



The 1977 Universal Primary Education in Tanzania: A historical base for quantitative enquiry

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Introduction

Social scientists and epidemiologists have recently shown that education has a direct effect on health and educational outcomes, both for individuals who experienced education and those for whom they care. Individuals with higher levels of education are less likely to be obese, tend to have better physical and mental health, and live longer than individuals with low levels of education, even after controlling for income, class and ethnicity (Haveman and Wolfe 1984; Grossman 2005). Children of parents with high levels of education do better in standard tests of school attainment than those of parents with less education (Feinstein, Duckworth and Sabates 2008; Bynner and Joshi 2002; Feinstein, Robertson and Symons 1999). Similarly, children of parents with high levels of education have children who are better nourished and healthier than children of parents with less education (Meara 2001; Alderman, Hentschel and Sabates 2003; Anderson, Butcher and Levine 2003).

Although based on strong theoretical foundations (Grossman 2005; Feinstein, Duckworth and Sabates 2008; McMahan 2009), most of this empirical evidence has been fuelled by studies from developed countries, where the availability of longitudinal data has made it possible to link measures of educational attainment to different outcomes, both economic and non-economic, for individuals and their families. For example, Sabates and Duckworth (2010) used information from the 1958 British Cohort and the 1947 school leaving age reform which increased the age of compulsory education from 14 to 15 years, to investigate whether the additional year of schooling for mothers was associated with improvements on their children's relative position on academic and behavioural assessments. Existing studies from less developed countries show overall links between maternal education and children's health and educational outcomes (LeVine et al. 2001).

However, absent from most research in less developed countries is the potential long term impact of educational reforms for individuals and their children. Influenced by the ideas

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3 of educational benefits for improved productivity (Becker 2006), education for endogenous
4 economic growth (Lucas 1988) and the social returns to investment in education, in particular
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6 at primary schooling levels (Psacharopoulos and Woodhall 1985) governments in less
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8 developed countries have adopted policies to increase the participation of children in
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10 education. In particular, education has been made compulsory, at least at primary level, fees
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12 have been abolished, new school programmes have been established and initiatives to
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14 increase teacher recruitment and accelerate teacher training have been introduced. Although
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16 the intentions of such initiatives are positive, educational systems with constrained resources
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18 are not able to cope adequately and immediately with the unprecedented increase in the
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20 demand for schooling. Hence, it is uncertain whether such policies are likely to have long
21
22 term impacts on individuals and their families.
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29 We attempt to fill this knowledge gap by examining whether the increase in women's
30 education that resulted from the Universal Primary Education (UPE) reform in Tanzania in
31 1977/8 is related to higher rates of educational access for their children. The paper is
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33 innovative in that we draw on two contrasting methodological approaches, the one informing
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35 the other in an interactive process. We first provide a detailed historical account from the
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37 existing literature of the educational initiatives and events leading to the first wave of UPE in
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39 Tanzania in 1977-78. This historical information in turn provides the basis for the selection of
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41 four specific cohorts of women spanning 14 years in the 2007 Demographic Health Survey
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43 (DHS) data. Some of these women were likely to be affected by the UPE reform of 1977/8.
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45 Subsequently, we investigate whether there are differences in educational access between
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47 children of women who were likely to be affected by the 1977 UPE reform and children of
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49 women not affected by this reform.
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57 Our starting premise is that parental education and children's educational access over
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59 time in Tanzania show a slow but steady increase since the 1940's in contrast to steeper but
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3 more recent increases in comparable countries (Sifuna 2007; Sabates and Hernandez 2010).
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5 Our paper provides further understanding of the impact of UPE on the cohorts of women
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7 affected by this national initiative and how it worked out over time in the accumulation of
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9 educational benefits for the next generation. To achieve this, we first discuss the historical
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11 events behind UPE in Tanzania in the late 1970s.
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16 17 **Historical background**

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19 A comprehensive literature search on Education for Self Reliance, adult education, language
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21 of instruction, primary education and teacher education from the 1950s to the present day
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23 informed this historical account. Formal and non-formal education in Tanzania was greatly
24
25 expanded post-independence under President Nyereres' socialist call of Education for Self
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27 Reliance (ESR) in 1967. Creating a literate adult population was seen as making an
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29 immediate effect on rural economic development whereas the impact from increasing
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31 enrolment in primary schools would not be felt, according to Nyerere, for up to twenty years
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33 (Kinunda 1974; Mushi 1994).
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39 Therefore, in 1971 a mass mobilisation plan was put in place with the aim of
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41 eradicating illiteracy within four years (Kinunda 1974). The spread of adult literacy classes in
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43 the rural areas was characterised by being based in primary schools reconceptualised as
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45 community learning centres, with a staged curriculum that focused on literacy and numeracy
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47 but also included political, community and agricultural education and assessed through a
48
49 literacy test. Health education was incorporated into adult education and supplemented by
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51 being taught at village health centres, hospitals and dispensaries (Odokara 1976). Learning
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53 was aided by radio broadcasts and by the growing use of Kiswahili as the Language of
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55 Instruction (LOI), once the language of rebellion used by Nyerere's Tanganyika African
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57 National Union (TANU) (Brock-Utne and Halmsdottir 2004). Primary school teachers,
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3 volunteers and former pupils were the teachers of this adult education system, albeit with
4 little formal training in andragogy. The whole system was organised through ward, district
5 and regional committee structures with separate officials for primary and adult education.
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10 Post-literacy programmes were developed in the 1970s to maintain literacy levels (Mushi
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12
13 1994).

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15 Due to the strategies emanating from ESR, illiteracy levels dropped from 69% in the
16 late 60's to 9.6% in the mid 1980's – even when Tanzania was experiencing slow economic
17 growth (Mushi 1991; 1994). Indeed, by 1983, this universal adult literacy campaign cost
18 more than that allocated to primary education for the Ministry (Omani et al. 1983). An
19 evaluation made in 1976 saw Tanzania as being 'the only country [within English-speaking
20 Africa] which had a national policy decision on a determined political will to promote out-of-
21 school education as an essential component of the formal school system' – and which
22 included realistic financial support (Odokara 1976, 6). This mass adult literacy movement
23 contributed greatly to the success – or relative success, of the first wave of UPE of the
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37 1970's.

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39 The Musoma Resolution of 1974 underpinned the goal of achieving UPE by 1977.
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41 Nyerere envisioned primary education in the same way as adult education - as providing
42 skills for a communal, rural existence and an end in itself, although this was also the only
43 possible response in economically constrained times (Omani et al. 1983). The starting age
44 was raised from 5 to 7 so that children would be old enough to be economically productive
45 once they had finished primary education (King 1983). As far back as 1970 the barrier of the
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Grade 4 examination taken at the end of the fourth year of primary school by children who
were around 10 years old, having started Grade 1 when they were seven years old, had been
removed, allowing the majority of students to progress onto Grade 5 (Kinunda 1974). Grade
7 was seen as the 'terminal' or final stage of education rather than as a transition point to

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3 secondary school, so that most primary graduates were between 13 and 14 years old.
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6 There was a range of indigenous education systems such as community primary
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8 schools known as 'Kwamisi' schools in an attempt by the Socialist government to avoid a
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10 North to South educational transfer (King 1983). The curriculum put a large emphasis on
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12 teaching agriculture, health and life skills with participatory and child centred pedagogies that
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14 included children with special educational needs encouraged in teacher training (Omani et al.
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16 1983; Taylor and Mulhall 1997; O-saki and Agu 2002; Barratt 2008). Only 1-2% of students
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18 progressed onto secondary school through regional quotas, the smallest proportion in the
19
20 world with the state providing employment for the few secondary graduates (Wedgewood
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22 2007). Kiswahili became the LOI in primary schools, formalized later in the Education and
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24 Training Policy of 1995 (MoEC 1995; Brock-Utne and Halmsdottir 2004). Even while the
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26 cognitive level of instruction may have been low, Tanzania was unique in using what was for
27
28 many students their mother tongue or indigenous language commonly spoken in the
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30 environment. English, however was the LOI in secondary school and continues to be so
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32 (Brock-Utne and Halmsdottir 2004; Trudell 2009).
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39 Enrolment increased massively, with the years 1977/78 showing the largest increase
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41 in enrolment, particularly at Grade 1, the key focus for UPE. In 1978 the government made
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43 attendance compulsory so that, as King points out, the majority of students were overage and
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45 only 15% were aged 7. Described variously as 'the UPE year', or the 'bulge' year, enrolment
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47 went from 172,986 in 1969-70 to 523,508 in 1977/78 and 855,560 in 1978/79 with near
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49 gender parity (Omani et al. 1983). This was, however, followed by a more staggered form of
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51 UPE over the next few years, as indicated in Figure 1, as some 140,000 of the first 1978 UPE
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53 cohort dropped out by 1980 leading to a return to previous enrolment patterns (King 1984).
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56 Significantly, King argues that the full effects of UPE could not be known until that first
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58 bulge of 1977/8 had passed through the school system and flattened out and patterns of
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3 retention became visible. He points to 1984 as a key year in this respect.
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8 == Figure 1 here ==
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12 Indeed, data from Figure 1 shows a convergence and stability in those who have
13 enrolled by 1984. There were around 550,000 children enrolled in grade 1 and little over
14 400,000 children enrolled in grade 7 in 1984. In the years after 1984 and until 1999, there
15 was a small increase in enrolment by grade (Figure 1). All cohorts within our study were in
16 school at this point, with the highest enrolment rates of those in Grades 5, 6 and 7. This
17 seems to be one indicator of the 'success' of the 1977/8 UPE year, maintained for around
18 four years. Retention of those in Grades 1-4 continued to rise, up until the steep increase of
19 the second wave of UPE from the late 1990s onwards.
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32 In order to meet the demands of higher student enrolment arising from UPE, teacher
33 recruitment, training and deployment had to be rapidly reorganised. At independence the
34 entry qualification for all teachers rose to two years of secondary education and in 1967 to
35 four years with two years training. The Primary Education Reform Kwamsisi Project of 1970
36 was designed to further raise the competence of 10,000 teachers. The first Distance Teacher
37 Training Programme began in 1976 for Standard VII or VIII leavers training for two days a
38 week in ward-based training centres and teaching for three days a week in lower primary
39 (Malewo 1992). As UPE was being implemented, there was already a cadre of relatively well
40 trained teachers with junior secondary school qualifications in place in primary schools.
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53 In 1977 teacher training for the basic grade of primary teachers changed to a one year
54 'crash' programme for those with only primary education to cover teacher shortages
55 following the implementation of UPE. Seen as a 'golden age' by some professionals, some
56 of these 'UPE' teachers recruited had a sense of vocationalism and stayed in teaching, with
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3 the most experienced teachers teaching the lower grades of primary then, as now. The
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5 perception of teaching as aiding national development is echoed in studies of teachers today
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7 even while the status of teaching as a career has lowered since UPE, and perhaps because of
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9 it (Towse et al. 2002; Barratt 2008). However, these 'UPE' teachers were also seen as second
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11 best, locally trained, with poor academic qualifications even while professional development
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13 programmes delivered through regional Teacher Resource Centres, may have made up for
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15 their poor initial qualifications for some inspired teachers.
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20 Such measures were still not enough to meet the demands of the sudden, increased
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22 enrolment, one that 'came like thunder' for an unprepared government (Omani et al. 1983,
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24 79). By the end of the 1970s there was still a shortage of 45,000 primary school teachers
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26 (Malewo 1992). The focus for UPE on enrolment in Grade 1 left the construction of schools,
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28 classrooms and adequate provision of teaching materials to the local District and Wards and
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30 to parents under the banner of a community-focused ESR. This resulted in regional
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32 disparities and increased rather than decreased inequalities. It also led to an increase in
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34 private primary, and secondary, schools. By any measures of cognitive outcomes in children,
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36 the quality of education was undoubtedly declining rapidly as a result of this first wave of
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38 UPE (Towse et al. 2002; Sifuna 2007). It was, however, an astonishing achievement to have
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40 75% of 7-13 year olds enrolled by 1978 in such a short time and within such constrained
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42 resources. The impact of this achievement is the focus of our study.
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49 In the next section we look at a national representative dataset and use this historical
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51 account to inform the selection of four cohorts of women, some of whom were likely to be
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53 directly affected by the 1977 UPE reform. We review whether the educational achievement
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55 of these cohorts is consistent with what was expected from the reform and, most importantly,
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57 we identify the children of these women to investigate the long term impact, or
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59 intergenerational benefits, of this reform.
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Methods

Data and sample selection

Data for this paper come from the 2007 Tanzania DHS, a national representative study of the Tanzanian population. The 2007 Tanzania DHS followed an equal probability of selection for sampling purposes, which was undertaken in two stages. The first stage enumeration areas were selected and in the second stage households within areas were selected (Macro International 1996). A total of 9,144 households were selected for the study and the overall response rate was 98%. Completed interviews were obtained for 9,343 women aged 15 to 49 (TACAIDS et al. 2008).

One of the key methodological innovations of the paper is the link between historical events and information from respondents of the 2007 DHS data. As described by the historical events, a large proportion of children of all ages were enrolled in schooling in response to the main push for UPE in 1977. Hence, there was not a single cohort of children who was affected by that policy reform.ⁱ A second issue to consider is the lack of precision about children's age in SSA. Children may be sent to school when they reach a certain height or when parents feel they are ready for school as opposed to enrolment at certain age (Lewin 2007). This issue contributes to the difficulty of isolating children who were directly affected by the UPE reform in 1977 as overage and underage children could have started schooling in 1977. Since DHS data contain information on women aged 15 to 49 in 2007, only those born between 1963 and 1972 could have been affected by the policy. Women born before 1963 would have been too old to return to primary schooling whereas women born after 1973 would have been too young to start primary education. For these reasons we selected from the data the following 4 age cohorts (see Table 1).

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3 ==Table 1 here==
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8 The first cohort selected contains women aged between 45 and 49 years in 2007. This
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10 is the oldest cohort, women who were aged between 15 and 19 during the main UPE push in
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12 1977-78. It is unlikely that these women were affected by the UPE reform since they were
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14 too old to be enrolled in primary education. The second cohort selected contains women aged
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16 between 40 and 44 in 2007. These women were aged between 10 and 14 during the UPE
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18 reform of 1977-78 and hence it is likely that some of these women were affected by the
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20 reform, in particular the youngest ones. The third cohort corresponds to women aged 35 to
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22 39 in 2007, who were aged 5 to 9 in 1977. These women were also likely to be affected by
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24 the UPE reform and it is likely to contain the main target group of the reform, 7 and 8 year
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26 old children in 1977. Finally, women aged 30 to 34 in 2007, who were aged zero to 4 in
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28 1977, experienced the post 1977-78 UPE reform. This last cohort started education at least
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30 three years after the 1977-78 reform, after the peak in participation had started to flatten out.
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36 Table 2 shows the distribution of educational attainment in 2007 for the selected
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38 cohorts of women. While 46 percent of women aged 45 to 49 in 2007 had no education, this
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40 percentage decreased rapidly to 28 percent for women aged 40 to 44 in 2007. As we
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42 highlighted above, women aged 40 to 44 were likely to have been affected by the 1977-78
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44 UPE reform, being ages 10-14 and this is confirmed by the substantial reduction in the
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46 proportion of women who have achieved at least some education. This also confirms the
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48 staggered nature of the patterns of enrolment with the high initial enrolments of 1977-78
49
50 consisting of children and adolescents between 7 and 14. For women aged 35 to 39, who
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52 would have been in the 'target' age band of 5-9 in 1977-78, we continue to see a reduction in
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54 the proportion of women who did not have education, decreasing to only one quarter of
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56 women for this cohort. Interestingly, this proportion remains unchanged for women of the
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3 youngest cohort, indicating a possible saturation point at which around one quarter of
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5 children did not benefit from the post-UPE conditions as they did not enrol.
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8 A second interesting observation from Table 2 is the large increase in the proportion
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10 of women, likely to be affected by the UPE reform, who completed primary school. Only 27
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12 percent of women from the oldest cohort completed primary school but 46 percent of women
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14 aged 40 to 44 and nearly half of women aged 35 to 39 and 30 to 34 completed primary
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16 school. These latter three cohorts were likely to be affected by UPE – and appear to have
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18 benefitted from it.
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24 ==Table 2 here==
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29 Finally, the transition into secondary schooling started to change for women of the
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31 youngest cohort. Only around 11 percent of women aged 35 and above in 2007 achieved
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33 secondary schooling or above qualifications. For the youngest cohort this percentage
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35 increased to 14 percent. While this remains low, the push for UPE increased the desire for
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37 secondary education with private secondary schools opening, especially in the Kilimanjaro
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39 region, although this also increased regional and urban/rural inequality (King 1983; Vavrus
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41 2002; Mbelle and Katabaro 2003).
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45 The above descriptive analysis suggests that women who were aged 10-14 in 1977-78
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47 gained almost as much as those who appeared to be the main target for enrolment i.e. those
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49 aged 5-9 in 1977-78. Those who were 0-4, and who therefore went to school in the early
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51 1980s and secondary school from 1986 to 1990, also benefitted so that the positive effects of
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53 UPE were felt over a cohort span of 14 years. This is very apparent in the increase in
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55 educational attainment between the oldest cohort of women age 45-49 and women younger
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57 than them. These figures justify the selection of these 4 cohorts of women that we use for
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3 empirical analysis. In particular, we use this increase in educational attainment between
4 cohorts to estimate its impact on the education of the next generation, as discussed in the
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6 following sections.
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10 11 12 *Selection of variables*

13 14 *Outcome variable*

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16 We use children's educational access as an outcome to investigate the possible
17 intergenerational benefits of the UPE reform. All children aged 7 to 15 years, whose mothers
18 belonged to the 4 selected age cohorts, were classified according to whether they were out of
19 education, in education but over age for the grade they were enrolled by three or more years,
20 or in education at the appropriate age-in-grade.ⁱⁱ In Tanzania, where the official age of entry
21 into school is 7, children aged 10 enrolled in Grade 1 were considered over age by three or
22 more yearsⁱⁱⁱ.
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34 Table 3 shows the educational access of children aged 7 to 15 by the age cohort of the
35 mother. The oldest cohort of mothers, pre-UPE reform, have the highest proportion of
36 children aged 7 to 15 not in education (20 percent) and a slightly higher proportion of
37 children in education but over age by three or more years (13.2 percent). In comparison, the
38 cohorts of mothers mostly affected by the 1977-78 UPE reform started to see an increase in
39 the proportion of children in education (70 percent of children for mothers aged 35 to 39 and
40 40 to 44 were in education compared with 67 percent of children for mothers aged 45 to 49)
41 and a slight reduction in the proportion of children in education but over age by three or more
42 years (10 and 11 percent of children of mothers aged 35 to 39 and 40 to 44 were in education
43 but over age by three or more years, respectively). These improvements are even greater for
44 children of the youngest cohort of mothers, post-UPE reform, where 18.3 percent of their
45 children were not in education and only 8.3 percent were over age. These data seems to
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3 suggest that there is improved access for children whose mothers were affected by UPE
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5 relative to children whose mothers were too old to be affected by UPE in 1977.
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10 ==Table 3 here==
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14 *Control variables*

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16 Having identified the 4 age cohorts of women, their educational attainment, and the
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18 educational access of their 7 to 15 year olds children, we can use the structure of the
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20 household, family size, family wealth and location in 2007 as important factors that can
21
22 determine whether children participate in education or not.
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27 We highlight that socio-economic and demographic information is recorded in 2007,
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29 hence it reflects the current situation of a household and says nothing about contributing
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31 factors to the intergenerational transmission of educational effects. The implication of this is
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33 that we are unable to posit a model where factors that happened prior to the achievement of
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35 educational qualifications are used to established how much of the relationship between
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37 mothers' education and children's education is due to the inclusion of these variables. In
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39 other words, we are unable to deal with the endogeneity of women's education that is due to
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41 observable factors. On the other hand, we are able to suggest that the relationship between
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43 women's education and children's outcomes is channelled via family structure or wealth, as
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45 we can assume that the achievement of education happened during childhood and hence prior
46
47 to events in adulthood. Unfortunately, the DHS data contain little information about the
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49 parent-child relationships that are extremely important channels for the transmission of
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51 educational success across generations (Feinstein, Duckworth and Sabates 2008). With DHS
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53 data we are able to establish the conditional association of women's education and children's
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55 educational access. This relationship is conditioned on observable factors such as family
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3 structure, location, gender and age of the child.
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8 *Estimation method*

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10 We use an ordered probit model to estimate the conditional relationship of women's
11 education with their children's educational access. The main aim is to estimate whether there
12 are changes in the relationship between mothers' education and children's educational access
13 between the four cohorts of women. The main emphasis of the estimation is on those
14 parameters that measure the associations not only between cohorts of women but also across
15 the educational attainment of women between cohorts.
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24 The estimation method proposed depends on the nature of the outcome variable and
25 the assumptions made about the error term. Our outcome variable contains three categories,
26 children who are not in education, children who are in education but who are three years or
27 more over age for their grade and finally children who are in education at their appropriate
28 age in grade. Given an underlying level of educational inclusion between children who fall
29 into each of these categories, we could treat this as an ordered outcome. Assuming that the
30 error term is normally distributed, then an ordered probit model is the suggested method to
31 estimate the parameters of interest.^{iv}
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43 To estimate parameters of the model, we include the full interaction between mother's
44 age cohorts and mothers' educational attainment. With 4 age cohorts and 4 levels of
45 education, the interaction between these variables results in 15 parameters to be estimated
46 and one used as reference category. Using women from the oldest cohort without education
47 as reference category, the estimated parameters measure whether children of the rest of the
48 women have higher or lower probability of educational access relative to children of mothers
49 in the reference group. We use these estimated parameters to further test whether the
50 difference in the likelihood of educational access between children of mothers with some
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3 educational credentials and those without education are greater or smaller in the oldest cohort
4 relative to the rest of the cohorts. These are the parameters of interest of this paper and the
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6 only ones that are presented^v.
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10 11 12 **Results**

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15 Table 4 shows the results from the model estimating the likelihood of children's educational
16 access focusing on the association of mothers' educational attainment by mothers' age
17 cohorts. The estimation of these parameters is conditional on the age of the child, gender of
18 the child, region of residence, wealth of the household, household structure, household size
19 and number of children under the age of 5 living in the household. All parameters estimated
20 from the interaction between mothers' education and their age cohort are measured against a
21 reference category, in this case mothers from the oldest cohort who did not have any
22 educational qualifications.
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36 ==Table 4 here==
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41 As mentioned above, we use the estimated parameters from Table 4 to construct the
42 results shown in Figure 2. The first panel shows all women who had secondary schooling
43 qualifications or above. The estimated parameters are the difference in educational access for
44 children whose mothers had secondary schooling and those whose mothers had no education
45 (by women's age cohorts). The second panel is for all women who had completed primary
46 education and parameters are measured relative to women who had no education and by
47 women's age cohorts. The third panel is for women with incomplete primary schooling and
48 parameters are measured as before.
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59 Taking the first point of the top panel, children whose mothers belonged to the pre-
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3 UPE cohort and where those mothers had secondary education were more likely to have
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5 educational access than children of mothers of the same cohort who did not have educational
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7 qualifications (estimated difference 0.39, which is the estimated parameter for age cohort 45-
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9 49 and secondary education measured relative to the reference group in Table 4). The second
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11 point is the difference in educational access for children whose mothers were aged 40 to 44
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13 and had secondary education (estimated parameter 0.45 in Table 4) relative to children whose
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15 mothers belonged to the same age cohort but had no educational qualifications (estimated
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17 parameter -0.09 in Table 4). The estimated difference between these parameters is 0.54,
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19 which is shown in Figure 2. The relative difference between these cohorts is not statistically
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21 significant, as shown by the overlapping of the confidence intervals in Figure 2.
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27 As we move to the youngest cohort, we see that the estimated difference in children's
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29 access to schooling between children of women who had secondary schooling (estimated
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31 parameter in Table 4 is 1.06) and children whose mothers had no education (estimated
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33 parameter in Table 4 is -0.17) is relatively large, giving an estimated difference of 1.23
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35 shown in Figure 2. This difference is larger (and statistically significant) than the estimated
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37 difference for children of women of the oldest cohort, which was estimated to be 0.39.
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43 ==Figure 2 here==
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48 One general pattern described in the top panel of Figure 2 is the increasing differences
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50 in the educational access of children whose mothers' had educational qualifications at
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52 secondary level and those whose mothers do not have educational qualifications in each of
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54 the four age cohorts. In particular, however, the greatest difference is for children of the
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56 youngest cohort of women, and as we explained above, these women experienced education
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58 after the peak of the 1977-78 UPE reform.
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Second, we find a relative difference in educational access for children whose mothers had incomplete primary between the youngest and the oldest cohort of women. There is almost no difference in educational access between children whose mothers belonged to the oldest cohort (aged 45 to 49) and who had incomplete primary education and children of the same age cohort whose mothers had no educational qualifications (estimated difference -0.01). Contrary to this, children from the youngest cohort whose mothers had some primary education (estimated parameter in Table 4 is 0.48) are more likely to have educational access than those whose mothers do not have any education (estimated parameter in Table 4 is -0.17), giving an estimated difference of 0.65. The relative difference between the youngest cohort and the oldest cohort is statistically significant.

Discussion

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This paper set out to investigate the association of maternal education and children's education in Tanzania in a specific timeframe. In doing so, the paper relies on historical information from the 1977-78 UPE reform in Tanzania which significantly increased the rate of participation of children in education. This paper is driven by the possibility that the educational experience back in the late 1970s can lead to future benefits in terms of improved educational access for the next generation. We are also driven by the possibility that the benefits of UPE reform are unlikely to be translated into educational outcomes in the near future (Hummel-Rossi and Ashdown 2002) but do result in changes in the access to education for future generations.

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Our results showed that the increase in participation in schooling brought on directly by the 1977-78 UPE reform resulted in improved schooling access for the children of mothers who experienced the 1977-78 reform after its peak – and when the mass initial enrolment had either passed through early primary school or students had dropped out. It is

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2
3 possible that the potential impacts of reforms take time to settle and for this reason the
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5 potential benefits are experienced by the youngest cohort, rather than the presumed targets of
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7 the first two cohorts of women who were more directly affected by the first peak of UPE.
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10 In addition, UPE reform did not reach 100 percent participation and those excluded
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12 were likely to be marginalised. As years progressed, and the post-UPE educational system
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14 continued to reach children, those left out became a more marginalised group. This process
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16 partially explains why we found increasing differences in educational access for children of
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18 women with education and those without education by age cohorts of women as was shown
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20 in Figure 2.
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24 We did not find differences in educational access for children of women who went to
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26 school during the peak of the UPE reform and those who were too old in 1977 to be affected
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28 by the reform. Perhaps this latter result is not surprising. The increased school participation
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30 was only possible at the cost of school quality. An educational experience that does not
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32 produce skills, competencies and beliefs for individuals is unlikely to result in wider benefits.
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34 A positive learning experience should produce a wide range of academic, technical and
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36 vocational skills, social and communication skills as well as improve individuals' perceptions
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38 of themselves, such as of their own abilities, worth and identities. It is unlikely that
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40 overcrowded classrooms, irregular teachers' attendance, lack of teaching materials and
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42 inadaptability of teaching methods to deal with over age and mixed ability groups made it
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44 possible for teachers to deliver a positive learning experience for children (Alexander 2008;
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46 Little 2008). This, combined with the problems faced by children at home in terms of
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48 household responsibilities, lack of parental support, financial difficulties, which cause
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50 irregular school attendance, severely limits the development of skills and competencies
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52 (Lewin 2009).
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59 This study puts forward the wider potential benefits that the educational experience
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3 that resulted from the 1977-78 UPE expansion may have brought to other areas of
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5 individuals' lives and to Tanzanian society as a whole. It is possible that the entire society
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7 gained from what economists refer to as the "public good" aspects of schooling – the gains
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9 that all citizens experience because they live in a society where many individuals are not able
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11 to read and write, and so where the educational experience may be enough to raise awareness
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13 and promote civic participation – those same objectives promoted by ESR (Preston 2003;
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15 McMahon 2009). We believe these benefits remain largely unexplored and their potential
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17 returns may be large. Hence, in the face of limited resources and willingness to provide
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19 education for all, policymakers still face the same dilemma: the trade off between quantity
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21 and quality of education. Unfortunately, secondary sources of data, which were not designed
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23 to respond to policy concerns, will only provide a partial and incomplete answer.
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29 Our results indicate that the investment in education in 1977-78 was not all in vain.
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31 We know from historical accounts that the system was not able to cope with such an increase
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33 in demand for education and that there is limited evidence that the educational experience is
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35 linked to benefits for those who experienced the initial peak of UPE. There are, however,
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37 possible benefits to those who experienced education years after the reform. Rates of
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39 enrolment continued to rise in parallel with completion rates over the period from 1984 to
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41 1998 before the second wave of UPE in 2002. One can conjecture that despite the abrupt
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43 falls immediately after the first wave of UPE, the mass enrolment, coming on the back of the
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45 adult education initiatives, led to a cultural change in Tanzania whereby parents expected
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47 their children to go to primary school and to stay there, providing a broader societal base for
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49 the second wave in 2002.
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55 The cautious pace of educational reform in Tanzania was a positive approach to
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57 constrained resources during an historical period characterised by slow economic growth but
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59 also political stability (Vavrus and Larsen, 2003). Planned as a community-based national
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3 initiative in parallel with adult literacy programmes, the first wave of UPE of 1977/8 shows
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5 accumulated benefits over 40 years for a broad section of its population over successive
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7 cohorts of women.
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Figure 1: Enrolment by year and grade in Tanzania

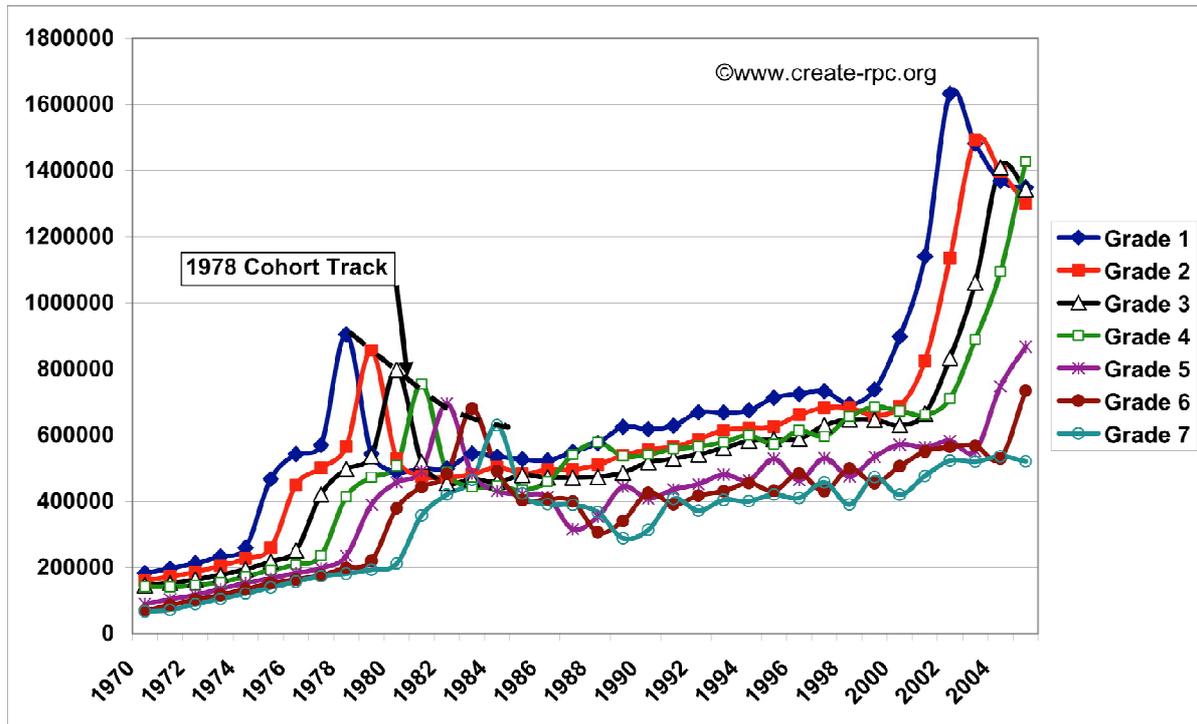
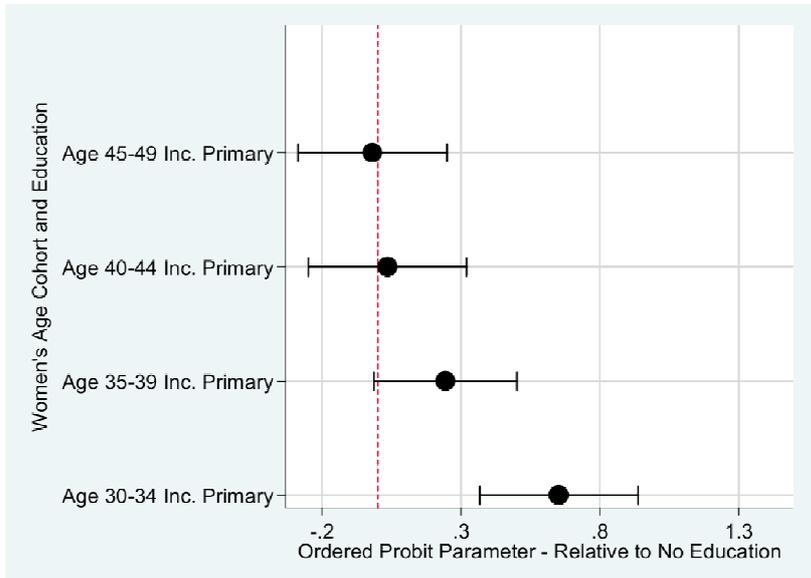
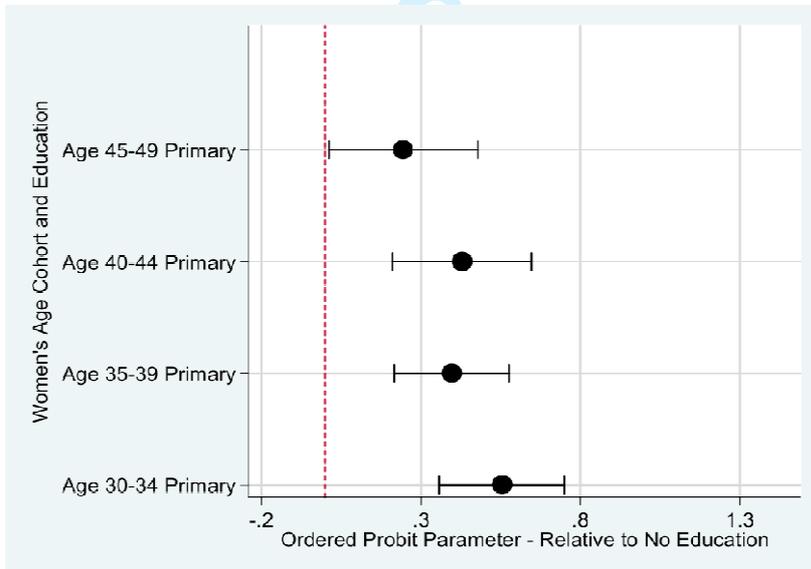
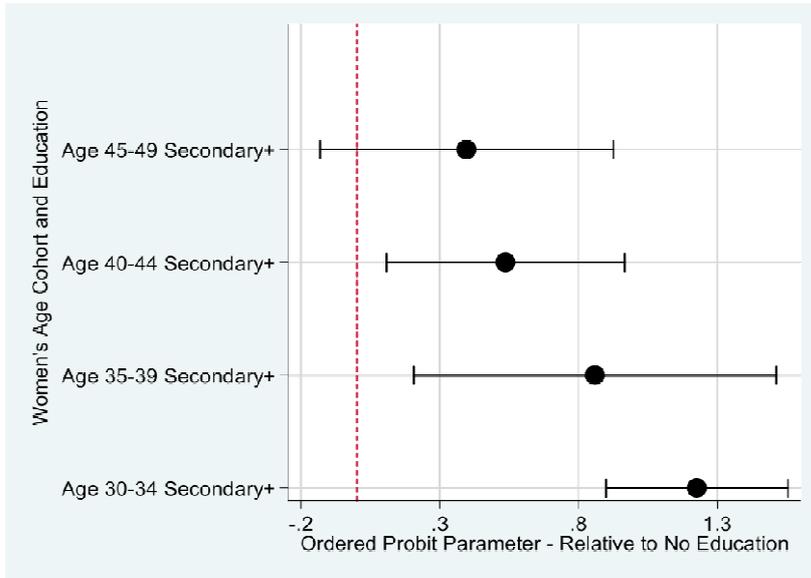


Figure 2: Parameter estimates of women's education relative to no education for each of the four age cohorts



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Table 1. Women's age cohort selected from the 2007 DHS data

Mother's Cohorts	Age in 2007 (DHS data set)	Age during 1st wave UPE	Likely school level during UPE according to their age
1	45-49	15-19	Secondary to postsecondary
2	40-44	10-14	Primary to secondary
3	35-39	5-9	Not in education to early primary
4	30-34	0-4	not in education

Table 2: Distribution of educational attainment by women's age cohort

	Mother's Age Cohort				ALL
	30-34	35-39	40-44	45-49	
	%	%	%	%	%
No Education	24.6	24.6	28.0	46.1	29.2
Primary Incomplete	12.3	13.7	15.4	17.3	14.2
Primary Complete	49.1	50.4	45.6	26.6	44.7
Secondary or above	13.9	11.3	10.9	10.0	11.9
Total	1,319	1,154	804	738	4,015

Source: Tanzania DHS 2007

Table 3: Educational access of children's aged 7 to 15 according to mother's age cohort

	Mother's Age Cohort			
	30-34	35-39	40-44	45-49
	%	%	%	%
Children Not in Education	18.3	19.5	19.3	20.0
Children Over Age in Education	8.3	10.4	10.7	13.2
Children in Education	73.4	70.1	70.0	66.7
Total # Children	1,697	1,957	1,389	998
Source: Tanzania DHS 2007				

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Table 4. Parameter estimate [standard errors] for children's educational access on mother's educational qualifications and age cohort and selected controls

VARIABLES	Estimate	Std. Error
Interactions Age Cohort & Mother's Education - (reference: Oldest cohort, no education)		
Age cohort 45-49 & incomplete primary	-0.018	[0.137]
Age cohort 45-49 & complete primary	0.245**	[0.119]
Age cohort 45-49 & secondary +	0.397	[0.270]
Age cohort 40-44 & no education	-0.087	[0.116]
Age cohort 40-44 & incomplete primary	-0.052	[0.137]
Age cohort 40-44 & complete primary	0.341***	[0.101]
Age cohort 40-44 & secondary +	0.450**	[0.215]
Age cohort 35-39 & no education	-0.022	[0.107]
Age cohort 35-39 & incomplete primary	0.221*	[0.132]
Age cohort 35-39 & complete primary	0.374***	[0.093]
Age cohort 35-39 & secondary +	0.838**	[0.334]
Age cohort 30-34 & no education	-0.168	[0.114]
Age cohort 30-34 & incomplete primary	0.484***	[0.145]
Age cohort 30-34 & complete primary	0.386***	[0.103]
Age cohort 30-34 & secondary +	1.060***	[0.170]
Age of child	0.020**	[0.010]
Gender of child (girls)	0.140***	[0.045]
Wealth index of household - (reference: Poorest quintile)		
Poorer 20th to 40th quintile	0.242***	[0.064]
Middle 40th to 60th quintile	0.367***	[0.066]
Richer 60th to 80th quintile	0.596***	[0.069]
Richest quintile	1.032***	[0.108]
Household size	-0.024*	[0.013]
# children under 5	-0.05	[0.031]
2 adults in household - (vs 1 adult in the household)	0.129	[0.098]
3+ adults in household - (vs 1 adult in the household)	0.018	[0.100]
Rural Area	-0.04	[0.084]
Cut-off point 1	-0.333*	[0.184]
Cut-off point 2	0.042	[0.182]

Source: Tanzania DHS 2007. Notes: Robust standard errors in brackets. Asterisks *, **, *** represents statistical significance at 10, 5, & 1% level.

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ⁱ Methodologically, if it is possible to link policy initiatives to individuals' changes in behaviours or life

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circumstances, then, under certain conditions, one should be able to satisfy exogeneity and estimate unbiased parameters of the impact of these reforms.

ⁱⁱ Over age is one of the precursors of school drop out (Hunt 2008; EPDC 2009). In addition, Lewin and Sabates (2011) have shown that although the proportion of children in school has increased in Sub-Saharan Africa in the last decade, so does the proportion of children who are in school but participate with much younger children.

ⁱⁱⁱ The dataset only yields age in terms of whole years. It is therefore better to think of the category three years over age as “between 2.5 and 3.5 years over age”.

^{iv} Our estimation method can be criticized for the assumption of the ordering of the outcome variable. This ordering is based on the theoretical framework of expanded educational access based on degrees of inclusion developed by Lewin (2007).

^v All other results are available from the authors upon request.