On the Employability of the Senior High School Graduates: Evidence from the Labor Force Survey

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Abstract

Continuing from the Institute's 2018 study on the SHS and the labor market which interviewed graduating SHS students and HR managers of firms about their perspectives on the prospects for employment, this study intends to gauge the actual performance of the SHS graduates in the labor market. Entry into the labor market is considered as one of the possible exits of SHS graduates. Given the first batch of SHS graduates in April 2018, this study utilizes eight rounds of Labor Force Survey (LFS) from July 2018 to April 2020. Labor market outcomes of SHS graduates (G12) are compared to their peers - G10 and second-year college completers. To improve comparability, the paper uses a multi-valued treatment effect estimation (i.e., Inverse Probability Weighting with Regression Adjustment (IPWRA)) with each of the education outcome as treatment and utilizing individual and household characteristics. The results confirm the results in the earlier study that only a small proportion (a little over 20%) enter the labor force and most of them (more than 70 percent) continue with their education. The estimations also find a mixed result with SHS graduates sometimes performing better and sometimes poorer relative to their peers in terms of labor market outcomes. These suggest that there is a need to re-examine employment and entrepreneurial objective SHS given the expressed and realized propensity of SHS graduates to continue with their education rather than entering the labor market. There is also a need to continue to examine and validate the effectiveness the work preparation component of the SHS curriculum. Furthermore, there is a need to continue working with employers informing and demonstrating to them what SHS graduates can do and eventually clearly defining the right niche for them in the labor market. Finally, this calls for continued close monitoring and generating empirical evidence to help understand the role of SHS graduates in the labor market.

Keywords: senior high school, K to 12, basic education, labor market, employability of SHS graduates, multivalued treatment effects

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Aniceto C. Orbeta, Jr. and Maropsil V. Potestad [*]

1. Introduction

The Senior High School (SHS) component of the K to 12 program is designed to cover the three possible exits: toward (i) higher education, (ii) middle-level skills development, and (iii) employment or entrepreneurship. The employment or entrepreneurship exit justifies preparing SHS graduates for the labor market besides preparing them for higher education. With the first batch of its graduates coming out only in 2018, the literature on the employability of the SHS graduates in the Philippines is expected to be limited. This study addresses this gap.

In 2018, the Institute started to unpack the prospects of SHS graduates in the labor market by examining the self-assessment of Grade 12 graduating students and the views of HR managers of firms (Orbeta et al. 2019). The study provided a detailed description of both the demand and the supply aspects of the emerging SHS graduates in the labor market. Interestingly, the results revealed that these students are not greatly confident that they will get a job after graduating from SHS. This accompanied with a belief that the firms prefer college graduates over them. Moreover, that despite the initiatives of the program to promote its employment objective, three quarters of the Grade 12 students plan to proceed to higher education, and that most firms are not ready to hire SHS graduates for various reasons.

Briefly revisiting the employment prospects taken from the results of the 2018 study, most of the students believe that employers look at educational qualification, technical skills, soft skills, and attitude in hiring. That said, students expect to receive minimum wage which is commensurate to their qualification as an SHS graduate, and among the jobs perceived as more commonly available to SHS graduates such as bakery worker, barista, carpenter, cashier, encoder, clerk, online jobs, service crew, and welder, only a call center agent job is perceived to pay better. In terms of actual work experience, some started working since Grade 11 after getting NCs with most of the jobs as a fast-food crew and in DOLE's Special Program for the Employment of Students.

From the firms, most perceive SHS graduates as not work-ready, raising concerns on the inadequate technical and behavioral skills of SHS graduates as well as lack of length and quality of work immersion. Nonetheless, most are still willing to hire SHS graduates but with preconditions such as requirements on specific competencies and specialized skills, better work immersion experience, or low-rank position offerings. More importantly for the local government units, only low positions can be offered due to existing policies of the Civil Service Commission (CSC) that are yet to be updated.

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While the 2019 study by Orbeta et al. provides a significant range of information in understanding the *prospects* of the employability of the SHS graduates, it is equally important to see if the SHS graduates are indeed able to get jobs after graduation, the kinds of jobs, as well as any perceivable differences in jobs they are able to obtain compared to their "peers, i.e., Grade 10 and post-secondary graduates. Answers to these will help policy makers and implementers in gauging the effectivity of the program relevant to the experience of the SHS graduates in terms of their labor market participation, in an attempt to provide an empirical support for the decisions in assessing and enhancing the core learning areas, contextualized track subjects and strands, and work immersion or culminating activities under the SHS curriculum. The earlier findings were therefore compared with the actual labor market participation of the graduates using secondary data on Labor Force Survey (LFS) rounds from July 2018 to April 2020.

Since there is no data on actual cohort of SHS graduates follow into the labor market, we created a "synthetic" cohort based on ages of those who were expected to graduate from SHS in April 2018. The cohorts of the comparison groups (G10 and second-year college completers) were likewise limited to this age group to avoid influence of experience affecting labor market outcomes. This constitutes the main limitation of the analysis.

The paper is organized as follows. Section 2 provides a review of related studies. Section 3 provides a background on the labor force participation and school attendance experiences of the youth in neighboring countries. Section 4 describes the methodology used. Section 5 provides the empirical results. Lastly, Section 5 provides the summary ad recommendations.

2. Review of related studies

The results of earlier related studies up to around 2018 is provided in Orbeta et al. (2019). We invite the reader to refer to that study. We only add in this section the more recent studies not covered there.

Manasan (2020) is the only study found to have done similar study by comparing the labor market outcomes of SHS graduates and peers. She compared the labor market outcomes for SHS graduates and JHS completers, second-year college completers and post-secondary graduates. She studied the labor market performance 6, 9, and 12 months after SHS graduates left school corresponding to the October 2018, January, and April 2019 rounds of the LFS. She identified the cohort of interest using the 2017 APIS data. She looked at labor force participation, employment by sector, by class of worker and basic pay by sector and by class of worker. She summarized her results as "cup half full." She finds quality of employment of SHS graduates better than JHS completers but not as good as second-year college completers.

The ADB launched the Youth Education Investment and Labor Market Outcomes Survey (YEILMOS) in 2017 (ADB and DepEd, 2019). Since it was done before the first batch on SHS graduated it covered only career guidance, choice of SHS track, choice of college major and occupational preferences and expectations. It confirms many of the findings of the earlier study (Orbeta et al., 2019) such students will continue with their education predicting an even higher (85%) expecting to go to college and personal interest as the deciding factors in the choice of track, among others.

3. Labor force participation and school attendance of the youth in neighboring countries

To provide context to the labor market participation and school attendance of Filipino youth, a comparison with their counterparts in ASEAN is provided. The comparison of the labor force participation rates of youths 15 to 24 in ASEAN shows that a smaller proportion of the Filipino youth enter the labor force compared to their counterparts (Figure 1). Youths in Vietnam, Thailand and Indonesia have consistently higher labor force participation compared to Filipinos in the last twenty years. In recent years more than 70% of Vietnamese 15 to 24-year-olds are in the labor force while only less than 60 percent of the counterparts in the Philippines are in the labor force.

Figure 1. Labor force participation rate, 15-24, ASEAN	**Figure 2**. Enrollment rate in upper secondary, ASEAN
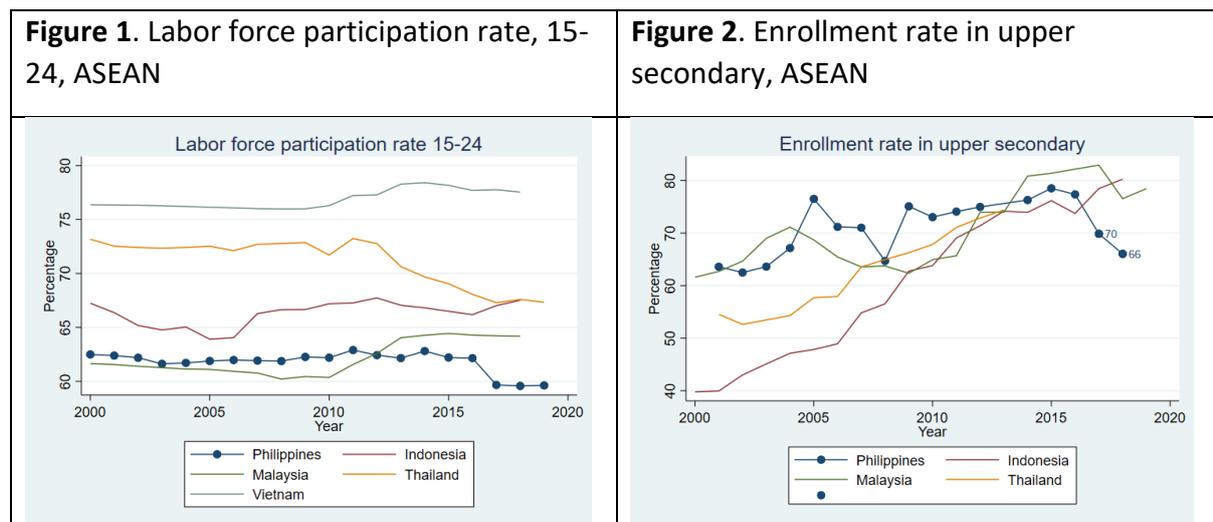
Source: WDI

There is no readily available similar data on school attendance rates for ASEAN countries for the age cohort of the study. To provide a comparison, we used the gross enrollment rate in upper secondary in ASEAN, and school attendance in OECD countries. In terms of gross enrollment rate in upper secondary, Figure 2 shows that while the Philippines have higher enrollment rates in the early 2000s these are shown at be declining since 2015 dropping to 66% in 2018 which lower than our neighboring countries. Using school attendance rate of 15 to 19-year-olds, the OECD countries in 2018 showed an average of 84% and this ranges from 58 to 94 percent (OECD Stat[1]). The same data set show Indonesia has an enrollment rate of 78.2. These data show that compared to our neighbors, a smaller proportion of the Filipino youth enter the labor force and a higher proportion continued with their education.

4. Methodology and data

We use methods of causal inference to measure the difference in the labor market outcomes of SHS graduates (G12) and comparison cohorts of G10, and second year college. The comparison is framed as a multivalued treatment effect estimation with each education level as a treatment. To improve the comparability of the different treatment cohorts, the inverse probability weighting combined with regression adjustment (IPWRA) methods was used. We

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[1] Available at https://stats.oecd.org/Index.aspx?DataSetCode=EAG_ENRL_RATE_AGE, accessed Dec 8, 2020.

use personal and household characteristics as propensity score and regression adjustment variables.

4.1 Outcomes of interests

The labor market outcomes of interest for the study include (a) labor force participation, (b) employment / unemployment; (c) underemployment, (d) work hours, (e) basic pay, (f) proportion working as wage and salary workers, (g) proportion self-employed and (h) proportion working in industry. These provide good description of the possible labor market outcomes.

4.2 Data

Since we are interested in the labor market outcomes of SHS graduates, we use the eight rounds of the LFS (July and October 2018, January, and April 2020) right after the first batch of SHS graduates came out of school around April 2018. The choice is the based on the availability of variables and age-cohort of interest.

4.3 Identifying the cohort of interest

To ensure that we are doing valid comparisons of labor market outcomes of SHS graduates and peers, we first identify the age cohort that are most likely constitute the SHS graduates. This will limit the influence of other variables such as work experience in the labor market outcomes. In is only within this cohort where we applied the treatment effect estimation.

The cohort of interest are those who have completed the education level of interest, namely, (a) grade 10, (b) grade 12, and (c) second year college[2]. They are identified as those who were currently enrolled[3], presumably in the next level, of those who have completed grade 9, grade 11, and first year college in the April round of the 2018 LFS. They are presumed to have completed their next level of education which are, respectively, grade 10, grade12, and second year college. The cohort is identified by their age. Table 1 shows the age distribution of these students according the April round of the 2018 LFS.

Table 1. Cohort of interest

Age as of Last Birthday	Freq.	Percent	Cum.
13	2	0.03	0.03
14	628	9.17	9.20
15	1609	23.50	32.70
16	1077	15.73	48.43
17	1649	24.08	72.51
18	975	14.24	86.75

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[2] Initially, post-secondary graduates are included. However, in the more recent quarters their number dwindled and puts in question the reliability of the corresponding estimated coefficients.

[3] It would have been better if the data is available on grade currently enrolled in. LFS, however, does not ask respondents which grade level they currently enrolled in like they do in APIS. It only asks for the highest grade completed and whether they are currently enrolled.

Age as of Last Birthday	Freq.	Percent	Cum.
19	387	5.65	92.40
20	223	3.26	95.66
21	123	1.80	97.46
22	79	1.15	98.61
23	59	0.86	99.47
24	37	0.54	100.01
Total	6848	100.00	

Source: Authors' computation based on LFS April 2018

For this study we will follow those in the age 15 to 20 years old consisting of 86% of the target cohort. Even though there are a considerable proportion (almost 10%) of the cohort that are 14 years old, labor force outcomes are only collected for 15 years and above.

4.4 Estimation method

In treatment effects estimations, ideally one would like to compare the labor market outcomes of the same individuals under the different education outcomes. This is not, however, possible as one cannot observe different education outcomes for the same individuals at the same time. This is known as the problem of causal inference (Holland, 1986). We do the second best by comparing virtually "similar" individuals except for their education outcomes (the treatment) using their personal and household characteristics. After generating comparable individuals their labor market outcomes are compared. Similarity of treatment and comparison groups will be achieved by inverse probability weighting with regression adjustment (IPWRA). IPWRA combines inverse probability weighting and regression adjustment. Since IPWRA is a combination of two different methods of estimating treatment effects, it is best to describe the two different methods separately first before describing the combination.

Assuming initially two outcomes and following the notation in Wooldridge (2010), regression adjustment estimates by OLS[4]

$$y_g = m_g(x) \text{ for g=0,1}$$

y is the outcome of interest and x are the independent variables. Then one computes the fitted values of the two equations, compute the difference and average them to get the average treatment effects, that is,

$$N^{-1} \sum_{i=1}^{N} [\widehat{m}_1(x_i) - \widehat{m}_0(x_i)]$$

where $\widehat{m}_g$ are the estimated equations for $g = 0,1$.

Inverse probability weighting, on the other hand, estimates by either logit or probit the propensity score $t_i = p(x_i)$

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[4] This can be consistently estimated much more generally besides OLS such as non-parametrically (Wooldridge, 2010, p.915)

where t is the treatment (i.e. t=1,0) and x are the determinants of being treated. It computes the average treatment effects as average of the inverse probability weighted outcomes using the estimated propensity score, that is,

$$N^{-1} \sum_{i=1}^{N} \frac{[w_i - \hat{p}(x_i)]y_i}{\hat{p}(x_i)[1 - \hat{p}(x_i)]}$$

where w_i is the treatment assignment and $\hat{p}(x_i)$ as the estimated propensity scores.

Combining the two, IPWRA computes $\hat{m}_g(x)$ as inverse probability weighted rather than by simple OLS. Then like the RA, computes the difference in the predicted values of the inverse probability weighted estimation results of the two regression adjustment equations and averages them. Wooldridge (2010) points out that IPWRA has doubly robust properties, i.e. only one of IPW or RA need to be correctly specified to arrive at a consistent estimate. This is important because rarely does the analyst know whether the outcome equation or the propensity score is mis-specified. This result is for binary treatment.

Note that up to this point, we are talking about two outcomes corresponding to two treatments. This paper, however, compares three treatments, namely, G10, G12, post-secondary and second year college. IPWRA can handle multiple treatment values. What changes is that regression adjustment will have three equations (one per treatment) to estimate and the propensity score estimation will use multinomial logit rather than a simple logit equation to generate the generalized propensity scores. It has been argued using simulations (Linden, Uysal, Ryan, & Adams, 2015) that the properties in binary treatment, such is doubly robust, also extend to the case multivalued treatment.

The eight rounds of the LFS are pooled in the estimation with round fixed effects for account for whatever round-specific factors not accounted for by the independent variables. The estimation is done using the *ipwra* routine in Stata (Stata, 2019). The multivalued version of *ipwra* is the parametric implementation of the semiparametric estimators described in Cattaneo (2010).

4.5 Independent variables

Propensity Score Variables. The objective of the inverse probability weighting is to make treatment and comparison units comparable except for their completed education. The ideal propensity score variables are those that are not affected by the treatment. The propensity score variables used in the study are students' own demographic characteristics (such as sex[5]), household characteristics such as household size, the earning capacity of their parents and urbanity. The education attainment and age of their parents are used as proxy for their earning capacity. Since the characteristics of spouses are highly correlated, we use the maximum of the education and age of the father and mother. Following Linden et al. (2015), the final specification which included interaction terms was determined by *bfit* routine in Stata minimizing the Bayesian information criterion (BIC) (Cattaneo, Drukker and Holland, 2013).

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[5] As mentioned, age is limited to the cohort 15 to 20 years old. This resulted in convergence issues if included. Hence, age of the student is not included in the propensity score equation and only in the regression adjustment equation.

Regression adjustment variables. Labor market outcomes are determined not only by educational attainment but by other socioeconomic indicators such as personal characteristics such as age and sex as well has household characteristics such as household size, characteristics of parents (education and age) (e.g. Orbeta, 2000).

5. Empirical results

5.1 Descriptive statistics

Cohorts. Table 2 shows the distribution of the cohort by highest grade completed in the analysis sample. The table shows that the analyses used 61.5 thousand individuals majority are G10 completers (36.1 thousand), followed by G12 graduates (18.6 thousand) and second year college (6.9 thousand)[6]. The proportion is maintained across survey rounds.

Table 2. Distribution of the analysis sample by education completed and survey round

Education	Survey year-month								Total
	201807	201810	201901\a	201904\a	201907	201910	202001	202004	
G10	5,174	4,620	4,771	4,522	4,334	4,281	3,925	4,480	36,107
G12	1,815	1,908	1,845	2,906	2,701	2,161	2,182	3,082	18,600
2COL	607	640	1,560	1,799	420	486	480	864	6,856
Total	**7,596**	**7,168**	**8,176**	**9,227**	**7,455**	**6,928**	**6,587**	**8,426**	**61,563**

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds
\a Unlike for the other survey rounds, 2COL in 2019 rounds refers to college undergraduates. Limiting the age to 15-20 increases the likelihood that the ones included are in the lower years of college.

Outcomes of interest. Table 3 show the averages of the outcomes of interest by educational attainment. It shows that only a little over 20 percent are in the labor force for those who completed G10 (22%) and G12 (23%). For those who completed college this is lower at 16%. The natural question to ask is what do G10, G12 and second-year college completers do if they are not in the labor force. This is answered in Table 4.

For those who are in the labor force the average employment rates is not as different for each cohort. The average employment rate is 82% with the highest for G10 (85%) and the lowest is G12 (79%). In terms of underemployment rate the average is 14% with the highest G12 (15%) and the lowest for second-year college (12%). The average visible underemployment rate is 50% with the highest for second year college (53%) and the lowest for G10 (50%). For total hours worked during the past week the average is 35 and not much difference for the two other groups. For basic pay per day, the average is 314 pesos with the higher for second-year college (397) and the lowest for G10 (302). For proportion of wage workers, the average is 69% and there is not much different across education level with highest is for G12 (69%) and the lowest is G10 (68%). For the proportion of self-employed, the average is 32% with the highest is for G10 (32.7%) and the lowest for G12 (31.6%). Finally, for the proportion working in industry, the average is 21% with highest for G10 (23%) and the lowest for second-year college (11%).

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[6] In the initial analysis post-secondary graduates were included. This was removed when the number of observations in the later survey quarters declined to less than 10 observations.

As mentioned earlier, these comparisons are simple averages and not conditioned on individual and household characteristics to improve comparability. This we do in the subsequent estimations for comparison purposes.

Table 3. Averages of outcomes for the four rounds

	In Labor Force	Employed	Under-employed	Visible Under-employed[7]	Hours	Daily basic pay	In Wage & Salary	Self-employed[8]	In industry
G10	0.218	0.845	0.134	0.496	35	302	0.685	0.327	0.227
G12	0.233	0.787	0.151	0.511	35	316	0.692	0.316	0.205
2COL	0.164	0.813	0.119	0.532	34	397	0.688	0.321	0.110
Total	**0.217**	**0.824**	**0.138**	**0.503**	**35**	**314**	**0.687**	**0.323**	**0.210**

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Outcomes across quarters. The earlier table provides the average for the eight quarters. Looking at the patterns of the outcomes of interest show varying trends across quarters and the impact of the onset of the pandemic. Entry into the labor force appears to be flat for G10, rising for G12 and slightly declining for second-year college. The employment rate is not showing a clear trend except for the sharp decline in the April 2020 round when the pandemic struck. Similarly, the two measures of underemployment rates did not show a clear trend but noticeably shoot up in the April 2020 round again because of the pandemic. The number of working ours also showed similar patterns and declined sharply in the April 2020 round. The basic pay per day showed stability across the quarters for both G10 and G12 while those for second-year college was clearly above the other two groups and was rising until it drastically dropped in the second quarter of 2020. The proportion of workers in wage and salary employment is declining and declined sharply in the April 2020 round. Self-employment on the other hand is on the rise and rose sharply in the April 2020 round. The proportion working in industry is declining for G10 and second-year college but flat for G12.

Figure 3. Labor market outcomes across the survey rounds

A. In labor force   B. Employment

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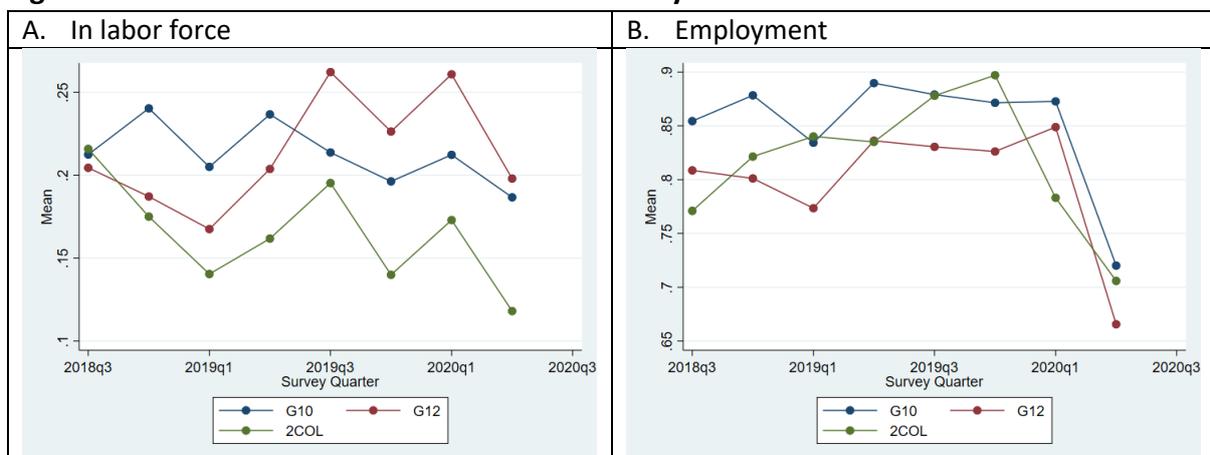
[7] Those who are employed and want additional hours or an additional job
[8] Those class of worker categorized as self-employed, employer, working (with or without pay) in family business

Figure 3 (cont.)
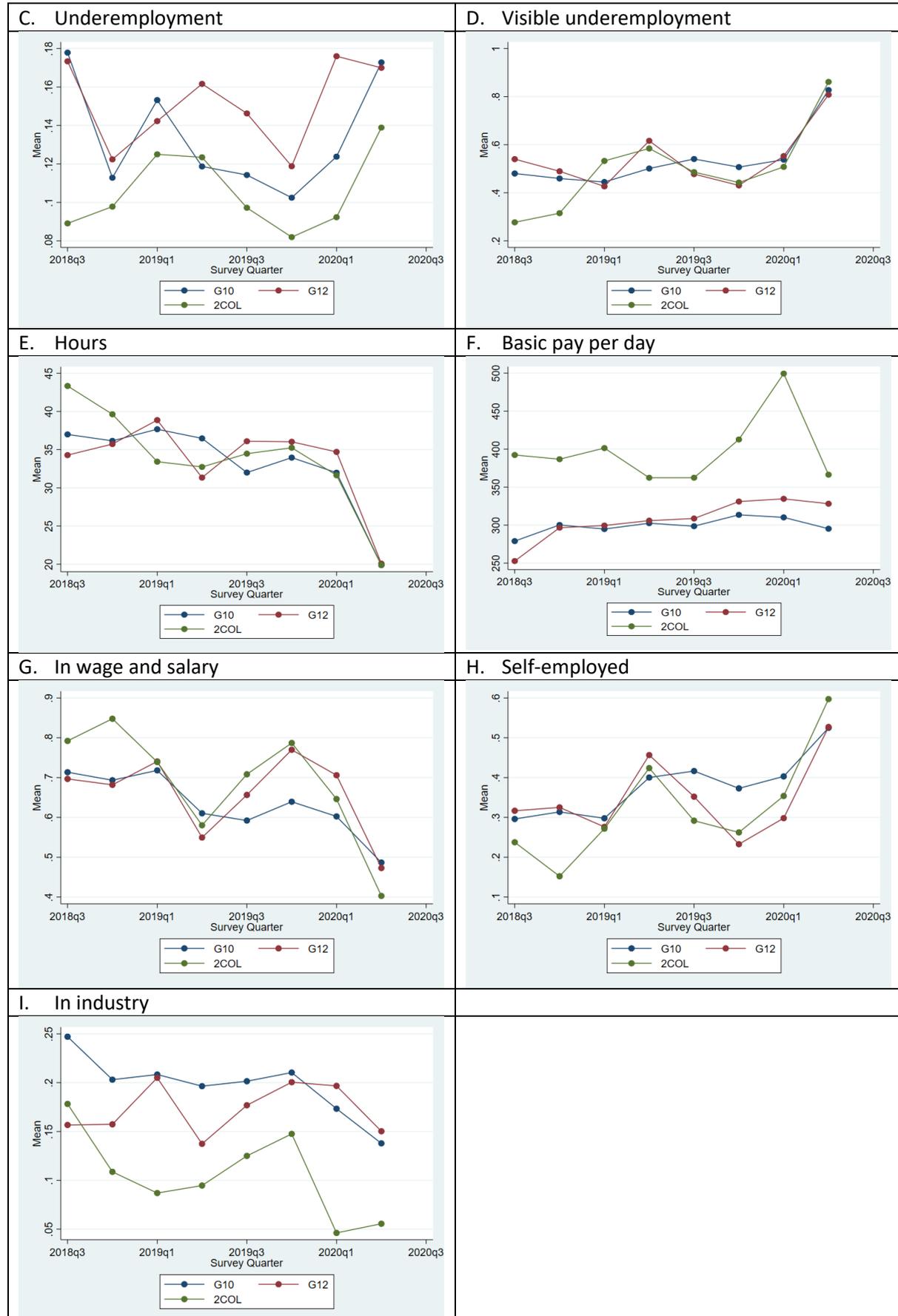
Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Current enrollment. Since much of cohorts under study do not enter the labor force, it would be informative what do most of them do? Table X shows that 75% of G10 completers and 77% of G12 graduates and 84% of second year college students are currently enrolled presumably in the next level. It appears that most of those who have completed G10, G12 and second-year college are continuing with their education and entering the labor market is not the preferred activity. In addition, it also shows that for all cohorts, the proportion continuing with their education is increasing across rounds. This provides direct evidence that SHS students indeed made good their expressed intention of pursuing higher education after graduation rather than working (Orbeta, et al., 2019).

Table 4. School attendance of the cohorts by LFS round

	201807	201810	201901	201904	201907	201910	202001	202004	Total
G10	0.728	0.715	0.719	0.747	0.766	0.778	0.771	0.795	0.751
G12	0.752	0.768	0.770	0.852	0.741	0.733	0.731	0.811	0.775
2COL	0.722	0.792	0.842	0.861	0.833	0.846	0.837	0.911	0.840
Total	**0.733**	**0.736**	**0.754**	**0.802**	**0.761**	**0.769**	**0.763**	**0.813**	**0.768**

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

5.2 Descriptive statistics of analysis variables

Table 5 provides the descriptive statistics of analysis variables used in the analysis for the outcome in the labor force. It shows that 22% are in the labor force and 59%, 11% and 31% are G10, G12 and second-year college completers. It shows that less than half (47%) of the cohorts are male and having an average age of 17.9 years. The largest proportion (11%) are in NCR. It also shows that the most common highest education attainment of the parents is HS (44%), 29% have above high school and the remaining 26% have elementary or less. Finally, it shows that 53% are residing in rural areas with 5.8 average household size and 51 years average age of the parents. The descriptive statistics for the rest of the outcome variables are provided in Appendix 1.

Table 5. Descriptive statistics of analysis variables

	Mean	SD	Min	Max
inlf	0.217	0.412	0	1
G10	0.586	0.493	0	1
2 Col	0.109	0.311	0	1
G12	0.306	0.461	0	1
Sex: Male	0.474	0.499	0	1
Age	17.920	1.506	15	20
Region: II	0.035	0.184	0	1
Region: III	0.117	0.322	0	1
Region: 4A	0.146	0.353	0	1
Region: V	0.065	0.247	0	1
Region: VI	0.072	0.259	0	1
Region: VII	0.069	0.253	0	1
Region: VIII	0.048	0.214	0	1
Region: IX	0.034	0.180	0	1
Region: X	0.046	0.210	0	1
Region XI	0.044	0.206	0	1

	Mean	SD	Min	Max
Region: XII	0.040	0.197	0	1
Region: NCR	0.115	0.319	0	1
Region: CAR	0.019	0.137	0	1
Region: ARMM	0.030	0.171	0	1
Region: Caraga	0.028	0.164	0	1
Region: IVB	0.032	0.177	0	1
Urbanity: Rural	0.533	0.499	0	1
Round: 201810	0.116	0.321	0	1
Round: 201901	0.128	0.334	0	1
Round: 201904	0.156	0.363	0	1
Round: 201907	0.124	0.330	0	1
Round: 201910	0.111	0.314	0	1
Round: 202001	0.109	0.311	0	1
Round: 202004	0.136	0.342	0	1
Parent Ed: HS	0.444	0.497	0	1
Parent Ed: Above HS	0.293	0.455	0	1
HH size	5.795	2.244	1	32
Parent age	50.656	11.045	15	99
Omitted categories: Sex: Female; Urbanity: Urban; Parent Ed: Elem and Below; Round: 201807				

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

5.3 Pre-estimation analysis

Balance analysis. Balance in covariates between treatment and comparison groups is commonly measured by standardized mean difference that near zero and the variance ratio is near 1. Rubin (2001) had argued that balance is implied if the standardized mean difference is not be greater than 0.25. Table 6 shows the pair-wise comparisons of covariates of those completing G10, second year college versus those for G12 for unweighted (raw) and weighted by propensity score variables for the outcome in the labor force. These table is produced by tebalance routine in Stata. It shows that the weighted standardized differences are nearer zero compared to the raw standardized difference. For instance, being male the raw standardized difference is 0.0505. This becomes nearer zero at -0.0204 when weighted. In addition, there is there appears to be substantial balance before weighting with only one raw standardized difference has a value above 0.25 (Parent's education above high school) which was reduced to became nearer zero -0.0137 when weighted. Furthermore, it also shows that the variance ratio is also is nearer 1 when weighted compared to raw variables. This pattern is also found the other outcome variables. The balance tables for the rest of the outcome variables are given in Appendix 2. These results indicate that the inverse probability weighting using the propensity score in IPWRA increases the comparability of the G10, G12, post-secondary and second-year college cohorts considered in the study.

Table 6. Balance analysis: In labor force

	Standardized Diff		Variance Ratio	
	Raw	Weighted	Raw	Weighted
G10 vs G12				
Sex: Male	0.0505	-0.0204	1.0054	0.9979
Urbanity: Rural	0.0167	-0.0121	0.9952	1.0030
Parent Ed: HS	0.0150	0.0013	1.0033	1.0003
Parent Ed: Above HS	-0.1222	-0.0056	0.8891	0.9951

	Standardized Diff		Variance Ratio	
	Raw	Weighted	Raw	Weighted
HH size	0.0805	0.0060	1.0653	0.9764
Parent age	-0.0840	0.0035	1.0833	0.9842
2COL vs G12				
Sex: Male	-0.0637	-0.0449	0.9860	0.9942
Urbanity: Rural	-0.1619	0.0361	1.0173	0.9893
Parent Ed: HS	-0.1291	-0.0245	0.9536	0.9933
Parent Ed: Above HS	0.3383	-0.0039	1.1631	0.9966
HH size	-0.0653	0.0274	0.9899	1.0585
Parent age	0.0569	0.0231	1.0728	0.9991
Omitted categories: Sex: Female; Urbanity: Urban; Parent Ed: Elem and Below				

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Overlap Analysis. When using propensity score for weighting, overlap is assumed, i.e. given characteristics there is a positive probability to being assigned into the different treatment groups being compared. Examining the density of the estimated propensity scores provides a graphical evidence of the extent of the overlap. Figures 4 shows the kernel density plots of the estimated propensity scores for completing different levels of education given personal and household characteristics for outcome in the labor force. The plots show good overlaps. It also shows that there no massing near propensity score zero or one. When predicted probability are close to either 0 or 1, the parameters will be difficult to estimate (Cattaneo, Drukker, Holland, 2013). The analyses of the overlap for the other outcomes show similar results. These are given in Appendix 3.

Figure 4. Kernel density plots of estimated propensity scores for different education cohorts: Outcome, in the labor force
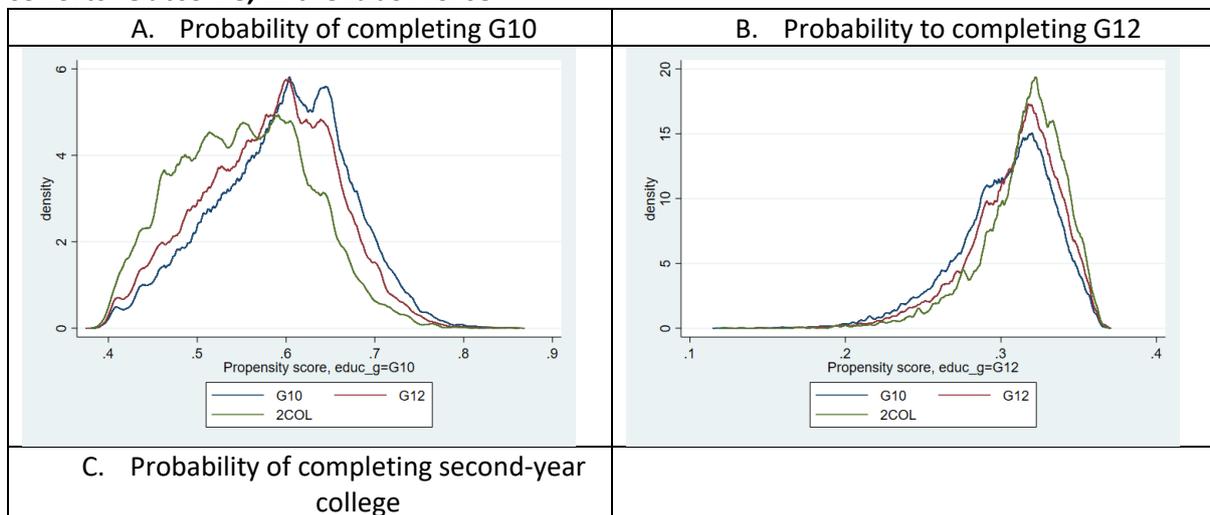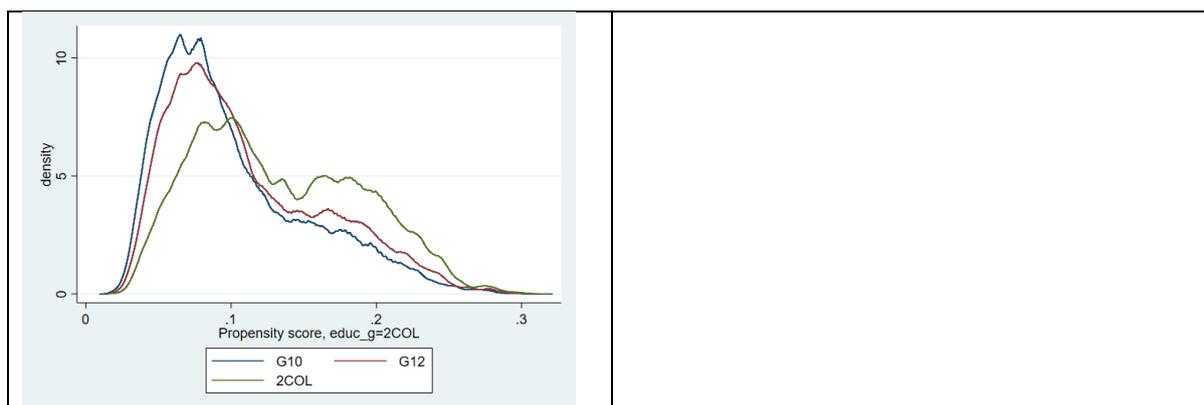
Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

5.4 Estimation results

Table 7 presents the IPWRA estimates for the eight rounds of the LFS[9] after the graduation of the first batch around April 2018. Estimates were done with survey round fixed effects. The full estimation results are given in Appendix 4. The table shows that 19.6% of G12 graduates are in the labor force. Compared to G12 graduates, G10 completers are shown to have a higher labor force participation rate by 8.6% while second-year college have lower labor force participation rate by -7.5%. It appears that more G10 completers enter the labor force while less second-year college completers do so in comparison to SHS graduates.

Among those who are in the labor force, 78% of G12 graduates are employed. Compared to G12 graduates, G10 completers have a higher employment rate by 5.7% while second-year college completers have 5.8% lower employment rate.

About 15.5% of the SHS graduates in the labor force are underemployed. G10 have lower (-2.2%) underemployment outcomes while second year college do not have significantly different underemployment rate compared to G12 graduates.

In terms of visible underemployment, 51.2% of G12 graduates are working below 40 hours per week or wanting additional work. Compared to G12 graduates, G10 completers have a lower visible underemployment rate by -4.1% while second-year college completers have a 9.7% higher visible underemployment rate.

In terms of average hours worked per week, G12 graduates work for 34.4 hours. Compared to G12 graduates, G10 completers work 1.5 more hours while second-year college completers work -5.4 less hours.

In terms of the basic pay per day, G12 graduates get an average of 322 pesos per day. This is within the range of prevailing daily minimum wage[10]. It is notable that this is what was expected by graduating SHS when interviewed just before graduation (Orbeta, et al, 2018). The

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[9] Estimates by round shows similar results but have more limited sample sizes and, hence, less reliable.

[10] National Wage Productivity Commission data around the data of the survey rounds shows the range of prevailing daily minimum wage is 282 to 537 for non-agriculture and 282 to 500 for agriculture (http://nwpc.dole.gov.ph) accessed Nov 30, 2020.

basic pay per day for G10 completers is lower (-20.9) compared to G12 graduates while the those for second-year college completers is shown to be higher but not statistically significant. Sixty-eight percent of G12 are wage and salary workers. Compared to G12 graduates, 2.4% more G10 graduates are wage and salary workers while 10.1% less of second-year college graduates work as wage and salary workers.

As mentioned earlier, self-employment is one of the exist in G12. LFS data shows that 32% of G12 graduates who are in the labor force are into self-employment. Compared to G12 graduates, self-employed workers among G10 completers are less by 2.4% while the proportion for this class of workers is higher by 9.6% among second-year college. Thus, it appears that SHS have improved slightly the self-employment compared to G10 completers.

Working in industry is known to have higher average wages and higher hours of work and is usually considered better employment. Twenty percent of the G12 graduates are working in industry. Compared to G12 graduates, three percent more G10 completers are working in industry while for second-year college completers this is 10% lower.

After eight quarters in the labor market from graduation in April 2018, the data indicates there is a mixed results of labor market outcomes of SHS graduates compared to their peers. Compared to G10 completers, SHS graduates have better labor market outcomes such as basic pay and being self-employed. The reverse is true in other outcomes such as in labor force participation, employment, underemployment, hours of work, being wage and salary workers and working industry, where SHS graduates have poorer outcomes. Compared to second-year college, on the other hand, SHS graduates have better outcomes in being in the labor force, visible underemployment, number of work hours, being in wage salary workers and working in industry. They have poorer outcomes in terms of employment rate and being self-employed.

Table 7. IPWRA estimation results

	INLF	EMP	UNDEMP	VUNDEMP	HOURS	BPAY	SALW	SELF-EMP	IN IND
	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se
ATE									
G10 vs G12	0.086***	0.057***	-0.022*	-0.041**	1.546**	-20.909***	0.028*	-0.024*	0.030*
	[0.005]	[0.011]	[0.011]	[0.013]	[0.576]	[4.817]	[0.011]	[0.012]	[0.012]
2Col vs G12	-0.075***	0.058*	-0.034	0.097**	-5.418***	25.577	-0.101**	0.096*	-0.101***
	[0.013]	[0.024]	[0.034]	[0.037]	[1.639]	[15.700]	[0.038]	[0.039]	[0.019]
POmean									
G12	0.196***	0.783***	0.155***	0.512***	34.376***	322.054***	0.680***	0.327***	0.198***
	[0.003]	[0.009]	[0.009]	[0.011]	[0.495]	[4.126]	[0.010]	[0.010]	[0.010]
N	61563	12785	10648	10648	10648	6418	10648	10648	10648
SE in brackets									
* p<0.05 ** p<0.01 *** p<0.001									
Estimated with survey round fixed effects									

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

6. Summary and recommendations

6.1 Summary

This study was designed to address the policy question of how G12 graduates fared relative their peers in the labor market. Recall that employment and entrepreneurship are two exits identified for SHS graduates when it was introduced into the Philippine education system. It is thus important to check these outcomes with the first batch of graduates. This study did this for eight quarters of LFS data from July 2018 round or one quarter after the first batch of the SHS program graduated around April of 2018. Admittedly eight quarters may not be long enough to gauge the performance of G12 graduates, but it is useful to find out early indications so that adjustments on the program can be made.

The LFS data shows that only a little over 20% of SHS graduates enter the labor force and more than 70% of them are attending school. In addition, as shown in the Table 4 the attendance rates, presumably in the next higher level, is rising through the quarters. This indicates that the labor market is not a popular destination for the SHS graduates as they have expressed before graduation (Orbeta et al., 2019). There are more G10 and less second year college completers who enter the labor force compared to SHS graduates. One explanation for this is the socioeconomic status of the household. One would expect that the higher the socioeconomic status of the household, the lower is the probability of early entry into the labor market. Some evidence of this is shown in Table 8. The education of parents is a good proxy for the socioeconomic status household because this is positively related with income generation. Using this as proxy for socioeconomic status of the household, Table 8 clearly shows that the average labor force participation rates of G10, G12 and second-year college completers declines the higher the education of parents. For instance, for G10 completers, 25% enter the labor force when the education of parents is elementary and below and 14% when above high school. Similar pattern is found for SHS graduates and second-year college completers.

Table 8. Average LFP by education of parents, LFS July 2018-April 2020

Education of parents	G10	G12	2COL	Total
Below Elem	0.253	0.294	0.182	0.260
HS	0.238	0.259	0.185	0.240
Above HS	0.142	0.145	0.142	0.143
Total	**0.218**	**0.233**	**0.164**	**0.217**

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

The estimation results showed that once in the labor market, the results are mixed and does not show clear advantage or disadvantage compared to their peers. The comparisons show that G12 do not cleanly show better labor market outcomes compared to G10 completers in contrast to the earlier results in Manasan (2020). Similarly, second-year college completers do not show cleanly superior labor market outcomes compared to SHS graduates. While using the same dataset (although this study utilized four more quarters) and looking at the same outcomes, this current study endeavored to make the cohorts comparable using treatment effects estimation and utilizing their personal and household characteristics that are not readily affected by treatment. Compared to G10 completers, SHS graduates have higher basic pay per day and more are self-employed. However, they have poorer outcomes in terms of labor force participation, employment and underemployment rates, hours work, being wage and salary workers and working in industry. Relative to second-year college completers, more SHS

graduates are in the labor force, have lower visible underemployment rate, work more hours, more are wage and salary workers, and have higher proportion working in industry. But they have lower employment rate, lower proportion who are self-employed. This is does not completely agree with the results in Manasan (2020) which concluded that SHS graduates have better labor market outcomes compared to G10 completers and second year college completers have better labor market outcomes compared to G12 graduates.

This study also validates the earlier qualitative results that states that employers have a wait and see attitude about hiring SHS graduates. They needed to know more what SHS graduates can do before hiring them.

It should be emphasized that this study merely scratched the surface of understanding the labor market outcomes for SHS graduates.

6.2 Recommendations

Since most of the SHS graduates continue with their education rather than enter the labor market, there is a need to re-examine the employment and entrepreneurial objectives of the SHS program. A more nuanced view of these objectives for the SHS program need to be crafted recognizing this reality. At this juncture of the economy, data is saying we cannot expect most of the SHS graduates to enter the labor force. There is a need find the reasons for this revealing result. It can be from the demand (or employers' side) or supply side (student and their family side) or both. The earlier interviews with prospective graduates and human resource officers seems to indicate both are operating to produce this result (Orbeta et al., 2019).

Once, in the labor market, there is no clear advantage nor disadvantage of SHS graduates compared to G10 and second year college completers. This calls for a re-examination of the work preparation component in the SHS curriculum with the objective of improving labor market performance of SHS graduates.

In terms of self-employment, SHS graduates have better performance compared to G10 completers but have lower performance relative to second-year college completers. This component of the SHS curriculum needs to be reinforced to better achieve this objective.

Finally, given the lack of clear labor market advantage of SHS over G10 completers, there is a need to continue the dissemination of what SHS graduates can do in the labor market. This also calls for continued and persistent work with employers informing and demonstrating to them what SHS graduates can do. The ultimate objective is finding and clearly defining the right niche for SHS graduates in the labor market. There is still a lot to be learned on the labor market prospects for SHS graduates. Certainly, longer experience with SHS graduates in the labor market will provide more information on their role in the labor market. This calls for a continued close monitoring and generating more empirical evidence to help understand the labor market outcomes of SHS graduates.

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8. Appendices

Appendix 1a. Descriptive Statistics of Analysis Variables: Outcome-Employment

	mean	sd	min	max
emp	0.823575	0.381196	0	1
G10	0.589451	0.491953	0	1
2 Col	0.082122	0.274562	0	1
G12	0.328427	0.469659	0	1
Sex: Male	0.58553	0.49265	0	1
Age	18.75905	1.273173	15	20
Region: II	0.026905	0.161811	0	1
Region: III	0.123711	0.329265	0	1
Region: 4A	0.166471	0.372518	0	1
Region: V	0.070605	0.256174	0	1
Region: VI	0.062917	0.242823	0	1
Region: VII	0.069732	0.254705	0	1
Region: VIII	0.044389	0.205965	0	1
Region: IX	0.022071	0.146922	0	1
Region: X	0.07171	0.258018	0	1
Region XI	0.044951	0.207204	0	1
Region: XII	0.046732	0.211073	0	1
Region: NCR	0.089717	0.285787	0	1
Region: CAR	0.01555	0.123731	0	1
Region: ARMM	0.014385	0.119075	0	1
Region: Caraga	0.035691	0.185525	0	1
Region: IVB	0.025978	0.159077	0	1
Urbanity: Rural	0.552764	0.497228	0	1
Round: 201810	0.125141	0.330892	0	1
Round: 201901	0.112942	0.316534	0	1
Round: 201904	0.162043	0.368505	0	1
Round: 201907	0.135548	0.342321	0	1
Round: 201910	0.113087	0.316711	0	1
Round: 202001	0.115251	0.319337	0	1
Round: 202004	0.113087	0.316712	0	1
Parent Ed: HS	0.491063	0.49994	0	1
Parent Ed: Above HS	0.19351	0.395064	0	1
HH size	5.872535	2.312188	1	22
Parent age	49.9858	11.35229	16	96
Omitted categories: Sex: Female; Urbanity: Urban; Parent Ed: Elem and Below; Round: 201807				

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 1b. Descriptive Statistics of Analysis Variables: Outcome-Underemployment

	mean	sd	Min	max
undemp	0.138119	0.345041	0	1
G10	0.604963	0.488882	0	1
2 Col	0.081069	0.272953	0	1
G12	0.313968	0.464125	0	1
Sex: Male	0.589267	0.49199	0	1
Age	18.71612	1.3067	15	20
Region: II	0.028251	0.165696	0	1
Region: III	0.114124	0.317977	0	1
Region: 4A	0.160849	0.367409	0	1
Region: V	0.075248	0.263804	0	1
Region: VI	0.064152	0.245035	0	1
Region: VII	0.0706	0.256167	0	1
Region: VIII	0.04734	0.212375	0	1
Region: IX	0.022942	0.149726	0	1
Region: X	0.078278	0.268621	0	1
Region XI	0.046636	0.210868	0	1
Region: XII	0.046773	0.211161	0	1
Region: NCR	0.08357	0.276754	0	1
Region: CAR	0.016144	0.126036	0	1
Region: ARMM	0.012139	0.109513	0	1
Region: Caraga	0.03884	0.193222	0	1
Region: IVB	0.026959	0.161971	0	1
Urbanity: Rural	0.56416	0.49589	0	1
Round: 201810	0.127869	0.33396	0	1
Round: 201901	0.112924	0.316514	0	1
Round: 201904	0.168858	0.374644	0	1
Round: 201907	0.140486	0.347507	0	1
Round: 201910	0.116759	0.321148	0	1
Round: 202001	0.118814	0.323585	0	1
Round: 202004	0.092381	0.289576	0	1
Parent Ed: HS	0.484252	0.499775	0	1
Parent Ed: Above HS	0.195769	0.39681	0	1
HH size	5.862578	2.298365	1	21
Parent age	49.92199	11.42461	16	96
Omitted categories: Sex: Female; Urbanity: Urban; Parent Ed: Elem and Below; Round: 201807				

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 1c. Descriptive Statistics of Analysis Variables: Outcome-Visible underemployment

	mean	sd	min	max
vundemp	0.503338	0.500012	0	1
G10	0.604963	0.488882	0	1
2 Col	0.081069	0.272953	0	1
G12	0.313968	0.464125	0	1
Sex: Male	0.589267	0.49199	0	1
Age	18.71612	1.3067	15	20
Region: II	0.028251	0.165696	0	1
Region: III	0.114124	0.317977	0	1
Region: 4A	0.160849	0.367409	0	1
Region: V	0.075248	0.263804	0	1
Region: VI	0.064152	0.245035	0	1
Region: VII	0.0706	0.256167	0	1
Region: VIII	0.04734	0.212375	0	1
Region: IX	0.022942	0.149726	0	1
Region: X	0.078278	0.268621	0	1
Region XI	0.046636	0.210868	0	1
Region: XII	0.046773	0.211161	0	1
Region: NCR	0.08357	0.276754	0	1
Region: CAR	0.016144	0.126036	0	1
Region: ARMM	0.012139	0.109513	0	1
Region: Caraga	0.03884	0.193222	0	1
Region: IVB	0.026959	0.161971	0	1
Urbanity: Rural	0.56416	0.49589	0	1
Round: 201810	0.127869	0.33396	0	1
Round: 201901	0.112924	0.316514	0	1
Round: 201904	0.168858	0.374644	0	1
Round: 201907	0.140486	0.347507	0	1
Round: 201910	0.116759	0.321148	0	1
Round: 202001	0.118814	0.323585	0	1
Round: 202004	0.092381	0.289576	0	1
Parent Ed: HS	0.484252	0.499775	0	1
Parent Ed: Above HS	0.195769	0.39681	0	1
HH size	5.862578	2.298365	1	21
Parent age	49.92199	11.42461	16	96
Omitted categories: Sex: Female; Urbanity: Urban; Parent Ed: Elem and Below; Round: 201807				

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 1d. Descriptive Statistics of Analysis Variables: Outcome-Hours worked

	mean	sd	min	max
hours	34.69245	20.83162	0	112
G10	0.604963	0.488882	0	1
2 Col	0.081069	0.272953	0	1
G12	0.313968	0.464125	0	1
Sex: Male	0.589267	0.49199	0	1
Age	18.71612	1.3067	15	20
Region: II	0.028251	0.165696	0	1
Region: III	0.114124	0.317977	0	1
Region: 4A	0.160849	0.367409	0	1
Region: V	0.075248	0.263804	0	1
Region: VI	0.064152	0.245035	0	1
Region: VII	0.0706	0.256167	0	1
Region: VIII	0.04734	0.212375	0	1
Region: IX	0.022942	0.149726	0	1
Region: X	0.078278	0.268621	0	1
Region XI	0.046636	0.210868	0	1
Region: XII	0.046773	0.211161	0	1
Region: NCR	0.08357	0.276754	0	1
Region: CAR	0.016144	0.126036	0	1
Region: ARMM	0.012139	0.109513	0	1
Region: Caraga	0.03884	0.193222	0	1
Region: IVB	0.026959	0.161971	0	1
Urbanity: Rural	0.56416	0.49589	0	1
Round: 201810	0.127869	0.33396	0	1
Round: 201901	0.112924	0.316514	0	1
Round: 201904	0.168858	0.374644	0	1
Round: 201907	0.140486	0.347507	0	1
Round: 201910	0.116759	0.321148	0	1
Round: 202001	0.118814	0.323585	0	1
Round: 202004	0.092381	0.289576	0	1
Parent Ed: HS	0.484252	0.499775	0	1
Parent Ed: Above HS	0.195769	0.39681	0	1
HH size	5.862578	2.298365	1	21
Parent age	49.92199	11.42461	16	96
Omitted categories: Sex: Female; Urbanity: Urban; Parent Ed: Elem and Below; Round: 201807				

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 1e. Descriptive Statistics of Analysis Variables: Outcome-Basic pay per day

	mean	sd	min	max
Basic Pay	313.8727	147.2421	16	2000
G10	0.603682	0.48917	0	1
2 Col	0.078999	0.269758	0	1
G12	0.317319	0.465469	0	1
Sex: Male	0.600639	0.489805	0	1
Age	19.03198	1.072643	15	20
Region: II	0.029604	0.169507	0	1
Region: III	0.13711	0.34399	0	1
Region: 4A	0.19371	0.395235	0	1
Region: V	0.051957	0.221958	0	1
Region: VI	0.065223	0.246939	0	1
Region: VII	0.075456	0.264147	0	1
Region: VIII	0.036979	0.188726	0	1
Region: IX	0.01897	0.136429	0	1
Region: X	0.051069	0.220155	0	1
Region XI	0.056202	0.23033	0	1
Region: XII	0.034984	0.183753	0	1
Region: NCR	0.116795	0.321201	0	1
Region: CAR	0.012363	0.11051	0	1
Region: ARMM	0.004325	0.065624	0	1
Region: Caraga	0.023537	0.151612	0	1
Region: IVB	0.025656	0.158119	0	1
Urbanity: Rural	0.506797	0.499993	0	1
Round: 201810	0.138712	0.345672	0	1
Round: 201901	0.12676	0.33273	0	1
Round: 201904	0.149644	0.35675	0	1
Round: 201907	0.137723	0.344636	0	1
Round: 201910	0.120752	0.325864	0	1
Round: 202001	0.115915	0.320148	0	1
Round: 202004	0.072803	0.259834	0	1
Parent Ed: HS	0.512713	0.499877	0	1
Parent Ed: Above HS	0.175447	0.380379	0	1
HH size	5.914843	2.343574	1	21
Parent age	49.803	11.79863	16	96
Omitted categories: Sex: Female; Urbanity: Urban; Parent Ed: Elem and Below; Round: 201807				

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 1f. Descriptive Statistics of Analysis Variables: Outcome-Wage and salary workers

	mean	sd	min	max
ws_worker	0.687276	0.463625	0	1
G10	0.604963	0.488882	0	1
2 Col	0.081069	0.272953	0	1
G12	0.313968	0.464125	0	1
Sex: Male	0.589267	0.49199	0	1
Age	18.71612	1.3067	15	20
Region: II	0.028251	0.165696	0	1
Region: III	0.114124	0.317977	0	1
Region: 4A	0.160849	0.367409	0	1
Region: V	0.075248	0.263804	0	1
Region: VI	0.064152	0.245035	0	1
Region: VII	0.0706	0.256167	0	1
Region: VIII	0.04734	0.212375	0	1
Region: IX	0.022942	0.149726	0	1
Region: X	0.078278	0.268621	0	1
Region XI	0.046636	0.210868	0	1
Region: XII	0.046773	0.211161	0	1
Region: NCR	0.08357	0.276754	0	1
Region: CAR	0.016144	0.126036	0	1
Region: ARMM	0.012139	0.109513	0	1
Region: Caraga	0.03884	0.193222	0	1
Region: IVB	0.026959	0.161971	0	1
Urbanity: Rural	0.56416	0.49589	0	1
Round: 201810	0.127869	0.33396	0	1
Round: 201901	0.112924	0.316514	0	1
Round: 201904	0.168858	0.374644	0	1
Round: 201907	0.140486	0.347507	0	1
Round: 201910	0.116759	0.321148	0	1
Round: 202001	0.118814	0.323585	0	1
Round: 202004	0.092381	0.289576	0	1
Parent Ed: HS	0.484252	0.499775	0	1
Parent Ed: Above HS	0.195769	0.39681	0	1
HH size	5.862578	2.298365	1	21
Parent age	49.92199	11.42461	16	96
Omitted categories: Sex: Female; Urbanity: Urban; Parent Ed: Elem and Below; Round: 201807				

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 1g. Descriptive Statistics of Analysis Variables: Outcome-Self-employment

	mean	sd	min	max
self_emp	0.322742	0.467547	0	1
G10	0.604963	0.488882	0	1
2 Col	0.081069	0.272953	0	1
G12	0.313968	0.464125	0	1
Sex: Male	0.589267	0.49199	0	1
Age	18.71612	1.3067	15	20
Region: II	0.028251	0.165696	0	1
Region: III	0.114124	0.317977	0	1
Region: 4A	0.160849	0.367409	0	1
Region: V	0.075248	0.263804	0	1
Region: VI	0.064152	0.245035	0	1
Region: VII	0.0706	0.256167	0	1
Region: VIII	0.04734	0.212375	0	1
Region: IX	0.022942	0.149726	0	1
Region: X	0.078278	0.268621	0	1
Region XI	0.046636	0.210868	0	1
Region: XII	0.046773	0.211161	0	1
Region: NCR	0.08357	0.276754	0	1
Region: CAR	0.016144	0.126036	0	1
Region: ARMM	0.012139	0.109513	0	1
Region: Caraga	0.03884	0.193222	0	1
Region: IVB	0.026959	0.161971	0	1
Urbanity: Rural	0.56416	0.49589	0	1
Round: 201810	0.127869	0.33396	0	1
Round: 201901	0.112924	0.316514	0	1
Round: 201904	0.168858	0.374644	0	1
Round: 201907	0.140486	0.347507	0	1
Round: 201910	0.116759	0.321148	0	1
Round: 202001	0.118814	0.323585	0	1
Round: 202004	0.092381	0.289576	0	1
Parent Ed: HS	0.484252	0.499775	0	1
Parent Ed: Above HS	0.195769	0.39681	0	1
HH size	5.862578	2.298365	1	21
Parent age	49.92199	11.42461	16	96
Omitted categories: Sex: Female; Urbanity: Urban; Parent Ed: Elem and Below; Round: 201807				

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 1h. Descriptive Statistics of Analysis Variables: Outcome-In industry

	mean	sd	min	max
in_ind	0.21042	0.407626	0	1
G10	0.604963	0.488882	0	1
2 Col	0.081069	0.272953	0	1
G12	0.313968	0.464125	0	1
Sex: Male	0.589267	0.49199	0	1
Age	18.71612	1.3067	15	20
Region: II	0.028251	0.165696	0	1
Region: III	0.114124	0.317977	0	1
Region: 4A	0.160849	0.367409	0	1
Region: V	0.075248	0.263804	0	1
Region: VI	0.064152	0.245035	0	1
Region: VII	0.0706	0.256167	0	1
Region: VIII	0.04734	0.212375	0	1
Region: IX	0.022942	0.149726	0	1
Region: X	0.078278	0.268621	0	1
Region XI	0.046636	0.210868	0	1
Region: XII	0.046773	0.211161	0	1
Region: NCR	0.08357	0.276754	0	1
Region: CAR	0.016144	0.126036	0	1
Region: ARMM	0.012139	0.109513	0	1
Region: Caraga	0.03884	0.193222	0	1
Region: IVB	0.026959	0.161971	0	1
Urbanity: Rural	0.56416	0.49589	0	1
Round: 201810	0.127869	0.33396	0	1
Round: 201901	0.112924	0.316514	0	1
Round: 201904	0.168858	0.374644	0	1
Round: 201907	0.140486	0.347507	0	1
Round: 201910	0.116759	0.321148	0	1
Round: 202001	0.118814	0.323585	0	1
Round: 202004	0.092381	0.289576	0	1
Parent Ed: HS	0.484252	0.499775	0	1
Parent Ed: Above HS	0.195769	0.39681	0	1
HH size	5.862578	2.298365	1	21
Parent age	49.92199	11.42461	16	96
Omitted categories: Sex: Female; Urbanity: Urban; Parent Ed: Elem and Below; Round: 201807				

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 2a. Covariate Balance: Outcome-Employment

	Standardized Diff		Variance Ratio	
	Raw	Weighted	Raw	Weighted
G10				
Sex: Male	0.168072	-0.02504	0.943442	1.009288
Urbanity: Rural	-0.06451	-0.02457	1.026845	1.008834
Parent Ed: HS	-0.00579	-0.00108	0.999682	0.99992
Parent Ed: Above HS	-0.07467	-0.00516	0.884611	0.992249
HH size	0.081306	0.014626	1.132559	1.018986
Parent age	-0.05713	-0.02192	1.189084	0.987368
2COL				
Sex: Male	-0.08912	-0.06223	1.008323	1.020826
Urbanity: Rural	-0.25903	0.023968	1.057838	0.990224
Parent Ed: HS	-0.11861	-0.02188	0.98334	0.998221
Parent Ed: Above HS	0.470054	0.002746	1.5236	1.004082
HH size	-0.10065	-0.00544	0.955749	0.93917
Parent age	0.01657	0.015547	1.189507	1.101144
Omitted categories: Sex: Female; Urbanity: Urban; Parent Ed: Elem and Below				

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 2b. Covariate Balance: Outcome-Underemployment

	Standardized Diff		Variance Ratio	
	Raw	Weighted	Raw	Weighted
G10				
Sex: Male	0.178719	-0.01262	0.938967	1.004791
Urbanity: Rural	-0.0837	-0.00274	1.042065	1.001144
Parent Ed: HS	-0.01054	-0.01075	0.999196	0.999117
Parent Ed: Above HS	-0.06853	-0.01075	0.895282	0.984149
HH size	0.097971	0.017895	1.196769	1.017242
Parent age	-0.07514	-0.01061	1.200828	0.980193
2COL				
Sex: Male	-0.09379	-0.05328	1.007956	1.018161
Urbanity: Rural	-0.28579	0.020079	1.086099	0.991016
Parent Ed: HS	-0.11683	-0.05345	0.981381	0.993412
Parent Ed: Above HS	0.47584	0.023374	1.517304	1.034019
HH size	-0.10581	-0.02596	0.950051	0.871594
Parent age	0.010137	0.035993	1.224759	1.122241
Omitted categories: Sex: Female; Urbanity: Urban; Parent Ed: Elem and Below				

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 2c. Covariate Balance: Outcome-Visible underemployment

	Standardized Diff		Variance Ratio	
	Raw	Weighted	Raw	Weighted
G10				
Sex: Male	0.178719	-0.01262	0.938967	1.004791
Urbanity: Rural	-0.0837	-0.00274	1.042065	1.001144
Parent Ed: HS	-0.01054	-0.01075	0.999196	0.999117
Parent Ed: Above HS	-0.06853	-0.01075	0.895282	0.984149
HH size	0.097971	0.017895	1.196769	1.017242
Parent age	-0.07514	-0.01061	1.200828	0.980193
2COL				
Sex: Male	-0.09379	-0.05328	1.007956	1.018161
Urbanity: Rural	-0.28579	0.020079	1.086099	0.991016
Parent Ed: HS	-0.11683	-0.05345	0.981381	0.993412
Parent Ed: Above HS	0.47584	0.023374	1.517304	1.034019
HH size	-0.10581	-0.02596	0.950051	0.871594
Parent age	0.010137	0.035993	1.224759	1.122241
Omitted categories: Sex: Female; Urbanity: Urban; Parent Ed: Elem and Below				

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 2d. Covariate Balance: Outcome-Hours worked

	Standardized Diff		Variance Ratio	
	Raw	Weighted	Raw	Weighted
G10				
Sex: Male	0.178719	-0.01262	0.938967	1.004791
Urbanity: Rural	-0.0837	-0.00274	1.042065	1.001144
Parent Ed: HS	-0.01054	-0.01075	0.999196	0.999117
Parent Ed: Above HS	-0.06853	-0.01075	0.895282	0.984149
HH size	0.097971	0.017895	1.196769	1.017242
Parent age	-0.07514	-0.01061	1.200828	0.980193
2COL				
Sex: Male	-0.09379	-0.05328	1.007956	1.018161
Urbanity: Rural	-0.28579	0.020079	1.086099	0.991016
Parent Ed: HS	-0.11683	-0.05345	0.981381	0.993412
Parent Ed: Above HS	0.47584	0.023374	1.517304	1.034019
HH size	-0.10581	-0.02596	0.950051	0.871594
Parent age	0.010137	0.035993	1.224759	1.122241
Omitted categories: Sex: Female; Urbanity: Urban; Parent Ed: Elem and Below				

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 2e. Covariate Balance: Outcome-Basic pay per day

	Standardized Diff		Variance Ratio	
	Raw	Weighted	Raw	Weighted
G10				
Sex: Male	0.196525	0.005385	0.926975	0.997751
Urbanity: Rural	-0.14369	-0.00944	1.020004	1.000477
Parent Ed: HS	0.005596	-0.00094	0.999546	0.999996
Parent Ed: Above HS	-0.00979	-0.02724	0.982681	0.957781
HH size	0.099145	0.032626	1.189917	1.050431
Parent age	-0.06541	-0.02211	1.191836	0.983756
2COL				
Sex: Male	-0.12248	-0.07226	1.008844	1.024316
Urbanity: Rural	-0.33769	-0.01004	0.983883	1.00047
Parent Ed: HS	-0.08134	-0.06259	0.997087	0.997439
Parent Ed: Above HS	0.518784	0.027849	1.687616	1.042452
HH size	-0.13175	-0.02705	0.916274	0.873844
Parent age	0.029265	0.002417	1.185781	1.150303
Omitted categories: Sex: Female; Urbanity: Urban; Parent Ed: Elem and Below				

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 2f. Covariate Balance: Outcome-wage and salary workers

	Standardized Diff		Variance Ratio	
	Raw	Weighted	Raw	Weighted
G10				
Sex: Male	0.178719	-0.01262	0.938967	1.004791
Urbanity: Rural	-0.0837	-0.00274	1.042065	1.001144
Parent Ed: HS	-0.01054	-0.01075	0.999196	0.999117
Parent Ed: Above HS	-0.06853	-0.01075	0.895282	0.984149
HH size	0.097971	0.017895	1.196769	1.017242
Parent age	-0.07514	-0.01061	1.200828	0.980193
2COL				
Sex: Male	-0.09379	-0.05328	1.007956	1.018161
Urbanity: Rural	-0.28579	0.020079	1.086099	0.991016
Parent Ed: HS	-0.11683	-0.05345	0.981381	0.993412
Parent Ed: Above HS	0.47584	0.023374	1.517304	1.034019
HH size	-0.10581	-0.02596	0.950051	0.871594
Parent age	0.010137	0.035993	1.224759	1.122241
Omitted categories: Sex: Female; Urbanity: Urban; Parent Ed: Elem and Below				

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 2g. Covariate Balance: Outcome-self-employment

	Standardized Diff		Variance Ratio	
	Raw	Weighted	Raw	Weighted
G10				
Sex: Male	0.178719	-0.01262	0.938967	1.004791
Urbanity: Rural	-0.0837	-0.00274	1.042065	1.001144
Parent Ed: HS	-0.01054	-0.01075	0.999196	0.999117
Parent Ed: Above HS	-0.06853	-0.01075	0.895282	0.984149
HH size	0.097971	0.017895	1.196769	1.017242
Parent age	-0.07514	-0.01061	1.200828	0.980193
2COL				
Sex: Male	-0.09379	-0.05328	1.007956	1.018161
Urbanity: Rural	-0.28579	0.020079	1.086099	0.991016
Parent Ed: HS	-0.11683	-0.05345	0.981381	0.993412
Parent Ed: Above HS	0.47584	0.023374	1.517304	1.034019
HH size	-0.10581	-0.02596	0.950051	0.871594
Parent age	0.010137	0.035993	1.224759	1.122241
Omitted categories: Sex: Female; Urbanity: Urban; Parent Ed: Elem and Below				

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 2h. Covariate Balance: Outcome-in industry

	Standardized Diff		Variance Ratio	
	Raw	Weighted	Raw	Weighted
G10				
Sex: Male	0.178719	-0.01262	0.938967	1.004791
Urbanity: Rural	-0.0837	-0.00274	1.042065	1.001144
Parent Ed: HS	-0.01054	-0.01075	0.999196	0.999117
Parent Ed: Above HS	-0.06853	-0.01075	0.895282	0.984149
HH size	0.097971	0.017895	1.196769	1.017242
Parent age	-0.07514	-0.01061	1.200828	0.980193
2COL				
Sex: Male	-0.09379	-0.05328	1.007956	1.018161
Urbanity: Rural	-0.28579	0.020079	1.086099	0.991016
Parent Ed: HS	-0.11683	-0.05345	0.981381	0.993412
Parent Ed: Above HS	0.47584	0.023374	1.517304	1.034019
HH size	-0.10581	-0.02596	0.950051	0.871594
Parent age	0.010137	0.035993	1.224759	1.122241
Omitted categories: Sex: Female; Urbanity: Urban; Parent Ed: Elem and Below				

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 3a. Kernel density plots of estimated propensity scores for different education cohorts: Outcome - employment
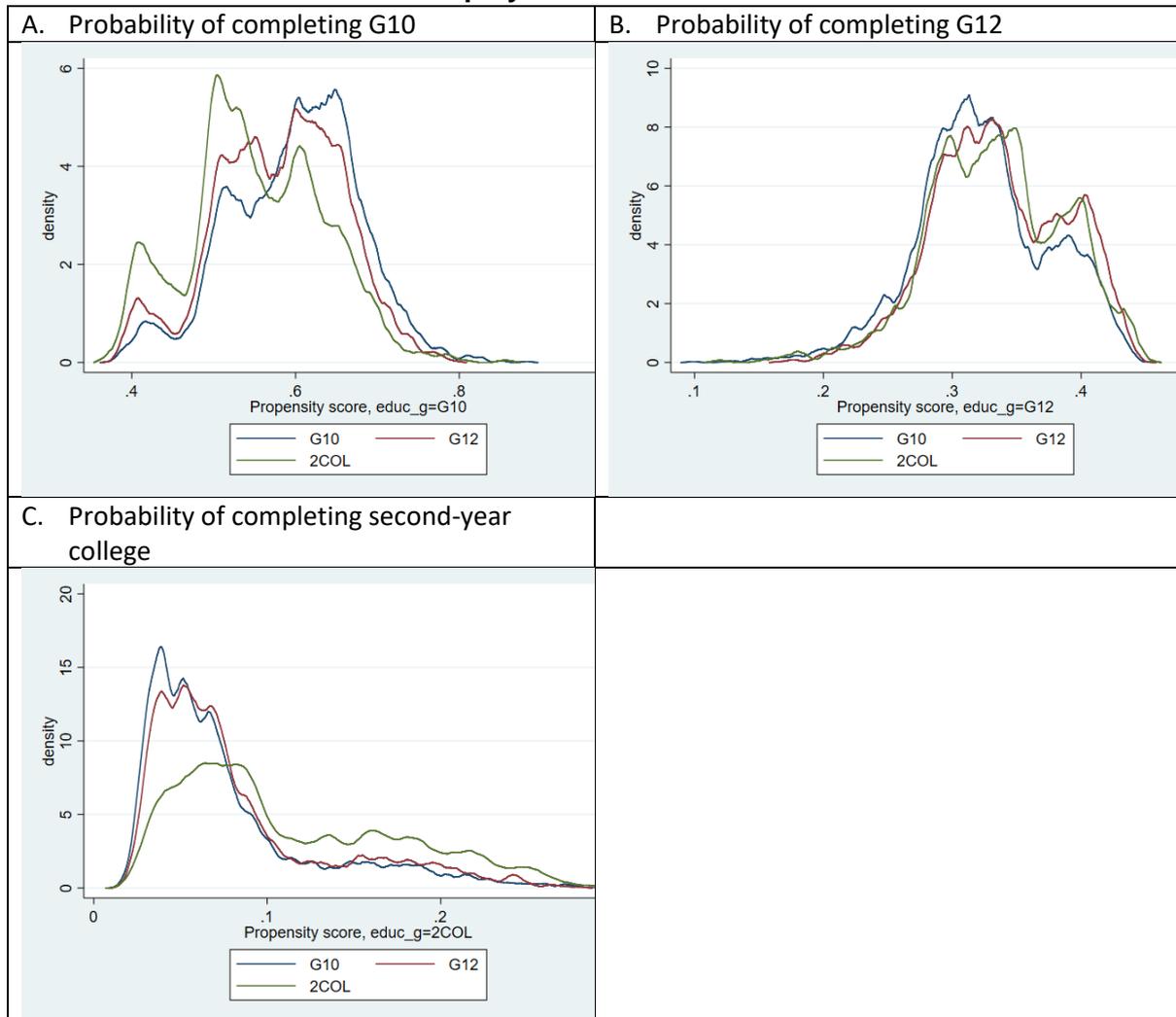
A. Probability of completing G10	B. Probability of completing G12

C. Probability of completing second-year college	

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 3b. Kernel density plots of estimated propensity scores for different education cohorts: Outcome - Underemployment
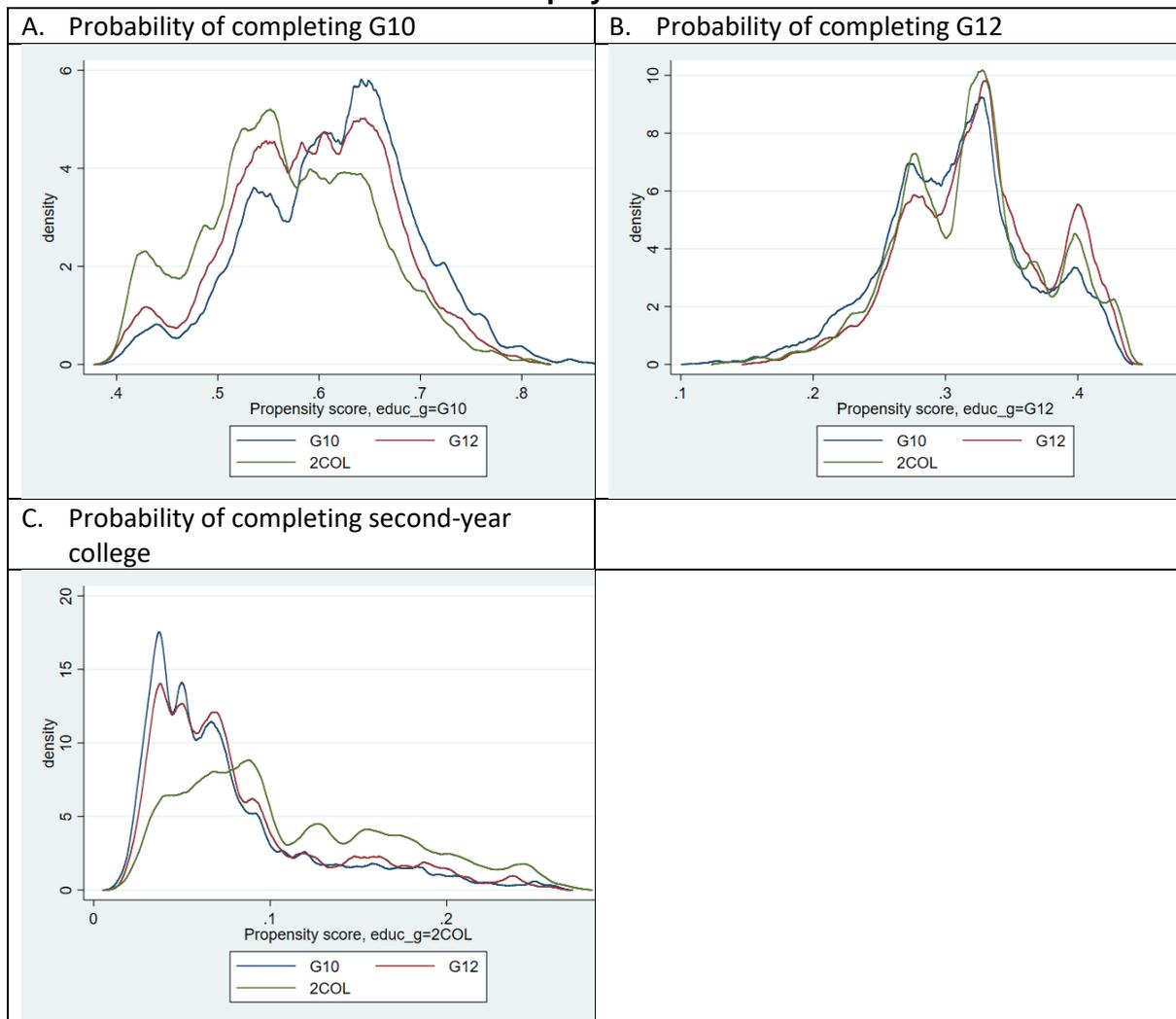
A. Probability of completing G10	B. Probability of completing G12

C. Probability of completing second-year college	

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 3c. Kernel density plots of estimated propensity scores for different education cohorts: Outcome – Visible underemployment
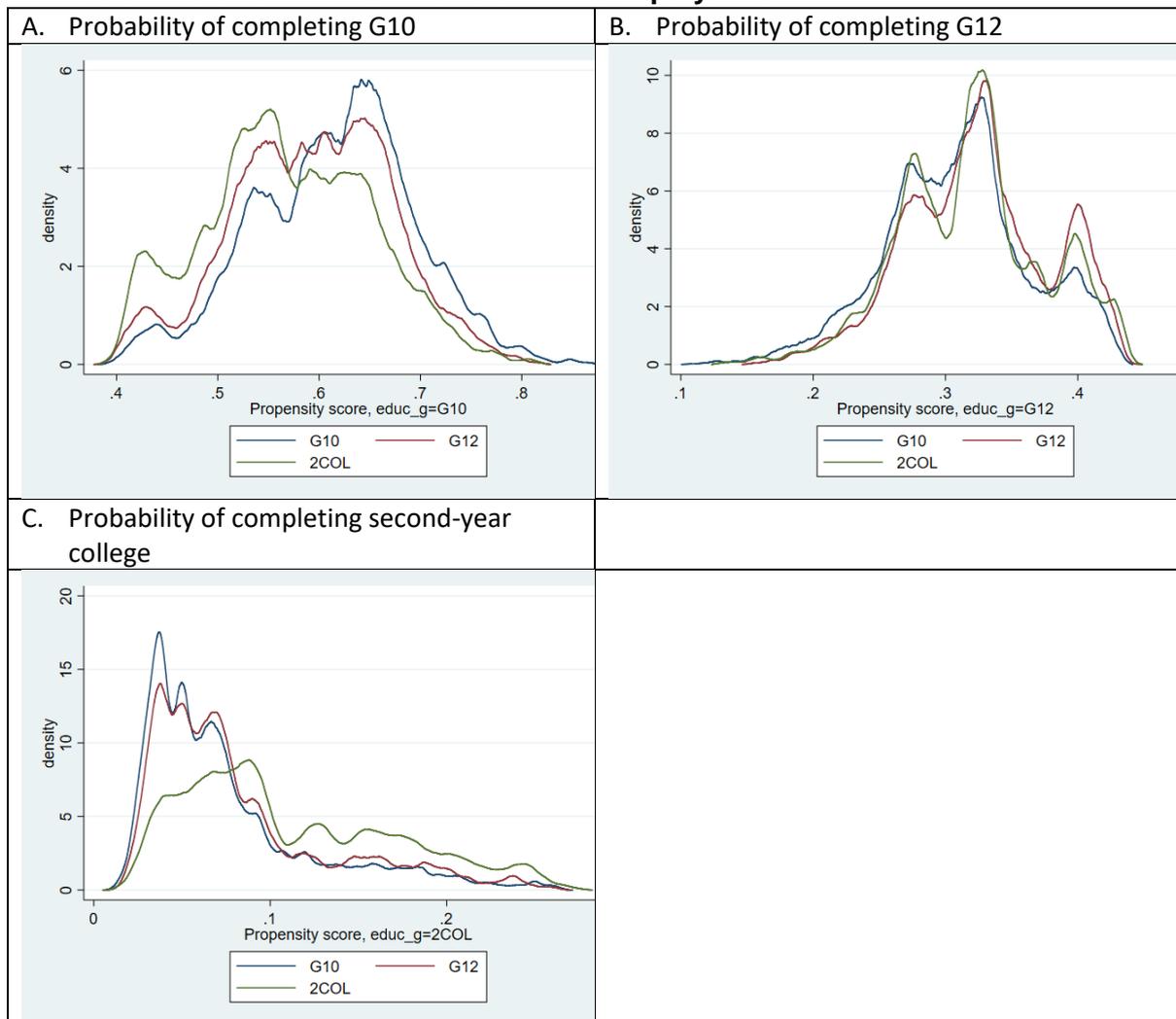
A. Probability of completing G10	B. Probability of completing G12

C. Probability of completing second-year college	

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 3d. Kernel density plots of estimated propensity scores for different education cohorts: Outcome – Hours worked
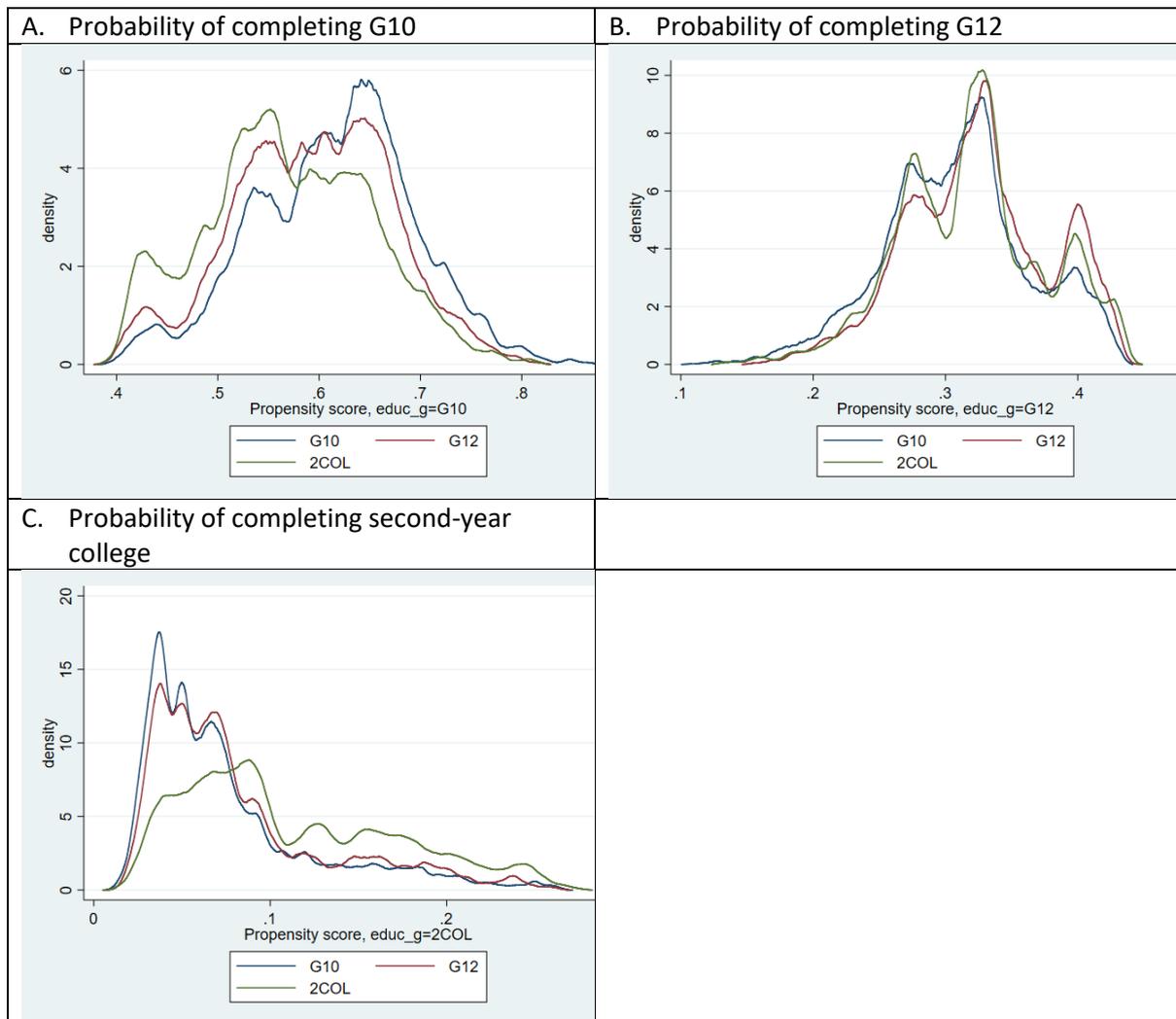
A. Probability of completing G10	B. Probability of completing G12

C. Probability of completing second-year college	

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 3e. Kernel density plots of estimated propensity scores for different education cohorts: Outcome – Basic pay per day
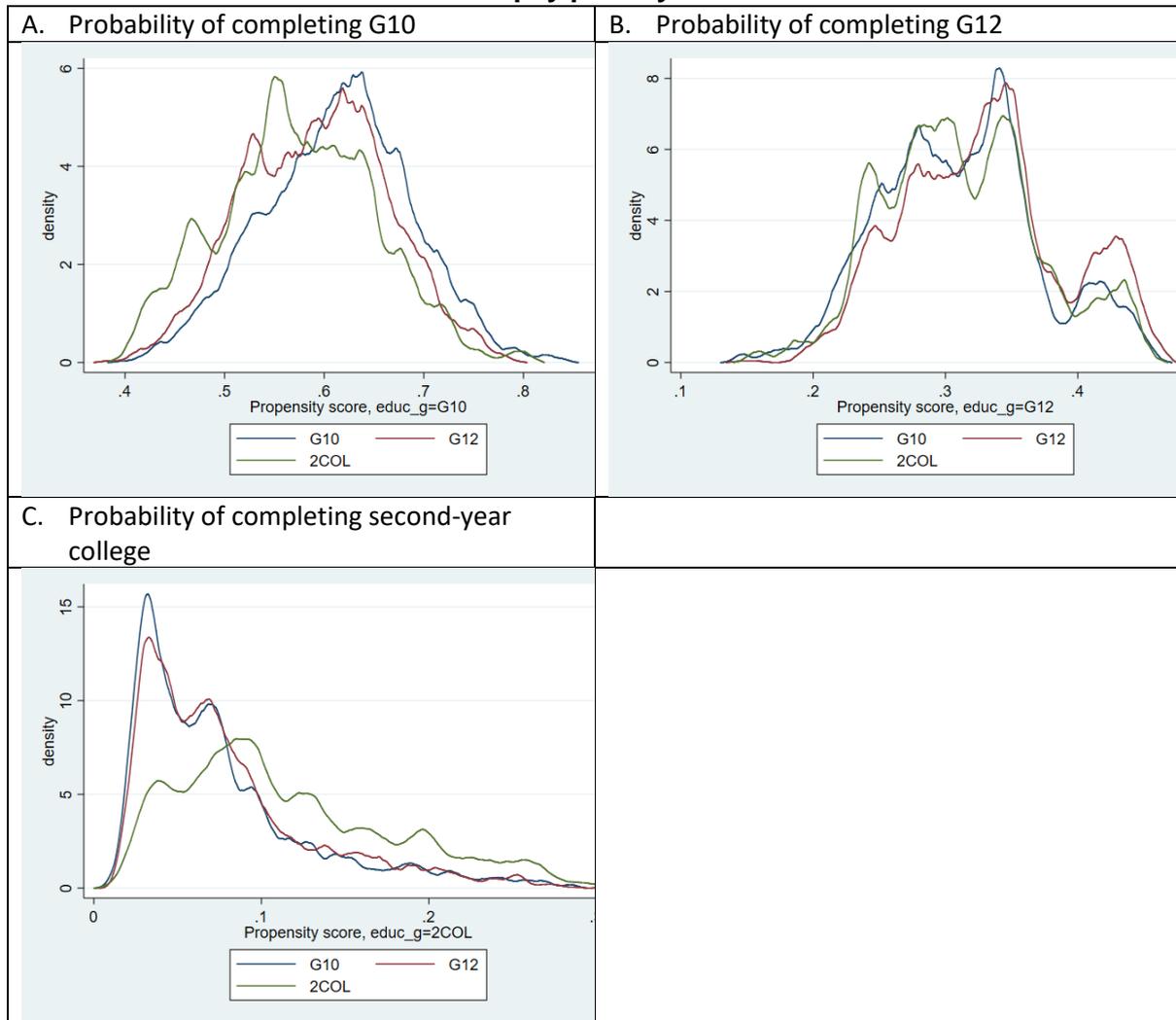
A. Probability of completing G10	B. Probability of completing G12

C. Probability of completing second-year college	

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 3f. Kernel density plots of estimated propensity scores for different education cohorts: Outcome – Wage and salary
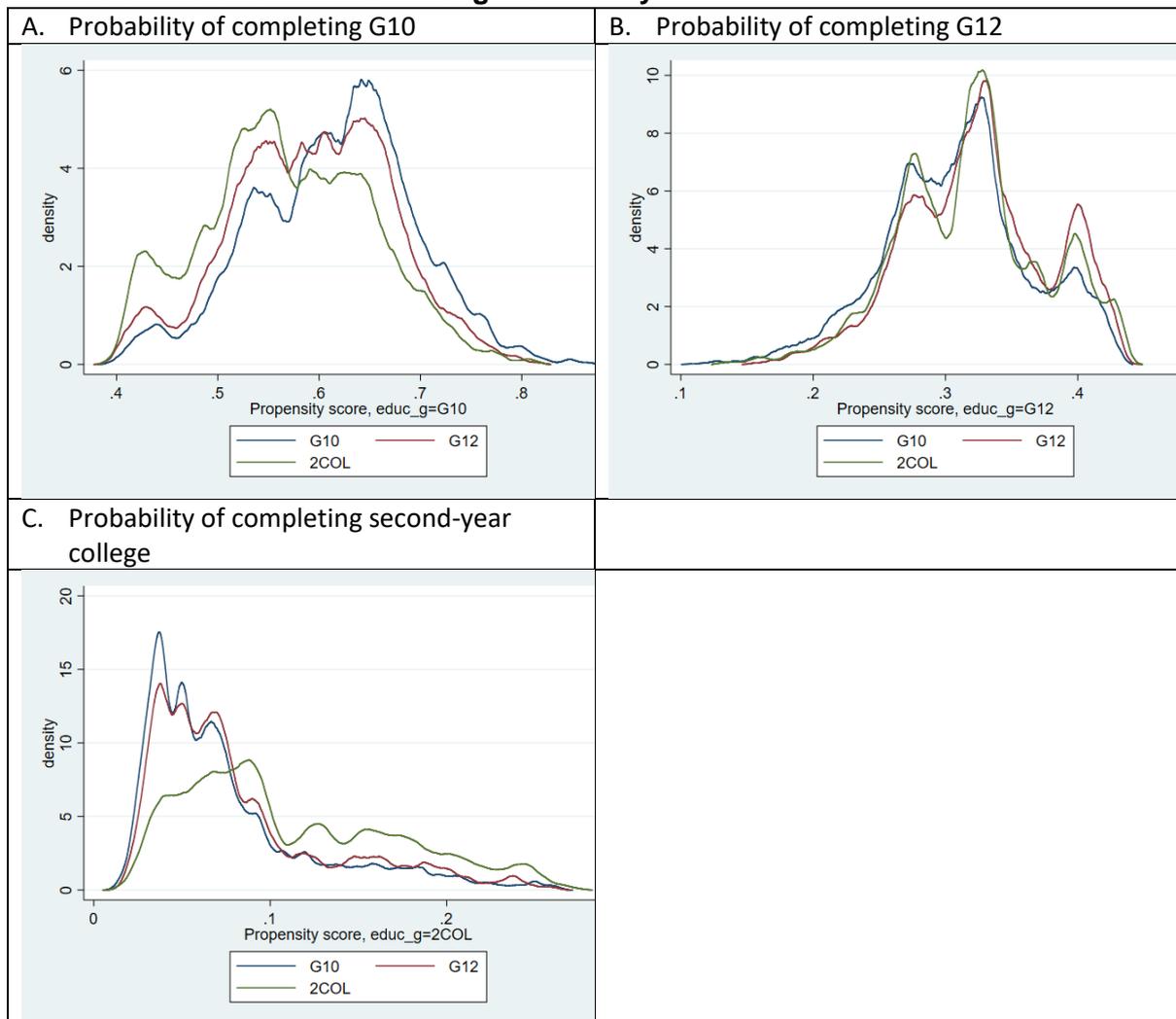
| A. Probability of completing G10	B. Probability of completing G12

C. Probability of completing second-year college	

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 3g. Kernel density plots of estimated propensity scores for different education cohorts: Outcome – Self-employed
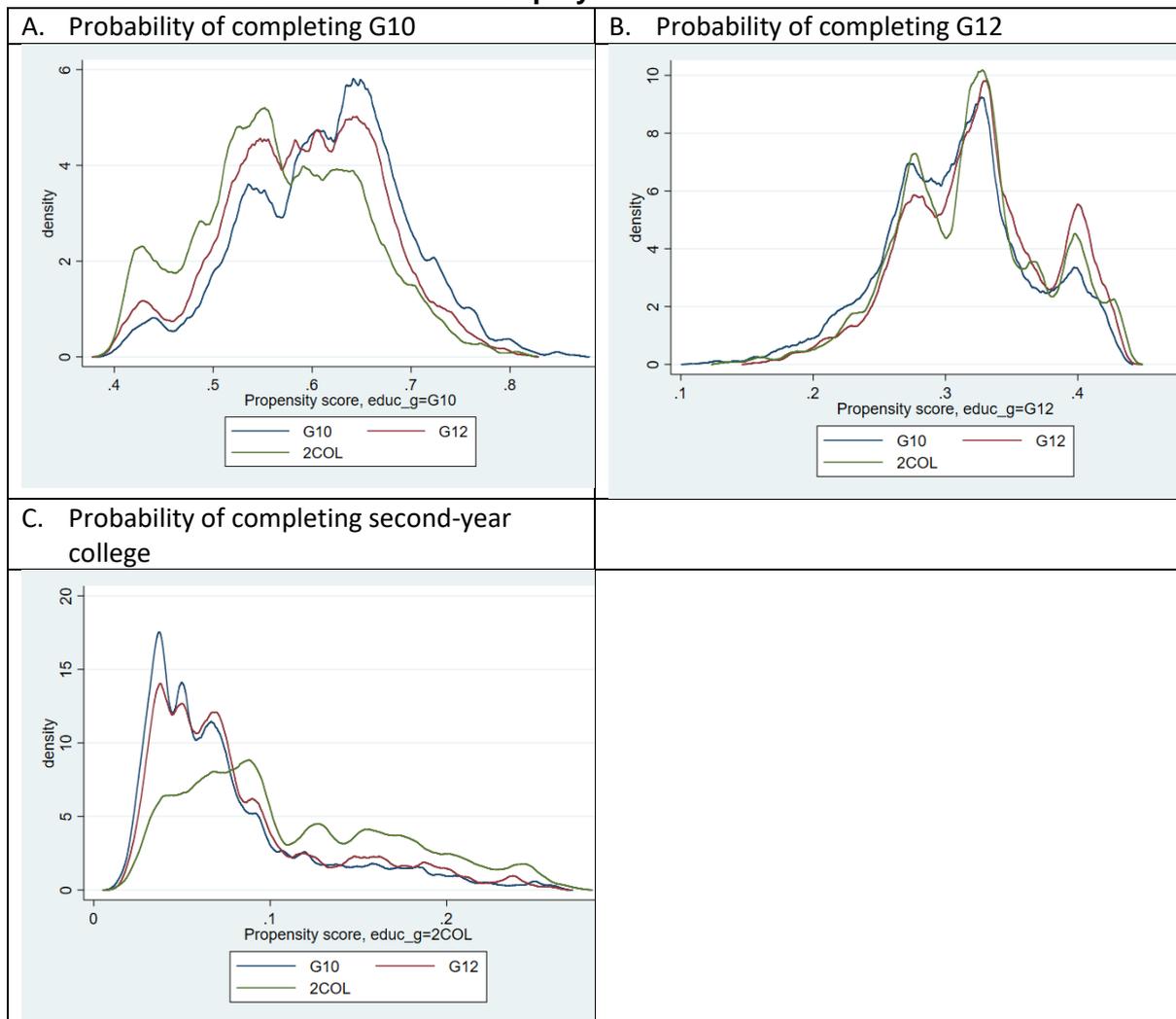
A. Probability of completing G10	B. Probability of completing G12

C. Probability of completing second-year college	

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 3h. Kernel density plots of estimated propensity scores for different education cohorts: Outcome – In industry
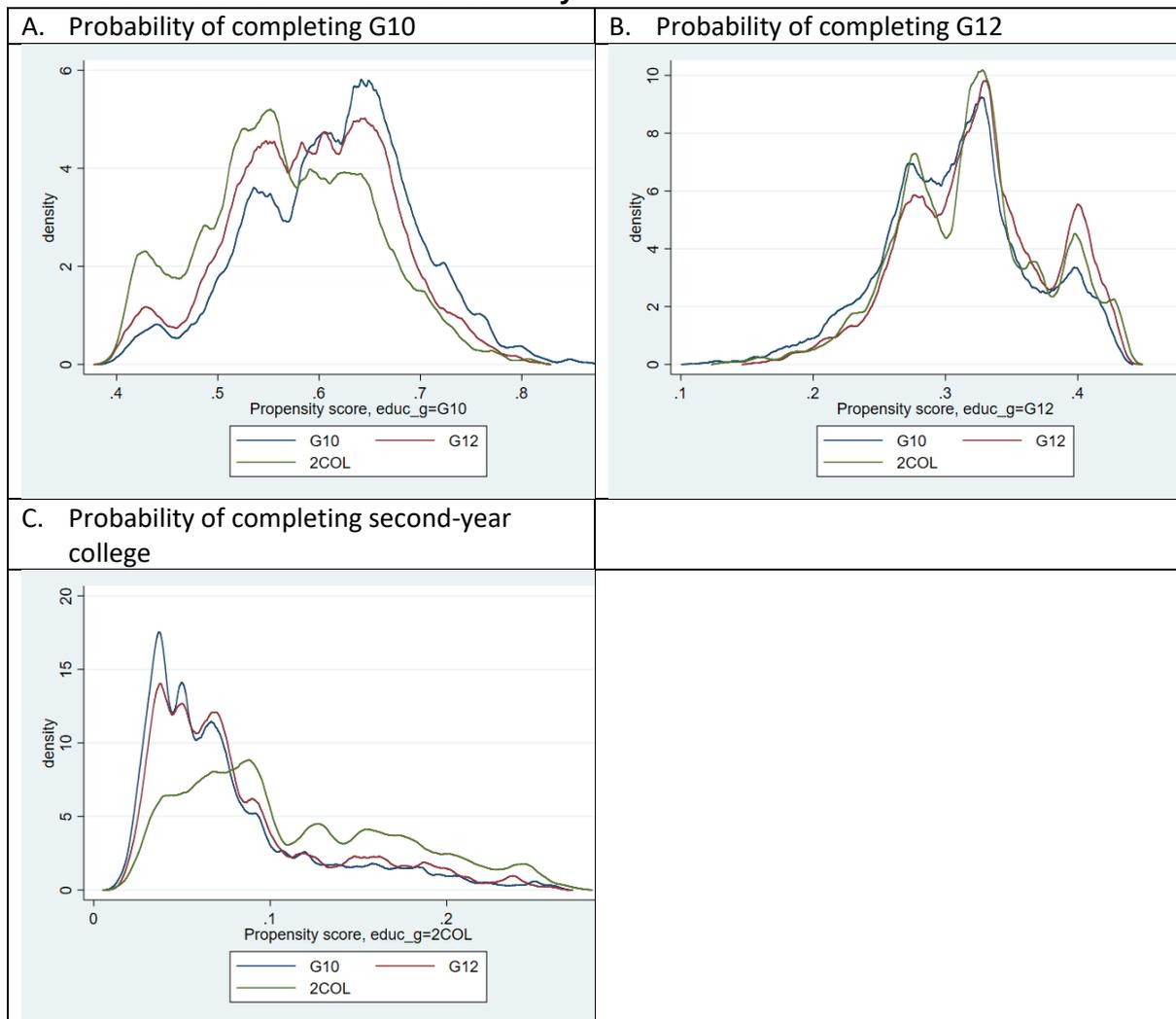
A. Probability of completing G10	B. Probability of completing G12

| C. Probability of completing second-year college	

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 4a. Full IPWRA estimation results

	INLF		EMP		UNDEMP		VUNDEMP	
	b	se	b	se	b	se	b	se
ATE								
G10 vs G12	0.086***	0.005	0.057***	0.011	-0.022*	0.011	-0.041**	0.013
2Col vs G12	-0.075***	0.013	0.058*	0.024	-0.034	0.034	0.097**	0.037
POmean								
G12	0.196***	0.003	0.783***	0.009	0.155***	0.009	0.512***	0.011
OME1								
Sex: Male	0.690***	0.04	0.116	0.091	0.569***	0.111	0.416***	0.08
Age	0.744***	0.014	-0.164***	0.032	0.140***	0.032	-0.601***	0.031
Region: II	-0.286*	0.128	0.418	0.3	-0.297	0.326	0.085	0.252
Region: III	-0.172	0.106	-0.357	0.213	-0.602*	0.263	-0.736***	0.196
Region: 4A	-0.005	0.11	-0.052	0.23	-0.078	0.263	-0.24	0.203
Region: V	0.051	0.11	0.639*	0.254	0.245	0.245	0.769***	0.2
Region: VI	-0.497***	0.114	0.193	0.254	-0.374	0.284	-0.195	0.217
Region: VII	-0.250*	0.116	0.195	0.239	-0.084	0.289	-0.409	0.213
Region: VIII	-0.424***	0.115	0.633*	0.263	0.221	0.262	0.32	0.204
Region: IX	-0.817***	0.127	0.623*	0.314	0.287	0.294	0.727**	0.247
Region: X	0.578***	0.11	0.612**	0.226	0.075	0.24	0.613**	0.187
Region XI	-0.266*	0.117	0.398	0.257	-0.235	0.281	-0.482*	0.217
Region: XII	0.039	0.115	0.054	0.231	0.243	0.253	0.528*	0.21
Region: NCR	-0.392***	0.107	-0.157	0.228	-0.723*	0.295	-0.817***	0.219
Region: CAR	-0.176	0.108	0.3	0.239	-0.07	0.26	-0.15	0.197
Region: ARMM	-1.293***	0.127	-0.383	0.25	-0.976*	0.431	0.364	0.273
Region: Caraga	0.292**	0.112	0.859***	0.24	0.363	0.24	0.644***	0.19
Region: IVB	-0.369**	0.114	0.550*	0.261	-0.138	0.279	0.078	0.216
Urbanity: Rural	0.098*	0.046	-0.121	0.108	0.013	0.112	0.205*	0.091
Round: 201810	0	0.07	0.412*	0.168	-0.422*	0.175	-0.14	0.136
Round: 201901	-0.296***	0.073	0.076	0.164	-0.129	0.176	-0.001	0.145
Round: 201904	0.363***	0.073	0.402*	0.175	-0.506**	0.185	-0.139	0.143
Round: 201907	0.135	0.074	0.331	0.179	-0.506**	0.182	-0.015	0.141
Round: 201910	-0.106	0.074	0.211	0.174	-0.564**	0.199	0.139	0.148
Round: 202001	-0.118	0.078	0.312	0.185	-0.449*	0.194	0.122	0.145
Round: 202004	-0.094	0.079	-0.899***	0.156	0.047	0.194	1.782***	0.222
Constant	-14.743***	0.271	4.539***	0.646	-4.454***	0.634	10.712***	0.597
OME2								
Sex: Male	0.353***	0.05	0.053	0.11	0.469***	0.135	0.229*	0.103
Age	0.680***	0.03	-0.049	0.066	0.007	0.078	-0.500***	0.063
Region: II	-1.068***	0.176	0.901*	0.434	0.353	0.42	0.043	0.347
Region: III	-0.038	0.129	-0.085	0.267	-0.118	0.325	-0.312	0.249
Region: 4A	-0.032	0.129	0.081	0.271	-0.868*	0.396	-0.266	0.242
Region: V	-0.239	0.129	0.321	0.281	0.201	0.304	0.963***	0.245
Region: VI	-0.449***	0.134	0.248	0.303	-0.222	0.34	-0.218	0.255
Region: VII	-0.366**	0.142	0.228	0.294	0.383	0.336	0.165	0.258

	INLF		EMP		UNDEMP		VUNDEMP	
	b	se	b	se	b	se	b	se
Region: VIII	-0.284*	0.135	0.645*	0.303	-0.207	0.333	0.127	0.243
Region: IX	-0.970***	0.168	0.277	0.366	0.306	0.404	-0.046	0.351
Region: X	0.462***	0.133	1.122***	0.3	0.492	0.303	1.075***	0.242
Region XI	-0.324*	0.151	0.305	0.333	0.391	0.375	0.129	0.291
Region: XII	-0.153	0.145	0.282	0.291	0.333	0.338	0.818**	0.276
Region: NCR	-0.806***	0.139	-0.365	0.296	-0.918	0.512	-0.827**	0.282
Region: CAR	-0.849***	0.143	0.575	0.326	0.015	0.362	0.205	0.279
Region: ARMM	-1.699***	0.2	-1.350***	0.386	0.368	0.663	1.233*	0.627
Region: Caraga	-0.149	0.134	0.457	0.29	0.092	0.329	0.875***	0.252
Region: IVB	-0.616***	0.141	0.224	0.309	0.343	0.327	0.418	0.279
Urbanity: Rural	0.211***	0.058	0.382**	0.126	0.242	0.152	0.03	0.119
Round: 201810	-0.143	0.114	-0.081	0.243	-0.288	0.303	-0.279	0.231
Round: 201901	-0.473***	0.119	-0.106	0.251	0.272	0.322	-0.201	0.241
Round: 201904	-0.199	0.102	0.136	0.223	0.121	0.257	0.311	0.207
Round: 201907	0.063	0.1	0.182	0.218	-0.044	0.249	-0.133	0.2
Round: 201910	-0.09	0.107	0.407	0.232	-0.223	0.293	-0.151	0.222
Round: 202001	-0.086	0.107	0.294	0.237	0.239	0.256	0.433*	0.209
Round: 202004	-0.316**	0.102	-0.656**	0.21	0.083	0.257	1.789***	0.251
Constant	-13.715***	0.564	1.818	1.261	-2.286	1.501	9.028***	1.193
OME4								
Sex: Male	0.428***	0.098	0.149	0.224	-0.181	0.312	-0.328	0.227
Age	0.392***	0.101	-0.181	0.171	-0.177	0.26	-0.394*	0.196
Region: II	-0.103	0.303	-0.305	0.69	0.848	0.847	-1.292	0.762
Region: III	-0.293	0.293	-0.361	0.626	0.147	0.938	-0.926	0.725
Region: 4A	-0.056	0.274	-0.263	0.589	0.238	0.967	-1.079	0.719
Region: V	-0.246	0.29	-0.089	0.661	0.769	0.788	-0.341	0.725
Region: VI	-0.207	0.287	0.044	0.724	0.058	0.809	-1.071	0.715
Region: VII	0.073	0.305	0.404	0.656	0.4	0.919	-0.933	0.706
Region: VIII	-0.402	0.271	-0.805	0.61	-0.425	0.951	-0.135	0.72
Region: IX	-0.346	0.338	0.572	0.725	-0.267	1.017	-1.517	0.852
Region: X	0.451	0.262	-0.278	0.576	0.772	0.792	-0.305	0.655
Region XI	-0.532	0.328	0.269	0.92	-0.686	1.297	-0.728	0.784
Region: XII	-0.011	0.298	-0.909	0.653	1.555	0.853	0.284	0.742
Region: NCR	-0.054	0.26	-0.092	0.558	-0.378	0.901	-1.166	0.638
Region: CAR	-0.509*	0.258	0.009	0.589	0.753	0.768	-0.636	0.713
Region: ARMM	-2.176***	0.469	5.357***	0.638	-4.209***	0.817	-0.952	1.049
Region: Caraga	0.166	0.275	0.503	0.651	0.643	0.781	-0.125	0.705
Region: IVB	-0.111	0.304	-0.59	0.656	-0.04	0.913	-0.618	0.761
Urbanity: Rural	0.091	0.126	0.108	0.303	-0.027	0.427	0.507	0.292
Round: 201810	-0.423	0.223	0.545	0.449	0.603	0.765	0.058	0.472
Round: 201901	-0.702***	0.193	0.544	0.416	1.046	0.732	0.695	0.433
Round: 201904	-0.396*	0.188	0.295	0.364	0.611	0.648	1.052*	0.419

	INLF		EMP		UNDEMP		VUNDEMP	
	b	se	b	se	b	se	b	se
Round: 201907	-0.298	0.271	1.116	0.635	-0.034	0.792	0.757	0.573
Round: 201910	-0.893***	0.243	1.025	0.57	0.41	0.853	1.039*	0.509
Round: 202001	-0.605*	0.245	0.173	0.505	-0.345	0.843	0.295	0.505
Round: 202004	-0.942***	0.224	-0.641	0.448	0.635	0.823	3.089***	0.698
Constant	-8.767***	1.984	4.8	3.417	0.671	5.058	7.802*	3.853
TME1								
Sex: Male	0.166***	0.024	0.404***	0.052	0.403***	0.058	0.403***	0.058
Urbanity: Rural	0.011	0.025	-0.128*	0.055	-0.207***	0.061	-0.207***	0.061
Parent Ed: HS	-0.209***	0.03	-0.136*	0.06	-0.132*	0.067	-0.132*	0.067
Parent Ed: Above HS	-0.389***	0.034	-0.260***	0.078	-0.233**	0.086	-0.233**	0.086
HH size	0.139***	0.03	0.191**	0.066	0.144	0.082	0.144	0.082
HH sizeXHH size	0	0.001	0.001	0.004	0.003	0.005	0.003	0.005
HH sizeXParent age	-0.002***	0.001	-0.003**	0.001	-0.003*	0.001	-0.003*	0.001
Parent age	-0.046***	0.007	-0.058***	0.013	-0.062***	0.015	-0.062***	0.015
Parent ageXParent age	0.000***	0	0.001***	0	0.001***	0	0.001***	0
Constant	1.708***	0.194	1.431***	0.347	1.799***	0.381	1.799***	0.381
TME4								
Sex: Male	-0.102**	0.039	-0.026	0.094	-0.02	0.105	-0.02	0.105
Urbanity: Rural	-0.236***	0.039	-0.374***	0.095	-0.428***	0.107	-0.428***	0.107
Parent Ed: HS	0.447***	0.058	0.555***	0.13	0.610***	0.144	0.610***	0.144
Parent Ed: Above HS	1.016***	0.058	1.424***	0.137	1.420***	0.152	1.420***	0.152
HH size	-0.091*	0.046	0.005	0.11	-0.079	0.122	-0.079	0.122
HH sizeXHH size	0.001	0.002	0.001	0.005	0.001	0.007	0.001	0.007
HH sizeXParent age	0.001	0.001	-0.001	0.002	0.001	0.002	0.001	0.002
Parent age	0.005	0.011	0.015	0.022	0.01	0.024	0.01	0.024
Parent ageXParent age	0	0	0	0	0	0	0	0
Constant	-1.592***	0.323	-2.469***	0.617	-2.069**	0.678	-2.069**	0.678
N	61563		12785		10648		10648	
Omitted categories: Sex: Female; Region: I; Urbanity: Urban; Round: 201807								
* p<0.05 ** p<0.01 *** p<0.001								

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds

Appendix 4b. Full IPWRA estimation results (Continued)

	hours		bpay		ws_worker		self_emp		in_ind	
	b	se	b	se	b	se	b	se	b	se
ATE										
G10 vs G12	1.546**	0.576	-20.909***	4.817	0.028*	0.011	-0.024*	0.012	0.030*	0.012
2Col vs G12	-5.418***	1.639	25.577	15.7	-0.101**	0.038	0.096*	0.039	-0.101***	0.019
POmean										
G12	34.376***	0.495	322.054***	4.126	0.680***	0.01	0.327***	0.01	0.198***	0.01
OME1										
Sex: Male	-3.891***	0.658	0.182***	0.02	0.178*	0.082	-0.135	0.082	1.024***	0.101
Age	5.048***	0.219	0.086***	0.008	0.578***	0.029	-0.566***	0.028	0.310***	0.033
Region: II	0.316	1.924	-0.013	0.05	0.171	0.258	-0.234	0.255	-0.608*	0.286
Region: III	5.009***	1.491	0.169***	0.043	0.759**	0.235	-0.750**	0.23	0.36	0.207
Region: 4A	2.259	1.717	0.217***	0.044	0.446*	0.224	-0.376	0.22	0.597**	0.211
Region: V	-3.528*	1.614	-0.142**	0.051	-0.648**	0.203	0.606**	0.2	-0.382	0.227
Region: VI	2.274	1.913	-0.173**	0.053	0.198	0.227	-0.178	0.222	-0.847***	0.247
Region: VII	3.578	1.845	0.047	0.047	0.201	0.244	-0.264	0.24	-0.091	0.235
Region: VIII	-1.342	1.72	-0.201***	0.052	-0.512*	0.209	0.517*	0.206	-0.489*	0.245
Region: IX	-3.953*	1.958	-0.337***	0.056	-0.680**	0.249	0.607*	0.245	-0.678*	0.279
Region: X	-4.146**	1.494	-0.100*	0.045	-0.649**	0.198	0.610**	0.194	-0.737***	0.22
Region XI	3.550*	1.626	-0.04	0.046	0.510*	0.245	-0.451	0.244	-0.321	0.226
Region: XII	-2.507	1.629	-0.200***	0.047	-0.518*	0.225	0.478*	0.221	-0.668**	0.243
Region: NCR	6.445***	1.617	0.398***	0.047	1.427***	0.269	-1.177***	0.261	-0.266	0.226
Region: CAR	1.436	1.479	0.114*	0.05	-0.732***	0.211	0.723***	0.208	-0.425	0.22
Region: ARMM	0.571	1.966	-0.311***	0.079	-2.176***	0.292	2.124***	0.29	-1.685***	0.429
Region: Caraga	-5.629***	1.567	-0.096	0.049	-0.789***	0.198	0.742***	0.195	-0.385	0.215
Region: IVB	-0.433	1.68	-0.052	0.051	-0.288	0.227	0.263	0.223	-0.285	0.238
Urbanity: Rural	-2.710***	0.737	-0.068***	0.019	-0.266**	0.098	0.231*	0.097	-0.127	0.104
Round: 201810	-1.41	0.97	0.041	0.028	-0.276	0.15	0.25	0.147	-0.340*	0.154
Round: 201901	-0.715	1.128	0.028	0.031	-0.202	0.154	0.243	0.152	-0.232	0.165
Round: 201904	0.728	1.081	0.074*	0.035	-0.500***	0.147	0.505***	0.143	-0.263	0.157
Round: 201907	-2.910**	1.093	0.043	0.027	-0.516***	0.149	0.515***	0.147	-0.242	0.159
Round: 201910	-3.269**	1.171	0.072*	0.032	-0.465**	0.154	0.519***	0.151	-0.19	0.165
Round: 202001	-4.557***	1.097	0.052	0.03	-0.699***	0.149	0.684***	0.148	-0.422**	0.163
Round: 202004	-16.023***	1.514	0.036	0.037	-0.750***	0.164	0.772***	0.16	-0.353	0.214
Constant	-52.771***	4.399	3.855***	0.156	-9.331***	0.555	9.158***	0.55	-7.310***	0.656
OME2										
Sex: Male	-3.753***	0.928	0.113***	0.025	0.262*	0.111	-0.244*	0.11	0.953***	0.139
Age	4.337***	0.547	0.017	0.016	0.540***	0.066	-0.508***	0.066	0.177*	0.08
Region: II	2.637	2.96	-0.022	0.076	0.205	0.406	-0.21	0.399	-0.44	0.501
Region: III	3.984	2.141	0.201***	0.049	0.167	0.278	-0.198	0.275	0.612*	0.301
Region: 4A	4.467*	2.136	0.175***	0.045	0.654*	0.272	-0.537*	0.265	1.208***	0.297
Region: V	-4.786*	2.174	-0.135*	0.054	-0.982***	0.242	0.962***	0.239	-0.436	0.326

Region: VI	4.331	2.287	-0.06	0.054	0.371	0.267	-0.347	0.265	-0.025	0.329
Region: VII	3.04	2.384	0.046	0.053	-0.018	0.288	0.013	0.284	-0.29	0.35
Region: VIII	1.678	2.123	-0.235***	0.058	-0.462	0.245	0.456	0.241	0.06	0.324
Region: IX	3.2	3.071	-0.319***	0.079	-0.448	0.327	0.517	0.326	-0.141	0.426
Region: X	-5.426**	2.046	-0.151**	0.053	-1.073***	0.241	1.095***	0.238	-1.058**	0.363
Region XI	3.001	2.346	0.121	0.078	0.61	0.345	-0.663	0.342	-0.223	0.381
Region: XII	-3.579	2.367	-0.253***	0.06	-0.823**	0.279	0.786**	0.276	-0.519	0.375
Region: NCR	4.454	2.376	0.452***	0.057	1.483***	0.424	-1.510***	0.414	-0.206	0.375
Region: CAR	3.206	2.332	-0.007	0.061	-0.378	0.267	0.49	0.262	-0.344	0.383
Region: ARMM	-5.992	4.119	-0.358*	0.145	-1.464**	0.562	1.407*	0.552	-0.83	0.764
Region: Caraga	-6.595**	2.262	-0.172**	0.058	-1.250***	0.254	1.215***	0.251	-0.923**	0.352
Region: IVB	0.638	2.592	-0.078	0.057	0.005	0.294	0.231	0.291	-0.012	0.36
Urbanity: Rural	-1.186	1.078	-0.086***	0.024	-0.128	0.126	0.07	0.124	0.256	0.154
Round: 201810	2.972	2.186	0.093	0.055	-0.048	0.248	-0.029	0.242	-0.141	0.325
Round: 201901	4.803	2.538	0.071	0.049	0.051	0.261	-0.032	0.259	0.11	0.333
Round: 201904	-2.013	1.872	0.173**	0.054	-0.773***	0.216	0.689**	0.212	-0.22	0.283
Round: 201907	1.957	1.809	0.122**	0.044	-0.254	0.206	0.184	0.202	0.009	0.27
Round: 201910	1.11	1.934	0.190***	0.043	-0.016	0.24	-0.046	0.237	0.311	0.283
Round: 202001	-1.741	1.84	0.198***	0.046	-0.394	0.227	0.322	0.225	0.023	0.282
Round: 202004	-18.565***	2.043	0.226***	0.055	-0.969***	0.227	0.842***	0.223	0.247	0.288
Constant	-44.179***	10.348	5.198***	0.301	-8.925***	1.23	8.457***	1.227	-5.661***	1.542
OME4										
Sex: Male	1.626	1.579	0.008	0.049	-0.062	0.238	0.084	0.235	0.662	0.388
Age	4.882***	1.299	0.004	0.049	0.515**	0.185	-0.471*	0.183	0.435	0.248
Region: II	10.708*	4.506	-0.118	0.105	0.867	0.697	-0.861	0.685	-0.991	0.954
Region: III	3.491	5.217	0.073	0.124	-0.045	0.593	0.129	0.591	0.162	0.84
Region: 4A	7.757	4.442	0.118	0.088	1.455*	0.643	-1.420*	0.639	0.139	0.794
Region: V	4.669	4.721	-0.465***	0.132	0.086	0.582	0.049	0.58	-2.049	1.218
Region: VI	12.311*	4.941	-0.322**	0.102	0.201	0.572	-0.044	0.561	-1.414	0.877
Region: VII	10.707*	4.892	-0.064	0.101	2.459***	0.662	-2.426***	0.658	-0.926	0.794
Region: VIII	2.868	5.497	-0.178	0.141	-0.609	0.58	0.637	0.577	-1.525	0.926
Region: IX	9.648	5.933	0.095	0.212	0.652	0.739	-0.623	0.731	-0.146	1.063
Region: X	0.383	4.018	-0.175	0.131	-0.566	0.491	0.597	0.491	-0.843	0.772
Region XI	3.762	6.773	0.056	0.139	1.252	0.771	-0.988	0.72	-1.097	1.114
Region: XII	-0.242	4.917	-0.237*	0.121	0.341	0.661	-0.304	0.658	-1.264	1.184
Region: NCR	8.630*	4.181	0.289**	0.095	2.181**	0.701	-2.168**	0.7	-1.514*	0.769
Region: CAR	5.331	4.111	0.06	0.102	0.382	0.548	-0.37	0.548	-1.246	0.947
Region: ARMM	7.644	6.569	-0.186*	0.09	-0.885	1.047	0.898	1.034	-4.456***	0.916
Region: Caraga	-1.961	4.782	0.011	0.207	-0.605	0.543	0.626	0.54	-1.812	0.963
Region: IVB	3.323	5.077	-0.155	0.146	0.098	0.622	-0.095	0.626	-0.227	0.824
Urbanity: Rural	-5.021*	2.273	-0.160*	0.064	-0.211	0.283	0.218	0.28	-0.097	0.481
Round: 201810	-3.17	3.062	0.054	0.078	0.795	0.671	-0.886	0.671	-0.962	0.662
Round: 201901	-7.495**	2.785	0.105	0.073	0.18	0.459	-0.231	0.45	-0.804	0.596
Round: 201904	-8.896**	2.734	-0.001	0.072	-0.83	0.431	0.76	0.423	-0.732	0.545

Round: 201907	-8.108	4.81	-0.173	0.116	-0.6	0.564	0.504	0.555	-0.911	0.754
Round: 201910	-11.685**	3.696	-0.034	0.097	-0.507	0.64	0.604	0.617	-0.702	0.708
Round: 202001	-2.68	4.237	0.073	0.112	-0.285	0.495	0.199	0.489	-2.107*	0.849
Round: 202004	-25.247***	3.497	-0.064	0.095	-1.222*	0.526	1.133*	0.519	-2.303**	0.869
Constant	-57.945*	26.097	5.837***	0.994	-9.341*	3.666	8.489*	3.641	-9.445	4.834
TME1										
Sex: Male	0.403***	0.058	0.409***	0.074	0.403***	0.058	0.403***	0.058	0.403***	0.058
Urbanity: Rural	-0.207***	0.061	-0.287***	0.077	-0.207***	0.061	-0.207***	0.061	-0.207***	0.061
Parent Ed: HS	-0.132*	0.067	-0.039	0.086	-0.132*	0.067	-0.132*	0.067	-0.132*	0.067
Parent Ed: Above HS	-0.233**	0.086	-0.021	0.114	-0.233**	0.086	-0.233**	0.086	-0.233**	0.086
HH size	0.144	0.082	0.166	0.095	0.144	0.082	0.144	0.082	0.144	0.082
HH sizeXHH size	0.003	0.005	0.001	0.006	0.003	0.005	0.003	0.005	0.003	0.005
HH sizeXParent age	-0.003*	0.001	-0.003	0.002	-0.003*	0.001	-0.003*	0.001	-0.003*	0.001
Parent age	-0.062***	0.015	-0.055**	0.018	-0.062***	0.015	-0.062***	0.015	-0.062***	0.015
Parent ageXParent age	0.001***	0	0.001**	0	0.001***	0	0.001***	0	0.001***	0
Constant	1.799***	0.381	1.374**	0.448	1.799***	0.381	1.799***	0.381	1.799***	0.381
TME4										
Sex: Male	-0.02	0.105	-0.068	0.134	-0.02	0.105	-0.02	0.105	-0.02	0.105
Urbanity: Rural	-0.428***	0.107	-0.473***	0.14	-0.428***	0.107	-0.428***	0.107	-0.428***	0.107
Parent Ed: HS	0.610***	0.144	0.867***	0.187	0.610***	0.144	0.610***	0.144	0.610***	0.144
Parent Ed: Above HS	1.420***	0.152	1.741***	0.203	1.420***	0.152	1.420***	0.152	1.420***	0.152
HH size	-0.079	0.122	-0.173	0.146	-0.079	0.122	-0.079	0.122	-0.079	0.122
HH sizeXHH size	0.001	0.007	0.003	0.007	0.001	0.007	0.001	0.007	0.001	0.007
HH sizeXParent age	0.001	0.002	0.002	0.002	0.001	0.002	0.001	0.002	0.001	0.002
Parent age	0.01	0.024	0.044	0.029	0.01	0.024	0.01	0.024	0.01	0.024
Parent ageXParent age	0	0	0	0	0	0	0	0	0	0
Constant	-2.069**	0.678	-2.957***	0.808	-2.069**	0.678	-2.069**	0.678	-2.069**	0.678
N	10648		6418		10648		10648		10648	
Omitted categories: Sex: Female; Region: I; Urbanity: Urban; Round: 201807										
* p<0.05 ** p<0.01 *** p<0.001										

Source: Authors' computation based on LFS Jul, Oct 2018; Jan, April, July, October 2019; Jan, Apr 2020 rounds