Chiefly Patronage and Schooling

YOSHITO TAKASAKI
University of Tokyo, Tokyo, Japan

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ABSTRACT In developing countries, indigenous chiefly systems can be a main driver of patronage, potentially hampering development. This paper explores how chiefly patronage shapes people’s incentives for schooling in Fiji. I develop a model to show how chiefly status can influence a household’s child schooling decision, depending on whether the patronage operates in labor markets. I employ a triple-difference approach by combining the novel direct measures of chieftaincy from my original survey data with 1970 independence and 1987 coups as natural experiments, and gender. I show that indigenous chieftaincy interacted with British colonial rule to affect employment, and thus schooling, after independence for males but not females in chiefly networks. After this patronage weakened under post-coup reforms, males in the networks temporarily increased secondary schooling to compensate for their weakened advantage. The majority of male Fijians outside the networks were less encouraged to make schooling investments over time. As such, chiefly patronage persistently distorted male secondary schooling, thereby augmenting the outperformance of female education.

KEYWORDS: Chiefly patronage; employment; schooling; Fiji

1. Introduction

Throughout history, patronage has played a key role in the allocation of governmental and political positions (Grindle, 2012). As the quality of public employees is a central determinant of government performance (Besley & Persson, 2009; Finan, Olken, & Pande, 2017), potential frictions in their discretionary recruitment due to patronage are a major concern. Patronage may not only lower organizational performance through the selection of a workforce but also distort people’s investments in human capital, such as schooling. Since education is a key determinant of individuals’ employment and earnings and economic growth, such distortions can potentially have broad adverse consequences. In developing countries where political institutions are linked with indigenous chiefly systems, chieftaincy can be a main driver of patronage. As indigenous chieftaincy is usually permanent, if patronage driven by chieftaincy distorts people’s schooling decisions, it can be persistently detrimental to development. This paper explores how chiefly patronage shapes people’s incentives for schooling in Fiji.

In standard household surveys, traditional elite status, such as chiefly status, is often unobservable to researchers, and even if it is observable, there are too few elites and elite groups to make statistical analysis possible. To overcome this challenge, my original survey centers on chieftaincy: it stratifies villages by chiefly-village status and households in each village by clan.
Thus, my data contain rich variations in chiefly-group (village/clan) status to capture patronage networks. I develop a simple model to show how chiefly status can influence a household’s child schooling decision, depending on whether the patronage operates in labor markets. My empirical analysis of adults’ employment and schooling combines differences in chiefly status across groups with differences across cohorts induced by the timing of political shocks in Fiji—1970 independence and 1987 coups—as natural experiments. To identify the effects of chiefly-village status, controlling for village heterogeneity across cohorts is crucial because school-supply conditions can be related to chiefly-village status through political processes over time (Banerjee, Iyer, & Somanathan, 2009). As both genders share the same school-supply factors, I utilize a triple-difference approach, using gender as a third dimension of difference in addition to the chieftaincy and cohort dimensions.

The results suggest that indigenous chieftaincy interacted with British colonial rule to affect Fijians’ employment after independence in 1970. Employment and secondary education among males in chiefly villages became more common than in non-chiefly villages. After this patronage weakened in the labor markets under economic reforms following the first coup in 1987, males in chiefly villages temporarily increased their secondary education, presumably to compensate for the advantage in employment that had weakened. Such distinct evolution patterns were absent among females, for whom patronage networks were absent. As such, the majority of male Fijians outside patronage networks used to be constrained in labor markets and, compared to those in the networks, less encouraged to invest in schooling; such pervasive incentives continued, albeit temporarily after this constraint was relaxed. As a result, a new status-based education gap emerged among males, augmenting the outperformance of female education: females caught up with and then surpassed males in secondary education.

The paper makes the following contributions to the literature. First, recent empirical works on political patronage show its significance in public-sector employment and its detrimental consequences on government performance (Akhtari, Moreira, & Trucco, 2022; Colonnelli, Prem, & Teso, 2020; Xu, 2018). Distinct from extant works, I study chiefly patronage, which has been little studied, and addresses an unexplored question of how it affects people’s schooling decisions. My finding of the depressing effects of chiefly patronage on schooling among people outside patronage networks points to a mechanism underlying a broad range of its potential adverse consequences in development.

Second, my study on the behavioral impacts of patronage is related to the extensive literature on affirmative action (Arcidiacono & Lovenheim, 2016; Arcidiacono, Lovenheim, & Zhu, 2015; Fryer & Loury, 2005; Holzer & Neumark, 2000). In the context of education and labor markets, a common concern is that affirmative action could reduce incentives for effort and skill acquisition in the targeted group. My finding that chiefly patronage distorted incentives for schooling is analogous to such perverse incentives. An important difference is that patronage discourages schooling among those not favored.

Third, although African chiefly systems are known to play major roles in post-colonial development (Berman, 1998; Boone, 2003; Michalopoulos & Papaioannou, 2015, 2020), limited empirical studies have been done on this. The paucity of chieftaincy data is a central constraint. Acemoglu, Reed, and Robinson (2014) measure chiefs’ power by using the number of ruling families in the chiefdom in Sierra Leone as a proxy. I exploit novel direct measures of chieftaincy from my specifically designed survey in the Pacific islands, where empirical studies have been limited in general. My approach and findings are related to those of Goldstein and Udry (2008) study in Ghana, where connections to chiefs determine property rights to land and thus agricultural investments.

Fourth, though it does not address colonial legacies directly (see Nunn, 2009, 2014 for reviews), this paper provides evidence for politically driven institutions developed under British colonial indirect rule as a persistence mechanism (Iyer, 2010; Lange, 2009). My finding on patronage networks shaping people’s incentives for schooling echoes Munshi and Rosenzweig
finding in 1990s Bombay, where gender-cum-caste labor networks made schooling responses to increased returns to nontraditional white-collar occupations distinct in the gender sphere, such that girls’ enrollments in English schools increased more than boys’.

Fifth, this paper provides a rarely studied case where historical institutions that had persisted after independence did not persist later (Nunn, 2009, 2014). Xu (2018) examines patronage appointments in the British colonial administration before and after the removal of patronage (in the 1930 reform). In Fiji, the weakening of patronage under post-coup reforms has driven the country’s education paths. This finding points to an alternative mechanism of the recent progress in female education in developing countries: institutional changes may discourage males’ education without directly affecting females’.

The rest of the paper is organized as follows. The next section describes the coups, reforms, chiefly networks, and education in Fiji. Section 3 describes my data and the evolution of education and employment in Fiji. Section 4 develops a theoretical framework. Section 5 develops an empirical framework, followed by the estimation results reported in Section 6. Section 7 conducts a robustness check. The last section concludes the paper.

2. Background
2.1. History, coups, and reforms

In 1874, Fiji became a British colony, and a native administration was established for the indigenous chiefly system. Between 1879 and 1916, the colonial government brought ~60,000 indentured laborers from India to work on Fiji’s sugar plantations. In the 1950s and 1960s, Fijians lagged behind Indians in commerce, professions, and higher education. At independence in 1970, chiefly governance was maintained, thus ensuring Fijians’ political and economic status; the Fijian government’s affirmative policies did not narrow the ethnic gaps, however.

The 1987 elections resulted in a coalition backed largely by Indians. Between that time and the time of my survey in 2005, detailed below, Fiji’s democratic rule was interrupted by three coups—two in 1987 and one in 2000—which essentially aimed to maintain Fijians’ political dominance over Indians. In addition to an economic downturn, after the 1987 coups, the state faced two contradictory agendas (Sutherland, 2000b). On one hand, the state’s nationalist agenda was to resolve the Fijians’ economic backwardness, which underlay the coups. Affirmative actions were strengthened: in particular, preferential access for Fijians to obtain state-funded scholarships for tertiary education, state-funded business loans, and other state assistance for business ventures. Although the scholarship programs helped Fijian youths obtain tertiary education, the ethnic gap in higher education persisted; elite Fijians with power and political connections largely captured the business loans and supports (Ratuva, 2000, 2002). As such, post-coup affirmative actions meant little for commoners. On the other hand, the government made a major shift in its economic policies from conventional import substitution to market-led structural adjustment (Akram-Lodhi, 1996; Elek, Hill, & Tabor, 1993; Sutherland, 2000a, 2000b). The political-regime change triggered reforms that had been debated in the 1980s, and elite Fijians considered the reforms as being to their advantage because their power and privilege would remain untouched (Cameron, 1993).

In the 1990s, the contradiction between the nationalist agenda and wider reforms intensified, and in the face of growing external pressure, the state shifted increasingly toward the latter (Sutherland, 2000b). The weakening nationalist agenda led to the 2000 coup. Following political instability and an economic downturn, many skilled Indian laborers migrated abroad (Reddy, Mohanty, & Naidu, 2004). Although Fijians’ public-sector employment increased in proportion compared to Indians’ as a result, this was a temporary phenomenon (Kumar, 1997; Leckie, 1991), and pressure to downsize the public sector increased (Amosa, Narayan, Naz, & Pandaram, 2009). Fiji experienced another coup in 2006 (after my survey); since then, Fijian
2.2. Chieftaincy

A Fijian chiefdom (*vanua*) consists of three hierarchical subunits, termed *yavusa*, *mataqali*, and *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, the *vanua* ranges over several villages (*koro*). A village consists of one or a few *yavusa*, which include several lower-order units, *mataqali*, and then *tokatoka*. Each *vanua* has a paramount chief, and some *yavusa* and *mataqali*, but not *tokatoka*, have subchiefs. Chiefly status is normally ascribed and inherited through the male lineage.

Fiji’s local administration is organized around the chieftaincy. A provincial council is often headed by a grand chief. At the time of my study, the 14 provinces in the country provided direct input regarding national affairs through the Great Council of Chiefs, a traditional body that advised the government on indigenous affairs, because most members of the Great Council were chosen by provincial councils. Below the provincial level, districts and villages have their own councils headed by traditional leaders, as discussed above. Chiefs’ political power is underlain by property rights, which are determined by the chieftaincy (Turner, 1992): 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*; corresponding chiefs and subchiefs have power to control land and natural resources.

As a paramount chief holds dominant power within the chiefdom, Fijian villages are categorized as either a *chieflly village* with a *vanua* chief, or other (village 1 *vs.* 2 in Figure 1), and a *mataqali* (henceforth called a *clan*) is either a *chieflly clan* to which the *vanua* chief belongs, or other (*mataqali* 1 *vs.* 2). Chiefly village and clan statuses are permanent. In principle, each *vanua* (or *tikina*) consists of one chiefly village and several non-chiefly villages; each chiefly village consists of one chiefly clan and several non-chiefly clans; and each non-chiefly village consists of non-chiefly clans only. Chiefly villages are ranked higher than non-chiefly villages, and within a chiefly village, a chiefly clan is ranked higher than non-chiefly clans. As such, elite groups among Fijians can be directly measured by chiefly village or clan statuses.

2.3. Chieflly networks

Under British colonial indirect rule, ‘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, p. 10). I argue that this chiefly network for commoners’ employment in the native administration persisted and expanded to broad public-sector occupations for male but not female Fijians (and Indians of both genders) after independence. Since under the customary tenure of land and natural resources, tourism and natural-resource sectors (timbering and fishing) are linked with chieftaincy, chiefly networks could also have been significant in the private sector. I argue that this patronage among commoners was effective in labor markets before the coup but not afterward. This institutional change could have resulted from the combination of political instability, economic downturn, and reforms, such as the public-sector reform, because these factors outweighed affirmative actions, though this might not have been the case for selected elites, as discussed below.

A lack of related government data and studies precludes me from showing indirect evidence for the roles of the chiefly networks and their change. In the first place, there exist neither available data nor systematic studies on chieftaincy in general. Using my unique data of chieftaincy, I show evidence for chiefly networks for males but not females below.

2.4. Education

In 2005 Fiji’s educational system consisted of eight years of primary school (Classes 1–8; Class 1 begins at age 6) and four years of secondary school (Forms 3–6). Primary education became compulsory in 1997. Successful completion of Form 6 is a passport to employment, as well as tertiary education and further training. The state-funded scholarships discussed above are based on Form 6 standardized examinations. Almost all primary and secondary schools are private schools managed by community committees and religious organizations (Ministry of Education, 2010). Most schools were ethnically separated but mixed sex at the time of my survey.

Fiji has experienced distinct education paths divided by race and gender. In 1916, the colonial government launched a grant-in-aid system, which provided government financial support to primary schools that met prescribed standards (it was extended to secondary schools in 1956; Tavola, 1992). 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. As a result, Indian primary schools expanded quickly, closing the ethnic gap in primary education. The reversal of the education paths of the two races extended to secondary education: although there was almost no ethnic disparity in secondary schooling in the mid-1940s, Indians’ enrollments became double those of Fijians by 1955. Following independence in 1970, the Fijian government adopted affirmative education policies for Fijians, and secondary schooling continued to improve for both races. The ethnic gaps in secondary and tertiary education and economic status never narrowed, however (Sharma, 1987).

Contrary to the persistent ethnic gap in education, gender gaps reversed after independence. For both races, girls’ secondary-school enrollments were almost non-existent in the mid-1940s and much lower than boys’ before independence (Tavola, 1992). Girls’ enrollments then quickly increased and surpassed boys’ by the early 1980s. After the coup, Fijian secondary schooling quickly improved for both genders, but it did so more for females.

3. Data, education, and employment

3.1. Data

From July to September 2005, I conducted a household survey among rural Fijians in Cakaudrove Province (my study did not cover Indians). 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 old districts (tikina). The sampling design directly follows the hierarchical chiefdom
structure (Figure 1). First, in each district, villages were stratified by chiefly-village status; all 14 chiefly villages but one were sampled, and another 30 non-chiefly villages with distinct environmental and economic conditions were intentionally chosen. Second, in each village, households were stratified by tokatoka and a combination of individual leadership statuses (discussed above) and major asset holdings (e.g. shops). In each stratum, households were randomly sampled (50% of the population in each stratum, on average). As such, chiefly villages and households with leaders were oversampled.

Overall, the survey covered 906 households. The 43 villages in the sample include 20 vanua, 52 yavusa, 145 mataqali, and 238 tokatoka in total, and 13 yavusa, 12 mataqali, and 12 tokatoka have vanua chiefs (in one chiefly village, none of the chiefly mataqali resides in the village); 34 per cent of households reside in chiefly villages, and 14 per cent belong to chiefly clans. Almost all adults (age 20 or above) are commoners; among 23 chiefs and subchiefs (<1% of all adults, all males), most are subchiefs (many chiefs reside in cities). Thus, the data have enough variations in chiefly village or clan status among commoners, but not enough variation in individual chiefly status for statistical analysis. The survey collected information about kinship, chiefly status, education, and employment, as well as demographics, assets, production, income, shocks, and transfers.

Almost all households in the sample employ traditional farming practices to produce taro, cassava, coconut, and kava; most households also engage in artisanal fishing. About 16 per cent of households have at least one member with formal (permanent wage) employment. Although about one-half of male jobs are in office work and skilled labor, followed by unskilled labor, tourism and teaching are important as well for females. Public-sector employment is common, especially among males. On average, households earned F$2,281 (1 Fiji dollar = US$0.60) per capita per annum at the time of the survey, with the highest income share in cropping (over 60%), followed by fishing and permanent wage labor (about 11% each).

3.2. Outcome measures and cohorts

The analysis sample consists of 1,022 male and 935 female working-age adults (ages 20–59; the mean age is 37) who resided in the sample villages at the time of interviews in 2005; among them, 32 per cent resided in chiefly villages and 12 per cent belonged to chiefly clans. Within this age group, seven adults are chiefs or subchiefs, who were excluded from the sample; thus, the sample consists of commoners. Although ideally individuals who migrated from the sample villages to urban areas or abroad over time could also be analyzed, the survey did not cover such migrants.

Adults’ educational attainment represents their cumulative schooling decisions. I focus on secondary-school completion or above as the key educational attainment for formal employment. In the sample, tertiary education is not common, even among young adults. Since my cross-sectional data lack information about historical employment, I use adults’ permanent wage employment and income at the time of the survey as proxies and compare these proxy measures across cohorts. I discuss potential systematic measurement errors below.

Since information about the timing of adults’ school progression and employment is lacking, I define pre-independence, post-independence/precoup, and post-coup cohorts according to the individual’s age, depending on whether his or her education and employment outcome could potentially be affected by corresponding institutional changes, as depicted in Figures 2(C,D). Although people expected independence in 1970 following the political process several years before, the first coup in 1987, triggered by the elections less than a month before, was an unpredicted shock for people.

Regardless of delayed schooling, all adults ages 20–34 completed secondary education, if any, after the coup (those who were 34 years old in 2005 were 16 in 1987). Thus, post-coup cohorts for education can conservatively be defined as ages 20–34.
The coup affected employment among adults who were older than age 16 in 1987 for the following reasons. First, a lag in the timing between secondary-school completion and first employment could be significant because of job searching and tertiary schooling or further training, if any. Second, the timing of the first employment could be delayed because of delayed primary or secondary schooling due to late entry or repeating a grade (that should have been common among adults because it is common among school-age children in the sample; Takasaki, 2017). Third, some relatively older adults obtained employment without having completed secondary school, as discussed below. Thus, not only all adults ages 20–34 (the post-coup cohorts defined for education) but also most adults ages 35–39 must have obtained employment, if any, after the coup (those who were 39 years old in 2005 were 21 in 1987). Then, post-coup cohorts for employment can be defined as ages 20–39. It is also possible that the transitional 40–44 cohort includes a significant number of individuals who obtained employment after the coup.

Most adults at ages 55–59 should have completed secondary education, if any, before 1970 independence, and some of them should have obtained employment, if any, also at that time (those at age 55 in 2005 were age 20 in 1970). Thus, the pre-independence cohort for both education and employment can be defined as ages 55–59; post-independence/precoup cohorts can be defined as ages 35–54 for education and ages 45–54 for employment.

3.3. Migration

My data lack information about the chiefly status of the original village or clan for adults who were not in their original clans at the time of the interviews. Marriage across different clans in

![Figure 2. Females in original clans vs. non-original clans.](attachment:figure2.png)

Notes: The sample is female working-age adults in all clans. The figure shows the proportion of females (A) in their original clans and who are married, (B) in chiefly village, (C) with secondary-school completion or above, and (D) with permanent wage employment. Ninety-five per cent confidence interval is shown in (B–D).
the village or in other villages is common, as is marriage migration, especially among females: whereas 64 per cent of males and 75 per cent of females in the analysis sample were married, 90 and 56 per cent, respectively, were in their original clans. The comparison of the proportions of females in their original clans and married females across eight 5-year cohorts shows that the proportion of females in their original clans quickly decreased as many females got married, and some of them migrated at ages 20–29 (Figure 2(A)).

The analysis on education focuses on adults in their original clans because their chiefly village or clan status was the same as when their schooling decisions were made. This original-clan subsample contains 918 males and 520 females, of whom 34 per cent reside in chiefly villages and 13 per cent belong to chiefly clans. Since it is possible that some adults, especially females, who were not living in their original villages became employed after they moved to their current village, I consider adults in all clans for employment.

If female marriage migration is systematically related to chiefly status, educational attainment, or employment, selection bias is a potential concern in the analysis of the original-clan subsample. I compare the proportion of females in chiefly villages, educational attainment, and employment across eight 5-year cohorts between females in their original clans and those not in their original clans. Although chiefly-village status is similar in these two subsamples across cohorts, in the 40–44 cohort females in their original clans more commonly reside in chiefly villages (panel B). Although the proportions of females who completed secondary school or above are similar in these two subsamples across cohorts, in the 25–34 cohorts females in their original clans are more educated than others (the differences are not statistically significant at conventional levels; panel C). This probably reflects marriage patterns linked with education: females with higher education tend to get married later and migrate later. Although the results for employment are inaccurate because of uncommon employment among females, a considerable difference exists in the 40–44 cohort (panel D). As such, female marriage migration is systematically related to education in some, but not all, of the post-coup cohorts and with employment in the transitional cohort. I discuss how these systematic patterns might affect the original-clan subsample analysis below.

### 3.4. Education, employment, and wage income

At the time of the interviews, 9.9 per cent of males and 3.5 per cent of females had formal employment. The role of secondary education in labor markets increased over time. Although males who did not complete secondary school were employed as commonly as those who completed secondary school or above (23 vs. 28%) in the precoup cohorts, the former had a considerably lower rate of employment than the latter (4.5 vs. 19.4%) in the post-coup cohorts. All employed females are in the post-coup cohorts, and females who did not complete secondary school had a much lower rate of employment than those who completed secondary school or above (1.0 vs. 8.4%).

Educational attainment and employment across eight 5-year cohorts are compared by gender and chiefly-village status for each gender in Figure 3 (chiefly-clan status is examined in Section 7). In the original-clan subsample, females caught up with and surpassed males in secondary education before the coup, and the gender gap increased afterward (there is an almost 20% gap in the 20–24 cohort; panel A). Although the gap in male secondary education by chiefly-village status was non-existent before the coup, it emerged afterward, because those in chiefly villages more commonly completed secondary school than others (there is an almost 30% difference in the 25–29 cohort; panel B). These gaps virtually vanished in the 20–24 cohort, because secondary-school completion decreased among those in chiefly villages; that is, their augmentation of education investment was temporary. In contrast, there is no significant education gap by chiefly-village status among females, especially after the coup (panel C). It thus appears that the outperformance of female secondary education after the coup comes mainly
Figure 3. Education and employment across cohorts.

Notes: (A–D) show completion of secondary school or above among working-age adults in original clans. (E–H) show permanent wage employment among working-age adults in all clans. Ninety-five per cent confidence interval is shown; it is based on robust standard errors in (D,H).
from the much lower growth of male education in non-chiefly villages than in chiefly villages. Indeed, the evolution of male education in chiefly villages is similar to that of female education, except for the drop for the youngest male cohort (panel A vs. B). These patterns provide initial evidence that chieftaincy differentiated education paths in the gender sphere.

According to the current employment measure as a proxy, in the precoup cohorts, female employment was non-existent (panel E). The gender gap in employment peaked right after independence (there is an over 15% gap in the 50–54 cohort) and then gradually decreased as female employment increased following the coup; the gap vanished altogether for the youngest cohort. As the male employment rate in chiefly villages tripled compared to the pre-independence level, the gap in male employment by chiefly-village status emerged after independence (there is an over 15% gap), though the difference is not statistically significant (panel F). The gap started to diminish in the transitional 40–44 cohort and vanished in the 20–29 cohort. The gap in female employment by chiefly-village status was much smaller than for males (panel G). It thus appears that the diminished gender gap in employment after the coup comes not only from the progress of female education but also from the significant drop in male employment from the precoup level in chiefly villages. These patterns provide initial evidence for the strengthened role of chieftaincy for male employment following independence, it is weakening after the coup and its absence for female employment. At the same time, the results indicate weak statistical power to identify the impacts of chiefly-village status.

I compare the means of wage incomes earned by 101 employed adults in the 20–39 and 45–54 cohorts (excluding the pre-independence and transitional cohorts) between chiefly and non-chiefly villages (Supplementary Table A1(A)). Interpreting the results based on the small number of observations requires caution. In the precoup cohorts, male income in chiefly villages was almost double that in non-chiefly villages (the difference is statistically significant at almost a 10 per cent significance level). In the post-coup cohorts, the difference in male income dropped to less than one-half of the precoup level (with statistical significance); the difference in female income by chiefly-village status was relatively small. These results suggest that chiefly-village status was associated with higher wage income among males before the coup and the association became weaker after the coup.

4. Theoretical framework

Consider a household with one boy. The household chooses the boy’s schooling $s$ by comparing the future benefit and current cost of his schooling. The boy’s employment prospects are augmented not only by his schooling but also by patronage networks. The household forms patronage networks based on the fixed group to which it belongs, and its network capital $N$ is a function of the group’s social status $h$. Let the probability of employment be given by:

$$q(s; h, a) = aN(h) + (1 - aN(h))f(s), \quad (A)$$

where $a \in (0, 1)$; $f(0) \geq 0$, $f' > 0$, and $f'' < 0$; $N(h) = 0$ if $h \leq h$ and $N' > 0$ if $h > h$; and $N(h)$ and $f(s)$ are both bounded from above by some positive number <1. Households are part of patronage networks if, and only if, they are above the threshold social status $h$. The parameter $a$ captures the marginal impact of social status on employment prospects for households belonging to patronage networks: the higher the value of $a$, the higher the proportion of the labor market where patronage networks matter for employment prospects according to $N(h)$ and the lower the proportion of the labor market where educational qualifications matter for employment prospects according to $f(s)$. For those outside patronage networks, only educational qualifications matter for employment prospects.

If the boy gets employment after completing schooling, he earns wage income; otherwise, he is a self-employed farmer. With no loss of generality, self-employment income is assumed to be
Let the current value of discounted wage income from employment be given by:

\[ w(h, b) = w + bW(h), \quad (B) \]

where \( b \in (0, 1); \ W(h) = 0 \text{ if } h \leq h \text{ and } W'(h) > 0 \text{ if } h > h. \) The parameter \( b \) captures the marginal impact of social status on wage income for households belonging to patronage networks: the higher the value of \( b \), the higher the proportion of the labor market where social status matters for wage income. For those outside patronage networks, wage income is fixed at \( W' \).

The household chooses the boy’s schooling to maximize its discounted expected net benefits by solving

\[ \max_s w(h, b)q(s; h, a) - cs, \quad (C) \]

where \( c \) is the fixed unit cost of schooling. The optimal schooling \( s^* \) is uniquely determined by

\[ w(h, b)(1 - aN(h))f'(s) = c. \quad (D) \]

It is straightforward to derive:

\[ \frac{ds}{dh} = \frac{aN'(h)f'(s)}{(1 - aN(h))f''(s)} - \frac{bW'(h)f'(s)}{w(h, b)f''(s)}. \quad (E) \]

For households in patronage networks \((h > h)\), the first term on the right-hand side of the equation, which is negative, captures the education-depressing effect of social status via better employment prospects, and the second term, which is positive, captures the education-augmenting effect of social status via higher wage income. \( \frac{dq}{dh} > 0 \text{ if } \frac{ds}{dh} \geq 0; \) otherwise, \( \frac{dq}{dh} \) is unsigned. Thus, social status influences schooling and employment prospects in an ambiguous manner. For households outside patronage networks \((h \leq h)\), \( \frac{ds}{dh} = \frac{dq}{dh} = 0. \) It is noted that households in patronage networks are not necessarily better educated than those outside patronage networks. Thus, if an empirical analysis shows the positive impact of chiefly status on employment \( \frac{dq}{dh} > 0 \), it indicates the significance of patronage networks. The descriptive finding above is consistent with patronage networks: male employment became higher in chiefly villages than in non-chiefly villages in the post-independence/precoup cohorts (Figure 3(F)). Higher wage income among males in chiefly villages than in non-chiefly villages especially in the precoup cohorts (Supplementary Table A1(A)) is consistent with \( W' > 0 \).

It is straightforward to derive:

\[ \frac{ds}{da} = \frac{N(h)f'(s)}{(1 - aN(h))f''(s)} < 0, \quad \frac{ds}{db} = -\frac{W(h)f'(s)}{w(h, b)f''(s)} > 0. \quad (F) \]

For households in patronage networks, the higher marginal impact of social status on employment prospects depresses schooling and the higher marginal impact of social status on wage income augments schooling \( \frac{ds}{da} \) is unsigned while \( \frac{ds}{db} > 0. \) For households outside patronage networks, \( \frac{ds}{da} = \frac{ds}{db} = \frac{dq}{da} = \frac{dq}{db} = 0. \) The institutional changes in labor markets following the coup can be captured by declines in both \( a \) and \( b \). The descriptive finding above is consistent with a decline in \( a \) followed by a decline in \( b \); whereas secondary education, but not employment, among males in chiefly villages, increased temporarily after the coup, both education and employment became neutral to chiefly-village status afterward (Figures 3(B,F)).
5. Empirical framework

5.1. Base model

My empirical strategy to identify the impacts of chiefly-village status is to combine differences across villages in chiefly-village status with differences across cohorts induced by the timing of political shocks (independence and the coup) as natural experiments, and differences across males and females. The key assumption for using gender as a third dimension of difference is the absence of chiefly networks among females.

I first consider the following triple-difference specification:

\[ y_{ivt} = \gamma + \lambda_{mt} + \alpha_{md}h_v + \beta_{mthv}k_{mt} + u_{ivt}, \]  

(1)

where \( i, v, d, t, \) and \( m \) stand for individual, village, district, cohort, and male, respectively; \( y_{ivt} \) is the outcome (a dummy for employment or educational attainment); \( h_v \) is a dummy for chiefly village; and \( u_{ivt} \) is an error term. This model (which is similar to Yelowitz, 1995) provides full non-parametric controls for cohort-varying district effects that are common across genders \((\gamma)\), gender-specific cohort effects that are common across districts \((\lambda_{mt})\), and gender-specific district effects that are common across cohorts \((\alpha_{md})\). The model thus fully controls for the district-level school and labor-market conditions across cohorts and genders (including potential gender discrimination; in my study area, only one Fijian secondary school, if any, is available in each district). I estimate Equation (1) in ordinary least squares (OLS) using robust standard errors clustered by the village.

Regressors of interest are the chiefly-village dummy fully interacted with gender-specific cohort effects \((h_v\lambda_{mt})\). Suppose that there are two cohorts (pre- and post-shock); then, since \( \lambda_{mt} \) is separately controlled for, \( h_v\lambda_{mt} \) consists of four variables: \( h_v \) alone, \( h_v \) interacted with the post-shock dummy, \( h_v \) interacted with the male dummy, and \( h_v \) interacted with these two dummies (triple interaction). If there is more than one pre-/post-shock cohort, the corresponding second and fourth terms are added. The triple difference for each post-shock cohort can be interpreted as the causal effect of institutional change among males in chiefly villages—the strengthening of the chiefly patronage after independence and its weakening after the coup. The identifying assumption is that in the absence of the institutional changes, the difference in the evolution of outcomes across cohorts between men and women would not have been systematically different between chiefly and non-chiefly villages.

Evidence for this parallel trend assumption is shown in Figures 3(D,H), which depict the double difference in education and employment, respectively, by chiefly-village-status and gender across cohorts; the difference of these double differences across cohorts corresponds to the triple difference in Equation (1). The double difference changed little across the precoup cohorts, supporting the parallel trend assumption for post-coup institutional change. I cannot assess the parallel trend assumption for post-independence institutional change with only one pre-independence cohort, however.

I control for household-level social status, the omission of which might cause omitted variable bias. Specifically, I control for a dummy for adults who belong to households headed by chiefs or subchiefs (44 adults); for them, family social status could matter more than group status and they could potentially capture the benefits of post-coup affirmative actions. As education is an outcome determined by chiefly-village status, it cannot be used as a control in the employment equation (Angrist & Pischke, 2009, pp. 64–68); it is thus infeasible to estimate returns to education.

The employment equation allows me to test whether the institutional change occurred in a discontinuous manner: did it happen suddenly following the shock, and has it continued since then? Although such a discontinuous change is not necessary for institutional change, it bolsters the change as an unpredicted shock and thus the identification assumption. Ignoring the transitional 40–44 cohort, the discontinuous change from the precoup cohorts to the post-coup
cohorts, except for the youngest one, is apparent in Figure 3(H). In the post-coup cohorts, the trends are parallel between chiefly and non-chiefly villages. The schooling equation allows me to test both the lag and persistence of schooling responses across post-coup cohorts, depending on how quickly people could update and respond to labor-market information. Figure 3(D) clearly shows that among the three post-coup cohorts, the temporary response appeared strongly only in the middle 25–29 cohort.

If the estimates for $\alpha_{mt}$ are shown not to be significantly different across post-independence/post-coup cohorts in Equation (1), I consider the following parsimonious specification that increases statistical power:

$$y_{ivt} = \eta_{dt} + \lambda_{mt} + \theta_{md} + \alpha_{mp} h_r \lambda_{mp} + u_{ivt},$$

(2)

where $p$ stands for the pooled post-coup cohort.

5.2. Unobserved village heterogeneity

A central concern about the parallel trend assumption above is unobserved cohort-varying and gender-specific village heterogeneity. In particular, under Fiji’s grant-in-aid system, the government might treat community committees associated with chiefly villages with stronger political connections better than those associated with non-chiefly villages, resulting in systematic across-village differences in school conditions. Equation (1) fully controls for district-level, cohort-varying secondary-school conditions, such as quality, but not village-level conditions, such as access within the district. If the within-district school access of chiefly villages improved faster than that of non-chiefly villages across cohorts, in particular between the pre-coup and post-coup cohorts, the parallel trend assumption does not hold.

I fully control for cohort-varying and gender-specific village heterogeneity by augmenting Equations (1) and (2) using cohort-varying and gender-specific village effects ($\eta_v$ and $\theta_m$, respectively).

$$y_{ivt} = \eta_{vt} + \lambda_{mt} + \theta_{mv} + \alpha_{mv} h_r \lambda_{mp} + u_{ivt},$$

(3)

$$y_{ivt} = \eta_{vt} + \lambda_{mt} + \theta_{mv} + \alpha_{mp} h_r \lambda_{mp} + u_{ivt}.$$  

(4)

These models fully control for village-level school-supply factors across cohorts and village-based networks across cohorts, as well as any village-level structural factors (e.g. infrastructure, wealth). The models also fully control for policy changes affecting the outcomes across cohorts that could be systematically related to chiefly-village status (e.g. economic reforms). Cohort-varying and village-specific gendered policies, if any, are also controlled for. Since cohort-varying and gender-specific chiefly-village statuses are separately controlled for by $\eta_v$ and $\theta_m$, only the triple interaction term for each cohort dummy in $h_r \lambda_{mt}$ and $h_r \lambda_{mp}$ remains. Equations (3) and (4) can better identify the causal effect of institutional change.

5.3. Sample selection

The systematic marriage migration among specific female cohorts found above can cause selection bias in the original-clan subsample. To address migration correlated with chiefly-village status and employment in the 40–44 cohort (Figures 2(B,D)), I repeat the analyses excluding this transitional cohort. Since in the post-coup 25–34 cohorts, females in their original clans are more educated than others (Figure 2(C)), the estimated effects of the institutional changes on male education in these cohorts in the original-clan subsample could be biased downward.
Then, if the estimated effects on education are shown to be positive, they are qualitatively robust to such bias.

5.4. Measurement errors in employment

Measurement errors in adults’ current employment status as a proxy for their historical employment are also a potential source of bias. Although employment status can certainly change over time, the question is whether the difference in historical and current employment statuses is correlated with chiefly status. On the one hand, if chiefly status positively affects tenure, the estimated effects of chiefly status on current employment are biased upward, because they partly capture its effects on tenure. Given the positive effects of chiefly status on historical employment in the precoup cohorts, effects on their current employment are positive unless chiefly status strongly negatively alters their tenure following the coup. On the other hand, non-systematic measurement errors cause attenuation bias toward zero. The implications of these biases are distinct across male cohorts: whereas the estimated negative effects in the post-coup cohorts are qualitatively robust to both biases, the estimated positive effects in the post-independence/precoup cohorts could be biased upward because of systematic measurement errors and downward because of the attenuation.

6. Results

6.1. Patronage

The analysis of independence is based on the pre-independence and post-independence cohorts: adults ages 45–59 in all clans for employment and adults ages 35–59 in their original clans for education (Table 1). According to Equation (1), chiefly-village status augmented male permanent wage employment in the post-independence 45–54 cohorts and the estimated coefficients of the two triple interaction terms are similar (over three times the mean), while estimated effects for females are close to 0 (column 1). These results are robust to unobserved cohort-varying and gender-specific village heterogeneity because the results of Equation (3) are similar (column 2). The results for Equations (2) and (4) are consistent (columns 3 and 4). According to the above theory, the positive impacts of chiefly-village status on male employment indicate the significance of patronage networks.

Results for education (completion of secondary school or above) are similar between Equations (1) and (3) (columns 5 and 6). According to Equation (3), the estimated coefficients of the four triple interaction terms are large compared to the mean (except for the 40–44 cohort; the estimate of the 35–39 cohort is 0.39, or about four times the mean) and significantly different from each other (column 6). When the 40–44 cohort is excluded, the remaining results are similar and the three triple interaction terms are significantly different from each other (column 7), indicating that Equations (2) and (4) are not appropriate specifications. These results suggest that chiefly patronage led to an increase in male schooling after independence, especially in the 35–39 cohort.

6.2. Weakened patronage

The analysis of the coup is based on the pre-coup and post-coup cohorts: adults ages 20–54 in all clans for employment and in their original clans for education. Estimation results for Equations (1) and (3) for employment reported in Table 2 show weak statistical power, as suggested in Figure 3. The positive impacts of chiefly-village status on male employment in the pre-coup 45–54 cohorts are confirmed (albeit statistically weak). The estimated coefficients of the triple interaction term for the 45–49 cohort are small, supporting the parallel trend assumption (column 1). The chiefly-village status’s effects similarly diminish across the four post-coup
cohorts (ages 20–39), especially in Equation (3): the estimated negative coefficients of the corresponding four triple interaction terms are 0.17–0.21 in magnitude, and they are not significantly different from each other (column 2). In contrast, the estimated effects for females are close to 0 (column 1). When the transitional 40–44 cohort is excluded from the sample, the remaining results are similar (column 3). The corresponding results for Equations (2) and (4) treating the 45–54 and 20–39 cohorts as pooled precoup and post-coup cohorts, respectively, are consistent and statistically significant at a 5 per cent significance level (Table 3, columns 1 and 2). In particular, the estimated coefficients for chiefly-village status interacted with the male dummy in

| Equation (1) | Employment | Education |
|--------------|------------|-----------|
| Chiefly village | (0.0185)  | 0.0703 |
| Chiefly village × Ages 50–54 | 0.0149 | (0.108) |
| Chiefly village × Ages 45–49 | 0.00346 | (0.018) |
| Chiefly village × Ages 40–44 | 0.0502 | (0.100) |
| Chiefly village × Ages 35–39 | (0.0801) | -0.178 |

Chiefly village × Male

| Chiefly village × Ages 50–54 × Male (zm2) | 0.269** 0.266* | 0.199 0.288 0.293 |
| Chiefly village × Ages 45–49 × Male (zm3) | 0.235** 0.245* | 0.111 0.127 0.147 |
| Chiefly village × Ages 40–44 × Male (zm4) | 0.167 0.0760 | (0.144) (0.195) |
| Chiefly village × Ages 35–39 × Male (zm5) | 0.223 0.385* 0.413* | (0.166) (0.226) (0.236) |

Chiefly village × Post-independence

| Chiefly village × Post-independence × Male | 0.00807 | 0.247** 0.254** |

Table 1. Effects of patronage.

| Clans | Cohorts (ages) | Post-independence cohorts (ages) | Excluding ages 40-44 | Equation | No. observations | R-squared | Mean of dependent variables | Notes: | 
|-------|----------------|---------------------------------|---------------------|----------|-----------------|----------|---------------------------|-------|
| Clans | All | All | All | All | Original | Original | Original | | |
| Coefficients | 45–59 | 45–59 | 45–59 | 45–59 | 35–59 | 35–59 | 35–59 | |
| District-cohort effects | Yes | No | Yes | No | Yes | No | Yes | |
| District-male effects | Yes | No | Yes | No | Yes | No | Yes | |
| Male-cohort effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Village-cohort effects | No | Yes | No | Yes | No | Yes | Yes | |
| Village-male effects | No | Yes | No | Yes | No | Yes | Yes | |
| No. observations | 541 | 541 | 541 | 541 | 773 | 773 | 592 | |
| R-squared | 0.215 | 0.286 | 0.214 | 0.286 | 0.142 | 0.275 | 0.254 | |
| Mean of dependent variables | 0.0758 | 0.0758 | 0.0758 | 0.0758 | 0.0970 | 0.0970 | 0.0895 | |

Notes: Dependent variables are permanent wage employment in columns 1–4 and completion of secondary school or above in columns 5–7. Robust standard errors clustered by village (41 villages) are in parentheses. *p < 0.1, **p < 0.05.
Table 2. Effects of weakened patronage.

|                              | Employment | Education |
|------------------------------|------------|-----------|
|                              | (0/1) (1)  | (0/1) (2) | (0/1) (3)   |
| Chiefly village              | 0.0188     | -0.0273   |
|                              | (0.0322)   | (0.0516)  |
| Chiefly village × Ages 45–49 | -0.0134    | 0.0723    |
|                              | (0.0406)   | (0.0705)  |
| Chiefly village × Ages 40–44 | 0.00675    | 0.159     |
|                              | (0.0494)   | (0.107)   |
| Chiefly village × Ages 35–39 | -0.00309   | -0.0951   |
|                              | (0.0396)   | (0.0757)  |
| Chiefly village × Ages 30–34 | 0.0369     | 0.211     |
|                              | (0.0713)   | (0.129)   |
| Chiefly village × Ages 25–29 | -0.000360  | -0.0207   |
|                              | (0.0598)   | (0.130)   |
| Chiefly village × Ages 20–24 | 0.0410     | 0.0790    |
|                              | (0.0630)   | (0.0887)  |
| Chiefly village × Male       | 0.162      | 0.0107    |
|                              | (0.107)    | (0.0962)  |
| Chiefly village × Ages 45–49 × Male ($x_{m3}$) | -0.0228 | -0.0230 | -0.0262 | -0.0747 | -0.0300 | 0.00621 |
|                              | (0.119)    | (0.127)   | (0.129)    | (0.107) | (0.181) | (0.182) |
| Chiefly village × Ages 40–44 × Male ($x_{m4}$) | -0.0980 | -0.120    | -0.0305    | -0.160 |
|                              | (0.130)    | (0.159)   | (0.163)    | (0.170) |
| Chiefly village × Ages 35–39 × Male ($x_{m5}$) | -0.147 | -0.169    | -0.179    | 0.0486   | 0.0628 | 0.0877 |
|                              | (0.0937)   | (0.108)   | (0.108)    | (0.130) | (0.165) | (0.163) |
| Chiefly village × Ages 30–34 × Male ($x_{m6}$) | -0.133 | -0.192    | -0.202    | -0.0103 | -0.0234 | -0.00103 |
|                              | (0.133)    | (0.149)   | (0.152)    | (0.181) | (0.237) | (0.236) |
| Chiefly village × Ages 25–29 × Male ($x_{m7}$) | -0.210 | -0.193    | -0.204    | 0.349**  | 0.324 | 0.342* |
|                              | (0.148)    | (0.155)   | (0.159)    | (0.166) | (0.201) | (0.200) |
| Chiefly village × Ages 20–24 × Male ($x_{m8}$) | -0.248 | -0.214    | -0.224    | 0.0165   | 0.0240 | 0.0521 |
|                              | (0.154)    | (0.166)   | (0.169)    | (0.128) | (0.165) | (0.162) |

$x_{m3} = x_{m4} = x_{m5} = 0$ (p-value)  
$x_{m3} = x_{m5} = 0$ (p-value)  
$x_{m5} = x_{m6} = x_{m7} = x_{m8} = 0$ (p-value)  
$x_{m6} = x_{m7} = x_{m8} = 0$ (p-value)  
$x_{m7} = x_{m8} = 0$ (p-value)  

| Clans | All | All | All | Original | Original | Original |
|-------|-----|-----|-----|----------|----------|----------|
| Cohorts (ages) | 20–54 | 20–54 | 20–54 | 20–54 | 20–54 | 20–54 |
| Postcoup cohorts (ages) | 20–39 | 20–39 | 20–39 | 20–34 | 20–34 | 20–34 |
| Excluding ages 40–44 | No | No | Yes | No | No | Yes |
| Equation | (1) | (3) | (3) | (1) | (3) | (3) |
| District-cohort effects | Yes | No | No | Yes | No | No |
| District-male effects | Yes | No | No | Yes | No | No |
| Male-cohort effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Village-cohort effects | No | Yes | Yes | No | Yes | Yes |
| Village-male effects | No | Yes | Yes | No | Yes | Yes |
| No. observations | 1810 | 1810 | 1547 | 1328 | 1328 | 1147 |
| R-squared | 0.127 | 0.194 | 0.212 | 0.208 | 0.305 | 0.301 |
| Mean of dependent variables | 0.0691 | 0.0691 | 0.0653 | 0.217 | 0.217 | 0.232 |

Notes: Dependent variables are permanent wage employment in columns 1–3 and completion of secondary school or above in columns 4–6. Robust standard errors clustered by village (41 villages) are in parentheses. *p < 0.1, **p < 0.05.
the precoup and post-coup cohorts are similar in magnitude with opposite signs (column 1). When the transitional 40–44 cohort is included as the pooled post-coup cohort, the results are similar (Supplementary Table A3, columns 1 and 2). These results suggest that the chiefly patronage in labor markets, which strengthened after independence, vanished abruptly in a discontinuous way at the time of the coup.

Estimation results for education (Table 2, columns 4–6) are based on the same specification as those for employment. Across specifications, the estimated coefficients of all the triple interaction terms except for that of the 40–44 cohort are similar. The estimated coefficients of the triple interaction term for the remaining precoup cohorts are small, supporting the parallel trend assumption. The institutional change increased schooling for the 25–29 male cohort (the point estimate, 0.34, is almost 1.5 times the mean; column 6), but not for the remaining two post-coup cohorts, as shown in Figure 3(D).21 The estimated coefficients of the triple interaction terms are significantly different between the 25–29 cohort and the 20–24 cohort across specifications, indicating that Equations (2) and (4) are not appropriate specifications.

Even if schooling decisions responded quickly to institutional change following the coup, a lag across the post-coup cohorts should appear in educational attainment measured in the cross-sectional data, because only children who were young enough at that time could adjust their schooling plans. Many males in the 30–34 cohort had already completed primary school
or were in secondary school at the time of the coup, after having taken the Class 8 standardized examination; thus, they were not young enough to make an adjustment in their progression to secondary school and then completion. This is consistent with institutional change as an unpredicted shock because if people had anticipated the coup, those in the 30–34 cohort could have made an adjustment. The 25–29 male cohort in chiefly villages, most of whom were in Classes 2–6 of primary school and thus had not yet taken the Class 8 examination at the time of the coup, increased their schooling in response to the weakened patronage in employment prospects (decreased \( a \) in the theory). The 20–24 male cohort in chiefly villages had updated information about the weakened patronage in wage prospects (decreased \( b \)), presumably learning of it through the wages earned by those employed after the coup.

### 7. Robustness check

Of particular concern about the identification of the main estimation results is that preferential treatments for elite males—chiefs and their families or relatives who resided in chiefly villages—may have been augmented after the coup. If post-coup economic affirmative actions had such male-cum-chieftaincy bias, the estimates above do not identify the impacts of the weakened patronage. In particular, a significant proportion of the 25–29 male cohort in chiefly villages might rather have augmented their schooling in response to preferential scholarship opportunities for tertiary education and thus better social and economic mobility. Post-coup employment patterns among males in chiefly villages might also depend on whether they had access to preferential treatments. Although I control for chief and subchief households, such nepotism might be significant for other elites. If so, this should have been more the case among males who belong to chiefly clans with higher social status than those belonging to non-chiefly clans. Now suppose that it is shown that chiefly-clan status, but not chiefly-village status, affects employment and schooling. Then, although this is still consistent with the weakening of patronage, it is also consistent with male-cum-chieftaincy bias in post-coup affirmative actions, raising a question about the identification. In contrast, if the chiefly-clan status is not shown to be a differentiating factor, it provides counterevidence against the alternative channel of affirmative actions, buttressing the identification.

A chiefly clan is a subset of a chiefly village (Figure 1). I first compare the means of education and employment among adults between chiefly and non-chiefly clans in chiefly villages. Since excluding non-chiefly villages greatly reduces the number of observations, weakening statistical power, interpreting the results requires caution. If the chiefly-clan status is a differentiating factor, it is expected that precoup employment and precoup and post-coup secondary education are higher among males in chiefly clans than in non-chiefly clans. The comparison is rather the opposite; the difference in post-coup education, especially in the 20–24 cohort, is statistically significant (Supplementary Table A1(B)).

Next, to directly compare the impacts of chiefly-village and chiefly-clan statuses, I augment Equations (2) and (4) for employment by adding the chiefly-clan dummy fully interacted with gender-specific pooled post-coup-cohort effects as regressors:

\[
y_{ivt} = \eta_{di} + \lambda_{mt} + \theta_{md} + \beta_{mp} h_{v} \lambda_{mp} + \gamma_{mp} h_{g} \lambda_{mp} + u_{ivt},
\]

\[
y_{ivt} = \eta_{vt} + \lambda_{mt} + \theta_{mv} + \beta_{mp} h_{v} \lambda_{mp} + \gamma_{mp} h_{g} \lambda_{mp} + u_{ivt},
\]

where \( g \) indexes clan and \( h_{g} \) is a dummy for chiefly clan, which is effectively an interaction term with \( h_{v} \) because chiefly clan is a subset of chiefly village. Analogous to \( h_{v} \lambda_{mt} \) in Equation (2), \( h_{g} \lambda_{mp} \) consists of four variables in (5); in (6) only the triple interaction term of \( h_{v} \lambda_{mp} \) remains as in (4). If the chiefly-clan status is a differentiating factor, corresponding chiefly-clan-status variables should be significant. Robust standard errors are clustered by clan.
I also fully control for cohort-varying and gender-specific clan heterogeneity by augmenting Equation (6) using cohort-varying and gender-specific clan effects ($\eta_{gt}$ and $\theta_{mg}$, respectively):

$$y_{ivt} = \eta_{gt} + \lambda_{mt} + \theta_{mg} + \beta_{mp}h_v\lambda_{mp} + \gamma_{mp}h_r\lambda_{mp} + u_{ivt}. \quad (7)$$

Since clan-level factors, such as clan-based networks, resources to be shared, and norms, can play important roles in kin-based Fijian society, this specification can help to mitigate potential omitted variable bias in Equation (6). As clan is a subset of the village, cohort-varying and gender-specific clan effects effectively control for corresponding village effects. Since cohort-varying and gender-specific chiefly-clan status is already controlled for by $\eta_{gt}$ and $\theta_{mg}$, only the triple interaction term of $hgk_{mp}$ remains. Equation (7) can better identify the causal effect of institutional change at the clan level.

Estimation results, excluding the transitional 40–44 cohort, are reported in Table 3 (when this cohort is included, the results are qualitatively the same; Supplementary Table A3). In Equations (5) and (6), all the results for chiefly-village status found in Equations (2) and (4) hold, and compared to the estimated coefficients of the triple interaction term of the chiefly-village dummy, all the estimated effects of chiefly-clan status are small with no statistical significance (columns 3 and 4). In particular, chiefly-clan status did not augment male employment in the precoup cohort. Thus, chiefly-village status, not chiefly-clan status, determined the patronage, buttressing the robustness of the main estimation results on independence reported in Table 1.

In Equation (7) the estimated coefficient of the triple interaction term of the chiefly-clan dummy, which is positive, is much smaller than that of the chiefly-village dummy in magnitude (column 5). When the triple interaction term of the chiefly-village dummy is dropped in Equation (7), the estimated coefficient of that of the chiefly-clan dummy is negative and small in magnitude (column 6), as the latter partially captures the former’s effect. The estimated coefficients of the dummy for chief and subchief households are small across specifications. These results do not support the alternative channel of post-coup affirmative actions, buttressing the robustness of the main estimation results on the coup reported in Table 2.

Post-coup affirmative actions might not be so relevant for non-farm employment among commoners with limited tertiary education. With no data about migrants, however, I cannot examine whether affirmative actions led to migration to urban areas or abroad among elites and thus assess how robust my results are to self-selection through migration. Addressing migration using alternative data, if any, is a promising extension of the current work to better understand chiefly patronage.

8. Conclusion

In developing countries indigenous chiefly systems can be a main driver of patronage, potentially hampering development. This paper examined how chiefly patronage shaped people’s incentives for schooling in Fiji. Building on a simple model of patronage in labor markets, my triple-difference approach combined novel direct measures of chieftaincy with political shocks (independence and coups) and gender. Indigenous chieftaincy interacted with British colonial rule to affect employment, and thus schooling, after independence for males but not females within chiefly networks. After this patronage vanished under post-coup reforms, males in the networks temporarily increased their secondary schooling to compensate for their weakened advantage. The majority of male Fijians outside the networks were less encouraged to make schooling investments over time. As a result, an education gap by chieftaincy emerged among males, augmenting the outperformance of female education. These findings indicate that chiefly patronage can persistently distort people’s incentives for schooling, shaping post-colonial
education paths among different social groups in a country not only through institutional development in its colonial history but also through institutional change.

Notes

1. Patronage can lower organizational performance if favoritism disincentivizes subordinates (Aghion & Tirole, 1997; Prendergast & Topel, 1996).
2. As was common in Fiji when I conducted my survey in 2005, in this paper, ‘Fijians’ means native Fijians (iTaukei) and ‘Indians’ means Indo-Fijians.
3. While some authors use the terms ‘patronage’ and ‘clientelism’ interchangeably (e.g. Kitschelt & Wilkinson, 2007), others ‘define patronage narrowly as the exchange of public sector jobs for political support, … whereas clientelism includes not only jobs but also other state resources (goods, services, decisions, etc.’) (Hicken, 2011, p. 295).
4. Recent empirical works study ethnic favoritism in the provision of public goods in Africa (Burgess, Jedwab, Miguel, Morjaria, & Padró I Miquel, 2015; Franck & Rainer, 2012; Kramon & Posner, 2016; Marx, Stoker, & Suri, 2019).
5. In about one-third of developing countries (45), girls outnumbered boys in secondary education in 2008. The literature highlights improved returns to education for females and reduced cost of schooling fueled by government policies, such as school construction, free primary education, cash transfers, and so forth (World Bank, 2011).
6. Among out-migrants from Fiji in the 1987–2001 period, about 89 per cent were Indians, 6.5 per cent were Fijians, and the remaining were of other races (Reddy et al., 2004).
7. There are also non-chief leaders, and the village chief role can be served by chiefs, subchiefs, or non-chief leaders. Chiefs are ranked higher than subchiefs, who are ranked higher than non-chief leaders (Takasaki, 2011).
8. The Ministry of Fijian Affairs (established in 1967 and renamed the Ministry of iTaukei Affairs in 2013) was responsible for preserving Fijian culture and advancing rural development for Fijians. The minister presided over the Great Council of Chiefs until 1999, and this position was often simultaneously held by the prime minister. The Great Council of Chiefs was disestablished in 2012.
9. 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 to be statistically analyzed.
10. Cakaudrove Province is located mostly on eastern Vanua Levu Island and the whole of Taveuni Island, the second-and third-largest islands in the country, respectively. They lag significantly behind the largest island, Viti Levu, where the state capital, two international airports, and most tourism businesses are situated. Distinct from the two other provinces (Bua and Macuata) on Vanua Levu Island, Cakaudrove is not in a sugar cane area; as a result, the Indian population is relatively small and their presence is limited to towns. In the 2007 census, the population shares of Fijians, Indians, and other races, respectively, were 72.9, 16.1, and 11.0 per cent in Cakaudrove, compared to 56.8, 37.5, and 5.7 per cent in the whole country (Fiji Islands Bureau of Statistics, 2008).
11. Among the 16 districts, two are headed by the same vanua chief and another two are headed by another same vanua chief; thus, there are 14 chiefly villages. One chiefly village was not sampled because of a political concern. In two districts, only one village was sampled: a chiefly village in one and a non-chiefly village in the other.
12. A small number of young adults who were in school at the time of the interviews are also excluded. In addition, two districts with only one village that lack intradistrict variations in chiefly-village status are excluded.
13. Although as a result of delayed schooling the 35–39 cohort could include a significant number of individuals who completed secondary education, if any, after the coup, the analysis below shows that adults in this cohort were not young enough to make adjustments in schooling to complete secondary education in response to the coup. The 2000 coup did not affect secondary schooling in the sample, because even those in the 20–24 cohort were not young enough to make adjustments.
14. Males were 37 years old and females were 35, on average. With respect to marital status, 63 per cent of males and 61 per cent of females were married; in contrast, 76 per cent of males and 93 per cent females not in their original clans were married.
15. A similar overtaking pattern is found in the 2004–2005 Annual Employment Survey in Fiji: female secondary education is lower than male secondary education among adults age 35 or older and the converse holds true at ages 23–34 (Narsey, 2007).
16. The model can be extended so that $w$ is a function of schooling $s$. Since my empirical analysis focuses on impacts of social status, not education, on employment, not wage income, I consider the current model for simplicity and tractability.
17. For each cohort I run OLS using a dummy for chiefly-village status, a dummy for male, and their interaction term as three explanatory variables. The figure reports the estimated coefficients of the last term.
18. Education of adults’ parents cannot be used as a control, because it is also an outcome variable in their generation. None of the time-variant measures observed at the time of the interviews, such as wealth, can be
used as proxies for historical determinants, because they are endogenous variables determined by education and income and thus chiefly status over time.

19. The results without non-parametric controls for cohort-varying and gender-specific district effects and gender-specific cohort effects in equation (1) are relatively similar for both employment and education, except for the 40–44 cohort for education as discussed below (Supplementary Table A2, columns 1 and 2).

20. Without non-parametric controls in equation (1), female employment in chiefly villages was more common in the two post-coup cohorts and the transitional 40–44 cohort than it was in non-chiefly villages (Supplementary Table A2, column 3), indicating a strong bias caused by uncontrolled district heterogeneity.

21. Without non-parametric controls in equation (1), regardless of gender, schooling in chiefly villages was more common in all three post-coup cohorts and the 40–44 cohort than it was in non-chiefly villages (Supplementary Table A2, column 4), indicating a strong bias caused by uncontrolled district heterogeneity.

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Ethical approval

Data analysis received IRB approval from the University of Tokyo (19-357). Verbal informed consent was obtained from all participants.

Disclosure statement

No potential conflict of interest was reported by the author.

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Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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