

The Impacts of Access to Electricity on Employment, Household Income Growth and Child Labor in Cambodia

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One of the United Nations Sustainable Development Goals (SDG 7) is to ensure access to affordable, reliable and modern energy service for all by 2030. However, as of 2014, 1.2 billion people in the world still did not have access to electricity. Cambodia, one of the fastest growing economies in Southeast Asia, sustained an average growth rate of eight percent in last two decades. That remarkable growth was largely a result of the growth of garment exports, which are driven by electricity. However, Cambodia faces the problem of a substantial disparity in access to electricity between urban and rural areas. Almost universal access to electricity has been achieved in urban areas, but in rural areas fewer than half of households have access. Moreover, Cambodia lags behind other lower middle-income countries in Southeast Asia with respect to investment in education and the incidence of child labor in Cambodia is the highest in the region.

To date, no study has examined the relationship between Cambodia's two foremost development priorities—electricity and children's schooling. The main objective of this dissertation is to examine the role of electricity in improving household welfare, with a focus on household income growth and reduction of child labor—both affected by the expansion of national electricity grid. The first analytical chapter (Chapter 2) presents an

analysis of the impact of household electrification on labor market outcomes of the working age population and on household income, drawing data from nationwide socio-economic household surveys for the period 2004-2017. To eliminate concerns about endogeneity of electricity, I introduce two instruments, (1) population density at village level; and (2) distance between center of village and nearest electricity substation point. I find a strong and positive effect of household electrification on wage employment and self-employment in non-farm sector. The results also suggest that access to electricity decreases self-employment in farm sector and unpaid family work. With respect to household income, the findings show that increased access to electricity contributes to total household income growth through growth of household nonfarm income. To sum up, this chapter shows that electrification facilitated a shift of household economic activities from farm to non-farm activities, which eventually served as the main driver of household income growth. Thus, it is essential to prioritize expansion of rural access to the national electricity grid.

The second analytical chapter (Chapter 3) examines the impact of access to electricity on school attendance and children's years of schooling, through three possible channels: (1) household income; (2) female spouse employment; and (3) incidence of child labor. The results indicate that access to electricity increases total household income, especially through increased non-farm income. However, the analysis does not find any statistical evidence that access to electricity increases female spouse labor force participation, which suggests that child labor is not necessarily reallocated to domestic tasks left behind by the female spouse. Finally, the estimation results show that electrification leads to a significant decrease in the probability that a child is engaged in

economic activity. As for educational attainment, I do not find any statistically significant impact of electricity. Rather, I find that parents' education level has a positive impact on children's attendance in the school system and years of educational attainment. Moreover, there are other factors which increase children's educational attainment from the supply side factors of education, which points to the necessity of upgrading school quality by expanding electricity grid connections to schools. More importantly, the findings suggest a need for the development of the rural non-farm sector so as to increase household income, which in turn increases demand for education, and eventually leads to a decrease in the frequency of child labor.