## AGENDA
### The Second Asian Population Forum

<table>
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<tr>
<th>Date</th>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>Thursday, Oct. 10, 2019</td>
<td>8:30am-4:30pm</td>
<td>Registration</td>
<td>Lobby of Building No. 1, Lehu Hotel</td>
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<tr>
<td>Friday, Oct. 11, 2019</td>
<td>8:30am to 9:00am</td>
<td>Registration</td>
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<td>9:00am-9:30am</td>
<td><strong>Opening: Welcome Remarks and Introduction</strong></td>
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<td><em>Liu Changsheng</em>, President of Shanghai University</td>
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<td><em>Sun Shuna</em>, China Natural Science Foundation</td>
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<td><em>Wolfgang Lutz</em>, International Institute for Applied System Analysis (IIASA)</td>
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<td></td>
<td>9:30am-9:50am</td>
<td><strong>Population, Development, and Environment (1)</strong></td>
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<td>Chair Leiwen Jiang</td>
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<td>9:30am-9:50am</td>
<td><em>Bryan Jones</em>: Groundswell: preparing for internal climate migration</td>
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<tr>
<td>9:50am-10:10am</td>
<td><strong>Yoshihide Wada</strong>: Water futures and solutions for China and Asia under increasing socioeconomic and climate pressures</td>
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<tr>
<td>10:10am-10:30am</td>
<td><strong>Xizhe Peng</strong>: Economic development under rapid demographic and technologic transitions</td>
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<td>Coffee break</td>
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<td><strong>Population, Development, and Environment (2)</strong></td>
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<td>Chair Michael White</td>
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<tr>
<td>10:50am-11:10am</td>
<td><strong>Danan Gu</strong>, with Changxi Liu, Benlu Xin, and Qiushi Fen: Assessments of risk of exposure and vulnerability to natural disasters for Chinese cities</td>
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<tr>
<td>11:10am-11:30am</td>
<td><strong>Kaoru Kakinuma</strong>, with Michael Puma, Yukiko Hirabayashi, and Shinjiro Kanae: Extreme weather events and population displacement in the world</td>
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<td><strong>Baochang Gu</strong>, with Jiawei Hou: Why is China’s TFR so low? A Decompositional analysis</td>
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<td>11:50am-12:10pm</td>
<td><strong>Asghar Zaidi</strong>, with Jinpil Um: The Asian Active Ageing Index -findings for Indonesia and Thailand</td>
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<td><strong>Application of demographic dynamics and human capital models in development analysis</strong></td>
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<td>Chair Samir KC</td>
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<td>1:30pm-1:50pm</td>
<td><strong>Yeung Jean</strong>, with Qiushi Feng: Who will live alone? The One-person Households in China, 2010 to 2050</td>
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<td>1:50pm-2:10pm</td>
<td><strong>Peter McDonald</strong>, with Hosseini-Chavoshi Meimanat: The choice between short-term bonus and long-term onus: Modelling for a selection of Asian countries</td>
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<td>2:10pm-2:30pm</td>
<td><strong>Sri Hartini Rachmad, with Ardi Adji, Ade Febriady and Hendratmo tuhiman</strong>: Demographic Analysis on Poverty Dynamics in Indonesia: Demographic Analysis on Poverty Dynamics in Indonesia</td>
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<td>Lunch at Lehu Hall, Lehu Hotel</td>
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2:30pm-2:50pm  
**Nandi Swarbhanu**: Does low dependency benefit educational attainment? Evidences from India

2:50pm-3:10pm  
**Moradhvaj Moradhvaj**: Education or economic status? Comparing their relative effect on prime age adult death in India using longitudinal survey

Coffee break

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**Priorities for international migration research in Asia: sponsored by IUSSP Scientific Panel on International Migration: Strengthening the Knowledge Base for Policy**

Chair Ellen Percy Kraly

3:20pm-3:40pm  
**Binod Khadria**, Labour Migration in Asia

3:40pm-4:00pm  
**Jasmine Trang Ha**, Migration Data in Asia

4:00pm-4:20pm  
**Doo-Sub Kim**, Marriage Migration Research in Asia: Looking Backward, Looking Forward

4:20pm-4:40pm  
**Mohammad Jalal Abbasi-Shavazi**, Forced Migration in Asia

4:40pm-5:00pm  
**Raya Muttarak**, Environment and Migration in Asia

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**Poster Session**

5:00pm-6:00pm

1. **Budi Setiawan**: TFR Projection of Indonesia and its Region using Bayesian Hierarchical Modeling Approach

2. **Dey Subeshna**: The choked Beginning to life: does indoor air pollution matters?

3. **Djan’na H. Koubodana et al.**: Impact of the accuracy of land cover data sets on the accuracy of land cover change scenarios in the Mon River Basin, Togo, West Africa

4. **Xueting Li**: Spatial Analysis of Social Vulnerability to Environmental Risks: A Study for China Prefecture Regions between 2000 and 2010

5. **Liangliang Sun**: Household consumptions patterns under demographic transition in China

6. **Lianxia Wu**: Spatiality of Population Aging and its driving forces in China
7. Mohammad Mahbubur Rahman: Rural-Urban Migration and growing urban informal settlements and its impact on Urban Ecosystem: A case study from Dhaka city, Bangladesh

8. Padma Prasad Khatiwada: International Migration and Citizenship in Nepal

9. Samir KC & Yingji Wu: China aiming to lead the world economy with a higher educational base: Opportunity and challenges


11. Shaw Subhojit: Spatial modeling of child malnutrition attributable to drought condition prevailing across the districts of India

12. Yuanhui Shang: The Demography of Hong Kong People’s Ethnic Identity

(Match the number with poster boards)

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**Dinner Reception**

6:00pm-8:00pm

At Lehu Hall, Lehu Hotel
### Saturday, Oct. 12, 2019
Location: Xuehai Hall, Building No. 2, Lehu Hotel

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<tr>
<th>Time</th>
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<tr>
<td>8:30am-8:50am</td>
<td><strong>Fernando Riosmena</strong></td>
<td>A re-examination of international migration theories, their interconnections, and integration with other fields of migration studies</td>
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<td>8:50am-9:10am</td>
<td><strong>Elin Charles Edwards</strong></td>
<td>The global impact of international migration: What role does Asia play?</td>
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<tr>
<td>9:10am-9:30am</td>
<td><strong>Theodora Lam</strong></td>
<td>The Ebb and Flow of Migration within CHAMPSEA Households: Changes in Household Formations and Migration Strategies over Time</td>
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<tr>
<td>9:30am-9:50am</td>
<td><strong>Karim Sk.</strong></td>
<td>Trend and Patterns of Gulf Migration and its Impact on Indian State: An Analysis Based on Kerala Migration Survey</td>
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<td>9:50am-10:10am</td>
<td><strong>Aude Bernard</strong></td>
<td>Educational selectivity of international migrants: A global assessment</td>
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### Patterns and trends of internal migration and urbanization in countries of Asia

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<th>Time</th>
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<tbody>
<tr>
<td>10:50am-11:10am</td>
<td><strong>Kumar Nandan</strong>, with R.B. Bhagat.</td>
<td>Understanding Livelihood Strategy in Rural India: Is Public Works Scheme (MGNREGS) Alternative or Complementary to Out-migration?</td>
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<tr>
<td>11:30am-11:50am</td>
<td>Ying Huang, with Angela Zhuo Yue and Wenli Liu. Participation in the New Rural Cooperative Medical Scheme and the Intention of Urban Hukou Conversion among Migrant Workers.</td>
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<td>Lunch break</td>
<td>Lunch at Lehe Hall, Lehu Hotel</td>
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**Methods and Issues in developing sub-national population and human capital projection models**

Chair Wolfgang Lutz

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<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>1:30pm-1:50pm</td>
<td>Arkadiusz Wiśniowski</td>
<td>Bayesian forecasting of subnational population change</td>
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<tr>
<td>1:50pm-2:10pm</td>
<td>Nkuye Moyo</td>
<td>A Review of Multistate Population Projection Methodology</td>
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<td>2:10pm-2:30pm</td>
<td>Rakesh Mishra</td>
<td>Testing Convergence Hypothesis in Age-Specific Fertility rates</td>
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<td>2:30pm-2:50pm</td>
<td>Samir KC</td>
<td>MSDem: A multi-dimensional population and human capital model</td>
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<td>2:50pm-3:10pm</td>
<td>Guillaume Marois</td>
<td>Sub-national Population Projection in Niger</td>
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<td>Coffee break</td>
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<td>3:30pm-5:00pm</td>
<td>Closing and Discussion for Collaboration under Asian MetaCentre for Population and Sustainable Development Analysis</td>
<td>Co-chairs Wolfgang Lutz and Leiwen Jiang</td>
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<tr>
<td>5:30pm-7:00pm</td>
<td>Dinner at Lehe Hall, Lehu Hotel</td>
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Training Workshop 3:
Methods in developing sub-national population and human capital models and its applications
Tutor: Samir KC
RM 314, Sociology Building

Accepted participants only
Abstract

Opening: Welcome Remarks and Introduction

9:00am-9:30am  Liu Changsheng, President of Shanghai University
Sun Shuna, China Natural Science Foundation
Wolfgang Lutz, International Institute for Applied System Analysis (IIASA)

Population, Development, and Environment (1)
Chair Leiwen Jiang

9:30am-9:50am  Bryan Jones: Groundswell: preparing for internal climate migration
The recently released World Bank report, *Groundswell: Preparing for Internal Climate Migration*, introduced a new method for projecting potential future climate-induced internal migration using a gravity-based statistical model that accounts for climate impacts on certain livelihoods. The model represents one of the first attempts to establish the historic relationship between spatial population change and climate-driven impacts on livelihoods, and using this information in conjunction with climate and socio-economic scenarios, to project spatially explicit, sub-national migration. Here we explain the base methodology developed for *Groundswell*, present key results, and discuss subsequent model enhancements and applications.

9:50am-10:10am  Yoshihide Wada: Water futures and solutions for China and Asia under increasing socioeconomic and climate pressures
Home to almost 4.5 billion people, Asia has experienced unprecedented economic and population growth in recent decades. In order to sustain growing food demand and increasing standard of living, water use has been increasing rapidly in many parts of Asia. At present, water withdrawals in Asia represent 65% of the global total. This huge abstraction of water resources has resulted in many Asian regions undergoing pervasive water scarcity conditions. The imminent global changes from climate change and socioeconomic development in Asia are expected to place additional pressures on water resources in the coming decades. In such a context, it is imperative to evaluate future water scarcity conditions and identify regions at highest risk in Asia. By 2050, 20% of the land area in Asia, with population exceeding 1.6–2.0 billion, is projected to experience severe water scarcity. IIASA integrated assessment framework highlights that socioeconomic changes are the main driver of worsening water scarcity in Asia, much larger than the climate change impacts.
IIASA’s Water Futures and Solutions Initiative (WFAS) is an unprecedented inter-disciplinary scientific initiative to identify robust and adaptive portfolios of optional solutions across different economic
sectors, including agriculture, energy and industry, and to test these solution-portfolios with multi-model ensembles of hydrologic and sector models to obtain a clearer picture of the trade-offs, risks, and opportunities. The results of WFaS scenarios and models will provide a basis for long-term strategic planning of water resource development. And given the complexity of the water system, WFaS will uniquely provide policy makers with optional sets of solutions that work together and that can be easily adapted as circumstances change in the future.

10:10am-10:30am

Xizhe Peng: Economic development under rapid demographic and technologic transitions

Coffee break

Population, Development, and Environment (2)
Chair Michael White

Danan Gu, with Changxi Liu, Benlu Xin, and Qiushi Fen: Assessments of risk of exposure and vulnerability to natural disasters for Chinese cities

While rapid urbanization in China has been likely an impetus for its economic miracle, frequent occurrences of natural disasters have made hundreds of Chinese cities and millions of its residents under risk and vulnerable attacks. Using the spatial hotspot data over the past few decades on four types of natural disaster cyclones, droughts, floods, and earthquakes, we investigated the risk exposure to these four types of disaster for 650 cities in China. Based on the global distribution of grid cells for exposure risk, we classified the cities into low, medium and high exposure. Similar approaches were also applied to assessments of risk of mortality and economic losses of these cities to disasters. The results showed that about two-thirds of Chinese cities face high exposure risk to at least one type of disaster, representing 380 million city population on mid-2018; nearly 90% of Chinese cities or 510 million inhabitants face high mortality risk due to at least one type of disaster; and more than 95% of Chinese cities or 580 million inhabitants face high risk of economic losses from disaster. Flooding and cyclones are two most devastated types of natural disasters that threaten Chinese cities. Variations in exposure risk and vulnerability across city sizes and six economic development regions are also examined in this study. Our findings could be informative for preparedness, development and implementation of adaptive strategies for the Chinese cities and it could also help with their ongoing initiatives towards smart and resilient cities.

10:50am-11:10am

Kaoru Kakinuma, with Michael Puma, Yukiko Hirabayashi, and Shinjiro Kanae: Extreme weather events and population displacement in the world

Extreme weather events often cause population displacements that compromise human security. Future climate change will amplify risks of such displacements, and it is an urgent issue to assess potential areas of environment-induced displacements. Here we present the global
distribution of occurrence of flood-induced displacements that are based on modelled flood exposures and observed displacements. We showed that economic conditions amplified occurrence of flood-induced displacements, and Africa has the largest number of countries where were extremely high occurrence of displacements. Poverty, conflict and rapid urban growth often make people stuck in environmental-vulnerable areas, and these situations may accelerate high occurrence of displacement after floods. Contradictory, high economic level countries mitigated impacts of floods on displacements. Regions where have high occurrence of displacements such as Southeast Asia, Peninsular India, eastern Africa and the northern half of the Andes are projected to increase of frequency of floods in the future. Developing adaptation measures for prevent flood-induced displacements is an urgent issue in these regions.

11:30am-11:50am  
Baochang Gu, with Jiawei Hou: Why is China’s TFR so low? A Decompositional analysis

Recent several Chinese censuses have repeatedly reported a low TFR one after another, from 1.22 in 2000, 1.18 in 2010, and 1.05 in 2015, which triggered endless debates and questioning on quality of data and trends of fertility. The paper intends to address the issue with Chinese census data but taking an alternative approach to decompose the total fertility rate by age group, as well as urban-rural residence and birth parity in terms of the dynamics between postponement and recuperation in childbearing behavior over time, particularly since 2000, and how it may affect the outcome of the period picture of fertility situation in China. The Decompositional analysis suggests that fertility rates among young age groups of the 20s show a downward trend indicating postponement in childbearing, while fertility rates among older age groups of the 30s show some increase indicating some recuperation, particularly since 2013 as effect of changes in fertility policy. Overall, the decompositional analysis leads to the conclusion that strong postponement and weak recuperation in childbearing behavior of Chinese women may inevitably affect China’s total fertility rate at a level far below replacement, and result China’s fertility to go downward in the years to come.

11:50am-12:10pm  
Asghar Zaidi, with Jinpil Um: The Asian Active Ageing Index - findings for Indonesia and Thailand

The speed of population ageing is among the fastest in the member countries of the ASEAN, which is a matter of high significance for the social and health care services for older persons as well as the labour market and pensions. ASEAN governments must therefore be looking into investing additional resources towards forming evidence-informed policies, and this ambition requires a high-quality and independent comparative evidence base for mutual learning. In addressing these challenges, the active ageing strategies emphasize the scope for social investment, taking the view that the cost of managing ageing actively is cheaper than a passive portrayal of older people as dependent on the state or family. These strategies tap into the potential of the older populations with the aim of promoting good policies and practices to influence a
change in the lives of the older population.

The Active Ageing Index “AAI”, arose from our work with the UN Economic Commission for Europe (UNECE), the European Commission and an expert group (cf. Zaidi et al. 2017) generated this evidence with the same impact objectives for the European countries, by quantifying the extent to which older people have and can realize their potential. A new forthcoming paper by the UN Economic and Social Commission of Asia-Pacific (ESCAP) reports on constructing the new Asian AAI using the context of two of the most populous member States of ASEAN: Indonesia and Thailand (Zaidi and Um, 2019).

The new Asian AAI is sensitized to the Asia-Pacific cultural norms, such as the role of older persons in the society, the changing norms of filial piety and the informal nature of contributions of older persons to their families and communities. The Asian AAI also draws learnings from other indices of a similar sort, especially from the Global AgeWatch Index and the Age UK’s Wellbeing in Later Life Index but also from the Hartford Aging Index of Columbia Aging Centre.

The Asian AAI also revisits the choice of indicators (e.g. to include activities of daily living as direct indicators of independent living; use home ownership as an indicator of material deprivation, etc.) and revising the aggregation methods (e.g. by normalising the indicators before their aggregation into the domain-specific and the overall AAI).

On the basis of the overall AAI for men and women together, Thailand (with the Asian AAI equal to 59.7) does better than Indonesia (50.6). In both countries, the first domain ‘Employment’ contributes the largest. The overall Asian AAI value for males and females in Indonesia are 58.8 and 43.5, respectively. This large gender difference occurs largely due to the fact that Indonesian males have a considerably higher score in the employment domain (96.6) than females (46.9). Similarly, there is also a large gender difference in Thailand with the overall index as 66.9 for male and 53.9 for female. Such gender differentials were also present in Europe, especially in the Southern European countries, with a traditionally more patriarchal societal setting. Similar situations were also observed in China and South Korea.

Older people in both countries tend to continue working beyond the pensionable age, often in informal employment. This is due partly for the fact that pension systems are inadequate. Pensioners with low incomes are more likely to continue working, indicating that older people in both countries tend to work more out of economic incentives or necessity than by choice. Nonetheless, access to employment enhances opportunities of self-fulfilment and the income generated supplements low pension income.

Older persons in both countries are physically and mentally capable which explains their high employment rates and the level of support they offer to their family members. The focus of active ageing strategies should therefore be towards supporting older workers continuing to stay actively involved with the help of flexible retirement plans and age-friendly work environment. Such a policy response to incentivise longer working careers will become increasingly important as pension systems
will start maturing and pension incomes will rise. Many older persons in these two countries, especially older women, have had little or no formal education. It is therefore hard for them to find a job opportunity or a training. It is important to ensure that they are provided with opportunities to participate in other non-market activities, such as voluntary activities, care at home and in the communities, and other similar ways to strengthen their independent living. All relevant information to facilitate such activities should be understandable by older people and, where necessary, trainings and education should be provided to older people’s association to play a role.

Our analysis also highlights that not all older people can actively engage within their society, families, and communities due to poor health, insufficient financial resources, and education. In both countries, older women are more likely to fall behind in this respect than men. As the incidence of disability increases with age, interventions in improving health outcomes need to be prioritised for older women particularly those who live alone in rural areas. This shows that gender differences in active ageing are fundamental in these countries which are linked with ageing experiences in earlier stages of life. Therefore, policies on active ageing will benefit from a life course approach that addresses these inequalities in the earlier phases of life.

Lunch break

Lunch at Lehu Hall, Lehu Hotel

Application of demographic dynamics and human capital models in development analysis
Chair Samir KC

1:30pm-1:50pm
Yeung Jean, with Qiushi Feng: Who will live alone? The One-person Households in China, 2010 to 2050

The rise of solo-living individuals is shedding critical influence on various social and economic dimensions. This paper projects the future trend of one person household (OPH) in China from 2010 to 2050, and to systematically examine these solo-livers by demographic factors such as age, gender, rural/urban residence, and by major social factors of education, marital status and health. We apply the ProFamy Extended Cohort-component Method. Revealed by our results, the rise of OPH will make up a major demographic trend in China for the next few decades, and by 2050 approximately one fifth of Chinese households will be those of only one member. Our study also reveal that the largest solo-living subgroup will be urban youth, especially those urban young males, who are not married and highly educated, most probably with a college degree.

1:50pm-2:10pm
Peter McDonald, with Hosseini-Chavoshi Meimanat: The choice between short-term bonus and long-term onus: Modelling for a selection of Asian countries

As hypothesised by Coale and Hoover (1958), substantial and rapid falls in fertility in the Asian tiger economies enabled them to take advantage of a demographic dividend that has been estimated to account for 25-40 per cent of their economic growth to 1990 (Bloom and Williamson 1998). Coale and Hoover’s modelling had the fall in fertility ceasing around the
replacement level but, for all the Asian tigers, fertility continued to fall after 1990 to very low levels and has remained very low until today. These economies are now facing falls in the size of their labour forces, hyper ageing and, eventually, substantial population decline, referred to by Ogawa et al. (2007) as a demographic onus in contrast to their previous bonus. This situation has also been referred to as a demographic malaise (Nikkei Asian Review 2014). In this paper, we model future scenarios for Asian countries with fertility around replacement level assuming that fertility ceases falling or that it follows the path of fertility in the Republic of Korea. We apply consumption weights to each age group to assess the variation in ‘onus’ associated with the alternative projections. We then apply two scenarios of employment participation rates to examine the extent that higher participation can offset the onus or progress the bonus. For some of the smaller countries, migration may be an option (as has been the case for Singapore) and this possibility is also assessed. Finally, the effect of varying levels of labour productivity are examined.

2:10pm-2:30pm

Sri Hartini Rachmad, with Ardi Adji, Ade Febriady and Hendratmo tuhiman: Demographic Analysis on Poverty Dynamics in Indonesia

Poverty dynamics analysis enables us to discover the problems that are masked by a simple trend analysis. First, using Susenas balanced panel data 2011-2013, we found that poverty in Indonesia is largely a transient phenomenon—high turnover rate. Those who have temporarily experienced poverty (transient poor) is estimated around 17.92 percent and the portion of newly poor is around 45-59 percent every year. This reiterates the importance of Indonesia’s social protection system which targets not only the poor but also the vulnerable group. Second, the chronic poor is estimated around 2.91 percent. These are people who have been trapped under poverty for at least three years (the observed duration). They have higher dependency, reside mostly in rural, lack access to basic services, and their heads have less educational attainment, and mostly self-employed in agriculture with low access to financial market. With a considerable number of transitory poor, government needs to constantly think about improving the effectiveness of its social protection system. The goal would be to provide a better safety net and coping mechanisms to reduce their vulnerabilities. Improving the quality of the Unified Database—which records the poorest 40 percent—and its operational mechanism should be part of the future agenda. On the other side, efforts to address the chronic poor might need to be set for a longer-term goal. It should be directed to provision of basic services (especially in rural area) and programs which could support a sustainable increase in their income.

2:30pm-2:50pm

Nandi Swarbanu: Does low dependency benefit educational attainment? Evidences from India

Background: With the onset of fertility decline, the number of children (dependants) also reduces. As a result, more resources are released in the society. These extra resources help to improve the quality of population
and quality of life successfully. So the proposed thesis (Bloom, Lutz) is lowering dependency helps to increase educational attainment.

Objective: In the present study our aim is to check whether educational attainment is increasing with the fall in dependency ratio. Age composition is demographic aspect and labour composition is economic aspect. We are going to scrutinize the association among low Age dependency ratio (ADR), low Economic dependency ratio (EDR) and educational attainment. Data and Method: ADR and EDR have been considered as measures of dependency ratio. Literacy rate, Mean schooling years and proportion of tertiary educated have been considered as measures of educational attainment. Two rounds of Indian national census (2001, 2011) data at district level have been used for the study.

Findings: Low age dependency ratio helps to increase educational attainments. In India education attainment is increasing with the decrease in age dependency ratio. Low ADR has a positive effect on educational attainment. But the statement is not true for Economic dependency ratio (EDR). Educational attainments are found to be high in some areas where economic dependency ratio is high. It means that work participation among the educated is low or in other words the proportion of educated-unemployed is increasing. Policies are needed for job creation.

2:50pm-3:10pm

Moradhvaj Moradhvaj: Education or economic status? Comparing their relative effect on prime age adult death in India using longitudinal survey

Using nationally representative panel data from the India Human Development Survey (IHDS) for the period 2004–2005 to 2011–2012, we quantified the impact of prime-age adult death (PAD) on household consumption patterns (food and non-food expenditure) and household economic status (income and wealth score) in India. IHDS panel data provide an opportunity to compare economic outcomes among households that did and did not experience a PAD. We used logit regression to examine the association between PAD events and households’ socioeconomic characteristics. We carried out ordinary least square (OLS) regression to investigate the impact of a PAD on a household’s income and consumption pattern. We used propensity score matching (PSM) control for endogeneity of mortality to the outcomes of interest. We found that there is a higher PAD concentration among economically poor households. The PSM finding suggests that a PAD has an adverse impact on the household income and consumption pattern. Eight percent of the households represented reported the loss of productive adults; PADs can impoverish households, as reflected in their consumption pattern and income. Our study contributes a better understanding of demographic factors determining the economic condition of households in low- and middle-income countries. To achieve the Sustainable Development Goals, which aim to end poverty and hunger by 2030, steps are urgently needed to reduce the impact of PADs on Indian households.
### Priorities for international migration research in Asia: sponsored by IUSSP Scientific Panel on International Migration: Strengthening the Knowledge Base for Policy

**Chair Ellen Percy Kraly**

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#### Budi Setiawan: TFR Projection of Indonesia and its Region using Bayesian Hierarchical Modeling Approach

Indonesia's TFR projections officially still use a deterministic approach. This research aims to produce TFR projections for Indonesia and its region using the Bayesian Hierarchical modeling approach (BHM). The data used are PC, IPS, and DHS data from the National Statistics Office and data from the United Nations. The Bayesian model adopted the UN model but uses a different prior distribution, namely Asian countries and countries which are in phase III. Research results show that the median TFR obtained is similar to the median TFR UN projections. Meanwhile, Indonesia's TFR projections officially are located in the range of 20 percent and 80 percent from the median TFR.

#### Dey Subeshna: The choked Beginning to life: does indoor air pollution matters?

The use of solid fuels for cooking and heating is likely to be the largest source of indoor air pollution. This has proved to be more fatal for women and young children. The WHO Comparative Risk Assessment report estimated that 2.7% global burden of disease in 2000 and 1.5 million excess deaths in 2002 are caused due to the exposure in indoor air pollution (IAP) from solid fuel. Despite the serious hazard, the literature in environmental health has fewer contribution to quantify the effect on infant survival and birth outcome. This paper has exploited the wide spectrum of information on birth survival and birth weight provided in the National Family Health Survey 5 data. The impact assessment on exposure to indoor air pollution to birth survival is modelled using the Weibull Survival Model. Further, the impact on birth weight is adjusted for observable confounders through Heckman selection. The analysis shows that usage of clean cooking fuel reduces the hazard for infant mortality by a substantial margin. Also, it positively impacts the birth weight.

#### Djan’na H. Koubodana et al.: Impact of the accuracy of land cover data sets on the accuracy of land cover change scenarios in the Mon River Basin, Togo, West Africa

Knowledge about land use and land cover (LULC) dynamics is of high importance for a number of environmental studies including the development of water resources, land degradation and food security. Often, available global or regional data sets are used for impact studies, although they have not been validated for the area of interest. Validation is especially required if data are used to set up a land change model predicting future changes for management purposes. Therefore, three different LULC maps of the Mono River Basin in
Togo were evaluated in this study. The analyzed maps were obtained from three sources: CILSS (2 km resolution), ESA (300 m) and Globeland (30m) datasets. Validation was performed using 1,000 reference points in the watershed derived from satellite images. The results reveal CILSS as the most accurate data set with a Kappa coefficient of 68.00% and an overall accuracy of 83.00%. CILSS data shows a decrease of savanna and forest whereas an increase of cropland over the period 1975 to 2013. The increase of cropland area of 30.97% from 1975 to 2013 can be related to the increase in population and their food demand, while the losses of forest area and the decrease of savanna are further amplified by using wood as energy sources and the lack of forest management. The three datasets were used to simulate future LULC changes using the Terrset Land Change Modeler.

**Liangliang Sun: Household consumptions patterns under demographic transition in China**

China has been experiencing rapid economic growth and demographic transition in recent decades. Changing socioeconomic and demographic conditions have led to significant changes in the consumptive behavior of the Chinese population. It is very important to study the consumption patterns of Chinese households by demographic characteristics in order to understand how population dynamics (e.g. aging, urbanization, changing household composition) along with socioeconomic development may contribute to shaping the future economy, society, and environment of China.

While some existing studies reveal gradient variations in per capita expenditure on certain goods (e.g. energy, food) of households by age structure and size in China, it is still unclear whether consumption of other goods and services also vary similarly and whether the consumption patterns by demographic characteristics remain unchanged across subnational regions with different socioeconomic development levels. This information is critical for an integrated assessment of the impacts of population dynamics on future economic, social, and environmental changes.

By using the “China Family Panel Data 2010 and 2014”, descriptive analysis, spatial autocorrelation analysis, and a generalized linear mixed model, this paper tries to answer “what are the differences in consumption structure between households with different level of income, different demographic characteristics, and which are located in different regions”, “whether the relationship between household income, demographic characteristics and consumption structure is stable among different regions (the east, midland, west; urban, rural)” and other detailed questions.

This research mainly draws the following conclusions: firstly, household demographic characteristics have a substantial impact on consumption structure as well as income, while population aging has a negative impact on the upgrading of consumption structure, but the improvement of income level and education level of population can lead to a better consumption structure; secondly, in different regions, the relationship between household characteristics and consumption structure is stable; thirdly, urban-rural differences do not have a significant impact on all types of consumption, so urbanization of China may not able to promote the upgrading in consumption structure; fourthly, at the provincial or higher level, the regional differences
have no significant impact on consumption structure, but at the county or lower level, the regional differences have a substantial impact on the consumption structure; fifthly, for consumption structure research, the variable of the family life cycle can be replaced by the variable of householder’s age.

**Lianxia Wu: Spatiality of Population Aging and its driving forces in China**

Based on the 2000 and 2010 population census data, this study aims to explore the spatiality of population aging in China in terms of its degree, pace, and pattern, as well as analyze its driving mechanism using Exploratory Spatial Data Analysis (ESDA) and Geographically Weighed Regression (GWR) Model. Between 2000 and 2010, China was experiencing countrywide population aging, while most regions were in its infancy and progressed fast. The spatial difference in population aging between eastern and western China was narrowing. The high-value aging clusters expanded from the eastern region to the central and western regions, while the low-value clusters concentrated from the northwest and northeast regions to the northwest. The degree of population aging and its provincial spatiality were combinedly determined by natural population growth, migration, and local economic development. Notably, life expectancy and mortality were the leading factors affecting the development of population aging in the long term. In addition, Gross Domestic Product per capita was the primary factor contributing to population aging in the early days of economic development (2000), while the net migration rate started playing a leading role in population aging with the economic development and the emergence of large-scale interprovincial migration. Furthermore, the spatial heterogeneity of weights for different factors mentioned above changed China’s spatial differentiation of population aging from North–South division (Yangtze River Basin as the boundary) to East–West division (Central regions as the boundary). Overall, the economic development and interprovincial migration fundamentally affected the spatiality of population aging in China.

**Mohammad Mahbubur Rahman: Rural-Urban Migration and growing urban informal settlements and its impact on Urban Ecosystem: A case study from Dhaka city, Bangladesh**

Dhaka, the capital of Bangladesh is under huge population pressure and going through a rapid urbanization process with substantial economic growth and industrial development. This qualitative study narrates the complexity of climate change induced displaced people and rural-urban migration. The story was curved from informal settlements of Dhaka city. Even though, it is extremely difficult to disintegrate climate change induced displacement from another form of migration particular care was given to the internally displaced people who are solely affected by the climate-associated extreme events and decided to migrate. Dhaka has already been experiencing increasing climate-induced urban challenges which are responsible for the miserable urban lifespan. Climate change induced displaced people migrate to the urban slums after losing their lives in their home and finds their way into urban areas with a hope for a better employment opportunity and a better life. The continual
growth of the number of urban informal dwellers, resulting in inequalities in
the dispersal of urban resources, municipal and health services and further
creates social and security problems. To this end, the study explores two
interrelated issues–firstly, how climate change induced displacement affects
the urban ecosystem services and urban symbiosis and secondly, how they
adapt to the urban built environment at individual household levels. A
grounded theory was followed by exploratory case studies and ethnographic
approach for narrating life and struggle of displaced people in this city. This
research finding will be useful for climate change adaptation planning and
people-oriented urban planning process.

Padma Prasad Khatiwada: International Migration and Citizenship in
Nepal
This paper examines trends and patterns of international migration and
citizenship in Nepal in view of increasing absent and foreign-born population
against the background of growing number of young Nepalese for foreign
labour employment. The paper uses data from Nepalese censuses, Nepal
Living Standard Survey 2011 and official records of Department of Foreign
Employment on Nepalese for foreign labour employment. Emigration rate
in Nepal is estimated at 10.77 per thousand populations according to last
census conducted in 2011 whereas immigration rate for the same period
stands at 0.46 per thousand populations. Gross migration rate and net
migration rate are respectively calculated as 11.23 and -10.32 per thousand
populations. Absent population in Nepal has increased from 762,181 in 2001
to 1,921,494 in 2011, which is 7.3 percent of its total population. In 1961,
foreign born population was nearly 4 per cent of the total population of Nepal,
only 1.6 per cent in 1981, 2.4 per cent in 1991, 2.7 per cent in 2001 and 2.8
per cent in 2011 showing a fluctuating trend. Similar trends are found in case
of foreign citizens, with 1.2 per cent in 1961, over 3 per cent in 1981 and less
than 1 per cent in both 1991 onwards. Nepal government has a policy to
encourage youths to labour work abroad hoping that they get employed there
and bring remittance for the country's overall development. Informed choice
of the citizens themselves regarding foreign labour employment is urgently
called for. Migration studies in future need to address the innovative
interdisciplinary studies of periodic migration with socio-cultural diversity
within Nepal.

Saroja Adhikari: Labour market status in Nepal 2017/018
Despite being in demographic dividend, Labour force participation in Nepal
is very poor. This poor participation rate represents that the many Nepalese
who could have employed and contribute to Nepal's economy choose to drop
out of the labor force. Although the reason for this weak participation in labor
force ranges from illness to Pension, Study/Training, etc, Family
responsibility is the major reason for the decline in the LFP of Nepalese
people. Due to the various reasons, more than one-fifth proportion of
Nepalese labor force is underutilized, that might cause a severe problem in
the long run. Huge gender disparity can be seen in the labor force. Women are
far more behind than the men in labor activity. Education found to play a
significant role in the activity of labor market and it has some mixed impact
on the employment status.

Samir KC & Yingji Wu: China aiming to lead the world economy with a higher educational base: Opportunity and challenges

As China aims to become the leading world economy driven by high technology-based industry, investing in its human capital base, high school education, is crucial. In the past, China has succeeded in expanding basic education nationwide. However, expanding high school education could be challenging due to younger adults from less developed regions dropping out of school to work, the high cost of education, low returns to and low quality of vocational education, and geographic heterogeneity. The central government could play a key role in increasing enrollment and reducing dropouts nationwide by making education free for all, channeling surplus education funds from richer to poorer provinces, building more schools near rural populations, increasing the quality of vocational education, and loosening the enrollment restriction in richer provinces.

Shaw Subhojit: Spatial modeling of child malnutrition attributable to drought condition prevailing across the districts of India

Background: Indian agriculture is mostly dependent on rainfall and irregularities may result in crop failure, and food shortage among the vulnerable population. Therefore, the consequences could grave on crop production and child nutrition. To aim this, present study has been conducted to examine the variations in drought condition and its association with under five child nutrition across the districts of India. Methods: Using NASA's satellite remote sensing data meteorological index, scaled drought condition index - (SDCI) was constructed. Univariate Moran’s I was calculated and bivariate LISA maps for stunting, underweight and wasting were generated to assess the spatial autocorrelation and clustering. And, we applied multivariate OLS and spatial autoregressive models. Result: Estimated Univariate Moran’s I statistic indicates highly significant spatial dependence in SDCI followed by underweight, stunting and wasting. Bivariate LISA maps showed negative spatial autocorrelation between SDCI and child health indicators. The regression results suggest that SDCI across the districts is substantially associated with the prevalence of stunting. And an increasing value of SDCI showed statistical association with the decreasing ($\beta$=-3.79; p-value<0.05) prevalence rate of child stunting across India. Though in the multivariate framework, SDCI did not show any statistical association with underweight and wasting prevalence across the districts. Conclusion: The SDCI is often used by researchers to determine if crop growing conditions are below average. This study provides evidence of the broader, long-term implications of drought on nutrition outcomes, which will further improve the knowledge of human vulnerability and adaptability in climatic context. Keywords: Child Nutrition, Climate, Drought, LISA

Xueting Li: Spatial Analysis of Social Vulnerability to Environmental Risks: A Study for China Prefecture Regions between 2000 and 2010

The recently observed increasing environmental risks have had serious effects on the livelihoods and the well-being of people worldwide in both developed
and developing countries, including China. While the level of risks may change across regions, people in the same area tend to be differentially vulnerable according to their age, gender, level of education, occupation, and other social and economic characteristics. China is marked by important regional differences resulting from socioeconomic and geographic inequality. Given the spatial heterogeneity of social vulnerability in China, the goal of this paper is to evaluate the spatial patterns of social vulnerability in Chinese prefecture regions between 2000 and 2010. The main contribution will be to study the spatial pattern and the dominant contributors of social vulnerability in China at prefectural-level in over the decade, taking into consideration demographic characteristics, education, economic status, occupations, infrastructure dependence and development.

**Yuanhui Shang: The Demography of Hong Kong People’s Ethnic Identity**

This paper studied the period and cohort effects of Hong Kong people’s ethnic identity by the hierarchical linear model. Using the surveys from June 2008 to June 2019 of identity indices of Hong Kong people from the Public opinion programme conducted by the University of Hong Kong, we create a “ethnic identity index” to quantitatively measure the Hong Kong people’s recognition between “Hong Kong identity” and “generalized Chinese identities”, and analyze its changing trend with periods and cohorts. The results indicate that the younger cohort, the stronger recognition of “Hong Kong identity”, and since 2014, Hong Kong people’s recognition of “generalized Chinese identities” has continued to fluctuate, reaching its lowest point in June 2019. The results of the model also indicate that only the period and cohort could not fully explain the changing trend of Hong Kong people's ethnic identity, and further analysis of age, period and cohort is needed.

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Fernando Riosmena, A re-examination of international migration theories, their interconnections, and integration with other fields of migration studies

In this intervention, I revisit the theories synthesized by an IUSSP Panel more than a quarter-Century ago, and which have been only slightly reformulated ever since. While the use of these different theories remains a useful heuristic to frame understanding of (and teach the) mechanisms that produce migration, I argue that new and old knowledge on contemporary and historical mobility suggests major modifications of some theories and their empirical testing, particularly on the need to better accommodate for decline in flows (as a result of cumulative migration mechanisms and otherwise) and to further incorporate destination, sending, and transit states more explicitly. This latter examination can potentially clarify the likely impact of migration-related and broader social policy on migration flows. Besides proposing these refinements on individual theories, I argue that more explicit guidance as to the way in which theories may overlap, co-exist, or -less commonly-offer alternative explanations can improve their empirical validation, which should better inform migration-related policies and practices.

Elin Charles Edwards, The global impact of international migration: What role does Asia play?

This paper reports on the impact of international migration on global population redistribution. The impact of migration is a function of its intensity, and its effectiveness, that is, the spatial imbalance in migration flows and counter-flows. To quantify the changing impact of international migration over time, we calculate metrics developed for the analysis of internal migration (Crude Migration Intensity, the Migration Effectiveness Index and the Aggregate Net Migration Rate) to time series estimates of global migration flows published by Azose and Raftery (2019). Results reveal that while intensity was relatively stable over the period 1990-1995 to 2010-2015, there was significant volatility in migration effectiveness and thus, overall migration impact. We undertake a series of decompositions to capture the contribution of national and regional migration streams to changes in global migration impact, and examine the role of Asia in the global migration system. Over the entire period, Asia and Western Europe accounted for half the global impact of international migration. North America and Western Europe contributed most to global migration impact in the early period, while in the later period, Southern Asia and Northern America were the most significant. The conclusion discusses the value of impact measures to understanding the global migration system.
Theodora Lam, The Ebb and Flow of Migration within CHAMPSEA Households: Changes in Household Formations and Migration Strategies over Time

Migration, though a livelihood strategy for many in Southeast Asia, is often underpinned by principles of enforced transience where those seeking low-waged work are recruited based on short-term contracts with limited or no opportunity for permanent settlement or family reunification at host countries. At the same time, migrants and their left-behind families find themselves caught up in a seemingly unending cycle of comings and goings as they continue to seek new or extended overseas employment contracts for periods longer than initially planned. This paper is thus interested in tracing the changes in household formations as well as migration strategies among migrant-sending communities in ‘source’ countries such as Indonesia and the Philippines. Based on research on Indonesian and Filipino rural households first studied in 2008-2009 and revisited in 2016-2017, the paper first focuses on how the mobility and immobility of various household members have shifted over the years, and how such shifts – namely the serial migration of one particular parent over the family’s life-course; relay migration where family members alternate in becoming the migrant; and homecoming migration when the migrant(s) return(s) – have affected left-behind family members. Next, the paper explores how long-term migration has affected and transformed the configurations of households – particularly marital unions – over time. Overall, the paper aims to highlight the experiences of (non)migration and separation for Indonesian and Filipino families after eight to ten years.

Karim Sk., Trend and Patterns of Gulf Migration and its Impact on Indian State: An Analysis Based on Kerala Migration Survey

In India, voluntary external migration has gained momentum due to the fast-changing occupational opportunities and socio-economic conditions of people. Due to the significant difference in wage rate between the countries of origin and destination, many of the skilled and unskilled workers have emigrated to a different part of the world. The main aims of the study to understand the economic inequality, examine the trends and pattern of food and non-food expenditure between Gulf migrant and Non-migrant households, and the pattern and determinants of occupational mobility among return migrants from the Middle East. 2011 and 2016 rounds of Kerala Migration Survey have been chosen which collected information of 13,199-panel households. Standard of Living Index (SLI) is constructed with the help of the information on fuel use, housing condition, landholding and possession of consumer durables of households. Theil inequality decomposition is applied to study the role of migration in household-level inequality in Kerala. Ordinary Least square method is applied for analyzing the determinants of variation in expenditure. Multinomial logistic regression has been fitted to understand the determinants of upward or downward occupational mobility. Migration and remittances had a positive and
significant role in creating inequalities in a standard of living between migrant and non-migrant households. People belonging to the uppermost wealth quintile are more likely to be mobile than the people belonging to the poorest category. The changes in occupations after a return is also influenced by the availability of occupations as well as the williness of returnees to accept those traditional occupations.

9:50am-10:10am  
Aude Bernard, Educational selectivity of international migrants: A global assessment

International migrants are well-established to be a selected group with respect to a number of characteristics, including education. Because existing comparative studies are based on stock data and focus mainly on developed countries, they fail to provide a contemporary understanding of the links between education and migration and the extent to which they vary between countries. This paper seeks to address this deficiency by drawing on flow data assembled from the Integrated Public Use Microdata Series-International (IPUMS) for over 50 countries from all world regions. For each country, we regress migration against educational attainment and include a set of control variables. We report results for individual countries and estimate global and regional population-weighted means. While the results reveal that migrants are on average more educated than natives in nearly all countries, the degree of educational selectivity varies significantly between countries and between males and females. We conclude by discussing variations within Asia and between Asian and other regions.

Coffee break

Patterns and trends of internal migration and urbanization in countries of Asia  
Chair Zhen Li

10:30am-10:50am  
The IMAGE-ASIA Project - Internal Migration in Asia: A Cross-National Comparison.

This paper reports progress on a cross-national comparison of internal migration in 20 Asian countries, building on a two-day workshop hosted and funded by ADRI in mid-2018. Contributions written by country experts are currently being edited and will be contained in a major book to be published by Springer in mid-2020. The key innovation of this project, known as IMAGE-Asia, is in coupling the quantitative measures of internal migration developed in the global IMAGE project with the richness of detail and interpretation derived from expert knowledge of the local context in each country. We will outline the purpose and structure of the volume, review development of the project, outline key findings from selected chapters and a background paper recently published in Asian Population studies, which quantitatively compared the intensity, selectivity and redistributive effect of migration in a large sample of Asian countries. The conclusion will highlight a number of consistent patterns that characterize migration processes in Asia and point out a series of unique aspects that distinguish individual countries from wider commonalities.

10:50am -11:10am  
Kumar Nandan, with R.B. Bhagat. Understanding Livelihood Strategy
In Rural India: Is Public Works Scheme (MGNREGS) Alternative or Complementary to Out-migration?

In the recent times the increasing risk or vulnerability of the livelihood of poor, rural and small land-holders livelihood has been recognized as an important. The findings from IHDS-II (2011-12) shows that in India at present, out-migration is taking place from 26.5 percent of rural households and the participation of the small land-holders household is higher in the process. The exodus in rural area is taking place while the average household earning from agriculture is as less as $ 0.5 a day, which is even lesser than the daily wage earning. However, household is not taking up out-migration in isolation but combining it with the different strategies of livelihood. Thus, the average household engaged in migration seems surviving on precarious sources of livelihood and diversifying the risk of income failure by deploying their labour-force at distinct locations. It is also found that while participation in out-migration process is dominated by the young adult male, participation in agricultural activities is dominated by middle aged adults with higher proportion of female, thus the combining of two activities at the household level is possible. Although the average income from remittance is higher than the income from agriculture but much equally distributed. The Gini-decomposition analysis suggests that the income from remittances doesn’t brings inequality in the income distribution in rural area, thus it helps in the survival and not offset the relative economic positions of the household.

11:10am-11:30am


Few macro analyses of inter-regional migration in China have explored how migration patterns have changed over time, and such analyses typically focus on interprovincial migration. We know little about inter-regional migration at smaller scales. In this study, we explore how patterns of interprefectural migration have changed in China since 1985. In particular, we are interested in learning if a single model can explain migration flows in different periods, and if there has been any change in the determinants of interprefectural migration. We use five-year interprefectural migration flow data from the 2000 census and estimates of interprefectural migration based on the 2005, 2010, and 2015 censuses.

11:30am-11:50am

Ying Huang, with Angela Zhuo Yue and Wenli Liu. Participation in the New Rural Cooperative Medical Scheme and the Intention of Urban Hukou Conversion among Migrant Workers.

In recent years, the hukou system—a household registration system that poses severe restrictions on mobility—has been undergoing reforms. The reforms increase opportunities for rural migrants to obtain urban hukou. Despite hukou reforms, only a small fraction of rural migrants have seized the opportunity and converted their hukou from rural to urban. Parallel to the lack of enthusiasm in urban hukou conversion is the growing social safety net coverage for migrant workers. In particular, the new rural cooperative medical scheme (NCMS)—a health insurance scheme that aims to make medical insurance more affordable for the rural peasantry—is perhaps one
of the most expanded programs. As migrant workers have more access than before to health care and other social services, the competitive advantage of urban hukou appears to decline. In this study, we use data from Survey for Floating Population 2017 by the National Population and Family Planning Commission to assess the association between NCMS and intention to convert to urban hukou among migrant workers. We show that, in the wake of largescale expansion of social safety net programs in rural areas, participation in the NCMS in rural areas is associated with migrants’ reduced intention to convert to urban hukou or to stay in city in the long run. Further, we find that the associations between the NCMS participation and intention to stay or convert to urban hukou are weaker among those who are highly engaged in social activities than those who are loosely engaged in the urban setting.

Lunch break

Lunch at Lehe Hall, Lehu Hotel

**Methods and Issues in developing sub-national population and human capital projection models**

*Chair Wolfgang Lutz*

1:30pm-1:50pm  **Arkadiusz Wiśniowski**, Bayesian forecasting of subnational population change

In this paper, we extend the well-known multiregional population projection model developed by Rogers and colleagues in the 1960s and 1970s to be fully probabilistic. The projections are based on forecasts of age-, sex- and region-specific fertility, mortality, internal migration, immigration and emigration. To capture the patterns found in cross-tabulations of demographic variables classified by age, sex and region, we apply log-linear models and extend them to include bilinear terms, such as the well-known Lee-Carter model used for forecasting mortality. The innovation of this article is in combining of the two approaches to deal with the high dimensionality of the demographic components. We demonstrate how the method permits taking into account the correlation structure across age, sex and regions in the demographic forecasting and thus provide a consistent and robust modelling platform for projecting subnational populations with measures of uncertainty. We illustrate the method by using data for eight states and territories of Australia.

1:50pm-2:10pm  **Nkuye Moyo**, A Review of Multistate Population Projection Methodology

Methods: We used cross-sectional data from the Zambia 2010 and 2016 Sample for Vital Registration with Verbal Autopsy (SAVVY). We used multinominal logistic regression to examine the association of the working population (15-64 years) adjusted for age, sex, occupation and residence with all causes and cause-specific mortality simultaneously for 2010 and 2016. Results and Conclusion: HIV related causes presented as the leading cause of death among the working population at both time points. A differentiated sex-cause-specific analysis however shows that while the rank order of major causes of death in 2010 was similar for males and females, they significantly varied in 2016. Diseases of the Circulatory system emerged as a leading cause of death among females at 20.1% from 4.9% in
2010. Injuries and accidents among males was the second leading cause of death at 14.9% from 9.8% in 2010 compared with women at 4.3% in 2016. This cause of death did not even rank among the top five leading causes of death among women. Variations in mortality patterns across the population persist for almost all causes of death. Estimation of cause-specific mortality for a choice of population groups, especially for countries like Zambia which lack functional vital registration systems is critical for the development of appropriate targeted mortality indicators.

2:10pm-2:30pm  
Rakesh Mishra, Testing Convergence Hypothesis in Age-Specific Fertility rates  
In context to the fertility convergence, the 1990s are considered as the benchmark of initiation. However, how the process of fertility convergence happened across the age pattern of fertility remained neglected. This study, however, abridged the research gap by assessing the convergence and divergence in age-specific fertility in 202 global countries. Further, this study has also captured the pattern of convergence and divergence in both period and cohort fertility schedules in the developing countries for a better understanding of fertility decline in the developing countries. Segregation of age-specific fertility demonstrated that the fertility convergence post-1990s in the world is accounted to convergence in fertility for four age-groups only viz, 25-29, 30-34, 35-39 and 40-44. However, the divergence analysis in 42 the developing countries ascertained through exhaustive empirical indicates for a sign of convergence in fertility in early age 15-19 only.

2:30pm-2:50pm  
Samir KC, MSDem: A multi-dimensional population and human capital model  
Understanding population dynamics and heterogeneity within a country provides essential insights for explaining social and environmental changes. To assist government planning and setting targets for administrators national statistical agencies are mandated to maintain population counts and monitor dynamics, including projections, by various demographic and socioeconomic characteristics at the national and sub-national levels. Recently, KC, Wurzer, Speringer, and Lutz (2018) published a paper in PNAS to understand the importance of population heterogeneity in projecting future population of India. They ‘independently’ projected population of India by considering a mix of various dimensions, starting with a simple age-sex model to a full age-sex-education-urbanization-state model. As a result, they developed an MSDem R-package to facilitate the running of many scenarios with varying numbers of dimensions. The package is publicly available and is applied in many projection exercises around the world. In the presentation, we will introduce MSDem package and some of its applications.

2:50pm-3:10pm  
Guillaume Marois, Sub-national Population Projection in Niger  
Niger has the fastest population growth in the world while being among the least developed countries. The rapid population growth that will continue in
the medium to long term represents a planning challenge for Niger's development. Both demographic and education variables occupy a central position in the government strategy without being necessarily linked. However, the future of Niger will largely be a reflection of its ability to meet both challenges. Within a project piloted by the Ministry of Planning, we have studied different future paths of demographic and educational development with the aim to inform policy, using multi-state population projection models. The projections are developed for each regions that face different challenges. Results of the scenarios are presented in terms of educational and demographic developments, also looking at the impact of closing the gender gap in education, studying economic dependency ratios, and the costs of investments in education.

**Coffee break**

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| 3:30pm-5:00pm | Closing and Discussion for Collaboration under Asian MetaCentre for Population and Sustainable Development Analysis  
Co-chairs Wolfgang Lutz and Leiwen Jiang |
| 5:30pm-7:00pm | Dinner at Lehe Hall, Lehu Hotel                                                               |