

### Editor's Desk

The New Year's issue (January 1, 2016) of *Thinking Aloud* comes with the theme of demographic dividend. The first article titled "How do some countries make the most of the demographic dividend?" uses a cross-country least square dummy variable (LSDV) panel regression of 124 countries for the period between 1950 and 2010 and finds that 1% increase in the demographic dividend leads to 0.24% increase in the per capita income. The regression results also show that though both South Asia and East Asia have larger positive effects of demographic dividends on the rise in their per capita incomes than the global average, the effect is double in East Asia compared to that for South Asia. The critical policy areas that made the difference included investment on youth development, expanding access to family planning, investment in infrastructure, public health, education, especially female education, skill development, and economic policies that promoted both labor-intensive and skill intensive jobs, savings and openness to trade and foreign investment. The second article on "Will Bangladesh miss out on first demographic dividend?" focuses on providing some observational evidence to evaluate the demographic benefit for Bangladesh to explore the conditions to appreciate it. The study has applied National Transfer Accounts (NTA)s and emphasizes that to reap the maximum economic gains of the potential first demographic dividend, adequate job opportunities need to be created focusing on higher investment for employment generation, higher public sector investment in education sector, skills development and female participation in economic activities. SANEM interviewed Mr. Iori Kato, Deputy Representative of UNFPA Bangladesh Country Office, to discuss about demographic dividend and population growth in Bangladesh. December, 2015 has been an eventful month for SANEM as is visible in the fourth page in SANEM Events section.

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### How do some countries make the most of the demographic dividend?

Selim Raihan

For long, debates among economists and social scientists on the impact of population change on economic development centered on positions that population growth either restricts, promotes, or is independent of economic development. Despite the merits of these views, a critical issue is largely ignored which is the age structure of the population that can change dramatically as the population grows. As people's economic behavior varies at different stages of life, changes in a country's age structure can have substantial effects on its economic performance. This latter view relates to a 'demographic dividend' which can exert a large positive effect on the economy stemming from a favorable age structure of the country.

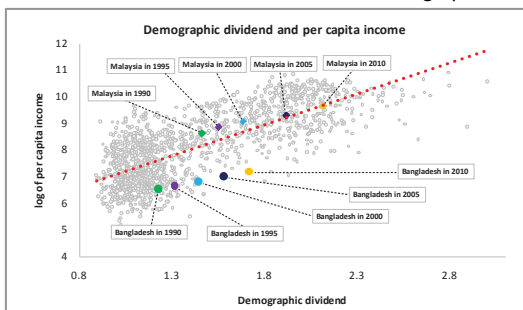
The demographic dividend is not, however, automatic. With the right kind of policy environment, this demographic dividend can attain the targeted objectives. This brings to the fundamental question:

how do some countries make the most of the demographic dividend and why others don't? A simple association between the demographic dividend and per capita income, as is shown in the scatter-plot, can shed some light on this issue.

The scatter-plot is generated with the data of 124 countries for the period between 1950 and 2010 with five-year intervals. The demographic dividend is calculated from the data of the United Nations (Department of Economic and Social Affairs-Population Division), and is defined as the ratio of working age population to the dependent population. The per capita income data are from the World Bank WDI. Since demographic dividend might have a lag effect on per capita income change, we assume that the data of demographic dividend for any particular year corresponds to the average per capita income data for the subsequent five years. For example, demographic dividend data for 1950 corresponds to the average of per capita income data for 1951-1955. The trend line (red-dotted) shows a very strong positive association between the demographic dividend and per capita income. Though simple, but even this scatter-plot tells us a very interesting story. If we compare an East Asian country (Malaysia) with a South Asian country (Bangladesh) we find that both Malaysia and Bangladesh, during 1990 and 2010, were experiencing rising demographic dividends which contributed to the rise in their per capita incomes. However, Bangladesh has always been much below the trend line; whereas Malaysia was always on or above the trend line. This suggests that compared to Bangladesh, Malaysia was much better able to utilize demographic dividend to raise its per capita income during the period under consideration. For Bangladesh, the concern is that the country is yet

to exploit the demographic dividend it has, and over time, the distance from the trend line has enlarged. Interestingly, in 2010, Bangladesh had the demographic dividend similar to that Malaysia had in 2000, but Bangladesh in 2010 had one-seventh of the per capita income of what Malaysia had in 2000.

The aforementioned analysis is also supported by results from a cross-country least square dummy variable (LSDV) panel regression of 124 countries for the period between 1950 and 2010 with data of five-year intervals. Here the dependent variable is the log of per capita income. The explanatory variables are the log of demographic dividend (as defined earlier) and two interaction variables – first one is the interaction between log of demographic dividend and South Asia dummy and the second one is the interaction between log of demographic dividend and East Asia dummy. We also add a few other control variables such as fixed capital formation as % of GDP, government consumption as % of GDP, trade-GDP ratio, under-five mortality rate and manufacturing export as % of total export. As we did in the scatter-plot exercise, here we also assume that the data of demographic dividend for any particular year



corresponds to the respective averages of all other variables of the subsequent five years. The LSDV panel regression results suggest that all control variables have expected and significant signs: the ratio of fixed capital formation to GDP, the ratio of government consumption to GDP, the

trade-GDP ratio and manufacturing export to total export ratio have positive and significant signs, and the under-five mortality rate has a negative and significant sign. The demographic dividend variable has a positive and significant sign and the size of the coefficient suggests that 1% increase in the demographic dividend leads to 0.24% increase in the per capita income. Both South Asia and East Asia interaction dummies are positive and significant with coefficients 0.87 and 1.71 respectively, suggesting that these two regions have larger positive effects of demographic dividends on the rise in their per capita incomes than the global average. However, the effect is double for East Asia compared to that for South Asia.

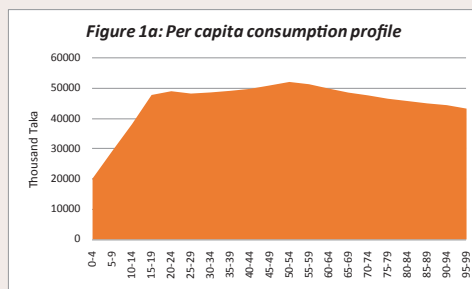
How did the East Asian countries make the best use of the demographic dividend? Evidence suggests that compared to the South Asian countries, most of the East Asian countries were in a better position to successfully capitalize on shifts in their age structures to gain a boost in economic productivity. The critical policy areas that made the difference included investment on youth development, expanding access to family planning, investment in infrastructure, public health, education, especially female education and skill development. Also, decisive policy emphasis was on promoting both labor-intensive and skill intensive jobs, savings and openness to trade and foreign investment.

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## Will Bangladesh miss out on first demographic dividend?

Bazlul H Khondker and Muhammad Moshir Rahman

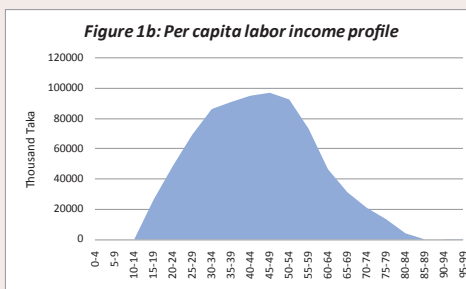
Bangladesh has entered the window of population dividend opportunities from 1991 onward as the dependency ratio decreased. However, the expressed time of the window of opportunities is not bolstered by observational confirmation. The absence of certain proof on the period and extent of the demographic dividend is a gap policymakers must address when setting needs for human resource and capital investment to gather the economic advantages of the demographic move. Applying the methodology of National Transfer Accounts (NTA), this study is an endeavor to provide some observational evidence so as to evaluate the demographic benefit for Bangladesh and to explore the conditions to appreciate it. Demographic transition captures the movement of a society from an equilibrium portrayed by high fertility and high mortality, to one depicted by low fertility and low mortality. Bangladesh has been experiencing significant changes in her demographic structure. The demographic transition



consumption less labor income with the introduction of age into the national accounts. The consumption from an individual perspective includes publicly (government) sponsored targeted programs for health care, education, poverty alleviation, social assistance and other goods either in kind or in cash and private (household) consumption for, among other things, education, healthcare, housing, food and non-food goods. The labor income from an individual perspective is the aggregate of wage of employees (including both in kind and cash) and a fixed part of mixed income (income from own business enterprise).

The first demographic dividend is defined as the contribution of age structure to economic growth, precisely the per capita income or the per capita consumption, and it is measured as the positive growth of the economic support ratio (ESR). The first demographic dividend measures the effects of changes in age structure on consumption per equivalent adult holding the consumption rate and output per worker constant.

The data sets for Bangladesh NTA include: (i) Household Income and Expenditure Survey, 2010; (ii) Labor Force Survey, 2010 and (iii) National Accounts Statistics (SNA) and (iv) UNFPA population



income of young persons. The tapering income profile of the elderly is indicative of their low wages as many are self-employed farmers, or work in the informal sector.

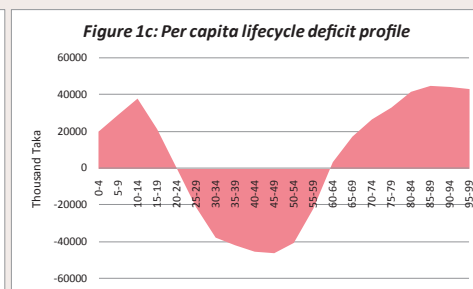
The figure 1c shows the deficit for each age group.

**Three distinct age groups are found in term of LCD.**

As expected two deficit groups are children (age 0 to 19) and the elderly (65 +). However, the deficit for elderly group is higher than the children perhaps indicating low levels of income as well as higher poverty among households with children compared to household with elderly. The group encompassing age 20 and 64 is generating surplus in Bangladesh.

According to the 2006 revision, several assumptions have been used by UN to project the population. Following that, eight variants underlying the fertility, mortality, constant fertility and mortality and also with international migration assumptions have been used in this paper to observe the first demographic dividend. These variants are used to observe the probable year of highest ESR with the range of the first demographic dividend and to estimate the maximum year left to harvest the benefits of it.

Figure 2 shows that ESR is varying according to the various variant of the population projection by UN.



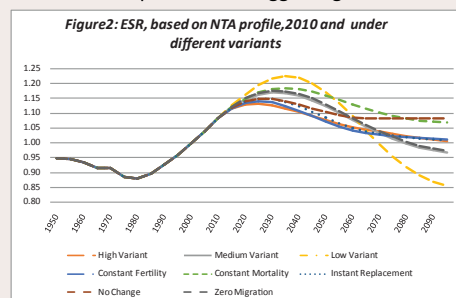
can enhance economic growth in *two broad ways*. **First**, as the dependency ratios decline and the share of working age population grows relative to the total population, the average number of children per working age adult also falls. Assuming, this is associated with a freeing up of resources that previously would have been consumed by additional children-allowing living standards to rise. *This is the first demographic dividend*. **Second**, a second dividend results in when the faster growth of first dividend leads to larger savings in the short run and higher investment in the human capital and investment per worker in the long run. An important question with regard to the first demographic dividend is the impact of age structure on economic growth. More specifically, how, why and at which extent age structure influences economic growth? The total dependency ratio is purely a composite indicator to capture the change in age structure and it does not reflect the variations of earnings and the consumption according to the age. This limitation is overcome in the NTA based on the economic life cycle approach which is applied in the current paper.

National Transfer Accounts provide an accounting of economic flows to and from residents of a country classified by their age. It is structured to emphasize the generational economy and its key features: the economic life cycle and age reallocations realized by relying on intergenerational transfers and assets. The aggregate values are broadly consistent with those found in national accounts, as detailed in the System of National Accounts (SNA) methodology. NTA is an analytical framework for accounting for the life-cycle deficit. The life cycle deficit equals

prospectus data. Results from the Bangladesh NTAs 2010 have been reported under two broad headings: (i) economic lifecycle and lifecycle deficit; and (ii) economic support ration and first demographic dividend.

The consumption profile by age in figure 1a suggests a sharp rise in consumption alongside increasing the age, particularly for school-age consumers. Per capita yearly consumption increases sharply from about 4 years of age till it attains an early peak at about 19 years, indicating investment in education and continues up to 25 years.

The figure 1b shows distribution of the per capita labor income according to the age profile. This reflects a number of distinctive features. It is an inverse U-shaped curve suggesting low earning



potential at early ages. The labor income increases steeply till about 34 years of age and then steadily increases between 35 and 49 years of age. Thereafter, income starts declining and after 54 declines rapidly with advancing age. The presence of child labor is obvious with the early age of entry into the labor force and marginal share of labor

In particular, with high, medium and low variant population growth, ESR increases positively till 2030, 2035 and 2040 respectively. ESR will increase positively till 2030 with both the instant replacement and constant fertility and with the constant mortality rate the ESR will rise positively till 2040. Similarly, ESR patterns under zero migration and no change in fertility-mortality which will rise positively till 2030 and 2040 respectively. Thus, summarizing the estimates of *first demographic dividends* under various assumptions of population growth, fertility-mortality rate and rate of migration, it may be argued that the first demographic dividend in Bangladesh will continue to a point somewhere between 2030 and 2040. After that it will approach towards further change in the demographic situation.

Utilizing the NTAs system, this paper estimates the extent of first demographic dividend using ESR. According to the estimates, the first demographic dividend predominates from 2020 to 2045 according to several population projection variants. The connection between the demographic dividends and income growth is policy dependent. In order to reap the maximum economic gains of the potential first demographic dividend, nonetheless, adequate job opportunities need to be created focusing on higher investment for employment generation; higher public sector investment in education, skills development and female participation in economic activities.

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## “Reaping a demographic dividend... will require women empowerment”

*SANEM interviews Mr. Iori Kato on demographic dividend and population growth in Bangladesh. Mr. Iori Kato is the Deputy Representative of UNFPA Bangladesh Country Office, Dhaka. He is heading the Program Team of UNFPA in Bangladesh, implementing the current Country Program for 2012-2016 that is composed of four components: Sexual and Reproductive Health, Population, Planning and Research (PPR) and Gender, as well as Adolescents and Youth.*

### **SANEM: Do you think population policy/strategy is adequately integrated in the medium term plan in Bangladesh?**

**IK:** Any national/local development strategy or plan is a richer and more comprehensive one if it properly analyzes the actual causes and consequences of population trends and dynamics, more specifically, how population variables (e.g. population growth, age structure, geographical distribution etc.) influence the accumulation of wealth, and are thereby translated into eradication of poverty and sustainable development (or not).

Upon request by the Planning Commission, UNFPA contributed a Demographic Impact Study (DIS) as a background paper to be used as an input to the new 7<sup>th</sup> Five Year Plan. In this regard, I am glad to note that the 7FYP indeed takes into account the importance of the nexus between population and development, for instance when it discusses a “demographic dividend”. Yet, the national development strategy may give an impression that it is still influenced perhaps overly by the notion of a population-poverty trap, given the fact that population is still treated as a ‘sub-sector’ of Health, Population and Nutrition Sector, where population tends to be discussed only in the context of fertility rate or contraceptive prevalence rate.

### **SANEM: What are the key issues of population development in Bangladesh?**

**IK:** At the individual/household level, there are some P&D related issues like health, education, gender inequality etc. Bangladesh was almost achieving the MDG5 on maternal health; yet, still more than 5,000 women and girls die in the country every year, trying to give birth to a new life. The total fertility rate is stagnant at 2.3 since 2011. More than 60% of deliveries take place at home. Close to 60% deliver without any skilled birth attendant. Teen pregnancy (113/1,000) is worst in South Asia. Female students at universities account for only 30% of all, which limits the potential of the country to reap a demographic dividend. Gender-based violence and culture of silence and impunity are also major issues in Bangladesh.

Although poverty had declined constantly in recent decades, the income inequality on the other hand has worsened over past two decades. The concentration of the population in just one mega city of Dhaka (32% of urban population) will continue to pose a pressure, given the slow pace of urban planning in the city, including the poor public transport infrastructure and congestion. Climate change and disasters in Bangladesh are also important issues. The coastal area is already

vulnerable and sea-level rise of just 400 mm in the Bay of Bengal would put 11% of the Bangladesh's coastal land underwater, which would create 7–10 million ‘climate refugees’. The real/felt vulnerability influences decisions on family size and mobility, and at the same time people's mobility will influence the vulnerability of a given community: a two-way interaction between population and climate.

### **SANEM: How population development can reap the benefit of demographic dividend in Bangladesh?**

**IK:** Whether a ‘demographic window of opportunity’ will be translated actually into a ‘demographic dividend’ is not automatic. As mortality and fertility decline, Bangladesh has been enjoying, since the 1990s, a period when the ratio of working-age population to both young and old dependents rises, and thereby providing a one-time “demographic window of opportunity”. This one-time demographic window of opportunity in Bangladesh will be closing rapidly after 2031, as the dependency



ratio rises again with the growth of the elderly population. This means it is “now or never” if the country can lead this demographic window of ‘opportunity’ into a “demographic dividend” by investing more and better in particular in health, education, skills development, and employment generation, especially for the adolescents and youth, as well as for gender equality and women's empowerment, just as the so-called East Asian Tigers like Hong Kong, Singapore, Republic of Korea and Taiwan did between the late 1970s and 1990s. More specifically, the demographic dividend will be garnered if all three conditions are met. First, improvements in health status, especially children's and women's health, will contribute both to improved child survival and a decrease in the number of children born to each family in successive cohorts, thus accentuating the population bulge in the cohorts now entering or about to enter the working ages. Second, those in these large cohorts and the smaller cohorts that follow them will benefit from investment in education and health. As families have fewer children, they and the government have more resources to invest in the education of the surviving children, and women can increasingly enter the labor force. The third and final condition is having an economically

enabling environment where those in the educated cohort can find well-paying jobs. This appears to be a challenge for Bangladesh given the high unemployment and underemployment rates of young people and women.

### **SANEM: How do you link youth demographic and youth employment with economic growth?**

**IK:** Although Bangladesh has achieved significant reduction in mortality and fertility rates, the population remains young, with roughly half of them under 25 years of age. The 15-29 age group (“youth” as defined in Bangladesh, as opposed to 15-24 globally) will grow to 51.3 million in 2026 from 41.2 million in 2011.

The future growth of Bangladesh – its nature and scope - will depend largely on the degree of success in educating the youth (the next cohort of workers) to build and expand their capabilities, employability, productivity and competitiveness, and also finding decent work for them. However, this can be a double-edged sword, because of a risk of failing to provide them with productive employment opportunities. Given the fact that, every year, 2 million people are newly entering the working age and looking for a job - not just a job but decent work - the government will have to fashion ways to roll back unemployment and underemployment among the youth. This is not just an opportunity, but a ‘must’ as Bangladesh is competing with many other countries in a highly competitive international value chain and marketplace.

Currently Bangladesh seems to rely much on the Ready-Made Garment sector and remittance from the migrant workers, but how long can Bangladesh sustain this model? In the long run, the expansion of education and improvement of the quality of such education, especially for the youth, will be crucial, so as to expand Bangladesh's industrial and service sectors, by providing workers with the qualities needed to enable Bangladesh to compete, while at the same time without neglecting agriculture and rural development, but making agriculture (and related business) attractive to young people.

### **SANEM: Is women labor force participation important to enhance demographic dividend?**

**IK:** Yes, definitely. Unemployment, underemployment and vulnerable employment in Bangladesh has a strong gender dimension, as also seen in other countries. The inability of women to participate more actively in the labor market significantly decreases their ability to escape poverty and for the entire society to reap a demographic dividend.

Bangladesh has been demonstrating progress during the past decades in women's health, education, nutrition, economic opportunities and political participation. Still, women in Bangladesh remain far behind men on these indicators. The prevailing patriarchal culture, including particular socio-cultural perceptions towards women and gender-inequitable attitudes, is a significant barrier. Though women labor force participation rate improved, they usually engage more in informal sector, and receive lower wages than men. Most unpaid work is done by women as well.

### **SANEM: Thank you so much for your time.**

**IK:** My pleasure.

## International Workshop held at Dhaka, Bangladesh

An international Workshop on Macroeconomic Stability, Private Sector Development, and Economic Growth was held during December 14-15, 2015 at Bangabandhu International Conference Center (BICC), Dhaka, Bangladesh. It was organized by Bangladesh Bank and UNDESA. Keynote address was provided by the Chief Guest of the workshop, Dr. Kaushik Basu (Senior Vice-President and Chief Economist, The World Bank). Dr. Farazi Binti Ferdous (Fellow, SANEM) and two research associates from SANEM, Nabila Hasan and Md. Mahedi Hassan participated in the workshop.

## IZA/DFID conference held in Dhaka, Bangladesh



IZA/DFID conference on “Labor Markets in South Asia: Evidence and Policy Lessons” was held during December 17-18, 2015 at the Westin hotel, Dhaka, Bangladesh. Professor Wahiduddin Mahmud (International Growth Center (IGC)) provided his keynote speech on the first day of the conference. SANEM was a local host for the conference. This conference was followed by a short course on Program Evaluation and was held during December 19-20, 2015 at the Westin, Dhaka, Bangladesh. Two research associates from SANEM, Md. Abdur Rahim and Muhammad Moshir Rahman attended the workshop.

## WTO/ESCAP 11th ARTNeT workshop held in Bangkok, Thailand

WTO/ESCAP 11<sup>th</sup> ARTNeT workshop for Empirical Trade Analysis “Impact of trade facilitation and aid for trade” was held during 21-24 December, 2015 at United Nations Conference Center (UNCC), Bangkok, Thailand. Mahtab Uddin (Research Associate, SANEM) participated in the workshop.

## Workshop on Macroeconomic Modelling in Asia and the Pacific held at Bangkok

A workshop on Macroeconomic Modelling in Asia and the Pacific was held from 8-11 December, 2015 at United Nations Conference Center (UNCC), Bangkok, Thailand. Dr. Selim Raihan (Executive Director, SANEM) conducted a session on “Application of CGE modeling for policy making” during the workshop.

## ILO Employment Symposium held at New Delhi, India

ILO Employment Symposium was held on December 15, 2015 at ITC Maurya, New Delhi, India. Dr. Selim Raihan (Professor, Department of Economics, University of Dhaka and Executive Director, SANEM) was one of the distinguished discussants for the first session on “Employment in policymaking”. The Chair of this session was Dr. Arvind Subramanian (Chief Economic Adviser, Ministry of Finance, Government of India).

## Consultation held at Kathmandu, Nepal

Organized by SAWTEE and OXFAM, a two daylong consultation on “Regional Cooperation on Trade, Climate Change and Food Security in South Asia: Reflections and Way Forward” was held during 27-28 December, 2015 at Kathmandu, Nepal. The main objective of the consultation was to bring experts, academic researchers, policy makers, private sector and other relevant stakeholders in the field to discuss issues related to agriculture investment in South Asia, status of food supply chain, reducing non-tariff barriers in agriculture trade, climate governance and outcomes of the 10<sup>th</sup> Ministerial Conference of WTO. Nabila Hasan (Research Associate, SANEM) participated in the consultation as a discussant.

e-version: <http://sanemnet.org/thinking-aloud/>

## GTAP workshop held in Bangkok, Thailand

Introduction to general equilibrium modelling using RunGTAP was held during December 2-4, 2015 at Bangkok, Thailand. The facilitator for this workshop was Professor David Vanzetti (Australian National University, Canberra). The objectives of the workshop included introducing participants to economy-wide policy analysis using an intuitive, menu-driven CGE model, RunGTAP, in order to analyze real world economic problems such as tariff reform, regional trade arrangements, productivity changes, migration, technology spillovers and climate change. Research Associates from SANEM, K.M Nafiz Ifteakher and Sunera Saba Khan participated in the workshop.

## Seminar on “Trade and Development Challenges: Insights for South Asia” held in New Delhi

Organized by International Labour Organization (ILO) and Institute for Human Development (IHD), New Delhi, an international seminar on “Trade and Development Challenges: Insights for South Asia” was held during December 16-17, 2015 at New Delhi, India. Dr. Selim Raihan (Executive Director, SANEM) presented during the session on “Employment Implications of Value Chains and Trade in South Asia”.

## Regional Meeting on National Transfer Accounts in Asia held in Bangkok

Regional Meeting on National Transfer Accounts in Asia was held during December 3-4, 2015 at Bangkok, Thailand. Dr. Bazlul H Khondker (Chairman, SANEM) presented an update of the NTAs in Bangladesh during the session on “Country NTAs: An Update”. Muhammad Moshir Rahman (Research Associate, SANEM) participated in the meeting.

## International Conference on “Jobs for Development: Creating Jobs in South Asia” held in New Delhi

Organized by ICRIER, an International Conference on “Jobs for Development: Creating Jobs in South Asia” was held during December 3-4, 2015 at India Habitat Center, New Delhi, India. Dr. Selim Raihan (Executive Director, SANEM) provided a speech on “Dynamics of Urban Informal Employment in Bangladesh” during the first session on “Informality of Jobs”. Dr. Dev Nathan (Professor, IHD, New Delhi, India) was the chair for this session.



SANEM is a non-profit research organization registered with the Registrar of Joint Stock Companies and Firms in Bangladesh. Launched in January 2007 in Dhaka, it is a network of economists and policy makers in South Asia with a special emphasis on economic modeling. The organization seeks to produce objective, high quality, country- and South Asian region-specific policy and thematic research. SANEM contributes in governments’ policy-making by providing research supports both at individual and organizational capacities. SANEM has maintained strong research collaboration with global, regional and local think-tanks, research and development organizations, universities and individual researchers.