An Analysis of Employment Prospects in Fiji's Urban Area

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ABSTRACT

This study analyses the determinants of employment in urban Fiji. The analysis is conducted in two steps: (1) identify the factors that affect labour market participation decision of males and females individually, and (2) identify the factors that increase or reduce the likelihood of formal and informal sectors' employment once an individual has entered the labour market. The analysis shows that determinants of employment and formal sector participation in Fiji vary by gender and age cohorts. In general, being female reduces individuals' likelihood of employment; and factors such as marital status and having dependent children further reduce females' chances of employment and formal sector employment, which illustrate females' disadvantaged position in the labour market. Moreover, education significantly increases the likelihood of employment for both genders.

INTRODUCTION

One of the most pressing issues facing governments in developing countries, especially in small island states like Fiji, is the task of formulating development strategies that can create new jobs, provide income opportunities and address unemployment problems. Fiji's economic growth in the 1970s averaged more than 5%, but since 1987, when it went through a military coup, its growth rate has consistently been averaging about 2%. This low growth can be largely attributed to political instability, natural disasters and lack of reform to promote investment and growth.

On an annual basis about 16,000 school leavers join the labour market, but most are forced to join the informal sector due to lack of job opportunities in the formal sector. Similarly, unemployment rate is observed to have increased significantly following political upheavals of 1987, 2000 and 2006. Loss of investor confidence shows many businesses were downsized and closed and, therefore had a huge impact on formal sector employment.

This study is motivated by the fact that Fiji's economy has experienced a significant structural change where contribution of the agricultural sector has declined from around 20% to about 11%. Resources released from the rural-agricultural sector are expected to be absorbed by the urban manufacturing sector. In the last 10 years, urban population has increased and so has the informal sector. Growth in the informal sector comes from the fact that urban manufacturing sector has remained stagnant and has not achieved much growth between 2001 and 2010. This has also affected the pattern of formal and informal employment.

While there has been a notable decline in formal employment, informal employment has increased during the same time. By evaluating the importance of individual and household demographics on an individual's choice of employment, the analysis of job attainment in Fiji's urban labour market will contribute to better urban sector policies.

Moreover, over the last intercensal period (1996-2007), Fiji experienced a decline in overall female labour participation, however labour participation of young females (age 20-34) increased over the same period. We also find that female unemployment significantly increased by 62% over the same period. On the other hand, we find that male labour participation declined for all age categories.

This study analyses the labour force participation patterns of males and females in urban Fiji, and attempts to identify determinants of gender differences in employment participation. Further analysis is carried out at the formal and informal sector levels.

Given that different sectors have different opportunities for skill realisation and income generation, this study therefore reveals important information about heterogeneity or discrimination in the labour force. Moreover, an analysis of the sectoral determinants of the labour supply has policy significance in relation to overcoming gender gaps in labour force participation, education, and income distribution.

There are a number of studies which attempt to explain determinants male and female labour participation in developed and developing countries, yet none of these studies evaluated labour

participation in small island economies. In this sense, this paper makes an important contribution to the literature on labour participation.

The rest of the paper is organised as follows: Section 2 provides an overview of employment studies in the current literature. Section 3 provides a conceptual framework, and briefly discusses the methodology that will be employed for the regression analysis. Data and descriptive statistics are presented in Section 4, followed by discussion on empirical results in Section 5. The conclusions are forwarded in Section 6.

STRUCTURE OF URBAN LABOUR MARKET IN FIJI

Following independence in 1970, Fiji experienced a huge increase in formal sector employment, mainly in the public sector brought about by the government's macroeconomic policies. The Fijian government adopted an inward-looking import-substitution policy, with high tariff rates, import licensing, quotas and subsidies which led to significant increase in the domestic manufacturing sector. Concurrently, there was a huge increase in the construction activity led by public sector investment in public infrastructures such as education and health.

After the 1987 coup, there was, however, a significant decline in formal sector employment. Loss in business income and profits saw a number of redundancies in most industries in Fiji. Some of the industries immediately affected by the coup were tourism, transportation, mining, construction and the financial sector. After 1990s, Fiji adopted a more outward looking export-oriented policy; a number of reforms were implemented to provide more competition in the economy with the aim of increasing private sector investment. Fiji adopted policies such as trade liberalisation, privatisation and a number of incentives including tax free zones, which were provided to attract foreign firms for export purposes. This promoted the garment and textile industries. Following the reform, there was a marked growth in the formal sector employment particularly in the private sector, while public sector employment was expected to decline.

Furthermore, the 2000 coup and expiry of a number of trade preferential agreements, in particular those related to exports of garment and sugar such as the Lome convention and Multi-Fiber agreement, led to a huge decline in the formal sector employment. Decline in the formal sector was further exacerbated by public reform initiatives which were implemented following the 2006 coup. With a significant increase in the labour force and inability of the formal sector to provide employment, most new entrants in the labour force are forced to join the informal sector. According to UNESCAP (2007) in Fiji, about 50% of entrants are likely to enter the informal labour market each year.

Moreover, given significant increase in rural-urban migration and lack of job opportunities in the urban wage sector, the informal sector plays an important role in absorbing surplus labour. The Fijian government acknowledges that small and micro-enterprises provide economic opportunities for over 60 per cent of Fiji's labour force in urban areas (Government of Fiji, 2002). In addition, Fiji faces very high youth unemployment; in a study Bryant (1992) noted that in 1991, 30 per cent of youth in urban areas of Fiji were unemployed. Similarly, UNESCAP (2007) estimated that two thirds of unemployed population in Fiji falls between 18-30 years of age.

The 2007 Population Census revealed that labour participation among young females has increased significantly. For age group 20-24, 25-29 and 30-34 female labour participation increased from 46.4 to 46.5, 47.8 to 50.6 and 46.7 to 49.5, respectively, over the period 1996-2007 (see Table 1). Moreover, unemployment of females of all age categories increased significantly. We also notice that female labour participation increased to age 29 and, thereafter it declined gradually.

On the other hand, Fiji experienced a decline in male labour participation for all age categories while unemployment increased for all age categories. Unlike female employment status, male labour participation increased to age 44 and, thereafter it declined gradually.

TABLE 1: *Employment in Urban Fiji by Gender (%)*

	FEMALE LABOUR FORCE PARTICIPATION RATE		FEMALE UNEMPLOYMENT RATE		MALE LABOR FORCE PARTICIPATION RATE		MALE UNEMPLOYMENT RATE	
	1996	2007	1996	2007	1996	2007	1996	2007
TOTAL	38.4	37.5	10.1	16.4	74.2	68.4	6.5	10.8
15-19 yrs	16.4	14.7	29.5	26.4	28.7	23.7	21.6	20.3
20-24 yrs	46.2	46.5	14.9	26.9	73.5	66.3	12.2	20.0
25-29 yrs	47.8	50.6	9.1	18.7	88.6	82.8	6.5	13.7
30-34 yrs	46.7	49.5	7.3	14.7	92.3	84.7	4.2	10.6
35-39 yrs	49.3	48.5	5.7	11.7	93.3	87.5	3.3	7.6
40-44 yrs	49.2	45.3	5.1	11.0	94.1	88.5	2.8	6.7
45-49 yrs	41.5	40.1	5.4	9.7	91.4	86.2	2.7	5.8
50-54 yrs	36.4	34.6	6.0	8.8	86.0	79.8	3.6	5.3
55-59 yrs	27.8	26.7	8.4	8.8	70.4	63.3	3.6	5.4
60-64 yrs	23.2	17.3	11.2	12.9	54.6	42.3	4.8	6.9
65+	14.9	11.4	16.2	16.2	37.4	5.4	7.4	12.5

THE LITERATURE

A number of studies attempted to analyse the labour supply factors that influence an individual's decision to participate in the labour market in both developed and developing countries. These studies identified a number of demographic and household characteristics, such as education, marital status, number of infants, number of children, presence of older daughter/son, ethnicity, region of residence, non-wage income, partner's income, that are likely to affect labour market participation. For instance, Pagán and Sánchez (2000) examined gender difference in male and female labour market participation in rural Mexico within a probit framework. The study found that in the case of male employment, the following factors: primary education, age, indigenous Fijians, children whose age ranged from 0-2 years, and number of working members in household had a positive impact; whereas the number of rooms in their dwellings and age squared term had a negative impact. In the case of female employment, Pagán and Sánchez (2000) noted negative impacts of marriage, children whose age ranged from 0-2 years and household owning dwelling;

and on the other hand, all levels of education, household head's employment status, number of working members in household, and percentage employed in the tertiary sector had positive impacts. In another similar study over Rural Guatemala, Pagán (2002) found positive impacts of age, household head's employment status, number of working individuals in household, and household owning dwelling in the case of male employment; while children aged from 12-14 years, presence of non-working females over 60, age squared, some secondary schooling, some tertiary schooling, and rooms in dwelling had negative impact. For female labour participation, Pagán (2002) noted positive impacts of completed primary education, completed post-secondary education and age; while age squared, children aged from 12-14 years, and household owning dwelling had negative impacts on female labour participation. It can be clearly seen from these two studies that a factor may have different effects in different settings.

Moscarola (2010), using a multivariate dynamic binary probit model, examined the determinants of labour participation in Netherlands using European community Panel data over the period 1994-2001. The study noted that access of state care giving improved the labour participation rate among females. The study also noted negative impacts of marriage on labour participation; while health and child under 12 increased a woman's labour participation. Brown et al. (2010) examined the link between reservation wages, labour participation and health within a probit framework for Great Britain using British household panel survey data for 1991-2004. They found positive impacts of health, age, partners care for dependent child, and higher education. However, the number of children from 6-16 years, and number of hours caring for other family members had negative impacts on female labour participation. Gameren and Ooms (2009), with the application of a binary choice model, examined the influence of childcare on labour force participation for Netherlands using Institute of Social Research survey data for 2004. The study noted that husband's income and non-labour income per month reduced mothers' labour participation; whereas availability of network care, contribution to child care from husband's employer, no more than 25 hours working before pregnancy, and intrinsic value of working increased females' likelihood of working. Nam (2010) used ordinary least squares and two-stage least squares estimators to examine the effect of the number of children on female's participation in the labour market in Korea. Census data for 1980 – 2000 was used for this study. The author found that when households with two or more children were analysed, husbands with all levels of education and females' high school education reduced females' labour participation; while females' college or higher education and husband without education increased females' labour participation.

The above survey reveals that effects of factors are case sensitive. It is, therefore, important to evaluate determinants of labour participation in Fiji, which will provide important policy advice on reducing unemployment in small island countries.

CONCEPTUAL FRAMEWORK AND METHODOLOGY

To quantify the gender difference in labour market participation, we employ a model in which individuals have to take a decision either to work or not by comparing between utility of working and not working (Mortensen, 1986). An individual will not opt to work if the benefit

of employment in formal or informal sector is less than utility derived from not working. Those choosing to work will further decide to work in the formal or informal sector, depending on the utility derived from the respective sector.

According to Pagán (2002) labour participation of each individual can be analysed in two steps: (1) examine the probability of the individual to enter the workforce, and (2) examine the propensity of formal sector employment.

The labour market participation decision can be modeled using a probit model as follows:

$$(1) \qquad P_i = F[Z_i] = F\left(\alpha + \sum \beta_m X_m\right) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\alpha+\beta X_i} e^{-X^2/2 ds}$$

where P_i = probability that the event occurs;

e = base of natural logarithm;

and s = random variable with mean zero and unit variance.

The empirical model for this study can be expressed as follows:

$$(2) \qquad Estatus_i = \alpha + \sum \beta_m X_m,$$

where $Estatus_i$ is the binomial variable representing employment and unemployment in step (1); and X_m is a matrix including relevant variables such as household size, age, as well as a number of dummies to distinguish, e.g. geographical division, ethnicity, residential status, gender, marital status, education level, etc. Equation (2) is applied to examine whether the urban labour market is segmented by gender. Equation (2) is also used to see if there is any difference between young and old cohorts. In step (2) $Estatus_i$ is the binomial variable representing employment in the formal sector and informal sector.

DATA AND DESCRIPTIVE STATISTICS

Data used for this study is obtained from the 2008-09 Household Income and Expenditure Survey conducted by the Bureau of Statistics of Fiji. A total of 3,573 households and 16,815 individuals were interviewed. To investigate employment prospects, this study focuses on individuals aged between 15 and 64 in the urban areas of Fiji, and experiment objects include three categories: (1) individuals working in the formal sector, (2) individuals working in the informal sector, and (3) individuals not working but available for work, not actively seeking work and housewives. Deleting observations with incomplete information gives a sample of 4112 working age observations for the current study, among which 1608 were employed in the formal sector, 1208 were employed in the informal sector, and 1296 were not employed. Of the 4112 individuals, 2043 were males and 2069 were females, and 1925 were within the 15-34 age cohort, while 2187 were within the 35-64 age cohort.

Series under consideration are generally classified into four categories:

- Geographical location: Three geographical dummy variables, namely *Eastern*, *Northern* and *Western*, are included. They are jointly in comparison to the Central division.

- Household specific variables: *labour income* of household from agriculture and business (measured in FJ$1,000), *non-labour income* of household from property and rent (measured in FJ$1,000), *transfer* to indicate whether household receives money over FJ$1,000 from friends and relatives, and *HH size* to indicate household size (measured in perpons).

- Individual specific variables: *Indo-Fijian* to differentiate from other ethnicities, *HH head* to indicate whether the individual is household head of the family, *Male* to differentiate from female gender, *Age*, *Married* to indicate the observation is married, and two education dummy variables *Primary edu and below* and *Post-secondary edu* which are jointly used to compare the secondary education qualification.

- Dependency: Three dummy variables are considered to ascertain whether household has junior or senior family members. *Pre-schooling children* refers to household has children aged between 0-5 years, *Schooling children* refers to household has children aged between 6-14 years, and *Elders in the house* refers to household has senior family members aged 65 and above.

RESULTS AND DISCUSSIONS

Results of analysis on employment status are summarised in Table 2, and empirical results on differentiating formal and informal sector employment are summarised in Table 3.

DETERMINANTS OF EMPLOYMENT STATUS

Geographical Location

Firstly, we focus on the likelihood of joining the labour market in urban areas of Fiji. In general, geographical location has an important impact on employment status for both younger and older age cohorts. The analysis shows that people in the Eastern division, compared to the other three divisions jointly, have a higher employment probability of around 15%.

Household Characteristics

Household specific variables generally do not have significant impact on younger age cohort's employment status; yet, they do affect older age cohort's decision on joining the labour market. The analysis finds, that older age males' probability of joining the labour market, slightly increases by 0.5% upon every FJ$1,000 increase in households' non-wage/salary labour income from agriculture or small business, and that they are discouraged to work with a reduced probability of 2%, if households receive money transfer with amount over FJ$1,000.

It is interesting to note that males aged between 35 and 64 are discouraged by larger household

size. Employment probability for this group of males is reduced by 2% upon an additional member in the household, yet the negative impact of household size is subject to a small increasing rate of 0.2%. The negative impact of household size on older age males could be explained by the fact that older age males' responsibility of supporting the family to some extent is shared by younger labour force in the family. This effect is only statistically significant at the 10% level. This factor does not affect females' employment status given that total employment probability for females of all ages is generally low, only around 50% for both age cohorts.

For older age females, among the included household specific variables, only non-labour income from properties has significant impact on their employment status by reducing probability by 0.3% at every FJ$1,000 increase in households' income from properties and rents.

Individual Characteristics

Individual characteristics are found to be the most important factors in deciding individuals' employment status. In general, ethnicity has more significant impact on younger age people than on older age. For the younger age cohort, relative to indigenous Fijians and other ethnicity, Indo-Fijian males have a higher employment probability of 13%, while ethnicity does not affect younger age females' employment status. Older age Indo-Fijian males, relative to other older age males, have a slightly higher employment probability of 2.4%; while older age Indo-Fijian females, compared to other older age females, have a lower employment probability of 11.2%. Indo-Fijians males slightly have better prospect of employment, which could be due to labour market discrimination or human skills. There are slightly more Indo-Fijian degree and diploma holders than other ethnic group.

Being the household head means more responsibility of looking after the family. Therefore, it is not surprising to find that the household head variable has generally significant impact on employment status for both genders irrespective of age difference. Statistics note that for the younger age cohort, being household heads increases males' employment probability by 11.2%. For the older age cohort, where 85.3% of older age males and 14.4% of older age females are household heads, being household heads increases employment probability by 11.4% for males and 20.4% for females.

Gender turns out to be an overwhelming factor on employment status irrespective of age difference. It is found that being a male increases employment probability by 27.4% for the younger age cohort and 30.8% for the older age cohort, given that other factors are the same for two genders. This seems to provide evidence of severe gender discrimination in the labour market of urban Fiji, even after we have controlled for marriage status and dependency (see discussion below). A possible explanation for this finding could rely on the sample used in the current study which includes housewives and those females who are eligible for work but are not willing to work. If this is taken into account, it should reduce gender's effect.

Marriage effect only works on the younger age cohort. Married younger age males, compared to younger age males otherwise, have a higher employment probability of 6.1%. However, younger age females' employment probability is reduced significantly by 17.5% once they are married.

This factor further reinforces females' disadvantage in the labour market. However, interpretation of the observations on females, in particular married females, should be associated with their engagement in housework and attending to pre-schooling children if they have. Different effects of marriage on males and females can therefore be seen by different responsibilities and contributions of different genders towards a family.

Due to high correlation between the secondary and post-secondary school qualification variables, we only include postsecondary school education to differentiate from the effect of pre-secondary school qualification. The effect of secondary school qualification on employment status can therefore be approximated by post-secondary school qualification's effect. As expected, compared to younger age people with secondary and post-secondary school qualification, younger age people with pre-secondary school qualification are disadvantaged by 15.7% lower probability of being employed. The negative effect of pre-secondary school qualification on older age people's employment is less quantitatively significant with a marginal effect of -7.5%. Post-secondary school qualification has a positive effect on employment status. This is similar across two age cohorts, with marginal effect of 22% for younger age cohort and 20% for older age cohort. Post-secondary school qualification's effect differs hugely quantitatively between two genders, with marginal effect as high as 30% and 41% for younger and older age females respectively; while for younger and older males marginal effects are only 11% and 3% for respectively. This finding strongly indicates that, employment probability for highly educated females is overwhelmingly higher than that for females only with pre-secondary education qualification. It equivalently means that females' education level is a major concern for employers to decide which to employ among female applicants. Post-secondary education qualification's effect on males' employment is not as quantitatively important as on females' employment, yet we find that it places more quantitative influence on younger age males' employment than on older age males' employment.

The last factor we consider in the set of individual characteristics is age, which directly observes effect of work experience on employment status. We find a statistically strong effect of age on employment status across genders and age cohorts. Positive effect of age is found to be linear for the younger age cohort with a marginal effect of 1.3% in general, suggesting that an additional 10 years' increase in age among youngsters is associated with a 13% higher employment probability, given that other factors are the same across individuals. An additional 10 years' increase in age among the older age group increases employment probability by 30%, which is subject to a diminishing rate of 0.03% per additional year. This strongly indicates the importance of work experience on individuals' entry to the labour market and capability of securing jobs.

Dependency

To examine dependency's impact on individuals' employment status, three variables are considered, namely, whether households have pre-schooling children, schooling children and elders respectively. We differentiate pre-schooling children's impact from schooling children's impact due to the awareness that pre-schooling children in general require more attention from adults than schooling children do. The analytical finding is consistent with our expectation that pre-schooling children significantly reduces females' employment probability by 12%, while

schooling children do not affect females' employment status. It is also interesting to note that employment of males aged between 35 and 64 is also encouraged by dependency of elders aged 65 and above. This could be associated to the responsibility of older age males of up to 64 towards dependent elders of 65 years and above.

The above observations are based on 1925 individuals within the younger age cohort and 2187 individuals within the older age cohort. Pseudo R-squared value ranges from 0.1225 to 0.3089 across regressions, which is within reasonable range for cross-sectional data analysis due to its limited innate capacity of incorporating individual heterogeneity in the model. The overall explanation strength of included regressors is verified by small gap between predicted probabililty $\left(= \sum ME \cdot \bar{X} \right)$ and observed probability in each regression. To summarise, males have overwhelmingly higher employment probability than females, and older age people have higher employment probability than younger age people.

Table 2. *Determinants of Employed against Unemployed in Urban Area of Fiji*

Dependent variable: Employed	Ages 15~34 Males & Females			Males			Females			Aged 35~64 Males & Females			Males			Females		
	ME	z-stat	X̄	ME	z-stat	X̄	ME	z-stat	X̄	ME	z-stat	X̄	ME	z-stat	X̄	ME	z-stat	X̄
Geographical Location																		
Eastern	.158	2.51	.021							.143	3.21	.023				.276	2.74	-.123
Northern	-.114	-2.63	.082							-.071	-2.24	.095				-.123	-2.16	.083
Western	-.052	-2.02	.299	-.060	-2.16	.286	-.152	-2.47	.074	-.070	-3.25	.277	-.035	-2.97	.278			
Household Characteristics																		
Labour income										.005	2.57	1.518	.005	2.57	1.775			
Non-labour income				-.003	-2.27	4.386				-.001	-2.44	5.732				-.003	-1.84	6.375
Transfer													-.020	-1.98	.387			
HH Size													-.021	-1.85	5.226			
(HH Size)²													.002	2.28	32.83			
Individual Characteristics																		
Indo-Fijian	-.115	4.98	.415	-.131	5.26	.435				.024	2.47	.434				-.112	-3.32	.410
HH head	-.228	6.06	.157	-.112	3.33	.276				.167	6.49	.495	.114	5.15	.853	.204	4.41	.144
Male	.274	6.23	.498							.308	6.75	.496						
Married	-.080	-3.00	.515	.061	2.01	.425	-.175	-4.39	.601	-.075	-2.20	.084						
Primary edu and below	-.157	-2.09	.021				-.216	-1.94	.021	-.044	-1.97	.075						
Post-secondary edu	.220	8.51	.274	.114	4.25	.296	.302	7.74	.256	.203	8.11	.190	.034	3.21	.245	.414	8.43	.139
Age	.013	4.77	26.12	.008	2.80	26.02	.017	4.38	26.18	.030	2.03	45.95	.015	1.90	45.85			
Age²										-.0003	-2.45	2167	-.0002	-2.00	2154	-.0001	-5.72	2178
Dependency																		
Pre-schooling children							-.126	-3.55	.577	-.038	-2.05	.372				-.120	-3.54	.358
Schooling children																		
Children in the house																		
Elders in the house													.022	1.75	.119			
Sample size	1925			940			965			2187			1056			1102		
Pseudo R²	0.1811			0.1564			0.1075			0.3089			0.1649			0.1225		
Observed probability	.6451			.8010			.4860			.7197			.9393			.5018		
predicted probability	.6880			.8474			.4865			.8160			.9687			.5110		

Notes: Apart from household size and age, all explanatory variables are dummies. Children in the house means either there are pre-schooling or schooling children in the house. *, **, *** indicate significance at the 10, 5 and 1% level respectively.

DETERMINANTS OF FORMAL SECTOR EMPLOYMENT AGAINST INFORMAL SECTOR EMPLOYMENT

We now turn to look at determinants of accession to formal sector employment by focusing on the relatively homogenous group, the employed. The same set of control factors as in the preceding section is considered in this group.

Geographical Location

Although, compared to people in other divisions, people in the Eastern division have higher probability of being employed, but their entry into the formal sector is limited by 24.4% less probability for the younger age cohort and 18.3% less probability for the older age cohort. Eastern division's economy is more agriculture based and hence the informal sector plays a more important role in providing employment than the formal sector.

Younger aged people in the Northern and Western divisions, compared to those in other divisions, in particular the Eastern, have higher probability to be employed in the formal sector. Geographical location enhances formal sector employment probability of youngsters in these two divisions by 7% and 8% respectively. However, geographical location does not bring significant advantage to older aged people in the two divisions.

Household Characteristics

In the above, we found that household specific variables such as labour income, non-labour income, transfer and household size do not generally affect younger age cohort's decision of joining the labour market. However, when looking within the employed group, we find that household labour income from agriculture and business slightly reduces youngsters' probability of working in the formal sector by 0.8% for every FJ$1,000 labour income. This could be associated with the observation that households with agriculture and micro-business resources provide youngsters with easier access to the informal sector than to the formal sector. The analysis also shows that transfer over FJ$1,000 reduces youngsters' formal sector employment probability by 6.1%. This seems to be a controversial finding which requires further investigation on transfer's main use. We would expect a positive impact of transfer on youngsters' entry to formal sector if it is mainly used for household members' education. However, due to insufficient information, we leave this issue for future research. Household size also has a small and positive effect on youngsters' formal sector employment with a marginal effect of 1.3%.

Turning to the older age cohort, household size does not place significant impact on older aged people's choice of working in the formal or informal sector. Labour income and transfer on average reduce older age cohort's formal sector employment probability by 2.5% and 8.2% respectively. However, non-labour income from properties and rents slightly increases older aged males' formal sector employment probability by 0.8%. This could reflect a reverse effect that working in the formal sector brings relatively high income to senior males who invest part of their income on properties. Given the very small impact of this factor, controlling for the reverse causation is not mandatory.

Individual Characteristics

Individual characteristics' effects on formal sector's employment are quite similar to those on employment status as discussed in Section 5.1. To briefly summarise, being Indo-Fijian enhances youngsters' formal sector employment probability by 5.8%; being household heads enhances both age cohorts' formal sector employment probability by around 10%; males, rather than females, of age 35-64 have a higher probability of 5.5% to be employed in the formal sector; marriage discourages females of all ages to be engaged in formal sector employment and reduces probability by 8.3% and 11.6% for the younger and older age groups respectively.

With respect to education's effect, people of younger age cohort are severely disadvantaged if they only have primary school qualification with a reduced probability of 23.5%. Post-secondary school qualification brings strong advantage to people of all ages. We also observe that education plays a more important role on females' formal sector employment than on males. On average, post-secondary school qualification increases formal sector employment probability by 10% and 15% for the younger age cohort and older age cohort respectively. A high probability of females to enter the formal labour market would also mean that post-secondary education reduces females' probability of informal labour market participation.

Age, which is directly related to work experience, plays a significant role on entry to the formal sector, particularly for the younger age cohort. The analysis reveals that an additional year increase in age (or alternatively, work experience) is associated with 11% increase in probability of securing a formal sector job. The positive effect is subject to a significant diminishing rate of 0.2% per additional year. For the older age cohort, an additional year increase in age on average increases the probability of securing a formal sector job by 3.5%, which is also subject to a diminishing rate of 0.04% per additional year.

However, the analysis also notes important differences of individual characteristics' impact on formal sector employment. Firstly, among the older age cohort, ethnicity discrimination is shifted from favouring Indo-Fijians in the general employment entry to favouring the other ethnicities (mainly indigenous Fijians) in the formal sector employment. Our analysis finds that, formal sector employment probability of older aged Indo-Fijians is 8% lower than other ethnicities for same age range. The observation that more Indo-Fijians with certain work experience tend to emigrate at a higher rate than other ethnicities may provide one explanation for this.

Secondly, in contrast with gender discrimination in favour of males in general, it is interesting to note that younger aged females have a strong advantage over males in achieving or securing formal sector jobs. The analysis finds that being a female increases formal sector employment probability by 5.2%, after controlling for factors such as marriage and responsibility of attending to pre-schooling children (see discussion in the context below). A possible explanation could be searched from preferences towards jobs of younger aged females particularly of those with post-secondary school qualification.

Dependency

Junior children's impact on formal sector employment is similar to that on general employment. Namely, females' entry to the formal sector is affected by whether there are children under 15 in the family. In particular, formal sector employment probability of younger aged females with pre-schooling children is 10% lower than females of the same age range without pre-schooling children. Older aged females' entry to the formal sector is not only affected by pre-schooling children but also by schooling children. It is also interesting to find out that two types of children have equal magnitude of effect on older aged females by reducing their formal sector employment probability by 8.3%. Dependency from elders aged 65 and above does not place impacts on individuals' choice of participating in formal or informal jobs.

The above observations in Section 5.2 are based on 1242 individuals within the younger age cohort and 1574 individuals within the older age cohort. Pseudo R-squared values across regressions are slightly improved due to more homogenous samples. Again, the overall explanation strength of included regressors is verified by a small gap between predicted probability and observed probability for each regression. To summarise, probability of working in the formal sector rather than working in the informal sector in urban Fiji is similar between two genders within the younger age cohort (82% and 84% for males and females respectively), while older aged males have a slightly higher probability of 83% than older aged females of 73%.

Table 3: *Determinants of Formal Sector Employment against Informal Sector Employment in Urban Area of Fiji*

Dependent variable: Employed in the Formal Sector	Ages 15~34									Aged 35~64								
	Males & Females			**Males**			**Females**			**Males & Females**			**Males**			**Females**		
	ME	z-stat	$\bar{X}$	ME	z-stat	$\bar{X}$	ME	z-stat	$\bar{X}$	ME	z-stat	$\bar{X}$	ME	z-stat	$\bar{X}$	ME	z-stat	$\bar{X}$
Geographical Location																		
Eastern	**-.244**	-3.39	.023	**-.347**	-3.66	.025				**-.183**	-2.80	.029	**-.264**	-3.39	.028			
Northern	.068	1.91	.072															
Western	.079	3.57	.283	.054	1.80	.267	.100	2.95	.331									
Household Characteristics																		
Labor income	-.008	-2.78	1.065	-.010	-2.26	1.165	-.005	-1.70	1.005	-.025	-3.90	1.737	-.025	-4.21	1.808	-.020	-1.81	1.604
Non-labor income										.008	2.58	5.044						
Transfer	-.061	-2.94	.376	-.064	-2.32	.360	-.083	-2.43	.405	-.082	-3.91	.407	-.127	-4.54	.376	-.072	-1.85	.464
HH Size	.013	2.77	5.339				.017	2.20	5.286									
HH Size²																		
Individual Characteristics																		
Indo-Fijian	.058	2.81	.455	.081	3.03	.473	-.079	-3.69	.402				**-.057**	-2.42	.432	**-.143**	-3.32	.347
HH head	.098	3.71	.224	.065	2.05	.326				.095	3.22	.625	.075	1.86	.866			
Male	-.052	-2.61	.622							.055	1.88	.648						
Married							-.083	-2.25	.548	.137	3.26	.888				**-.116**	-2.70	.773
Primary edu and below	**-.235**	-2.67	.015							.149	6.00	.247	.083	3.02	.251	**.238**	5.14	.238
Post-secondary edu	.104	4.93	.351	.080	2.86	.329	.157	4.53	.372									
Age	.110	5.41	26.61	.117	4.33	26.61	.125	3.84	26.41	.035	2.11	45.47	.033	1.79	45.87	**-.010**	-3.53	44.73
Age²	-.002	-5.07	729.4	-.002	-4.05	730.1	-.002	-3.58	716.9	-.0004	-2.53	2118	-.0004	-2.13	2155			
Dependency																		
Pre-schooling children	**-.059**	-2.48	.493				**-.101**	-2.71	.491							**-.083**	2.80	.873
Schooling children																		
Children in the house																		
Elders in the house																		
Sample size	1242			773			419			1574			1021			553		
Pseudo R²	0.1575			0.1464			0.1993			0.1844			0.2491			0.1422		
Observed probability	.8365			.8240			.8401			.7935			.8266			.7323		
predicted probability	.8716			.8553			.8914			.8207			.8665			.7581		

CONCLUSIONS

The paper examines determinants of the formal and informal sector employment in Fiji based on Household Income and Expenditure Survey data 2008-2009. The findings reveal, that the key labour supply factors important for employment in the formal and informal sectors of the Fijian urban labour market, vary by age group and by gender. Particular concerns are the unemployed, with special attention to gender imbalance in access to employment. Unemployment is clearly a youth phenomenon and, its occurrence is more serious among females (younger females specially) compared to males. Around 68% of males are employed in the formal sector, while only 35% of females are employed in the formal sector. This problem continues to persist despite females being more educated than before; 23% of young females with post-secondary education are unemployed, compared to 15% young males with post-secondary education. The results clearly indicate the evidence of gender discrimination in the labour market.

Moreover, the results clearly show that being male as opposed to female increases the likelihood of employment. Of policy concern, scope for further research is to identify whether this discrepancy is a result of labour market discrimination against females or is justified on the basis of human capital skills.

With respect to marriage, being married as opposed to single females reduces females' likelihood of employment in the formal sector. There may be other underlying factors that inhibit married females from working such as gender discrimination and care work. This further illustrates the underprivileged position of females in the labour market and it therefore requires further attention.

Education also plays a significant role in the labour market. Post-secondary education holds an important role in formal sector employment, while primary and secondary education qualifications are identified to be important for informal sector employment. It is also found that post-secondary education improves the likelihood of young males and females' employment in the formal sector. Relative to males, females with post-secondary education generally have a high probability of finding employment in the formal sector as opposed to the informal sector; this shows that males with post-secondary education may be able to find employment in the informal sector, while females with similar qualifications may face greater difficulty in taking up employment in the informal sector. This, further suggests, that the work place environment in the informal sector is discouraging to females or that the nature of jobs in the informal sector is more gender sensitive. This study cast doubts on the extent to which the informal sector is able to absorb the excess and growing number of young, educated and skilled female workers, given a significant decline in formal sector employment. This has implication for further gender disparity in employment and income.

Many studies in Fiji such as Narsey (2008) have indicated that poverty is high among females and children; and as noted, less females are employed in the formal sector while many are unemployed. This may cause children of these households to be ever trapped in poverty. Inability of females to earn sufficient income would deprive their children of any educational opportunity and hence better employment opportunity in adulthood. This poses major challenge to policy makers in enacting policies that provide equal employment opportunities to females of the

country.

The policies that need to be considered include those that support equal opportunities for females in employment. As shown by the results, even when females are educated and have acquired relevant skills they are still faced with difficulty in getting employment.

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