

## Occupational Preferences of Skilled Workers in the Presence of a Large Development Sector

Jamelia Harris

To cite this article: Jamelia Harris (2022): Occupational Preferences of Skilled Workers in the Presence of a Large Development Sector, The Journal of Development Studies, DOI: [10.1080/00220388.2022.2139605](https://doi.org/10.1080/00220388.2022.2139605)

To link to this article: <https://doi.org/10.1080/00220388.2022.2139605>



© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



[View supplementary material](#)



Published online: 03 Nov 2022.



[Submit your article to this journal](#)



Article views: 229



[View related articles](#)



[View Crossmark data](#)

# Occupational Preferences of Skilled Workers in the Presence of a Large Development Sector

JAMELIA HARRIS 

Department of Politics and International Studies, University of Warwick, Coventry, United Kingdom

(Original version submitted January 2021; final version accepted October 2022)

**ABSTRACT** *Aid and the resulting development sector have expanded in developing countries in the past decades. Many studies have explored the effects of aid, but few have studied the effects of the development sector on decisions around labor supply and occupational choice. Using primary data from Sierra Leone, this article contributes to the literature by exploring how the presence of a large development sector influences the occupational preferences of skilled workers. Four key findings emerge. First, the development sector is an attractive employment choice as the largest share of skilled jobseekers (44 percent) opt for early-career employment working for a donor organization, international NGO or local NGO. Second, there is an ability-effect as workers with higher cognitive ability are more likely to choose the development sector over the public and private sectors. Third, more prosocial jobseekers and those seeking social status from employment are more likely to prefer the development sector. And fourth, favorable perceptions of the development sector reduce the probability of choosing the public and private sectors. These findings speak to policy and should encourage development organizations to reflect on their impact on the dynamics of the labor market in countries in which they operate.*

**KEYWORDS:** Foreign aid; labor markets; economic development; skilled workers; occupation preferences; Sierra Leone

## 1. Introduction

Aid and the resulting development sector have expanded in the past decades. Official Development Assistance (ODA) as a share of gross national income (GNI) is particularly large in least developed countries and is comparable to the size of the manufacturing sector (about nine percent) in the average low-income country (World Bank, 2021).

Many scholars have sought to understand the effects of aid in developing countries. Addison, Morrissey, and Tarp (2017) review the literature on the macroeconomic effects of aid and find vast evidence on both sides of the debate in relation to the impact of aid on trade, growth, the real exchange rate, the manufacturing sector and government tax revenues. Other strands of literature have explored the effects on political processes and political settlements

---

*Correspondence Address:* Jamelia Harris, Department of Politics and International Studies, University of Warwick, Coventry, United Kingdom. Email: [Jamelia.Harris@warwick.ac.uk](mailto:Jamelia.Harris@warwick.ac.uk)

Supplementary Materials are available for this article which can be accessed via the online version of this journal available at <https://doi.org/10.1080/00220388.2022.2139605>.

© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

(Yanguas, 2017), governance and institutions (Heckelman & Knack, 2009) and local non-governmental organizations (NGOs), civil society, and other grassroots organizations (Hearn, 2007). Despite this vast body of literature, few studies have investigated how aid can impact the labor market and the labor supply decision in host countries.

This article brings together the body of work exploring labor supply decisions in developing countries and literature on aid-effects by introducing the development sector as an option for skilled workers in an occupational choice model. The development sector comprises organizations that have an overall objective of promoting economic and social development in the local country through policy, advocacy and/or implementation. Importantly, the development sector is funded by ODA. The main result of the paper is that the development sector is an attractive employment choice among skilled workers and that those with higher cognitive ability are more likely to choose the development sector over other sectors. The article thus puts forward the employer role of the development sector as a new channel in the aid-labor market nexus.

Previous research on the links between aid and the labor market suggests that foreign aid can moderate some of the positive effects from bilateral trade on labor rights (Lim, Mosley, & Prakash, 2015), structural adjustment programs have consequences for labor and employment (Agénor, 1996; Hoeven & Taylor, 2000), reduced aid flows lead to labor market adjustments at the sectoral level (Cook & Kirkpatrick, 1998) and donor prioritization influences the relatively slow growth of productive employment in Africa (Page & Shimeles, 2015). These studies have largely assessed aggregate employment and labor at the macro-level. Arguably, there are also micro-level effects that can arise from large aid inflows and the development sector, which is borne out of aid, as the labor supply decision is made conditional on the existence of the development sector.

Recent studies on labor supply in developing countries have used experimental methods to understand how intrinsic motivations such as financial drive, prosociality, and risk preferences matter for occupational choice (Ashraf, Bandiera, Davenport, & Lee, 2020; Dal Bó, Finan, & Rossi, 2013; Deserranno, 2019; Falco, 2014; Serra, Serneels, & Barr, 2011). These studies, however, have examined employment choices based on traditional delineations of public versus private sector, or for-profit versus not-for-profit sector, neglecting the likely important role of the development sector as an attractive employment option. The present research fills this gap by exploring occupational preferences of skilled workers in the presence of a large development sector.

Skilled workers are defined as university graduates. Research on the labor supply decision of the highest educated is becoming increasingly relevant given the push to produce a 'skilled and educated' labor force in many developing countries (World Bank, 2018).

The article makes a contribution to the aid-effects literature by positioning the development sector as an attractive employer, alongside the public and private sectors. This is a novel approach to evaluating the effects of aid in host countries. The article also provides new evidence by empirically exploring these issues using primary data (from a field survey and experimental methods) collected in Sierra Leone, an aid-dependent developing country with an increasing supply of university graduates entering the labor market. Its labor market is structurally similar to that of many other developing countries as described by Frölich and Haile (2011). The case therefore provides lessons for other small developing countries with a large development sector.

Multinomial Probit regression analysis is used and produces four key findings. First, the development sector is an attractive employment choice as the largest share of skilled jobseekers (44 percent) opt for early-career employment working for a donor organization, international NGO or local NGO. Second, workers with higher cognitive ability are more likely to choose the development sector over the public and private sectors. Third, more prosocial jobseekers and those seeking social status from employment are more likely to prefer the development sector. And fourth, as esteem of the development sector increases, the likelihood of choosing the

public and private sectors decline, though there is no trade-off between the public and private sectors. These findings speak to policy and should encourage development organizations to reflect on their impact on employment choices and the dynamics of the labor market in host countries.

The rest of this article is structured as follows. [Section 2](#) presents a conceptual framework linking foreign aid and the development sector to the labor market and occupational choice. [Section 3](#) reviews relevant recent literature on occupational choice in developing countries. [Section 4](#) presents the case study, data collection and experimental methods. [Section 5](#) gives the empirical strategy. [Section 6](#) presents the regression results and discussions. [Section 7](#) concludes and discusses implications for development policy and areas for future research.

## 2. Aid, labor markets and occupational choice – a conceptual framework

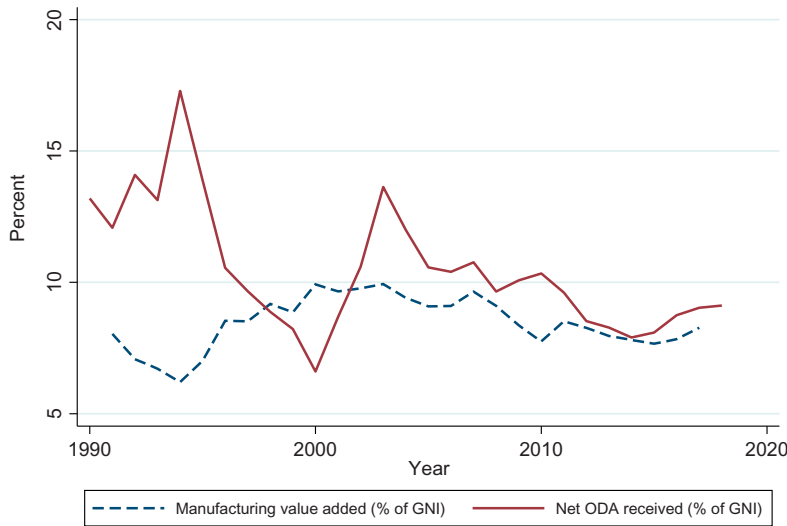
Aid to developing countries includes a mix of financial flows, technical assistance, policy advice/conditions, and transfers of commodities with the intention of promoting economic development. Collectively, these interactions have implications on the economy, and by extension the labor market. Below, four channels are presented which link aid to the labor market.

Stabilization and liberalization policies – often common under structural adjustment programs – typically entail reductions in aggregate demand, tight monetary policy, reductions in the budget deficit, market liberalization and exchange rate realignment (Hoeven & Taylor, 2000). The aggregate demand effects of these policies follow through to the labor market and provide the first channel linking aid to the labor market. As aggregate demand adjusts, production levels decline, and labor demand falls accordingly. This results in unemployment. The final employment effect depends on wage flexibility, market segmentation and constraints on labor mobility (Agénor, 1996). For example, if wages fall significantly, there may not be any reduction in employment. Contingent on how government spending is altered, there may also be consequences for human capital investments through education and training (Hoeven & Taylor, 2000). On the other hand, if we assume that such stabilization and reform policies contribute to an institutional environment conducive to growth as argued by Heckelman and Knack (2009), the long-run employment effects may be positive. This in turn depends on structural adjustments in the economy and the ability of aid to support the creation of high productivity jobs which can absorb the labor force (Page & Shimeles, 2015).

A second channel through which foreign aid can impact the labor market is via direct involvement and technical assistance related to labor policy – for instance engagement with the International Labor Organization (ILO). As noted by Baccaro (2015), the ILO works with trade unions and employer associations as intermediaries to influence labor market institutions. Since its inception in 1919, the ILO has shaped labor policies and standards in developing countries, provided assistance to Ministries of Labor in implementing policy, and provided training, education and research assistance to governments, and employers' and workers' representatives.<sup>1</sup> Collectively, these efforts shape the labor market.

A third established channel is direct spending on education and skills development. Several authors have explored skills development interventions (e.g. McGrath, 2002; Palmer, 2014). Though the results on employment and development are mixed, these interventions equip some segment of the labor force with skills, and thus impact the labor supply available to firms.

A fourth channel is explored in this article, namely: the employer role of development sector organizations and how this affects the labor allocation decision. This channel is particularly important in low-income countries where aid comprises a large share of the economy. In the average low-income country, ODA is comparable to the size of the manufacturing sector as a share of gross national income (GNI) – [Figure 1](#). Large inflows of aid in turn give rise to a development sector comprising locally-based donor organizations, international NGOs



**Figure 1.** ODA contribution to LICs compared manufacturing value added 1990–2018.  
*Source:* World Development Indicators (World Bank, 2021).

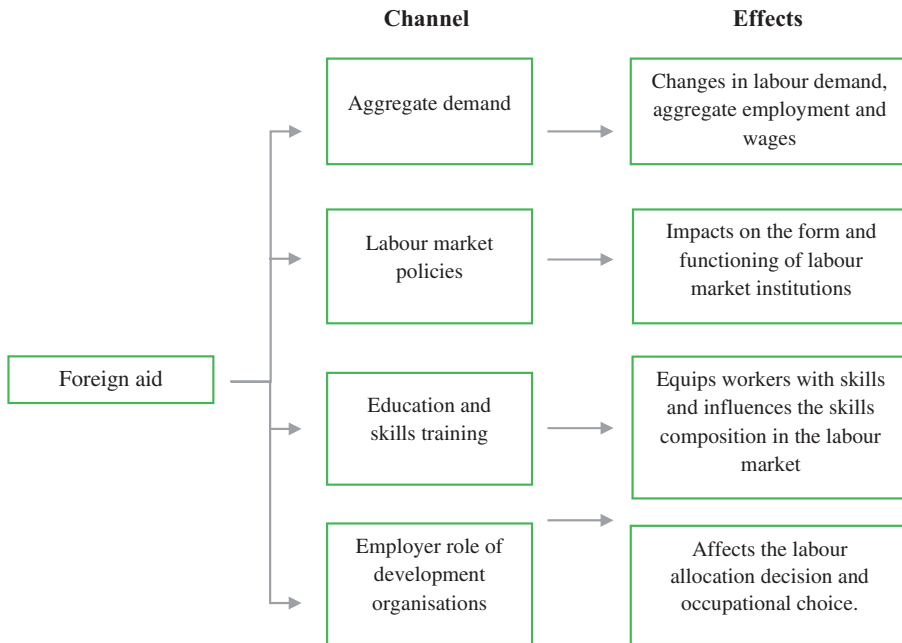
(INGOs) and local NGOs (Hearn, 2007; Kanyako, 2016). These organizations demand labor and employ local talent. In Sierra Leone, the development sector accounts for approximately 10 percent of all formal employment and 15 percent of formal wage-employment. The development sector is also the third largest employer of skilled labor, employing 10 percent of those with tertiary education (Statistics Sierra Leone, 2015, p. 25).

It follows that the employer role of the development sector likely influences the labor allocation decision and occupational preferences of workers in developing countries as they sort themselves into sectors and make decisions based on the continued existence of the development sector borne out of aid. In a ‘mission matching’ framework, Besley and Ghatak (2005) theorize that workers and sectors match based on a given mission, such as philanthropy, profit maximization, or social efficiency. Furthermore, Falco (2014) hypothesize that risk preferences or attitudes toward risks matter when choosing occupations. It is therefore expected that some workers will opt into the development sector, and this sector will compete with the public and private sector for skilled workers. This hypothesis is tested in Section 6 below.

The conceptual framework is summarized in Figure 2. The channels related to aggregate demand, direct policies in the labor market and skills interventions (reviewed above) are consolidated here in an aid-labor market framework. The framework also introduces the employer channel which affects labor allocation. The rest of this article explores this channel empirically by studying occupational choice in Sierra Leone.

### 3. Occupational choice in developing countries

There is a growing body of work exploring occupational choice of workers in developing countries. Scholars have sought to understand if workers match based on financial versus prosocial missions. Studies have found that salient incentives linked to career progression attract the higher skilled (Ashraf et al., 2020). Dal Bó et al. (2013) similarly find that higher wages attract candidates with higher financial motivations, as well as those who also scored better on measures of cognitive ability. A third important factor is prosociality. Serra et al. (2011) show that those with higher prosocial motivation are more likely to be employed in the lower-paying non-profit sector; and Deserranno (2019) shows that individuals who are more profit-driven were more likely to apply for higher paying jobs.



**Figure 2.** Aid and the labor market – a conceptual framework.

Another branch of the literature has studied occupational choice through the lens of utility preferences. Falco (2014) explores risk preferences, and how these affect the choice between informal employment or queueing for a formal job/unemployment. The findings show that risk-averse workers are more likely to queue for formal jobs (especially younger, more educated risk-averse workers), and risk-aversion decreases with the likelihood of informal employment Falco (2014). However, as argued by Blattman and Dercon (2018) workers may not be fully aware of different employment risks *ex ante*, and may therefore adjust the employment decision after a period of time on the job.

The present research builds on this literature. This is first done by introducing the development sector as an employment choice, drawing on the framework presented in Section 2. Second, the empirical strategy brings together financial motivations, prosociality, risk preferences and occupational choice in one model; and adds four other explanatory variables: time preferences, desires for social status, cognitive ability, and perceptions about different sectors.

## 4. Research context, sampling, and experimental methods

### 4.1. The Sierra Leonean context

Sierra Leone is a small aid-dependent West African country, with a population of approximately 7.5 million and annual GDP per capita just over US\$500 (World Bank, 2021). Like many countries in Sub-Saharan Africa, Sierra Leone is resource-rich but economically poor, has experienced conflict in its post-independence history, has a young population, and is largely agrarian in economic structure. Specific to the present research, Sierra Leone is an appropriate case study for three reasons.

Firstly, the nature of the Sierra Leonean labor market is characteristic of those of many developing countries with high levels of informality, uninsured risks and workers holding multiple jobs (Frölich & Haile, 2011). Data from the most recent labor force survey show that 1.86 million were employed in Sierra Leone in 2014, though the majority (90 percent) work in the informal sector (Statistics Sierra Leone, 2015). There were an estimated 188,777 formal sector

jobs, spread over self-employment (34 percent), private-wage employment (17 percent), public sector employment (39 percent) and development sector employment (10 percent). Secondly, the aid sector and development organizations have been a permanent feature in post-independent Sierra Leone and expanded in the post-war years since 2002 (Kanyako, 2016). The development sector is large relative to the size of the economy. ODA was an estimated 130 percent of government spending and 25 percent of GNI in 2014 (World Bank, 2021). And thirdly, there has been a boom in the supply of university graduates in the past decade, matched by a steady increase in government spending on tertiary education (World Bank, 2021).

Given these features, Sierra Leone is an apt case study, from which lessons can be drawn and applied to similar small, low-income, aid-dependent contexts.

#### *4.2. Survey and sample selection*

The research seeks to understand factors influencing sectoral preferences among university graduates before sustained labor market exposure. As such, the target population is final-year undergraduates about to enter the labor market. Undergraduates often enroll directly from secondary school, and most have less than one year of formal labor market experience. Comparatively, postgraduates often have extensive employment experience, and are thus excluded. Students enrolled in medical institutions or teachers' training colleges were also excluded as most entry-level employment for these graduates exist in the public sector at government hospitals and schools, respectively. Sectoral choice is thus restricted for these graduates.

The sample was drawn from Fourah Bay College (FBC). FBC sits under the University of Sierra Leone and is the oldest and largest college in Sierra Leone. FBC boasts almost 20 percent of tertiary education students and 30 percent of university students (World Bank, 2013, p. 11–12). Importantly for this study, FBC provides population heterogeneity given the variety of courses offered, and its location in the capital attracts students from all regions of the country. The student population of FBC is approximately 7,000, of which an estimated 1,060 are final-year undergraduates. 392 finalists were surveyed, giving a sampling fraction of 37 percent.

The pilot took place between 16th and 17th August 2017, and the full survey between 19th and 31st August. This covered the very busy last teaching week of the term, and first week of final examinations. The survey instrument was pre-tested with selected recent graduates in March 2017 to ensure questions and measured constructs were interpreted and answered as intended.

The principal investigator and enumeration team approached congregating students on campus and randomly selected students from these groups. A standard script was read explaining the research aims, survey duration, and potential benefits from participating. Benefits included a monetary pay-out linked to the incentivized games and consideration for an internship from the incentivized occupational choice design – both are explained below. If a student declined to participate, another student from the group was approached. A deliberate effort was made to ensure representation across gender, and faculty/school of enrollment (arts, social sciences, pure and applied sciences, engineering). The survey comprised questions on university and employment experience, perceptions of different sectors in the labor market, desired job and sector of employment, and standard socio-demographic questions. Five incentivized games and an incentivized occupational choice question were included as part of a lab-in-field experimental approach.

Table A1 of the [appendices](#) provides basic characteristics of the sample. The majority of respondents are male (65.3 percent), reside in West relative to East Freetown, and are originally from provincial regions. Almost half (48 percent) are enrolled in social sciences and 60 percent had some short-term employment experience or had volunteered. Of those with some employment experience, the largest share had experience in the public sector. The sample is



representative of the Sierra Leonean undergraduate population with respect to gender (World Bank, 2013, p.12), and comparable to 2016 University of Sierra Leone estimates for faculty of enrollment— see [Table A1](#). For faculty of enrollment, sampling weights were applied to the data to ensure representativeness.

### 4.3. *Experimental methods*

#### 4.3.1. *Measuring latent traits*

Risk and time preferences were elicited using multiple-price lists (MPLs) adapted from Andreoni, Kuhn, and Sprenger (2015) and Falco (2014). The switching points in the MPLs were used to calculate the Markowitz risk-premium (which measures the maximum willingness to pay to avoid the gamble), and the individual-specific discount factor (which measures the value placed on the future). Prosociality was elicited using the standard dictator game common in economics, and measures the amount participants give to less privileged students from a sum of SLL100,000 (US\$13.33). A series of ten Raven's matrices questions was administered to measure cognitive ability. Raven's matrices are widely used and easy to administer, and does not require specific spoken language, nor reading/writing skills. (Raven, 2000).

Instructions were clearly explained, and participants were given as much time as needed. Examples of Raven's matrices were presented to participants in advance. All behavioral games were triangulated with hypothetical questions embedded in the questionnaire. Games were selected based on how well-established the methods are and simplicity given that they were imbedded in the survey questionnaire. On completing the survey, participants were asked to roll a fair die, which randomly determined the game for which payment was made. This incentivized truthful revelation for all games, while managing total costs. Payoffs ranged from SLL15,000 to SLL50,000 (US\$2 to US\$6.67).

Other important covariates were elicited in the questionnaire but were not incentivized. Social status was measured using MacArthur's community ladders, which are commonly used in psychosocial studies to elicit subjective social status (Adler & Stewart, 2007). Respondents indicated their perceived place on the social ladder in their present state, and then where they thought they would be after five years, conditional on employment. The ladders were anchored by installing an occupation at the top and bottom so that all respondents had the same reference point. Lastly, financial motivation was proxied by the self-reported reservation wage.

#### 4.3.2. *Eliciting occupational preferences*

To elicit preferred sector of employment, four internships were created (among the 392 respondents) across the private, public and development sectors, and shadowing the owner of a self-run organization as a proxy for self-employment. Participants were told they would only be considered for one sector for the internship and were asked to state their preferred sector.<sup>2</sup> Information on recruitment criteria, specific job description, number of internships per sector and total potential candidates were not provided at the time of the survey in order to constrain the decision to preferences (as best possible), and not the respondent's subjective assessment of the likelihood of success. Different payment schedules were offered to further elicit a binary measure of time preferences. Participants could choose between a monthly payment of SLL500,000 (US\$66.67) versus fortnightly earnings of SLL200,000 (US\$26.67, equivalized to \$US53.33 monthly

Successful candidates interned at Bollore (a large logistics company), Apex Bank (a government bank overseeing rural financial institutions), the Centre for Coordination of Youth Activities (a large national NGO), and Sierra Leone Grass Roots Agency (a small self-run organization). Selection was done by the research team, based on demands from the hiring organizations. Interns were placed between November 2017 to April 2018. The tenure of each internship was three months, the job descriptions were similar (mainly administrative tasks)



and the monthly stipend were the same across all internships. The incentivized internship choice was triangulated with the open-ended hypothetical question: ‘which type of organization do you imagine working for?’

## 5. Empirical strategy

The theoretical framework underlying the empirics is a Random Utility Model, drawing on the formative works of McFadden (1973) and Manski (1977) and more recent formulations in Cameron and Trivedi (2005). In the model, the decision maker (a student) chooses a preferred sector for employment to maximize individual utility. The choice set in the survey was defined across four sectors: the public sector, wage-employed private sector, wage-employed development sector, and self-employment.

The public sector includes central government, line ministries, state-owned enterprises, parastatals and other state-owned and operated agencies. The wage-employed private sector covers formal privately owned organizations. The wage-employed development sector comprises organizations whose primary objective is promoting economic and social development (save for the public sector), through policy, advocacy or implementation, and includes NGOs, INGOs and donor organizations. Self-employment refers to both formal and informal entrepreneurship.

For the regression analysis, the sample is restricted to the public, private and development sectors, excluding respondents who opted for self-employment. This is done for three reasons. Firstly, in Sierra Leone, the self-employed operate in both the private sector and development sector. Therefore, self-employment is not strictly mutually exclusive with two of the other three sectors. Mutual exclusivity is a required assumption when using Random Utility Models (Cameron & Trivedi, 2005). Secondly, for this study, comparing the differences between choosing the public, private and development sector is useful analytically if we conceptualize the development sector as a third and competing sector. Thirdly, only 10 out of the 392 respondents chose self-employment. Such a small number ( $n < 30$ ) can lead to very large standard errors and imprecise estimates (Cameron & Trivedi, 2005). The descriptive results for opting for self-employment is still provided in section 6.

Random Utility Models usefully allow probabilities to be empirically modelled using multinomial choice models. An alternative invariant Multinomial Probit Model (MNP) is used to estimate the probability of choosing a sector, conditional on individual attributes such as cognitive ability, risk and time preferences, prosocial behavior, desired social status from employment, and financial motivation. The probability of choosing sector  $j$ , conditional on attributes  $x_i$  is given by:

$$P(y = j|x_i) = \Phi(\beta_1 \text{cognitive\_ability}_i + \beta_2 \text{financial\_motives}_i + \beta_3 \text{prosociality}_i + \beta_4 \text{desired\_status}_i + \beta_5 \text{time\_preferences}_i + \beta_6 \text{risk\_preferences}_i + \gamma Z_i + \varepsilon_{ij})$$

Previous literature on occupational choice in developing countries has established financial motivation (Ashraf et al., 2020; Dal Bó et al., 2013), prosociality (Deserranno, 2019; Serra et al., 2011) and risk preferences (Falco, 2014) as important factors. There may be a confounding effect between risk and time preferences (Tanaka, Camerer, & Nguyen, 2010). For example, a jobseeker who prefers a short-term contract may be a risk-taker or may be myopic in the employment choice. Including both in the model allows the separation of marginal effects. Desired social status is another likely determinant of occupational preferences, especially if employment is an avenue for social mobility (Iversen, Krishna, & Sen, 2019). A measure of cognitive ability is included to determine if this matters for sorting across sectors. Previous evidence

suggests that job-sorting at the firm level is associated with education levels (Fafchamps, Söderbom, & Benhassine, 2009).

$Z_i$  represents a vector of controls, and includes gender, age, faculty of enrollment, being originally from Freetown, current area of residence and parents' education. Previous literature has established gender differences in preferences and prosocial behavior (Croson & Gneezy, 2009) so this is controlled for. Age is included as older respondents are more likely to have previous exposure to the labor market, which may affect sector preferences. Area of residence is a dummy variable and captures if the respondent lives in the richer western side of the capital versus the poorer eastern side. Being originally from Freetown is a dummy variable and equals one if the respondent was raised in the capital and zero otherwise. Parents' education level and enrollment faculty are likely to affect latent traits and career aspirations through socialization and training. These are included as a series of indicator variables.  $\varepsilon_{ij}$  represents the error term. The Probit link function is represented by  $\Phi$ , and allows probabilities to be estimated (Cameron & Trivedi, 2005). Summary statistics for key latent variables which appear as covariates in the regression are given in Table A2 of the appendices.

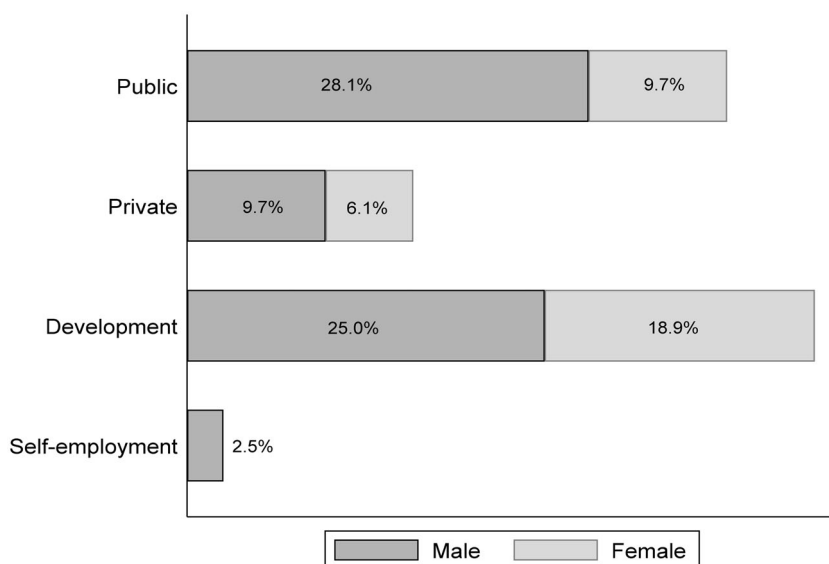
A sector-level analysis assumes that there are commonalities across jobs within each sector, and differences between sectors which allow sensible groupings such that similar types of individuals are likely to sort across sectors and match based on sector-specific characteristics. Given that different sectors have different 'missions' (using the terminology in Besley and Ghatak (2005)), types of contracts, and visible signs that communicate prestige in Sierra Leone, it can be argued that these sector-specific characteristics would attract candidates with different risk and time preferences, prosociality, financial motivations, and desires for status.

Both the public and development sectors are seen to have a primary mandate to contribute to society. While the private sector also contributes to society, classical economic theory suggests the main motive is profits maximization. Most private and public sector employment in Sierra Leone offer permanent contracts (after six months' probation), while development sector employment is often short-term, but better paid. The development and public sectors are associated with outward status symbols such as special license plates, passports, national and international travel. These differentiating features are associated with prosociality, financial motivations, risk and time preferences, and status, respectively. Albeit, there is still some expected heterogeneity within each sector in relation to organization size, day-to-day operations, and remuneration.<sup>3</sup> At the time of data collection there was a freeze on public sector hiring and private sector employment was relatively scarce. Comparatively, there were more reported vacancies in the development sector.

Finally, it is assumed that all skill types studied can find employment in any sector. One can imagine the mining company that hires administrative and support staff, the NGO seeking an engineer for a well-digging project, and government offices that hire a range of workers from lawyers to social workers. It is not assumed that the sector chosen in the occupational experiment will be the same one the respondent intends to be employed in for their entire career. Rather, it is preferred for starting their career. It can be argued that there is likely path-dependency as the first job after graduation would have a meaningful impact on the trajectory of the first few years in the labor market due to the experience and connections obtained.

## 6. Results and discussion of findings

This section presents four main findings from descriptive results (Figure 3) and regression analysis (Table 1). Columns 1–3 of Table 1 provide results from the model presented in section 5. Columns 4 to 6 give results for an augmented model which also includes an individual-specific measure of perceived attractiveness of each sector. Table 1 gives marginal effects at the mean (MEM). The MEM estimates the change in the probability of opting for a given sectors that is



**Figure 3.** Sector preferences based on incentivized occupational choice (share of respondents).

*Source:* Author collected survey data

associated with an instantaneous change from the sample average for continuous variables and from the base level for categorical variables.<sup>4</sup>

### 6.1. *The development sector as an attractive employment option*

The first main finding is that the development sector is an attractive option, and the most popular choice among the university educated. From the incentivized occupational choice experiment, 43.9 percent prefer the development sector, followed by the public sector (37.8 percent), the private sector (15.8 percent), and self-employment (a mere 2.5 percent) – [Figure 3](#). Low entrepreneurial intentions may be expected given university-leavers usually display a preference for wage-employment; but the results still lie below other global estimates (Sieger, Fueglistaller, Zellweger, & Braun, 2019). Such low desires for entrepreneurship stem from macro-level factors such as access to credit, alongside individual-level factors such as conceptions of success and cultural perceptions about entrepreneurship (Harris, 2022). No females opted for self-employment.

The development sector is especially preferred by those enrolled in the Arts faculty, while engineers have a preference for the private sector and social scientists for the public sector. About 27 percent of graduates belong to the Arts faculty. Females are also more likely to choose the development sector, and less likely to choose the public sector. Although about a third of the university population (and the sample) are female ([Table A1](#)), 43 percent of those choosing the development sector are female and 25.7 percent of those choosing the public sector. Presently, the public sector in Sierra Leone is male dominated. The results may suggest an opting-out effect at the early-career level. Anecdotal qualitative evidence suggests that this may be because women have fewer chances of progressing to senior roles and are more likely to be assigned more menial administrative tasks in the public sector. The association between faculty of enrollment and sector choice, and gender and sector choice are statistically significant at conventional levels.

Given that the development sector is the modal choice, it is considered as the base category for the regression analysis ([Table 1](#)). Using the development sector as the base outcome is also

**Table 1.** Multinomial Probit regression results for sector preferences – marginal effects at the mean (MEM)<sup>+</sup>

	Public (1)	Private (2)	Development (3)	Public (4)	Private (5)	Development (6)
Measured attributes						
Cognitive ability	-0.0665* (0.0341)	0.0053 (0.0194)	0.0612* (0.0357)	-0.0789** (0.0335)	0.0031 (0.0198)	0.0758** (0.0357)
Reservation wage	-0.00006 (0.0001)	0.00009 (0.00005)	-0.00003 (0.00012)	-0.0001 (0.0001)	0.0001 (0.0001)	-0.00003 (0.0001)
Prosociality	-0.1132 (0.1829)	-0.238** (0.118)	0.351* (0.191)	-0.2160 (0.1853)	-0.235* (0.1217)	0.451** (0.198)
Desired status	-0.0442** (0.0182)	0.0014 (0.0117)	0.0427** (0.0189)	-0.0484** (0.0187)	0.0056 (0.0124)	0.0428** (0.0192)
Present bias	0.0637 (0.0604)	-0.0056 (0.0386)	-0.0581 (0.0633)	0.0664 (0.0633)	-0.0018 (0.0407)	-0.0646 (0.0663)
Risk preference	0.0185 (0.0362)	-0.0130 (0.0217)	-0.0055 (0.0384)	0.0051 (0.0374)	-0.0149 (0.0223)	0.0098 (0.0393)
Perception measures						
Public sector perception				0.794*** (0.1265)	-0.0945 (0.0768)	-0.6996*** (0.1334)
Private sector perception				0.0292 (0.0275)	0.0383* (0.0198)	-0.0674** (0.0293)
Development sector perception				-0.0672** (0.0288)	-0.0445** (0.0174)	0.1117*** (0.0317)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	380	380	380	380	380	380

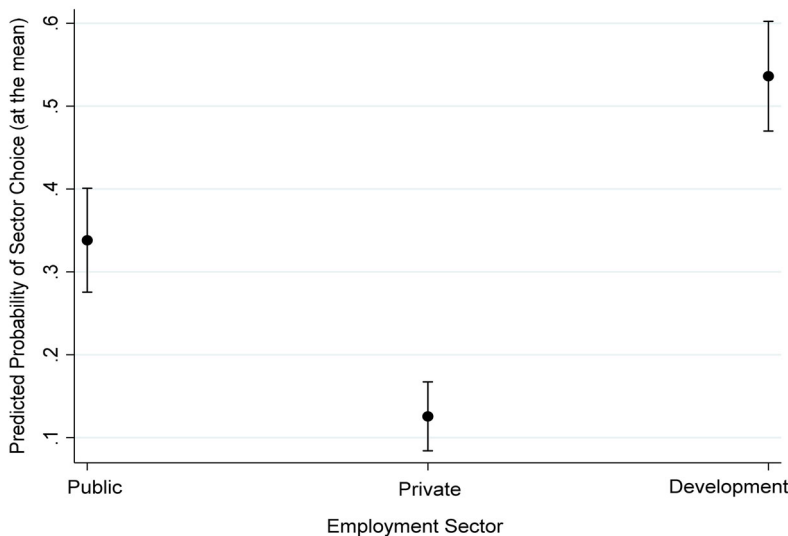
Standard errors in parentheses. \*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$ .

<sup>+</sup>Cognitive ability is measured by applying Item Response Theory techniques to answers to Raven's matrices questions. Present bias is a binary variable based on the payment schedule selected for the internship. Perception measures was calculated using Multiple Correspondence Analysis applied to sector ratings. Controls include age, gender, being from East/West Freetown, being originally from Freetown, faculty of enrollment, and parents' education. In columns 1–3, coefficients are significant for: (i) gender – females are more likely (less) to choose the development (public) sector and (ii) faculty of enrollment – relative to Arts students, engineers are more likely to choose the private sector, and social scientist are more likely to choose the public sector. The results for gender and social scientists are not significant in columns 4–6. *Source:* Author collected survey data.

useful for interpreting the results relative to the public and private sectors. Evaluating the margins of the multinomial Probit model in Table 1 at the means of all covariates, the predicted probability of choosing the public sector is 0.338, 0.123 for the private sector and 0.536 for the development sector for the average university graduate surveyed, excluding those who selected self-employment (Figure 4). All marginal effects described below take these predicted probabilities as the base level for comparison.

## 6.2. Cognitive ability and occupational choice

From columns 1 and 3 of Table 1, there is evidence of an ability effect where graduates with higher cognitive ability are more attracted to the development sector. As ability increases by one unit above average (1.3 standard deviations), from a score of -0.0015 to 0.9985 on a scale ranging from -4 to +4 which is used to measure ability, the probability of choosing the development sector increases by 0.061, while the likelihood of choosing the public sector decreases by 0.067 (Table 1). The result is weakly significant at the 10 percent level. When individual perceptions are included in the model (columns 4 and 6), an ability effect is again observed as higher (lower) ability jobseekers are more (less) likely to prefer the development sector (public sector). This effect is larger and significant at the five percent level. Here, a one-unit change in ability



**Figure 4.** Predicted probabilities of sector choice (at means). Point estimates shown, with 95 percent confidence interval.

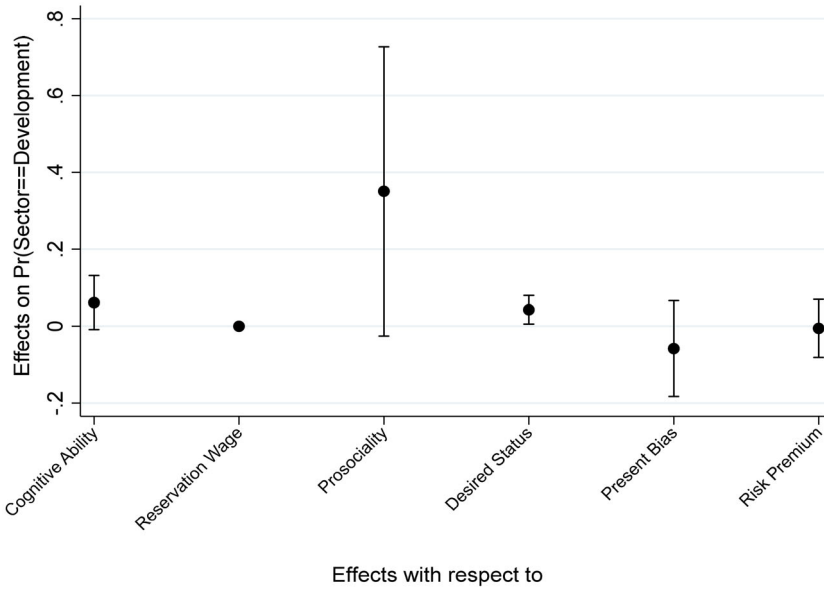
above average increases the probability of opting for the development sector by 0.076 and decreases the probability of choosing the public sector by 0.079. Based on conversations with employers engaged for the internships in this study, there is no evidence to suggest that the types of jobs in the development sector, on average, require higher cognitive ability. In other words, sorting based on ability is unlikely to be related to sector-specific ability requirements.

Evidence of a shift of workers from public and private organizations to NGOs has been documented with respect to medical professionals (Bristol, 2008). This study provides evidence that the attractiveness of the development sector likely applies to skilled workers more generally. This has implications for homegrown development if local companies and the government are unable to access required talent or lose talent to development organizations. This can be further compounded if human capital decisions are also made to obtain employment in the attractive development sector.

### 6.3. *Intrinsic motivations and occupational choice*

The development sector appeals to those with higher levels of prosociality. Those with prosocial traits marginally above average (ten percentage points higher) are more likely to prefer the development sector (a change in probability between 0.035 and 0.045 depending on the specification) and are less likely to choose the private sector. This result is expected as the development sector is seen by respondents as ‘making a contribution to society.’ This is consistent with findings by Serra et al. (2011) that more prosocial health workers sort themselves into the charity sector. It further supports the results on gender previously presented as females have been found to be more sympathetic to a prosocial cause (Croson & Gneezy, 2009).

Higher desires for social status from employment is associated with a preference for the development sector. This is expected as the development sector is well-respected in local communities. An increase in desires for elevated social status from employment by one unit (or one rung on the ladder used to measure desired status) increases the probability of choosing the development sector by 0.04. The negative correlation between status and choosing the public sector may seem counterintuitive as government jobs are highly demanded in many developing countries (Mazumdar & Mazaheri, 2018). One potential explanation may be the low ratings of



**Figure 5.** Conditional marginal effects of choosing the development sector based on intrinsic traits (controls included) – 95 percent confidence interval shown. Point estimates shown, with 95 percent confidence interval.

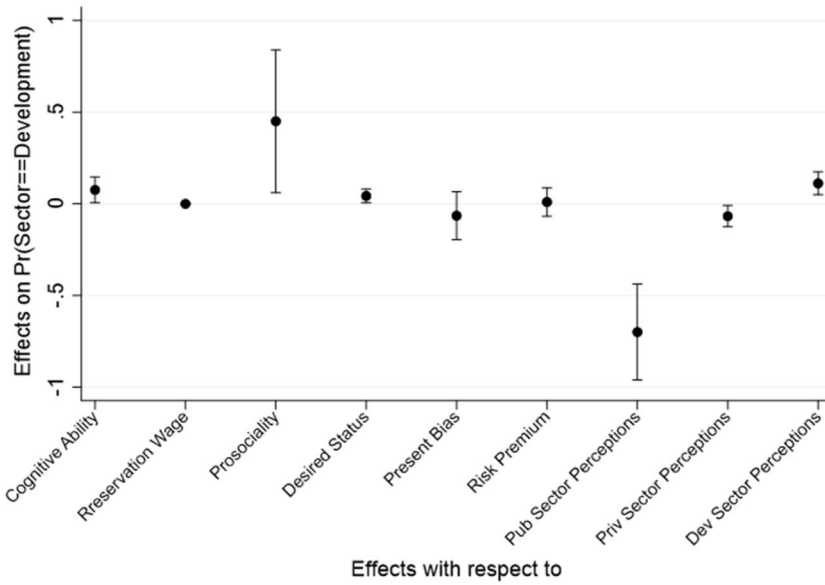
the Sierra Leone government amid corruption allegations in the fight against Ebola (DePinto, 2016).

The results for risk and time preferences and financial motivations are not significant at conventional levels. Comparing this to previous studies (Dal Bó et al., 2013; Falco, 2014), suggests that highly skilled workers in small low-income countries may behave differently to those in larger and/or wealthier countries. Arguably, population and income determine the size and structure of product markets, and consequently, the labor market where graduates supply their labor.

#### 6.4. Perceptions and occupational choice

Individual-specific perception scores of the three sectors are introduced in columns 4 to 6 of Table 1. Scores are based on individual perceptions on each sector in terms of salary, status, contribution to society, opportunities for training, career progression and job stability. Respondents were asked to rank each sector based on these categories. An individual-specific composite ‘perception score’ for each sector was then calculated using Multiple Correspondence Analysis. As DellaVigna (2009) notes, decision-making is driven by both incentives and heuristics. This composite score accounts for elements of heuristics.

The sign and significance of the coefficients for perception measures indicate a trade-off between the public and development sectors, and private and development sectors. There is no evidence of trade-off between the public and private sectors. This suggests that a subjectively more attractive development sector may pull jobseekers away from the other two sectors; and from the results above, these jobseekers are likely to have higher cognitive ability. As esteem of the development sector increases by one unit (or one standard deviation) from a score of zero to one on a scale ranging from  $-4$  to  $+4$  which is used to measure perception, the likelihood of choosing the public sector and private sector decreases by 0.067 and 0.045 respectively. From columns 4 and 5 (Table 1), opinions on the private sector do not influence the probability of choosing the public sector, and vice versa. The results for intrinsic traits from columns 1 to 3 remain and are now more significant in the augmented specification. The difference between



**Figure 6.** Conditional marginal effects of choosing the development sector based on intrinsic traits and sector perceptions (controls included) – 95 percent confidence interval shown. Point estimates shown, with 95 percent confidence interval.

the two models with respect to estimated probabilities of choosing the development sector can be seen in [Figure 5](#) versus [Figure 6](#).

### 6.5. Robustness checks

As noted, interpretations of the models above are based on marginal effects evaluated at the mean (MEM). For comparison, the average marginal effects (AME) – which takes the average of all individual marginal effects ([Table S1](#) of the [supplementary materials](#)). Findings are similar for MEM versus AME, with a marginal decline in some probabilities estimated using AME - in most cases a percentage point or less.

The results presented in sections 6.2 to 6.4 are robust to various specifications of the model such as excluding all controls, including hypothetical measures of risk preferences, interactions between time and risk preferences, and interactions between gender and cognitive ability. The results are calibrated for the predicted probabilities of choosing the development sector and are provided in [Figures S1–S5](#) of the [supplementary materials](#). These figures can be compared to [Figures 5](#) and [6](#).

It can be argued that having any previous experience in a sector (regardless of tenure) may affect occupational preferences. Including reported employment experience leaves the main results unchanged ([Figure S6](#)). In this specification the probability of choosing the development sector as cognitive ability increases rises to 0.0853 (from 0.0758 in column 6 of [Table 1](#)) and is again significant at the five percent level. Previous experience in the development sector increases the probability of choosing the development sector by 0.234 (with a p-value of 0.004). This gives some indication of path-dependency, with a potential link between short-term experience and subsequent employment preferences.

It is possible that the enumerator administering the survey and experimental games could have influenced measured traits. Controlling for enumerator effects mitigate any potential bias in the estimated coefficients. The results are robust to including these dummies ([Figure S7](#)). Here the estimate for cognitive ability declines to 0.0636, but all other estimates largely remain unchanged. Finally, then main results for ability and perceptions are also robust to running the



model unweighted (without sampling weights – [Table S2](#)) and unweighted with robust standard errors ([Table S3](#)), though the ability coefficient becomes weakly significant.

## 7. Conclusions and policy implications

This article introduced the development sector as an option for skilled workers in an occupational choice model. Little research has been done in this area. The article thus makes an important contribution to the field.

Four key findings emerge from the empirical analysis of Sierra Leonean data. First, the development sector is an attractive employment choice as the largest share of graduates opt for early-career employment in the sector. Second, there is an ability-effect, as workers with higher cognitive ability are more likely to choose the development sector over the public and private sectors. Third, jobseekers with higher prosocial traits and desires for social status from employment are more likely to prefer the development sector. And fourth, perceptions of different sectors emerge as important. Here, there is evidence of a trade-off between the development sector and the more traditional public and private sectors, as favorable perceptions of the development sector reduce the probability of choosing the public and private sectors. The empirical results thus provide evidence that a large and ongoing development sector does indeed influence early-career occupational preferences, and that when such a sector exists and persists over time, occupational choice decisions are made conditional on the presence of the sector. These lessons derive from the Sierra Leone case, but are likely applicable to other aid-dependent low-income countries

The findings speak to policy and should encourage development organizations to reflect on their impact on the dynamics of the labor market and the labor allocation decision of jobseekers in the countries in which they operate – especially in cases where the development sector is large relative to the size of the economy. If the results of this study are indicative of future trends in the Sierra Leonean labor market, there may be further movement of those with higher cognitive ability to development sector jobs in the short run. Moreover, there is evidence of skills development geared at employment in the desirable development sector ([Harris, 2021](#)), which can lead to a shift in the skills composition in the long run.

Both the national government and international actors need to be aware of and act on this, as such a shift can have important consequences for long-term development, particularly home-grown development driven by the local public and private sectors. If the development sector is growth and development enhancing, having higher ability workers in this sector may have positive outcomes. On the other hand, if the result is fewer high ability workers in high-growth private sector industries, the long-run results may be negative as the formal private sector has traditionally been a significant contributor to economic growth ([La Porta & Shleifer, 2014](#)). These effects are also likely to be contingent on changes in labor demand.

The results for perception measures also bring to the fore the importance of factors external to the decision-maker in the choice process. Perceptions are often based on available information, and as such, information available to jobseekers should be abundant and transparent across all sectors

The study population was university-educated skilled workers, an under-researched group in low-income contexts. Some results presented here may not be applicable to lower-skilled jobseekers who likely have different aspirations and opportunities available to them in the labor market, and are likely to search in different ways. Such workers, in essence, operate in a different market segmented by skills. It was shown here that females are more likely to choose the development sector, and less likely to choose the public sector, but this was not explored in great depth in the present study. This can be an area for future qualitative research in terms of fully exploring the gender dynamics of different employment choices. Future research may also wish to better understand how perceptions are formed and propagated as these have been shown to be important to occupational preferences.

## Notes

1. See more on the ILO's mission and impact here: <https://www.ilo.org/global/about-the-ilo/mission-and-objectives/lang-en/index.htm>.
2. It is acknowledged that although the incentivized internship mimics the employment decision, final occupational outcomes in the real world would be a function of both preferences and opportunities available.
3. Anecdotally, there is a large spread in remuneration packages in the development sector with local NGOs and donor organizations at the lower and upper bounds, respectively. This may explain the large range in reported reservation wages (Table A2).
4. Intuitively, a 'representative agent' interpretation can be attached to the 'average individual' with the average of all continuous variables and the baseline values for categorical variables.

## Acknowledgements

This work would not have been possible without financial support from the International Growth centre (IGC) – project number 39408; my Sierra Leone team Abass Kargbo, Mousa Sesay, Sidi Saccogh, Umaro Tarawalie, Kabineh Kpukumu, Juliana Mahayei and Alpha Jalloh; and my research participants who gave of their time. I am also grateful for comments and feedback from Christopher Adam, Andy McKay, Martin Williams, Vincenzo Bove, Jessica Di Salvatore and Alex Jones; the participants of the 2019 CSAE conference and the 2019 UNU-WIDER conference Transforming economies—for better jobs; and the reviewers whose comments enhanced the article. And to the taxpayers of Trinidad and Tobago, who funded my doctoral studies. The data and code used can be made available upon (email) request.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

## Funding

This study was funded by the International Growth Centre [grant number 39408].

## ORCID

Jamelia Harris  <http://orcid.org/0000-0002-8437-3386>

## References

- Addison, T., Morrissey, O., & Tarp, F. (2017). The macroeconomics of aid: Overview. *The Journal of Development Studies*, 53(7), 987–997. doi:10.1080/00220388.2017.1303669
- Adler, N., & Stewart, J. (2007). The MacArthur Scale of subjective social status. MacArthur Research Network on SES & Health. Retrieved from <https://macses.ucsf.edu/research/psychosocial/usladder.php> (accessed 9 February 2017).
- Agénor, P. R. (1996). The labor market and economic adjustment. *IMF Staff Papers*, 43(2), 261–335. doi:10.2307/3867399
- Andreoni, J., Kuhn, M. A., & Sprenger, C. (2015). Measuring time preferences: A comparison of experimental methods. *Journal of Economic Behavior & Organization*, 116, 451–464. doi:10.1016/j.jebo.2015.05.018
- Ashraf, N., Bandiera, O., Davenport, E., & Lee, S. S. (2020). Losing prosociality in the quest for talent? Sorting, selection, and productivity in the delivery of public services. *American Economic Review*, 110(5), 1355–1394. doi:10.1257/aer.20180326
- Baccaro, L. (2015). Orchestration for the “social partners” only. In B. Zangl, D. Snidal, K. W. Abbott, & P. Genschel (Eds.), *International Organizations as Orchestrators* (pp. 262–285). Cambridge, UK: Cambridge University Press.
- Besley, T., & Ghatak, M. (2005). Competition and incentives with motivated agents. *American Economic Review*, 95(3), 616–636. doi:10.1257/0002828054201413
- Blattman, C., & Dercon, S. (2018). The impacts of industrial and entrepreneurial work on income and health: Experimental evidence from Ethiopia. *American Economic Journal: Applied Economics*, 10(3), 1–38. doi:10.1257/app.20170173

- Bristol, N. (2008). NGO code of conduct hopes to stem internal brain drain. *The Lancet*, 371(9631), 2162. doi:10.1016/S0140-6736(08)60937-X
- Cameron, A. C., & Trivedi, P. K. (2005). *Microeconometrics: Methods and Applications*. New York: Cambridge University Press.
- Cook, P., & Kirkpatrick, C. (1998). Labor market adjustment in small open economies: The case of Micronesia. *World Development*, 26(5), 845–855. doi:10.1016/S0305-750X(98)00016-3
- Crosen, R., & Gneezy, U. (2009). Gender differences in preferences. *Journal of Economic Literature*, 47(2), 448–474. doi:10.1257/jel.47.2.448
- Dal Bó, E., Finan, F., & Rossi, M. A. (2013). Strengthening state capabilities: The role of financial incentives in the call to public service. *The Quarterly Journal of Economics*, 128(3), 1169–1218. doi:10.1093/qje/qjt008
- DellaVigna, S. (2009). Psychology and economics: Evidence from the field. *Journal of Economic Literature*, 47(2), 315–372. doi:10.1257/jel.47.2.315
- DePinto, J. R. (2016). Corruption and the 2014 EVD Crisis in Sierra Leone: Ebola as “Total Disease”. In M. Mustapha & J. J. Bangura (Eds.), *Democratization and Human Security in Postwar Sierra Leone* (pp. 217–49). New York: Palgrave Macmillan. doi:10.1057/9781137486745\_11
- Deserranno, E. (2019). Financial incentives as signals: Experimental evidence from the recruitment of village promoters in Uganda. *American Economic Journal: Applied Economics*, 11(1), 277–317. doi:10.1257/app.20170670
- Fafchamps, M., Söderbom, M., & Benhassine, N. (2009). Wage gaps and job sorting in African manufacturing. *Journal of African Economies*, 18(5), 824–868. doi:10.1093/jae/ejp005
- Falco, P. (2014). Does risk matter for occupational choices? Experimental evidence from an African labour market. *Labour Economics*, 28, 96–109. doi:10.1016/j.labeco.2014.03.005
- Frölich, M., & Haile, G. (2011). Labour markets in developing countries. *Labour Economics*, 18, S2–S6. doi:10.1016/j.labeco.2011.10.003
- Harris, J. (2021). Foreign aid, human capital accumulation and the potential implications for growth. *The Review of International Organizations*, 16, 549–579. doi:10.1007/s11558-020-09408-8
- Harris, J. (2022). Exploring the desire to be an entrepreneur among university-educated youths: lessons from Sierra Leone. *Development in Practice*, 32(7), 940–946. doi:10.1080/09614524.2022.2030673
- Hearn, J. (2007). African NGOs: The new compradors? *Development and Change*, 38(6), 1095–1110. doi:10.1111/j.1467-7660.2007.00447.x
- Heckelman, J. C., & Knack, S. (2009). Aid, economic freedom, and growth. *Contemporary Economic Policy*, 27(1), 46–53. doi:10.1111/j.1465-7287.2008.00123.x
- Hoeven, R. V. D., & Taylor, L. (2000). Introduction: Structural adjustment, labour markets and employment: Some considerations for sensible people. *Journal of Development Studies*, 36(4), 57–65. doi:10.1080/00220380008422637
- Iversen, V., Krishna, A., & Sen, K. (2019). Beyond poverty escapes—social mobility in developing countries: A review article. *The World Bank Research Observer*, 34(2), 239–273. doi:10.1093/wbro/lkz003
- Kanyako, V. (2016). Donor policies in post-war Sierra Leone. *Journal of Peacebuilding & Development*, 11(1), 26–39. doi:10.1080/15423166.2016.1146035
- La Porta, R., & Shleifer, A. (2014). Informality and Development. *Journal of Economic Perspectives*, 28(3), 109–126. doi:10.1257/jep.28.3.109
- Lim, S., Mosley, L., & Prakash, A. (2015). Revenue substitution? How foreign aid inflows moderate the effect of bilateral trade pressures on labor rights. *World Development*, 67, 295–309. doi:10.1016/j.worlddev.2014.10.025
- Manski, C. F. (1977). The structure of random utility models. *Theory and Decision*, 8(3), 229–254. doi:10.1007/BF00133443
- Mazumdar, D., & Mazaheri, A. (2018). *Wages and Employment in Africa*. London: Routledge.
- McFadden, D. L. (1973). Conditional logit analysis of qualitative choice behavior. In P. Zarembka (Ed.), *Frontiers in Econometrics*. New York: Academic Press.
- McGrath, S. (2002). Skills for development: a new approach to international cooperation in skills development? *Journal of Vocational Education & Training*, 54(3), 413–430. doi:10.1080/13636820200200207
- Page, J., & Shimeles, A. (2015). Aid, employment and poverty reduction in Africa. *African Development Review*, 27(S1), 17–30. doi:10.1111/1467-8268.12136
- Palmer, R. (2014). Technical and vocational skills and post-2015: Avoiding another vague skills goal? *International Journal of Educational Development*, 39, 32–39. doi:10.1016/j.ijedudev.2014.08.007
- Raven, J. (2000). The Raven’s progressive matrices: Change and stability over culture and time. *Cognitive Psychology*, 41(1), 1–48. doi:10.1006/cogp.1999.0735
- Serra, D., Serneels, P., & Barr, A. (2011). Intrinsic motivations and the non-profit health sector: Evidence from Ethiopia. *Personality and Individual Differences*, 51(3), 309–314. doi:10.1016/j.paid.2010.04.018
- Sieger, P., Fueglistaller, U., Zellweger, T., & Braun, I. (2019). Global student entrepreneurship (2018). Insights from 54 countries. St.Gallen/Bern: KMU-HSG/IMU. [http://www.guesssurvey.org/resources/PDF\\_InterReports/GUESSS\\_Global\\_2018.pdf](http://www.guesssurvey.org/resources/PDF_InterReports/GUESSS_Global_2018.pdf).
- Statistics Sierra Leone. (2015). Sierra Leone 2014 labor force survey report. Retrieved from: [https://www.statistics.sl/images/StatisticsSL/Documents/Publications/2014/sierra\\_leone\\_labour\\_force\\_survey\\_report\\_2014-1.pdf](https://www.statistics.sl/images/StatisticsSL/Documents/Publications/2014/sierra_leone_labour_force_survey_report_2014-1.pdf). (accessed 31 December 2019).

- Tanaka, T., Camerer, C. F., & Nguyen, Q. (2010). Risk and time preferences: Linking experimental and household survey data from Vietnam. *American Economic Review*, 100(1), 557–571.
- World Bank. (2013). *Republic of Sierra Leone higher and tertiary education sector policy note* ( Report ACS4393). Washington, DC: The World Bank.
- World Bank. (2018). *World Development Report 2018: Learning to Realize Education's Promise*. Washington, D.C.: World Bank Group.
- World Bank. (2021). World development indicators online database. Retrieved from <https://data.worldbank.org/data-catalog/world-development-indicators>.
- Yanguas, P. (2017). The role and responsibility of foreign aid in recipient political settlements. *Journal of International Development*, 29(2), 211–28. doi:10.1002/jid.3269

## Appendix

**Table A1.** Summary of sample characteristics ( $n = 392$ )

Variables	Sample proportion	National share
Female	0.3469	0.3567
Faculty of enrollment		
Arts	0.2653	0.2660
Engineering	0.0918	0.0792
Pure and applied sciences	0.1582	0.0972
Social science	0.4847	0.5575
Live in East Freetown	0.4031	
Originally from Freetown	0.4719	
Has children	0.3061	
Married	0.1122	
Has financial dependents	0.4694	
Ever employed	0.5944	
In the public sector	0.2806	
In the private sector	0.1888	
In the development sector	0.1582	
In self-employment	0.0255	
Volunteer experience	0.6173	

*Source:* Sample proportions calculated from author collected survey data. National estimate for gender taken from World Bank (2013, p. 12) and faculty estimates from 2016 University of Sierra Leone graduation data. The 2016 University of Sierra Leone estimates were used to calculate sampling weights for the regression analysis. For example, one social science finalist sampled represents 1.15 finalists (0.5575/0.4847).

**Table A2.** Summary statistics for key latent variable ( $n = 392$ )

Variable	Mean	Std. Dev.	Min	Max
Reservation wage (US\$)	334.65	291.496	66.67	2666.67
Prosociality	0.2374	0.1414	0	1
Risk premium	1.6308	0.7449	−1	2
Discount factor	0.9800	0.0170	0.9567	1
Desired status change	2.7526	1.3523	0	9
Cognitive ability	−0.0015	0.7646	−1.6572	1.9333

*Source:* Author collected survey data.