due to sickness or injury and the effect stems from missing one to three days of work or school instead of not missing any in the past 7 days, suggesting modest improvements to health. The estimates for consulting a health provider are negative but not statistically significant.

From Figure 5, the coefficient estimate for the indicator for whether the individual was sick or injured is statistically significant for cohorts born in 1932 to 1936 at the 5% level which may suggest evidence of pre-trends, which are addressed in Section 4.8. Still, if anything, the estimates imply a reversal of pre-trends. The overall picture is similar to the results from Table 4.

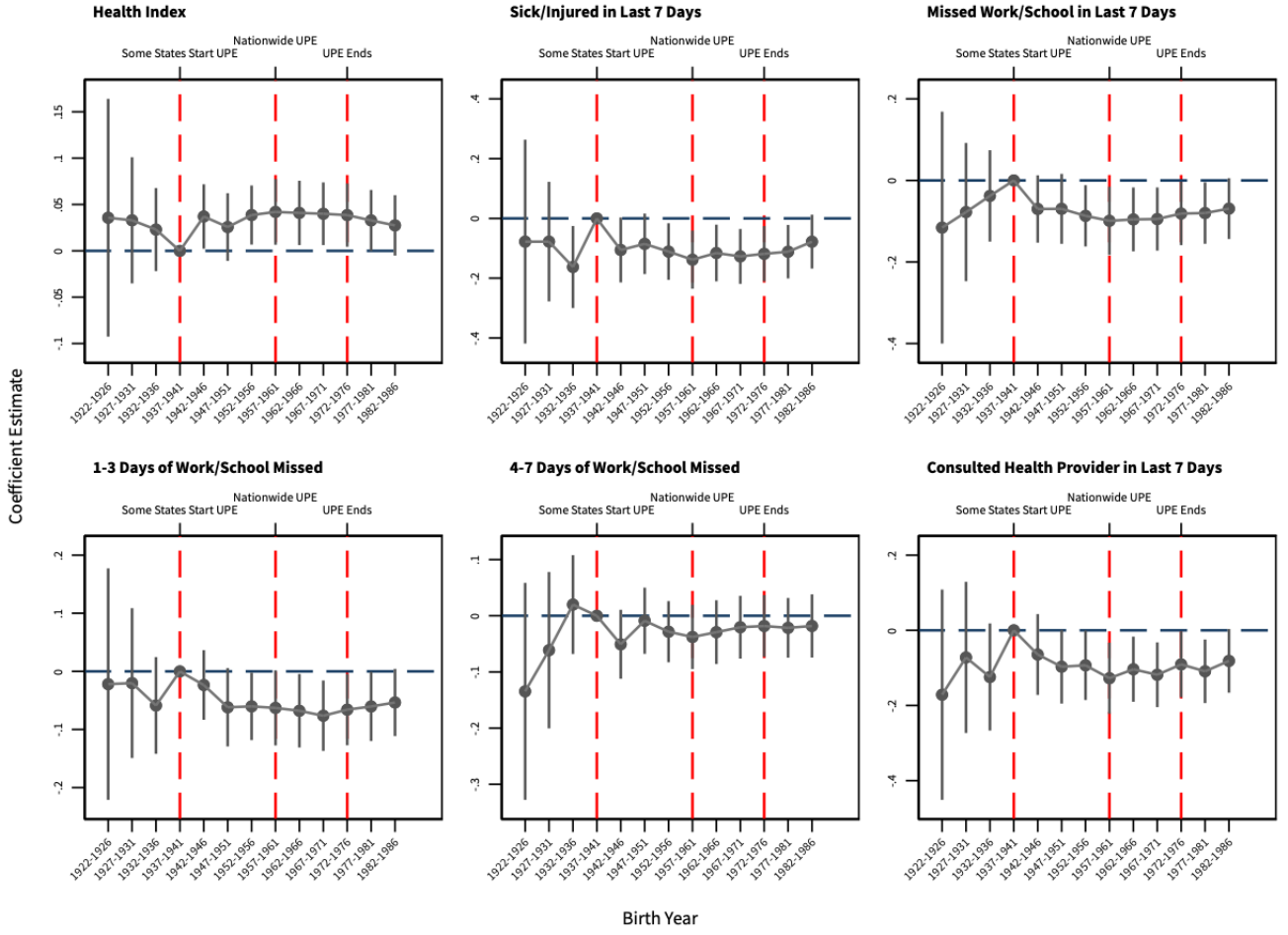
4.4 Marriage and Family Planning

Table 5 reports the results for marriage- and family planning-related outcomes. As seen in column 3, partial UPE implementation led to a 0.13sd (-5.3%) decline in the summary index for every 1sd increase in treatment intensity. This negative effect became slightly stronger for UPE cohorts but weakened to 0.13sd (-5.1%) for post-UPE cohorts. These estimates are statistically significant at the 1% level.

Columns 4 to 6 indicate a positive, persistent and statistically significant effect of UPE on household

²⁷Except for the indicator for not being sick or injured in the past 7 days, all other individual binary outcomes reported here would automatically take a value of zero if the individual did not report any sickness or injury in this time period.

Figure 5: Impact of Reforms on Health Outcomes by Cohort Bin



See Figure 2 notes for details.

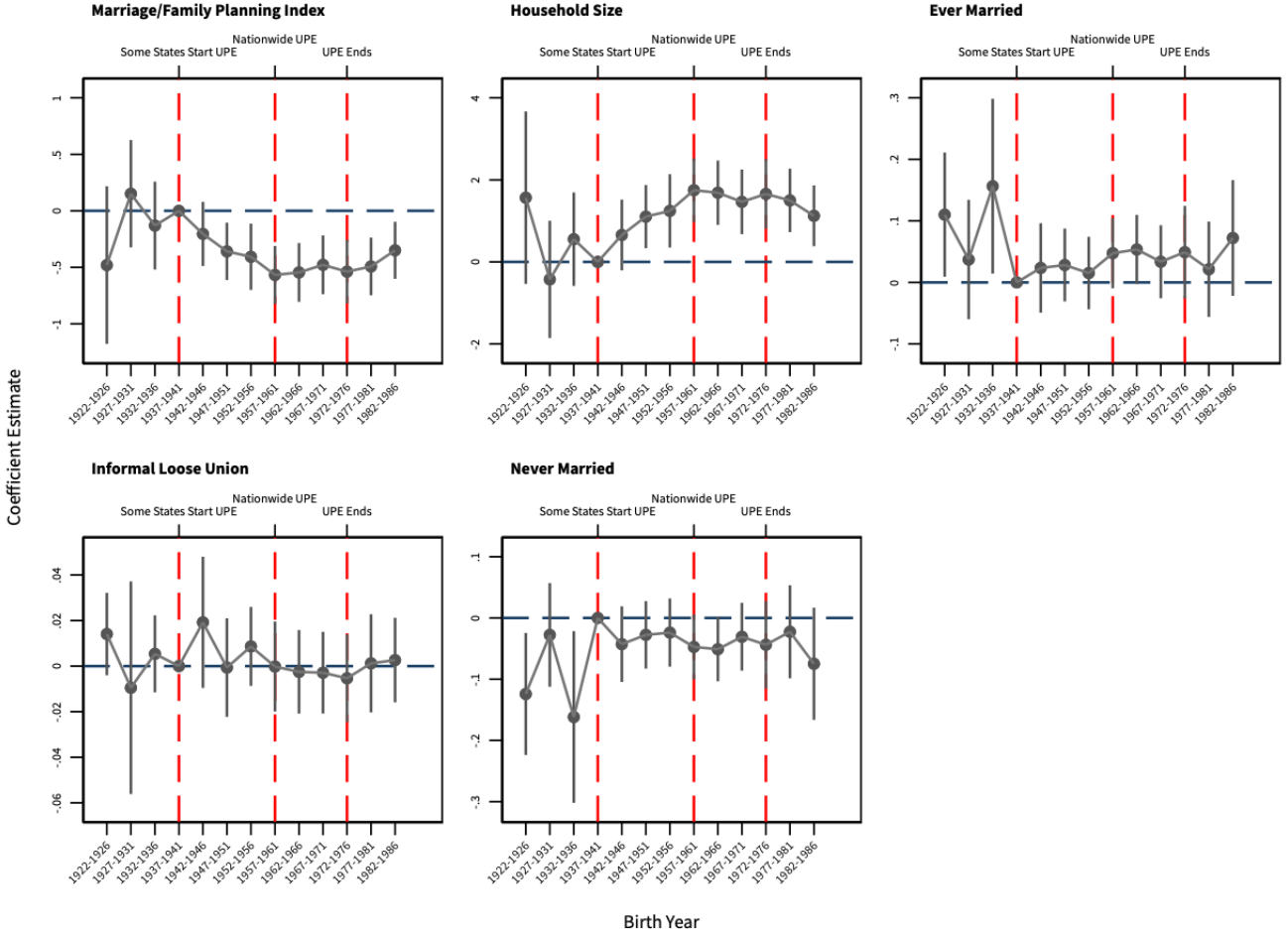
size, but columns 7 to 15 show that this is unlikely due to a change in marital status. The weak effects on marital status could be due to individuals being unable to find good jobs and so do not detract from starting a family. Unfortunately, since I cannot determine relationships between household members in the data, I am unable to distinguish if individuals started larger families or they moved in with their relatives because they were unable to find jobs in urban cities.

The coefficient estimates by cohort bin shown in Figure 6. There seems to be some pre-trends for some indicators but the problematic estimates tend to have large confidence intervals given the small sample. If anything, there is a reversal of any pre-trends once UPE was introduced. The statistically significant estimates for household size and the summary index are comparable to those in Table 5.

4.5 Standard of Living

This section reports the effects of UPE on measures of standard of living, including access to media (as a proxy for asset ownership and leisure consumption) and whether the individual started any

Figure 6: Impact of Reforms on Marriage and Family Planning Outcomes by Cohort Bin



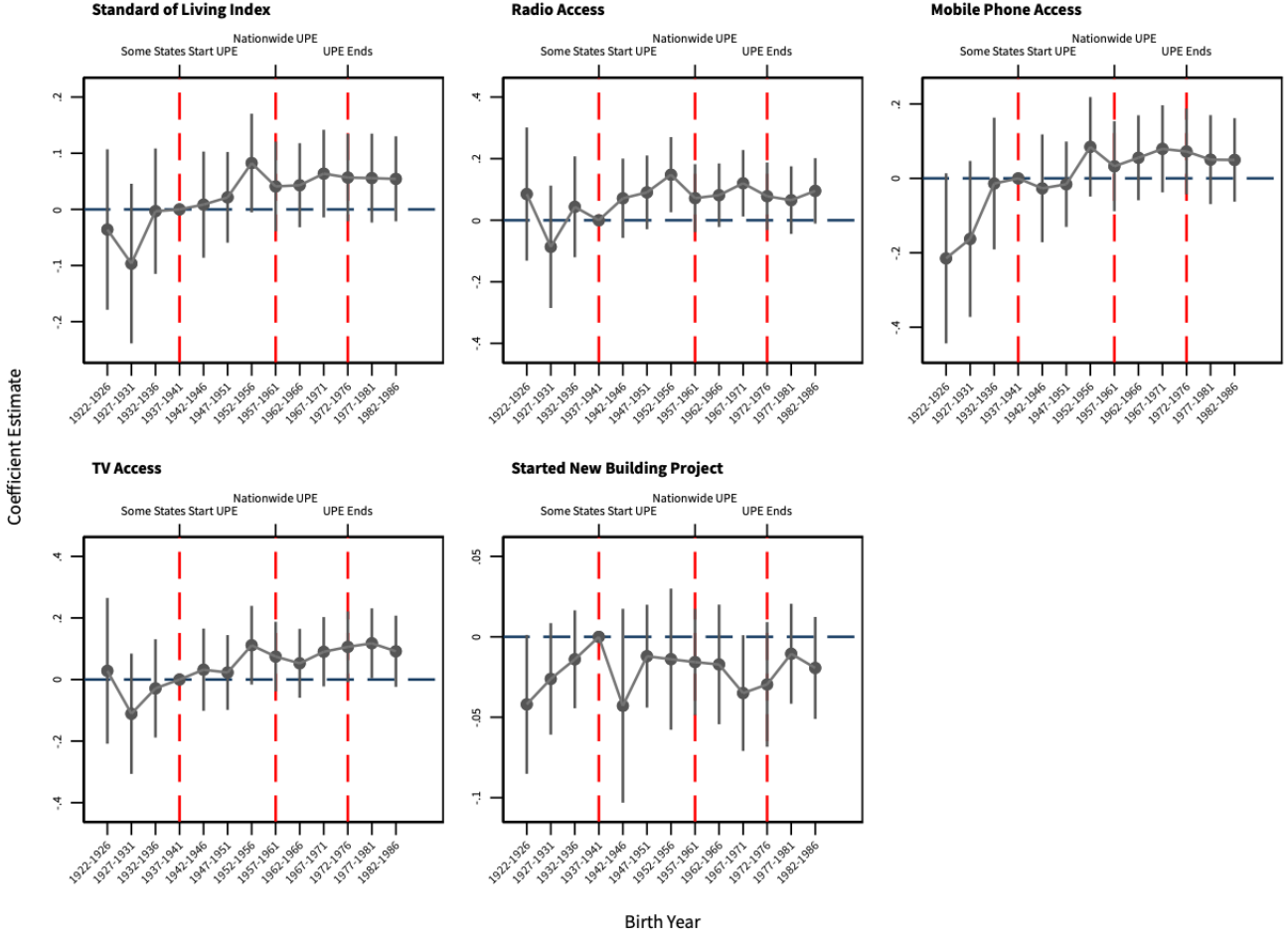
See Figure 2 notes for details.

new building project (as a proxy for asset accumulation). Partial-UPE cohorts experienced a 0.019sd (-5.7%) increase in the summary index for every 1sd increase in treatment intensity compared to pre-UPE cohorts. This effect grew in magnitude to 0.024sd (-7.0%) and remained virtually unchanged post-UPE. These estimates are statistically significant at the 5% level.

The effects on media access are positive and all estimates are mostly statistically significant at the 5% level for the preferred specifications (columns 6, 9 and 12). These effects are persistent though their magnitudes decline slightly post-UPE. On the other hand, the effects of UPE on the propensity to start a new building project are statistically insignificant, which may suggest a lack of asset accumulation since physical assets are a main form of savings in many developing countries.

Figure 7 shows that the generalised DID estimates are generally not statistically significantly different from zero. If we rely on the estimates in Table 6, we can infer that while UPE did not have much of an effect on employment and income, it still managed to raise standard of living in other dimensions

Figure 7: Impact of Reforms on Standard of Living by Cohort Bin



See Figure 2 notes for details.

such as media access.

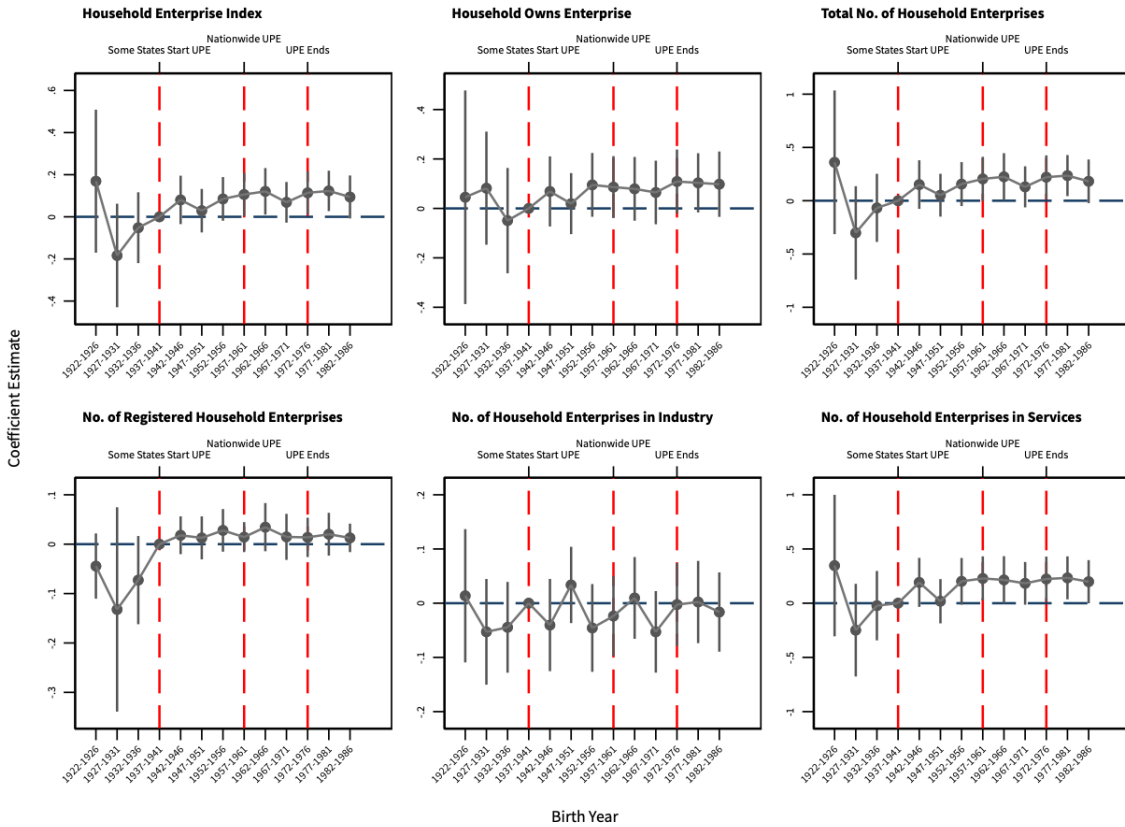
4.6 Household Enterprise Formation

Table 7 shows the effects of UPE on household enterprise formation. From column 3, an increase in treatment intensity by 1sd leads to an increase in the summary index by 0.037sd (-29.1%) more for partial-UPE cohorts vis-a-vis pre-UPE cohorts, and this effect grew steadily over time up to 0.047sd (-36.7%) for post-UPE cohorts.

Columns 4 to 6 show that the effects on whether the individual's household owns any enterprise are positive, but statistical significance diminishes as more controls are added, whereas the estimates in column 9 for number of household enterprises are all statistically significant at the 5% level. They imply that partial-UPE cohorts experienced a 0.065 (14.6%) gain in the number of household enterprises owned for every 1sd increase in treatment intensity relative to pre-UPE cohorts. This positive effect grows and reaches 0.084 (18.8%) post-UPE. These are economically significant effects given the percentage changes. Therefore, the effect of UPE on enterprise ownership mainly stems from owning

more enterprises conditional on owning an enterprise rather than becoming an enterprise owner. This finding coincides with more individuals working as employers. However, from column 12, most of these new enterprises are not formally registered. This shift towards informal trading provides further evidence on individuals not fully reporting their income from all sources due to sensitivity. The last few columns show that the new enterprises are mainly in the services sector, which is slightly puzzling since individuals do not report a significantly higher propensity to work in services from Table 3. A possible explanation might be that these enterprises hire few workers to avoid scrutiny by authorities since they are unregistered.

Figure 8: Impact of Reforms on Household Enterprise Formation by Cohort Bin



See Figure 2 notes for details.

Figure 8 shows the estimates by cohort bin. The estimates for the summary index, total number of household enterprises and number of household enterprises in services are statistically significant at the 5% level but only for UPE cohorts. Reassuringly, there are no evidence of significant pre-trends. The estimates are generally similar to those in Table 7.

4.7 Heterogeneity in Treatment Effects

Table 8 shows the heterogeneous impact of UPE. Since analyse the effects for partial-UPE and UPE cohorts jointly to simplify the analysis. Further, I only include the main outcomes. For each outcome, the different columns show how the treatment effect varies by gender, Muslim share of the LGA population, urban share of the population averaged from 1937 to 1941, and each of the regions existing in 1963.

From the first column for each outcome, the positive effects of UPE on education are about twice as large for males. These differences are not only statistically significant at the 1% level. The advantage for males continues to grow post-UPE, suggesting that resource expansion had a lasting effect especially for boys.

The effects of UPE on education are smaller for LGAs with a higher Muslim share of the population. This coincides with historical reports that Qur’anic schools were more likely to reject western education (Imam 2012). That the Eastern and Mid-Western Regions experienced larger gains than the North is not surprising given the Northern Region was predominantly Muslim.

The first column for each outcome in Table 9 generally shows that males also benefited more than females in terms of employment. Males experienced a 4.1pp (-132%; all percentages reported in this section are based on the effect for the omitted category) *gain* in probability of working more than 40 hours. This differential effect is consistent with the earlier results from Figure 3.

The effect of UPE on the propensity for individuals to work in agriculture, as an employee or be self-employed decreases in the Muslim share of the LGA population whereas the effect on the propensity to become an employer increases in the Muslim share. Therefore, the Islamic institutional environment (e.g. Islamic lending) likely plays a key role in shaping job opportunities for the educated. Further evidence comes from the fact that regions which experienced larger positive effects of the programme on education, such as the Eastern and Mid-Western regions, also had a *decreased* chance of individuals living in these regions being employers and *higher* chance of them being self-employed compared to those in the North.

Table 10 shows that individuals living in predominantly Muslim LGAs or in the Northern Region see

less health improvements, which is consistent with these regions benefiting less from UPE. Column 9 of Table 11 shows that females are less likely to be married as a result of UPE whereas the effect for males is close to zero. This rules out females having to devote more time to family commitments as an explanation for receiving lower income. Table 12 suggests that males experienced stronger gains in standard of living.

Finally, from column 12 of Table 13, the North surprisingly experienced the highest gains in the number of registered enterprises despite not gaining much in education. In fact, this region also experienced the second-highest increase in total number of household enterprises. These findings are consistent with Islamic institutions creating a favourable environment for enterprises.

4.8 Robustness Checks

First, to deal with concerns over age being rounded off, I change the size of the cohort bins to three years. The resulting estimates in Figure A4 are similar to those in the main figures. In support of identification, the effects seem to turn positive more rapidly here following the start of UPE compared to Figure 2. The effects on household enterprise formation are slightly attenuated compared to when five-year bins are used.

Next, to assuage concerns about the choice of the intensity measure, I use primary school non-completion rates averaged over 1924 to 1943 instead of non-enrolment. Table A2 shows that the estimates remain similar. In contrast, when the treatment intensity variable is changed to LGA-level baseline secondary non-enrolment rates in Table A3, the effects on primary school enrolment and completion, health and household enterprise formation are significantly diminished. This suggests that the effects can indeed be attributed to UPE rather than broader education trends. In Table A4, I further control for baseline secondary enrolment rates interacted with cohort bin dummies since it is likely that any policies at higher education levels would see more gains from areas with lower secondary enrolment rates at baseline. The estimated effects of UPE on education variables remain large and statistically significant.

To alleviate concerns about biased estimates due to LGA-specific shocks, I exclude the Eastern Region which was involved in the 1929 Women’s War and Biafran war of 1967 to 1970 (Heerten and Moses 2014; Matera et al. 2011). I also exclude the Kano State due to the riots of May 1953

(Nwanze 2018). The estimates in Table A6 are very similar though the effects on education are slightly attenuated but still large. To mitigate concerns about oil shocks²⁸ disproportionately affecting oil-producing regions, I re-run the regressions excluding the 9 oil-producing states from the sample and obtain similar results in Table A7.

Another major concern might be selective migration because respondents only indicated their region of residence and not region of education. If individuals with low earnings potential systematically moved from low-intensity, urban areas to high-intensity, rural areas, such migration may explain why employment appears to be negatively affected. As an additional check, I re-run the regressions only including all cohorts born before 1955. The estimates as shown in Table A8 have lower magnitudes in general but this can be attributed to the gradual increase in treatment effects over time. If anything, the employment effects are stronger, suggesting it is workers with *higher* earnings potential who are moving to high-intensity areas²⁹.

Finally, I present additional placebo tests pooling more pre-UPE cohorts together. Specifically, I create a “fake” post-treatment dummy for cohorts born in 1932 to 1941 and interact it with the intensity measure, restricting the sample to those born before 1942. The results in Table A9 indicate that we cannot reject the null of no pre-trends at the 10% level except for primary school completion³⁰.

5 Conclusion

While universal education has resulted in Africa making substantial progress towards 100% primary school enrolment, the long-run effects are not evident. This study breaks ground on this issue by exploiting the natural experiment of Nigeria’s UPE reforms to identify the long-run impact of UPE. Crucially, I find substantial gains to education especially for boys but less so for LGAs with a higher Muslim share of the population, likely due to Islamic opposition to western education. The effects persisted even after fees were reintroduced, suggesting that resource expansion was more important than fee removal. Despite improving education, the programme resulted in weak and less persistent effects on other outcomes. The estimates for employment are in fact negative especially for females.

²⁸Nigeria is a major oil-producing economy which faced a boom in 1973 to 1974 (the revenues from which the government drew to implement nationwide UPE) and again in 1979 (Pinto 1987).

²⁹This results in the negative estimates in Table 3 being attenuated towards zero.

³⁰In any case, since we are testing a large number of coefficients, we can expect the null to be rejected in up to 5% of cases.

Crucially, the effects on propensity to become an employer is more positive in the Northern Region despite lower gains to education in this region, suggesting that Islamic institutions play a key role in determining employment success rather than education.

As higher-quality data becomes increasingly available, future work is needed to re-estimate the effects especially for employment since the dataset does not capture different income sources. More importantly, this study aims to inspire research on the long-run effects of large-scale education reforms in developing countries and disentangling the effects of different aspects of such policies.

Table 1: Summary Statistics by Period and Treatment Intensity

	Before UPE			UPE					After UPE				
	Mean	SD	N (Non-missing)	Mean	SD	N (Non-missing)	DID Coef.	DID SE	Mean	SD	N (Non-missing)	DID Coef.	DID SE
Below Median Intensity													
Urban Residence	0.396	0.489	1,119	0.426	0.494	8,513			0.454	0.498	4,586		
Ever Married	0.963	0.190	1,119	0.946	0.226	8,513			0.517	0.500	4,586		
Attended Formal School	0.567	0.496	1,119	0.776	0.417	8,513			0.895	0.306	4,586		
Literate	0.590	0.492	1,119	0.776	0.417	8,513			0.895	0.306	4,586		
Enrolled in Pri. School	0.566	0.496	1,118	0.768	0.422	8,511			0.894	0.308	4,586		
Enrolled in Sec. School	0.205	0.404	1,118	0.435	0.496	8,511			0.721	0.448	4,586		
Completed Pri. School	0.463	0.499	1,118	0.707	0.455	8,511			0.861	0.346	4,586		
Completed Sec. School	0.180	0.384	1,118	0.381	0.486	8,511			0.588	0.492	4,586		
Radio Access	0.469	0.499	1,076	0.538	0.499	8,329			0.563	0.496	4,505		
TV Access	0.379	0.485	1,076	0.391	0.488	8,322			0.407	0.491	4,500		
Mobile Phone Access	0.454	0.498	1,075	0.502	0.500	8,322			0.527	0.499	4,500		
>0 Hours Worked	0.155	0.362	1,119	0.180	0.384	8,513			0.136	0.343	4,586		
≥ 30 Hours Worked	0.131	0.337	1,119	0.165	0.371	8,513			0.114	0.318	4,586		
≥40 Hours Worked	0.118	0.322	1,119	0.151	0.358	8,513			0.095	0.294	4,586		
Income > 0 NGN	0.215	0.411	1,119	0.227	0.419	8,513			0.149	0.356	4,586		
Income ≥ 10k NGN	0.156	0.363	1,119	0.157	0.364	8,513			0.087	0.282	4,586		
Income ≥ 50k NGN	0.011	0.106	1,119	0.014	0.116	8,513			0.009	0.094	4,586		
Income ≥100k NGN	0.004	0.059	1,119	0.006	0.075	8,513			0.003	0.053	4,586		
In Labour Force	0.348	0.477	1,010	0.353	0.478	7,888			0.334	0.472	4,300		
Unemployed	0.002	0.050	1,010	0.002	0.047	7,888			0.010	0.100	4,300		
Employee	0.631	0.483	1,119	0.643	0.479	8,513			0.669	0.471	4,586		
Self-employed	0.260	0.439	1,119	0.253	0.435	8,513			0.216	0.411	4,586		
Agriculture	0.198	0.399	1,119	0.178	0.382	8,513			0.143	0.350	4,586		
Industry	0.026	0.159	1,119	0.028	0.165	8,513			0.033	0.178	4,586		
Services	0.091	0.288	1,119	0.119	0.324	8,513			0.127	0.333	4,586		
Sick/Injured	0.178	0.382	1,119	0.063	0.243	8,513			0.030	0.171	4,586		
Above Median Intensity													
Urban Residence	0.274	0.446	866	0.203	0.402	8,458	-0.101	(0.039)	0.195	0.396	4,897	-0.137	(0.043)
Ever Married	0.979	0.145	866	0.977	0.151	8,458	0.015	(0.011)	0.741	0.438	4,897	0.208	(0.026)
Attended Formal School	0.054	0.226	866	0.395	0.489	8,458	0.133	(0.028)	0.537	0.499	4,897	0.155	(0.034)
Literate	0.287	0.452	866	0.571	0.495	8,458	0.098	(0.033)	0.677	0.467	4,897	0.085	(0.039)
Enrolled in Pri. School	0.044	0.206	866	0.398	0.490	8,457	0.152	(0.029)	0.537	0.499	4,897	0.165	(0.034)
Enrolled in Sec. School	0.012	0.109	866	0.220	0.414	8,457	-0.022	(0.026)	0.369	0.483	4,897	-0.159	(0.035)
Completed Pri. School	0.034	0.181	866	0.364	0.481	8,457	0.086	(0.030)	0.510	0.500	4,897	0.078	(0.036)
Completed Sec. School	0.011	0.103	866	0.190	0.392	8,457	-0.021	(0.025)	0.278	0.448	4,897	-0.141	(0.032)
Radio Access	0.515	0.500	859	0.678	0.467	8,382	0.093	(0.035)	0.653	0.476	4,869	0.043	(0.044)
TV Access	0.246	0.431	857	0.316	0.465	8,335	0.058	(0.031)	0.319	0.466	4,830	0.045	(0.039)
Mobile Phone Access	0.413	0.493	859	0.540	0.498	8,384	0.080	(0.035)	0.514	0.500	4,865	0.028	(0.044)
≥0 Hours Worked	0.345	0.476	866	0.421	0.494	8,458	0.051	(0.030)	0.319	0.466	4,897	-0.007	(0.034)
≥ 30 Hours Worked	0.312	0.464	866	0.371	0.483	8,458	0.025	(0.028)	0.257	0.437	4,897	-0.038	(0.032)
≥ 40 Hours Worked	0.287	0.452	866	0.329	0.470	8,458	0.009	(0.027)	0.223	0.417	4,897	-0.041	(0.031)
Income > 0 NGN	0.392	0.488	866	0.420	0.494	8,458	0.017	(0.031)	0.300	0.458	4,897	-0.026	(0.037)
Income ≥ 10k NGN	0.253	0.435	866	0.256	0.436	8,458	0.002	(0.027)	0.151	0.358	4,897	-0.033	(0.033)
Income ≥ 50k NGN	0.012	0.108	866	0.018	0.132	8,458	0.004	(0.005)	0.007	0.085	4,897	-0.002	(0.006)
Income ≥ 100k NGN	0.003	0.054	866	0.005	0.068	8,458	-0.000	(0.002)	0.003	0.058	4,897	0.001	(0.003)
In Labour Force	0.543	0.498	825	0.621	0.485	8,106	0.073	(0.040)	0.507	0.500	4,607	-0.022	(0.051)
Unemployed	0.001	0.028	825	0.002	0.046	8,106	0.002	(0.002)	0.005	0.072	4,607	-0.003	(0.003)
Employee	0.469	0.499	866	0.418	0.493	8,458	-0.062	(0.037)	0.499	0.500	4,897	-0.007	(0.046)
Self-employed	0.459	0.499	866	0.477	0.500	8,458	0.025	(0.034)	0.352	0.477	4,897	-0.063	(0.043)
Agriculture	0.378	0.485	866	0.368	0.482	8,458	0.011	(0.030)	0.253	0.435	4,897	-0.070	(0.038)
Industry	0.039	0.194	866	0.061	0.239	8,458	0.019	(0.010)	0.066	0.248	4,897	0.020	(0.012)
Services	0.102	0.303	866	0.161	0.367	8,458	0.030	(0.020)	0.149	0.356	4,897	0.011	(0.023)
Sick/Injured	0.157	0.364	866	0.046	0.208	8,458	0.003	(0.022)	0.037	0.189	4,897	0.027	(0.023)

Summary statistics by period and LGA group (below/above median treatment intensity measured by average primary school completion rates across birth cohorts from 1924 to 1943). The Before UPE, UPE and After UPE period include birth cohorts from 1922 to 1941, 1942 to 1976 and 1977 to 1986 respectively. The unit of observation is the individual within a household, and observations are weighted by household weights. For each period, the first column reports the mean (interpreted as proportions since all variables are indicators) of the variable for a given LGA group, while the second column reports the standard deviation. The third column reports the number of non-missing values used to calculate the statistic. For reference, the numbers of observations in the Before UPE, UPE and After UPE periods for LGAs below median intensity are 1,119, 8,513 and 4,586 respectively, while the respective numbers for LGAs above median intensity are 866, 8,458 and 4,897. The fourth column reports the difference-in-difference estimate comparing each of the UPE and After UPE periods to the Before UPE period, and between the below median intensity and above median intensity groups. The fifth column reports the standard error for the estimate clustered by LGA. All labour market variables include the non-employed. Hours worked is the total for the primary and secondary jobs in the past week. Employment status (employee/employer/non-wage-earning) and sector are for the primary job. Income is reported for the past month and includes allowances, pensions and earnings from all jobs (including social work). Literacy is in any language. The statistics for literacy in below-median-intensity LGAs differ slightly from those for formal school attendance rates; they only appear the same because of rounding errors.

Table 2: Impact of Reforms on Education Outcomes

	(1) Education Index	(2) Education Index	(3) Education Index	(4) Attended Formal School	(5) Attended Formal School	(6) Attended Formal School	(7) Literate	(8) Literate	(9) Literate	(10) Enrolled in Pri. School	(11) Enrolled in Pri. School	(12) Enrolled in Pri. School
UPE Begins × UPE Intensity	0.429*** (0.036)	0.394*** (0.035)	0.398*** (0.033)	0.599*** (0.040)	0.582*** (0.043)	0.592*** (0.039)	0.419*** (0.051)	0.397*** (0.048)	0.408*** (0.047)	0.643*** (0.039)	0.624*** (0.042)	0.622*** (0.040)
Nationwide UPE × UPE Intensity	0.573*** (0.035)	0.514*** (0.036)	0.514*** (0.033)	0.777*** (0.038)	0.743*** (0.040)	0.744*** (0.037)	0.591*** (0.051)	0.542*** (0.047)	0.534*** (0.049)	0.829*** (0.036)	0.791*** (0.039)	0.783*** (0.036)
UPE Ends × UPE Intensity	0.580*** (0.037)	0.521*** (0.037)	0.508*** (0.034)	0.799*** (0.038)	0.765*** (0.040)	0.753*** (0.037)	0.594*** (0.052)	0.538*** (0.049)	0.522*** (0.049)	0.845*** (0.036)	0.810*** (0.038)	0.785*** (0.036)
State-Cohort FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LGA FE	N	N	N	N	N	N	N	N	N	N	N	N
Controls	N	N	N	N	N	N	N	N	N	N	N	N
Baseline Mean	-0.353	-0.353	-0.353	0.383	0.383	0.383	0.481	0.481	0.481	0.378	0.378	0.378
Baseline SD	0.362	0.362	0.362	0.486	0.486	0.486	0.500	0.500	0.500	0.485	0.485	0.485
N	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416	28,430	28,430	28,412
	(13) Enrolled in Sec. School	(14) Enrolled in Sec. School	(15) Enrolled in Sec. School	(16) Completed Pri. School	(17) Completed Pri. School	(18) Completed Pri. School	(19) Completed Sec. School	(20) Completed Sec. School	(21) Completed Sec. School	(22) Years of Educa- tion	(23) Years of Educa- tion	(24) Years of Educa- tion
UPE Begins × UPE Intensity	0.214*** (0.047)	0.151*** (0.044)	0.148*** (0.044)	0.504*** (0.049)	0.469*** (0.051)	0.476*** (0.044)	0.197*** (0.044)	0.143*** (0.041)	0.143*** (0.042)	5.036*** (0.538)	4.448*** (0.529)	4.402*** (0.505)
Nationwide UPE × UPE Intensity	0.278*** (0.050)	0.186*** (0.049)	0.194*** (0.048)	0.691*** (0.049)	0.642*** (0.050)	0.644*** (0.044)	0.274*** (0.049)	0.180*** (0.047)	0.188*** (0.048)	6.548*** (0.580)	5.402*** (0.588)	5.404*** (0.558)
UPE Ends × UPE Intensity	0.274*** (0.052)	0.185*** (0.051)	0.179*** (0.050)	0.722*** (0.049)	0.671*** (0.050)	0.659*** (0.045)	0.246*** (0.051)	0.156*** (0.050)	0.153*** (0.051)	6.543*** (0.630)	5.438*** (0.633)	5.320*** (0.598)
State-Cohort FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LGA FE	N	N	N	N	N	N	N	N	N	N	N	N
Controls	N	N	N	N	N	N	N	N	N	N	N	N
Baseline Mean	0.136	0.136	0.136	0.309	0.309	0.309	0.119	0.119	0.119	2.926	2.926	2.926
Baseline SD	0.343	0.343	0.343	0.462	0.462	0.462	0.324	0.324	0.324	4.385	4.385	4.385
N	28,430	28,430	28,412	28,430	28,430	28,412	28,430	28,430	28,412	28,435	28,435	28,417

I regress individual outcomes on interaction terms between a dummy equal to one if the individual was born in years where they would have been affected by a given policy reform and the intensity measure. See Figure 1 notes for description of the three periods. The full sample comprises birth cohorts from 1922 to 1986. Robust standard errors in parentheses: standard errors are clustered at the Local Government Area (district) level. For each outcome, the first column shows the coefficients when state by birth cohort fixed effects are included. The second column shows the results when state by birth cohort and LGA fixed effects are included. The third column shows the results when additional controls (sex, Christian and Muslim shares of the LGA population, as well as estimated average LGA population, female share of the population enrolled in primary school and urban share of the population in 1937 to 1941 interacted with cohort bins) are added. *, ** and *** refer to statistical significance at the 10%, 5% and 1% levels respectively. The summary index is the (equally-weighted) average of z-scores (the variable minus the baseline mean among cohort bins prior to 1942, divided by the baseline standard deviation) for six components: ever attended school, literacy and primary and secondary school enrolment and completion. All dependent variables except the summary index and years of education are indicators equal to one if the individual reported achieving the outcome. Literacy is in any language. Primary (secondary) school enrolment is determined based on whether the highest grade reached is equal to Primary (Junior Secondary Level) One and above, while completion is determined based on whether the highest grade reached is above the last grade of primary (secondary) school or at the last grade and the individual is not currently attending school. Enrolment and completion are missing if the highest grade reached is missing. OLS is used for estimation of all models except for years of education which uses a Tobit specification as it is (upper-)censored at 13 years. The Tobit regression coefficients can be interpreted as the average treatment effect on the latent (uncensored) years of education. Baseline (1922 to 1941) mean and standard deviation reported along with number of observations.

Table 3: Impact of Reforms on Employment Outcomes

	(1) Employment Index	(2) Employment Index	(3) Employment Index	(4) Income > 0 NGN	(5) Income > 0 NGN	(6) Income > 0 NGN	(7) Income ≥ 5k NGN	(8) Income ≥ 5k NGN	(9) Income ≥ 5k NGN	(10) Income ≥ 10k NGN	(11) Income ≥ 10k NGN	(12) Income ≥ 10k NGN
UPE Begins × UPE Intensity	-0.003 (0.006)	-0.002 (0.006)	-0.007 (0.006)	-0.009 (0.034)	-0.023 (0.031)	-0.072** (0.030)	-0.015 (0.030)	-0.023 (0.031)	-0.076** (0.031)	-0.017 (0.027)	-0.023 (0.027)	-0.062** (0.028)
Nationwide UPE × UPE Intensity	-0.003 (0.007)	-0.000 (0.006)	-0.007 (0.007)	-0.024 (0.036)	-0.021 (0.031)	-0.074** (0.030)	-0.041 (0.033)	-0.025 (0.031)	-0.086*** (0.031)	-0.036 (0.032)	-0.021 (0.029)	-0.070** (0.029)
UPE Ends × UPE Intensity	0.005 (0.007)	0.008 (0.006)	0.001 (0.006)	0.010 (0.038)	0.004 (0.032)	-0.053* (0.031)	-0.008 (0.034)	0.003 (0.031)	-0.063** (0.030)	-0.001 (0.033)	0.004 (0.030)	-0.048 (0.030)
State-Cohort FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LGA FE	N	N	N	N	N	N	N	N	N	N	N	N
Controls	N	N	N	N	N	N	N	N	N	N	N	N
Baseline Mean	-3.566	-3.566	-3.566	0.279	0.279	0.279	0.234	0.234	0.234	0.191	0.191	0.191
Baseline SD	0.077	0.077	0.077	0.448	0.448	0.448	0.423	0.423	0.423	0.393	0.393	0.393
N	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416
	(13) Income ≥ 20k NGN	(14) Income ≥ 20k NGN	(15) Income ≥ 20k NGN	(16) Income ≥ 50k NGN	(17) Income ≥ 50k NGN	(18) Income ≥ 50k NGN	(19) Income ≥ 100k NGN	(20) Income ≥ 100k NGN	(21) Income ≥ 100k NGN	(22) 0 > Hours Worked	(23) 0 > Hours Worked	(24) 0 > Hours Worked
UPE Begins × UPE Intensity	0.027 (0.022)	0.030 (0.021)	0.006 (0.020)	0.002 (0.010)	0.003 (0.009)	0.000 (0.010)	-0.007 (0.004)	-0.006 (0.004)	-0.006 (0.005)	-0.056** (0.022)	-0.052** (0.023)	-0.078*** (0.023)
Nationwide UPE × UPE Intensity	-0.010 (0.026)	0.001 (0.024)	-0.027 (0.025)	-0.002 (0.010)	0.000 (0.009)	-0.006 (0.010)	-0.004 (0.005)	-0.001 (0.004)	-0.003 (0.005)	-0.049* (0.025)	-0.052* (0.027)	-0.084*** (0.027)
UPE Ends × UPE Intensity	0.022 (0.024)	0.033 (0.021)	0.001 (0.023)	-0.002 (0.010)	0.002 (0.010)	-0.004 (0.010)	-0.002 (0.005)	0.000 (0.004)	-0.003 (0.004)	-0.001 (0.027)	-0.006 (0.025)	-0.046* (0.025)
State-Cohort FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LGA FE	N	N	N	N	N	N	N	N	N	N	N	N
Controls	N	N	N	N	N	N	N	N	N	N	N	N
Baseline Mean	0.101	0.101	0.101	0.011	0.011	0.011	0.003	0.003	0.003	0.223	0.223	0.223
Baseline SD	0.301	0.301	0.301	0.107	0.107	0.107	0.057	0.057	0.057	0.416	0.416	0.416
N	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416
	(25) 30 ≥ Hours Worked	(26) 30 ≥ Hours Worked	(27) 30 ≥ Hours Worked	(28) 40 ≥ Hours Worked	(29) 40 ≥ Hours Worked	(30) 40 ≥ Hours Worked	(31) 50 ≥ Hours Worked	(32) 50 ≥ Hours Worked	(33) 50 ≥ Hours Worked	(34) 60 ≥ Hours Worked	(35) 60 ≥ Hours Worked	(36) 60 ≥ Hours Worked
UPE Begins × UPE Intensity	-0.057** (0.023)	-0.053** (0.023)	-0.088*** (0.024)	-0.035 (0.024)	-0.024 (0.024)	-0.062** (0.024)	-0.030 (0.020)	-0.028 (0.019)	-0.044** (0.019)	-0.011 (0.014)	-0.005 (0.012)	-0.022* (0.013)
Nationwide UPE × UPE Intensity	-0.043* (0.026)	-0.044* (0.026)	-0.088*** (0.028)	-0.028 (0.030)	-0.019 (0.030)	-0.064** (0.031)	-0.025 (0.025)	-0.021 (0.021)	-0.042** (0.021)	-0.025 (0.018)	-0.018 (0.016)	-0.037** (0.016)
UPE Ends × UPE Intensity	-0.002 (0.028)	-0.002 (0.026)	-0.052* (0.027)	0.009 (0.028)	0.022 (0.027)	-0.030 (0.028)	-0.002 (0.022)	0.001 (0.021)	-0.021 (0.021)	-0.005 (0.014)	0.002 (0.013)	-0.018 (0.013)
State-Cohort FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LGA FE	N	N	N	N	N	N	N	N	N	N	N	N
Controls	N	N	N	N	N	N	N	N	N	N	N	N
Baseline Mean	0.196	0.196	0.196	0.178	0.178	0.178	0.074	0.074	0.074	0.040	0.040	0.040
Baseline SD	0.397	0.397	0.397	0.383	0.383	0.383	0.262	0.262	0.262	0.195	0.195	0.195
N	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416
	(37) 70 ≥ Hours Worked	(38) 70 ≥ Hours Worked	(39) 70 ≥ Hours Worked	(40) Hours Worked (incl. 0)	(41) Hours Worked (incl. 0)	(42) Hours Worked (incl. 0)	(43) Working in Agri- culture	(44) Working in Agri- culture	(45) Working in Agri- culture	(46) Working in Indus- try	(47) Working in Indus- try	(48) Working in Indus- try
UPE Begins × UPE Intensity	-0.002 (0.012)	0.001 (0.011)	-0.006 (0.011)	-13.288** (5.184)	-10.489* (5.693)	-14.321** (6.415)	0.025 (0.029)	0.001 (0.028)	-0.046 (0.029)	0.003 (0.016)	-0.009 (0.016)	0.004 (0.016)
Nationwide UPE × UPE Intensity	-0.003 (0.013)	-0.001 (0.012)	-0.009 (0.012)	-12.096** (6.001)	-8.961 (6.736)	-13.983* (7.143)	0.045 (0.039)	0.017 (0.036)	-0.033 (0.035)	0.004 (0.016)	-0.007 (0.016)	0.006 (0.016)
UPE Ends × UPE Intensity	-0.003 (0.012)	-0.000 (0.011)	-0.008 (0.011)	-2.748 (6.305)	0.460 (6.430)	-4.935 (6.210)	0.018 (0.035)	0.012 (0.032)	-0.049 (0.032)	-0.012 (0.017)	-0.030* (0.016)	-0.015 (0.016)
State-Cohort FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LGA FE	N	N	N	N	N	N	N	N	N	N	N	N
Controls	N	N	N	N	N	N	N	N	N	N	N	N
Baseline Mean	0.021	0.021	0.021	10.453	10.453	10.453	0.263	0.263	0.263	0.031	0.031	0.031
Baseline SD	0.145	0.145	0.145	21.052	21.052	21.052	0.440	0.440	0.440	0.172	0.172	0.172
N	28,434	28,434	28,416	28,432	28,432	28,414	28,434	28,434	28,416	28,434	28,434	28,416

	(49) Working in Ser- vices	(50) Working in Ser- vices	(51) Working in Ser- vices	(52) Working as Em- ployee	(53) Working as Em- ployee	(54) Working as Em- ployee	(55) Working as Em- ployer	(56) Working as Em- ployer	(57) Working as Em- ployer	(58) Non- wage- earning Worker	(59) Non- wage- earning Worker	(60) Non- wage- earning Worker
UPE Begins	-0.027	-0.005	0.006	0.003	0.030	0.051	0.023**	0.025**	0.030**	-0.015*	-0.008	0.003
× UPE Intensity	(0.030)	(0.028)	(0.029)	(0.034)	(0.031)	(0.032)	(0.011)	(0.012)	(0.013)	(0.009)	(0.009)	(0.009)
Nationwide UPE	-0.016	0.011	0.015	-0.027	0.001	0.028	0.027**	0.029**	0.033**	-0.008	-0.001	0.010
× UPE Intensity	(0.035)	(0.033)	(0.034)	(0.036)	(0.034)	(0.035)	(0.013)	(0.014)	(0.016)	(0.011)	(0.009)	(0.011)
UPE Ends	0.027	0.052	0.068**	-0.036	-0.023	0.007	0.027**	0.030**	0.035**	-0.009	0.002	0.014
× UPE Intensity	(0.033)	(0.032)	(0.033)	(0.040)	(0.034)	(0.034)	(0.011)	(0.012)	(0.014)	(0.015)	(0.011)	(0.012)
State-Cohort FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LGA FE	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y
Controls	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Baseline Mean	0.095	0.095	0.095	0.573	0.573	0.573	0.009	0.009	0.009	0.010	0.010	0.010
Baseline SD	0.294	0.294	0.294	0.495	0.495	0.495	0.092	0.092	0.092	0.101	0.101	0.101
N	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416
	(61) Self- employed	(62) Self- employed	(63) Self- employed	(64) In Labour Force	(65) In Labour Force	(66) In Labour Force	(67) Unemployed	(68) Unemployed	(69) Unemployed			
UPE Begins	-0.011	-0.047	-0.082**	-0.001	-0.012	-0.035	0.004	0.005	0.003			
× UPE Intensity	(0.033)	(0.031)	(0.033)	(0.030)	(0.030)	(0.031)	(0.003)	(0.004)	(0.004)			
Nationwide UPE	0.012	-0.016	-0.059*	0.032	0.016	-0.016	0.001	0.002	0.001			
× UPE Intensity	(0.036)	(0.033)	(0.034)	(0.035)	(0.034)	(0.034)	(0.004)	(0.004)	(0.004)			
UPE Ends	-0.003	-0.022	-0.066*	0.040	0.037	0.007	-0.001	0.001	0.001			
× UPE Intensity	(0.040)	(0.035)	(0.036)	(0.038)	(0.035)	(0.035)	(0.005)	(0.005)	(0.005)			
State-Cohort FE	Y	Y	Y	Y	Y	Y	Y	Y	Y			
LGA FE	N	Y	Y	N	Y	Y	N	Y	Y			
Controls	N	N	Y	N	N	Y	N	N	Y			
Baseline Mean	0.331	0.331	0.331	0.421	0.421	0.421	0.002	0.002	0.002			
Baseline SD	0.471	0.471	0.471	0.494	0.494	0.494	0.043	0.043	0.043			
N	28,434	28,434	28,416	26,730	26,730	26,715	26,730	26,730	26,715			

The summary index is the (equally-weighted) average of z-scores for 20 components: indicators for each broad and fine sector ISIC Rev. 4 classification of the primary job (broad sectors are agriculture, industry and services while fine sectors are agriculture, construction, manufacturing, market services, mining and quarrying and non-market services) excluding the agriculture sector and reverse-coding the indicators for construction and mining/quarrying, indicators for each type of employment (non-wage earning, self-employed, employee, employer or others) excluding the Others category and reverse-coding the non-wage-earning category, indicators for earning income above different thresholds (0, 5000, 10000, 20000, 50000 and 100000 nairas in the past month) excluding the 0, 5000 and 10000 thresholds, indicators for total hours of work in the primary and secondary jobs exceeding different thresholds (0, 30, 40, 50, 60 and 70 hours in the past week) excluding the 0 and 30 thresholds, an indicator for reporting labour force participation and an indicator for not being unemployed. The dependent variables in the other columns are the individual measures in the summary index (adding back the excluded categories). For income and hours worked indicators, a value of 0 means either a missing value or the reported value did not exceed the threshold. OLS is used for estimation of all models except for hours worked when zeros are included which uses a Tobit specification as it is (lower-)censored at 0 hours, and the marginal effects on the observed outcome are reported in columns 40 to 42. See Table 2 notes for more details.

Table 4: Impact of Reforms on Health Outcomes

	(1) Health Index	(2) Health Index	(3) Health Index	(4) Sick/Injured in Last 7 Days	(5) Sick/Injured in Last 7 Days	(6) Sick/Injured in Last 7 Days	(7) Missed Work/School in Last 7 Days	(8) Missed Work/School in Last 7 Days	(9) Missed Work/School in Last 7 Days	(10) 1-3 Days of Work/School Missed	(11) 1-3 Days of Work/School Missed	(12) 1-3 Days of Work/School Missed
UPE Begins	0.026*	0.025*	0.024*	-0.059	-0.062*	-0.060*	-0.063*	-0.061*	-0.058*	-0.047*	-0.043*	-0.039
× UPE Intensity	(0.014)	(0.014)	(0.013)	(0.036)	(0.036)	(0.035)	(0.033)	(0.033)	(0.033)	(0.025)	(0.025)	(0.025)
Nationwide UPE	0.024*	0.027*	0.027*	-0.048	-0.064*	-0.066*	-0.062*	-0.064*	-0.062*	-0.056**	-0.056**	-0.052**
× UPE Intensity	(0.014)	(0.014)	(0.014)	(0.038)	(0.037)	(0.036)	(0.032)	(0.033)	(0.033)	(0.025)	(0.026)	(0.026)
UPE Ends	0.016	0.018	0.018	-0.024	-0.038	-0.040	-0.050	-0.051	-0.047	-0.044*	-0.043*	-0.039
× UPE Intensity	(0.014)	(0.014)	(0.014)	(0.037)	(0.036)	(0.036)	(0.032)	(0.033)	(0.033)	(0.024)	(0.025)	(0.026)
State-Cohort FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LGA FE	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y
Controls	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Baseline Mean	-2.259	-2.259	-2.259	0.170	0.170	0.170	0.091	0.091	0.091	0.038	0.038	0.038
Baseline SD	0.125	0.125	0.125	0.376	0.376	0.376	0.287	0.287	0.287	0.191	0.191	0.191
N	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416
	(13) 4-7 Days of Work/School Missed	(14) 4-7 Days of Work/School Missed	(15) 4-7 Days of Work/School Missed	(16) None of Work/School Missed	(17) None of Work/School Missed	(18) None of Work/School Missed	(19) Consulted Health Provider in Last 7 Days	(20) Consulted Health Provider in Last 7 Days	(21) Consulted Health Provider in Last 7 Days			
UPE Begins	-0.015	-0.017	-0.018	0.009	0.004	0.002	-0.057	-0.058	-0.056			
× UPE Intensity	(0.021)	(0.021)	(0.021)	(0.024)	(0.024)	(0.024)	(0.036)	(0.036)	(0.037)			
Nationwide UPE	-0.005	-0.008	-0.010	0.018	0.005	-0.000	-0.049	-0.056	-0.055			
× UPE Intensity	(0.021)	(0.022)	(0.021)	(0.026)	(0.025)	(0.024)	(0.035)	(0.036)	(0.036)			
UPE Ends	-0.004	-0.007	-0.008	0.030	0.018	0.010	-0.044	-0.050	-0.047			
× UPE Intensity	(0.021)	(0.021)	(0.021)	(0.026)	(0.025)	(0.025)	(0.035)	(0.036)	(0.036)			
State-Cohort FE	Y	Y	Y	Y	Y	Y	Y	Y	Y			
LGA FE	N	Y	Y	N	Y	Y	N	Y	Y			
Controls	N	N	Y	N	N	Y	N	N	Y			
Baseline Mean	0.047	0.047	0.047	0.078	0.078	0.078	0.125	0.125	0.125			
Baseline SD	0.212	0.212	0.212	0.268	0.268	0.268	0.331	0.331	0.331			
N	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416			

The summary index is the (equally-weighted) average of z-scores for 5 components: reverse-coded indicators for not being sick in the past 7 days, missing work or school due to injury or sickness in the past 7 days, missing work or school for 1-3 days or 4-7 days (0 days category excluded) and an indicator for being sick and consulting a health provider (including traditional healers) for any reason in the past 7 days. The dependent variables in the other columns are the individual measures in the summary index (adding back the excluded categories). See Table 2 and 3 notes for more details.

Table 5: Impact of Reforms on Marriage and Family Planning Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Marriage/ Family Planning Index	Marriage/ Family Planning Index	Marriage/ Family Planning Index	Household Size	Household Size	Household Size	Ever Married	Ever Married	Ever Married	Informal Loose Union	Informal Loose Union	Informal Loose Union	Never Married	Never Married	Never Married
UPE Begins	-0.370*** (0.095)	-0.343*** (0.088)	-0.409*** (0.091)	1.070*** (0.283)	0.984*** (0.261)	1.216*** (0.272)	-0.047** (0.019)	-0.051** (0.022)	-0.015 (0.025)	0.007 (0.006)	0.004 (0.005)	0.004 (0.006)	0.041** (0.019)	0.047** (0.022)	0.011 (0.024)
× UPE Intensity															
Nationwide UPE	-0.442*** (0.100)	-0.420*** (0.095)	-0.487*** (0.100)	1.291*** (0.298)	1.222*** (0.280)	1.455*** (0.295)	-0.036 (0.022)	-0.034 (0.026)	-0.003 (0.028)	0.002 (0.006)	-0.003 (0.006)	-0.004 (0.007)	0.034 (0.021)	0.038 (0.025)	0.007 (0.027)
× UPE Intensity															
UPE Ends	-0.362*** (0.120)	-0.332*** (0.104)	-0.396*** (0.105)	1.074*** (0.348)	0.976*** (0.304)	1.189*** (0.309)	-0.022 (0.036)	-0.020 (0.037)	-0.002 (0.037)	0.008 (0.007)	0.002 (0.007)	0.002 (0.008)	0.014 (0.035)	0.019 (0.036)	0.000 (0.037)
× UPE Intensity															
State-Cohort FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LGA FE	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y
Controls	N	N	Y	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Dep. Var. Mean	-2.459	-2.459	-2.459	3.985	3.985	3.985	0.968	0.968	0.968	0.005	0.005	0.005	0.027	0.027	0.027
Dep. Var. SD	0.998	0.998	0.998	2.969	2.969	2.969	0.175	0.175	0.175	0.068	0.068	0.068	0.162	0.162	0.162
N	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416

The summary index is the (equally-weighted) average of z-scores for 4 components: indicators for access to mobile phone, TV and radio, and an indicator for starting a building project (as a measure of assets). The dependent variables in the other columns are the individual measures in the summary index. Indicator values of zero could indicate either no response or responding No to the question. See Table 2 to 5 notes for more details.

Table 6: Impact of Reforms on Measures of Standard of Living

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Standard of Living Index	Standard of Living Index	Standard of Living Index	Radio Access	Radio Access	Radio Access	TV Access	TV Access	TV Access	Mobile Phone Access	Mobile Phone Access	Mobile Phone Access	Started New Building Project	Started New Building Project	Started New Building Project
UPE Begins	0.070** (0.028)	0.057** (0.026)	0.060** (0.027)	0.112*** (0.038)	0.090** (0.038)	0.095** (0.039)	0.084** (0.044)	0.084** (0.037)	0.089** (0.039)	0.088** (0.043)	0.066* (0.038)	0.065 (0.040)	-0.006 (0.010)	-0.010 (0.010)	-0.008 (0.011)
× UPE Intensity															
Nationwide UPE	0.075*** (0.029)	0.068** (0.028)	0.075*** (0.028)	0.090** (0.039)	0.089** (0.038)	0.097** (0.040)	0.101** (0.045)	0.098** (0.040)	0.110*** (0.041)	0.124*** (0.046)	0.104** (0.041)	0.111*** (0.042)	-0.015 (0.011)	-0.020* (0.012)	-0.019 (0.012)
× UPE Intensity															
UPE Ends	0.078*** (0.030)	0.066*** (0.029)	0.074** (0.030)	0.089** (0.040)	0.073* (0.042)	0.082* (0.042)	0.119** (0.047)	0.112*** (0.041)	0.129*** (0.042)	0.107*** (0.047)	0.083* (0.045)	0.090** (0.045)	-0.000 (0.008)	-0.004 (0.009)	-0.005 (0.010)
× UPE Intensity															
State-Cohort FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LGA FE	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y
Controls	N	N	Y	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Dep. Var. Mean	-0.338	-0.338	-0.338	0.468	0.468	0.468	0.318	0.318	0.318	0.423	0.423	0.423	0.013	0.013	0.013
Dep. Var. SD	0.338	0.338	0.338	0.499	0.499	0.499	0.466	0.466	0.466	0.494	0.494	0.494	0.112	0.112	0.112
N	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416

The summary index is the (equally-weighted) average of z-scores for 4 components: indicators for access to mobile phone, TV and radio, and an indicator for starting a building project (as a measure of assets). The dependent variables in the other columns are the individual measures in the summary index. Indicator values of zero could indicate either no response or responding No to the question. See Table 2 to 5 notes for more details.

Table 7: Impact of Reforms on Household Enterprise Formation

	(1) Household Enter- prise Index	(2) Household Enter- prise Index	(3) Household Enter- prise Index	(4) Household Owns Enter- prise	(5) Household Owns Enter- prise	(6) Household Owns Enter- prise	(7) Total No. of Household Enterprises	(8) Total No. of Household Enterprises	(9) Total No. of Household Enterprises
UPE Begins × UPE Intensity	0.124*** (0.045)	0.091** (0.042)	0.116*** (0.044)	0.095** (0.047)	0.056 (0.042)	0.064 (0.044)	0.226*** (0.086)	0.159** (0.081)	0.203** (0.085)
Nationwide UPE × UPE Intensity	0.169*** (0.046)	0.111** (0.044)	0.134*** (0.046)	0.139*** (0.052)	0.069 (0.046)	0.078 (0.048)	0.317*** (0.089)	0.198** (0.084)	0.238*** (0.088)
UPE Ends × UPE Intensity	0.175*** (0.044)	0.126*** (0.045)	0.146*** (0.046)	0.149*** (0.051)	0.091* (0.047)	0.095** (0.048)	0.330*** (0.086)	0.230*** (0.086)	0.262*** (0.088)
State-Cohort FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
LGA FE	N	Y	Y	N	Y	Y	N	Y	Y
Controls	N	N	Y	N	N	Y	N	N	Y
Baseline Mean	-0.127	-0.127	-0.127	0.306	0.306	0.306	0.445	0.445	0.445
Baseline SD	0.390	0.390	0.390	0.461	0.461	0.461	0.760	0.760	0.760
N	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416

	(10) No. of Registered Household Enterprises	(11) No. of Registered Household Enterprises	(12) No. of Registered Household Enterprises	(13) No. of Household Enterprises in Industry	(14) No. of Household Enterprises in Industry	(15) No. of Household Enterprises in Industry	(16) No. of Household Enterprises in Services	(17) No. of Household Enterprises in Services	(18) No. of Household Enterprises in Services
UPE Begins × UPE Intensity	0.044** (0.022)	0.045** (0.020)	0.059*** (0.022)	0.001 (0.023)	-0.006 (0.023)	0.003 (0.024)	0.225*** (0.086)	0.164** (0.082)	0.200** (0.085)
Nationwide UPE × UPE Intensity	0.045** (0.019)	0.047* (0.027)	0.061** (0.029)	0.009 (0.023)	-0.009 (0.025)	0.000 (0.026)	0.307*** (0.088)	0.207** (0.086)	0.238*** (0.087)
UPE Ends × UPE Intensity	0.038** (0.016)	0.045* (0.024)	0.059** (0.026)	0.015 (0.026)	0.000 (0.026)	0.013 (0.027)	0.315*** (0.086)	0.230*** (0.086)	0.250*** (0.087)
State-Cohort FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
LGA FE	N	Y	Y	N	Y	Y	N	Y	Y
Controls	N	N	Y	N	N	Y	N	N	Y
Dep. Var. Mean	0.016	0.016	0.016	0.055	0.055	0.055	0.389	0.389	0.389
Dep. Var. SD	0.165	0.165	0.165	0.282	0.282	0.282	0.714	0.714	0.714
N	28,434	28,434	28,416	28,434	28,434	28,416	28,434	28,434	28,416

The summary index is the (equally-weighted) average of z-scores for 4 components: the total number of household enterprises, number of registered household enterprises, number of household enterprises in the industry sector and number of household enterprises in the services sector. The unit of observation is the individual and thus household enterprises refer to enterprises owned by the household the individual was living in at the time of the survey. The dependent variables in the other columns are the individual measures in the summary index. See Table 2 to 6 notes for more details.

Table 8: Heterogeneity in Impact of Reforms on Education Outcomes

	(1) Education Index	(2) Education Index	(3) Education Index	(4) Education Index	(5) Attended Formal School	(6) Attended Formal School	(7) Attended Formal School	(8) Attended Formal School	(9) Literate	(10) Literate
UPE	0.266*** (0.053)	0.522*** (0.037)	0.484*** (0.035)	0.436*** (0.051)	0.415*** (0.064)	0.738*** (0.042)	0.685*** (0.041)	0.635*** (0.065)	0.270*** (0.070)	0.584*** (0.057)
× UPE Intensity										
UPE Ends	0.276*** (0.055)	0.604*** (0.041)	0.507*** (0.041)	0.450*** (0.058)	0.465*** (0.064)	0.867*** (0.042)	0.734*** (0.044)	0.658*** (0.073)	0.308*** (0.075)	0.696*** (0.060)
× UPE Intensity										
UPE × UPE Intensity	0.288*** (0.059)				0.370*** (0.074)				0.298*** (0.075)	
× Male										
UPE Ends × UPE Intensity	0.376*** (0.062)				0.447*** (0.074)				0.333*** (0.077)	
× Male										
UPE × UPE Intensity		-0.206** (0.082)				-0.217** (0.099)				-0.372*** (0.117)
× Muslim Share of LGA Pop.										
UPE Ends × UPE Intensity		-0.310*** (0.095)				-0.363*** (0.112)				-0.550*** (0.128)
× Muslim Share of LGA Pop.										
UPE × UPE Intensity ×			-0.016 (0.012)				-0.007 (0.013)			
Urban Share of LGA Pop.										
UPE Ends × UPE Intensity ×			0.001 (0.013)				0.012 (0.013)			
Urban Share of LGA Pop.										
UPE × UPE Intensity				0.112* (0.067)				0.132 (0.082)		
× Eastern Region										
UPE × UPE Intensity				-0.500*** (0.178)				-0.036 (0.233)		
× Lagos Region										
UPE × UPE Intensity				0.238** (0.108)				0.242** (0.104)		
× Mid-Western Region										
UPE × UPE Intensity				-0.056 (0.080)				-0.094 (0.100)		
× Western Region										
UPE Ends × UPE Intensity				0.175** (0.075)				0.220** (0.088)		
× Eastern Region										
UPE Ends × UPE Intensity				-0.589*** (0.159)				-0.062 (0.222)		
× Lagos Region										
UPE Ends × UPE Intensity				0.290** (0.123)				0.375*** (0.102)		
× Mid-Western Region										
UPE Ends × UPE Intensity				0.015 (0.088)				0.024 (0.100)		
× Western Region										
Baseline Mean	-0.353	-0.353	-0.353	-0.353	0.383	0.383	0.383	0.383	0.481	0.481
Baseline SD	0.362	0.362	0.362	0.362	0.486	0.486	0.486	0.486	0.500	0.500
N	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416

	(11) Literate	(12) Literate	(13) Enrolled in Pri. School	(14) Enrolled in Pri. School	(15) Enrolled in Pri. School	(16) Enrolled in Pri. School	(17) Completed Pri. School	(18) Completed Pri. School	(19) Completed Pri. School	(20) Completed Pri. School
UPE	0.473*** (0.052)	0.301*** (0.086)	0.460*** (0.068)	0.782*** (0.039)	0.720*** (0.039)	0.673*** (0.059)	0.333*** (0.086)	0.631*** (0.051)	0.617*** (0.048)	0.604*** (0.068)
× UPE Intensity										
UPE Ends	0.495*** (0.058)	0.289*** (0.094)	0.508*** (0.069)	0.904*** (0.040)	0.765*** (0.042)	0.698*** (0.066)	0.387*** (0.086)	0.765*** (0.056)	0.682*** (0.056)	0.651*** (0.078)
× UPE Intensity										
UPE × UPE Intensity			0.357*** (0.078)				0.333*** (0.095)			
× Male										
UPE Ends × UPE Intensity			0.431*** (0.079)				0.417*** (0.095)			
× Male										
UPE × UPE Intensity				-0.249*** (0.091)				-0.215 (0.134)		
× Muslim Share of LGA Pop.										
UPE Ends × UPE Intensity				-0.384*** (0.103)				-0.345** (0.147)		
× Muslim Share of LGA Pop.										
UPE × UPE Intensity ×	0.002 (0.016)				-0.008 (0.012)				-0.033 (0.021)	
Urban Share of LGA Pop.										
UPE Ends × UPE Intensity ×	0.017 (0.016)				0.013 (0.012)				-0.017 (0.021)	
Urban Share of LGA Pop.										
UPE × UPE Intensity		0.314*** (0.103)				0.133* (0.073)				0.028 (0.093)
× Eastern Region										
UPE × UPE Intensity		-0.182 (0.228)				0.314** (0.139)				-1.007* (0.541)
× Lagos Region										
UPE × UPE Intensity		0.299 (0.240)				0.277*** (0.107)				0.298** (0.134)
× Mid-Western Region										
UPE × UPE Intensity		0.170 (0.116)				-0.156 (0.096)				-0.133 (0.105)
× Western Region										
UPE Ends × UPE Intensity		0.400*** (0.115)				0.204*** (0.079)				0.104 (0.103)
× Eastern Region										
UPE Ends × UPE Intensity		-0.069 (0.129)				0.250 (0.207)				-1.044* (0.546)
× Lagos Region										
UPE Ends × UPE Intensity		0.385 (0.239)				0.405*** (0.106)				0.395** (0.157)
× Mid-Western Region										
UPE Ends × UPE Intensity		0.311** (0.125)				-0.034 (0.096)				-0.067 (0.108)
× Western Region										
Baseline Mean	0.481	0.481	0.378	0.378	0.378	0.378	0.309	0.309	0.309	0.309
Baseline SD	0.500	0.500	0.485	0.485	0.485	0.485	0.462	0.462	0.462	0.462
N	28,416	28,416	28,412	28,412	28,412	28,412	28,412	28,412	28,412	28,412

I regress individual outcomes on the triple interaction between the variable defining subgroups in the population, a dummy equal to one if the individual was born in years where they would have been affected by the implementation of UPE from 1955 to 1976 or its end in 1981, and the intensity measure. The different columns for a given outcome show results for heterogeneity of treatment effects by different grouping variables. Muslim share of the LGA population is from the HNLSS 2009-10 (as a proxy for the share at baseline). The indicators for different regions are based on whether the state of current residence belongs to the pre-historic regions at the time of UPE. Urban share of the LGA population is averaged across 1937 to 1941 (the baseline cohort bin). All regressions follow the preferred specifications (with full controls). See Table 2 for details.

Table 9: Heterogeneity in Impact of Reforms on Employment Outcomes

	(1) Employment Index	(2) Employment Index	(3) Employment Index	(4) Employment Index	(5) Income > 0 NGN	(6) Income > 0 NGN	(7) Income > 0 NGN	(8) Income > 0 NGN	(9) Income ≥ 10k NGN	(10) Income ≥ 10k NGN	(11) Income ≥ 10k NGN
UPE × UPE Intensity	-0.008 (0.009)	-0.008 (0.007)	-0.008 (0.007)	-0.024 (0.018)	-0.032 (0.048)	-0.083** (0.036)	-0.093** (0.037)	-0.080 (0.082)	-0.056 (0.042)	-0.067** (0.028)	-0.079** (0.035)
UPE Ends × UPE Intensity	0.015* (0.009)	0.004 (0.008)	-0.001 (0.007)	-0.011 (0.017)	0.010 (0.050)	-0.041 (0.037)	-0.072* (0.040)	-0.048 (0.088)	-0.016 (0.043)	-0.051* (0.030)	-0.058 (0.039)
UPE × UPE Intensity × Male	0.020* (0.011)				0.022 (0.049)				0.070 (0.046)		
UPE Ends × UPE Intensity × Male	-0.003 (0.011)				0.032 (0.050)				0.083* (0.047)		
UPE × UPE Intensity × Muslim Share of LGA Pop.		0.002 (0.019)				0.027 (0.102)				0.002 (0.104)	
UPE Ends × UPE Intensity × Muslim Share of LGA Pop.		-0.007 (0.019)				-0.028 (0.116)				0.008 (0.114)	
UPE × UPE Intensity × Urban Share of LGA Pop.			0.000 (0.003)				0.013 (0.009)				0.009 (0.010)
UPE Ends × UPE Intensity × Urban Share of LGA Pop.			0.001 (0.003)				0.012 (0.010)				0.006 (0.010)
UPE × UPE Intensity × Eastern Region				0.023 (0.019)				-0.002 (0.095)			
UPE × UPE Intensity × Lagos Region				0.025 (0.032)				0.011 (0.097)			
UPE × UPE Intensity × Mid-Western Region				0.012 (0.021)				-0.041 (0.090)			
UPE × UPE Intensity × Western Region				0.028 (0.019)				0.042 (0.088)			
UPE Ends × UPE Intensity × Eastern Region				0.012 (0.019)				-0.035 (0.101)			
UPE Ends × UPE Intensity × Lagos Region				0.023 (0.033)				0.044 (0.109)			
UPE Ends × UPE Intensity × Mid-Western Region				0.034 (0.024)				-0.029 (0.096)			
UPE Ends × UPE Intensity × Western Region				0.010 (0.018)				0.007 (0.094)			
Baseline Mean	-3.566	-3.566	-3.566	-3.566	0.279	0.279	0.279	0.279	0.191	0.191	0.191
Baseline SD	0.077	0.077	0.077	0.077	0.448	0.448	0.448	0.448	0.393	0.393	0.393
N	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416
	(12) Income ≥ 10k NGN	(13) > 0 Hours Worked	(14) > 0 Hours Worked	(15) > 0 Hours Worked	(16) > 0 Hours Worked	(17) ≥ 40 Hours Worked	(18) ≥ 40 Hours Worked	(19) ≥ 40 Hours Worked	(20) ≥ 40 Hours Worked	(21) Working in Agri- culture	(22) Working in Agri- culture
UPE × UPE Intensity	-0.067 (0.087)	-0.082** (0.036)	-0.062** (0.027)	-0.090*** (0.030)	-0.163** (0.074)	-0.097** (0.039)	-0.052* (0.029)	-0.055 (0.034)	-0.071 (0.087)	-0.039 (0.046)	0.006 (0.035)
UPE Ends × UPE Intensity	-0.018 (0.092)	-0.008 (0.037)	-0.028 (0.028)	-0.053* (0.030)	-0.082 (0.074)	0.002 (0.039)	-0.044 (0.034)	-0.023 (0.033)	0.019 (0.082)	0.014 (0.045)	0.004 (0.044)
UPE × UPE Intensity × Male		0.055 (0.042)				0.128*** (0.045)				0.098* (0.053)	
UPE Ends × UPE Intensity × Male		0.014 (0.042)				0.037 (0.047)				0.039 (0.057)	
UPE × UPE Intensity × Muslim Share of LGA Pop.			-0.066 (0.086)				-0.029 (0.101)				-0.153 (0.114)
UPE Ends × UPE Intensity × Muslim Share of LGA Pop.			-0.061 (0.082)				0.033 (0.093)				-0.173* (0.103)
UPE × UPE Intensity × Urban Share of LGA Pop.				0.006 (0.008)				-0.005 (0.009)			
UPE Ends × UPE Intensity × Urban Share of LGA Pop.				0.005 (0.008)				-0.004 (0.010)			
UPE × UPE Intensity × Eastern Region	-0.000 (0.091)				0.114 (0.079)				0.019 (0.092)		
UPE × UPE Intensity × Lagos Region	0.031 (0.106)				0.131 (0.094)				0.044 (0.105)		
UPE × UPE Intensity × Mid-Western Region	-0.054 (0.096)				0.080 (0.077)				-0.015 (0.092)		
UPE × UPE Intensity × Western Region	0.031 (0.089)				0.139* (0.075)				0.032 (0.088)		
UPE Ends × UPE Intensity × Eastern Region	-0.073 (0.099)				0.033 (0.080)				-0.094 (0.092)		
UPE Ends × UPE Intensity × Lagos Region	0.032 (0.111)				0.075 (0.093)				-0.020 (0.102)		
UPE Ends × UPE Intensity × Mid-Western Region	-0.070 (0.101)				-0.006 (0.079)				-0.120 (0.089)		
UPE Ends × UPE Intensity × Western Region	-0.045 (0.095)				0.023 (0.075)				-0.096 (0.085)		
Baseline Mean	0.191	0.223	0.223	0.223	0.223	0.178	0.178	0.178	0.178	0.263	0.263
Baseline SD	0.393	0.416	0.416	0.416	0.416	0.383	0.383	0.383	0.383	0.440	0.440
N	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416

	(23) Working in Agri- culture	(24) Working in Agri- culture	(25) Working in Indus- try	(26) Working in Indus- try	(27) Working in Indus- try	(28) Working in Indus- try	(29) Working in Ser- vices	(30) Working in Ser- vices	(31) Working in Ser- vices	(32) Working in Ser- vices	(33) Working as Em- ployee
UPE	-0.038 (0.040)	-0.091 (0.086)	0.007 (0.029)	-0.011 (0.023)	0.009 (0.020)	0.038 (0.026)	-0.023 (0.039)	-0.026 (0.035)	-0.001 (0.035)	-0.055 (0.083)	0.080 (0.050)
× UPE Intensity											
UPE Ends	-0.044 (0.040)	-0.086 (0.078)	-0.011 (0.029)	-0.008 (0.024)	-0.016 (0.021)	0.003 (0.028)	0.048 (0.040)	0.040 (0.040)	0.051 (0.037)	0.009 (0.086)	0.008 (0.052)
× UPE Intensity											
UPE × UPE Intensity			-0.009 (0.031)				0.048 (0.042)				-0.114** (0.055)
× Male											
UPE Ends × UPE Intensity			-0.024 (0.031)				0.004 (0.046)				-0.052 (0.061)
× Male											
UPE × UPE Intensity				0.047 (0.041)				0.119 (0.086)			
× Muslim Share of LGA Pop.											
UPE Ends × UPE Intensity				-0.009 (0.043)				0.097 (0.092)			
× Muslim Share of LGA Pop.											
UPE × UPE Intensity ×	-0.000 (0.011)				-0.003 (0.006)				0.007 (0.011)		
Urban Share of LGA Pop.											
UPE Ends × UPE Intensity ×	-0.004 (0.013)				0.001 (0.006)				0.011 (0.013)		
Urban Share of LGA Pop.											
UPE × UPE Intensity		0.068 (0.097)				-0.055 (0.044)				0.063 (0.092)	
× Eastern Region											
UPE × UPE Intensity		0.051 (0.121)				-0.183* (0.104)				0.210 (0.169)	
× Lagos Region											
UPE × UPE Intensity		0.171 (0.129)				-0.035 (0.046)				0.037 (0.109)	
× Mid-Western Region											
UPE × UPE Intensity		0.061 (0.089)				-0.025 (0.027)				0.129 (0.089)	
× Western Region											
UPE Ends × UPE Intensity		0.039 (0.096)				-0.023 (0.046)				0.033 (0.099)	
× Eastern Region											
UPE Ends × UPE Intensity		-0.026 (0.145)				-0.102 (0.068)				0.178 (0.205)	
× Lagos Region											
UPE Ends × UPE Intensity		0.226 (0.158)				0.005 (0.057)				0.181 (0.126)	
× Mid-Western Region											
UPE Ends × UPE Intensity		-0.012 (0.084)				-0.017 (0.032)				0.070 (0.092)	
× Western Region											
Baseline Mean	0.263	0.263	0.031	0.031	0.031	0.031	0.095	0.095	0.095	0.095	0.573
Baseline SD	0.440	0.440	0.172	0.172	0.172	0.172	0.294	0.294	0.294	0.294	0.495
N	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416

	(34) Working as Em- ployee	(35) Working as Em- ployee	(36) Working as Em- ployee	(37) Working as Em- ployer	(38) Working as Em- ployer	(39) Working as Em- ployer	(40) Working as Em- ployer	(41) Self- employed	(42) Self- employed	(43) Self- employed	(44) Self- employed
UPE	0.024 (0.037)	0.041 (0.041)	0.097 (0.083)	0.011 (0.011)	-0.004 (0.009)	0.041** (0.019)	0.096** (0.046)	-0.037 (0.047)	-0.022 (0.038)	-0.080** (0.038)	-0.217*** (0.078)
× UPE Intensity											
UPE Ends	-0.026 (0.044)	0.000 (0.042)	0.037 (0.077)	0.016 (0.011)	0.003 (0.009)	0.045** (0.018)	0.100** (0.044)	0.045 (0.046)	0.016 (0.043)	-0.076* (0.044)	-0.212** (0.083)
× UPE Intensity											
UPE × UPE Intensity				0.032** (0.013)				0.049 (0.058)			
× Male											
UPE Ends × UPE Intensity				0.029** (0.013)				-0.066 (0.059)			
× Male											
UPE × UPE Intensity	0.053 (0.108)				0.118** (0.056)				-0.166 (0.104)		
× Muslim Share of LGA Pop.											
UPE Ends × UPE Intensity	0.102 (0.112)				0.109** (0.054)				-0.255** (0.109)		
× Muslim Share of LGA Pop.											
UPE × UPE Intensity ×		-0.003 (0.012)				-0.006* (0.003)				0.007 (0.013)	
Urban Share of LGA Pop.											
UPE Ends × UPE Intensity ×		0.007 (0.013)				-0.007* (0.003)				0.005 (0.015)	
Urban Share of LGA Pop.											
UPE × UPE Intensity			-0.074 (0.096)				-0.086* (0.046)				0.205** (0.090)
× Eastern Region											
UPE × UPE Intensity			0.000 (0.211)				-0.101** (0.048)				0.176 (0.203)
× Lagos Region											
UPE × UPE Intensity			-0.100 (0.121)				-0.098** (0.046)				0.211* (0.114)
× Mid-Western Region											
UPE × UPE Intensity			-0.115 (0.089)				-0.085* (0.045)				0.206** (0.085)
× Western Region											
UPE Ends × UPE Intensity			-0.044 (0.095)				-0.085* (0.044)				0.208** (0.096)
× Eastern Region											
UPE Ends × UPE Intensity			0.291* (0.175)				-0.110** (0.047)				-0.004 (0.168)
× Lagos Region											
UPE Ends × UPE Intensity			-0.279 (0.181)				-0.096** (0.044)				0.417*** (0.161)
× Mid-Western Region											
UPE Ends × UPE Intensity			0.063 (0.094)				-0.096** (0.044)				0.125 (0.093)
× Western Region											
Baseline Mean	0.573	0.573	0.573	0.009	0.009	0.009	0.009	0.331	0.331	0.331	0.331
Baseline SD	0.495	0.495	0.495	0.092	0.092	0.092	0.092	0.471	0.471	0.471	0.471
N	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416

Table 8 for details.

See

Table 10: Heterogeneity in Impact of Reforms on Health Outcomes

	(1) Health Index	(2) Health Index	(3) Health Index	(4) Health Index	(5) Sick/Injured in Last 7 Days	(6) Sick/Injured in Last 7 Days	(7) Sick/Injured in Last 7 Days	(8) Sick/Injured in Last 7 Days	(9) Missed Work/School in Last 7 Days	(10) Missed Work/School in Last 7 Days	(11) Missed Work/School in Last 7 Days	(12) Missed Work/School in Last 7 Days
UPE × UPE Intensity	0.037 (0.023)	0.038** (0.019)	0.026* (0.015)	-0.022 (0.017)	-0.106* (0.057)	-0.064 (0.054)	-0.028 (0.040)	0.039 (0.049)	-0.080 (0.051)	-0.102** (0.047)	-0.068* (0.038)	0.062 (0.043)
UPE Ends × UPE Intensity	0.034 (0.022)	0.028 (0.019)	0.016 (0.015)	-0.031* (0.018)	-0.099* (0.056)	-0.033 (0.054)	-0.008 (0.042)	0.058 (0.052)	-0.070 (0.050)	-0.088* (0.047)	-0.047 (0.038)	0.081* (0.046)
UPE × UPE Intensity × Male	-0.016 (0.023)				0.040 (0.060)				0.026 (0.051)			
UPE Ends × UPE Intensity × Male	-0.023 (0.023)				0.069 (0.060)				0.031 (0.050)			
UPE × UPE Intensity × Muslim Share of LGA Pop.		-0.041 (0.032)				0.001 (0.094)				0.138* (0.077)		
UPE Ends × UPE Intensity × Muslim Share of LGA Pop.		-0.036 (0.032)				-0.017 (0.096)				0.137* (0.078)		
UPE × UPE Intensity × Urban Share of LGA Pop.			-0.001 (0.005)				-0.023* (0.013)				0.006 (0.012)	
UPE Ends × UPE Intensity × Urban Share of LGA Pop.			0.001 (0.005)				-0.020 (0.014)				-0.001 (0.012)	
UPE × UPE Intensity × Eastern Region				0.064** (0.030)				-0.142* (0.083)				-0.176** (0.074)
UPE × UPE Intensity × Lagos Region				0.093 (0.068)				-0.309*** (0.091)				-0.204 (0.191)
UPE × UPE Intensity × Mid-Western Region				0.018 (0.062)				0.037 (0.205)				-0.128 (0.157)
UPE × UPE Intensity × Western Region				0.076** (0.031)				-0.167** (0.072)				-0.163** (0.072)
UPE Ends × UPE Intensity × Eastern Region				0.064** (0.030)				-0.119 (0.083)				-0.186** (0.073)
UPE Ends × UPE Intensity × Lagos Region				0.107* (0.062)				-0.302** (0.126)				-0.247 (0.177)
UPE Ends × UPE Intensity × Mid-Western Region				0.017 (0.061)				0.018 (0.214)				-0.157 (0.149)
UPE Ends × UPE Intensity × Western Region				0.078** (0.033)				-0.181** (0.077)				-0.161** (0.074)
Baseline Mean	-2.259	-2.259	-2.259	-2.259	0.170	0.170	0.170	0.170	0.091	0.091	0.091	0.091
Baseline SD	0.125	0.125	0.125	0.125	0.376	0.376	0.376	0.376	0.287	0.287	0.287	0.287
N	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416

See Table 8 for details.

Table 11: Heterogeneity in Impact of Reforms on Marriage and Family Planning Outcomes

	(1) Marriage/ Family Planning Index	(2) Marriage/ Family Planning Index	(3) Marriage/ Family Planning Index	(4) Marriage/ Family Planning Index	(5) HH Size	(6) HH Size	(7) HH Size	(8) HH Size	(9) Ever Mar- ried	(10) Ever Mar- ried	(11) Ever Mar- ried	(12) Ever Mar- ried
UPE × UPE Intensity	-0.349*** (0.129)	-0.445*** (0.118)	-0.467*** (0.109)	-0.570*** (0.188)	0.935** (0.380)	1.341*** (0.346)	1.385*** (0.324)	1.683*** (0.566)	-0.111*** (0.038)	0.007 (0.037)	-0.016 (0.031)	-0.031 (0.043)
UPE Ends × UPE Intensity	-0.424*** (0.138)	-0.334** (0.129)	-0.402*** (0.122)	-0.561*** (0.197)	1.169*** (0.405)	0.998*** (0.377)	1.183*** (0.358)	1.683*** (0.587)	-0.105** (0.045)	-0.012 (0.051)	-0.026 (0.042)	0.006 (0.060)
UPE × UPE Intensity × Male	0.006 (0.146)				0.067 (0.433)				0.091** (0.042)			
UPE Ends × UPE Intensity × Male	0.316** (0.155)				-0.844* (0.464)				0.103** (0.049)			
UPE × UPE Intensity × Muslim Share of LGA Pop.		-0.039 (0.259)				0.074 (0.768)				-0.044 (0.061)		
UPE Ends × UPE Intensity × Muslim Share of LGA Pop.		-0.165 (0.287)				0.494 (0.844)				0.015 (0.088)		
UPE × UPE Intensity × Urban Share of LGA Pop.			0.010 (0.033)				-0.027 (0.100)				0.003 (0.009)	
UPE Ends × UPE Intensity × Urban Share of LGA Pop.			0.004 (0.035)				0.003 (0.105)				0.018 (0.013)	
UPE × UPE Intensity × Eastern Region				0.103 (0.237)				-0.259 (0.700)				0.051 (0.060)
UPE × UPE Intensity × Lagos Region				-0.645 (0.450)				2.183 (1.361)				0.201 (0.140)
UPE × UPE Intensity × Mid-Western Region				0.364 (0.342)				-1.034 (1.043)				0.041 (0.080)
UPE × UPE Intensity × Western Region				0.261 (0.231)				-0.811 (0.699)				-0.021 (0.050)
UPE Ends × UPE Intensity × Eastern Region				0.237 (0.259)				-0.742 (0.754)				-0.031 (0.090)
UPE Ends × UPE Intensity × Lagos Region				-0.129 (0.564)				0.704 (1.658)				0.304 (0.120)
UPE Ends × UPE Intensity × Mid-Western Region				0.555 (0.368)				-1.483 (1.118)				0.151 (0.100)
UPE Ends × UPE Intensity × Western Region				0.140 (0.291)				-0.518 (0.861)				-0.091 (0.100)
Baseline Mean	-2.459	-2.459	-2.459	-2.459	3.985	3.985	3.985	3.985	0.968	0.968	0.968	0.968
Baseline SD	0.998	0.998	0.998	0.998	2.969	2.969	2.969	2.969	0.175	0.175	0.175	0.175
N	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416

See Table 8 for details.

Table 12: Heterogeneity in Impact of Reforms on Standard of Living

	(1) Standard of Living Index	(2) Standard of Living Index	(3) Standard of Living Index	(4) Standard of Living Index	(5) Radio Access	(6) Radio Access	(7) Radio Access	(8) Radio Access	(9) TV Access	(10) TV Access
UPE × UPE Intensity	-0.001 (0.055)	0.067* (0.037)	0.064** (0.033)	0.144*** (0.049)	0.035 (0.078)	0.091* (0.052)	0.094** (0.047)	0.204*** (0.064)	0.002 (0.072)	0.106** (0.054)
UPE Ends × UPE Intensity	0.051 (0.055)	0.085** (0.041)	0.071** (0.035)	0.171*** (0.053)	0.092 (0.079)	0.094 (0.058)	0.086* (0.051)	0.225*** (0.066)	0.078 (0.074)	0.155*** (0.058)
UPE × UPE Intensity × Male	0.137** (0.060)				0.141 (0.086)				0.175** (0.078)	
UPE Ends × UPE Intensity × Male	0.089 (0.064)				0.062 (0.091)				0.124 (0.088)	
UPE × UPE Intensity × Muslim Share of LGA Pop.		0.001 (0.078)				0.013 (0.102)				-0.024 (0.106)
UPE Ends × UPE Intensity × Muslim Share of LGA Pop.		-0.030 (0.084)				-0.029 (0.109)				-0.075 (0.119)
UPE × UPE Intensity × Urban Share of LGA Pop.			0.003 (0.011)				0.002 (0.016)			
UPE Ends × UPE Intensity × Urban Share of LGA Pop.			0.001 (0.011)				-0.004 (0.016)			
UPE × UPE Intensity × Eastern Region				-0.096 (0.072)				-0.153 (0.095)		
UPE × UPE Intensity × Lagos Region				-0.298** (0.142)				-0.425* (0.225)		
UPE × UPE Intensity × Mid-Western Region				0.028 (0.088)				0.099 (0.132)		
UPE × UPE Intensity × Western Region				-0.108* (0.065)				-0.146 (0.092)		
UPE Ends × UPE Intensity × Eastern Region				-0.112 (0.076)				-0.164* (0.098)		
UPE Ends × UPE Intensity × Lagos Region				-0.456*** (0.158)				-0.598*** (0.217)		
UPE Ends × UPE Intensity × Mid-Western Region				0.097 (0.106)				0.086 (0.157)		
UPE Ends × UPE Intensity × Western Region				-0.242*** (0.080)				-0.358*** (0.110)		
Baseline Mean	-0.338	-0.338	-0.338	-0.338	0.468	0.468	0.468	0.468	0.318	0.318
Baseline SD	0.338	0.338	0.338	0.338	0.499	0.499	0.499	0.499	0.466	0.466
N	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416

	(11) TV Access	(12) TV Access	(13) Mobile Phone Access	(14) Mobile Phone Access	(15) Mobile Phone Access	(16) Mobile Phone Access
UPE × UPE Intensity	0.080* (0.045)	0.184** (0.077)	-0.032 (0.079)	0.076 (0.054)	0.091* (0.048)	0.213*** (0.078)
UPE Ends × UPE Intensity	0.106** (0.050)	0.232*** (0.085)	0.032 (0.080)	0.102* (0.060)	0.087 (0.055)	0.232*** (0.089)
UPE × UPE Intensity × Male			0.227** (0.089)			
UPE Ends × UPE Intensity × Male			0.164* (0.092)			
UPE × UPE Intensity × Muslim Share of LGA Pop.				0.041 (0.120)		
UPE Ends × UPE Intensity × Muslim Share of LGA Pop.				-0.030 (0.135)		
UPE × UPE Intensity × Urban Share of LGA Pop.	0.014 (0.014)				-0.000 (0.016)	
UPE Ends × UPE Intensity × Urban Share of LGA Pop.	0.015 (0.016)				0.001 (0.016)	
UPE × UPE Intensity × Eastern Region		-0.130 (0.107)				-0.115 (0.106)
UPE × UPE Intensity × Lagos Region		-0.146 (0.240)				-0.658*** (0.174)
UPE × UPE Intensity × Mid-Western Region		0.069 (0.133)				-0.054 (0.150)
UPE × UPE Intensity × Western Region		-0.129 (0.091)				-0.179* (0.099)
UPE Ends × UPE Intensity × Eastern Region		-0.139 (0.116)				-0.124 (0.117)
UPE Ends × UPE Intensity × Lagos Region		-0.472* (0.274)				-0.762*** (0.174)
UPE Ends × UPE Intensity × Mid-Western Region		0.249* (0.138)				0.030 (0.189)
UPE Ends × UPE Intensity × Western Region		-0.268** (0.114)				-0.348*** (0.121)
Baseline Mean	0.318	0.318	0.423	0.423	0.423	0.423
Baseline SD	0.466	0.466	0.494	0.494	0.494	0.494
N	28,416	28,416	28,416	28,416	28,416	28,416

See Table 8 for details.

Table 13: Heterogeneity in Impact of Reforms on Household Enterprise Formation

	(1) Household Enterprise Index	(2) Household Enterprise Index	(3) Household Enterprise Index	(4) Household Enterprise Index	(5) Total No. of Household Enterprises	(6) Total No. of Household Enterprises	(7) Total No. of Household Enterprises	(8) Total No. of Household Enterprises
UPE × UPE Intensity	0.086 (0.064)	0.124** (0.049)	0.102** (0.050)	0.203** (0.088)	0.140 (0.126)	0.233** (0.096)	0.171* (0.092)	0.334** (0.153)
UPE Ends × UPE Intensity	0.114* (0.066)	0.174*** (0.054)	0.130** (0.051)	0.213** (0.089)	0.200 (0.131)	0.328*** (0.104)	0.226** (0.094)	0.347** (0.158)
UPE × UPE Intensity × Male	0.038 (0.067)				0.078 (0.128)			
UPE Ends × UPE Intensity × Male	0.016 (0.064)				0.028 (0.126)			
UPE × UPE Intensity × Muslim Share of LGA Pop.		0.001 (0.126)				-0.052 (0.234)		
UPE Ends × UPE Intensity × Muslim Share of LGA Pop.		-0.077 (0.132)				-0.188 (0.245)		
UPE × UPE Intensity × Urban Share of LGA Pop.			0.017 (0.018)				0.035 (0.035)	
UPE Ends × UPE Intensity × Urban Share of LGA Pop.			0.008 (0.020)				0.020 (0.038)	
UPE × UPE Intensity × Eastern Region				-0.102 (0.105)				-0.138 (0.191)
UPE × UPE Intensity × Lagos Region				0.154 (0.474)				0.353 (0.976)
UPE × UPE Intensity × Mid-Western Region				-0.101 (0.126)				-0.165 (0.233)
UPE × UPE Intensity × Western Region				-0.148 (0.106)				-0.241 (0.196)
UPE Ends × UPE Intensity × Eastern Region				-0.050 (0.108)				-0.034 (0.198)
UPE Ends × UPE Intensity × Lagos Region				-0.083 (0.585)				-0.031 (1.150)
UPE Ends × UPE Intensity × Mid-Western Region				-0.143 (0.151)				-0.222 (0.283)
UPE Ends × UPE Intensity × Western Region				-0.105 (0.122)				-0.137 (0.230)
Baseline Mean	-0.127	-0.127	-0.127	-0.127	0.445	0.445	0.445	0.445
Baseline SD	0.390	0.390	0.390	0.390	0.760	0.760	0.760	0.760
N	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416

	(9) No. of Registered Household Enterprises	(10) No. of Registered Household Enterprises	(11) No. of Registered Household Enterprises	(12) No. of Registered Household Enterprises
UPE × UPE Intensity	0.064*** (0.019)	0.027 (0.020)	0.067** (0.031)	0.146* (0.075)
UPE Ends × UPE Intensity	0.057** (0.023)	0.041* (0.021)	0.067** (0.031)	0.159** (0.074)
UPE × UPE Intensity × Male	-0.006 (0.034)			
UPE Ends × UPE Intensity × Male	0.007 (0.027)			
UPE × UPE Intensity × Muslim Share of LGA Pop.		0.106 (0.087)		
UPE Ends × UPE Intensity × Muslim Share of LGA Pop.		0.068 (0.084)		
UPE × UPE Intensity × Urban Share of LGA Pop.			-0.004 (0.007)	
UPE Ends × UPE Intensity × Urban Share of LGA Pop.			-0.006 (0.008)	
UPE × UPE Intensity × Eastern Region				-0.131* (0.075)
UPE × UPE Intensity × Lagos Region				-0.090 (0.123)
UPE × UPE Intensity × Mid-Western Region				-0.072 (0.080)
UPE × UPE Intensity × Western Region				-0.111 (0.078)
UPE Ends × UPE Intensity × Eastern Region				-0.131* (0.075)
UPE Ends × UPE Intensity × Lagos Region				-0.271*** (0.098)
UPE Ends × UPE Intensity × Mid-Western Region				-0.127 (0.083)
UPE Ends × UPE Intensity × Western Region				-0.147* (0.078)
Baseline Mean	0.016	0.016	0.016	0.016
Baseline SD	0.165	0.165	0.165	0.165
N	28,416	28,416	28,416	28,416

See Table 8 for details.

Appendix

Additional Tables and Figures

Table A1: Selection into Reporting Positive Income and Hours Worked

	(1)	(2)
	Income > 0 NGN	> 0 Hours Worked
UPE Begins \times UPE Intensity	-0.144*** (0.035)	-0.147*** (0.027)
Nationwide UPE \times UPE Intensity	-0.146*** (0.037)	-0.163*** (0.032)
UPE Ends \times UPE Intensity	-0.105*** (0.035)	-0.083*** (0.027)
Male	0.057*** (0.014)	0.058*** (0.011)
Male \times UPE Begins	-0.030 (0.024)	-0.056*** (0.018)
Male \times Nationwide UPE	0.016 (0.027)	-0.040* (0.024)
Male \times UPE Ends	-0.078*** (0.022)	-0.065*** (0.019)
Male \times UPE Begins \times UPE Intensity	0.185*** (0.031)	0.148*** (0.027)
Male \times Nationwide UPE \times UPE Intensity	0.202*** (0.038)	0.182*** (0.035)
Male \times UPE Ends \times UPE Intensity	0.207*** (0.030)	0.130*** (0.027)
1927-1931 \times Christian Share of LGA Pop.	1.168*** (0.261)	0.398 (0.465)
1932-1936 \times Christian Share of LGA Pop.	0.280 (0.310)	0.200 (0.312)
1937-1941 \times Christian Share of LGA Pop.	0.408 (0.286)	0.508 (0.323)
1942-1946 \times Christian Share of LGA Pop.	0.344 (0.359)	0.004 (0.315)
1947-1951 \times Christian Share of LGA Pop.	0.397** (0.202)	0.330 (0.353)
1952-1956 \times Christian Share of LGA Pop.	0.291 (0.243)	0.491* (0.279)
1957-1961 \times Christian Share of LGA Pop.	0.475*** (0.165)	0.502 (0.369)
1962-1966 \times Christian Share of LGA Pop.	0.245 (0.202)	0.704* (0.399)
1967-1971 \times Christian Share of LGA Pop.	0.383* (0.200)	0.352 (0.346)
1972-1976 \times Christian Share of LGA Pop.	0.219 (0.199)	0.364 (0.271)
1977-1981 \times Christian Share of LGA Pop.	0.392* (0.231)	0.193 (0.223)
1927-1931 \times Muslim Share of LGA Pop.	1.200*** (0.267)	0.306 (0.466)
1932-1936 \times Muslim Share of LGA Pop.	0.239 (0.308)	0.339 (0.315)
1937-1941 \times Muslim Share of LGA Pop.	0.425 (0.320)	0.477 (0.323)
1942-1946 \times Muslim Share of LGA Pop.	0.261 (0.364)	-0.207 (0.318)
1947-1951 \times Muslim Share of LGA Pop.	0.332 (0.208)	0.252 (0.351)
1952-1956 \times Muslim Share of LGA Pop.	0.381 (0.240)	0.469* (0.280)
1957-1961 \times Muslim Share of LGA Pop.	0.453***	0.410

Table A1: Selection into Reporting Positive Income and Hours Worked

	(1)	(2)
	Income > 0 NGN	> 0 Hours Worked
	(0.162)	(0.369)
1962-1966 × Muslim Share of LGA Pop.	0.224	0.644
	(0.199)	(0.392)
1967-1971 × Muslim Share of LGA Pop.	0.453**	0.295
	(0.195)	(0.348)
1972-1976 × Muslim Share of LGA Pop.	0.241	0.402
	(0.192)	(0.269)
1977-1981 × Muslim Share of LGA Pop.	0.277	0.111
	(0.226)	(0.230)
1927-1931 × Est. Average LGA Pop. 1937-41	0.000	-0.000
	(0.000)	(0.000)
1932-1936 × Est. Average LGA Pop. 1937-41	0.000	0.000
	(0.000)	(0.000)
1937-1941 × Est. Average LGA Pop. 1937-41	0.000***	0.000*
	(0.000)	(0.000)
1942-1946 × Est. Average LGA Pop. 1937-41	0.000	0.000
	(0.000)	(0.000)
1947-1951 × Est. Average LGA Pop. 1937-41	0.000	0.000*
	(0.000)	(0.000)
1952-1956 × Est. Average LGA Pop. 1937-41	0.000	-0.000
	(0.000)	(0.000)
1957-1961 × Est. Average LGA Pop. 1937-41	0.000	0.000
	(0.000)	(0.000)
1962-1966 × Est. Average LGA Pop. 1937-41	0.000	0.000
	(0.000)	(0.000)
1967-1971 × Est. Average LGA Pop. 1937-41	0.000	0.000
	(0.000)	(0.000)
1972-1976 × Est. Average LGA Pop. 1937-41	0.000***	0.000*
	(0.000)	(0.000)
1977-1981 × Est. Average LGA Pop. 1937-41	-0.000	-0.000
	(0.000)	(0.000)
1927-1931 × Est. Average Female Share of LGA Pop. 1937-41	-0.133	-0.223
	(0.175)	(0.208)
1932-1936 × Est. Average Female Share of LGA Pop. 1937-41	-0.269	-0.029
	(0.236)	(0.100)
1937-1941 × Est. Average Female Share of LGA Pop. 1937-41	-0.203	-0.047
	(0.217)	(0.135)
1942-1946 × Est. Average Female Share of LGA Pop. 1937-41	-0.195	0.106
	(0.176)	(0.122)
1947-1951 × Est. Average Female Share of LGA Pop. 1937-41	-0.207	-0.114
	(0.150)	(0.093)
1952-1956 × Est. Average Female Share of LGA Pop. 1937-41	-0.201	-0.039
	(0.147)	(0.105)
1957-1961 × Est. Average Female Share of LGA Pop. 1937-41	-0.165	-0.005
	(0.127)	(0.086)
1962-1966 × Est. Average Female Share of LGA Pop. 1937-41	-0.135	0.031
	(0.155)	(0.116)
1967-1971 × Est. Average Female Share of LGA Pop. 1937-41	0.099	0.016
	(0.139)	(0.105)
1972-1976 × Est. Average Female Share of LGA Pop. 1937-41	-0.020	0.075
	(0.111)	(0.114)
1977-1981 × Est. Average Female Share of LGA Pop. 1937-41	-0.041	0.114
	(0.134)	(0.111)
1927-1931 × Est. Average Urban Share of LGA Pop. 1937-41	0.008	0.004
	(0.007)	(0.007)
1932-1936 × Est. Average Urban Share of LGA Pop. 1937-41	-0.009	0.015***
	(0.009)	(0.005)
1937-1941 × Est. Average Urban Share of LGA Pop. 1937-41	0.012**	0.016***
	(0.006)	(0.005)
1942-1946 × Est. Average Urban Share of LGA Pop. 1937-41	-0.007	0.003
	(0.006)	(0.006)
1947-1951 × Est. Average Urban Share of LGA Pop. 1937-41	-0.002	0.011**
	(0.005)	(0.005)

Table A1: Selection into Reporting Positive Income and Hours Worked

	(1)	(2)
	Income > 0 NGN	> 0 Hours Worked
1952-1956 × Est. Average Urban Share of LGA	0.010**	0.008*
Pop. 1937-41	(0.005)	(0.004)
1957-1961 × Est. Average Urban Share of LGA	0.007*	0.012***
Pop. 1937-41	(0.004)	(0.004)
1962-1966 × Est. Average Urban Share of LGA	-0.000	0.002
Pop. 1937-41	(0.004)	(0.004)
1967-1971 × Est. Average Urban Share of LGA	-0.001	0.007*
Pop. 1937-41	(0.004)	(0.004)
1972-1976 × Est. Average Urban Share of LGA	-0.002	0.006
Pop. 1937-41	(0.004)	(0.004)
1977-1981 × Est. Average Urban Share of LGA	0.002	0.004
Pop. 1937-41	(0.004)	(0.004)
State-Cohort FE	Y	Y
LGA FE	Y	Y
Controls		
Dep. Var. Mean	0.279	0.223
Dep. Var. SD	0.448	0.416
R ²	0.588	0.718
N	28,416	28,416
p-value for F-test	< 0.001	< 0.001

Indicators for reporting a positive income and positive hours worked are regressed on the interactions between the period dummies and intensity measure, further interacted with gender, and control variables which are the same as in the preferred specifications in Tables 2 and 3. F statistic for the test of joint significance of all coefficients reported in the last row.

Table A2: Robustness Check: Impact of Reforms Using Baseline Primary School Non-Completion Rates as Treatment Intensity

	(1) Education Index	(2) Attended Formal School	(3) Literate	(4) Enrolled in Pri. School	(5) Completed Pri. School	(6) Employment Index	(7) Income > 0 NGN	(8) Income ≥ 10k NGN	(9) > 0 Hours Worked	(10) ≥ 40 Hours Worked	(11) Working in Indus- try	(12) Working in Ser- vices
UPE Begins × UPE Intensity	0.397*** (0.033)	0.500*** (0.042)	0.396*** (0.045)	0.485*** (0.048)	0.597*** (0.047)	-0.004 (0.006)	-0.066** (0.032)	-0.048* (0.029)	-0.073*** (0.023)	-0.056** (0.025)	0.012 (0.016)	0.005 (0.028)
Nationwide UPE × UPE Intensity	0.525*** (0.032)	0.673*** (0.040)	0.532*** (0.047)	0.663*** (0.048)	0.784*** (0.040)	-0.006 (0.007)	-0.059* (0.031)	-0.054* (0.030)	-0.087*** (0.028)	-0.065** (0.032)	0.012 (0.016)	0.010 (0.032)
UPE Ends × UPE Intensity	0.537*** (0.033)	0.689*** (0.041)	0.518*** (0.049)	0.673*** (0.050)	0.816*** (0.041)	0.001 (0.006)	-0.048 (0.033)	-0.039 (0.032)	-0.051** (0.025)	-0.033 (0.028)	-0.011 (0.017)	0.050 (0.031)
Baseline Mean	-0.353	0.383	0.481	0.378	0.309	-3.566	0.279	0.191	0.223	0.178	0.031	0.095
Baseline SD	0.362	0.486	0.500	0.485	0.462	0.077	0.448	0.393	0.416	0.383	0.172	0.294
N	28,416	28,416	28,416	28,412	28,412	28,416	28,416	28,416	28,416	28,416	28,416	28,416
	(13) Working as Em- ployee	(14) Working as Em- ployer	(15) Self- employed	(16) Health Index	(17) Sick/Injured in Last 7 Days	(18) Marriage/Family Planning Index	(19) Ever Married	(20) Standard of Living Index	(21) TV Access	(22) Mobile Phone Access	(23) Household Enter- prise Index	(24) Total No. of Household Enterprises
UPE Begins × UPE Intensity	0.024 (0.034)	0.029** (0.012)	-0.051 (0.034)	0.030** (0.013)	-0.068* (0.035)	-0.313*** (0.092)	-0.035 (0.025)	0.092*** (0.030)	0.126*** (0.041)	0.109** (0.044)	0.149*** (0.042)	0.276*** (0.081)
Nationwide UPE × UPE Intensity	0.000 (0.037)	0.032** (0.015)	-0.023 (0.035)	0.032** (0.014)	-0.077** (0.037)	-0.386*** (0.100)	-0.014 (0.028)	0.092*** (0.031)	0.131*** (0.043)	0.136*** (0.045)	0.173*** (0.045)	0.325*** (0.086)
UPE Ends × UPE Intensity	-0.020 (0.037)	0.033** (0.014)	-0.027 (0.038)	0.025* (0.014)	-0.057 (0.038)	-0.355*** (0.104)	-0.017 (0.038)	0.106*** (0.033)	0.174*** (0.046)	0.134*** (0.050)	0.183*** (0.046)	0.337*** (0.088)
Baseline Mean	0.573	0.009	0.331	-2.259	0.170	-2.459	0.968	-0.338	0.318	0.423	-0.127	0.445
Baseline SD	0.495	0.092	0.471	0.125	0.376	0.998	0.175	0.338	0.466	0.494	0.390	0.760
N	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416

change the treatment intensity variable to be the primary school non-completion rate for a given LGA. All regressions follow the preferred specifications (with full controls). See Table 2 for details.

Table A3: Robustness Check: Impact of Reforms Using Baseline Secondary School Enrolment Rates as Treatment Intensity

	(1) Education Index	(2) Attended Formal School	(3) Literate	(4) Enrolled in Pri. School	(5) Completed Pri. School	(6) Employment Index	(7) Income > 0 NGN	(8) Income ≥ 10k NGN	(9) >0 Hours Worked	(10) ≥ 40 Hours Worked	(11) Working in Indus- try	(12) Working in Ser- vices
UPE Begins × UPE Intensity	0.426*** (0.051)	0.326*** (0.064)	0.281*** (0.062)	0.306*** (0.063)	0.436*** (0.067)	0.000 (0.007)	-0.066* (0.036)	-0.045* (0.026)	-0.077*** (0.025)	-0.066** (0.030)	-0.007 (0.019)	0.030 (0.036)
Nationwide UPE × UPE Intensity	0.582*** (0.046)	0.518*** (0.064)	0.447*** (0.065)	0.511*** (0.064)	0.617*** (0.064)	-0.001 (0.008)	-0.047 (0.035)	-0.014 (0.029)	-0.085*** (0.028)	-0.084** (0.034)	-0.003 (0.018)	0.025 (0.039)
UPE Ends × UPE Intensity	0.564*** (0.044)	0.515*** (0.062)	0.438*** (0.059)	0.497*** (0.062)	0.607*** (0.062)	0.004 (0.007)	-0.045 (0.034)	-0.026 (0.027)	-0.041* (0.024)	-0.041 (0.030)	-0.019 (0.018)	0.057 (0.036)
Baseline Mean	-0.353	0.383	0.481	0.378	0.309	-3.566	0.279	0.191	0.223	0.178	0.031	0.095
Baseline SD	0.362	0.486	0.500	0.485	0.462	0.077	0.448	0.393	0.416	0.383	0.172	0.294
N	28,416	28,416	28,416	28,412	28,412	28,416	28,416	28,416	28,416	28,416	28,416	28,416

	(13) Working as Em- ployee	(14) Working as Em- ployer	(15) Self- employed	(16) Health Index	(17) Sick/Injured in Last 7 Days	(18) Marriage/Family Planning Index	(19) Ever Married	(20) Standard of Living Index	(21) TV Access	(22) Mobile Phone Access	(23) Household Enter- prise Index	(24) Total No. Household Enterprises
UPE Begins × UPE Intensity	0.055 (0.039)	0.000 (0.009)	-0.021 (0.038)	0.035* (0.018)	-0.134*** (0.047)	-0.152 (0.119)	-0.110*** (0.039)	0.072* (0.039)	0.095* (0.052)	0.113** (0.057)	-0.016 (0.056)	-0.062 (0.106)
Nationwide UPE × UPE Intensity	0.030 (0.045)	-0.000 (0.008)	0.020 (0.041)	0.039** (0.050)	-0.170*** (0.064)	-0.339** (0.142)	-0.079* (0.040)	0.044 (0.040)	0.067 (0.056)	0.105* (0.058)	0.014 (0.064)	-0.002 (0.119)
UPE Ends × UPE Intensity	0.034 (0.043)	0.002 (0.008)	-0.012 (0.043)	0.034* (0.019)	-0.151*** (0.046)	-0.276* (0.142)	-0.050 (0.050)	0.035 (0.042)	0.089 (0.057)	0.058 (0.060)	-0.013 (0.062)	-0.060 (0.117)
Baseline Mean	0.573	0.009	0.331	-2.259	0.170	-2.459	0.968	-0.338	0.318	0.423	-0.127	0.445
Baseline SD	0.495	0.092	0.471	0.125	0.376	0.998	0.175	0.338	0.466	0.494	0.390	0.760
N	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416

change the treatment intensity variable to be the secondary school non-enrolment rate for a given LGA. All regressions follow the preferred specifications (with full controls). See Table 2 for details.

Table A4: Robustness Check: Impact of Reforms with Baseline Secondary School Enrolment Rates as Additional Control

	(1) Education Index	(2) Attended Formal School	(3) Literate	(4) Enrolled in Pri. School	(5) Completed Pri. School	(6) Employment Index	(7) Income > 0 NGN	(8) Income ≥ 10k NGN	(9) > 0 Hours Worked	(10) ≥ 40 Hours Worked	(11) Working in Indus- try	(12) Working in Ser- vices
UPE Begins × UPE Intensity	0.312*** (0.039)	0.645*** (0.046)	0.411*** (0.058)	0.698*** (0.044)	0.417*** (0.062)	-0.011 (0.007)	-0.062 (0.039)	-0.061 (0.038)	-0.066** (0.028)	-0.049 (0.031)	0.011 (0.021)	-0.010 (0.036)
Nationwide UPE × UPE Intensity	0.389*** (0.040)	0.751*** (0.045)	0.497*** (0.062)	0.810*** (0.042)	0.551*** (0.064)	-0.010 (0.008)	-0.076** (0.038)	-0.087** (0.038)	-0.071** (0.034)	-0.042 (0.038)	0.011 (0.020)	0.003 (0.042)
UPE Ends × UPE Intensity	0.389*** (0.043)	0.764*** (0.047)	0.484*** (0.063)	0.819*** (0.045)	0.574*** (0.069)	-0.001 (0.008)	-0.049 (0.041)	-0.052 (0.041)	-0.041 (0.031)	-0.018 (0.033)	-0.008 (0.020)	0.058 (0.041)
Baseline Mean	-0.353	0.383	0.481	0.378	0.309	-3.566	0.279	0.191	0.223	0.178	0.031	0.095
Baseline SD	0.362	0.486	0.500	0.485	0.462	0.077	0.448	0.393	0.416	0.383	0.172	0.294
N	28,416	28,416	28,416	28,412	28,412	28,416	28,416	28,416	28,416	28,416	28,416	28,416

	(13) Working as Em- ployee	(14) Working as Em- ployer	(15) Self- employed	(16) Health Index	(17) Sick/Injured in Last 7 Days	(18) Marriage/Family Planning Index	(19) Ever Married	(20) Standard of Living Index	(21) TV Access	(22) Mobile Phone Access	(23) Household Enter- prise Index	(24) Total No. Household Enterprises
UPE Begins × UPE Intensity	0.041 (0.039)	0.042** (0.019)	-0.106*** (0.039)	0.013 (0.017)	-0.006 (0.042)	-0.486*** (0.108)	0.046* (0.025)	0.048 (0.030)	0.076* (0.045)	0.031 (0.047)	0.174*** (0.056)	0.324*** (0.112)
Nationwide UPE × UPE Intensity	0.023 (0.043)	0.047** (0.023)	-0.096** (0.041)	0.015 (0.017)	0.004 (0.044)	-0.498*** (0.116)	0.046 (0.029)	0.081** (0.032)	0.118** (0.048)	0.096* (0.051)	0.183*** (0.057)	0.340*** (0.113)
UPE Ends × UPE Intensity	-0.007 (0.039)	0.048** (0.021)	-0.090** (0.044)	0.005 (0.017)	0.028 (0.045)	-0.409*** (0.114)	0.032 (0.040)	0.085** (0.034)	0.132*** (0.051)	0.092* (0.055)	0.212*** (0.057)	0.402*** (0.112)
Baseline Mean	0.573	0.009	0.331	-2.259	0.170	-2.459	0.968	-0.338	0.318	0.423	-0.127	0.445
Baseline SD	0.495	0.092	0.471	0.125	0.376	0.998	0.175	0.338	0.466	0.494	0.390	0.760
N	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416	28,416

add average secondary school enrolment rates from 1924 to 1943 interacted with cohort bin dummies as an additional control. Otherwise, the regressions follow the preferred specifications (with full controls). See Table 2 for details.

Table A5: Robustness Check: Impact of Reforms Excluding Religion Shares from Set of Controls

	(1) Education Index	(2) Attended Formal School	(3) Literate	(4) Enrolled in Pri. School	(5) Completed Pri. School	(6) Employment Index	(7) Income > 0 NGN	(8) Income ≥ 10k NGN	(9) > 0 Hours Worked	(10) ≥ 40 Hours Worked	(11) Working in Indus- try	(12) Working in Ser- vices
UPE Begins × UPE Intensity	0.388*** (0.033)	0.582*** (0.039)	0.396*** (0.047)	0.610*** (0.039)	0.467*** (0.044)	-0.009 (0.006)	-0.072** (0.030)	-0.066** (0.028)	-0.081*** (0.023)	-0.065*** (0.024)	0.002 (0.015)	0.004 (0.029)
Nationwide UPE × UPE Intensity	0.501*** (0.034)	0.730*** (0.037)	0.523*** (0.048)	0.767*** (0.036)	0.631*** (0.044)	-0.008 (0.007)	-0.072** (0.030)	-0.074*** (0.028)	-0.086*** (0.027)	-0.064** (0.030)	0.004 (0.016)	0.015 (0.034)
UPE Ends × UPE Intensity	0.497*** (0.035)	0.741*** (0.036)	0.512*** (0.049)	0.772*** (0.036)	0.648*** (0.046)	0.000 (0.006)	-0.054* (0.031)	-0.053* (0.030)	-0.047* (0.025)	-0.030 (0.027)	-0.018 (0.016)	0.068** (0.033)
Baseline Mean	-0.353	0.383	0.481	0.378	0.309	-3.566	0.279	0.191	0.223	0.178	0.031	0.095
Baseline SD	0.362	0.486	0.500	0.485	0.462	0.077	0.448	0.393	0.416	0.383	0.172	0.294
N	28,416	28,416	28,416	28,412	28,412	28,416	28,416	28,416	28,416	28,416	28,416	28,416

I remove the interactions of religion shares of the LGA population with cohort bin dummies as controls. Otherwise, the regressions follow the preferred specifications (with full controls). See Table 2 for details.

Table A6: Robustness Check: Impact of Reforms Excluding Eastern Region and Kano State

	(1) Education Index	(2) Attended Formal School	(3) Literate	(4) Enrolled in Pri. School	(5) Completed Pri. School	(6) Employment Index	(7) Income > 0 NGN	(8) Income ≥ 10k NGN	(9) 0 > Hours Worked	(10) 40 ≥ Hours Worked	(11) Working in Indus- try	(12) Working in Ser- vices
UPE Begins × UPE Intensity	0.371*** (0.045)	0.552*** (0.051)	0.382*** (0.064)	0.581*** (0.052)	0.455*** (0.061)	-0.011 (0.008)	-0.051 (0.033)	-0.080*** (0.030)	-0.087*** (0.027)	-0.089*** (0.028)	0.010 (0.014)	0.026 (0.037)
Nationwide UPE × UPE Intensity	0.474*** (0.044)	0.688*** (0.048)	0.496*** (0.062)	0.727*** (0.048)	0.600*** (0.059)	-0.011 (0.009)	-0.060* (0.031)	-0.066** (0.033)	-0.094*** (0.033)	-0.096*** (0.035)	0.017 (0.014)	0.033 (0.039)
UPE Ends × UPE Intensity	0.455*** (0.044)	0.684*** (0.047)	0.480*** (0.063)	0.724*** (0.048)	0.603*** (0.058)	0.001 (0.008)	-0.018 (0.033)	-0.036 (0.031)	-0.033 (0.028)	-0.037 (0.033)	-0.008 (0.016)	0.106*** (0.038)
Baseline Mean	-0.353	0.383	0.481	0.378	0.309	-3.566	0.279	0.191	0.223	0.178	0.031	0.095
Baseline SD	0.362	0.486	0.500	0.485	0.462	0.077	0.448	0.393	0.416	0.383	0.172	0.294
N	20,113	20,113	20,113	20,112	20,112	20,113	20,113	20,113	20,113	20,113	20,113	20,113

	(1) Working as Em- ployee	(2) Working as Em- ployer	(3) Self- employed	(4) Health Index	(5) Sick/Injured in Last 7 Days	(6) Marriage/Family Planning Index	(7) Ever Married	(8) Standard of Living Index	(9) TV Access	(10) Mobile Phone Access	(11) Household Enter- prise Index	(12) Total No. of Household Enterprises
UPE Begins × UPE Intensity	0.047 (0.037)	0.024* (0.014)	-0.098** (0.040)	0.016 (0.017)	-0.039 (0.042)	-0.468*** (0.109)	-0.029 (0.029)	0.089*** (0.029)	0.125*** (0.041)	0.080* (0.045)	0.151*** (0.055)	0.260** (0.105)
Nationwide UPE × UPE Intensity	0.025 (0.039)	0.023 (0.014)	-0.071* (0.042)	0.013 (0.018)	-0.032 (0.044)	-0.529*** (0.124)	-0.028 (0.029)	0.095*** (0.029)	0.130*** (0.044)	0.135*** (0.045)	0.171*** (0.060)	0.298*** (0.113)
UPE Ends × UPE Intensity	-0.006 (0.039)	0.025** (0.011)	-0.073* (0.042)	0.008 (0.018)	-0.018 (0.046)	-0.467*** (0.129)	0.025 (0.044)	0.099*** (0.033)	0.159*** (0.047)	0.120** (0.050)	0.169*** (0.061)	0.298** (0.115)
Baseline Mean	0.573	0.009	0.331	-2.259	0.170	-2.459	0.968	-0.338	0.318	0.423	-0.127	0.445
Baseline SD	0.495	0.092	0.471	0.485	0.376	0.998	0.175	0.338	0.466	0.494	0.390	0.760
N	20,113	20,113	20,113	20,113	20,113	20,113	20,113	20,113	20,113	20,113	20,113	20,113

leave out all respondents from the the Eastern Region and Kano State from the analysis. All regressions follow the preferred specifications (with full controls). See Table 2 for details.

Table A7: Robustness Check: Impact of Reforms Excluding Oil-Producing States

	(1) Education Index	(2) Attended Formal School	(3) Literate	(4) Enrolled in Pri. School	(5) Completed Pri. School	(6) Employment Index	(7) Income > 0 NGN	(8) Income ≥ 10k NGN	(9) 0 > Hours Worked	(10) 40 ≥ Hours Worked	(11) Working in Indus- try	(12) Working in Ser- vices
UPE Begins × UPE Intensity	0.385*** (0.043)	0.583*** (0.054)	0.411*** (0.058)	0.605*** (0.054)	0.436*** (0.060)	-0.012 (0.009)	-0.064 (0.043)	-0.056 (0.043)	-0.107*** (0.035)	-0.080** (0.038)	0.021 (0.017)	-0.004 (0.041)
Nationwide UPE × UPE Intensity	0.460*** (0.041)	0.702*** (0.048)	0.497*** (0.059)	0.728*** (0.046)	0.576*** (0.054)	-0.012 (0.010)	-0.070* (0.041)	-0.065 (0.043)	-0.117*** (0.041)	-0.083* (0.047)	0.031* (0.016)	0.008 (0.048)
UPE Ends × UPE Intensity	0.466*** (0.043)	0.708*** (0.051)	0.492*** (0.061)	0.734*** (0.049)	0.593*** (0.058)	-0.005 (0.009)	-0.042 (0.044)	-0.034 (0.045)	-0.058 (0.038)	-0.029 (0.043)	0.001 (0.017)	0.051 (0.046)
Baseline Mean	-0.353	0.383	0.481	0.378	0.309	-3.566	0.279	0.191	0.223	0.178	0.031	0.095
Baseline SD	0.362	0.486	0.500	0.485	0.462	0.077	0.448	0.393	0.416	0.383	0.172	0.294
N	21,407	21,407	21,407	21,405	21,405	21,407	21,407	21,407	21,407	21,407	21,407	21,407

	(13) Working as Em- ployee	(14) Working as Em- ployer	(15) Self- employed	(16) Health Index	(17) Sick/Injured in Last 7 Days	(18) Marriage/Family Planning Index	(19) Ever Married	(20) Standard of Living Index	(21) TV Access	(22) Mobile Phone Access	(23) Household Enter- prise Index	(24) Total No. of Household Enterprises
UPE Begins × UPE Intensity	0.110** (0.043)	0.043** (0.020)	-0.161*** (0.048)	0.015 (0.017)	-0.037 (0.038)	-0.367*** (0.110)	-0.024 (0.028)	0.038 (0.032)	0.076* (0.045)	0.028 (0.049)	0.156*** (0.056)	0.281*** (0.108)
Nationwide UPE × UPE Intensity	0.087* (0.050)	0.049** (0.024)	-0.138*** (0.049)	0.009 (0.018)	-0.024 (0.041)	-0.441*** (0.123)	-0.003 (0.029)	0.057* (0.032)	0.101** (0.047)	0.088* (0.051)	0.169*** (0.061)	0.308*** (0.115)
UPE Ends × UPE Intensity	0.078* (0.044)	0.047** (0.021)	-0.163*** (0.049)	0.002 (0.018)	-0.005 (0.042)	-0.431*** (0.128)	0.014 (0.043)	0.048 (0.036)	0.105** (0.052)	0.052 (0.057)	0.175*** (0.060)	0.317*** (0.114)
Baseline Mean	0.573	0.009	0.331	-2.259	0.170	-2.459	0.968	-0.338	0.318	0.423	-0.127	0.445
Baseline SD	0.495	0.092	0.471	0.485	0.376	0.998	0.175	0.338	0.466	0.494	0.390	0.760
N	21,407	21,407	21,407	21,407	21,407	21,407	21,407	21,407	21,407	21,407	21,407	21,407

leave out all oil-producing states (Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Rivers, Abia, Imo and Ondo) from the sample. All regressions follow the preferred specifications (with full controls). See Table 2 for details.

Table A8: Robustness Check: Impact of Reforms Excluding Cohorts Born After Introduction of UPE

	(1) Education Index	(2) Attended Formal School	(3) Literate	(4) Enrolled in Pri. School	(5) Completed Pri. School	(6) Employment Index	(7) Income > 0 NGN	(8) Income ≥ 10k NGN	(9) 0 > Hours Worked	(10) 40 ≥ Hours Worked	(11) Working in Indus- try	(12) Working in Ser- vices
UPE Begins × UPE Intensity	0.344*** (0.035)	0.505*** (0.044)	0.322*** (0.049)	0.540*** (0.044)	0.415*** (0.052)	-0.006 (0.006)	-0.030 (0.028)	-0.024 (0.032)	-0.087*** (0.023)	-0.065** (0.027)	0.009 (0.017)	-0.001 (0.035)
Baseline Mean	-0.353	0.383	0.481	0.378	0.309	-3.566	0.279	0.191	0.223	0.178	0.031	0.095
Baseline SD	0.362	0.486	0.500	0.485	0.462	0.077	0.448	0.393	0.416	0.383	0.172	0.294
N	5,885	5,885	5,885	5,883	5,883	5,885	5,885	5,885	5,885	5,885	5,885	5,885

	(13) Working as Em- ployee	(14) Working as Em- ployer	(15) Self- employed	(16) Health Index	(17) Sick/Injured in Last 7 Days	(18) Marriage/Family Planning Index	(19) Ever Married	(20) Standard of Living Index	(21) TV Access	(22) Mobile Phone Access	(23) Household Enter- prise Index	(24) Total No. of Household Enterprises
UPE Begins × UPE Intensity	0.059* (0.034)	0.034** (0.017)	-0.079** (0.037)	0.022 (0.015)	-0.041 (0.039)	-0.197** (0.100)	-0.056*** (0.022)	0.042 (0.030)	0.071 (0.045)	0.033 (0.044)	0.105** (0.049)	0.175* (0.095)
Baseline Mean	0.573	0.009	0.331	-2.259	0.170	-2.459	0.968	-0.338	0.318	0.423	-0.127	0.445
Baseline SD	0.495	0.092	0.471	0.485	0.376	0.998	0.175	0.338	0.466	0.494	0.390	0.760
N	5,885	5,885	5,885	5,885	5,885	5,885	5,885	5,885	5,885	5,885	5,885	5,885

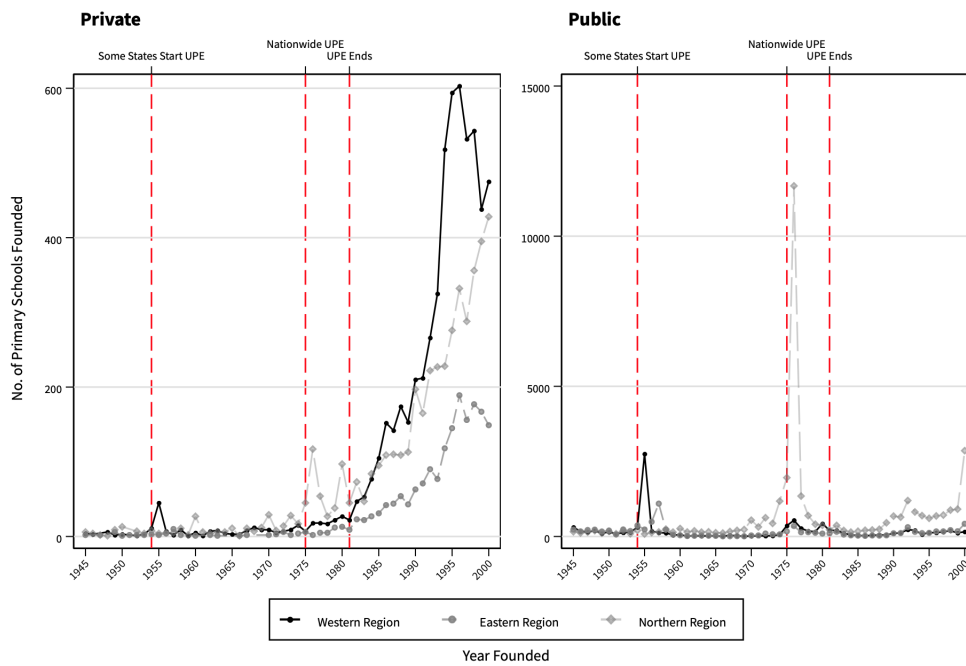
leave out all cohorts born from 1955 onwards from the sample and only estimate the effects of the start of UPE in some states. All regressions follow the preferred specifications (with full controls). See Table 2 for details.

Table A9: Robustness Check: Impact of Reforms Excluding Cohorts Born After Introduction of UPE

	(1) Education Index	(2) Attended Formal School	(3) Literate	(4) Enrolled in Pri. School	(5) Completed Pri. School	(6) Employment Index	(7) Income > 0 NGN	(8) Income ≥ 10k NGN	(9) > 0 Hours Worked	(10) ≥ 40 Hours Worked	(11) Working in Indus- try	(12) Working in Ser- vices
1932-1941 Placebo × UPE Intensity	-0.094 (0.097)	-0.061 (0.126)	-0.131 (0.143)	-0.087 (0.130)	-0.247* (0.142)	0.007 (0.015)	-0.066 (0.068)	-0.075 (0.069)	-0.044 (0.062)	-0.058 (0.065)	0.062 (0.038)	0.109 (0.082)
Baseline Mean	-0.353	0.383	0.481	0.378	0.309	-3.566	0.279	0.191	0.223	0.178	0.031	0.095
Baseline SD	0.362	0.486	0.500	0.485	0.462	0.077	0.448	0.393	0.416	0.383	0.172	0.294
N	1,860	1,860	1,860	1,859	1,859	1,860	1,860	1,860	1,860	1,860	1,860	1,860
	(13) Working as Em- ployee	(14) Working as Em- ployer	(15) Self- employed	(16) Health Index	(17) Sick/Injured in Last 7 Days	(18) Marriage/Family Planning Index	(19) Never Married	(20) Standard of Living Index	(21) TV Access	(22) Mobile Phone Access	(23) Household Enter- prise Index	(24) Total No. Household Enterprise
1932-1941 Placebo × UPE Intensity	-0.040 (0.086)	0.009 (0.012)	0.021 (0.080)	-0.003 (0.040)	-0.028 (0.127)	-0.031 (0.253)	-0.035 (0.046)	0.057 (0.078)	0.047 (0.109)	0.149 (0.113)	0.038 (0.108)	0.075 (0.216)
Baseline Mean	0.573	0.009	0.331	-2.259	0.170	-2.459	0.968	-0.338	0.318	0.423	-0.127	0.445
Baseline SD	0.495	0.092	0.471	0.125	0.376	0.998	0.175	0.338	0.466	0.494	0.390	0.760
N	1,860	1,860	1,860	1,860	1,860	1,860	1,860	1,860	1,860	1,860	1,860	1,860

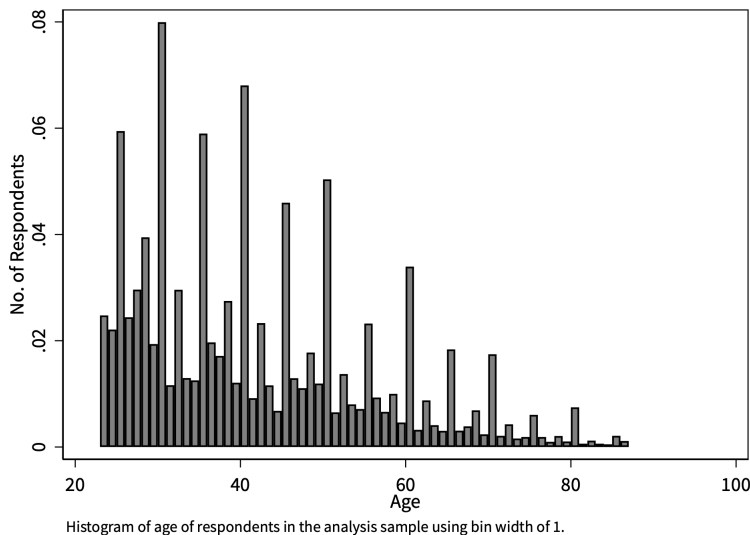
create a fake post-treatment dummy for cohorts born from 1932 to 1941 and interact this with the treatment intensity measure, restricting the sample to those born before 1942. All regressions follow the preferred specifications (with full controls). See Table 2 for details.

Figure A1: Number of Primary Schools Founded by Sector, Region and Year



Each point represents the number of schools founded in a given year, sector (public or private) and region. The data source is the Nigerian Primary School Census 2008 and is available from the replication package for Larreguy et al. (2017) at <https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/JZKKZB>.

Figure A2: Age Distribution of Survey Respondents



Histogram of age of respondents in the analysis sample using bin width of 1.

Figure A3: Distribution of UPE Intensity Measure

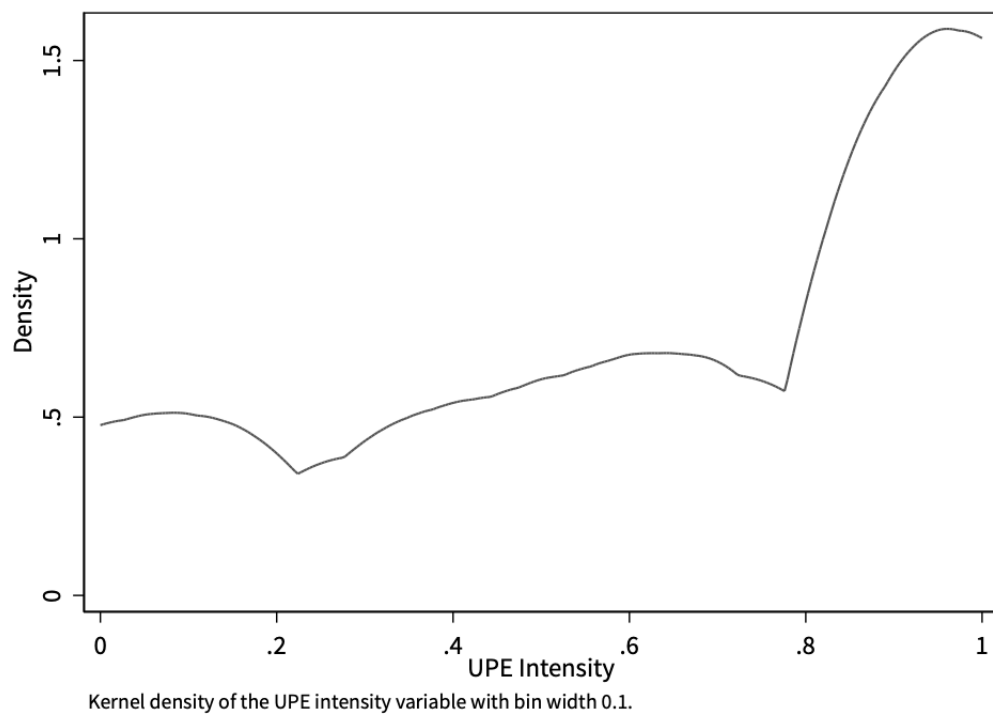
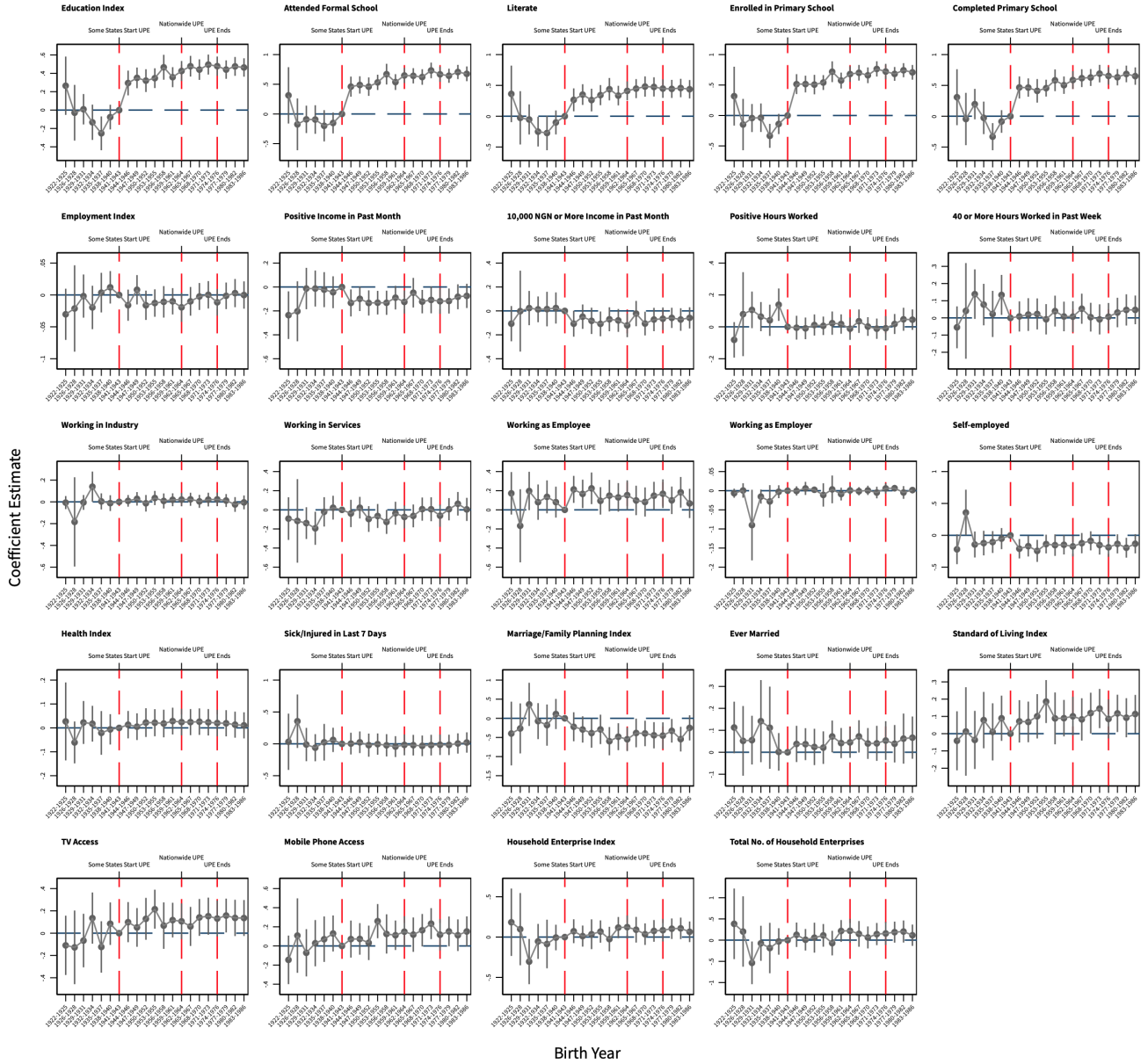


Figure A4: Robustness Check: Impact of Reforms on Key Outcomes by 3-Year Cohort Bin



Each point represents the coefficient estimate for the interaction term between a given dummy for a 3-year-wide cohort bin and the intensity measure in a regression of individual outcomes on these interaction terms, state by cohort bin fixed effects, LGA fixed effects and additional controls (see the preferred specifications in Tables 2 to 6). The full sample comprises birth cohorts from 1922 to 1986. 95% confidence intervals using standard errors clustered at the LGA level are plotted as error bars. The omitted birth cohort group is 1941 to 1943. See Figure 1 notes for a description of the different time periods and Table 2 notes for the description of the variables.

Data Handling

In this section, I describe the procedures used to derive new variables and recode existing variables. First, note that after recoding values, any blanks or codes for non-response are automatically converted to missing values. The list of changes is as follows.

LGA codes: Some of the LGA codes are not in the list provided by the Nigeria Statistics Bureau. I recode these values by matching the cases to other observations based on State, Replicate ID and Enumeration Area ID and imputing the same LGA as these other observations.

Region of residence: I map the state of residence to the corresponding region which the state was in as of 1963.

Year of birth: Since I only have data on age as of the last birthday, I simply subtract this age from 2009.

Cohort bins: I create bins of five years for cohorts based on the year of birth defined above.

Household size: I compute household size based on the number of members present in each household and interviewed by enumerators.

Form of marriage: Changed values to missing whenever response to the question on current marital status does not indicate that the individual is married.

Grouped marital status: I create a new variable based on the original marital status to group similar marital statuses together. This is equal to “Ever Married” if original marital status is “Married (Polygamous)” or “Married (monogamous)” or “Widowed” or “Divorced or “Separated”, and “Informal Loose Union” and “Never Married” if the original marital status is recorded as such.

Formal school attendance: If the respondent reported attaining post-secondary education under highest grade reached but also reported never attending formal school, I change the value for formal school attendance to “Ever attended school”.

Ever attended school: I create this new indicator variable and set it equal to 1 if, after recoding as above, attendance at formal school is coded as "Now in school" or "Before but not now" and 0 if recorded as "Never".

Highest grade reached: If the respondent reported never attending formal school and highest grade is missing, I change the value of the latter to zero.

Years of formal education: To construct this variable, I order the categories of highest grade reached from lowest to highest level of education and convert them into the respective years of education (e.g. 1 to 6 for the six years of primary school). Note that for post-secondary education, I code years of formal education as “13+” since I do not know the exact number of years, but this censoring of the data is taken into account by using Tobit regressions in the main analysis. I do not count pre-primary education towards years of education.

Completed primary/secondary education: I create an indicator for whether an individual completed primary/secondary education, defined as whether an individual reached the last grade of primary/secondary education (Primary 6/SSS 3). If they are exactly at the last grade of primary/secondary school, I only set the indicator equal to 1 if they report that they are no longer attending formal school.

Ever enrolled in primary/secondary school: I create an indicator for whether an individual ever

enrolled in primary or secondary school, equal 1 if their highest grade reached was Primary 1 or above and JSS 1 and above respectively.

Dropped out of primary school: I create an indicator for whether an individual dropped out of primary/secondary school, equal to 1 if the individual started primary/secondary school but did not complete it.

Employment status in the primary job: If age is 10 or above (the respondent is eligible to answer survey questions for the section on labour market variables), hours of work in the primary job is originally recorded as zero or missing, employment status is blank or missing, and main job in the previous week is either (1) blank or missing, or (2) "Went to school" or "Kept home", or (3) "Did nothing" and reason for doing nothing is "Retired" or "Sick" or "Believed no job Available", I change the value of employment status to "Out of Labour Force" following the survey flow and logic skips. I change the value to "Unemployed" if age is 10 or above, hours of work in the primary job is originally recorded as zero or missing, employment status is blank or missing and main job in the previous week is either (1) blank or missing, or (2) "Did nothing" and reason for doing nothing is "Looked for job" or "Laid off 30 days or less".

Employment status in the secondary job: I change the secondary employment status to "Unemployed" or "Out of Labour Force" if the primary employment status is as such.

Main job in the previous week: I change the main job in the previous week to "Did nothing" if employment status is "Out of Labour Force" or "Unemployed" (following the recoding above) and the main job in the previous week was originally set to blank or missing. I change the value of main job to missing if it was previously recorded as "Did nothing", employment status is non-missing and not "Nonemployed" or "Unemployed" (after recoding above) and industry of the main job is non-missing as it is likely to be an error.

Hours worked in the primary job in the past week: Where employment status is missing or "Out of Labour Force" or "Unemployed" (after recoding above), industry of the main job in the previous week is missing, age is 10 or above and hours worked in the primary job is missing, I change hours of work in the primary job to 0. I do the same for secondary jobs but using the secondary employment status and industry of the secondary job.

Total hours worked in the past week: I add the hours worked from the primary and secondary job (after recoding above).

Hours of work groups: I create indicator variables based on whether the individual's reported total hours of work for the past week exceeds the 0, 30, 40, 50, 60 and 70 hour thresholds.

Income in the past month: I change income to 0 if it was originally missing, age is 10 or above, employment status is missing or "Out of Labour Force" or "Unemployed", industry of the main job in the previous week is missing, and hours of work in both the primary and secondary jobs are 0.

Income group: I create indicator variables based on whether the individual's reported income for the past month exceeds the 0, 5 thousand, 10 thousand, 20 thousand, 50 thousand and 100 thousand naira thresholds.

Labour force participation: I create an indicator equal to one if employment status is non-missing and not "Out of Labour Force" (after recoding above).

Unemployment: I create an indicator equal to one if employment status is "Unemployed" (after recoding above).

Employment type: I create a variable which groups together employment statuses in the primary job and makes the status more self-explanatory. This is equal to “Not employed” if employment status is “Unemployed” or “Nonemployed”, “Non-wage earning” if employment status is “Unpaid family worker”, “Self-employed” if employment status is “Own Account Worker”, “Employer” if employment status is “Employer” or “Members of a Producer Coop”, “Other status” if employment status is “Others” and “Employee” if employment status is “Employee”.

Sector codes for the primary job: Since the industry codes follow ISIC Rev. 4, I follow the mapping given by the ISIC Rev. 4 to assign sectoral codes (Services, Industry, Agriculture) to the primary job.

Missed work or school due to sickness or injury: I change the value to "Yes" if the respondent reported not missing work/school but days of work/school missed is “1-3 days” or “4-7 days”. I change the value to "No" if the respondent reported missing work/school but days of work/school missed is "None".

Days of work or school missed due to sickness or injury: I change the value "No label" to missing since it is an invalid code. I change missing values to "None" if the respondent answered "No" to missing work or school due to sickness or injury.

Any sickness or injury: I add an indicator equal to one for all observations in the dataset on sickness or injury in the past 7 days.

Number of household enterprises: The number of households is taken as the maximum number of non-missing values recorded across each of the variables in the module on household enterprises. For example, if the respondent gave information on one enterprise for a certain question but two enterprises for another, I determine the number of enterprises to be two.

Sector of household enterprise: I derive the broad sector classification of the household enterprise based on the ISIC Rev. 4 mapping and reported industry in which the enterprise operates.

Number of household enterprises in a given sector: I count the number of household enterprises recorded under each sector after mapping as above.

Average LGA population size in 1937 to 1941: I add the sum of sample weights for each LGA for individuals born in 1937 to 1941 and divide it by 5 (for the number of years).

Average female share of primary school enrolment by LGA in 1937 to 1941: Within each LGA, I divide the sum of sample weights for females born in 1937 to 1941 by the sum of weights across all individuals born in these years.

Average urban share of LGA population in 1937 to 1941: Within each LGA, I divide the sum of sample weights for individuals residing in the urban sector and born in 1937 to 1941 by the sum of weights across all individuals born in these years.

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