Early Child Stunting and Gender Inequalities in Work Participation Among Young Filipino Adults

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While there is research to support the theory that early child health affects adult productivity through school achievement, little research has addressed the young adult period when the transition from full time schooling to work occurs and when work represents 'learning experiences' or a 'stepping stone' to a better job. Longitudinal data sets that include measures of early childhood health and of post-schooling activities are very rare, so the direct estimation of associations between early childhood health and post-schooling labor market activities is under-researched.

Mendez and Adair (1997) examined the timing and severity of early child stunting and its effect on cognitive performance in later childhood. Their study revealed that stunting at 2 years old, particularly when severe had a strong association with cognitive performance at 8 and 11 years old. Impaired work capacity is believed to be a consequence of stunting in early childhood. Productivity is low in developing countries where malnutrition, particularly among young children, is recognized as a major public health problem. Recent studies by the Food and Nutrition Research Institute show that about 32% of children 2 years of age in the developing world are stunted (FNRI, 2003). Hence, many well may be less productive or have lower earning capacities in their post-schooling years.

The present study uses a cohort of 1034 young adults (20-22 years old) who report working (for pay) at the time of the last survey in 2005 for whom there is considerable information about their health, including anthropometric measures, when infants and small children. We investigate the effect of early health, specifically stunting at two years of age, to work type among young adolescents. Many of these individuals are in the early stages of their labor market careers who consider jobs as 'learning experiences' or 'stepping stones' to better jobs.

Data and Research Methods

The study uses the data gathered from the community-based Cebu Longitudinal Health and Nutrition Survey (CLHNS). The CLHNS employed a stratified, single-stage sampling design to select 17 urban and 16 rural barangays (smallest administrative unit) in Metro Cebu, Philippines. Households were surveyed and information was collected on all births occurring between May 1,1983 and April 30, 1984. Of the original cohort of 3,080 infants, 1,912 young adults were followed in 2005, including multiple births. In this paper, only young adults who are working at the time of 2005 survey are considered.

Work type is defined using the workers' reports of the several dimensions of job demands, including physical, cognitive and interpersonal skills required. The job-related stress measure is scaled and measured in terms of physical strength, dexterity and coordination, ability to do multiple tasks, mathematics and reading skills and personal interrelationships in the work area. To come up with a work category, we perform cluster analysis of the workers' perceived job-related stress measures and work demand to come up with 2 clusters: job requiring higher educational attainment and less "physically laborious" and the other lower educational requirement but more "physically laborious". Before performing the cluster analysis, we transform the clustering variables to z-scores to eliminate the effect of different measurement scales in the clustering. To describe the 2 clusters, we present mean scores of the clustering variables. Logistic regression analysis is employed to describe the relationship between work type and stunting at two years old, adjusting for child and household characteristics.

More females have higher education and have jobs requiring higher education and less "physically laborious" than males. A mismatch in the education vis-à-vis employment requirements and utilization seems to show in the study. More than half of the subjects have worked in the past. Initial results show that controlling for child and household characteristics, early health as represented by stunting at 2 years old, significantly affect the work outcome among young male adolescents.

Table 1. Characteristics of the subjects by work type

Characteristic	Type of work	
	Higher education and less physically laborious (n=441)	Lower education but more physically laborious (n=593)
Sex		
Male	43.1	63.7
Female	56.9	36.3
Nutritional status at two years old (Height-for-age)		
Stunting	56.5	70.6
normal	43.5	29.4
Major occupational group		
Professional, technical and related work	7.0	1.9
administrative, executive , managerial	1.1	1.0
clerical worker	20.2	2.0
sales worker	12.5	26.1
Farmers, fishermen, hunters, loggers and related workers	.2	5.1
Miners, quarrymen and related workers	0.0	0.3
Workers in transport and communication	2.5	11.8
Craftsmen production, process workers and laborers	43.5	39.5
Service and sports related workers	12.9	12.5
Job order		
First job	59.7	56.5
Not first	40.3	43.5
Highest Education attainment		
No education	0.0	0.7
Elementary	3.0	27.7
High school	60.1	60.4
College	37.0	11.3
Average daily wage (in Phil peso)	28	31
Average hours work daily	8	7

Table 2. Characteristics of the subjects by sex

Characteristic	Male (n=568)	Female (n=466)
Educational attainment		
No education	0.7	0.0
Elementary	24.5	8.2
High school	57.9	63.1
College	16.9	28.8
Occupation		
Professional, technical and related work	3.5	5.2
Administrative, executive, managerial	0.5	1.4
Clerical work	4.4	13.7
Sales work	15.5	24.9
Farming, fishing, hunting, logging and related work	4.2	0.8
Mining, quarrying, and related work	0.5	0.0
Working in transport and communication	10.4	1.1
Production, process and related work	45.3	39.2
Service, sports and related work	15.7	13.7
Job experience		
Without	59.5	61.1
With	40.5	38.9
Average hourly wage rate (Philippine peso)	30	29
Average hours work daily	6	6

Results of Logistic Regression Analysis of Work Outcome and Stunting and Other Variables

Variables	**Odds Ratio**		**Std. Error**		**95% CI**	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
Stunting at 2 years old(ref=normal)	.56	.80	.14	.21	.34-.90	.48-1.32
Growth (ref=worsen)						
Track	.78	1.27	.22	.37	.44-1.36	.72-2.26
Improved	.83	.98	.24	.28	.47-1.47	.56-1.70
Highest educational attainment	1.57	1.54	.10	.10	1.39-1.78	1.35-1.76
Number of hours work daily	1.14	1.45	.05	.07	1.04-1.2	1.3-1.6
Job experience (with/without)	.85	.99	.20	.22	.54-1.3	.62-1.52
Mother's education	1.09	1.04	.04	.04	1.0-1.2	.97-1.12
Asset index *	1.12	.90	.10	.09	.94-1.33	.74-1.1

*ownership of an air-conditioner, refrigerator, vehicle, television and housing

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