Received: 15 July 2020 | Revised: 18 October 2021 | Accepted: 26 November 2021

DOI: 10.1002/jid.3605

RESEARCH ARTICLE

JOURNAL OF INTERNATIONAL DEVELOPMENT WILEY

Working while studying: Employment premium or penalty for youth?

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Funding information
Government of Canada through the International Development Research Center (IDRC); Department for International Development (DFID) of the United Kingdom (or UK Aid)

Abstract

Most youths in developing countries leave school with only a general academic education level, slowing down their transition to the labour market. We analyse whether work experience during school can ease youth transition to first job in Benin. Using data from the 2014 School-to-Work Transition Survey (SWTS), we estimate a three-equation model to control for endogenous treatment assignment and sample selection and a hazard frailty model. We find that working while studying eases transition from school to first job. However, these findings were significant only for men and youth who left school with at least a secondary education.

KEYWORDS
Benin, hazard frailty model, school-to-work transition, simultaneous equation modelling, sub-Saharan Africa, working while studying, youth unemployment

JEL CLASSIFICATION
I21, J20, J64

1 | INTRODUCTION

In reporting its 2014 and 2015 surveys, Afrobarometer (2015) noted that unemployment was the problem mostly commonly cited by residents of 36 sub-Saharan countries, which together represent more than three-quarters of Africa's population. According to the International Labor Office (ILO, 2012), young people are almost three times more likely to be unemployed than are adults. For students, of particular concern is first entry into the labour market after leaving school. In fact, African youth experience long periods of transition from school to first job, ranging from between less than a year to 7 years (Garcia & Fares, 2008; ILO, 2015) and even more than 12years in Togo

(Manacorda et al., 2017). This paper uses data on youth from Benin to study whether working experience (mostly at the secondary-education level) before leaving school can ease the transition from school to first job. The duration of youth unemployment is long in Benin: 42.7% of the unemployed have spent over a year without work (INSAE, 2012). Statistics from the School-to-Work Transition Survey (SWTS) show that only 11.2% of 15- to 29-year-olds have completed the transition to work (INSAE, 2016) and that their average unemployment spell is 58.5 months.

Most students in developing countries leave school with a general academic education level that is insufficient to provide the skills requested by the labour market, thus limiting their job opportunities (Garcia & Fares, 2008). This may explain why governments in many African countries, including Benin, attempt to increase employment opportunities for youth through programmes and policies. The government of Benin has tried to reduce youth unemployment since 2007 through the National Agency for Promotion of Employment (ANPE) and the National Fund Enterprise Promotion and Youth Employment (FNPEEJ). Yet, the majority of these limited interventions come post-schooling, and their impact is not yet clearly known. The SWTS reveals, in fact, that impediments to youth employment in Benin include a scarcity of vocational and technical education, minimal professional experience, and a lack of job search assistance (INSAE-BIT, 2013).

The motivation for this study is twofold. First, from an empirical point of view, little is known about that impact that working while studying (hereafter: work/study) has on the school-to-work transition for youth in Africa generally—or in Benin in particular. We know of only two published studies, both using 2012–2013 SWTS data, that include Benin. Based on 28 countries, Nilsson (2015) provided only descriptive evidence regarding the relationship between work/study and time to first job following formal schooling. Manacorda et al. (2017), who estimated a hazard model on data from 23 countries, provided empirical evidence of the effect of work/study on the probability of transition to first job and on the duration of the transition period. Yet neither study used suitable approaches to address the endogeneity of the variable "work/study." In order to understand more about the work/study combination and transition to work, we examined the 2014–2015 Benin SWTS data set, adopting empirical methods to deal with endogeneity issues and to investigate the heterogeneous effects of work/study.

Second, from a policy perspective, understanding whether the work/study combination helps youth enter the labour market could be useful for policy implementation in Benin as well as in other African countries. As mentioned, public money is invested in dealing with barriers to youth employment, though these post-schooling interventions may be limited in their ability to reduce transition time from school to first job. In fact, that transition could be facilitated if youth acquired work experience before leaving school. Such experience would allow them to become familiar with the workplace environment, acquire work habits and attitudes, build a professional network, and receive information related to the labour market.

The estimation of the causal effect of work experiences during schooling on the transition to post-education work can be complicated by the endogeneity of working while studying decisions. Moreover, the transition spell between school leaving and the start of post-education job is observed only for school leavers, hence leading to potential self- selection issues. Using a nonlinear three simultaneous equations econometric model, we controlled for these endogenous-treatment and sample-selection issues. Specifically, we addressed all these issues simultaneously, by implementing a Full Information Maximum Likelihood (FIML) estimator method combined with a control function approach for endogenous regressors. We corrected for endogeneity of working while studying by instrumenting it with the intensity of the exposure to educational reforms undertaken by the government of Benin in primary and secondary schools. Using school reforms as a source of identification for education-related variables is common in the literature (e.g., Ashraf et al., 2020; Duflo, 2001). To correct for potential self-selection into school leaving we controlled for marriage before leaving school and the percentage of primary-school-age children in Benin who were not enrolled in primary or secondary school by the time the youth was in school. We complemented with the estimation of a hazard model with a "frailty" term which accounts for the unobserved sources of heterogeneity.

We found that work experience while studying (during the schooling year, or during breaks or summer holidays) is negatively related to the transition-to-work period. Estimates remained robust with either external instruments alone or with constructed instruments as proposed in Lewbel (2012, 2018a). A number of significant heterogeneous

impacts are also found and are related to the gender and the education level of youth. Work/study eased the transition from school to first job for men and for youth who left school with at least a secondary education.

Most of the literature on the effects of work experience during schooling focuses on developed countries and looks mainly at long-term post-schooling effects such as wages later in life (Light, 2001). Little attention has been paid to immediate post-schooling effects on, for example, employment or the duration of unemployment. In general, the empirical evidence is mixed regarding the impact of in-school work experience on later labour-market outcomes, whether by education level (Molitor & Leigh, 2005) or by type of schooling (Parent, 2006).

Work experience was found to increase the probability of finding work after graduation for students at a Finnish university (Häkkinen, 2006), though the study's significant effects seemed to disappear when the author accounted for the endogeneity of the "work/study" decision. A 2016 randomized study of the effect of students' work experience on future employment in Belgium found no evidence that employers' initial recruitment decisions were affected by students' work/study experience (Baert et al., 2016).

The type of prior work experience has also received attention in the literature. Using data from a representative survey of Swiss university graduates, Geel and Backes-Gellner (2012) found that work experience during school led to shorter job searches after graduation if that prior work experience was related to the field of study. Robinson (1999) analysed the effects of part-time student work in Australia and showed that students who held part-time jobs during secondary school experienced shorter periods of unemployment after leaving school; such part-time jobs may also have helped youth transition to later full-time employment. Robinson's conclusions were similar to those of Anlezark and Lim (2011), who found that working for 5 h per week during studies had a positive impact on full-time post-schooling employment in Australia.

Studies on the nexus between in-school work experiences and transition to work are scarce in developing countries (Nilsson, 2019). Poor quality of labour data and underdeveloped labour-market information systems in many developing countries have impeded analyses of youth unemployment. Household surveys do not always contain information on working youth and, therefore, are not ideal for analysing their transition to the labour market.

The SWTS, carried out in more than 30 developing countries since 2012, provides an opportunity to study youth unemployment, though little is known about the effect of work/study on transitions to first job. In addition to the works by Nilsson (2015) and Manacorda et al. (2017) cited earlier, other studies using the SWTS have found that longer post-schooling unemployment lowers the likelihood of getting a job for youth, suggesting that efforts to reduce this transition-to-work period could be helpful (Atanasovska et al., 2016; Petreski et al., 2017).

2 | CONCEPTUAL FRAMEWORK

Studies that explain the mechanisms through which work/study experience may influence the post-schooling labour-market success of youth have largely relied upon the standard human capital theory, the social network or social capital theory, or the signalling or screening theory (Geel & Backes-Gellner, 2012). The overall effect is theoretically ambiguous, however, and may ultimately depend upon the type of work performed during studies as well as on local cultural or institutional barriers.

Human capital, in the view of Becker (1964), is valued in the market as a set of acquired experience, skills, attitudes, or knowledge that may later increase workers' productivity. Firms would willingly hire educated youth that had acquired labour market experience during their studies because they would be more useful than would their counterparts without prior work experience. The 2012 SWTS, which collected information on entrepreneurs and factors that influenced hiring, suggested that this could be true in Benin as well. According to SWTS data, although employers indicated that training received by job seekers was important in the recruitment process, work experience was the main factor in hiring decisions (INSAE-BIT, 2013).

From the perspective of social network or social capital theory, investment in social networks and personal relationships—such as those acquired through work/study experiences—may influence labour-market outcomes

positively (Mouw, 2003; Seibert et al., 2001). In general practice, a job vacancy is announced first to people working within a company. In some cases, job openings may be kept from the general public in order to benefit trainees' or employees' relatives. In both scenarios, previously established social or personal relationships, such as those formed during work/study experiences, may increase the chances of finding a job because labour market information may be shared through those networks. The social network mechanism appears to function in Benin as well: SWTS statistics revealed that 51.4% of young employees got their jobs through a friend or a family member and, further, that open positions were usually advertised first to parents or friends (INSAE-BIT, 2013).

Previous studies have also explained the positive impact of prior work/study experience on labour-market outcomes as the result of student ability. Work/study may be a signal of unobserved ability for employers who, given the uncertainty in the labour market, may seek to avoid unnecessary investment in screening. This signalling theory (Spence, 1973) likely also applies to young individuals in Benin who have had the opportunity to gain work experience while studying. All three mechanisms are probably stronger in the case of individuals whose work/study experiences have included apprenticeships because apprenticeships strengthen human capital, social networks, and ability signalling, all of which are more directly related to the needs of the labour market.

It must be noted that prior work/study may have a negative effect on labour-market outcomes as well. Considering the theory of the allocation of time, a trade-off in the use of time for work vs. study is likely to occur (Becker, 1965; Buscha et al., 2012). Allocating more time for employment may thus compromise learning and academic performance and crowd out the positive effect of human capital acquired from work/study. This mechanism might apply only in the case of working activities during the schooling year, while no negative effects on learning is expected when students work during breaks or summer holidays.

Reservation wages may also be a mechanism by which work/study experiences influence post-schooling labour-market success. Such experiences may make the wage expectations of young workers more accurate because they are based on the characteristics of the local labour market. As such, work/study experience could reduce reservation wages and have a positive effect on labour-market outcomes after school. If youth put too much weight on gaining work experience while studying, the reservation wage would increase. In that case, works/study experience would have a negative effect on later labour-market outcomes by increasing the reservation wage and likely delaying the school-to-work transition. Thus, the effect of in-school work experience on reservation wages is unclear. In Benin, the salary expectations of young people are around three times higher than the amount of the Interprofessional Guaranteed Minimum Wage, according to statistics from the household national survey "Enquête Modulaire Intégrée sur les Conditions de Vie des ménages" (EMICoV) for 2014. The reservation wages of youth with in-school work experience may, therefore, be even higher and that may extend the duration of the transition. The absence of an unemployment benefit in Benin and the difficulty of finding a job in the formal sector because of competition from the very dynamic informal sector could, however, decrease reservation wages.

3 | EMPIRICAL METHODOLOGY

3.1 | Threats to identification

Two threats to identification must be addressed when estimating the effect of work/study on the transition of youth from school to first job. First, work/study (our treatment) is likely to be endogenous. Unobserved individual characteristics and/or family background might influence both the likelihood that youth will acquire work/study experience and their degree of labour-market success after study (Hotz et al., 2002). For example, because of greater ability or initial skills, more able or motivated youth may be pushed to start working earlier during study. As a result of that ability, they may also have an easier transition to a first job after leaving school (Geel & Backes-Gellner, 2012).

Second, the transition from school to first job is observed only for youth who left school. A second threat to identification, then, is the non-random nature of the choice to leave school. The school-leaving decision may, indeed,

have been the result of unobserved motivations and preferences that may also have affected labour-market outcomes (Mussida et al., 2016) or of parents' investment in their children's schooling. Less-motivated students may have left school earlier, for example, but may also have performed less well in the labour market.

3.2 | Econometric modelling

We measured the transition-to-work period from school to first job as the time span (in months) between the time respondents left school and when they got a job (i.e., when they left the transition period). Unlike previous studies, we dealt with both potential endogeneity in our treatment condition (work/study) and sample-selection bias (because we observed the transition-to-work period only for those who left school). To account for the endogeneity of work/study (SW) and sample selection from leaving school (LS), we modelled the duration of the transition (*T*) within the potential outcome framework and jointly estimated the following multi-equation model:

$$T_i = \alpha_1 WS_i + \beta X_i + u_{1i} > 0 \quad \text{outcome equation} \tag{1}$$

$$LS_i = \begin{cases} 1, & \text{if } \alpha_2 WS_i + \varphi Z1_i + u_{2i} > 0 \\ 0, & \text{otherwise} \end{cases} \text{selection equation} \tag{2}$$

$$WS_i = \begin{cases} 1, & \text{if } \gamma Z2_i + u_{3i} > 0 \\ 0, & \text{otherwise} \end{cases} \text{endogenous treatment equation} \tag{3}$$

where *X* is the vector of control variables (reported in Table A1), *Z*1 and *Z*2 are the selection and the instruments variables, respectively (which are discussed later in this section), and α_1, α_2, β, γ, and φ are the parameters to be estimated. The unobserved errors terms are normal with a mean of zero and had the following correlation structure:

$$\text{corr}(u_1, u_2) = \rho_{12},\ \text{corr}(u_1, u_3) = \rho_{13},\ \text{corr}(u_2, u_3) = \rho_{23}.$$

Equations 1 and 3 constitute the main part of the multi-equation model.[1] The model allows for the correlation between the potential outcomes—the duration of the transition—and unobserved factors affecting the treatment. The treatment variable "work/study" is endogenous if the estimated correlation $\rho_{13} \neq 0$.

Equation 2 adjusts for the non-random sample selection resulting from school-leaving, given that the duration of the transition is not observed for youth who were still in school at the time of the survey. Outcome *T* is observed if the selection variable *LS* is equal to one. Equations 1 and 2 thus form a block of the Heckman selection model (Heckman, 1976; Lewis, 1974). The selection of being out of school is non-random if the estimated correlation $\rho_{12} \neq 0$.

Given that the duration of the transition (*T*) is left censored at zero, we estimated an interval-regression model incorporating endogenous treatment assignment and non-random sample selection, as presented earlier. The estimated parameter α_1 is the effect of work/study on the duration of the transition. In the counterfactual modelling framework (Heckman & Navarro-Lozano, 2004; Imbens & Wooldridge, 2009; Rubin, 1974), α_1 is also interpreted as the average treatment effect (ATE) of the treatment variable work/study (*WS*).

3.3 | Identification strategy

The identification of work/study effect on the duration of the transition relies on two educational reforms undertaken by the government of Benin in primary and secondary schools (Houedenou, 2016).[2] Using school reforms as source of identification for education-related variables is common in the literature (e.g., Ashraf et al., 2020; Duflo, 2001). The first reform, in 2006, made the access to all public primary schools free of charge. The second

reform introduced gratuity of education for girls in secondary Cycle I education level, starting in 2010 for girls in the sixth grade. In 2011, it was extended to girls in the fifth grade, and in 2012 to all girls in secondary Cycle I. Crossing the years of the reforms, the legal ages of primary and secondary Cycle I education (6–11 and 12–15, respectively), and the age of the individuals, we could define our instrument as the intensity of the exposure to the reform for each individual. Youth with a diploma of primary education were potentially exposed to the primary school reform only. Female students who attended secondary school or higher were potentially exposed to the second reform. Our instrument is a discrete variable taking value zero if a person was not exposed to any reform at all, one if she/he was exposed just for 1 year, and so on.

Upon controlling for schooling attainment, we argue that the exposure to the reforms (free education) is likely to be related to work/study but unlikely to directly affect the duration of the transition (once youth leave the school). Indeed, school reform is expected to directly affect individuals' human capital while they are at school, including working while studying decisions and experience, and only indirectly labour market outcomes. Hence, the reform would affect the transition length only indirectly—that is, through the investment in human capital. Free education may relax students' non-affordability and then decrease their likelihood of looking for a job during studies to pay education fees. Nevertheless, students may look for low-paid or unpaid work experiences during studies like internships or apprenticeships because of free education. These experiences can be particularly beneficial in reducing unemployment spells once an individual entered the labour market.

Additionally, in the duration of the transition equation, we control for the reasons of leaving school and the level of education attained by the youth when she left the school. These variables would reasonably capture—together with parents' occupation—unobserved factors (such as parental engagement during youth's schooling career) which would positively affect educational attainment and, then, the duration of the transition.

Previous studies in medium and highly developed countries used, as instruments of work/study experiences, local employment to proxy prevailing labour-market conditions (Häkkinen, 2006; Parikh & Sadoulet, 2005). We did not have large time-series data on local employment at our disposal. More fundamentally and in contrast to developed countries, however, the likelihood that youth in Benin would enter the labour market while still studying was driven more by family conditions than it was by conditions in the labour market. As explained in the descriptive statistics section, the motivations of youth for work/study were chiefly the desire to earn money or help their families.

Following Lewbel's recommendations (Lewbel, 2018b), we also instrumented WS through constructed instruments as a robustness check. In particular, as proposed in Lewbel (2012 and 2018a), and relying on the heteroscedasticity of the error term of the endogenous variable, we constructed instrumental variables as the difference between X and their sample average value, then multiplied by u_3. As shown in Lewbel (2012), the structural equation can be identified only under certain hypotheses. In addition to the usual assumptions necessary for valid instruments (underidentification, weak identification, and overidentifying restrictions), the Lewbel approach also requires that u_3 be heteroscedastic. The validity of this condition was checked through the Breusch-Pagan test (Table A2).

Finally, concerning the estimation of selection Equation 2, it should be noted that, as shown in Wooldridge (2010, chapter 15), when (1), (2), and (3) are jointly estimated through full information maximum likelihood, it is not necessary to include exclusion variables. Yet, estimates are more reliable if one or more covariates in (2) are not included in (1) and (3). Hence, we included in (2) two different covariates: one indicating whether the youth was married before leaving school and a macroeconomic-level variable indicating the percentage of primary-school-age children in Benin who were not enrolled in primary or secondary school by the time the youth was in school. Reasonably, both covariates are good determinants of "leaving school."

3.4 | Survival modelling as alternative estimation method

For robustness check, we also consider the transition-to-work period from school to first job as a survival outcome. We estimate a hazard model with a "frailty" term which accounts for the unobserved sources of heterogeneity.[3]

Survival models are generally used to describe and explain the occurrence and the duration of an event (Cleves et al., 2016). The duration T of the transition from school to the first job is assumed to be a random variable whose cumulative distribution function represents the probability that there is an exit from the transition before or at time *t*:

$$F(t,\theta) = P(T \le t), \qquad \forall t \ge 0 \tag{4}$$

The probability that the duration of the transition exceeds *t* is defined as the survival function:

$$S(t,\theta) = 1 - F(t,\theta) = P(T > t) \tag{5}$$

and the instantaneous probability of the transition exit at time *t*, conditional upon that exit has not yet occurred, is defined as the hazard or "risk" function:

$$h(t,\theta) = \lim_{\Delta \to \infty} \frac{P(t \le T \le t + \Delta | T \ge t)}{\Delta} = \frac{f(t,\theta)}{S(t,\theta)} \tag{6}$$

$f(t,\theta)$ being the density function and θ a vector of parameters to be estimated. Here, *t* is the number of months spent in transition after leaving school until the first job. We estimate the following discrete time proportional hazard model with the "frailty" term θ_i:

$$h(t,X,\theta) = \theta_1 \lambda_0(t)\, \mathrm{Exp}(\alpha WS_i + \beta X1_i + \delta X2_{it}) \tag{7}$$

θ_i represents the individual-specific random effect that accounts for unobserved sources of heterogeneity and is assumed to take a multiplicative form. $\lambda_0(t)$ is a baseline hazard that summarises the duration dependence in the hazard common to each *i*. It is the instantaneous risk of exiting the transition when all covariates are zero. It is expressed either as a logarithmic or a polynomial function of the survival time *t* per individual-month.[4] WS is work/study, the variable of interest. X1 and X2 are, respectively, the vectors of fixed and time-varying explanatory variables, and α, β, and δ are coefficient and vectors of coefficients to be estimated. The hazard model (7) is estimated by maximum likelihood using a gamma distribution for the unobserved individual heterogeneity (Jenkins, 1995, 1997; Meyer, 1990).

4 | DATA AND DESCRIPTIVE STATISTICS

4.1 | Data source

We used data from the School-to-Work Transition Surveys (SWTS) for Benin, carried out between December 2014 and January 2015 by the Institut National de la Statistique et de l'Analyse Economique (INSAE) in collaboration with the International Labor Organization (ILO) and the MasterCard Foundation in a project entitled "Work4Youth." The 2014–2015 SWTS is a nationally representative sample of individuals 15–29 years old. The survey used a six-section questionnaire to collect rich, detailed information about young individuals, including personal and household demographic characteristics, formal education/training, employment history, and aspirations.

4.2 | Data summary and definition of variables

The Benin SWTS includes information for 4306 individuals aged 15–29 who were interviewed. We removed 1370 of these individuals who had never been in school. Our main equation was run on a sample of 1162 youth who were

no longer in school at the time of the survey because the duration of the school-to-work transition was observed for these individuals only. We accounted for sample-selection issues by additionally considering 1771 youth who were still in school at the time of the survey.[5] The variables used in this study are defined in Table A1.

The main outcome variable is the transition from school to first job, expressed as the transition period and defined as the number of months the youth spent in transition between leaving school and first job. The first job is either salary work or self-employment (we excluded unpaid family work—that is, work for the benefit of the family).[6] Each individual was observed over a defined time interval *T*; the lower limit is the month and year of leaving school, and the upper limit corresponds to the month and year in which the respondent started her or his first job or the month and year of the survey, in cases in which the youth had not left the transition period at the time of the survey.

Work/study is the "treatment" variable of interest. To define this variable, we used the following survey question: "Have you ever worked while studying (outside apprenticeship)?" Answers were either (a) "no," (b) "yes, during the school year," (c) "yes, outside the school year (summer break, holiday)," or (d) "yes, during and outside the school year." The variable "work/study" was thus defined as a dummy variable with a value of 1 if the youth was involved in remunerated jobs while in school and 0 if not. Of the 1162 individuals aged 15–29, 17.38% had worked while studying.

Other variables (mostly time-invariant) that were included in the econometric analysis are defined in Table A1. A few remarks on the explanatory variables that may help strengthen the identification strategy are worth making here. For example, the parental occupation is important to capture the income or wealth level of the household, as well as social networks which significantly ease the transition to work in the context of Benin (as shown by the statistics reported earlier in Section 2). Also, the current residence of the youth (urban/rural and geopolitical department) at the time of the survey may have changed from her or his residence at the point at which the transition began. We thus additionally controlled for whether the youth had always lived in the same community (not moved) because residence-related variables could reflect social-mobility potentially linked to the transition-to-work period. Other variables were intended to serve as proxies for fixed, unobserved individual characteristics that might also have explained work/study behaviour (Geel & Backes-Gellner, 2012; Wenz & Yu, 2010). One of these was information concerning life goals. This variable captured unobserved individual motivations or aspirations that may have influenced both the decision to choose work/study earlier and post-schooling labour-market behaviour. Finally, we introduced a categorical variable to identify the reason why the individual stopped studying; this variable stood as a proxy for specific individual shocks that may have affected school-leaving decisions.

Three macroeconomic variables were included in the econometric analysis. The first was gross domestic product (GDP) per capita in constant prices. This variable took into account macroeconomic conditions in the country that may have influenced labour-market behaviour or created financial constraints. The second was the youth unemployment rate, which was taken to reflect variations in labour-market conditions over time (changes in labour regulations, for example). Both variables are included in the hazard model as time-variant variables. However, in the multi-equation model (1)–(3), they were averaged for each individual over the transition period. These two variables captured economic shocks that could have influenced individuals' decisions. The third variable was the percentage of primary-school-age children who were not enrolled in primary or secondary school; this was used as a selection variable in the multi-equation model and was averaged for each individual over the school-attendance period. These macroeconomic variables stemmed from the World Bank's annual World Development Indicators database.

4.3 | Descriptive statistics

Table 1 summarizes the transition profile of the 1162 youth who had left school at the time of the survey. The transition was observed between January 1993 and December 2014. For those who had exited the transition period, the median age upon entering the transition period was approximately 22; it was 15 for youth who were still in the transition at the time of the survey. The median age for individuals who had left the transition was 25, and the

TABLE 1 Transition from school to first job: A summary

	Sample of youth that already left school (1162)	
	Those who exited from the transition	Those still in the transition
% of youth	40.19	59.81
Median transition-to-work period (years/months)	1.75/21	4.42/53
Median age of entering in the transition (years)	22.08	15.25
Median age of exiting from the transition (years)	25	-
% that exited into self-employment	23.84	-
% that exited into salary work	16.35	-
% that had immediate transitions (transition length of 0) among those who transited	21.84	-

Source: Calculations based on 2014 SWTS data.

median transition-to-work period was 1.75 years. This figure is close to those found for (transited) youth in francophone Africa: on average 1 year in Côte d'Ivoire, one-and-a-half years in Burkina Faso, and nearly 5 years in Cameroon (Garcia & Fares, 2008). The median (unfinished) transition-to-work period for individuals who had not yet left the transition from school to first job was more than 4 years.

The exit from the transition was also gender-sensitive. Men were more likely (42.01%) to exit the transition period than were women (38.33%). The fact of being a man may offer more opportunities for work/study, which allowed men to exit the transition earlier. Cultural and sociological constraints often limit African women's participation in the labour market, and this is especially true in Benin. The cumulative distribution function of the duration of the transition period by gender shows that men had a higher probability of exiting earlier (Figure 1). This remained true through the 150th month, at which point the probability for both sexes was about equal.

Table 2 shows the distribution of youth who worked while studying. We report statistics for those who had already left school and those still in school at the survey time. A large proportion of youth in our sample were full-time students. A small percentage of those with work/study experience worked only during the school year. Part-time work has been reported to have a negative effect on students' academic performance when it is done for long hours during schooling days (Anlezark & Lim, 2011; Jewell, 2014). Youth in our sample seemed, in general, more likely to work part-time during summer breaks and holidays, suggesting a reduced impact on academic performance.

The data in Table 2 also indicate no clear differences in whether or not respondents were still in transition or in the type of work performed by those with work/study experience. Those who performed some work during summer or holiday breaks alone were relatively better represented among those who had left the transition period and, especially, among those who had transitioned to salary work. Those with combined work experience during and outside of school were more prevalent among those who had transitioned to self-employment.

Data from the 2014 SWTS for Benin do not report the characteristics of the work performed by youth while studying. As is common in Benin, however, that work was likely to be casual or undertaken in small businesses owned by their families. The motivations of youth to undertake work/study experiences, as recorded in the 2012 SWTS for Benin, were mostly to "earn money" or "help family" and less to "acquire work experience or consolidate a resume" or "establish contacts for possible future employment"—in other words, for financial reasons more than out of career aspirations, probably due to their living conditions during the study. There can be no doubt, nonetheless, that they may still acquire worthwhile skills, of which they may have been unaware, such as management or other abilities beneficial for attracting future employment.[7]

Further descriptive statistics on sociodemographic variables are presented in Table 3. Significant differences were observed only in some cases. Young people who worked during their studies seemed to have, on average, a

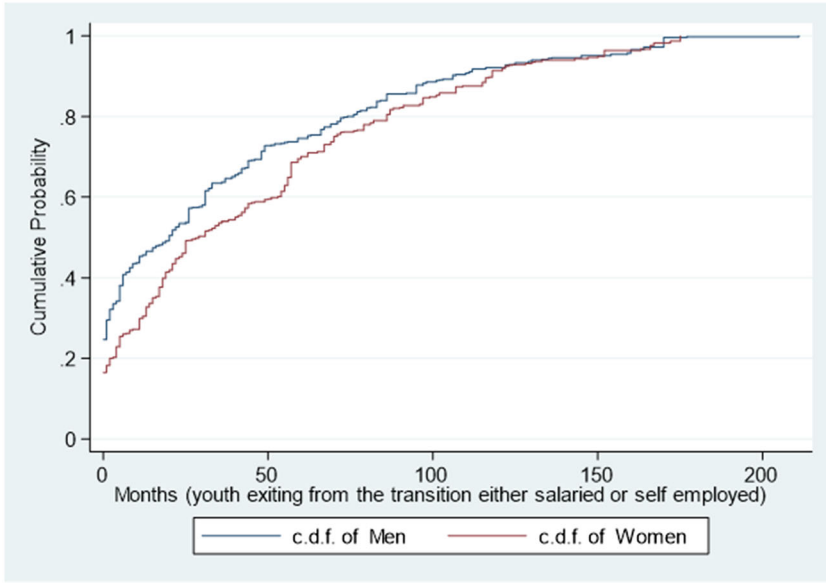

FIGURE 1 Cumulative distribution function of the duration of the transition period by gender [Colour figure can be viewed at wileyonlinelibrary.com]

briefer transition period from school to first job compared to those who focused only on their studies. Table 3 also shows that, on average, individuals who worked during schooling were those who left school with at least a secondary education, suggesting that time spent on work while studying may not impede school performance, as discussed above.

Young men and those whose parents worked in agricultural-related activities seemed more inclined to work while studying. They engaged in activities often reserved for men and which were likely to be performed at specific times of the year. Women, in contrast, were often confined to housework, a phenomenon more common in agricultural households and especially in rural areas where a male workforce was more often required.

Individuals with no work/study experience were more likely to receive general academic training. They were also more likely to leave school for economic reasons or with the aspiration of having a good family life, suggesting that they may have left school early in order to work full time rather than combine work and study. This was more likely for those for whom school was unaffordable or who lived in poorer households; these respondents were also more likely to need money to help their families, as shown by the figures on life goals in Table 3.

5 | RESULTS AND DISCUSSION

5.1 | Estimation results from the duration of transition model

Table 4 reports results related to the duration of the transition from school-to-work period (full results are available in Table A3). Specification A is the standard interval regression—without accounting for sample-selection bias and endogeneity. Specification B corrects for potential non-random selection bias. Specification C (our main specification) adds the correction of potential endogeneity in the treatment variable to A and B through external IV.

Specifications D and E conduct sensitivity analysis to check whether the relationship between work/study and the duration of the transition period are robust to changes of specifications and samples. Specification D restricts

TABLE 2 Distribution (%) of youth who ever worked while studying

	Sample of youth that already left school					Sample of youth still in school at the time of survey
	Total (1162)	Those still in transition (695)	Those not in transition (467)	Those exited into salary work (190)	Those exited into self-employment (277)	Total (1771)
(a) Worked during the school year	3.44	3.31	3.64	3.68	3.61	2.15
(b) Worked outside the school year (summer break and holiday)	6.97	6.04	8.35	11.05	6.50	9.15
(c) Worked during and outside the school year	6.97	5.61	8.99	7.37	10.11	6.38
(d) Worked in any of the categories above (a + b + c)	17.38	14,96	20,99	22,11	20,22	17,68
Among (d)						
(e) Had additionally an experience of internships or apprenticeships during study	16.34	14.42	18.37	26.19	12.50	13.38
(f) Not worked	82.62	85.04	79.01	77.89	79.78	82.33

Source: Calculations based on 2014 SWTS data.

the sample to those whose work-search period was less than the 99th percentile (207 months).[8] While, in the context of Benin, it is quite common for people to search quite a long time for a job, those showing an excessively high job-search period may actually also have fewer incentives to look for work or may stop their searches temporarily or permanently. Finally, specification E uses constructed IVs and can be seen as a robustness check of specification C.[9]

In the multi-equation modelling framework (specifications C, D, and E), pairwise correlations between the error term of the endogenous treatment equation (Equation 3) and of the duration of transition equation (Equation 1) are all significant and take the expected sign, indicating the potential existence of treatment endogeneity biases. A simple joint significance test on the instruments shows that our instruments are jointly statistically significantly correlated to the likelihood of work/study (Equation 3). In addition, as shown in Table A2, we performed additional tests on the Lewbel's constructed instruments (Lewbel, 2012, 2018a) using a two-stage least square (2SLS) regression method with a continuously updated GMM estimator (Baum et al., 2007).[10] Our set of constructed instruments strongly passed the standard test of weakness of instruments, the Hansen J overidentification test and the Breusch-Pagan test for homoscedasticity of the error term of the endogenous variable, as proposed in Lewbel (2012, 2018a).

The various estimation results shown in Table 4 all indicate that work/study reduces the length of the school-to-first-job transition period. When potential selection and endogeneity biases are *not* taken into account (A), work/study experiences reduce the transition period by 12 months. Accounting for selection bias (B), the impact is slightly higher (−13 months). When we corrected for treatment endogeneity (C), the effect was much larger (roughly −39 months, with respect to the average unemployment period of about 59 months in the overall sample). Ignoring sample-selection and, in particular, endogeneity issues would underestimate (in absolute terms) the estimated coefficient of work/study, creating a downward bias. This may mean that people with unobserved academic skills were

TABLE 3 Descriptive Statistics

Variables	Total sample (1162) Mean	Sample of youth who worked while studying (202) Mean	Sample of youth who did not work while studying (960) Mean	Mean *t* test
Time-invariant variables				
Duration of the transition (months)	58.52 (52.63)	42.32 (43.38)	62.22 (53.93)	***
Head (of household) or spouse	0.44	0.41	0.45	
Gender: Male	0.48	0.59	0.45	***
Married before	0.13	0.09	0.14	
Have children	0.44	0.38	0.46	
Live always area	0.88	0.88	0.88	
Secondary educ	0.47	0.57	0.44	**
Domain study	0.85	0.74	0.87	**
Parental education				
No schooling	0.46	0.52	0.44	
Primary education	0.27	0.17	0.30	***
At least secondary education	0.26	0.30	0.25	
Milieu: Urban	0.70	0.67	0.71	
Age at school-leaving	16.11 (4.82)	17.02 (5.03)	15.91 (4.76)	
Reasons to stop study				
Drop out	0.29	0.33	0.28	
Work/married/ parents/ distance/others	0.20	0.18	0.21	
Economic	0.31	0.19	0.34	***
Graduated	0.19	0.28	0.16	*
Life goal				
Professional	0.20	0.29	0.18	
Social	0.04	0.05	0.03	
Money	0.35	0.41	0.34	
Family	0.40	0.26	0.44	***
Profession of parents				
Agricultural	0.25	0.38	0.22	**
Elementary	0.23	0.17	0.24	
Other	0.51	0.43	0.52	
Macroeconomic variables				
Youth unemployment rate	1.95 (0.24)	1.95 (0.27)	1.95 (0.24)	
GDP per capita	350,580 (16,378)	351,514 (17,669)	350,367 (16,098)	

TABLE 3 (Continued)

Variables	Total sample (1162) Mean	Sample of youth who worked while studying (202) Mean	Sample of youth who did not work while studying (960) Mean	Mean *t* test
Children out of school	29.73 (11.93)	28.76 (11.19)	29.95 (12.07)	

Note: Standard deviation in brackets for continuous variables.
*$p < 0.10$. **$p < 0.05$. ***$p < 0.01$. *Source*: Calculations based on 2014 SWTS data.

TABLE 4 Estimation results of the duration of the school-to-first-job transition period

Outcome: Duration of transition	(A) Interval regression: Eq1	(B) Interval regression with sample selection: Eq1	(C) Interval regression with endogenous treatment and sample selection (with external IV): Eq1	(D) Interval regression with endogenous treatment, sample selection (with external IV and excluding potential outliers): Eq1	(E) Interval regression with endogenous treatment, sample selection (with constructed IV): Eq1
Work/study	−11.642**	−12.593***	−38.549**	−37.395**	−37.484**
corr(e.Eq2, e.Eq1)		−0.511***	−0.560***	−0.617***	−0.555***
corr(e.Eq3, e.Eq1)			0.361*	0.367*	0.346*
corr(e.Eq2, e.Eq3)			−0.390	−0.381	−0.420**
Joint significance test of all instruments (chi2)			14.01	14.27	9.67
Prob > chi2			0.0295	0.0268	0.0463
Observation	1162	2910	2909	2896	2910
Uncensored	1056	1056	1056	1043	1056
Left-censored	106	106	106	106	106
Right-censored	0	0	0	0	0
Selected		1162	1162	1149	1162
Nonselected		1748	1747	1747	1748

Note: All regressions also control for urban/rural and department residency. Eq1 identifies Equation 1 presented in Section 3.2. Full results, including parameters of Equations 2 and 3, are shown in Table A4.
*$p < 0.10$. **$p < 0.05$. ***$p < 0.01$. *Source*: Calculations based on 2014 SWTS data.

less likely to work while studying, but those same skills would have helped them in reducing the duration of the transition period.

When we restricted our analyses to those whose work-search period was less than the 99th percentile (207 months), the effect, though reduced (−37 months), was still strongly significant (as expected because we

excluded those with extremely long search periods). There was practically no difference when we used constructed instruments in the endogenous treatment equation. Because our identification came from different sources (external and constructed IVs) and specifications C to E yield very close estimates, we had sufficient confidence that our estimated effects were reliable. Finally, the coefficients of the other explanatory variables took the expected sign or were not statistically significant.

5.2 | The hazard of exiting the transition from school to the first job

Table 5 shows the estimation results of the discrete-time proportional hazards model that incorporates unobserved heterogeneity. We report as well estimations results of the hazard model without unobserved heterogeneity. Both specifications include a quadratic formulation of the baseline hazard function.[11] Table 5 also displays the estimated gamma variance, which is the proportion of the random term variance in the total variance from the estimation of the hazard model incorporating unobserved individual heterogeneity. The value of the gamma variance is 3.214, and the likelihood ratio test does not reject its significance at 5% level, suggesting the presence of individual unobserved heterogeneity indeed. This type of heterogeneity generally appears in non-experimental data. Nicoletti and Rondinelli (2010) show that ignoring that heterogeneity in the duration model could result in biased estimated coefficients of the explanatory variables.

The signs of the significant estimated coefficients of the explanatory variables are consistent throughout the estimations' results. In Table 5, we report both the estimated hazard coefficients and the hazard rate.[12] Accounting for the unobserved individual heterogeneity increases the estimated hazard coefficients in absolute value. The comparison between the two specifications in Table 5 suggests that omitting unobserved heterogeneity would bias downward the estimated hazard coefficient of Work/study.

There is a significant and positive relationship between Work/study and the hazard of exiting the transition from school to the first job. The instantaneous probability of exiting the transition after leaving school increases with the experience of work while studying. The value of the hazard rate of work/study indicates that the expected hazard rate is approximately two times higher for youth who have worked during studies compared to their counterpart.

5.3 | Heterogeneous effects in the hazard of exiting the transition

We estimated additional regressions to explore whether the above-estimated impact of work/study differed among youth groups. The regression results of the hazard model with unobserved heterogeneity, presented in Table 6 show significant heterogeneous impacts of work/study by gender and education level.

There is a significant and positive relationship between work/study and the hazard of exiting the transition from school to the first job for men. The estimated coefficient of work/study is not significant for women. The hazard rate of exiting the transition is approximately three times higher for youth men who have worked during studies than their male counterparts. Youth women who have worked during studies have a hazard rate not statistically different from their female counterparts. The results suggest either that the types of economic activities performed by men may have been more favourable to later transition to work or that the local environment viewed men who had acquired skills in work/study experiences more positively than if women did so. Relatedly, the post-schooling life goals of women in Benin may differ from those of men. Women, for example, are more likely to look for maternity and household chores than are men, and local market conditions are more discriminatory against women such that any acquired skill is less valuable in the labour market.

Regarding the level of education, Table 6 shows that the hazard of quitting the transition increases with work/study as the youth left school with at least a secondary education level. Previous estimation results above show that

TABLE 5 Estimates of hazard of exiting the transition from school to the first job

	Model without unobserved heterogeneity		Model with unobserved heterogeneity	
	Hazard coeff	Hazard rate	Hazard coeff	Hazard rate
Work/study	0.2875*	1.3331*	0.5907**	1.8053**
Age leave school in month (*t*)	0.0336***	1.0341***	0.0578***	1.0595***
t (spell month identifier, by subject)	−0.0289***	0.9715***	−0.0299***	0.9706***
t squared	0.0001***	1.0001***	0.0001*	1.0001*
Head or spouse (of household)	−0.2393	0.7872	0.0240	1.0243
Gender: Male	0.0907	1.0949	−0.0989	0.9059
Have children	−0.5575***	0.5727***	−1.5860***	0.2047***
Live always area	−0.1729	0.8412	0.1036	1.1091
Educ secondary	−0.3920***	0.6757***	−0.5278**	0.5899**
Domain study	0.2054	1.2280	−0.2368	0.7891
Life goal (Social) (reference is: Professional)	0.4438	1.5586	−0.1419	0.8677
Life goal (Money)	0.2110	1.2349	0.1433	1.1540
Life goal (Family)	0.1734	1.1893	−0.0515	0.9498
Father has primary education (reference is: No education)	−0.3214*	0.7251*	−0.4753*	0.6217*
Father has at least secondary education	−0.2385	0.7878	−0.6044*	0.5464*
Mother has primary education (reference is: Education)	−0.0081	0.9919	−0.0416	0.9593
Mother has at least secondary education	−0.2188	0.8035	0.3939	1.4828
Elementary profession of parents (reference is: Agricultural)	−0.3738*	0.6881*	−1.0481***	0.3506***
Other profession of parents	−0.0737	0.9290	−0.2061	0.8138
Milieu: Urban	−0.0094	0.9907	−0.4780**	0.6200**
Stop study (Work/married/parents/distance/others)	0.0923	1.0967	−0.0066	0.9934
Stop study (Economic)	−0.0764	0.9264	−0.3840	0.6811
Stop study (graduated) (reference is: Drop out)	0.4677**	1.5963**	−0.0544	0.9471
Youth unemployment rate	0.8327***	2.2995***	1.3606***	3.8986***
GDP per capita	−0.0000**	1.0000**	0.0000	1.0000
Constant	−10.4999***	0.0000***	−21.7325***	0.0000***
Variance gamma	3.336		3.214	
LR test of gamma var = 0 (chibar2)	69.042		48.9434	
Prob ≥ chibar2	0.000		1.3e-12	
Number of unit (individuals)	1162	1162	1162	1162
Observations	65,209	65,209	65,209	65,209

*$p < 0.10$. **$p < 0.05$. ***$p < 0.01$. *Source*: Authors' calculations using data from SWTS (2014).

leaving school with at least a secondary education level reduces the transition spell (Table A3). Still, those with that education level have the "risk" to exit the transition at a rate 0.59 time less than that of youth who have left the school with an elementary education level (Table 5). Hence, this suggests that work/study experience, coupled with

TABLE 6 Hazards estimations of exiting from the transition from school to the first job: heterogenous impacts

	By sex (hazard rate)		By level of education (hazard rate)	
	Female	Male	At least secondary	Elementary
Working while studying	0.7600	2.9600**	3.0013**	1.0345
Age leave school in month (*t*)	1.0582***	1.0598***	1.0590***	1.0613***
t (spell month identifier, by subject)	0.9847**	0.9592***	0.9637***	0.9735***
t squared	1.0000	1.0001***	1.0002*	1.0000
Head or spouse (of household)	1.1167	1.1097	1.1809	1.0484
Have children	0.0919***	0.4243**	0.2704***	0.1646***
Live always area	1.2658	0.9534	1.6726	0.7349
Educ secondary	0.5906	0.6371		
Domain study	0.7329	0.7826	0.5014	0.8672
Life goal (Social) (reference is: Professional)	0.8104	1.1044	1.0121	0.4509
Life goal (Money)	0.7743	1.3919	1.3906	0.9070
Life goal (Family)	0.8739	0.7992	1.0307	0.7150
Father has primary education	0.8463	0.4394**	0.5820	0.8766
Father has primary education (reference is: No education)	0.4308*	0.6707	0.6291	0.5804
Father has at least secondary education	0.9782	1.0316	1.1593	0.7176
Mother has primary education (reference is: Education)	2.0630	1.3410	1.5760	0.4306
Mother has at least secondary education	0.4947	0.2444***	0.3503*	0.3576**
Elementary profession of parents (reference is: Agricultural)	1.2122	0.6016	1.1575	0.5603
Other profession of parents	0.9982	0.4134**	0.4682*	0.8613
Milieu: Urban	1.2751	0.8085	3.1781**	0.4806*
Stop study (Work/maried/parents/distance/others)	1.2092	0.3421**	2.8308**	0.2504***
Stop study (Economic)	0.9816	0.8964	1.5979	0.7121
unemployment_youth	3.9102***	4.0078***	4.0478***	4.1533***
GDP per capita	1.0000	1.0000	1.0000	1.0000
Gender: Male			1.1127	0.8356
Constant	0.0000***	0.0000***	0.0000***	0.0000***
Variance gamma	2.969	3.149	3.929	2.652
LR test of gamma var = 0 (chibar2)	4.417	46.775	28.1647	17.8749
Prob ≥ chibar2	0.01779	4.0e−12	5.6e-08	0.000012
Number of unit (individuals)	586	576	554	608
Observations	35,911	29,298	19,460	45,749

*$p < 0.10$. **$p < 0.05$. ***$p < 0.01$. *Source*: Authors' calculations using data from SWTS (2014).

at least some secondary education, was likely to be more beneficial for early entry into the labour market. Also, work/study experiences undertaken at a higher education level may be more qualifying and may more closely match labour demands.

6 | CONCLUSIONS AND POLICY IMPLICATIONS

Long school-to-work transition spells represent a big socio-economic issue for African countries that serious and effective actions should be taken urgently. Several programmes or strategies have been implemented in Benin over the last decade to deal with youth unemployment. One government strategy is the youth volunteer programme that provides young people seeking first jobs the chance to learn in public and private businesses *after* graduation. In this study, we explored the potential of an alternative, complementary, approach that may smooth the transition of youth to the labour market.

We analysed the effect of work experience *while* studying on the ability of youth to transition from school to first job in Benin. Our analyses focused on adolescents, and most of the in-school work experiences we examined were jobs performed during summer breaks or holidays. Among various possible (a priori) undetermined effects on employment, work/study may help youth acquire work experience before they leave school, allowing them to become familiar with the barriers or impediments to employment that most post-graduation interventions and policies are already trying to address.

Our multi-equation modelling—which corrected for treatment endogeneity and sample-selection biases—and the estimation of the hazard of exiting from the transition add to the scarce literature on the effects of "work/study" on the transition-to-work period. Our results show that work/study is negatively related to the transition-to-work period and increased the hazard of quitting the transition. Significant heterogeneous impacts were also found: work/study eased the transition from school to first job for men and for youth who left school with at least a secondary education level. Unfortunately, however, our data did not allow us to determine the kind of work youth performed during their studies and, therefore, possible sources of differences between boys and girls.

The results here provide useful information for the implementation of effective employment policies that can accelerate the transition of young people to their first job at the end of their studies. The results draw attention to the importance of temporary job experiences for youth during summer breaks or holidays and of expanded school programmes that include apprenticeships.

The policy implications regarding change or reorientation in existing strategies for dealing with youth unemployment in Benin are clear. Existing programmes/projects address youth unemployment post-schooling, giving youth training and skills that are valued by potential employers only after graduation. Job policy interventions need to be reoriented or extended in order to promote or encourage the engagement of young people in well designed in-school work experiences. In order to extend the benefits of such programmes to women, additional research is needed into the type of in-school work boys and girls perform, and interventions must be designed to reduce labour-market constraints against women (during and after school). Otherwise, interventions may serve only to increase the gender employment gap.

ACKNOWLEDGEMENTS

The authors are grateful to Abdelkrim Araar and Jorge Davalos for technical support and guidance, to two anonymous referees for excellent comments, and to Sessinou Erick A. Dedehouanou, Urielle Judith Tossou, and Mahouli Mireille-Marie Mintogbe for their feedback on an earlier draft of this paper, as well as to participants to 2017 (Nairobi) and 2018 (Bangalore) PEP Annual Conferences, to 2018 PEGNet Conference in Cotonou, and to 2019 UNU WIDER Conference in Bangkok for their valuable comments and suggestions.

This research was carried out with financial and scientific support from the Partnership for Economic Policy (PEP) and with funding from the Department for International Development (DFID) of the United Kingdom (or UK Aid) and the Government of Canada through the International Development Research Center (IDRC).

DATA AVAILABILITY STATEMENT

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

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ENDNOTES

[1] Both equations form what is called, in the impact-evaluation literature, the endogenous treatment-regression model or the endogenous dummy-variable model (Cameron & Trivedi, 2005; Wooldridge, 2010).

[2] Government decree of 21 November 2015.

[3] The "frailty" term is commonly interpreted as the impact of (unobserved) omitted variables on the hazard rate.

[4] Note that the estimation of the discrete time duration model requires reorganizing the cross-section database into unbalanced panel data, using information on the month-year of leaving school (the starting point of the transition) and the duration of the transition. The panel data make it possible to exploit time varying variables corresponding to the different months-years in which the youth was "at risk" of exiting from the transition.

[5] Three observations were removed because of missing values and inconsistencies in the data.

[6] Studies mostly define the transition period as time elapsed after leaving school—either upon graduation or upon early exit without completion—until the first moment of employment in any job or the first regular job (Fares et al., 2005). The ILO SWTS applies the definition of the school-to-work transition as "the passage of a young person (aged 15 to 29) from the end of schooling to the first regular or satisfactory job" (Elder, 2009). Unfortunately, we were not able to use the definition of ILO SWT because too few observations (73) exited with a first regular or satisfactory job, compared to our more flexible definition of exiting as either a salary work or self-employed (467). Yet it is worth noting that all of the youth in our sample who had exited from the transition, using our definition, did not report any other job until 2014, the time of the survey. The time elapsed from the first job until 2014 was more than 1 year for about 91% of respondents and more than 2 years for 78% of them. Hence, we can assume that our definition of first job refers to a fairly stable job.

[7] Most of the youth from the SWTS database aspire to succeed professionally.

[8] The 99th was an arbitrarily choice of threshold for possible outliers. A lower threshold does not qualitatively change our results.

[9] To check whether youth with zero transition length drove the results, we ran the main specification on a sample that excludes those with immediate transition and reporting, as a reason for leaving school, "failure in exams or no interest for schooling" (i.e., those who are more likely to drop out of schools while they work during schooling. The results, reported in Table A4, hold, although the magnitude decreases to around −32.

[10] To the best of our knowledge, however, there are no suitable tests for IV validity that control for possible selection bias.

[11] We got similar estimation results for the specification without unobserved heterogeneity and including a logarithmic formulation for the duration dependence. Convergence issues arose when estimating the model with unobserved heterogeneity incorporating the logarithmic form of the baseline hazard.

[12] Note that only the signs matter for the estimated hazard coefficients while the hazard rate is interpreted, with respect to the unity, as the percentage change in the hazard for a one-unit change in the covariates.

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How to cite this article: Dedehouanou, S. F. A., Tiberti, L., Houeninvo, G. H., & Monwanou, D. I. (2021). Working while studying: Employment premium or penalty for youth? *Journal of International Development*, 1–27. https://doi.org/10.1002/jid.3605

APPENDIX A. ADDITIONAL TABLES

TABLE A1 Description of variables

Variables	Definition of variables
Working while studying	Has worked while studying = 1; 0 otherwise
Head or spouse (of household)	Is the head of the household or the spouse of the head = 1; 0 otherwise
Gender: Male	Is a male = 1; 0 otherwise
Married before	Is married for the first time before leaving school = 1; 0 otherwise
Have children	Have one or more living children = 1; 0 otherwise
Live always area	Has always lived in that commune (not moved) = 1; 0 otherwise
Educ secondary	Has attained at least the secondary education level = 1; 0 otherwise
Age leave School	Age (in years) when left school
Domain study	Has being student in a general programme = 1; 0 otherwise
Father has no schooling	Father has no schooling education level = 1; 0 otherwise
Father has primary education	Father had attained the primary education level = 1; 0 otherwise
Father has at least secondary education	Father had attained at least the secondary education level = 1; 0 otherwise
Mother has no schooling	Mother has no schooling education level = 1; 0 otherwise
Mother has primary education	Mother had attained the primary education level = 1; 0 otherwise
Mother has at least secondary education	Mother had attained at least the secondary education level = 1; 0 otherwise
Agricultural profession of parents (reference)	Agriculture and qualified agricultural workers = 1; 0 otherwise
Elementary profession of parents	Elementary profession = 1; 0 otherwise
Other profession of parents	Others professions = 1; 0 otherwise
Milieu: Urban	Resides in an urban area = 1; 0 otherwise
Stop study (drop out) (reference)	Has interrupted study because of: not pass exam/no interest for school = 1; 0 otherwise
Stop study (Work/married/parents/distance/others)	Has interrupted study because of: work/married/parents/distance/others = 1; 0 otherwise
Stop study (Economic)	Has interrupted study for economic reason = 1; 0 otherwise
Stop study (graduated)	Has interrupted study because for graduation = 1; 0 otherwise
Life_goal	His most important objective in life
Life goal (Professional) (reference)	Succeeding professionally = 1; 0 otherwise
Life goal (Social)	Contributing to society = 1; 0 otherwise
Life goal (Money)	Earn lots of money = 1; 0 otherwise
Life goal (Family)	Have a good family life = 1; 0 otherwise
Youth unemployment rate (during transition)	Youth unemployment rate at the national level (from World Development Indicators database). Averaged on the transition period.
GDP per capita (during transition)	Gross domestic product (GDP) per capita in constant prices at the national level (from World Development Indicators database). Averaged on the transition period.
Children out of school (during schooling)	The percentage of primary-school-age children who are not enrolled in primary or secondary school (from World Development Indicators database). Averaged on the schooling period.

TABLE A2 Weak identification and overidentification tests

	Constructed instruments
Weak identification test (Cragg–Donald Wald *F* statistic)	26.228
Hansen *J* statistic (overidentification test of all instruments)	5.402
p	0.141
Breusch–Pagan/Cook–Weisberg test for Ho: Constant variance (chi2)	245.79
Prob > chi2	0.000
Observations	1162

Note: Survey weights included. Parameters for all the other variables are not reported.
Source: Calculations based on 2014 SWTS data.

TABLE A3 Estimation results of the duration of the school to first job transition period (showing full results of Table 4)

	Interval regression (without corrections) (A)	Interval regression with correction of sample selection (B)		Interval regression with Correction of sample selection and endogenous treatment (with external IV) (C)		
	Duration of transition: Eq1	Duration of transition: Eq1	Leave school: Eq2	Duration of transition: Eq1	Leave school: Eq2	Work/ study: Eq3
Work/study	−11.642**	−12.593***	0.218	−38.549**	0.891*	
Head or spouse (of household)	4.484	3.743		3.515		0.005
Gender: Male	4.242	4.099	0.107	4.156	0.094	0.122
Have children	26.309***	22.931***		23.240***		
Live always area	4.329	4.905	−0.341*	3.067	−0.282	−0.403***
Age leave School in year	−6.844***	−6.681***	−0.910***	−6.672***	−0.873***	
Educ secondary	−9.540***	−9.245***		−9.474***		
Domain study	−0.330	−1.932	0.381***	−5.518	0.469***	−0.637***
Life goal (Social) (reference is: Professional)	13.983	14.478*	0.170	14.434*	0.135	0.070
Life goal (Money)	0.763	−1.072	0.768***	−1.076	0.730***	0.071
Life goal (Family)	2.590	0.719	0.472***	−1.230	0.493***	−0.246**
Father has at least secondary education	7.665**	7.390*	−0.216	7.185*	−0.200	−0.139
Father has at least secondary education	4.105	5.091	−0.048	4.323	−0.016	−0.156
Mother has at least secondary education	3.636	4.195	0.070	3.181	0.084	−0.094

TABLE A3 (Continued)

	Interval regression (without corrections) (A)	Interval regression with correction of sample selection (B)		Interval regression with Correction of sample selection and endogenous treatment (with external IV) (C)		
	Duration of transition: Eq1	Duration of transition: Eq1	Leave school: Eq2	Duration of transition: Eq1	Leave school: Eq2	Work/ study: Eq3
Mother has at least secondary education	5.557	4.557	−0.156	4.510	−0.152	−0.061
Elementary profession of parents	10.529**	8.689*	−0.028	4.981	0.061	−0.625***
Other profession of parents (reference is: Agricultural)	2.267	1.726	−0.016	0.183	0.023	−0.230**
Stop study (Work/ married/parents/ distance/others)	−4.694	−4.074		−4.032		
Stop study (Economic)	−0.378	−0.356		−0.501		
Stop study (graduated) (reference is: drop out)	−6.362	−5.957		−5.736		
Youth unemployment rate	33.780***	13.481		12.117		
GDP per capita (in 000's)	−0.307*	0.126		0.167		
IV: Exposure to education reform for 1 year						−0.170
IV: Exposure to education reform for 2 years						0.038
IV: Exposure to education reform for 3 years						−0.410
IV: Exposure to education reform for 4 years						0.017
IV: Exposure to education reform for 5 years						0.273
IV: Exposure to education reform for 6 years						0.660**
Married before			10.009***		9.900***	0.455**
Children out of school			0.631***		0.607***	
Constant	210.007***	102.552	3.023***	101.864	2.499**	0.289
corr(e.Eq2, e.Eq1)		−0.511***		−0.560***		

(Continues)

TABLE A3 (Continued)

	Interval regression (without corrections) (A)	Interval regression with correction of sample selection (B)		Interval regression with Correction of sample selection and endogenous treatment (with external IV) (C)		
	Duration of transition: Eq1	Duration of transition: Eq1	Leave school: Eq2	Duration of transition: Eq1	Leave school: Eq2	Work/ study: Eq3
corr(e.Eq3, e.Eq1)				0.361*		
corr(e.Eq2, e.Eq3)				−0.390		
Observation	1162	2910		2909		
Uncensored	1056	1056		1056		
Left-censored	106	106		106		
Right-censored	0	0		0		
Selected		1162		1162		
Nonselected		1748		1747		

	Interval regression with endogenous treatment, sample selection (with external IV and excluding potential outliers) (D)			Interval regression with endogenous treatment, sample selection (with constructed IV) (E)		
	Duration of transition: Eq1	Leave school: Eq2	Work/ study: Eq3	Duration of transition: Eq1	Leave school: Eq2	Work/ study: Eq3
Work/study	−37.395**	0.880*		−37.484**	0.930***	
Head or spouse (of household)	1.443		0.015	3.546		−0.006
Gender: Male	2.602	0.102	0.122	4.472	0.087	0.044
Have children	22.366***			23.467***		
Live always area	2.628	−0.286	−0.401***	3.276	−0.275	−0.328***
Age leave School in year	−6.159***	−0.846***		−6.670***	−0.873***	
Educ secondary	−9.788***			−9.187***		
Domain study	−5.106	0.469***	−0.635***	−5.148	0.470***	−0.651***
Life goal (Social) (reference is: Professional)	13.835	0.118	0.068	14.491*	0.128	0.127
Life goal (Money)	−2.340	0.712***	0.074	−0.820	0.720***	0.091
Life goal (Family)	−2.437	0.482***	−0.247**	−0.857	0.492***	−0.245**
Father has at least secondary education	7.801**	−0.203	−0.137	7.192*	−0.199	−0.137
Father has at least secondary education	4.860	−0.011	−0.154	4.239	−0.013	−0.181*
Mother has at least secondary education	1.483	0.095	−0.093	3.320	0.085	−0.137
Mother has at least secondary education	1.737	−0.145	−0.058	4.757	−0.147	−0.084
Elementary profession of parents	4.183	0.059	−0.631***	5.172	0.063	−0.649***
Other profession of parents (reference is: Agricultural)	0.862	0.022	−0.233**	0.206	0.022	−0.266***

TABLE A3 (Continued)

	Interval regression with endogenous treatment, sample selection (with external IV and excluding potential outliers) (D)			Interval regression with endogenous treatment, sample selection (with constructed IV) (E)		
	Duration of transition: Eq1	Leave school: Eq2	Work/ study: Eq3	Duration of transition: Eq1	Leave school: Eq2	Work/ study: Eq3
Stop study (Work/married/ parents/distance/others)	−5.141			−4.064		
Stop study (Economic)	0.610			−0.592		
Stop study (graduated) (reference is: Drop out)	−5.549			−5.810		
Youth unemployment rate	11.185			11.827		
GDP per capita (in 000's)	0.214			0.167		
IV: Exposure to education reform for 1 year			−0.172			
IV: Exposure to education reform for 2 years			0.036			
IV: Exposure to education reform for 3 years			−0.412			
IV: Exposure to education reform for 4 years			0.020			
IV: Exposure to education reform for 5 years			0.281			
IV: Exposure to education reform for 6 years			0.668**			
Constructed iv_Sex						0.544***
Constructed iv_Live_always_area						−0.554*
Constructed iv_Life_goal						−0.008
Constructed iv_Occupation_parents						0.129
Married before		9.673***	0.455**		9.760***	0.450**
Children out of school		0.591***			0.607***	
Constant	84.967	2.317**	0.289	101.270	2.495***	0.339
corr(e.Eq2, e.Eq1)	−0.617***			−0.555***		
corr(e.Eq3, e.Eq1)	0.367*			0.346*		
corr(e.Eq2, e.Eq3)	−0.381			−0.420**		
Observation	2896			2910		
Uncensored	1043			1056		
Left-censored	106			106		
Right-censored	0			0		
Selected	1149			1162		
Nonselected	1747			1748		

Note: In all regressions, we control for urban/rural and department residency.
*$p < 0.10$. **$p < 0.05$. ***$p < 0.01$. *Source*: Authors' calculations using data from SWTS (2014).

TABLE A4 Estimation results of the duration of the school to first job transition period (alternatives specification: removing immediate transitions and with "failure exams or no interest in schooling" as a reason for dropping out)

	Interval regression with endogenous treatment, sample selection (with external IV and excluding potential outliers)		
	Duration of transition: Eq1	Leave school: Eq2	Work/study: Eq3
Work/study	−32.232**	−0.087	
Head or spouse (of household)	6.944*		0.036
Gender: Male	4.577	−0.015	−0.035
Have children	16.610***		
Live always area	7.007	−0.318	−0.396**
Age leave School in year	−5.569***		
Educ secondary	−8.844**		
Domain study	−2.625	−0.006	−0.712***
Life goal (Social) (reference is: Professional)	12.825	0.263	0.090
Life goal (Money)	4.077	0.561***	0.049
Life goal (Family)	2.223	0.559***	−0.279**
Father has at least secondary education	3.715	−0.270	−0.126
Father has at least secondary education	6.174	−0.068	−0.205*
Mother has at least secondary education	−3.350	0.145	−0.137
Mother has at least secondary education	−4.432	−0.136	−0.201
Elementary profession of parents	10.294**	−0.075	−0.466***
Other profession of parents (reference is: Agricultural)	4.339	−0.098	−0.102
Stop study (Economic)	3.360		
Stop study (graduated) (reference is: Work/married/ parents/distance/others)	2.958		
Youth unemployment rate	17.073		
GDP per capita (in 000's)	−0.217		
Exposure to educ reform for 1 year			−0.355*
Exposure to educ reform for 2 years			−0.035
Exposure to educ reform for 3 years			−0.583**
Exposure to educ reform for 4 years			−0.009
Exposure to educ reform for 5 years			0.234
Exposure to educ reform for 6 years			0.471
iv_Sex_			
iv_Live_always_area			
iv_Life_goal			
iv_Occupation_parents			
Married before		12.102***	0.386
Children out of school		0.709***	
Constant	207.530***	3.360***	0.334

TABLE A4 (Continued)

	Interval regression with endogenous treatment, sample selection (with external IV and excluding potential outliers)		
	Duration of transition: Eq1	**Leave school: Eq2**	**Work/study: Eq3**
corr(e.Eq2, e.Eq1)	−0.416***		
corr(e.Eq3, e.Eq1)	0.349*		
corr(e.Eq2, e.Eq3)	0.044		
Observation	2503		
Selected	756		
Nonselected	1747		

Note: In all regressions, we control for urban/rural and department residency.
*$p < 0.10$. **$p < 0.05$. ***$p < 0.01$. *Source*: Authors' calculations using data from SWTS (2014).