Tsukuba Economics Working Papers
No. 2011-003

Do chiefly systems discourage schooling?

by

Yoshito Takasaki

May 2011

UNIVERSITY OF TSUKUBA
Department of Economics
1-1-1 Tennodai
Tsukuba, Ibaraki 305-8571
JAPAN

Do chiefly systems discourage schooling?

Yoshito Takasaki[a]
University of Tsukuba

May 4, 2011

[a] Corresponding author. Graduate School of Humanities and Social Sciences, University of Tsukuba, 1-1-1 Tennodai, Tsukuba, Ibaraki 305-8571 Japan, Tel./fax: +81 29 853 6280. E-mail address: takasaki@sk.tsukuba.ac.jp.

Do chiefly systems discourage schooling?

Abstract

An indigenous chiefly system can shape a country's economic growth and inequality through institutional development in its colonial history. This paper addresses this thesis by using original household survey data in rural Fiji, which contain unique information about traditional chiefly status, and Fijian coups as a natural experiment. It demonstrates that chiefly labor networks in non-farm occupations that originated from the British colonial policy persistently affected Fijians' schooling. Chiefly networks were effective for employment among male Fijians before and after 1970 independence, until the first coup occurred in 1987; then, their schooling strongly adjusted to structural changes in labor market. Those outside the chiefly network – the majority of Fijians – have always been discouraged from making education investments, because of low returns in the network-driven labor market. Without being directly constrained by this chiefly institution, Indians and Female Fijians outperformed male Fijians in higher education.

Keywords: Chiefly system; Colonial policy; Labor network; Schooling; Fiji.

JEL classification: O15; O17.

1. Introduction

Recent literature has shown that historical circumstances can persistently affect economic performance through their effect on institutional development (Acemoglu et al., 2001; Acemoglu et al., 2005; Sokoloff and Engerman, 2000). Although various institutions, such as property rights, law, power, and class, have received much attention (e.g., Banerjee and Iyer, 2005; Goldstein and Udry, 2009; Huillery, 2009; La Porta et al., 1998; Pandey, 2010), the mechanisms underlying such persistence are less understood (Acemoglu and Robinson, 2008 develop a theory; see also Nunn, 2007). Munshi and Rosenzweig (2006) shed light on gender-cum-caste labor networks as one such mechanism in 1990s' Bombay: It made schooling responses to increased returns to nontraditional white-collar occupation distinct in the gender sphere – girls' enrollments in English schools increased more than boys'. Using original household survey data in rural Fiji, this paper examines how the indigenous chiefly system interacted with British colonial policy to persistently affect Fijians' schooling.

Fiji's ethnic division is well known: Fijians have significantly lagged behind Indians in commerce, the professions, and higher education since the 1950s (e.g., Norton, 1977; Tavola, 1992; White, 2001).[1] Despite affirmative-education policies for Fijians following independence in 1970, the ethnic gap in secondary and tertiary education has never narrowed. Indians' economic and social mobility led to the country's ethnic tension and, in particular, four coups since the late 1980s. At the same time, after independence, female Fijians caught up with and then surpassed male Fijians in secondary education.

[1] As is common in Fiji, in this paper, Fijians means native Fijians and Indians means Indo-Fijians.

This paper sheds new light on Fijian labor networks as a potential mechanism that drove the country's distinct education paths. The British colonial government established native administration based on the indigenous chiefly system; as a result, "the native (or, as it was known later, Fijian) administration became an important additional source of power and patronage for the chiefs, and employment for many commoners" (Ghai, 1987, p10). That is, colonialism legitimatized historical inequalities in the hierarchical chiefly system of Fijian society. Many politicians and highly ranked government officials have come from chiefly families (for example, the current grand chief in my study area is a Cabinet Minister). I argue that *chiefly labor network* for commoners' employment in the native administration sustained and expanded to broad labor networks in non-farm occupations – from urban to rural – in the country, thereby persistently affecting their schooling after independence. Those outside chiefly networks – the majority of Fijians – have been discouraged from making education investments over time, because of low returns in the network-driven labor market. The paper shows evidence for the influence of chiefly labor networks on secondary schooling in rural areas, suggesting its broad discouraging effects on higher education in the country.

Chiefly labor networks are distinct from low-caste labor networks (Munshi and Rosenzweig, 2006). In Bombay, labor networks in traditional occupations with low returns that do not require higher education constrain schooling among those *in* the network, because of the sanction imposed on those who exit the network. In Fiji, labor networks in formal occupations with high returns that require higher education constrain schooling among those *outside* the network. Though both types of networks have the potential to involve dynamic inefficiency, the latter may be more relevant in poor

countries than the former. In both cases, as labor networks historically exist among males, female schooling has been less constrained. In Fiji, this contrast extends to the ethnic sphere: Although Indian labor networks could also play a major role, they were not formed according to hereditary chiefly status.

In the literature, a labor network is captured by a network link (e.g., whether an individual has a connection with the job through kinship) or size (e.g., the number of workers in the same group, such as caste) (e.g., Munshi, 2003; Munshi and Rosenzweig, 2006). Such information, which my data lack, is not sufficient to capture a chiefly network. Crucial information about the *chiefly status* of the individual with whom network is linked or of the group based on which network is formed is needed. These two types of networks overlap with each other when the former individual-based network is formed within the group, and in Fiji, the latter group-based network can be formed by either a village or clan (a kin group within the village, as defined below). Takasaki (2011) finds that in Fijians' household private transfers, both within- and across-village networks are important and mainly formed among households that belong to the same clan. My survey stratified Fijian villages by chiefly-village status (defined below) and households in each village by clan. Thus, the data contain rich variations in chiefly-group status; in standard household surveys, by contrast, traditional elite status is often unobservable to researchers, and even if it is observable, there are too few elite groups to make a statistical analysis possible.

Lack of network data precludes me from directly identifying chiefly labor networks' positive influences on schooling. My empirical strategy is to see whether schooling responses to chiefly-group status correspond to employment responses over

time, by using the coups as a natural experiment. First, I examine whether a group-based labor network is formed according to chiefly-group status, *if* such a network exists. The chiefly-village network was effective for employment among male Fijians before and after 1970 independence, until the first coup occurred in 1987; with village factors, including network, fully controlled for, chiefly-clan network was always ineffective. Next, I show that male Fijians' schooling strongly adjusted to the structural change in the labor market: After the network effect on employment vanished, those in the network augmented education investment for better employment prospects. This pattern is found in chiefly villages, but not in clans, for secondary-school completion (which is a passport to employment), but not secondary enrollment. This strong correspondence of employment and schooling is shown to be qualitatively robust.

The rest of the paper is organized as follows. Section 2 offers a description of Fijian education history. Section 3 describes the Fijian chiefly system and the data. Section 4 provides descriptive statistics on income, employment, and schooling. Section 5 develops empirical models to test the hypotheses discussed above. Section 6 reports estimation results, the robustness of which is discussed in Section 7. The last section concludes.

2. Fijian education history

2.1. Colonialism – 1874-1970

In 1874, Fiji became a British colony, and a native administration was established for the indigenous chiefly system. Fiji's formal education had begun in Methodist mission schools (in 1835), and the British colonial policy was in principle against giving too much education to natives. Commoners' education was limited to primary schooling

with a practical focus – vocational, agricultural, and technical for boys and hygiene and crafts for girls; in contrast, chiefs were educated to secondary and tertiary levels overseas. This discriminatory policy was strongly seconded by administrative chiefs: "Fijians of chiefly descent coveted a selective formal education as an avenue of privilege, a vehicle to differentiate themselves from commoners, and a means to consolidate their status" (White, 2001, p260).[2]

Between 1879 and 1916, the colonial government brought over 60,000 indentured laborers from India for sugar plantation.[3] Under the paternalistic colonial policy protecting Fijians, Indians experienced much lower economic and social conditions; in particular, there existed a large gap in primary education between the two races. In 1916, to expand schools with limited supervision and cost, the colonial government launched the grant-in-aid system – providing government financial support to primary schools that met prescribed standards (by 1931, most mission schools were handed over to local committees). Indians, who were virtually prevented from owning land and thus strove for education to attain mobility, took advantage of this policy; in contrast, Fijians with land and ascribed social status were less likely to seek social mobility through education, and

[2] The most influential chief in the colonial era, Oxford-educated Ratu Sir Lala Sukuna, consistently called for "education with a local bias" *for* Fijians (Scarr, 1982): "What is required is a scheme of education that will fit the Fijian child to become a good citizen of his own country which needs above all…farmers, mechanics, boat-builders, men skilled in indigenous handicrafts, girls with a practical knowledge of housecraft: home-cleaning, cooking, washing, sewing, nursing."

[3] In 1921 Fijians and Indians accounted for 54% and 39%, respectively, of the total population (Gillion, 1977). In 1920s Fijians suffered heavy losses of life from introduced diseases, and in the mid-1940s Indians slightly outnumbered Fijians in the population. The population share was reversed after the 1987 coups, because of Indians' out-migration.

their responses were much weaker (Tavola, 1992). As a result, Indian primary schools quickly expanded, closing the ethnic gap in primary education.

The two races followed distinctly different paths of secondary education. On one hand, Fijians did not demand academic education, because they placed great faith in their chiefs in the indigenous chiefly system and the native administration to represent their interests; on the other hand, Indians sought after academic secondary education for everyone (Tavola, 1992). In 1937, the colonial government accepted providing funds for the establishment of secondary schools only for Indians. Restrictions on rural Fijians' migration to urban areas (from 1920s to mid-1960s) – which the colonial administration and administrative chiefs considered to be a social disruption – also restricted their access to secondary schools; such restrictions were not imposed on Indians (White, 2001).[4] Although there was almost no ethnic disparity in secondary-school rolls in the mid-1940s, Indians' rolls became double those of Fijians in 1955; after the grant-in-aid system was extended to secondary schools in 1956, the gap widened even more. In the 1960s, secondary-school enrollments quickly increased among both races, with a persistent ethnic gap.[5]

During the late-colonial period, government intervention in education increased, and in 1947 the Ten Year Plan, the first comprehensive plan for education, was developed. From the mid-1940s, selected commoners started to be sent away for tertiary

---

[4] Indians' strengthened political presence underlay their progress: Beginning in 1929 the Legislative Council, the body of nominees that advised the governor, consisted of six elected European seats, six elected Indians, and six nominated Fijians. In the mid-1940s, the Legislative Council tightened migration restrictions on Fijians.

[5] Bertocchi and Spagat (2004) theoretically study how the evolution of an education system founded on a hierarchical differentiation between vocational and general interacts with economic growth and inequality. Fiji is a unique example where such educational differentiation tightly matched ethnicity.

education overseas, and by the early 1960s, some commoners enjoyed a successful economic position and its accompanying status. The chiefs' influence remained powerful, however: "The high chiefs formed a dominant status group that guided the social and political values of upwardly mobile commoners" (Norton, 1977).

2.2. Post-independence – 1970-1987

At independence in 1970, chiefly governance was maintained and Fijians' political and economic status was ensured.[6] By then, education had proved to be a passport for Indians to enter commerce and the professions. Realizing the instrumental value of education for economic and social mobility, Fijians were concerned about their inferior position (Tavola, 1992). Although the Fijian government adopted various affirmative policies (e.g., school construction, scholarships) and secondary schooling continued to improve among both races, the ethnic gap in secondary (and tertiary) education and economic status never narrowed. Within both races, girls' secondary-school enrollments were almost nonexistent in the mid-1940s and much lower than boys' before 1970 independence; then, girls' enrollments quickly increased and surpassed boys' by 1981. The gender gap has persisted since that time.

In 1968 the University of the South Pacific was established with a main goal of training secondary teachers; in the 1980s Fiji's education policy shifted its focus from quantity expansion to quality improvement and from teacher training to curriculum revision (teaching opportunities were saturated by 1987) (Tavola, 1992).

2.3. Coups – 1987-2006

[6] Under the 1970 Fijian constitution, parliament seats are allocated among ethnic groups (22 Fijians, 22 Indians, and 8 of other races), a large proportion of Senate members are nominated by the Great Council of Chiefs, and the land and rights of Fijians are protected.

The 1987 elections resulted in a coalition backed largely by Indians and since then, Fiji's democratic rule has been interrupted by four coups – two in 1987, one in 2000, and another in 2006 – aiming essentially to maintain Fijians' political dominance over Indians. Major economic reforms for outward-looking liberalization were implemented mainly after the 1987 coups (Elek et al., 1993). It is probable that associated structural changes occurred in the labor market (there is no systematic study of the Fijian labor market).

3. Fijian chiefly system and data

3.1. Chiefly system

Chiefdom is "an autonomous political unit comprising a number of villages or communities under the permanent control of a paramount chief" (Cameiro, 1981, p45). Fijian chiefdom, *vanua*, consists of three hierarchical subunits, *yavusa-mataqali-tokatoka*, as illustrated in Figure 1 (Ravuvu, 1983). Each unit is a subset of its higher-order unit (e.g., yavusa 1 consists of mataqali 1 and 2). Roughly matching an old district (*tikina*) in the administrative unit, vanua ranges over several villages (*koro*). A village consists of one or a few yavusa, which includes several lower-order units, mataqali, and then tokatoka. The chiefly system is of central importance not only for rural Fijians' local governance and ritual, but also for their livelihoods (Turner, 1992); in particular, land is communally owned by mataqali (about 83% of the country's total land is communal and cannot be sold by law), and customary rights for coastal fishing are held by vanua or several yavusa.

Each vanua has a paramount chief, and some yavusa and mataqali, but not tokatoka, have sub-chiefs. There are also traditional leaders other than chiefs/sub-chiefs,

and village chiefs can be served by chiefs, sub-chiefs, or non-chief leaders. Accordingly, Fijian villages are categorized as either a *chiefly village* with a vanua chief, or other (village 1 vs. 2), and mataqali (henceforth called *clan*) is either a *chiefly clan* to which the vanua chief in the chiefly village belongs, or other (mataqali 1 vs. 2).[7] In principle, there is one chiefly village in each vanua (or tikina), and there is one chiefly clan in each chiefly village. The chiefly status normally is ascribed and inherited through the male line; chiefly-village status and chiefly-clan status are fixed across generations.

3.2. Data

In July-September 2005, I conducted a household survey in Cakaudrove Province, which is located mainly on Vanua Levu Island and Taveuni Island, the second- and third-largest islands in the country, which significantly lag behind the largest island, Viti Levu, where the state capital, two international airports, and most tourism businesses are situated. Cakaudrove is home to many leading politicians and has been one of Fiji's most influential provinces.

The province has 134 Fijian villages in 16 districts (tikina). In each district, villages were stratified by chiefly-village status; 13 chiefly villages were sampled and another 30 villages with distinct environmental and economic conditions were intentionally chosen.[8] In each village, households were stratified by tokatoka (the

[7] I focus on the chiefly status of mataqali. Many villages have only one yavusa (i.e., yavusa defines the village) and the tokatoka to which the vanua chief belongs is too uncommon for statistical analysis, as shown below.

[8] Among 16 districts, 2 are headed by the same vanua chief and another 2 are headed by the other same vanua chief; thus, there are 14 chiefly villages. One chiefly village was not sampled because of a political concern. In each of three districts where there are more than one vanua, only one village with a main vauna chief is treated as a chiefly village; that is, chiefly-village status is defined at the tikina level, not at the vanua level; using

smallest subunit) and a combination of individual leadership status discussed above and major asset holdings (e.g., shops) (all tokatoka are sampled); in each stratum, households were randomly sampled (50% of the population in each stratum, on average). As such, chiefly villages and households with chiefs/sub-chiefs/non-chief leaders are oversampled. Overall, the survey covered 906 households, collecting information about demographics, education, assets, production, income, shocks, and transfers.

The 43 villages in the sample cover 20 vanua, 52 yavusa, 145 mataqali, and 238 tokatoka in total, and 13 yavusa, 12 mataqali, and 12 tokatoka have vanua chiefs;[9] 34% of households reside in chiefly villages and 14% belong to chiefly clans. Almost all adults (age 20 or above) are commoners. There are 23 chiefs/sub-chiefs (less than 1%), most of whom are sub-chiefs; many vanua chiefs reside in cities.

The survey did not cover individuals who migrated to urban areas, and in the sample, tertiary education was very uncommon even among young adults, indicating their potentially significant urban migration in search of tertiary education, further training, and better employment. The analysis in the remaining sections focuses on employment and secondary education among those who stayed in the rural study area.

4. Income, employment, and education

4.1. Income and employment

On average, households in the sample earned an annual income of F$2,281 per capita in 2005 (1 Fiji dollar = US$.60) (see Table 1). Farming and fishing, respectively,

---

chiefly-village status defined at the vanua level (there are 15 such chiefly villages) does not alter the regression results presented below.

[9] In one chiefly village, none of the chiefly mataqali (and tokatoka) resides in the village.

accounted for 62% and 11% of total earned income;[10] 16% of households had permanent non-farm employment, accounting for 10% of income (occupations are discussed shortly).

Households are divided into three cohorts by the age of household head – cohort 1 (age 50 or above), 2 (35-49), and 3 (20-34). With no delay or repetition in primary schooling, household heads in cohort 1 began secondary schooling, if any, during the late-colonial period (when secondary-school enrollments started to increase significantly); those in cohort 2 did so between 1970 independence and the 1987 coups (when major construction of secondary schools occurred in rural areas); and those in cohort 3 did so mostly between the 1987 and 2000 coups (when education policy focused on quality improvement). Permanent employment was more common and important in the livelihoods of the young cohort than for those of the old (8% of income share in cohort 1 vs. 22% in cohort 3).

This change in earning patterns augmented income inequality among households. According to the gini decomposition by source (Lerman and Yitzhaki, 1985; Stark et al., 1986), the contribution of permanent wage income (with the largest source gini of .92) to total inequality was much higher for the young cohort than for the old (8% in cohort 1 vs. 28% in cohort 3); qualitatively the same across-cohort comparison holds for the gini elasticity to permanent wage income (almost 0 in cohort 1 vs. .058 in cohort 3).[11] Total

[10] Almost all households employ traditional farming practices, using no mechanized equipment or animal traction to produce taro, cassava, coconut, and kava plants; most households also engage in artisanal fishing, using lines and hooks, simple spear guns, or rudimentary nets.

[11] This means that a 10% increase in permanent wage income augments inequality in total income by about .6%. The converse holds true for the across-cohort comparison of the gini elasticity to crop income (with the smallest source gini of .62).

earned income of households with permanent employment was higher than those without; in particular, in cohort 3, the former was twice the latter.

Marriage across different clans (mataqali) in the village or in other villages is common. In the sample, 73% of 2,334 working adults (age 20-65) – 55% of females and 90% of males – are in their original clans (see Table 2); that is, marriage migration is mostly in the female domain. Among adults in both all and original clans, a small proportion (6-7%) have permanent employment; while the across-cohort difference in employment is not large, the gender gap is considerable (9% for males vs. 4% for females), reflecting the weak female labor market in the region.

Occupational distribution is distinct in the gender sphere: Although about one half of male employments are office work/skilled labor, followed by unskilled labor, tourism and teaching are also important for females (office work/skilled labor count for over 60% of male permanent wage income). Although data about employers are lacking, anecdotal evidence suggests that public-sector employment is common, especially among males.

4.2. Education

Fiji's current education system consists of eight-year primary (Class 1-8; Class 1 begins at age 6) and four-year secondary (Form 3-6) (in 1997 primary education became compulsory).[12] Almost all primary and secondary schools in the country are private schools managed by community committees (76% primary schools and 42% secondary schools) and religious organizations (Ministry of Education, 2010); most schools

[12] Following independence, the Fijian government sought to introduce a new system of six-year primary/four-year secondary/two-year college, but most schools did not make a shift to this new system, and many junior-secondary schools expanded to full secondary schools by adding Forms 5-6. In the paper, Forms 1 and 2 in this alternative system (which are uncommon in the sample) are treated as Classes 7 and 8.

(including those in the study area) are ethnically separated. Standardized examinations are held at the end of Class 8, Form 4, and Form 6 (Tavola, 1992). Successful completion of Form 6 is a passport to employment, tertiary education, and further training.

Education attainments – measured by four levels (primary incomplete or below, primary complete, secondary incomplete, and secondary complete or above) – greatly improved across cohorts among working adults in all clans in the sample, as shown in Figure 2 (the results for those in their original clans are very similar). Although males' education level was higher than that for females in cohort 1, females surpassed males in cohort 2, and a large gender gap in secondary-school completion emerged in cohort 3 (under 30% for males vs. over 40% for females). Qualitatively the same pattern is observed across the country (Ministry of Finance and National Planning, 2004).

Compared to cohort 3, secondary enrollment among youths (age 14-19) significantly improved: Almost 70% of those at the age of 16 are at secondary school with a small gender gap, as shown in Figure 3, where those at the age of 18 and 19 who completed secondary school are also included. At the same time, late enrollment is common among boys (57% of those age 15 are at secondary school), indicating delay/repetition in primary school. The gender gap augments at the age of 17-18 (31% for boys vs. 53% for girls), indicating that repetition and dropouts are more common among boys than girls.

5. Econometric specification

5.1. Chiefly labor network

I conjecture that adults' employment is determined not only by their secondary-school completion, but also by whether or not they belong to a chiefly labor network. I start with the following reduced-form employment equations for working adults:

$$q_i = \alpha h_v + \sum_{a=1} \eta^a s_i^a + \boldsymbol{\varphi} \boldsymbol{X}_{ijgv} + D + e_{ijgv}, \quad (1\text{-}1)$$

$$q_i = \beta h_g + \sum_{a=1} \eta^a s_i^a + \boldsymbol{\varphi} \boldsymbol{X}_{ijg} + V + e_{ijg}, \quad (2\text{-}1)$$

where i, j, g, and v stand for individual, household, clan, and village, respectively; q_i is a dummy for employment; h_v and h_g are dummies for chiefly-village and chiefly-clan status, respectively;[13] s_i^a is a dummy for own highest education level a (1: primary complete, 2: secondary incomplete, 3: secondary complete or above); $\boldsymbol{X_{ijgv}}$ and $\boldsymbol{X_{ijg}}$ are vectors of other determinants (detailed below); D and V are district and village dummies, respectively; and e_{ijgv} and e_{ijg} are error terms. Equations (1-1) and (2-1) are estimated by a linear probability model (probit estimates are very similar to OLS results).

In equation (1-1), district dummies capture all district-level factors, including historical ones. Since there is only one chiefly village in each district, district dummies fully control for *any potential* chiefly-village network that can be formed within the chiefly village or across chiefly villages (the model cannot distinguish between these two). Positive α means that access to such a village network – as a villager – contributes to employment. Although this does not prove the existence of a labor network, it indicates that *if* a labor network exists, it is formed according to chiefly-village status (i.e., a chiefly-village labor network). In equation (2-1), village dummies capture all village

[13] Chiefs/sub-chiefs are too uncommon (only 12 working adults) to estimate potential effects of individual/household chiefly status. The analysis focusing on commoners generates almost the same results as those presented below.

factors and interpreting chiefly-clan network is analogous. These models do not capture chiefly networks formed by individuals in non-chiefly villages/clans based on their individual connections. Hypotheses to be tested are:

Hypothesis 1: Adults' employment is positively affected by their secondary-school completion, but not lower education level; i.e., $\eta^1 = \eta^2 = 0$, $\eta^3 > 0$.

Hypothesis 2: Adults' employment is more likely in chiefly villages and/or clans; i.e., $\alpha > 0$ and/or $\beta > 0$.

Three potential estimation problems need to receive special attention. First, with a lack of historical information regarding adults' employment, their current employment status (at the time of interviews) is used as a proxy. Section 7 discusses this proxy's systematic errors. Second, since information about the chiefly status of the original village/clan for adults not in their original clans is lacking, the analysis focuses on adults in their original clans; this is also true in adults' schooling models developed shortly. If marriage migration is systematically correlated with chiefly status, then selection bias is a concern for females, but not for males, most of whom are in their original clans. Third, education can be correlated with unobserved factors that determine employment, such as ability. My focus is not to identify impacts of education on employment, but to show their heterogeneity across education levels (the current data lack identifying instrumental variables for education). I estimate the employment models with and without own education to see how distinct the results of the remaining variables – especially chiefly status – are; the same approach is taken to address the potential endogeneity of parents' education in the schooling models.

5.2. Chiefly labor networks and schooling

My next conjecture is that chiefly labor networks positively affect secondary completion, which is instrumental for employment (hypothesis 1). As chiefly status captures any related factors that determine schooling, its estimated effect on schooling is not necessarily qualitatively the same as the network effect. In particular, even if chiefly labor networks positively affect schooling, chiefly status can appear to have no influence. Still, network effects on schooling should change in response to those on employment as follows. How labor networks affect schooling depends on the balance of their effects on employment and post-employment, the latter of which mean that labor networks benefit members through salary, promotion, tenure, and so forth, after they get hired.[14] On one hand, the post-employment effect encourages secondary-school completion among network members for better employment prospects; those outside the network are discouraged. On the other hand, the employment effect makes secondary education less important in the labor market, discouraging network members' schooling. The net network effect on schooling is generally ambiguous.

Now suppose that network effects on employment *decrease*, because of structural change in the labor market, and post-employment effects do not decrease, as accumulated network capital sustains them. Then, net network effects on schooling unambiguously *increase*; in the extreme case where the network effect on employment vanishes, the net effect on schooling is unambiguously positive. I assume that the change in the effects on employment/schooling of chiefly labor networks is *qualitatively* the same as the change in those of chiefly status. Then, I can test the correspondence of the effects of chiefly status on employment and schooling.

[14] Extending the employment models to wage to examine the post-employment effect is infeasible with the current data, in which employment is relatively uncommon.

To capture the change in the effects of chiefly status on employment across cohorts, equation (1-1) is extended to:

$$q_i = \sum_{k=1} \alpha_k h_v c_i^k + \sum_{a=1} \eta^a s_i^a + \boldsymbol{\varphi} \boldsymbol{X}_{ijgv} + D + e_{ijgv}, \qquad (1\text{-}2)$$

where c_i^k is a dummy for cohort k (1: age 50-65, 2: age 35-49, 3: age 20-34). The corresponding equations for secondary schooling among working adults and youths (cohort 4: age 14-19) are:

$$s_i^l = \sum_{k=1} \alpha_k^l h_v c_i^k + \boldsymbol{\varphi}^l \boldsymbol{X}_{ijgv}^l + D + e_{ijgv}^l \qquad (l = 1, 2), \qquad (3\text{-}1,2)$$

$$s_i^3 = \alpha^3 h_v + \boldsymbol{\varphi}^3 \boldsymbol{X}_{ijgv}^3 + D + e_{ijgv}^3, \qquad (3\text{-}3)$$

where $s^1{}_i$, $s^2{}_i$, and $s^3{}_i$,, respectively, are dummies for adults' secondary-school completion, adults' secondary enrollment (i.e., secondary incomplete or above), and youths' secondary enrollment (including completion); $\boldsymbol{X^1_{ijgv}}$ and $\boldsymbol{X^3_{ijgv}}$ are vectors of other determinants (detailed below); and $e^l{}_{ijgv}$ and $e^3{}_{ijgv}$ are error terms. Extending equation (2-1) and developing corresponding schooling models are analogous. All equations are estimated by a linear probability model.

For the sake of clarity, I hypothesize that chiefly-village network effects on employment *decreased* in cohort 3, i.e., after the 1987 coups. In Section 7, I show that the decreasing network effects on employment are crucial to qualitatively identify the increasing effects on schooling. That is, I effectively use structural change in the labor market after the coups as a natural experiment.

Hypothesis 3: If the effects of chiefly status on employment decrease across cohorts, those on secondary-school completion, but not enrollment, increase; i.e., $\alpha_1 = \alpha_2 > \alpha_3$ and $\alpha^1{}_1 = \alpha^1{}_2 < \alpha^1{}_3$.

If the network effects on post-employment also significantly decrease, the effects of chiefly status on schooling may not increase; if hypothesis 3 holds, that is not the case.

My last conjecture is that chiefly labor networks exist among males, but not females. Unfortunately, female employment in the current data is too uncommon to test hypotheses 1-3 for females separately. Only female schooling can be separately analyzed; though interpreting the female results with potential selection bias requires caution.

5.3. Covariates

Standard covariates are used for adults' employment: individual's age and a dummy for household head; household demographics (age of household head, household size, proportions of children (<15) and elderly (>65)); clan size and assets (number of households in the clan, in the population, and total clan land, which is fixed), which can be correlated with chiefly-clan status; village size and market access (number of households in the village and time distance to the closest local market), which can be correlated with chiefly-village status (in models with district dummies). District dummies control for district-level labor-market conditions. Village/clan size captures the size of the *potential* labor network among village/clan members – either a chiefly or non-chiefly one. Current household assets, which are determined by the history of income and thus employment, are not included. Adding parents' education as a proxy for historical household wealth does not alter the remaining results.

Standard covariates are used for youths' secondary schooling: individual's age and sibling size (numbers of elder/younger sisters/brothers); mother's/father's education level, household demographics and assets (age of household head, household size, land, and non-land assets), which capture household permanent income; clan size and assets;

and village size and school access (physical distance to primary and secondary schools).[15] Household income is not included, because it is determined by household decisions on the labor supply, including youths'. Village/clan size captures potential externality and network effects: In the larger villages/clans, the greater number of children who enroll in/complete secondary school may encourage schooling among younger children, and parents (in remote villages) may have better networks for children's co-residence with relatives out of the village. In contrast, the current data lack historical determinants of adults' education attainment. I can control only for individual's age, parents' education (also partly capturing historical household wealth), clan assets (fixed), and proxies for historical school access (defined below). Potential omitted variable bias is discussed in detail in Section 7. The descriptive statistics of all covariates are reported in Table A1.

6. Estimation results

Estimation results for employment, secondary-school completion, and enrollment (adults and youths), respectively, are reported in Tables 3, 4, and 5, where the estimated coefficients of chiefly status, own education, and gender are shown (results of other controls are discussed in appendix). Panels A1/A2 and B1/B2 in Tables 3-5, as well as panels C and D in Table 5, report results of the models with district dummies and those with village dummies, respectively;[16] panels A1 and B1 show results of the constrained models ignoring across-cohort heterogeneity in the effects of chiefly status (standard

[15] Access to primary school can influence delay and repetition in primary school, thereby affecting secondary-school enrollment. Among adults (especially old adults), access to primary school can also alter primary completion (it is almost uniform among youths).
[16] The models with village dummies can be applied only to villages with intra-village variations in dependent variables; otherwise, village dummies perfectly predict them.

errors are clustered by village and clan, respectively), and panels A2 and B2 show those of the unconstrained models. In each table, columns are organized by the sample of interest, and the first and second columns of each set show results without and with own/parents' education as controls;[17] almost all results are qualitatively the same between these two, suggesting that the potential endogeneity of education is unlikely to cause significant bias. I discuss results for males first and then females.

6.1. Males

First, only secondary-school completion positively influences adults' employment in a statistically significant manner (16% marginal effect); i.e., hypothesis 1 holds. This is so across cohorts, as shown by an extended analysis using the dummy for secondary-school completion interacted with cohort dummies (cohorts 1 and 2 combined). Second, chiefly-village status, but not chiefly-clan status,[18] positively affects adults' employment in cohorts 1 and 2 (8-9% marginal effect), but not in cohort 3. Ignoring across-cohort heterogeneity in the constrained model (1-1) fails to show that hypothesis 2 holds for chiefly-village status in cohorts 1 and 2 only. Third, although chiefly-village status does not affect adults' secondary education – both completion and enrollment – in cohorts 1 and 2,[19] it has strong positive influences on secondary completion in cohort 3; such

[17] Information about parents' education for adults is available only for parents who are in the same household as the one to which each adult currently belongs or for parents of household heads and their spouses (the survey asked separate questions about the latter parents). The numbers of observations for the adults' schooling models significantly decrease with parents' education added, especially for females.

[18] Chiefly-clan status negatively influences employment in cohort 1; when a dummy for employment in skilled labor (excluding unskilled/other labor in Table 2) is used as a dependent variable, however, this effect loses statistically significance.

[19] Because adults' secondary completion and female adults' secondary enrolment in cohort 1 are uncommon, cohorts 1 and 2 are combined in interaction terms, i.e., $\alpha^1_1 = \alpha^1_2$

effects are not evident in secondary enrollment in cohort 3 (the estimated effects on enrollment are about half of those on completion, suggesting that the former mostly capture the latter), as well as cohort 4 (youths). In contrast, secondary schooling for both adults and youths are always neutral to chiefly-clan status. Hence, the estimation results of employment and schooling strongly correspond to each other in terms of timing, education level, and group type, i.e., hypothesis 3 strongly holds.

These results suggest the following. First, a chiefly labor network is formed among those in the chiefly village, with no significant difference between chiefly and non-chiefly clans.[20] As it is natural that a labor network was first formed among members in the same chiefly clan with close kin connections, this indicates that the network expanded to non-chiefly clans in the chiefly village over time; the chiefly-clan network did not necessarily become less important. Second, the chiefly-village labor network drove employment, and network capital was accumulated accordingly not only in the colonial era, but also after independence; after the 1987 coups, this network effect on employment vanished. Third, schooling corresponded to this structural change in labor market: Those in the chiefly labor network, which sustained, augmented their education investment, seeking its post-employment benefits, which did not decrease much. As such, the chiefly-village labor network positively affected male secondary education over time.

6.2. Females

---

is assumed, in equation (3-1) for both males and females and equation (3-2) for females. This is not a problem in testing hypothesis 3 because $\alpha_1 = \alpha_2$ is found in equation (1-2).

[20] When sub-chiefly clan status (lower status than chiefly clan) is added as an additional control in the models with village dummies, its estimated impacts are always nonsignificant in the employment and schooling models. This buttresses the significance of the village-level network.

Although a gender gap in secondary schooling is strong among both adults (especially in secondary completion) and youths, gender does not differentiate employment, probably because male employment is also uncommon in the sample. Chiefly status alters female adults' secondary schooling in qualitatively the same way as male adults': Chiefly-village status has positive effects on secondary completion in cohort 3 only (the estimated marginal effects are smaller than those for males, and accordingly those for all adults are in between males and females). Available evidence for a chiefly labor network for females is weak: 1) female employment is very uncommon across cohorts, especially in cohort 3 (only 2%, Table 2); 2) the estimated coefficients of chiefly-village status on employment for all adults in cohorts 1 and 2 are smaller and less statistically significant (in cohort 1) than those for males; and 3) the marginal effects for all adults decrease across cohorts in a much less sharp manner than those for males.[21]

Why does it appear that females in chiefly villages started to complete secondary school more commonly than those in other villages? Does this reflect only a recent change in distinct patterns of their marriage migration between chiefly and non-chiefly villages (i.e., selection bias)? Did females start to seek post-employment benefits of a chiefly labor network, as males did, for example? More research is needed in other locales where female employment is common (e.g., urban areas and tourism) by combining complete information of adults' original clans.

7. Robustness

[21] It is possible that some adults (especially females) not in their original clans got their current employment after they moved to the current village. I estimate the employment equations for all adults (and males) including those not in their original clans, finding similar results. This serves as some counterevidence against potential selection bias.

7.1. Systematic measurement errors in employment status

The estimated positive effects of chiefly status on current employment are those not on employment per se, but on the combination of historical employment and tenure. The estimated employment effects of chiefly-village status in cohorts 1 and 2 can be biased upward; in contrast, its nonsignificant effects in cohort 3, as well as those of chiefly-clan status across cohorts, are robust to such potential bias (such bias is minor for young adults anyway). This means that the network effects on employment did not actually decrease across cohorts, only if the estimated positive effects of chiefly-village status capture post-employment effects *only*. This should be very unlikely. Also, although such an upward bias is expected to be greater in cohort 1 than cohort 2, the estimated marginal effects of chiefly-village status are almost the same in between them. Therefore, the decreasing effects of chiefly-village status on employment are qualitatively robust.

7.2. Omitted variable bias in schooling models

Chiefly-village/-clan status might be correlated with unobserved factors that determine schooling. This is especially a concern in the adults' schooling models with very limited controls. As discussed shortly, although historical school access, school quality, and historical household wealth are potential sources of *upward* bias in the estimated impacts of chiefly status on schooling, such bias could be significant mainly in cohorts 1 and 2, not cohort 3. Then, if chiefly status picks up such unobserved effects, it causes a *decrease* in the estimated effects across cohorts. Hence, the increasing effects on secondary-school completion – in correspondence to the decreasing effects on employment (hypothesis 3) – are qualitatively robust to such omitted variable bias.

Qualitative gender comparison in the schooling models is robust to any potential bias caused by unobserved village and clan factors.

Historical school access

Distinct from the models with village dummies that fully control for historical school conditions, school construction, especially the expansion of secondary schools after independence (at the time of cohort 2's schooling), could be positively correlated with chiefly-village status in the models with district dummies (equations 3-1 and 3-2). This is because under the grant-in-aid system, the government might treat community committees associated with chiefly villages with stronger political connections better than other villages (Banerjee et al., 2009 review empirical research on collective action and public goods; e.g., Banerjee and Somanathan, 2007). As only one Fijian secondary school is available in each district, if any, district dummies control for historical availability of a secondary school in the district; though information of historical school access within the district is lacking. I use distance to current schools – primary and secondary – interacted with cohort dummies as proxies for historical school access. Results of the remaining variables are very similar to each other, both with and without the proxies. It is noted that not only are models with school access omitted, but also models with these proxies could involve upward bias in the estimated impacts of chiefly-village status, because errors in the proxies are smaller in magnitude in chiefly villages than in other villages (if the former's access improved faster); though the appendix offers counterevidence against such systematic errors. Measurement errors in the proxies must be much larger for secondary school than primary school with a much longer history; the older the cohorts, the greater are the measurement errors, of course.

School quality

School quality also could be positively correlated with chiefly-village status. Although the current data lack information about school quality, district dummies fully control for the current and historical quality of secondary schools (including boarding facilities). At the same time, however, district dummies partially control for the quality of primary schools, because some districts have/had more than one primary school. If the quality of primary schools uncontrolled by district dummies influences secondary schooling through primary-school completion and academic performance, it could cause upward bias in the estimated impacts of chiefly-village status on secondary schooling for both adults and youths. This potential bias is likely to be the largest among older adults in cohort 1, many of whom did not complete primary education.[22]

Historical household wealth

In the adults' schooling models, unobserved historical household wealth not captured by parents' education and clan assets might be positively correlated with chiefly-village/-clan status; then, if household wealth positively affects schooling, the estimated impacts of chiefly status are biased upward. As parents' education became a more important determinant of income over time (Hypothesis 1 and Table 1), unobserved welfare effects, if any, should be greater among older adults in cohort 1 than among younger adults. Indeed, estimated welfare effects are not so strong among youths, especially boys, as reported in the appendix.

Historical village and clan size

[22] If the recent quality improvement of primary schools is systematically differentiated by chiefly-village status, the potential bias through distinct academic performance could be considerable in cohorts 3 and 4.

In the adults' schooling models, unobserved historical village/clan size positively correlated with chiefly village/clan status could cause upward bias, because of the externality/network effects discussed above. In particular, if chiefly villages recently augmented in size more rapidly than other villages, and both chiefly and non-chiefly clans in the chiefly village augmented in the same way, this could lead to an *increase* in secondary schooling in chiefly villages, but not in chiefly clans; that is, chiefly-village status could pick up network effects not related to a chiefly network. This potential bias is unlikely to be a concern for the following reasons. First, such demographic patterns are unlikely to be caused by female marriage migration, because there is no significant difference in chiefly-village/-clan status of females in their original clans and others across cohorts. Second, urban migration could be more common in chiefly villages/clans than others, if chiefly network drives urban employment and tertiary education. Third, explaining why externality/network effects matter for secondary completion, but not enrollment is not straightforward; the appendix offers counterevidence among youths.[23]

8. Conclusion

Using original household survey data in rural Fiji, which contain unique information about chiefly-group status, and Fijian coups as a natural experiment, this paper showed evidence that chiefly labor networks in non-farm occupations that originated from the British colonial policy has persistently affected Fijians' schooling. Most male Fijians outside the chiefly network have been discouraged from making education investments over time. As non-farm employment plays an increasing role in

[23] I also repeated the analysis using current village size interacted with cohort dummies as proxies for historical size, finding very similar results for chiefly status; these proxies could contain systematic errors which are generally unsigned (cf. historical school access).

earnings, income inequality has augmented among Fijians. Without being directly constrained by this chiefly institution, Indians and Female Fijians outperformed male Fijians in higher education. As such, an indigenous chiefly system shaped the country's economic growth and inequality through institutional developments in its colonial history.

Appendix

This appendix discusses estimation results of other covariates (results not shown, unless otherwise noted). First, significant results in the adults' employment models are limited to positive and negative effects of household-head status and distance to local market (the latter indicates major employment opportunities in towns).

Second, the estimated coefficients of parents' education in the schooling models for adults and youths are reported in Table A2 (for adults, parents' secondary incomplete and complete or above are combined to secondary incomplete or above, because secondary completion is uncommon among them). Reflecting the rapid progress of female schooling, the higher the education level, the more important is mother's secondary education compared to father's. Specifically, although only father's secondary education positively affects both male and female adults' primary-school completion or above (results not shown), father's and mother's secondary education, respectively, influence male and female adults' secondary enrollment, and only mother's matters for both adults' secondary completion, with greater effects on females than males. In contrast, mother's secondary completion matters for boys' secondary enrollment, but not girls'.

Third, consistent with general education development, secondary schooling – both completion and enrollment – is more common among younger adults (both males and females). Distance to secondary school (proxies) negatively affects secondary-school

enrollment, but not completion, among female adults, but not male, in cohorts 1 and 2, but not cohort 3. Hence, secondary enrollment was constrained by school access, and rural-school expansion after independence significantly helped female schooling. This does not mean that school access did not matter for young adults, rather, that their school access affecting enrollment is captured by district dummies (for secondary completion this is the case over time). This also serves as counterevidence against significant systematic errors in the proxies for historical school access.

Fourth, the following results are found for youths' secondary schooling. While girls' schooling is constrained by non-land assets (positive impacts), but not land, secondary schooling is strived for by boys with a smaller prospect for land accumulation (total clan land, not household assets, has negative effects). Girls with a greater number of younger sisters are less likely to enroll (presumably to help care them), and boys in larger clans are more likely to enroll (consistent with the externality/network effects). As found among young adults, access to secondary school not captured by district dummies is not a constraint. At the same time, girls' secondary schooling is negatively affected by distance to primary school (similar patterns are found for male adults' secondary enrollment). This is probably because school access (within the district) affects delay/repetition in primary school.

Acknowledgments

I wish to thank my field team – Jonati Torocake, Viliame Manavure, Viliame Lomaloma, and 16 enumerators – for their advice, enthusiasm, and exceptional efforts on behalf of this project. Special thanks are owed to the Fijians of the region who so willingly participated in the survey. The Cakaudrove Provincial Office in Fiji offered

valuable institutional support for this project. This paper has benefited significantly from the comments and suggestions of Yutaka Arimoto, Takashi Kurosaki, Chiaki Moriguchi, and seminar participants at Hitotsubashi University. This research has been made possible through support provided by the Sumitomo Foundation, the Japan Society for the Promotion of Science, and the Ministry of Education, Culture, Sports, Science and Technology in Japan. Any errors of interpretation are solely the author's responsibility.

References

Acemoglu, D., Johnson, S., Robinson, J. A., 2001. The Colonial Origins of Comparative Development: An Empirical Investigation. American Economic Review 91(5), 1369-1401.

Acemoglu, D., Johnson, S., Robinson, J. A., 2005. Institutions as a fundamental cause of long-run growth. In: P. Aghion, S. Durlauf (Eds.), Handbook of Economic Growth. North Holland, Amsterdam.

Acemoglu, D., Robinson, J. A., 2008. Persistence of Power, Elites, and Institutions. American Economic Review 98(1), 267-93.

Banerjee, A., Iyer, L., 2005. History, institutions, and economic performance: the legacy of colonial land tenure systems in India. American Economic Review 95(4), 1190-1213.

Banerjee, A., Iyer, L., Somanathan, R., 2009. Public action for public goods. In: P. T. Schultz, J. Strauss (Eds.), Handbook of Development Economics. North Holland, Elsevier, Amsterdam.

Banerjee, A., Somanathan, R., 2007. The political economy of public goods: some evidence from India. Journal of Development Economics 82(2), 287-314.

Bertocchi, G., Spagat, M., 2004. The evolution of modern education systems: technical vs. general education, distributional conflict, and growth. Journal of Development Economics 73(2), 559-582.

Cameiro, R. L., 1981. The chiefdom: precursor of the state. In: G. D. Jones, R. R. Kautz (Eds.), The Transition to Statehood in the New World. Cambridge University Press, Cambridge.

Elek, A., Hill, H., Tabor, S. R., 1993. Liberalization and diversification in a small island economy: Fiji since the 1987 coups. World Development 21(5), 749-769.

Ghai, Y., 1987. The Fijian crisis: the constitutional dimension. In: H. Tinker, N. Duraiswamy, Y. Ghai, M. Ennals (Eds.), Fiji. Minority Rights Group, London.

Gillion, K. L., 1977. The Fiji Indians: Challenge to European Dominance 1920-1946. Australian National University Press, Canberra.

Goldstein, M., Udry, C., 2009. The Profits of Power: Land Rights and Agricultural Investment in Ghana. Journal of Political Economy 116(6), 981-1022.

Huillery, E., 2009. History matters: the long-term impact of colonial public investments in French West Africa. American Economic Journal: Applied Economics 1(2), 176-215.

La Porta, R., López de Silanes, F., Shleifer, A., Vishny, R., 1998. Law and finance. Journal of Political Economy 106(6), 1113-1155.

Lerman, R. I., Yitzhaki, S., 1985. Income inequality effects by income source: a new approach and application to the United States. Review of Economics and Statistics 67, 151-156.

Ministry of Education, 2010. Annual report 2008. Ministry of Education, Suva.

Ministry of Finance and National Planning, 2004. Millennium Development Goals: Fiji National Report. Ministry of Finance and National Planning, Suva.

Munshi, K., 2003. Networks in the Modern Economy: Mexican Migrants in the U. S. Labor Market. Quarterly Journal of Economics 118(2), 549-99.

Munshi, K., Rosenzweig, M., 2006. Traditional Institutions Meet the Modern World: Caste, Gender, and Schooling Choice in a Globalizing Economy. American Economic Review 96(4), 1225-1252.

Norton, R., 1977. Race and Politics in Fiji. University of Queensland Press, Brisbane.

Nunn, N., 2007. Historical legacies: a model linking African's past to its current underdevelopment. Journal of Development Economics 83(1), 157-175.

Pandey, P., 2010. Service delivery and corruption in public services: how does history matter? American Economics Journal: Applied Economics 2(3), 190-204.

Ravuvu, A., 1983. Vaka I Taukei: The Fijian Way of Life. Institute of Pacific Studies, Suva.

Scarr, D. (Ed.), 1982. Fiji: The Three Lagged Stool. Selected Writings of Ratu Sir Lala Sukuna. MacMillan Education, Canberra.

Sokoloff, K. L., Engerman, S. L., 2000. Institutions, factor endowments, and paths of development in the new world. Journal of Economic Perspective 14(3), 217-232.

Stark, O., Taylor, J. E., Yitzhaki, S., 1986. Remittances and inequality. Economic Journal 96, 722-740.

Takasaki, Y., 2011. Groups, networks, and hierarchy in household private transfers: Evidence from Fiji. Oxford Development Studies 39(1), 97-130.

Tavola, H., 1992. Secondary education in Fiji: a key to the future. University of the South Pacific, Suva.

Turner, J. W., 1992. Ritual, habitus, and hierarchy in Fiji. Ethnology 31(4), 291-302.

White, C. M., 2001. Affirmative action and education in Fiji: Legitimation, contestation, and colonial discourse. Harvard Education Review 71(2), 240-269.

Table 1. Employment, income, and inequality decomposition by income source by cohort.

A. Employment and income.

	All	Age of household head: Cohort 1: age 50 or above	Cohort 2: age 35-49	Cohort 3: age 20-34
Permanent wage labor employment (0/1)	0.16	0.13	0.17	0.22
Total earned income per capita (F$)				
All	2281	2337	2083	2727
	(2647)	(2951)	(2110)	(2825)
Without permanent wage labor employment	2113 (2575)	2178 (2952)	1991 (2123)	2235 (1981)
With permanent wage labor employment	3168 (2847)	3359 (2758)	2521 (2006)	4408 (4339)
No. observations	903	455	349	99

B. Inequality decomposition by income source.

	Income share	Source Gini	Gini correlation	Inequality share	Elasticity
All:					
Crop	0.62	0.62	0.91	0.67	0.047
Fishing	0.11	0.72	0.66	0.10	-0.011
Handicraft	0.08	0.70	0.42	0.05	-0.037
Permanent wage labor	0.10	0.92	0.60	0.11	0.004
Other	0.08	0.81	0.62	0.08	-0.004
Total		0.53			
Cohort 1:					
Crop	0.63	0.66	0.94	0.69	0.055
Fishing	0.11	0.74	0.69	0.10	-0.010
Handicraft	0.10	0.71	0.47	0.06	-0.041
Permanent wage labor	0.08	0.93	0.62	0.08	0.001
Other	0.09	0.84	0.63	0.08	-0.005
Total		0.57			
Cohort 2:					
Crop	0.63	0.58	0.90	0.68	0.051
Fishing	0.11	0.69	0.61	0.10	-0.014
Handicraft	0.07	0.66	0.40	0.04	-0.032
Permanent wage labor	0.10	0.90	0.50	0.09	-0.006
Other	0.09	0.77	0.63	0.09	0.000
Total		0.48			
Cohort 3:					
Crop	0.54	0.58	0.79	0.53	-0.006
Fishing	0.12	0.71	0.64	0.12	-0.004
Handicraft	0.05	0.71	0.26	0.02	-0.033
Permanent wage labor	0.22	0.88	0.67	0.28	0.058
Other	0.06	0.72	0.47	0.05	-0.017
Total		0.47			

Note: Standard deviations are in parentheses.

Table 2. Employment and education attainment of working adults.

	All clans	Original clans		
		All	Male	Female
Employment				
Permanent wage labor (0/1)	0.06	0.07	0.09	0.04
Cohort 1: age 50-65	0.05	0.05	0.06	0.04
Cohort 2: age 35-49	0.08	0.09	0.11	0.04
Cohort 3: age 20-34	0.06	0.07	0.09	0.02
Occupational distribution (unweighted)				
Office work/skilled labor	41%	42%	47%	25%
Tourism	9%	11%	7%	25%
Teacher	13%	9%	5%	25%
Military	3%	3%	3%	0%
Unskilled labor	26%	30%	32%	21%
Other	8%	5%	5%	4%
Occupational distribution (weighted by earnings)				
Office work/skilled labor	50%	55%	61%	28%
Tourism	7%	8%	6%	18%
Teacher	15%	9%	6%	28%
Military	3%	3%	3%	0%
Unskilled labor	17%	19%	19%	21%
Other	8%	6%	6%	5%
Education attainment				
Primary incomplete or below (0/1)	0.17	0.17	0.18	0.17
Primary complete (0/1)	0.29	0.29	0.31	0.26
Secondary incomplete (0/1)	0.34	0.33	0.34	0.31
Secondary complete or above (0/1)	0.20	0.20	0.17	0.26
No. observations	2334	1712	1093	619
Cohort 1: age 50-65	23%	22%	23%	22%
Cohort 2: age 35-49	36%	34%	37%	30%
Cohort 3: age 20-34	41%	43%	41%	48%

Table 3. Permanent employment of working adults in original clans.

	All		Male	
Education	No	Yes	No	Yes
	(1)	(2)	(3)	(4)
A1. Models with district dummies - chiefly-village status.				
Chiefly village (0/1)	0.042	0.038	0.060	0.052
	(0.026)	(0.027)	(0.037)	(0.038)
R-squared	0.109	0.120	0.103	0.116
No. observations	1617	1591	1019	1009
A2. Models with district dummies - chiefly-village status by cohort.				
Chiefly village × cohort 1	0.042	0.040	0.087 **	0.080 *
	(0.028)	(0.028)	(0.042)	(0.042)
Chiefly village × cohort 2	0.065 **	0.065 **	0.091 ***	0.088 **
	(0.026)	(0.026)	(0.035)	(0.035)
Chiefly village × cohort 3	0.023	0.015	0.012	0.001
	(0.022)	(0.022)	(0.030)	(0.029)
B1. Models with village dummies - chiefly-clan status.				
Chiefly clan (0/1)	-0.021	-0.017	-0.068	-0.071
	(0.049)	(0.047)	(0.061)	(0.063)
Female (0/1)	0.014	0.001		
	(0.018)	(0.017)		
Primary complete (0/1)		0.029		0.053
		(0.025)		(0.037)
Secondary incomplete (0/1)		0.032		0.057
		(0.026)		(0.038)
Secondary complete or above		0.123 ***		0.159 ***
(0/1)		(0.034)		(0.047)
R-squared	0.149	0.166	0.161	0.182
No. observations	1071	1049	699	689
B2. Models with village dummies - chiefly-clan status by cohort.				
Chiefly clan × cohort 1	-0.127 **	-0.127 **	-0.149 **	-0.159 **
	(0.052)	(0.053)	(0.075)	(0.077)
Chiefly clan × cohort 2	0.087	0.092	0.028	0.032
	(0.077)	(0.075)	(0.096)	(0.095)
Chiefly clan × cohort 3	-0.035	-0.030	-0.091	-0.098
	(0.053)	(0.052)	(0.067)	(0.065)

*10% significance, **5% significance, ***1% significance.

Note: OLS estimates are shown. Robust standard errors are in parentheses. Standard errors in panels A1 and B1 are clustered by village and clan, respectively. Other controls not shown here are age, household head dummy, age of household head, household size, proportion of children (<15), proportion of elderly (>65), total clan land (log), clan size (log), distance to local market (log), village size (log), and constant. Female dummy is also included in columns (1) and (2) of panels A1, A2, and B2 and education variables are also included in columns (2) and (4) of panels A1, A2, and B2.

Table 4. Secondary-school completion of working adults in original clans.

	All		Male		Female	
Parents' education	No	Yes	No	Yes	No	Yes
	(1)	(2)	(3)	(4)	(5)	(6)
A1. Models with district dummies - chiefly-village status.						
Chiefly village (0/1)	0.052 **	0.086 ***	0.064 ***	0.094 ***	0.030	0.059
	(0.021)	(0.028)	(0.019)	(0.027)	(0.035)	(0.047)
R-squared	0.194	0.194	0.076	0.122	0.206	0.313
No. observations	1596	972	1012	648	584	319
A2. Models with district dummies - chiefly-village status by cohort.						
Chiefly village × cohorts 1&2	-0.018	-0.004	-0.010	0.003	-0.039	-0.044
	(0.022)	(0.031)	(0.028)	(0.036)	(0.038)	(0.058)
Chiefly village × cohort 3	0.147 ***	0.205 ***	0.180 ***	0.239 ***	0.108 *	0.155 **
	(0.038)	(0.048)	(0.049)	(0.062)	(0.063)	(0.075)
B1. Models with village dummies - chiefly-clan status.						
Chiefly clan (0/1)	-0.002	-0.036	0.023	0.005	-0.021	-0.092
	(0.043)	(0.050)	(0.048)	(0.064)	(0.064)	(0.072)
Female (0/1)	0.076 ***	0.088 ***				
	(0.021)	(0.029)				
R-squared	0.130	0.189	0.086	0.129	0.240	0.363
No. observations	1485	932	939	590	516	300
B2. Models with village dummies - chiefly-clan status by cohort.						
Chiefly clan × cohorts 1&2	-0.032	-0.057	-0.030	-0.035	0.003	-0.030
	(0.046)	(0.053)	(0.056)	(0.066)	(0.074)	(0.092)
Chiefly clan × cohort 3	0.038	-0.007	0.100	0.060	-0.052	-0.167
	(0.070)	(0.083)	(0.087)	(0.103)	(0.120)	(0.141)

*10% significance, **5% significance, ***1% significance.

Note: OLS estimates are shown. Robust standard errors are in parentheses. Standard errors in panels A1 and B1 are clustered by village and clan, respectively. Other controls not shown here are age, total clan land (log), and constant. Distance to primary and secondary schools (interacted with cohort dummies) (log) are also included in panel A1 and A2. Female dummy is also included in columns (1) and (2) of panels A1, A2, and B2 and parents' education variables are also included in columns (2), (4), and (6) of all panels.

Table 5. Secondary-school enrollment of working adults in original clans and youths.

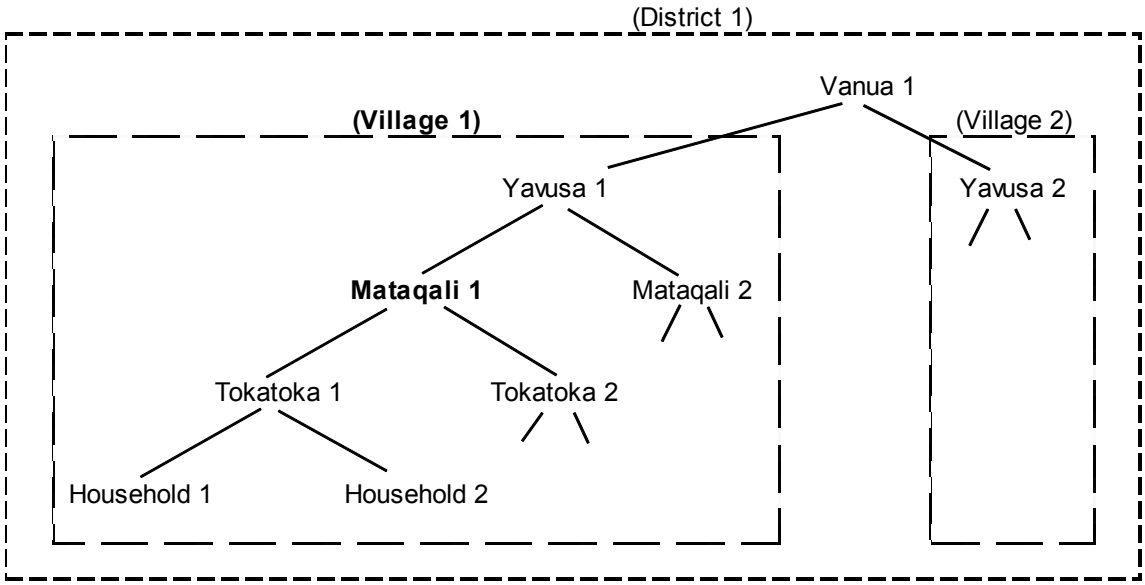
	All		Male/Boy		Female/Girl	
Parents' education	No	Yes	No	Yes	No	Yes
	(1)	(2)	(3)	(4)	(5)	(6)
A1. Adults' models with district dummies - chiefly-village status.						
Chiefly village (0/1)	0.047 *	0.062 *	0.052 *	0.051	0.038	0.103 *
	(0.027)	(0.031)	(0.028)	(0.032)	(0.036)	(0.051)
R-squared	0.194	0.194	0.170	0.189	0.250	0.237
No. observations	1596	972	1012	648	584	319
A2. Adults' models with district dummies - chiefly-village status by cohort.						
Chiefly village × cohort 1	-0.034	0.001	0.009	0.036		
	(0.045)	(0.064)	(0.058)	(0.075)		
Chiefly village × cohort 2[a]	0.065 *	0.065	0.016	0.017	0.067	0.120
	(0.039)	(0.053)	(0.050)	(0.066)	(0.052)	(0.078)
Chiefly village × cohort 3	0.075 **	0.091 **	0.110 **	0.093	0.007	0.087
	(0.036)	(0.044)	(0.047)	(0.057)	(0.055)	(0.071)
B1. Adults' models with village dummies - chiefly-clan status.						
Chiefly clan (0/1)	0.024	0.014	0.066	0.082	-0.035	-0.135 *
	(0.050)	(0.046)	-0.050	-0.055	(0.079)	-0.080
Female (0/1)	0.055 **	0.048				
	(0.022)	(0.030)				
R-squared	0.193	0.203	0.164	0.191	0.275	0.284
No. observations	1485	947	966	638	512	295
B2. Adults' models with village dummies - chiefly-clan status by cohort.						
Chiefly clan × cohort 1	-0.059	-0.047	-0.006	0.042		
	(0.077)	(0.092)	(0.103)	(0.116)		
Chiefly clan × cohort 2[a]	0.103	0.075	0.079	0.067	0.037	-0.057
	(0.071)	(0.094)	(0.090)	(0.121)	(0.093)	(0.128)
Chiefly clan × cohort 3	0.019	0.015	0.104	0.120	-0.126	-0.230 *
	(0.059)	(0.072)	(0.071)	(0.084)	(0.104)	(0.135)
C. Youths' models with district dummies - chiefly-village status.						
Chiefly village (0/1)	0.023	0.066	0.029	0.085	0.031	0.064
	(0.049)	(0.057)	(0.080)	(0.114)	(0.068)	(0.075)
R-squared	0.120	0.120	0.111	0.113	0.187	0.226
No. observations	506	389	258	201	226	171
D. Youths' models with village dummies - chiefly-clan status.						
Chiefly clan (0/1)	0.042	0.005	0.123	0.066	-0.086	-0.132
	(0.120)	(0.143)	(0.125)	(0.182)	(0.183)	(0.225)
Girl (0/1)	0.119 **	0.122 **				
	(0.048)	(0.057)				
R-squared	0.181	0.187	0.233	0.275	0.237	0.249
No. observations	480	365	235	173	194	132

*10% significance, **5% significance, ***1% significance.

[a] Cohorts 1 and 2 combined in columns (5) and (6).

Note: OLS estimates are shown. Robust standard errors are in parentheses. Standard errors in panels A1/C and B1/D are clustered by village and clan, respectively. Other controls in panels A1, A2, B1, and B2 not shown here are age, total clan land (log), and constant. Distance to primary and secondary schools (interacted with cohort dummies) (log) are also included in panel A1 and A2 and female dummy is also included in columns (1) and (2) of panels A1, A2, and B2. Other controls in panels C and D not shown here are age, no. of elder sisters, younger sisters, elder brothers, and younger sisters, age of household head, household size, land (m^2, log), non-land assets (log), total clan land (acre, log), clan size (log), and constant. Distance to primary and secondary schools (log) and village size (log) are also included in panel C and girl dummy is also included in columns (1) and (2) of panel C. Parents' education variables are also included in columns (2), (4), and (6) of all panels.

Figure 1. Fijian chiefdom structure.



Note: Chiefly village and chiefly clan (mataqali) are bolded.

Figure 2. Education attainment of working adults in all clans by sex and cohort.

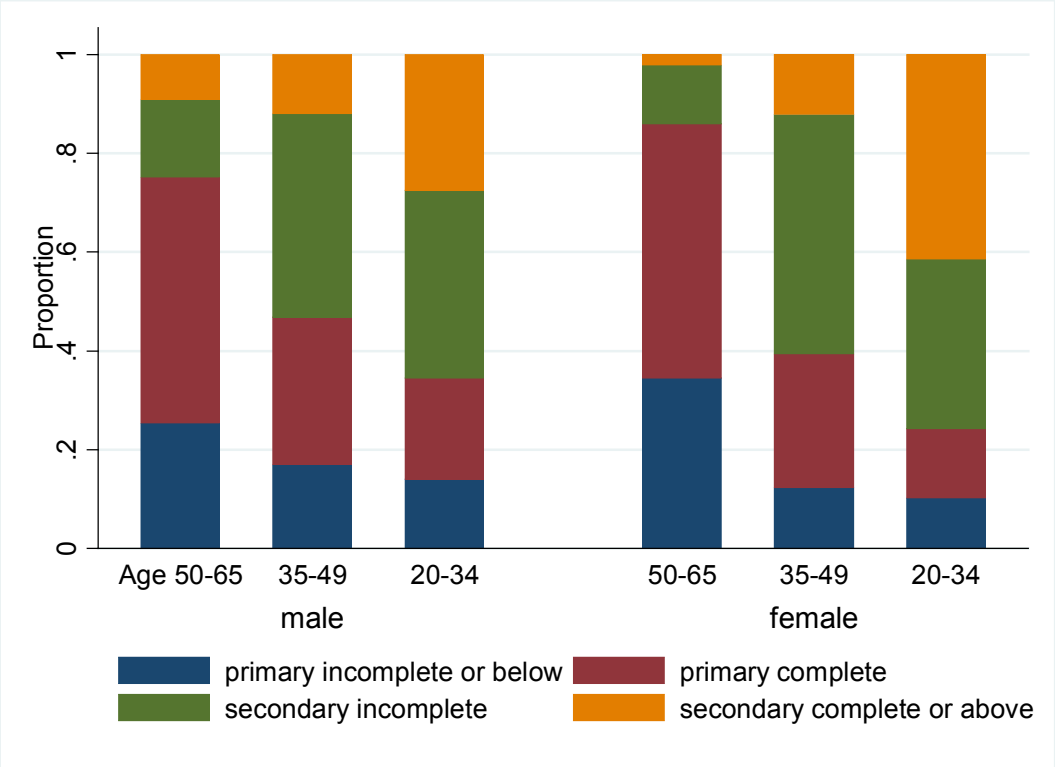


Figure 3. Secondary-school enrollment or completion of youths by sex and age.

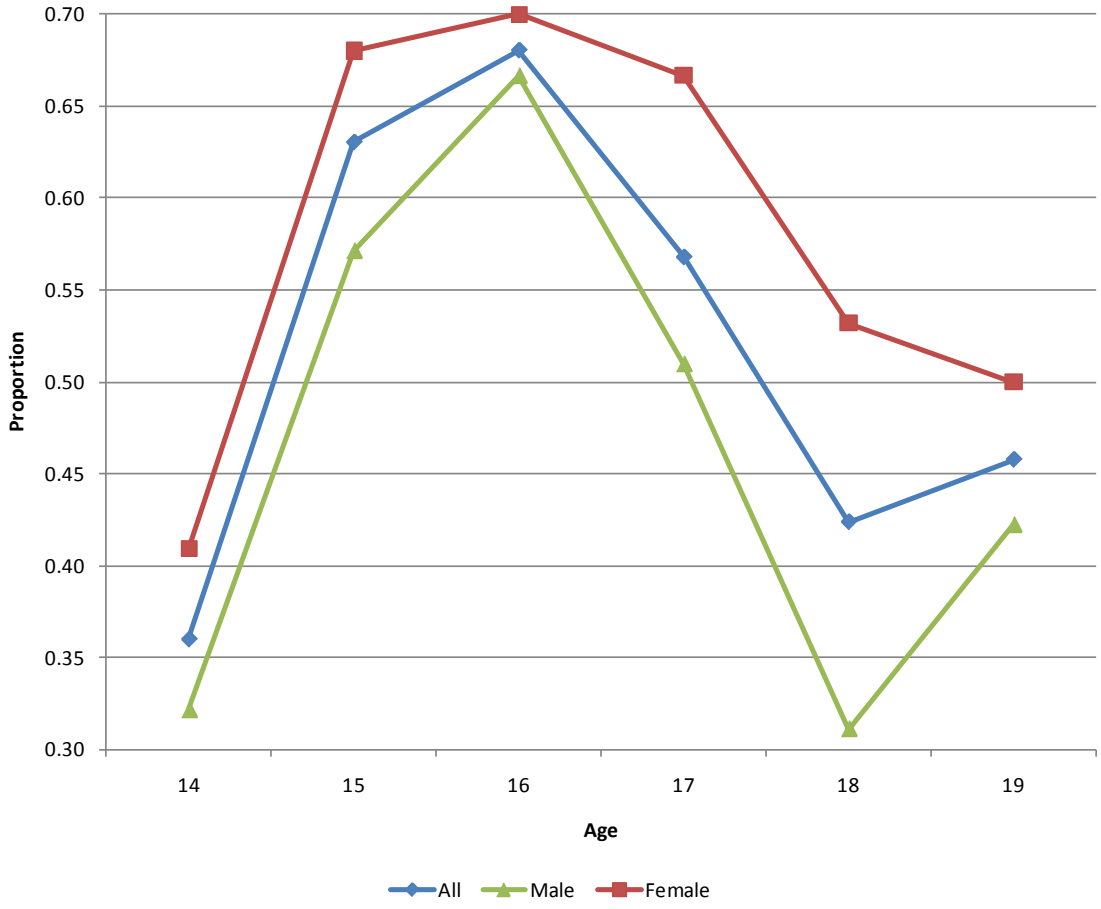


Table A1. Descriptive statistics of explanatory variables.

A. Households.

Chiefly status	
Chiefly village (0/1)	0.34
Chiefly clan (0/1)	0.14
Household characteristics	
Age of household head	51.4 (14.6)
Household size	5.5 (2.7)
Proportion of children (<15)	0.32 (0.24)
Proportion of elderly (>65)	0.09 (0.21)
Land (acre)	2.9 (4.8)
Non-land assets (F$)	1844 (4455)
Clan characteristics	
No. households in the clan	21.0 (14.3)
Village characteristics	
No. households in the village	53.3 (21.3)
Distance to primary school (km)	1.5 (2.8)
Distance to secondary school (km)	19.2 (28.2)
Distance to local market (min)	81.4 (68.7)
No. observations	903

B. Working adults (age 20-65) and youths (age 14-19).

	Adults in all clans	Adults in original clans			Youths
		All	Male	Female	
Female (0/1)	0.48	0.36	0.00	1.00	0.46
Age	38.8	38.3	38.9	37.3	16.4
	(12.8)	(13.0)	(12.7)	(13.5)	(1.7)
Household head (0/1)	0.31	0.39	0.57	0.07	
No. of elder brothers					0.25 (0.51)
No. of younger brothers					1.23 (1.26)
No. of elder sisters					0.37 (0.67)
No. of younger sisters					1.51 (1.37)
No. observations	2334	1712	1093	619	545
Mother's education					
Primary incomplete or below (0/1)	0.63	0.61	0.63	0.58	0.17
Primary complete (0/1)	0.25	0.26	0.26	0.28	0.36
Secondary incomplete (0/1)	0.09	0.10	0.09	0.12	0.41
Secondary complete or above (0/1)	0.03	0.03	0.03	0.03	0.06
Father's education					
Primary incomplete or below (0/1)	0.62	0.60	0.61	0.59	0.19
Primary complete (0/1)	0.26	0.28	0.28	0.28	0.40
Secondary incomplete (0/1)	0.07	0.07	0.07	0.09	0.31
Secondary complete or above (0/1)	0.05	0.05	0.05	0.04	0.10
No. observations	1543	1146	763	383	430

Note: Standard deviations are in parentheses.

Table A2. Effects of parents' education on schooling of working adults in original clans and youths unreported in Tables 4 and 5.

	All	Male /Boy	Female /Girl
	(1)	(2)	(3)
A. Adults' secondary-school completion			
Mother's primary complete (0/1)	0.089 **	0.104 *	0.104
	(0.040)	(0.053)	(0.077)
Father's primary complete (0/1)	0.043	0.008	0.066
	(0.044)	(0.053)	(0.083)
Mother's secondary incomplete or above (0/1)	0.208 ***	0.136 *	0.379 ***
	(0.060)	(0.078)	(0.108)
Father's secondary incomplete or above (0/1)	0.099	0.081	0.118
	(0.065)	(0.085)	(0.100)
B. Adults' secondary-school enrollment			
Mother's primary complete (0/1)	0.018	0.016	0.042
	(0.045)	(0.054)	(0.087)
Father's primary complete (0/1)	0.053	0.042	0.049
	(0.047)	(0.050)	(0.085)
Mother's secondary incomplete or above (0/1)	0.027	-0.015	0.153 *
	(0.055)	(0.073)	(0.088)
Father's secondary incomplete or above (0/1)	0.123 **	0.149 **	0.062
	(0.060)	(0.065)	(0.110)
C. Youths' secondary-school enrollment			
Mother's primary complete (0/1)	0.100	0.023	0.157
	(0.077)	(0.151)	(0.184)
Father's primary complete (0/1)	0.076	-0.082	0.113
	(0.075)	(0.170)	(0.176)
Mother's secondary incomplete (0/1)	0.144 *	0.119	0.210
	(0.078)	(0.133)	(0.190)
Father's secondary incomplete (0/1)	0.077	0.039	0.148
	(0.079)	(0.171)	(0.176)
Mother's secondary complete or above (0/1)	0.183	0.359 *	0.013
	(0.138)	(0.200)	(0.265)
Father's secondary complete or above (0/1)	0.010	-0.073	0.080
	(0.131)	(0.226)	(0.221)

*10% significance, **5% significance, ***1% significance.

Note: Columns (1)-(3) of panels A, B, and C, respectively, match columns (2), (4), and (6) in panel B1 of Table 4, panel B1 of Table 5, and panel D of Table 5.