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**TRANSITION TO FINANCIAL
INDEPENDENCE OF YOUTH IN
ASIAN COUNTRIES: DOES
FURTHERING ONE'S EDUCATION
PAY?**

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The term “country” as used in this paper also refers, as appropriate, to territories or areas.

This publication has been issued without formal editing.

PREFACE

The Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat convened an *Expert Group Meeting on Adolescents, Youth and Development* at the United Nations Headquarters in New York, from 21 to 22 July 2011. The meeting was organised in order to commemorate the International Year of Youth established by resolution A/RES/64/134 of the General Assembly and as a preparatory meeting for the forty-fifth session of the Commission on Population and Development scheduled to take place in April 2012 and whose theme would be “Adolescents and youth”.

The meeting brought together experts from different disciplines and regions to present and discuss research on two broad themes: (a) the demographic dynamics that shape the number and characteristics of adolescents and youth, and (b) the ways in which adolescents and young people can be agents of socio-economic development. Selected papers prepared by the experts participating in the meeting are being issued under the Expert Paper Series published on the website of the Population Division (www.unpopulation.org).

The Population Division is grateful to Ms. Nicolle Mum Sim Lai, Senior Lecturer at the Business School of the University of Monash, Malaysia, for having participated in the meeting and prepared this paper on the transition to financial independence of youth in Asian countries. The paper discusses new evidence of the ages at which young people become financially independent and economically self-sufficient in a wide range of economies. The results indicate that the age at reaching financial independence in Asian countries ranges between the ages of 21 (as in China) and 27 years (as in Indonesia) although in a majority of countries youth attain financial independence between the ages of 23 and 25.

Like in other parts of the developing world, young people are postponing the entry into the labour force mostly because they are staying longer in the educational system. The paper shows that the returns to higher education in Asia are quite high, 10 to 20 per cent higher than the OECD average, although not as high as those in Latin American countries.

The *Expert Paper Series* aims at providing access to government officials, the research community, non-governmental organizations, international organizations and the general public to overviews by experts on key demographic issues. The papers included in the series are mainly those presented at Expert Group Meetings organized by the Population Division on the different areas of its competence, including fertility, mortality, migration, urbanization and population distribution, population estimates and projections, population and development, and population policy. The views and opinions expressed in the papers published under this series are those of the authors and do not necessarily reflect those of the United Nations. The papers in the series are released without undergoing formal editing.

For further information concerning the papers in this series, please contact the office of Hania Zlotnik, Director, Population Division, Department of Economic and Social Affairs, United Nations, New York, 10017, USA, telephone (212) 963-3179, fax (212) 963-2147.

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TRANSITION TO FINANCIAL INDEPENDENCE OF YOUTH IN ASIAN COUNTRIES: DOES FURTHERING ONE'S EDUCATION PAY?

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A. INTRODUCTION

An individual goes through two major periods of economic dependency: at youth and old age. This paper focuses on the first period, that is, youth economic dependency and the transition to economic independence, and the role played by education in this process. The paper has two main objectives: the first is to estimate the timing of the transition of young people to financial independence and full economic self-sufficiency. This timing is important for several reasons. The extent and length of their economic dependency has profound generational and gender implications (ECLAC, 2010). In particular, expanding public and private funding for the education of children and youth may require decreasing public and private transfers to older persons in the form of pensions and healthcare spending. A similar trade-off may occur when young people delay their labour force participation to further their education. Knowing when individuals become financially independent can help policymakers design a more realistic mix of human capital investments for the younger population, together with health care and social security for older people, in the context of aging populations.

The second objective of this paper is to examine international and gender differences in the returns to education. Existing research and evidence on the public and private benefits that accrue from education is taken into account. Examples of the public benefits of education include greater productivity and economic growth, decreased criminality, poverty rates, and dependency on public welfare programmes. The private benefits of education are commonly assessed by examining how well individuals with and without education do in terms of earnings and income in general. The analysis of returns to education may also help policymakers to ascertain the net benefits of investments in education. As the number of college students in Asia has risen twelve-fold, from 3.9 million in 1970 to 46.7 million in 2007, it appears that college education, once viewed as a luxury, has now become necessary to obtain higher earnings (UNESCO, 2009). Previous research shows that the average returns to education are about 10 per cent per year of schooling, and that the returns to education for females are higher than for males (Patrinos and Psacharopoulos, 2010). This paper goes one step further by examining the labour income of males and females of China by region (i.e., rural and urban), and whether the large urban-rural income differentials are associated with the educational level of the different population groups.

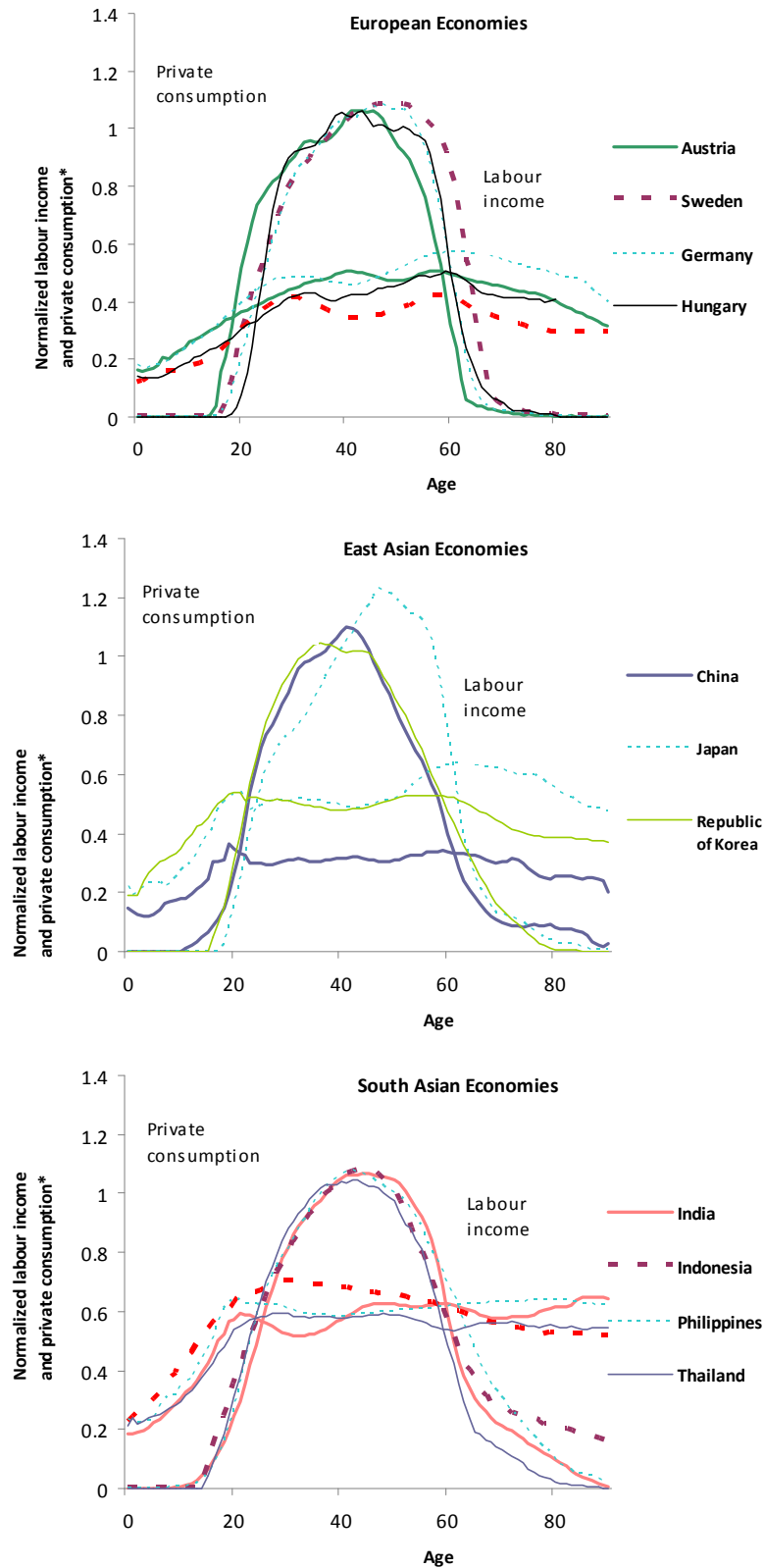
This paper uses data from the National Transfer Accounts (NTA) project and thus differs from existing research in some ways. An important innovation in this analysis is the use of estimates of individual consumption and production by age. This paper draws upon a number of NTA studies that are consistent with National Income Accounts (Mason and others, 2009). A detailed description of the concepts and methods is available on the NTA project website at www.ntaccounts.org. One major difference between the NTA approach and other approaches to study labour income is that NTA measures the earnings of the entire population, including non-workers, while the conventional approaches consider employed or full-time employees only (Lee and Ogawa, 2010). In addition, in NTA both consumption and labour income are estimated at the individual level, which provides opportunities to examine the economic reallocations across ages and to assess associated policy implications.

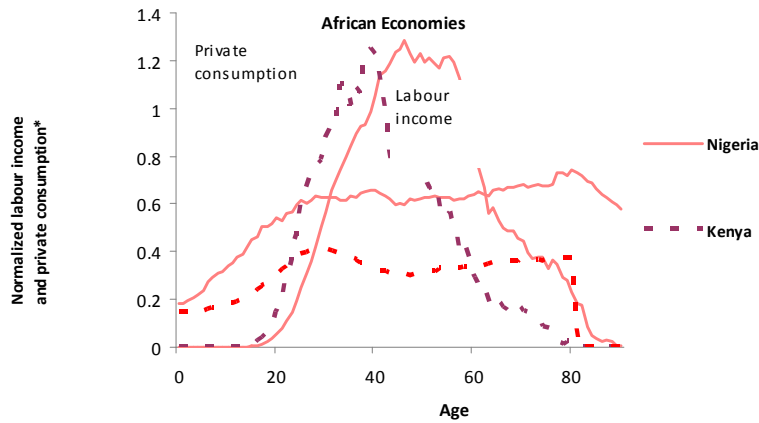
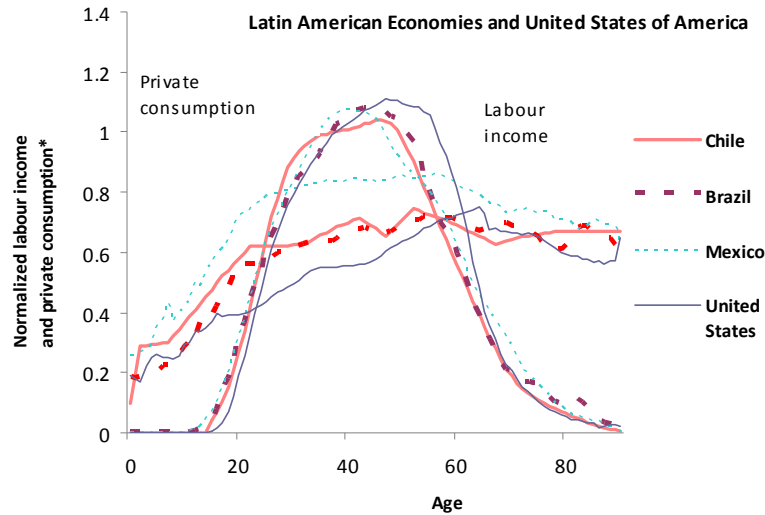
B. FINANCIAL INDEPENDENCE AND FULL ECONOMIC SELF-SUFFICIENCY

When do the young produce more than they consume? One way to address this question is to compare the age profiles of mean (per capita) labour income with the age profiles of mean private consumption. The age where the two curves intercept for the first time is when young people can be considered to have become financially independent. Figure 1 and table 1 present a comparison of the

age profiles and the cross-over ages across countries. It should be noted that private consumption in this paper includes the basic consumption goods such as food, health and housing, as well as education and vocational training.

Figure 1. Per capita labour income and private consumption





* The variables represented in the graph are normalized by dividing labour income and consumption by the average labour income of 30 to 49 year olds

Source: Based on data contributed by NTA members of respective countries: Austria (Samt and Prskawetz, 2011); Chile (Bravo and Holz, 2011); Mexico (Guevara, 2011); USA (Lee and others, 2011); Philippines (Racelis and Salas, 2011); Kenya (Mwabu and others, 2011); Korea (An and others, 2011); Brazil (Turra and others, 2011); China (Ling and others, 2011); Sweden (Hallberg and others, 2011); Nigeria (Soyibo and others, 2011); India (Ladusingh and Narayana, 2011); Japan (Ogawa and others, 2011); Indonesia (Maliki, 2011); Thailand (Phananiramai, 2011); Hungary (Gál and others, 2011); Germany (Kluge, 2011).

We also investigate total consumption, which includes private as well as public consumption; that is, the value of consumption goods and services purchased by individuals in the household and those provided by the government. Public consumption includes education, health care, national defense, public infrastructure, public transportation, and so on.

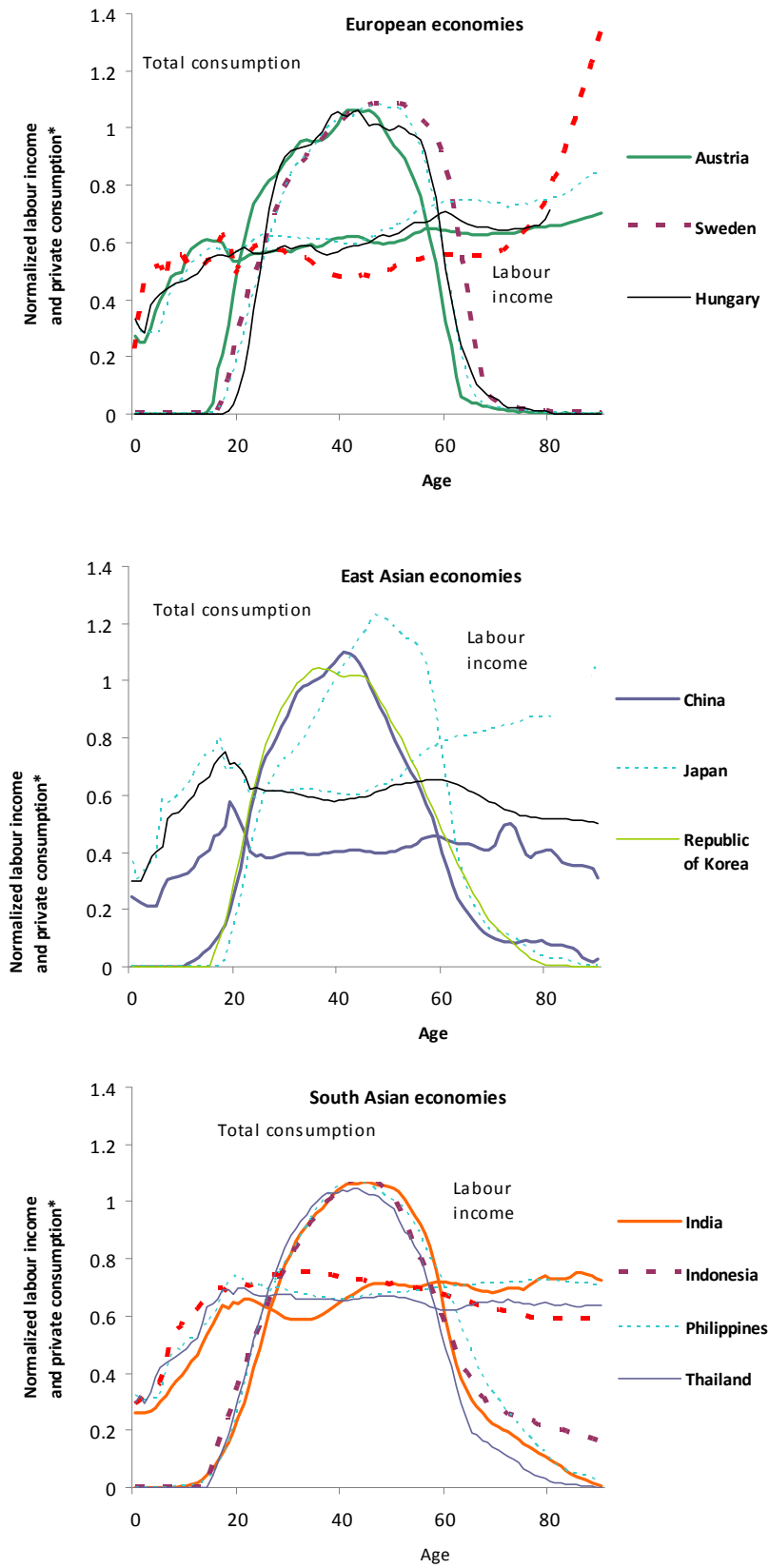
It can be said that young adults become fully economically self-sufficient when their labour income exceeds their total consumption. An international comparison of the ages at the first cross-over of labour income and mean total consumption appears in table 1 and figure 2.

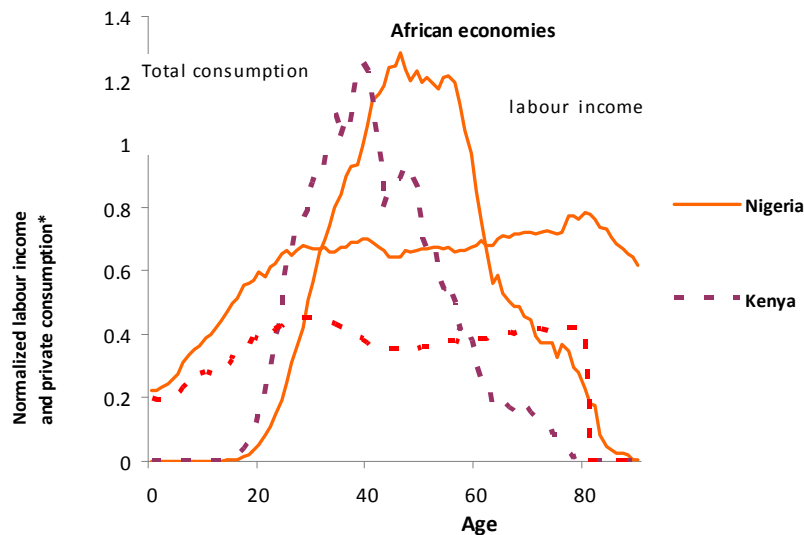
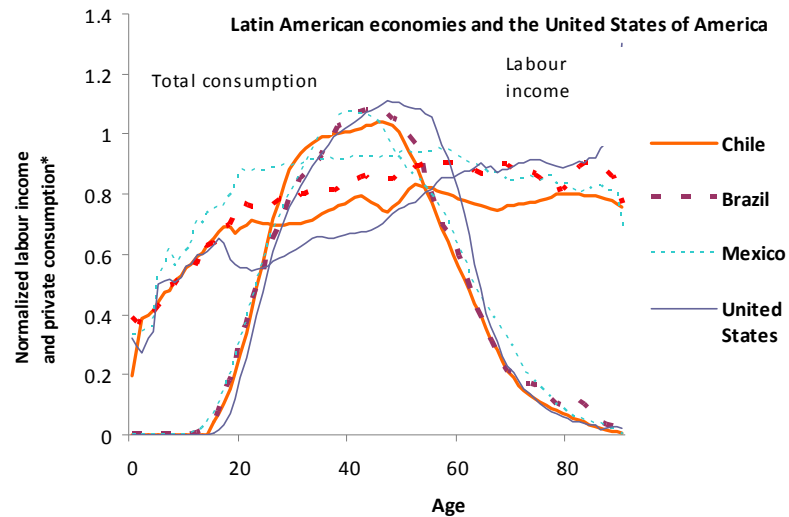
TABLE 1. AGES OF ATTAINMENT OF FINANCIAL INDEPENDENCE AND ECONOMIC SELF-SUFFICIENCY

Country	Financial Independence	Economic Self-Sufficiency
	Age where labour income first exceeds private consumption	Age where labour income first exceeds total consumption
Austria (2000)	19	21
China (2002)	21	23
Sweden (2003)	21	25
Uruguay (2006)	22	24
Finland (2004)	22	26
Kenya (1994)	23	24
Hungary (2005)	23	25
Republic of Korea (2000)	24	25
Slovenia (2004)	24	25
Spain (2000)	24	26
United States (2003)	24	26
Japan (2004)	24	26
Thailand (2004)	24	26
Germany (2003)	24	27
Chile (1997)	25	26
Philippines (1999)	25	27
Costa Rica (2004)	25	27
Brazil (2002)	25	30
India (2004)	26	27
Indonesia (2005)	27	29
Mexico (2004)	30	33
Nigeria (2004)	31	32
Senegal (2005)	33	35

Source: Based on data contributed by NTA members of respective countries: Austria (Sambt and Prskawetz, 2011); Chile (Bravo and Holz, 2011); Mexico (Guevara, 2011); USA (Lee and others, 2011); Philippines (Racelis and Salas, 2011); Kenya (Mwabu and others, 2011); Korea (An and others, 2011); Brazil (Turra and others, 2011); China (Ling and others, 2011); Sweden (Hallberg and others, 2011); Nigeria (Soyibo and others, 2011); India (Ladusingh and Narayana, 2011); Japan (Ogawa and others, 2011); Indonesia (Maliki, 2011); Thailand (Phananiramai, 2011); Hungary (Gál and others, 2011); Germany (Kluge, 2011).

Figure 2. Per capita labour income and per capita total consumption





* The variables represented in the graph are normalized by dividing labour income and consumption by the average labour income of 30 to 49 year olds.

Source: Based on data contributed by NTA members of respective countries: Austria (Samt and Prskawetz, 2011); Chile (Bravo and Holz, 2011); Mexico (Guevara, 2011); USA (Lee and others, 2011); Philippines (Racelis and Salas, 2011); Kenya (Mwabu and others, 2011); Korea (An and others, 2011); Brazil (Turra and others, 2011); China (Ling and others, 2011); Sweden (Hallberg and others, 2011); Nigeria (Soyibo and others, 2011); India (Ladusingh and Narayana, 2011); Japan (Ogawa and others, 2011); Indonesia (Maliki, 2011); Thailand (Phananiramai, 2011); Hungary (Gál and others, 2011); Germany (Kluge, 2011).

Figures 1 and 2 show that the ages at which individuals become financially independent and economically self-sufficient varies across countries. Many factors affect the timing of these transitions in any given county, including the age profiles of labour earnings, asset income, the savings rate, college enrolment, short-term economic fluctuations and government policies (Lee and others, 2008). It should be noted that for this analysis only consumption and labour income data have been employed; future research aiming at a more comprehensive analysis would account for other factors.

As seen in table 1, in most countries, young adults become financially independent between the ages of 23 and 25 years and they reach full economic self-sufficiency between the ages of 25 and

27 years. Young adults in Austria, China and Sweden become financially independent at earlier ages (19 to 21 years). This is because young adults in these countries tend to enter the workforce earlier and they begin to earn significant income than in other countries. Statistics show that about half of the youth aged 20–24 in Austria were active in the labour force and had completed apprenticeships (Mairhuber, 2010). Also, young workers in Austria are compensated relatively well during the early years of their work life, as against workers in other countries such as Japan, which are well paid during the later years of their work life. On the other hand, the early age of financial independence in Sweden (19 to 21) is due to a relatively low private consumption compared to other countries. This is because Sweden has generous public programmes that support young people, which partially substitutes for private consumption. Young Swedish workers become fully self-sufficient at age 25. China, on the other hand, has very low private and public consumption at all ages compared to all other countries. This is associated with the high national saving rate in China, of approximately 50 per cent of the GDP in the 2000s.

One might expect young adults to have early financial independence and self-sufficiency in low-income economies, where many people commence working at a young age. However, the data show that young people in Nigeria, Mexico and Indonesia become financially independent at a rather late age, between the ages of 27 and 33 years of age. One explanation may be that young Nigerians have a difficult time obtaining jobs. Government estimates suggest that only 10 to 20 per cent of the new entrants into the labour force find a formal sector job within one year, while the rest move into the informal sector, where they receive low wages (World Bank, 2008). Nigeria is therefore different from other low-income economies in that labour income of young adults is very low. Mexico and Indonesia are different in that, compared to other countries, they have very high private consumption relative to labour income at all ages. These economies are highly supported by non-labour income such as natural resources and private transfers, including remittances¹.

C. RETURNS TO EDUCATION

More and better education generally results in a higher income potential. The vast empirical literature on the subject quantifies the additional financial returns that come with higher education (Psacharopoulos and Patrinos, 2004; Trostel and others, 2002 among many others). Four main conclusions can be drawn from these studies. First, returns to education for females are higher than for males. Second, graduating from general academic streams (degrees offered at colleges and universities) pays more than graduating from vocational streams. Third, graduating in professional fields such as engineering and medicine pays more than graduating in the humanities. Fourth, completing a degree (secondary school or college) pays more than just spending more years in education (Gunderson and Oreopoulos, 2010).

Understanding the causal relationship between educational level and financial returns is important from a policy perspective. This is because the differences in relative labour income across countries are affected by a number of factors, such as minimum wage legislation, the power of unions and collective agreements, the demand for skilled workers, the distribution of employment among occupations, the relative incidence of part-time and seasonal work, and the supply of workers with different levels of educational attainment (OECD, 2010).

Researchers usually employ three approaches to investigate returns to education. The first uses descriptive statistics to ascertain how average earnings vary by educational level. The second approach is to use the Mincerian earnings function, widely used in the literature. This approach entails estimating a semi-log ordinary least squares regression model, with the natural logarithm of earnings as the dependent variable, and years of schooling, potential years of labour market experience and its square as independent variables. The third approach is to do the full discounting of cost and benefit

¹ Both Nigeria and Indonesia rely highly on oil production, but Indonesia has a more diversified industry sector that provided employment for 18 per cent of labor force in 2005. In contrast, Nigeria industry sector (which mainly focuses on oil production) provided employment for 3.4% of the workforce only in 2006 (Garcia 2008).

streams, which is in principle the most appropriate method because it includes the complete history of earnings and education expenditure over the life-cycle. This method is used less often because it requires extensive time series data with much age detail, which are rarely available.

This section uses the simple descriptive approach to investigate labour income by education in China and then compares the results to those of Latin American and Organization for Economic Co-operation and Development (OECD) countries. It also looks at the returns to education by sex and region. The analysis uses NTA data that encompasses the entire population, including workers and non-workers. This analysis may serve as a basis for more comprehensive studies that could undertake full cost-benefit analyses in the future.

1. Labour income by education

The literature shows that labour income is greater the higher the level of education. The return to higher education is larger in low and middle-income countries than in high-income countries. A global comparison of returns to education using the Mincerian earnings function (see explanation in the previous section) is presented by Psacharopoulos and Patrinos (2004). However, comprehensive estimates of earnings by educational level on Asian countries are limited.

Table 2 and figure 3 present new estimates of mean (per capita) labour income by level of education for China and compares them to Latin American and OECD countries. To facilitate the comparisons, the values in table 2 and figure 3 are indexed, with 100 as the base for upper secondary. Our results indicate that Latin America has the steepest slope of income by educational level, followed by urban China, OECD, and rural China. The returns to higher education in terms of average income are higher in Latin America, with a value about 45 per cent higher than the OECD average and than in China. The relative payoff to higher education in urban China is significant, with values between 10 to 25 per cent higher than the OECD average. One important factor that may be responsible for these differences is the scarcity of human capital in Latin America and Asia (except the Republic of Korea and Japan) relative to OECD countries.

TABLE 2. MEAN LABOUR INCOME BY LEVEL OF EDUCATION (INDEX BASE=100 FOR UPPER SECONDARY)

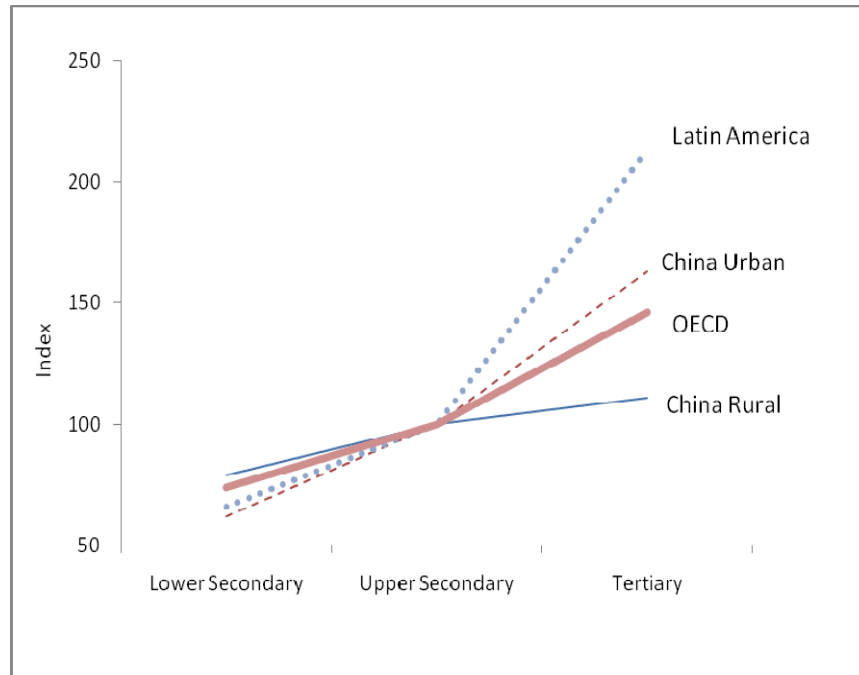
	Lower Secondary	Upper Secondary	Tertiary
China 2002 ^a			
Rural	79	100	111
Urban	62	100	163
China 1995 ^a			
Rural	72	100	76
Urban	79	100	140
Latin America ^b	66	100	213
OECD ^c	74	100	146

^a Estimates provided by Qiulin Chen

^b Patrinos and Psacharopoulos, 2010

^c OECD (2010), table 7.1

Figure 3: Mean labour income by level of education (Index. base=100 for upper secondary)



Source: Patrinos and Psacharopoulos, 2010 for Latin America and OECD.

China is still at a stage of increasing returns to education. Investment in tertiary education is associated with a 63 per cent higher labour income compared to secondary school graduates in 2002. This difference was only 40 per cent in 1995. In China, skilled labour is still relatively scarce and the demand for skilled labour is high (Wu and Xie, 2003). As figure 3 shows, the effect of education on earnings is particularly marked in urban areas, but is very modest in the rural areas of China. This is probably affected by the lower demand for skilled labour in the rural areas, as this market mainly concentrates in agricultural and mining production.

2. Labor income by gender and by region

A major policy question is whether women receive lower returns to education than men. This is of particular concern for low-income to middle-income families who are deciding whether to send a son or daughter to college. In addition, the labour market opportunities are very different in rural and urban contexts for both men and women, especially for developing countries like China. Therefore, the decision on how much education to invest in may vary between rural and urban areas because of the differentials in the returns to education.

This question investigated by breaking down (in table 3) labour income of males and females in China by level of education. Overall, table 3 conforms to the observations made in prior research. Both men and women with higher levels of education receive higher earnings. This was apparent for females in urban areas in China in 2002. In that year, females with an upper secondary school certificate living in an urban area in China had incomes that more than doubled (6,673 Yuans) those of their counterparts with only a lower secondary school certificate (2,964 Yuans). However, the difference in urban China between the income of males with a lower secondary school certificate (5,661 Yuans) and those with an upper secondary school certificate (6,842 Yuans) was not that large. For males in the urban areas of China, tertiary level education provides the highest boost to their earnings (11,305 Yuans).

TABLE 3. MEAN LABOUR INCOME BY EDUCATION LEVEL AND GENDER

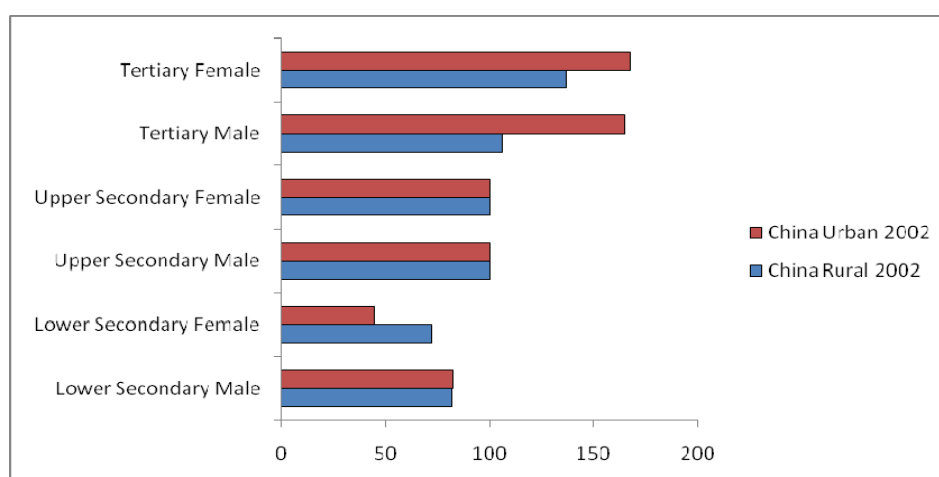
		Lower Secondary		Upper Secondary		Tertiary	
		Male	Female	Male	Female	Male	Female
China (2002) Yuan	Rural	2,991	2,070	3,649	2,857	3,875	3,915
	Urban	5,661	2,964	6,842	6,673	11,305	11,193
China (1995) Yuan	Rural	2,340	1,639	3,175	2,353	2,414	2,347
	Urban	3,991	3,069	4,730	4,487	6,370	6,152

Source: The estimates for China were derived from the China Household Income Project 2002 and 1995 (estimates provided by Quilin Chen).

Another observation is that secondary education seems to yield a higher income than a tertiary education for both males and females living in the rural areas of China. According to the 1995 data, the income levels of both males and females living in rural China with tertiary education are lower than their counterparts with only an upper secondary school certificate. This becomes more apparent for males in the rural areas. Men in rural China with a college education earn almost 25 per cent less (2,414 Yuans) than their counterparts with only an upper secondary school certificate (3,175 Yuans).

Next, we standardize the income levels of males and females, equating the income of males and females with upper secondary school education to 100, so as to facilitate comparisons. In figure 4, their standardized incomes are displayed. The results show that the returns to tertiary education are highest for both males and females in the urban regions of China.

Figure 4. Mean labour income by education level and gender (Upper High Index=100)



Source: Estimates for China was derived from the China Household Income Project 1995 and 2002.

CONCLUSION

This paper first discussed new evidence of the ages at which young people become financially independent and economically self-sufficient in a wide range of economies. It then considered some of the effects of increasing education investment in Asia and the corresponding delayed entry of young people into the labour force. Specifically, the paper examined the returns to education in China compared to other regions in the world. The results presented here are of a descriptive nature. Nonetheless, using newly available NTA data and methods, the analysis reveals several interesting results.

First, the age at financial independence is quite similar across countries. Young adults generally become financially independent between the ages of 23 and 25 years. Two Asian countries have very distinct patterns: China and Indonesia. China has an early age of entry into the labour force and relatively low consumption, which results in young people producing more than they consume by the age of 21 years. Indonesia, on the other hand, has a rather late financial independence age, at 27 years, which is related to the high youth unemployment rate. We expected to see an early age of achieving financial independence in low-income economies where entry into the labour force occurs at young ages. However, the observed differences between low and high income economies are very small. While youth in low income economies enter the work force at early, their labour income tends to be low. Furthermore, because young people represent a large portion of the population in low income economies, the above mentioned findings raise an important policy concern about whether the young workforce has low productivity, is underpaid, or has skills that are mismatched with the jobs to which they have access.

Second, the returns to higher education in Asia are 10 to 20 per cent higher than the OECD average, but not as high as the returns in Latin American countries. The less developed countries have relatively less human capital and hence tend to obtain greater returns to investments in higher education, especially in urban areas. In the urban areas in Asia, the returns to education are highest at the tertiary education level for both males and females. One interesting result is that the returns to tertiary education are similar for males and females in China as opposed to other countries, where the returns to higher education are greater for men. The returns by gender at the tertiary level in China are consistent over time, between 1995 and 2002.

In Asia, the high investment in human capital at the tertiary level implies delayed entry into the workforce, and thus an extended period of economic dependency of youth. This issue is of special concern in countries that will probably begin to experience labour shortages and slower growth of the labour force due to the ageing of their populations. The delay of financial independence of the young population and the increase in economic dependency of the older population pose a challenge to policy makers who must design and implement fiscally sustainable systems to reallocate resources from surplus producers to dependent groups in the economy. On the other hand, some developing countries that have a large proportion of young people in their populations may experience a lack of demand for skilled employment. As a result, the young qualified workforce may be underutilized or underpaid. Policy makers in developing countries face the challenge of promoting the creation of more skilled jobs for the increasing number of better educated youth, to forestall these problems and to avoid excessive skilled labour out-migration.

REFERENCES

- An, Chong-Bum and others (2011). Intergenerational Resource Allocation in the Republic of Korea. In *Population Aging and the Generational Economy: A Global Perspective*, Ronald Lee and Andrew Mason, eds. Cheltenham, U.K.: Edward Elgar.
- Bravo, Jorge and Mauricio Holz (2011). The Significance of Inter-age Economic Transfers in Chile. In *Population Aging and the Generational Economy: A Global Perspective*, Ronald Lee and Andrew Mason, eds. Cheltenham, U.K.: Edward Elgar.
- ECLAC (2010). The generational economy, transfer systems and inequality in Latin America and the Caribbean. *Social Panorama of Latin America 2010*, pp.169-193.
- Gál, Róbert I., Vera Gergely and Márton Medgyesi (2011). National Transfer Accounts in Hungary: Contribution Asset and Returns in a Pay-as-you-go Pension Scheme. In *Population Aging and the Generational Economy: A Global Perspective*, Ronald Lee and Andrew Mason, eds. Cheltenham, U.K.: Edward Elgar.
- Guevara, Iván Mejía (2011). The Economic Lifecycle and Intergenerational Redistribution in Mexico. In *Population Aging and the Generational Economy: A Global Perspective*, Ronald Lee and Andrew Mason, eds. Cheltenham, U.K.: Edward Elgar.
- Gunderson, Morley and Philip Oreopoulos (2010). Returns to education in developed countries. *International Encyclopaedia of Education*, vol. 2, pp. 298-304.
- Hallberg, Daniel and others (2011). Intergenerational Redistribution in Sweden's Public and Private Sectors. In *Population Aging and the Generational Economy: A Global Perspective*, Ronald Lee and Andrew Mason, eds. Cheltenham, U.K.: Edward Elgar.
- Kluge, Fanny A. (2011). Labour Income and Consumption Profiles: The Case of Germany. In *Population Aging and the Generational Economy: A Global Perspective*, Ronald Lee and Andrew Mason, eds. Cheltenham, U.K.: Edward Elgar.
- Ladusingh, Laishram and M. R. Narayana (2011). The role of familial transfers in supporting the lifecycle deficit in India. In *Population Aging and the Generational Economy: A Global Perspective*, Ronald Lee and Andrew Mason, eds. Cheltenham, U.K.: Edward Elgar.
- Lee, Ronald, Sang-Hyop Lee and Andrew Mason (2008). Charting the economic life cycle. In *Population Aging, Human Capital Accumulation and Productivity Growth, Supplement to Population and Development Review*, Alexia Prskawetz, David Bloom and Wolfgang Lutz, eds. vol.34, pp. 208-237.
- Lee, Sang-Hyop and Naohiro Ogawa (2011). Labour income over the lifecycle. In *Population Aging and the Generational Economy: A Global Perspective*, Ronald Lee and Andrew Mason, eds. Cheltenham, U.K.: Edward Elgar.
- Lee, Ronald, Gretchen Donehower and Tim Miller (2011). The changing shape of the economic lifecycle in the United States, 1960 to 2003. In *Population Aging and the Generational Economy: A Global Perspective*, Ronald Lee and Andrew Mason, eds. Cheltenham, U.K.: Edward Elgar.
- Ling, Li, Qiulin Chen and Jiang Yu (2011). The changing pattern of China's public services. In *Population Aging and the Generational Economy: A Global Perspective*, Ronald Lee and Andrew Mason, eds. Cheltenham, U.K.: Edward Elgar.

- Mairhuber, Ingar (2010). Transitions in female and male life course: Changes and continuities in Austria. In *The Welfare State and Life Transitions: A European Perspective*, Dominique Anxo, Gerhard Bosch and Jill Rubery, eds. Cheltenham, U.K.: Edward Elgar.
- Maliki (2011). The Support System for Indonesian Elders: Moving Toward a Sustainable National Pension System. In *Population Aging and the Generational Economy: A Global Perspective*, Ronald Lee and Andrew Mason, eds. Cheltenham, U.K.: Edward Elgar.
- Mason, Andrew and others (2009). Population aging and intergenerational transfers: Introducing age into national accounts. In *Development in the Economics of Aging*, David Wise, ed. National Bureau of Economic Research, Chicago: University of Chicago Press, pp.89-126.
- Mwabu, Germano, Moses K. Muriithi and Reuben G. Mutegi (2011). National Transfer Accounts for Kenya: The economic lifecycle in 1994. In *Population Aging and the Generational Economy: A Global Perspective*, Ronald Lee and Andrew Mason, eds. Cheltenham, U.K.: Edward Elgar.
- Ogawa, Naohiro, Rikiya Matsukura and Amonthep Chawla (2011). The elderly as latent assets in aging Japan. In *Population Aging and the Generational Economy: A Global Perspective*, Ronald Lee and Andrew Mason, eds. Cheltenham, U.K.: Edward Elgar.
- OECD (2010). *Education at a Glance 2010*. Paris: OECD.
- Patrinos, Harry Anthony and George Psacharopoulos (2010). Returns to education in developing countries. *International Encyclopaedia of Education*, pp.111-134, Oxford, England: Elsevier Ltd.
- Phananiramai, Mathana (2011). Incorporating time into the National Transfer Accounts: The case of Thailand. In *Population Aging and the Generational Economy: A Global Perspective*, Ronald Lee and Andrew Mason, eds. Cheltenham, U.K.: Edward Elgar.
- Psacharopoulos, George and Harry Anthony Patrinos (2004). Returns to investment in education: A further update. *Education Economics*, vol. 12, No. 2, pp. 111-134.
- Racelis, Rachel H. and J.M. Ian Salas (2011). Changes in patterns of Philippine lifecycle consumption and labour income between 1994 and 2002. In *Population Aging and the Generational Economy: A Global Perspective*, Ronald Lee and Andrew Mason, eds. Cheltenham, U.K.: Edward Elgar.
- Sambt, Jože and Alexia Prskawetz (2011). National Transfer Accounts for Austria: Low levels of education and the generosity of the social security system. In *Population Aging and the Generational Economy: A Global Perspective*, Ronald Lee and Andrew Mason, eds. Cheltenham, U.K.: Edward Elgar.
- Soyibo, Adedoyin, Olanrewaju Olaniyan and Akanni O. Lawanson (2011). The structure of generational public transfer flows in Nigeria. In *Population Aging and the Generational Economy: A Global Perspective*, Ronald Lee and Andrew Mason, eds. Cheltenham, U.K.: Edward Elgar.
- Trostel, Phillip, Ian Walker and Paul Woolley (2002). Estimates of the economic return to schooling for 28 countries. *Labour Economics*, vol. 9, pp. 1-16.
- Turra, Cassio M., Bernardo L. Queiroz and Eduardo L.G. Rios-Neto (2011). Idiosyncrasies of intergenerational transfers in Brazil. In *Population Aging and the Generational Economy: A Global Perspective*, Ronald Lee and Andrew Mason, eds. Cheltenham, U.K.: Edward Elgar.

UNESCO (2009). *Global Education Digest 2009*. Montreal, Canada: UNESCO Institute for Statistics.
World Bank/Depart for International Development (2008). Value chains analysis: Sector choice and Market Analyses report. Abuja, Nigeria: Nathan. EME.

Wu, Xiaogang and Yu Xie (2003). Does the market pay off? Earnings returns to education in Urban China. *American Sociological Review*, vol. 68, No. 3, pp. 425-442.