

PUBLICATIONS with Abstracts

1. Aubery, Frédéric, John Giles, and David E. Sahn. 2016. “Do Apprenticeships Provide Skills Beyond the Master’s Trade? Evidence on Apprenticeships, Skills and the Transition to Work in Senegal.” Unpublished manuscript.

ABSTRACT: Traditional apprenticeships offer a “second chance” opportunity for youth to acquire skills that will benefit them in the labor market. Informal training through an apprenticeship involves transmission of sector specific knowledge from a master craftsman to an apprentice. The paper takes advantage of a panel dataset designed to study the transition to adulthood in Senegal to explore the role of the Senegalese traditional apprenticeship training in the transition to work. The paper shows that, while selection into apprenticeship is mostly driven by the lack of formal schooling and serious delays in educational progression by teenage years, apprenticeship experience is associated with positive returns in the labor market. Former apprentices are more likely to work outside of agriculture, especially the young men in the lower end of the skills distribution. Moreover, conditional on education, apprentice experience is associated with higher earnings. The paper next explores whether apprenticeship are associated with improvements in cognitive skills. A value-added model is used to estimate a production function of cognitive skills during teenage years, and the paper shows that apprenticeship experience does not contribute to the development of numeracy or literacy skills.

2. Aubery, Fred, and David E. Sahn. 2014. “Cognitive Achievement Production in Madagascar: A Value-Added Approach.” Unpublished manuscript.

ABSTRACT: The aim of this paper is to model school achievement for Malagasy young adults, with a focus on learning since their teenage years. The panel dimension of our dataset allows us to estimate a “value added” model in which we explain individual final achievement by controlling for a measure of earlier knowledge. Results suggest a strong effect of additional schooling and acceleration in learning. Moreover, parents’ education, that appears to be a strong predictor of early knowledge acquisition, has less impact on later achievement.

- Fall Seck, Aichatou, and David E. Sahn. 2017. “Internal Migration among Senegalese Youth.” Unpublished manuscript.

ABSTRACT: This paper analyses the determinants of internal migration among young people in Senegal. Using a rich dataset from the Senegal Life Course Transition of Young Adults Surveys (2011-13) and the Enquête sur le Bien-être des Ménages au Sénégal (2003), we estimate migration decision as a function of socio-economic and community characteristics as well social capital/networks via both a Logit and a Cox proportional Hazard model. We find that age, gender, dropping out of school, getting married as well as living outside of birthplace are associated with higher likelihood of migration. In addition, while transfers/remittances destined to the whole household has a negative effect on individual migration, its effect is positive when is is specifically destined to the cohort members. Furthermore, access to social capital/contact at destination has a significant positive effect on migration, however, this effect is

differentiated by the kind of resources provided by the contact. In fact, the effect of social network is mainly through the provision of housing. Furthermore, we found that these effects are larger for migration to urban areas. The magnitude of these effects are also differentiated by level of wealth of recipient. Access to a contact that provides only information increases the likelihood of migration of individuals from wealthier households who are able to fund their own migration.

4. Glick, Peter, Christopher Handy, and David E. Sahn. 2015. "Schooling, Marriage, and Childbearing in Madagascar." *Population Studies* 69 (2): 219–236.

ABSTRACT The low school attainment, early marriage, and low age at first birth of females are major policy concerns in less developed countries. This study jointly estimated the determinants of educational attainment, marriage age, and age at first birth among females aged 12–25 in Madagascar, explicitly accounting for the endogeneities that arose from modelling these related outcomes simultaneously. An additional year of schooling results in a delay to marriage of 1.5 years and marrying 1 year later delays age at first birth by 0.5 years. Parents' education and wealth also have important effects on schooling, marriage, and age at first birth, with a woman's first birth being delayed by 0.75 years if her mother had 4 additional years of schooling. Overall, our results provide rigorous evidence for the critical role of education—both individual women's own and that of their parents—in delaying the marriage and fertility of young women.

5. Glick, Peter J., Christopher Handy, and David E. Sahn. 2015. "Schooling, Marriage, and Age at First Birth in Madagascar." IZA Discussion Paper No. 8795, Institute of Labor Economics, Bonn (*also available as GLM/LIC Working Paper No. 2, January 2015*).

ABSTRACT Low female schooling attainment, early marriage and low age at first birth are major policy concerns in developing countries. This paper jointly estimated the determinants of educational attainment, marriage age and age of first birth among females 12 to 25 years of age in Madagascar, explicitly accounting for the endogeneities that arose from modeling these related outcomes simultaneously. An additional year of schooling resulted in a delay of marriage by 1.5 years. Marrying one year later delayed the age of first birth by 0.5 years. Parental education and wealth also had important effects on schooling, marriage and age at first birth: among other findings, a woman's first birth was delayed by 0.75 years for four additional years of schooling of her mother. Overall, the results provided rigorous evidence for the critical role of education – both own education and that of parents – in delaying marriage and fertility of young women.

10. Glick, Peter J., David E. Sahn, and Thomas F. Walker. 2016. "Household Shocks and Education Investment in Madagascar." *Oxford Bulletin of Economics and Statistics* 78 (6): 792–813.

ABSTRACT: This paper investigates the impact of exogenous shocks to household income, assets and labour supply on children's school attendance in Madagascar. The analysis uses a unique data set with 10 years of recall data on school attendance and household shocks. We find that the probability of a child dropping out of school increases significantly when the household experiences an illness, death or asset shock. We propose a test to distinguish whether the impact of shocks on school attendance can be attributed to credit constraints, labour market rigidities, or a combination of the two. The results suggest that credit constraints, rather than labour market rigidities, explain the

inability of households in Madagascar to keep their children in school during times of economic stress.

11. Glick, Peter J., David E. Sahn, and Thomas F. Walker. 2014. "Household Shocks and Education Investment in Madagascar." IZA Discussion Paper No. 8731, Institute of Labor Economics, Bonn (*also available as GLM/LIC Working Paper No. 19, August 2016*).

ABSTRACT: This paper measured the extent to which households in Madagascar adjust children's school attendance in order to cope with exogenous shocks to household income, assets and labour supply. Our analysis was based on a unique data set with 10 years of recall data on school attendance and household shocks. We found that the probability of a child dropping out of school increased significantly when the household experienced an illness, death or asset shock. We proposed a test to distinguish whether the impact of shocks on school attendance could be attributed to credit constraints, labour market rigidities, or a combination of the two. The results of the test suggested that credit constraints, rather than labour market rigidities, explain the inability of households in Madagascar to keep their children in school during times of economic distress.

12. Herrera, Catalina, and David E. Sahn. 2017. "Early Childbearing, School Attainment and Cognitive Skills: Evidence from Madagascar." *Demography*, forthcoming

ABSTRACT: Female secondary school attendance has recently increased in Sub-Saharan Africa; however, the higher likelihood of attending school after puberty has put girls at risk of becoming pregnant while attending school. Using a panel survey designed to capture the transition from adolescence to early adulthood, we analyze whether teenage pregnancy contributes to lower school attainment and cognitive skills among young women in Madagascar. We address the endogeneity between fertility and education decisions by instrumenting early pregnancy with the young woman's access to condoms at the community level, and her exposure to condoms since she was 15 years old. We control for an extensive set of community social infrastructure characteristics to deal with the endogeneity of program placement. Our instrumental variable results show that having a child increases the likelihood of dropping out of school by 42% and decreases the chances of completing lower secondary school by 44%. This school-pregnancy related dropout is associated with a reduction of 1.1 standard deviations in the Math and French test scores. These results are consistent with hazard model estimations: delaying the first birth by a year increases the probability of current enrollment by 5% and the Math and French test scores by 0.2 standard deviations. (*abstract and copy of this paper from 2015 draft*).

13. Herrera, Catalina, and David E. Sahn. 2015. "The Impact of Early Childbearing on Schooling and Cognitive Skills among Young Women in Madagascar." IZA Discussion Paper No. 9362, Institute of Labor Economics, Bonn (*also available as GLM/LIC Working Paper No. 5, March 2016*).

ABSTRACT: Female secondary school attendance has recently increased in Sub-Saharan Africa and so has the risk of becoming pregnant while attending school. Using panel data in Madagascar, we analyze the impact of teenage pregnancy on young

women's human capital. We instrument early pregnancy with the young woman's community-level access, and exposure to condoms since age 15. We control for an extensive set of community social and economic infrastructure characteristics to deal with the endogeneity of program placement and conduct several robustness checks to validate our instruments. Early childbearing increases the likelihood of dropping out of school by 42 % and decreases the chances of completing secondary school by 44%. This school-pregnancy related dropout is associated with a reduction of 1.1 standard deviations in Math and French test scores. Delaying the first birth by a year increases the probability of current enrollment by 5% and the test scores by 0.2 standard deviations.

14. Herrera, Catalina, and David E. Sahn. 2013. "Determinants of Internal Migration Among Senegalese Youth." Working Paper # 2013-08, CERDI, Clermont-Ferrand.

ABSTRACT: We analyze the socio-economic determinants of youth decision to internally migrate in Senegal. Young people undertake mostly rural-to-rural and urban-to-urban migrations and over half of them are temporary migrants. Using multinomial logit models, we estimate the role of household and community characteristics during childhood in later youth migration decisions. We find that these determinants are heterogeneous by gender and destination. The higher the fathers' education the more (less) likely are their daughters to move to urban (rural) areas. Young individuals, who spend their childhood in better off households, are more likely to move to urban areas. Also, the presence of younger siblings increases the propensity of moving to rural areas. Access to primary schools during childhood decreases the likelihood of migrating to urban areas for both men and women.

15. Herrera, Catalina, and David E. Sahn. 2013. "Determinants of Internal Migration Among Senegalese Youth." CFNPP Working Paper No. 245, Cornell Food and Nutrition Policy Program, Ithaca, NY.

ABSTRACT: We analyze the socio-economic determinants of young people's decisions to internally migrate in Senegal. Far from a rural-to-urban story, youth undertake mostly rural-to-rural and urban-to-urban migrations. In our sample of 2,676 individuals, aged 21 to 35 years, 35% are internal migrants, and over half can be defined as temporary migrants. Using multinomial logit models, we estimate the role of early childhood household and community characteristics in young people's decision to migrate. We find that determinants of youth migration are heterogeneous by gender and destination. The higher the fathers' education the more (less) likely are their daughters to move to urban (rural) areas. Young men and women, who spend their childhood in better off households, are more likely to move to urban areas. Also, the presence of younger siblings increases the propensity of moving to rural areas. Access to primary schools during childhood decreases the likelihood of migrating to urban areas for both men and women.

9 citations in Google Scholar

16. Herrera, Catalina, and David E. Sahn. 2017. "Childhood Determinants of Youthful Migration in Senegal." GLM|LIC Working Paper No. 28, April, c/o IZA, Bonn

ABSTRACT: We analyze the childhood socio-economic determinants of youth decision to internally migrate in Senegal. Young people undertake mostly rural-to-rural and urban-to-urban migrations and over half of them are temporary migrants. Using multinomial

logit models and a unique household survey in Senegal, we estimate the role of household and community characteristics during childhood in later youth migration decisions. We find that these determinants are heterogeneous by gender and destination. The higher the fathers' education the more (less) likely are their daughters to move to urban (rural) areas. Young individuals, who spend their childhood in better off households, are more likely to move to urban areas. Also, the presence of younger siblings during childhood increases the propensity of moving to rural areas. Access to primary schools in the childhood residence decreases the likelihood of migrating to urban areas for both men and women.

17. Herrera, Catalina, David E. Sahn, and Kira M. Villa. 2016. "Teen Fertility and Labor Market Segmentation: Evidence from Madagascar." IZA Discussion Paper No. 10464, Institute of Labor Economics, Bonn (also available as *GLM/LIC Working Paper No. 27, April 2017*). *Journal of African Economies* Revise and Resubmit.

ABSTRACT: Women represent the majority of informal sector workers in developing countries, especially in Sub-Saharan Africa where adolescent pregnancy rates are high. Little empirical evidence exists concerning the relationship between teen fertility and the likelihood that a woman will be employed in the informal sector. Using a panel survey in Madagascar designed to capture the transition from adolescence to adulthood, we estimate a multinomial logit model to capture the effect of the timing of first birth on female selection into four categories: non-participation, informal, formal, and student. To address the endogeneity of fertility and labor market outcomes, we instrument the timing of first birth using young women's community-level access, and duration of exposure to family planning. Our results suggest that motherhood increases the probability of employment for young women and that women whose first birth occurs during adolescence largely select into low-quality informal jobs. This effect is partially, but not entirely, mediated by the effect of teen pregnancy on schooling.

18. Herrera Almanza, Catalina, Fred Aubery, Francesca Marchetta, Aurore Pélissier, Harivelo Rajemison, Faly Rakotomanana, David E. Sahn, and Kira Villa. 2013. "Madagascar Young Adult Transitions Survey: Preliminary Descriptive Results." CFNPP Working Paper No. 251, Cornell Food and Nutrition Policy Program, Ithaca, NY.

INTRODUCTION: The transition from adolescence to adulthood is a critical period in the life course. The decisions that young people and their families make regarding transitions from school into work, marriage, and parenthood will affect their opportunities and well-being for the rest of their lives. For example, given the exhaustively documented link between the level of education and individual earnings, choices about how long to continue schooling will be a major determinant of the eventual standard of living enjoyed by young men and women. For young women in particular, changes in the timing of other key transitions, such as a longer delay of marriage and motherhood, may lead to significant changes in their ability to engage in productive and remunerative work and to achieve economic and social parity with men. Delays of marriage and motherhood may also significantly reduce health risks to young women that occur through early pregnancy and heightened HIV risk from older spouses...

...Our project made substantive contributions in two ways. First, we collected and made publicly available high-quality panel data from Madagascar covering young people from early primary school age to early adulthood, data that will provide the required longitudinal dimension and will be designed to permit a range of non-experimental approaches to causal inference. These surveys form a cohort panel following children from around age 8 (for about half the sample) or age 15 (for the remainder) to their early 20s. The 2003 and 2004 household surveys were complemented by community surveys and school surveys that provided detailed information on the local environment and services, including family planning services. These new surveys re-interviewed the cohort members and their households and updated the community information. The survey instrument for the second 2012–13 surveys can be viewed at:

<http://www.saga.cornell.edu/Madagascar2010/survey2010.html>

19. Herrera Almanza, Catalina, Fred Aubery, Francesca Marchetta, Aurore Pélissier, Harivelo Rajemison, Faly Rakotomanana, David E. Sahn, and Kira Villa. 2017. “Madagascar Young Adult Transitions Survey: Preliminary Descriptive Results.” GLM|LIC Working Paper No. 26, April 2017, c/o IZA, Bonn.

ABSTRACT: The transition from adolescence to adulthood is a critical period in the life course. The decisions that young people and their families make regarding transitions from school into work, marriage, and parenthood will affect their opportunities and well-being for the rest of their lives. The purpose of this report is to present some descriptive statistics and related analysis of the 2012–13 survey data. We do not attempt to be comprehensive. Rather, our purpose is to provide the reader with a sense of the scope and nature of the data set and some information about the lives of young adults in Madagascar.

20. Herrera Almanza, Catalina, David E. Sahn, and Kira M. Villa. 2017. “Young Mothers are Working, Are They Getting Paid?” Unpublished manuscript.

21. Kaila, Heidi, David E. Sahn, and Naveen Sunder. 2016. “Early Life Determinants of Cognitive Ability: A Comparative Study of Madagascar and Senegal.” Unpublished manuscript.

ABSTRACT: We study the determinants of educational and human capital outcomes of young adults in Madagascar and Senegal using a model of school attainment and a production function for cognitive skills. We use unique and comparable long-term panel data sets from both countries and find that in both countries cognitive skills, measured using test scores in the second grade, are strong predictors of school attainment and cognitive skills in young adulthood. In both countries, second grade math scores more strongly predict adult cognitive skills than do French scores. Early life family conditions, especially wealth when the children begin school, have an enduring impact on test scores of young adults in both countries. We also find that early health status, measured using height as a proxy, influences some of the schooling and cognitive outcomes we measure; but, perhaps of equal importance, the inclusion of health in the model does not diminish the impact of early ability and family background on adult cognition.

22. Marchetta, Francesca, and David E. Sahn. 2016. "The Role of Education and Family Background in Marriage, Childbearing, and Labor Market Participation in Senegal." *Economic Development and Cultural Change* 64(2): 369–403.

ABSTRACT: This article examines the role of education and family background on age at marriage, age at first birth, and age at labor market entry for young Senegalese women. We use a multiple-equation framework that allows us to account for the endogeneity that arises from the simultaneity of the four decisions that we model. Our results highlight the importance of a woman's own education in delaying marriage and that the relationship between her education and the timing of childbearing and of entering the labor market mainly operates through the influence of schooling decisions on the age at marriage. We show that marriage and motherhood decisions are interrelated and that the timing of first birth strongly depends on the duration of marriage. We also shed light on the composite influence of parental education and death shocks on all the outcomes we examine.

23. Marchetta, Francesca, and David E. Sahn. 2016. "The Role of Education and Family Background in Marriage, Childbearing, and Labor Market Participation in Senegal." IZA Discussion Paper No. 8876, Institute of Labor Economics, Bonn (*also available as GLM/LIC Working Paper No. 3, February 2015*).

ABSTRACT: This paper examines the role of education and family background on age at marriage, age at first birth, and age at labor market entry for young Senegalese women. We use a multiple-equation framework that allows us to account for the endogeneity that arises from the simultaneity of the four decisions that we model. Our results highlight the importance of a woman's own education in delaying marriage, and that the relationship between her education and the timing of childbearing and of entering the labor market mainly operates through the influence of schooling decisions on the age at marriage. We show that marriage and motherhood decisions are interrelated and that the timing of first birth strongly depends on the duration of marriage. We also shed light on the composite influence of parental education and death shocks on all the outcomes we examine.

24. Marchetta, Francesca, David E. Sahn, and Luca Tiberti. 2017. "School or Work? The Role of Rainfalls in Madagascar." Unpublished manuscript.

ABSTRACT: Climate change is particularly important issue in Madagascar, a poor island nation that is frequently affected by droughts, floods and cyclones. We examine the impact of weather events on schooling and work among a cohort of teens and young adults by estimating a bivariate probit model using data from 210 localities over the period 2004 to 2011. Our results show that rainfall deviations and cyclones reduce the probability of attending school and push young men, and to a great extent women, into the work force. Hardest hit are the less wealthy households, as one would expect, given their more limited savings, and access to credit and insurance which limits their ability to cope with negative weather shocks. We observe both contemporaneous and lagged effects of the weather shocks which are of a similar magnitude.

25. Sahn, David E., Catalina Herrera, Francesca Marchetta, Kira Villa, Peter Glick, Ahmadou Mbaye, Harivelo Rajemison, Aichatou Fall, Christopher Handy, Aurore Pélissier, Faly Rakotomanana, Naveen Sunder, and Thomas Walker. "Transitions to Adulthood: Education, Skills, and Labor Market Outcomes in Madagascar and Senegal." GLM/LIC

POLICY BRIEF NO. 10, Growth and Labour Markets in Low income Countries
Programme

ABSTRACT: Using unique datasets, we study the transition from adolescence to adulthood in Madagascar and Senegal among a randomly selected cohort of men and women. We analyze the determinants of schooling and formation of cognitive and non-cognitive skills, and how these affect a range of outcomes such as teenage pregnancy, fertility, marriage and the timing of entry into the labor market and the type of work performed. We highlight the importance of schooling and cognitive abilities, but additionally find that family background, including parents' education and assets, and exogenous income shocks and health shocks are also important in explaining the outcomes of interest.

26. Sahn, David E., and Kira M. Villa. 2017. "Labor Outcomes during the Transition from Adolescence to Adulthood: The Role of Personality, Cognition, and Shocks in Madagascar." Under review at *Economic Development and Cultural Change*.

ABSTRACT: There is growing evidence that noncognitive skills affect economic, behavioral, and demographic outcomes in the developed world. However, little such evidence exists from developing countries. This paper estimates the joint effect of five specific personality traits and cognition on a sequence of labor market outcomes for a sample of Malagasy individuals as they transition from adolescence to young adulthood. Specifically we model these individuals' age of entry into the labor market, labor market sectoral selection, and within sector earnings. The personality traits we examine are the Big Five Personality Traits: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Additionally, we look at how these traits interact with household-level shocks in determining their labor market entry decisions. We find that personality, as well as cognitive test scores, affect these outcomes of interest, and that their impact on labor supply is, in part, a function of how individuals respond to exogenous shocks.

27. Sahn, David E., and Kira M. Villa. 2016. "Labor Outcomes during the Transition from Adolescence to Adulthood: The Role of Personality, Cognition, and Shocks in Madagascar." IZA Discussion Paper No. 10359, Institute of Labor Economics, Bonn (also available as *GLM/LIC Working Paper No. 25, April 2017*).

ABSTRACT: There is growing evidence that noncognitive skills affect economic, behavioral, and demographic outcomes in the developed world. However, little such evidence exists from developing countries. This paper estimates the joint effect of five specific personality traits and cognition on a sequence of labor market outcomes for a sample of Malagasy individuals as they transition from adolescence to young adulthood. Specifically we model these individuals' age of entry into the labor market, labor market sectoral selection, and within sector earnings. The personality traits we examine are the Big Five Personality Traits: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Additionally, we look at how these traits interact with household-level shocks in determining their labor market entry decisions. We find that personality, as well as cognitive test scores, affect these outcomes of interest, and that their impact on labor supply is, in part, a function of how individuals respond to exogenous shocks.