

Part 3:

Skills and Training



## Vocational Training and Labour Market Transitions: A Randomised Experiment Among Cambodian Disadvantaged Young Adults

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We use a randomised experiment to provide evidence on the effects of vocational training programs for economically disadvantaged young adults in Cambodia. Individuals aged between 15 and 30 were randomly offered a two-month full-time training course in housekeeping; we find that the program has positive but statistically insignificant effects on employment outcomes. We track program dropouts and find that their participation was mainly constrained by family obligations, lack of transport to the training centre, and temporary job opportunities. We also document the experience of working with disadvantaged young people. We observe that they need other support in addition to training. Job-readiness training, job placement assistance, career guidance and counselling might be needed to help them break into the labour market.

## 9.1 Introduction

Lack of skills is considered a key determinant of unemployment, poverty and crime, and a key limitation on growth in developing countries. To increase the number of young adults in formal employment, it is crucial that they are well equipped with labour market relevant skills. Vocational training is a promising approach to help young people, especially those from economically disadvantaged backgrounds or who left formal schooling prematurely, to develop job skills. Training also offers them a second chance to differentiate themselves from other dropouts in the labour market.

In many developing countries, the labour force is often characterised by a large number of low-skilled young people aged between 15 and 30 (the youth cohort). However, the majority are either unemployed or in low-paying informal jobs (Elder 2014). Thus, one of the targets of Sustainable Development Goal 8 is to ensure that by 2020 the proportion of youth not in employment, education or training is substantially reduced. In Cambodia, in 2014, about 23 percent of youth were not in work. In its effort to mobilise more youth into employment, the Cambodian government has put in place several policies such as the Rectangular Strategy for Growth, Employment, Equity and Efficiency and the Technical and Vocational Education and Training (TVET) Strategic Development Plan 2014–18, incorporated social protection schemes into labour law and ratified international treaties such as the ILO Labour Conventions and similar policy instruments.

The Rectangular Strategy encapsulates the national vision for productivity improvement, agricultural diversification, private sector development, employment generation, capacity building and human resource development. To speed up its implementation, infrastructure investments and industrial policies have been established. The vocational training programs implemented by the Ministry of Vocational Training and Labour aim to improve the job skills of young people in rural areas with a view to increasing the incomes and living standards of rural families, especially the poor. Further concerted efforts are needed, however, if Cambodia is to catch up with its peers in the Association of Southeast Asian Nations (ASEAN) in the context of the ASEAN Economic Community, especially in improving workforce skills. Alongside export-led industrial growth, TVET could be a crucial development tool for Cambodia. TVET is also considered a win-win approach to creating better work opportunities for young people and providing a skilled workforce for industry. As private sector demand for skills in the working-age population has increased, skills training has been prioritised in national development agenda.

Training programs are increasingly recognised as a potential solution to building the skills of young adults, yet there is scant evidence on the

effectiveness of training in improving labour market transitions among youth in developing countries. Experimental evidence is particularly scarce, and findings from recent randomised evaluations of vocational training programs are not clear-cut. Attanasio, Kugler and Meghir (2011), for instance, find that a vocational training program for disadvantaged youth in Colombia increased earnings and employment for women. In contrast, Card et al. (2011) find that a government-subsidised training program for low-income youth in urban areas of the Dominican Republic had no significant effect on employment outcomes, though they note some improvement in earnings and the probability of health insurance cover, conditional on employment. A study by Cho et al. (2013) on the effects of vocational and entrepreneurial training for Malawian youth finds that, although the training led to skills development, continued investment in human capital and improved wellbeing for men, there were no effects on labour market outcomes in the short run, and women gained nothing at all from the training. Recent research by Hirshleifer et al. (2016) shows that a vocational training program for the unemployed in Turkey has a positive average impact on employment; however, the effect is small and statistically insignificant.

Experimental impact evaluation studies of vocational training programs are a new research approach in Cambodia. This paper uses a randomised experiment to examine the effects of participating in a vocational training program targeted at young adults from low-income households. We focus on the impacts of the program on employment and barriers to taking up and completing the training. The intervention in this study was to provide two months' training in housekeeping for disadvantaged young people living in the capital, Phnom Penh. The program randomly offered training to about 70 percent of the registered participants, and the remaining participants were assigned to the control group.

This study makes several important contributions – to the literature, to policy development and formulation and to local researchers' capacity development. First, little is known about the impact of vocational training programs in Cambodia. Regional economic integration and skill shortages make it an important setting in which to evaluate the effectiveness of labour market training programs. Second, randomised field experiments can give clear insights into both short- and medium-term training program impacts. The use of a randomised experimental design allows us to provide straightforward evidence for policy recommendations. Third, we also examine barriers to program take-up and completion. A better understanding of dropout behaviour can be useful for improving completion rates and easing constraints as part of more effective labour market policy. Finally, our research adds to the stock of

studies on vocational training in developing countries, builds local capacity for conducting evaluation studies and complements experimental evidence with survey data.

We combine pre-training and post-training data, collected five months after program completion, to estimate the impact of offering the training program (intention-to-treat effects) on employment outcomes. Then we use an instrumental variable two-stage least squares approach to identify the effect of receiving the training program (treatment-on-treated effects). The results show positive but statistically insignificant effects of both offering and completing the program on the likelihood of obtaining employment and hours worked. Because there was a notable dropout rate, we included self-reported and social behavioural questions in the follow-up survey to identify individual barriers to program take-up and completion and to examine the association between the likelihood of completing the program and individual personality traits, self-esteem, and risk and time preferences. Among the dropouts surveyed, the three main reasons for dropping out are family obligations, lack of transport to the training venue and short-term work opportunities. We find that personality traits and risk and time preferences do not influence the completion rate. Finally, we document the challenges and lessons from working with economically disadvantaged young people and households in this randomised experiment, which might provide useful information and implications for more effective training programs and labour market policies in developing countries.

## 9.2 Background

### 9.2.1 *Youth, education and employment in Cambodia*<sup>1</sup>

Youth (aged 15–30 years) made up 33 percent of Cambodia's total population in 2014. Despite the huge potential of this youth bulge, it also presents a major employment challenge.

Youth with higher education are likely to obtain better and higher-paid jobs than less educated youth because education can provide skills the market needs and make people more productive in their work. In Cambodia, lower and upper secondary completion rates are relatively low. Youth have 7.3 years on schooling on average (NIS 2015). Low-income students are most at risk of dropping out of school, either to work at home or to earn money to support their families; the opportunity cost of going to school is simply too high. Young people thus often enter the labour force without basic skills. Most of the time, they work in low-paid, hazardous and short-term jobs.

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<sup>1</sup> We acknowledge the contribution of Phann Dalis to this section.

The labour force participation rate for youth in 2014 was about 77 percent. About 60 percent of total youth employed in 2014 were in waged jobs. Garments, construction and services play a crucial role in absorbing large numbers of young Cambodian workers.

### ***9.2.2 Training in the hospitality sector***

The rapid growth of tourism during the last decade has led to a high demand for tourism products and services, including transport, travel agencies, entertainment and accommodation. The number of international tourist arrivals almost tripled between 2006 and 2016, from 1.7 million to 5 million (Ministry of Tourism 2017). The total number of hotels in Phnom Penh, Sihanoukville, Siem Reap and Battambang, the main tourist areas, rose from 724 (32,486 rooms) in 2014 to 914 (39,382 rooms) in 2015 (Bonna Realty Group 2016).

Hotel industry growth creates job opportunities for young people, especially those living in popular tourist areas. The share of employment in the services sector rose from 26.5 percent in 2009 to 30.4 percent in 2014 (National Institute of Statistics 2015). Still, there are skill shortages and gaps in services. Job-specific skills and foreign language proficiency have been identified as the two most serious skill gaps in tourism (Khieng, Madhur and Chhem 2015). For instance, among job applicants in hospitality, hotel, catering and tourism, 85 percent lack the required skills. Specifically, in hotels, guest houses, restaurants, recreation and entertainment businesses, 15.1 percent of room attendants/laundry workers and 31.8 percent of waiters reportedly lack the necessary skills (National Employment Agency 2013).

Some of the schools and centres providing vocational training in hospitality include Pour un Sourire d'Enfant (PSE), Sala Bai, Don Bosco School, EGBOK (Everything's Gonna Be OK) and Feeding Dreams Cambodia. PSE, an NGO working with underprivileged children from the Stung Meanchey dump in Phnom Penh, provides a two-year training course in hospitality, including housekeeping. Ninety-eight percent of students graduating from PSE vocational training find employment. This is mainly due to its job placement program. Sala Bai, based in Siem Reap province and founded in 2002 by the French NGO Agir pour le Cambodge, has provided training in hospitality to more than 1,000 young people (of whom 70 percent are girls) from underprivileged families since it was established. Don Bosco Hotel School, created and managed by the Don Bosco Foundation, trains disadvantaged youth for the hospitality industry. Since its establishment in 2007, about 400 students have graduated. Most managed to find jobs in hospitality after finishing their two-year training course. EGBOK, located in Siem Reap province, offers underprivileged young people training and employment opportunities in

hospitality, including housekeeping. It also provides an internship program, life-skills training, social support and monthly student sponsorships. Feeding Dreams Cambodia has provided hospitality training and free meals to more than 800 students in Siem Reap since it was set up. Students are trained in housekeeping, guest service, and food and beverage service for six months, followed by four months' internship in high-end hotels and restaurants and two more months' training until they get a job placement.

## 9.3 Research design

### 9.3.1 *Intervention description*

The intervention in this study was to provide two months of training in housekeeping. It targeted economically disadvantaged youth aged 15–30 residing in Phnom Penh, able to read and write and willing to participate in the training. We collaborated with PSE, one of the most well-known vocational training institutes in Cambodia, to design and implement the program. PSE played a fundamental role in identifying and designing the training based on project timeline and our target population.<sup>2</sup> Housekeeping was selected because there is a demand for it in tourism. It also enables low-educated individuals to participate and suits both men and women.

The two-month course consisted of two main components: 180 hours of classroom lectures and 180 hours of practical work at the PSE vocational training institute.<sup>3</sup> Class sessions included lectures, demonstrations, simulations and role-play, and practical sessions provided opportunities for students to practise hotel-style room service. Classes ran from Monday to Friday from 7:00 am to noon and from 2:00 pm to 5:00 pm, and on Saturday from 7:00 am to noon.

The training course was run four times between June and September 2016 because it was more convenient for PSE to facilitate training classes and practical work for small groups. Participants in all four rounds had the same teachers, curriculum and learning environment. They received a uniform, lunch, study materials and 3.5 kg of rice per week, but no stipend. PSE offered a free shuttle bus service for participants who lived along its bus routes, though students in

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<sup>2</sup> PSE usually provides two years of training in various fields, including hospitality. For this study, PSE designed a two-month program in housekeeping.

<sup>3</sup> The program initially included a one-month hotel/apartment internship. However, internships took time to arrange. PSE sent students to hotels/apartments with which it has built good relations and partnerships, and students had to undergo tests and interviews by the hotel/apartment. Also, PSE proposed extending the internship to two or three months to meet the requirements of hotels/apartments and improve students' chances of employment afterwards. Thus, the internship program was not within the two-month training period. Only 18 students in the program were offered a paid internship, though four of them declined the offer.



rounds 3 and 4 received a transport allowance of USD1 per attendance.<sup>4</sup> Those who completed the program received a certificate from PSE.

### ***9.3.2 Recruitment and treatment assignment***

Our target recruitment areas were slums in nine of 12 districts in Phnom Penh. We consulted PSE on the target villages as it works very closely with disadvantaged youth and their families. PSE provided a list of villages in each district and a contact person in each village.

In the recruitment phase, enumerators contacted village chiefs or community heads for village guidance and visits. The program advertisement was distributed to households and posted in prime locations in the target areas for about three weeks before the training started. The flyer was in Khmer and included associated information such as the name of the training institute, training venue, training topic (housekeeping), training duration and commitment required. Individuals were invited to register to have a chance of being selected for the program and informed that they would receive a certificate of achievement at the end of the program.

We received registrations both during the village visits and by telephone. We asked individuals to provide their name, age, gender, educational attainment and contact details when they registered. A total of 231 people registered for the training. For each training round, the registrees were randomly assigned in 70:30 proportion to treatment and control groups, giving a total of 162 in the treatment group and 69 in the control group.<sup>5</sup> Then we informed the registrees about the outcome of their application, and those in the treatment group were told the training start date.

### ***9.3.3 Data collection***

We conducted two surveys – baseline and follow up. Baseline data was collected either before the beginning of each course or during the first week of classes between June and September 2016. The baseline survey collected information on individual and household demographic characteristics, education, training experience and general labour market information. We were able to interview only 181 individuals for the baseline, 120 in the treatment group and 61 in the control group.

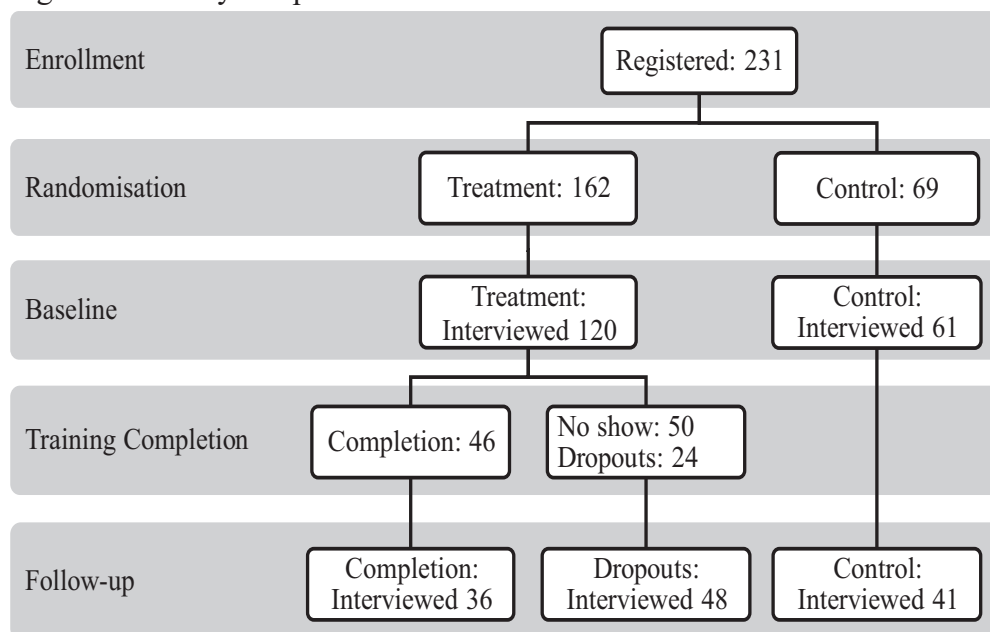
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<sup>4</sup> Participants in rounds 3 and 4 received a transport allowance because of the high absence rates in rounds 1 and 2 and because most students in rounds 3 and 4 were living far from the PSE centre where there was no PSE shuttle bus service. The project covered training tuition fees.

<sup>5</sup> We control for recruitment effects in our analysis to eliminate any potential differences in each round of recruitment and training.

Of the baseline sample, 38.3 percent of those in the treatment group completed the program, 20 percent dropped out during the training and 41.7 percent did not show up from the first day of training (Figure 9.1). The majority of dropouts occurred at the beginning of the program. We therefore combine the no shows and the dropouts in our analysis. Together, they make up about 62 percent of the treatment group. They were from the older age cohort, married and reportedly worked more hours per week and earned more money per month than completers. We investigate dropout behaviour further in Section 4.3.

Figure 9.1: Study sample



Source: Author's preparation

The follow-up survey was carried out five months after the conclusion of training, between January and March 2017, using the list of individuals interviewed in the baseline with updated contact information received during the training. The follow-up survey gathered information on labour market outcomes, training attendance, reasons for dropping out, program evaluation, personality traits, self-esteem, and time and risk preferences. In total, 125 participants were interviewed in the follow-up survey, corresponding to 69 percent of the total sample in the baseline survey. Some participants had migrated to work in other provinces or Thailand, and we could not contact them for a telephone interview. A few participants had been in a rehabilitation

centre while a few others, who dropped out of training or did not show up at all, declined to participate in the follow-up survey.<sup>6</sup> The attrition rate of 31 percent is comparable to attrition rates of between 18 and 36 percent from other impact evaluations of vocational training programs in other developing countries (Attanasio et al. 2011; Maitra and Mani 2017; Card et al. 2011). The highest attrition rate documented is 46 percent (Cho et al. 2013).

Table 9.1: Impact of treatment on likelihood of attrition

	Attrition (1)	Attrition (2)	Attrition (3)	Attrition (4)	Attrition (5)
Treatment	0.020 (0.071)	0.034 (0.073)	0.035 (0.074)	0.033 (0.073)	0.030 (0.073)
Age		0.011 (0.010)	0.027 (0.096)	0.012 (0.010)	0.011 (0.010)
Age <sup>2</sup>			-0.0004 (0.002)		
Education (years)		-0.006 (0.011)	-0.006 (0.011)	-0.003 (0.011)	-0.003 (0.011)
Male (=1)		0.042 (0.074)	0.040 (0.075)	0.045 (0.074)	0.029 (0.076)
Married (=1)		0.037 (0.089)	0.035 (0.090)	0.030 (0.089)	0.019 (0.089)
Work experience (months)				0.0004 (0.002)	0.0003 (0.002)
Training experience (=1)				-0.068 (0.088)	-0.059 (0.087)
Employed					-0.050 (0.227)
Hours worked					-0.002 (0.004)
Monthly earnings (0000 riels)					0.003 (0.004)
Observations	181	181	181	181	181

Notes: This table reports marginal effects from the probit estimations. The dependent variable is attrition, which takes a value 1 if the participants could not be traced during the follow-up survey and 0 otherwise. Regressions include recruitment round dummies. Robust standard errors are reported in parentheses.

Source: Author's calculations

<sup>6</sup> We also excluded three individuals in the control group who overreported their hours worked per week in the follow-up survey. When we include these observations in our analyses, the magnitudes, sign and significance levels of the coefficients are similar to those reported in Tables 3 and 4.

We check for the absence of differential attrition. We examine whether treatment and control individuals are attrited differentially in the follow-up survey and whether baseline characteristics predict attrition. Table 9.1 presents the marginal effects from probit regression, where the dependent variable is attrition, which takes a value 1 if the participants could not be traced during the follow-up survey and 0 otherwise. The result shows that being assigned to the treatment group does not have a statistically significant effect on the likelihood of attrition (column 1). We also include baseline characteristics and labour market outcomes in the regression and find no relation between an offer of training and the likelihood of attrition (columns 2 to 5). We also find that baseline socioeconomic characteristics have no influence on attrition.

#### **9.3.4 Baseline characteristics**

Table 9.2 presents the basic descriptive statistics of baseline characteristics and labour market outcomes for our final sample of 125 participants. It also reports the differences in the mean values of these variables between the treatment and control groups at baseline.

The average age of participants is 21 years, and males make up 58 percent of the total sample. Participants have completed 7.4 years of schooling on average, and 24 percent of them are married. They have little work experience (less than 1 year on average), and only 22 percent had attended training courses before joining the program.

The primary outcome of interest is whether individuals are employed. We also observe other measures of labour market outcomes, including employment status, hours worked and monthly earnings. Employment status includes dummy variables “full-time/casual employment” and “self-employment” that take the value 1 if the characteristics are true and 0 otherwise. The variable “hours worked” indicates the number of hours worked during the last week, and “monthly earnings (0000 riels)” the total earnings in the last month. We impute zero for hours worked and monthly earnings if a participant was unemployed, an unpaid family worker, housewife/househusband or student. Table A1 in Annex A describes how we constructed the key variables.

Employment participation is very low at baseline. Nineteen percent of our sample are in paid employment and about 6 percent are self-employed. The average hours worked per week and monthly earnings for the entire sample are about 10.3 hours and KHR118,600, (about USD30), respectively.

Table 9.2: Baseline characteristics

	Total sample	Treatment	Control	Difference
	(1)	(2)	(3)	(4 = 2 - 3)
<b>Basic characteristics</b>				
Age	20.86 [3.63]	20.70 [3.73]	21.20 [3.43]	-0.49 (0.69)
Male (=1)	0.58 [0.50]	0.61 [0.49]	0.51 [0.51]	0.09 (0.09)
Education (years)	7.39 [3.15]	7.49 [2.96]	7.20 [3.54]	0.29 (0.60)
Married (=1)	0.24 [0.43]	0.17 [0.37]	0.39 [0.49]	-0.22** (0.08)
Work experience (months)	8.97 [20.81]	8.41 [22.33]	10.12 [17.49]	-1.71 (3.98)
Training experience (=1)	0.22 [0.41]	0.23 [0.42]	0.20 [0.40]	0.03 (0.08)
<b>Labour market outcomes</b>				
Employed	0.25 [0.43]	0.23 [0.42]	0.29 [0.46]	-0.07 (0.08)
Full-time/casual employment	0.19 [0.40]	0.18 [0.39]	0.22 [0.42]	-0.04 (0.08)
Self-employment	0.06 [0.23]	0.05 [0.21]	0.07 [0.26]	-0.03 (0.04)
Hours worked	10.31 [19.38]	9.48 [19.08]	12.02 [20.13]	-2.55 (3.70)
Monthly earnings (0000 riels)	11.86 [22.25]	11.58 [23.06]	12.44 [20.76]	-0.86 (4.26)
Observations	125	84	41	

Notes: Standard deviation reported in brackets and standard errors in parentheses. \*\* significant at 5%.  
Source: Author's calculations

Given the nature of the randomised experiment, we also check whether any differences in the means of demographic characteristics and labour market outcomes between the treatment and control groups are significantly different. Column 4 in Table 9.2 shows that the baseline characteristics of participants in treatment and control groups do not differ, except for marital status. About 17 percent of the participants in the treatment group and 39 percent in the control group are married. In our regression analysis, we control for marital status to account for this difference.

## 9.4 Results

In this section, we estimate the effects of offering the program (intention-to-treat) and receiving the program (treatment-on-treated). We show the mean differences in the follow-up survey in Annex A Table A2. We also discuss

whether individual differences in personality traits, self-esteem, and risk and time preferences are correlated with the dropout rate.

#### 9.4.1 Intention-to-treat effects

We measure the intention-to-treat (ITT) effects of the program using the following empirical specification:

$$Y_{ijt} = \beta_0 + \beta_1 TRAINING_i + \beta_2 t + \beta_3 TRAINING_i * t + \beta_4 X_i + \tau_j + \varepsilon_{ijt} \quad (1)$$

where  $Y_{ijt}$  is the outcome of interest for individual  $i$  in recruitment round  $j$  at time  $t$ .  $TRAINING_i$  is a dummy variable that takes the value 1 if the individual was offered the training, 0 if the individual was assigned to the control group.  $t$  is a dummy variable that takes a value 1 if time is 2017 (post-training), 0 otherwise. A set of control variables  $X_i$  includes age, education, gender and marital status for individual  $i$ .  $\tau_j$  is a fixed effect that captures differences in recruitment round and transport allowance and  $\varepsilon_{ijt}$  is an error term. In all regressions, standard errors are clustered at the individual level. We are particularly interested in examining the effect of being offered the training program. Thus, the coefficient of the interaction term ( $\beta_3$ ) gives us the estimate of ITT.

Table 9.3: Intention-to-treat effects of the program

Dependent variables	LPM		Probit	
	(1)	(2)	(3)	(4)
Employed	0.085 (0.109)	0.082 (0.111)	0.085 (0.108)	0.066 (0.108)
Full-time/ casual employment	0.073 (0.109)	0.071 (0.110)	0.073 (0.108)	0.070 (0.107)
Self-employment	0.012 (0.056)	0.011 (0.057)	0.012 (0.056)	0.010 (0.054)
Hours worked	2.966 (6.397)	2.834 (6.502)		
Monthly earnings (0000 riels)	-4.787 (6.352)	-5.020 (6.456)		
Controls	No	Yes	No	Yes
Observations	250	250	250	250

Notes: This table reports the coefficients of variable ( $TRAINING_i * t$ ). Regressions control for age, education, gender, marital status and recruitment round dummies. For probit regressions in columns 3 and 4, we use margins with contrast operator in Stata 14 to estimate the average interaction effects. Robust standard errors clustered at the individual level are reported in parentheses.

Source: Author's calculations

In Table 9.3, we report results from the linear probability model (LPM) and the probit regressions with and without control variables.<sup>7</sup> The results demonstrate that the program has no significant treatment effect on employment, hours worked or earnings in both LPM and probit regressions. Being assigned to the treatment group increases the likelihood of employment by around 8 percentage points and hours worked by about 3 hours, relative to the control group (columns 1 and 2). However, the differences are not significantly different from zero. For earnings, the participants assigned to the treatment group earn about KHR50,000 (USD12.50) per month less than those in the control group, but this marginal difference is also not significantly different from zero. It is likely that those in the control group had more time to look for work while those in the treatment group underwent training.

#### 9.4.2 Treatment-on-treated effects

To estimate the treatment-on-treated effects, we use an instrumental variable two-stage least squares approach. Specifically, we use assignment to treatment as an instrument for vocational training attended to identify the effects of receiving the training on employment outcomes as follows:

$$R_i = \gamma_0 + \gamma_1 TRAINING_i * t + \gamma_2 t + \gamma_3 X_i + \delta_i + \tau_j + u_{ijt} \quad (2a)$$

$$Y_{ijt} = \alpha_0 + \alpha_1 \tilde{R}_i + \alpha_2 X_i + \tau_j + v_{ijt} \quad (2b)$$

where  $R_i$  is a dummy variable that takes the value 1 if the individual received/completed training, 0 if otherwise.  $Y_{it}$  is the outcome of interest for individual  $i$  in time  $t$ .  $t$  is a dummy variable that takes the value 1 if time is 2017 (post-training), 0 otherwise. A set of control variables  $X_i$  includes age, education, gender and marital status for individual  $i$ .  $\delta_i$  is individual fixed effect.  $u_{it}$  and  $v_{it}$  are error terms. The coefficient ( $\alpha_1$ ) gives us the estimate of the effects of receiving the training.

Table 9.4 shows the results from instrumental variable (IV) estimation with and without control variables (columns 1 and 2) on employment outcomes, where training participation is instrumented by the random assignment to training. Undergoing the training increases the likelihood of getting employment, including the likelihood of obtaining waged employment and being self-employed, and hours worked. Nevertheless, the impacts are not statistically significant. There is a small and insignificant negative impact of receiving the training on monthly earnings.

<sup>7</sup> For probit regressions, we use margins with contrast operator in Stata 14 to estimate the average interaction effects ( $TRAINING_i * t$ ). This is to alleviate the concern that the interaction effect in probit regressions does not equal the marginal effect of the interaction term.

We also check whether the control group and the dropouts had attended other training programs during our study period. Only two individuals in the control group and one dropout reported attending other courses. When we exclude them from the estimation, the results are unchanged (columns 3 and 4).

Table 9.4: Treatment-on-treated effects of the program

Dependent variables	IV		IV	
	(1)	(2)	(3)	(4)
Employed	0.199 (0.250)	0.193 (0.268)	0.193 (0.253)	0.190 (0.267)
Full-time/casual employment	0.171 (0.250)	0.160 (0.262)	0.165 (0.253)	0.157 (0.261)
Self-employment	0.028 (0.130)	0.033 (0.129)	0.028 (0.133)	0.033 (0.131)
Hours worked	6.922 (14.724)	6.689 (16.384)	5.995 (14.806)	5.942 (16.228)
Monthly earnings (0000 riels)	-11.169 (14.882)	-13.494 (15.783)	-11.051 (15.045)	-12.875 (15.705)
Controls	No	Yes	No	Yes
First-stage F stat.	62.245***	54.067***	62.794***	55.026***
Observations	250	250	244	244

Notes: Regressions control for age, education and marital status. Columns 3 and 4 report the results after excluding individuals in the control group and the dropouts who had attended other training programs during the study period. Two individuals in the control group and one dropout reported having attended other training courses. Robust standard errors clustered at the individual level are reported in parentheses. \*\*\* significant at 1%.

Source: Author's calculations

### 9.4.3 Dropout behaviour

In the follow-up survey, we included some questions on why participants dropped out. As shown in Table 9.5, the main reasons reported include: household/family obligations (31.9 percent), no transport to the training institute (23.4 percent), found work (17.0 percent), no monetary incentive for participating in the training (8.5 percent), lost interest in/dissatisfied with training (6.4 percent); other reasons include sickness and migration (12.8 percent). We also report the reasons for dropout by gender.

Given the high dropout rate, we are interested in exploring whether the differences among individuals, including personality traits, self-esteem, and risk and time preferences, influenced the completion rate. The personality traits encompass behaviours and attitudes that can explain individual commitment, self-discipline and ability to work in a team. Psychological



studies have documented the relationship between these traits and a range of labour market outcomes and educational trajectories.<sup>8</sup> Risk and time preferences can measure an individual's attitude towards risk and the degree of patience that an individual has. The follow-up survey included questions on self-reported attitudes to measure personality traits and self-esteem and behavioural measures for risk and time preferences (Annex B). Thus, we use linear probit regression of completion on behavioural measures to examine the differences.

Table 9.5: Reasons for dropping out of the program

Reasons	Dropouts (%)		
	Total	Female	Male
Household/family obligations (including taking care of children/family members)	31.91	35.00	29.63
Had no transport to training institute	23.40	10.00	33.33
Found work opportunities	17.02	30.00	7.41
No monetary incentive for participating in training	8.51	10.00	7.41
Lost interest in training/ dissatisfied with training	6.38	0.00	11.11
Other (got married, migration, sick)	12.80	15.00	11.11
Observations	47	20	27

Notes: Response of one dropout is missing.

Source: Author's calculations

We use questionnaire items from the World Bank's STEP Skills Measurement Program, which contains 26 questions designed to categorise people in terms of personality traits (openness to experience, conscientiousness, extraversion, agreeableness, neuroticism and grit), behaviours and attitudes (decision making and hostile attribution bias). Broadly, openness to experience reflects appreciation for the arts, learning, intellectual curiosity and variety of experience. Conscientiousness describes the tendency to be organised, responsible and hardworking. Extraversion reflects sociability, tendency to seek stimulation in the company of others and talkativeness. Agreeableness reflects the tendency to act in a cooperative and unselfish manner. Neuroticism (emotional stability) refers to predictability and consistency in emotional reactions, with absence of rapid mood changes. Grit measures perseverance with long-term goals. Decision making refers to the manner in which individuals approach decision situations and hostile attribution bias describes the tendency to perceive hostile intent in others.

<sup>8</sup> Acosta, Muller and Sarzosa (2015) discuss the role of socio-emotional skills (personality traits and behaviours) in labour market outcomes and schooling decisions.

Table 9.6: Differences in personality traits, self-esteem, and risk and time preferences between completers and dropouts

<b>Panel A: Personality traits and self-esteem</b>									
	Openness (1)	Conscientiousness (2)	Extraversion (3)	Agreeableness (4)	Neuroticism (5)	Grit (6)	Hostile (7)	Decision (8)	Self-esteem (9)
Completers vs dropouts	0.111 (0.099)	0.087 (0.108)	0.171* (0.094)	0.134 (0.101)	0.171 (0.112)	-0.040 (0.107)	-0.112 (0.076)	-0.019 (0.094)	0.249* (0.147)
Observations	84	84	84	84	84	84	84	84	84
<b>Panel B: Risk and time preferences</b>									
	Switching row in risk (1)	Switching row in time (2)							
Completers vs dropouts	-0.007 (0.016)	-0.007 (0.024)							
Observations	80	82							

Notes: This table reports marginal effects from the probit estimations. The number of observations is from the follow-up survey. Regression controls for age, gender, education, marital status, and recruitment round dummies. Robust standard errors clustered at the individual level are reported in parentheses. \* significant at 10%. Source: Author's calculations

We examine self-esteem using the Rosenberg self-esteem index and we play a simple one-player game using multiple price lists to measure risk and time preferences. For risk preference, we present participants with a choice between risky and safe options, on 10 different rows or decisions. From row 1 to row 10, the chance of receiving a larger amount of money under both options increases. For time preference, participants can choose either the amount they are paid today or the amount paid two days later.

The results in Panel A of Table 9.6 indicate that there is a marginal difference in extraversion and self-esteem. Those who are more extraverted and have higher self-esteem are more likely to complete the program. However, overall results show no strong differences for the differences in personality traits between completers and dropouts. We also find that individual risk and time preferences (Panel B of Table 9.6) have no association with program completion.

### **9.5 Lessons and policy implications**

From this experiment we can draw many lessons learned that can help both improve similar vocational training programs in the future, especially retention and completion rates, and achieve more effective labour market policies. The following lessons and implications for policy should be considered.

1. At the recruitment stage, some disadvantaged young people were reluctant to lose daily earnings (e.g. from collecting garbage and selling it), despite the potential to earn a higher income in the long term. Some young people also migrated to other provinces for short-term and temporary jobs both during and after training.

Financial incentives, such as savings or income generation activities, could be incorporated into training programs. This would enable trainees to gain real-life experience and learn while overcoming their financial problems and difficulties. Realising their earning potential would encourage trainees to take skills training more seriously.

2. Accessibility to training programs is also a challenge. Economically disadvantaged young people need support to travel to the training centre as we found that lack of transport is a main reason for dropout. Providing transport subsidies may help boost attendance and completion rates.
3. Some young people's lack of life and work experience led to absenteeism and lack of responsibility when they were recruited after completing the training. Disadvantaged youth also seem unwilling to spend time or put much effort into searching for jobs.

Training providers should not only focus on imparting high-quality skills but also demonstrate their commitment to trainees' personal development and wellbeing. Job-readiness training, job placement assistance, career guidance and counselling may be needed to help graduates break into the labour market, although our study does not test this.

4. Strong industry linkages or training provider-industry partnerships are also needed to ensure graduates' smooth transition into the labour market after completing training.
5. Training should respond to actual labour market needs. Training curricula and pedagogies should constantly evolve to keep pace with economic structural change and to ensure labour supply matches demand.
6. Although the training program and training providers are important aspects of good training outcomes, the significance of participants' family background should not be ignored. Some disadvantaged youth have been exposed to violence, illegal drugs and crime. Some young married women have to abide by their husband's decision when it comes to training and work choices. It is also crucial to consider increasing public awareness of the potential benefits of investing in children's education and training.

## 9.6 Conclusions

Expanding labour market opportunities for youth through vocational education is widely considered a potentially effective approach. In this study, we use a randomised experiment to examine the effects of training on employment, hours worked per week and monthly earnings.

The results indicate that the program has no significant treatment effects on different employment outcomes. To address non-compliance issues, we use a two-stage least squares approach to estimate the effects of receiving the training. Still, there are no statistically significant positive impacts of program completion. This might be because of the small sample size of the study. We also track program dropouts and find that lack of transport and family obligations are main barriers to male participants' take up and completion of training, while family obligations and job opportunities are major constraints for female participants. And we also find that personality traits and risk and time preferences have no association with dropout rates.

Further research with a larger sample size is needed to explore the generalisability of our findings to other contexts. Even so, we expect our results to improve understanding of the short-term effects of vocational training on labour market outcomes for economically disadvantaged youth in Cambodia as well in other developing countries. To our knowledge, this randomised experiment in short-term vocational training for economically disadvantaged

youth is the first study of its kind in Cambodia. We observe some scaling-up possibilities, though the design would need to be adjusted.

In sum, the lessons described in Section 5 could be useful for improving completion rates in other training programs and easing constraints to design more effective labour market policies. Family support, transport assistance, and income/savings generation activities during training are important to encourage disadvantaged youth to remain in or return to education and vocational training. Moreover, in addition to skills training, job-readiness training, job placement assistance, career guidance and counselling are needed to help them break into the labour market.

It is hard to conclude that the usual two-year hospitality training programs run by various NGOs are better and can promote improved labour market outcomes, especially in the long run, as that was not within the scope of our study. Tracking the impacts of training over longer time periods is also needed to examine retention rates and to develop more specific policy recommendations.

### **Acknowledgements**

This research was carried out with financial and technical support from the Cambodia Development Resource Institute (CDRI) with funding from the government of Canada through the International Development Research Centre (IDRC). The authors are grateful to Shannon Maloney and Thomas van den Aarssen as project mentors and to Professor Gordon Betcherman at the University of Ottawa and Dr Edgard Rodriguez at IDRC for technical support and guidance. We are also grateful for the valuable comments and suggestions received from participants at the workshops organised by CDRI and the conferences organised by the Asian and Australasian Society of Labour Economics (AASLE), Canadian Economics Association (CEA) and Bank of Thailand. Phann Dalis, Pon Dorina, Ker Bopha, project interns Sreng Ier, Thun Sophorn, Nou Entreavatey and Sok Sophonnary, and a dedicated team of enumerators provided excellent support for this research and the fieldwork.

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## Annex A

Table A1: Definition of outcome variables

Variables	Definition
Employed	= 1 if the participant is employed (full-time, casual or self-employed), 0 otherwise
Full-time/casual employment	= 1 if the participant is a full-time or for casual wage worker, 0 otherwise
Self-employment	= 1 if the participant is self-employed/own-account worker
Hours worked	Number of hours worked during the last week
Monthly earnings (0000 riels)	Total earnings during the last month

Source: Author's preparation

Table A2: Mean differences in follow-up survey

Main Variables	Treatment		Control		Difference		Completion		Dropouts		Difference	
	(1)	(2)	(3=1-2)	(4)	(5)	(6=4-5)	(7)	(8)	(9=7-8)			
<b>Basic characteristics</b>												
Age	21.26 [3.72]	21.66 [3.45]	-0.40 (0.69)	19.81 [3.82]	21.66 [3.45]	-1.85* (0.83)	19.81 [3.82]	22.35 [3.27]	-2.55** (0.77)			
Male (=1)	0.61 [0.49]	0.51 [0.51]	0.09 (0.09)	0.64 [0.49]	0.51 [0.51]	0.13 (0.11)	0.64 [0.49]	0.58 [0.50]	0.06 (0.11)			
Education (years)	7.50 [2.98]	7.24 [3.62]	0.26 (0.61)	7.53 [2.76]	7.24 [3.62]	0.28 (0.74)	7.53 [2.76]	7.48 [3.16]	0.05 (0.66)			
Married (=1)	0.18 [0.39]	0.37 [0.49]	-0.19* (0.08)	0.06 [0.23]	0.37 [0.49]	-0.31*** (0.09)	0.06 [0.23]	0.27 [0.45]	-0.22* (0.08)			
<b>Labour market outcomes</b>												
Employed	0.73 [0.45]	0.71 [0.46]	0.02 (0.09)	0.72 [0.45]	0.71 [0.46]	0.01 (0.10)	0.72 [0.45]	0.73 [0.45]	-0.01 (0.10)			
Full-time/casual employment	0.67	0.63	0.03	0.67	0.63	0.03	0.67	0.67	0.00			
Self-employment	0.06 [0.24]	0.07 [0.26]	-0.01 (0.05)	0.06 [0.23]	0.07 [0.26]	-0.02 (0.06)	0.06 [0.23]	0.06 [0.24]	-0.01 (0.05)			
Hours worked	36.10 [28.61]	35.68 [27.48]	0.42 (5.38)	37.21 [27.46]	35.68 [27.48]	1.53 (6.27)	37.21 [27.46]	35.27 [29.70]	1.94 (6.34)			
Monthly earnings (0000 riels)	35.04 [25.76]	40.68 [32.63]	-5.64 (5.37)	34.75 [24.77]	40.68 [32.63]	-5.93 (6.68)	34.75 [24.77]	35.25 [26.74]	-0.50 (5.71)			
<b>Observations</b>	<b>84</b>	<b>41</b>		<b>36</b>	<b>41</b>		<b>36</b>	<b>48</b>				

Notes: Standard deviations reported in brackets and standard errors in parentheses. \*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%. Source: Author's calculations



## Annex B: Behaviour questions

### Personality traits

	<b>Please circle the one number for each question that comes closest to reflecting your opinion about it. (Circle one answer only)</b>	Almost never	Some of the time	Most of the time	Almost always
1	Are you talkative?	1	2	3	4
2	When doing a task, are you very careful?	1	2	3	4
3	Do you come up with ideas other people haven't thought of before?	1	2	3	4
4	Do you like to keep your opinions to yourself? Do you prefer to keep quiet when you have an opinion?	1	2	3	4
5	Are you relaxed during stressful situations?	1	2	3	4
6	Do you finish whatever you begin?	1	2	3	4
7	Do people take advantage of you?	1	2	3	4
8	Do you work very hard? For example, do you keep working when others stop to take a break?	1	2	3	4
9	Do you forgive other people easily?	1	2	3	4
10	Do you tend to worry?	1	2	3	4
11	Are you very interested in learning new things?	1	2	3	4
12	Do you prefer relaxation more than hard work?	1	2	3	4
13	Do you enjoy working on things that take a very long time (at least several months) to complete?	1	2	3	4
14	Do you enjoy beautiful things, like nature, art and music?	1	2	3	4
15	Do you think about how the things you do will affect you in the future?	1	2	3	4
16	Are you very polite to other people?	1	2	3	4
17	Do you work very well and quickly?	1	2	3	4
18	Do you get nervous easily?	1	2	3	4
19	Are you generous to other people with your time or money?	1	2	3	4
20	Are you outgoing and sociable, for example, do you make friends very easily?	1	2	3	4
21	Do you think carefully before you make an important decision?	1	2	3	4
22	Are people mean/not nice to you?	1	2	3	4
23	Do you ask for help when you don't understand something?	1	2	3	4
24	Do you think about how the things you do will affect others?	1	2	3	4
25	Do you like to share your thoughts and opinions with other people, even if you don't know them very well?	1	2	3	4
26	Do you get very upset in stressful situations?	1	2	3	4

## Self-esteem evaluation

	<b>Please circle the one number for each question that comes closest to reflecting your opinion (circle one answer only)</b>	Strongly disagree	Disagree	Agree	Strongly agree
1	On the whole, I am satisfied with myself.	1	2	3	4
2	At times I think I am no good at all.	1	2	3	4
3	I feel that I have a number of good qualities.	1	2	3	4
4	I am able to do things as well as most other people.	1	2	3	4
5	I feel I do not have much to be proud of.	1	2	3	4
6	I certainly feel useless at times.	1	2	3	4
7	I feel that I'm a person of worth, at least on an equal plane with others.	1	2	3	4
8	I wish I could have more respect for myself.	1	2	3	4
9	All in all, I am inclined to feel that I am a failure.	1	2	3	4
10	I take a positive attitude toward myself.	1	2	3	4

## Time preference

For each decision number (1 to 10) below, decide the AMOUNTS you would like for sure today AND in 2 days by circling A or B.

No.	Option A (paid amount below today)	Option B (paid amount below in 2 days)	Your choice (circle A or B)
1	2,000 riels +10% interest= Today	2,200 riels Next 2 days	A B
2	2,000 +20% interest= Today	2,400 Next 2 days	A B
3	2,000 +30% interest= Today	2,600 Next 2 days	A B
4	2,000 +40% interest= Today	2,800 Next 2 days	A B
5	2,000 +50% interest= Today	3,000 Next 2 days	A B
6	2,000 +60% interest= Today	3,200 Next 2 days	A B
7	2,000 +70% interest= Today	3,400 Next 2 days	A B
8	2,000 +80% interest= Today	3,600 Next 2 days	A B
9	2,000 +90% interest= Today	3,800 Next 2 days	A B
10	2,000 +100% interest= Today	4,000 Next 2 days	A B

Decision switching line: \_\_\_\_\_ (completed by interviewer)

## Risk preference

No.	Option A	Option B	Your choice (circle A or B)
1	R 3,000 if card shows <b>1</b> R 2,000 if card shows <b>2 3 4 5 6 7 8 9 10</b>	R 5,000 if card shows <b>1</b> R 500 if card shows <b>2 3 4 5 6 7 8 9 10</b>	A B
2	R 3,000 if card shows <b>1 2</b> R 2,000 if card shows <b>3 4 5 6 7 8 9 10</b>	R 5,000 if card shows <b>1 2</b> R 500 if card shows <b>3 4 5 6 7 8 9 10</b>	A B
3	R 3,000 if card shows <b>1 2 3</b> R 2,000 if card shows <b>4 5 6 7 8 9 10</b>	R 5,000 if card shows <b>1 2 3</b> R 500 if card shows <b>4 5 6 7 8 9 10</b>	A B
4	R 3,000 if card shows <b>1 2 3 4</b> R 2,000 if card shows <b>5 6 7 8 9 10</b>	R 5,000 if card shows <b>1 2 3 4</b> R 500 if card shows <b>5 6 7 8 9 10</b>	A B
5	R 3,000 if card shows <b>1 2 3 4 5</b> R 2,000 if card shows <b>6 7 8 9 10</b>	R 5,000 if card shows <b>1 2 3 4 5</b> R 500 if card shows <b>6 7 8 9 10</b>	A B
6	R 3,000 if card shows <b>1 2 3 4 5 6</b> R 2,000 if card shows <b>7 8 9 10</b>	R 5,000 if card shows <b>1 2 3 4 5 6</b> R 500 if card shows <b>7 8 9 10</b>	A B
7	R 3,000 if card shows <b>1 2 3 4 5 6 7</b> R 2,000 if card shows <b>8 9 10</b>	R 5,000 if card shows <b>1 2 3 4 5 6 7</b> R 500 if card shows <b>8 9 10</b>	A B
8	R 3,000 if card shows <b>1 2 3 4 5 6 7 8</b> R 2,000 if card shows <b>9 10</b>	R 5,000 if card shows <b>1 2 3 4 5 6 7 8</b> R 500 if card shows <b>9 10</b>	A B
9	R 3,000 if card shows <b>1 2 3 4 5 6 7 8 9</b> R 2,000 if card shows <b>10</b>	R 5,000 if card shows <b>1 2 3 4 5 6 7 8 9</b> R 500 if card shows <b>10</b>	A B
10	R 3,000 if card shows <b>1 2 3 4 5 6 7 8 9 10</b>	R 5,000 if card shows <b>1 2 3 4 5 6 7 8 9 10</b>	A B

Decision switching line: \_\_\_\_\_ (completed by interviewer)