Data for Development

INDIA HUMAN DEVELOPMENT SURVEY

December 2017

Welcome to the India Human Development Survey Forum

A monthly update of socio-economic developments in India by the IHDS research community.

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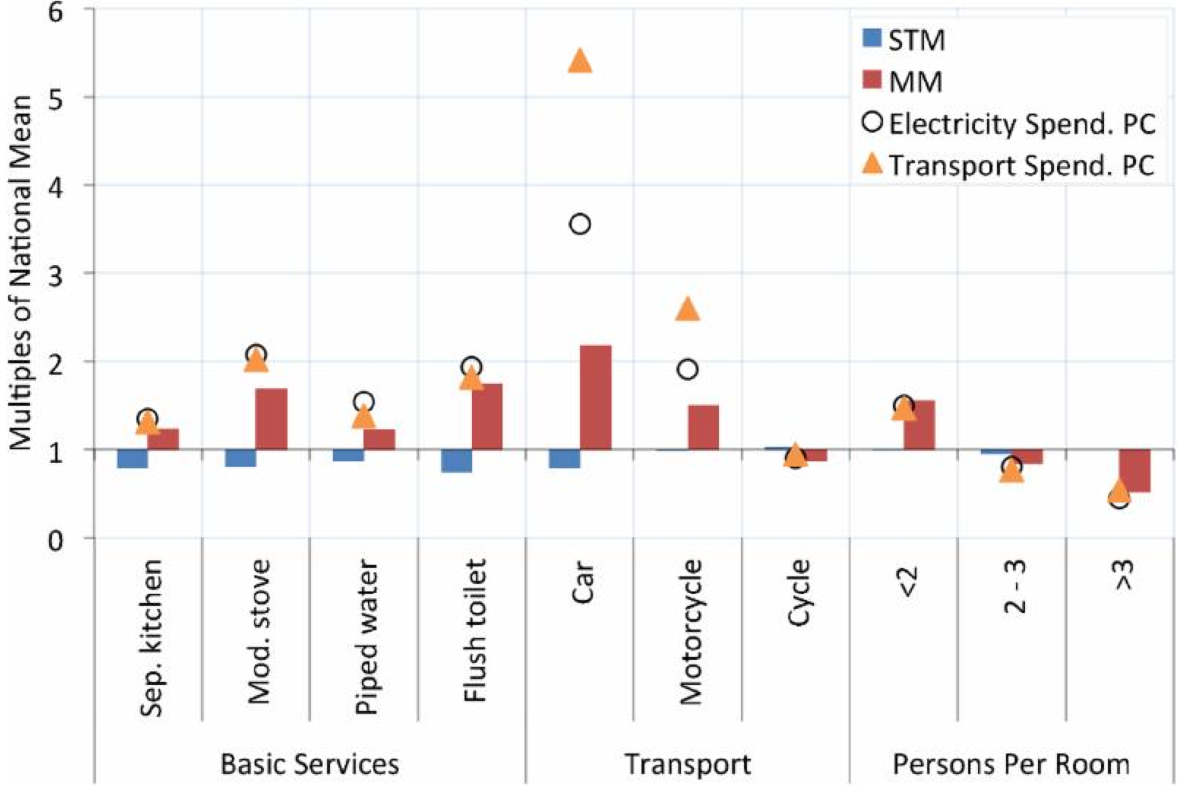
- Researchers working with IHDS data find that the***interaction between energy-efficient urbanisation and public health in India poses major development challenges***
- A paper using IHDS-II data assesses the ***extent and various socio-economic implications of energy poverty in India***
- Media Mentions
- Recent publications using IHDS

Research Findings Based on IHDS Data

Synergies and trade-offs between energy-efficient urbanization and health

by Sohail Ahmad, Shonali Pachauri and Felix Creutzig

Energy-efficient urbanisation and public health pose major development challenges for India. While both issues have been intensively studied, their interaction is not well understood. Here the authors explore the relationship between urban infrastructures, public health, and household-related emissions, identifying the potential synergies and trade-offs of specific interventions by analysing data from the nationally representative IHDS-I and IHDS-II household surveys, from 2004-05 and 2011-12, respectively. Their analysis confirms previous characterisations of the environmental health transition, and also points to the important role of energy use and urbanisation as modifiers of this transition. They find that non-motorised transport may prove to be a sweet spot for development, as its use is associated with lower emissions and better public health in cities. Urbanisation and improved access to basic services correlate with lower short-term morbidity (STM), such as fever, cough and diarrhoea. The analysis in the paper suggests that a 10 per cent increase in urbanisation from current levels and concurrent improvement in access to modern cooking and clean water could lower STM for 2.4 million people. This would be associated with a modest increase in electricity-related emissions of 84 ktCO$_2$e annually. Promoting energy-efficient mobility systems, for instance, by a 10 per cent increase in bicycling, could lower chronic conditions like diabetes and cardio-vascular diseases for 0.3 million people while also abating emissions. These findings provide empirical evidence to validate that energy-efficient and sustainable urbanisation can address both the challenges of public health and climate change simultaneously.



Note: Comparing prevalence of morbidity and energy spending (times) to the national average, by basic services, vehicle ownership and living space in India for 2005 and 2012.

Full Paper Here

Sohail Ahmad is an Alexander von Humboldt Research Fellow in the working group, Land Use, Infrastructure and Transport, at the Mercator Research Institute on Global Commons and Climate Change (MCC), Berlin, with joint affiliation with Technische Universität Berlin. His research interests include understanding the nexus among health, environment, and energy in low-income cities, and exploring policy relevant options for low-carbon urban development. He has previously taught at the School of Planning and Architecture, Vijayawada. He received his PhD in City Planning from Seoul National University,

Shonali Pachauri is currently Senior Research Scholar in the Energy (ENE) Program at the International Institute for Applied Systems Analysis (IIASA) in Austria. Her research focuses on the socio-economic, demographic and environmental dimensions of household energy use in the developing world. In her present capacity, she coordinates and leads research on analysing heterogeneities in energy access and use in the developing world, policy pathways for achieving universal modern energy access, and assessing the wider impacts of this for sustainable development. She has published extensively

Felix Creutzig is head of the working group, Land Use, Infrastructures and Transport, and Chair of Sustainability Economics at Technische Universität (TU) Berlin. He was lead author of the IPCC's Fifth Assessment Report and lead analyst of the Global Energy Assessment. Before joining the MCC and TU Berlin, he was a post-doctoral fellow at the Energy and Resources Group at the University of California, Berkeley, collaborating with Dan Kammen, Lee Schipper and Elizabeth Deakin, and the Energy Foundation China in Beijing. He received his PhD in Computational Neuroscience and holds a Master of Planning (Urban Planning) from the School of Planning and Architecture, New Delhi.

on these topics, both in the form of scientific peer-reviewed articles and policy reports. She holds a PhD from the Swiss Federal Institute of Technology, Zurich, and an M.Sc. from University College London.

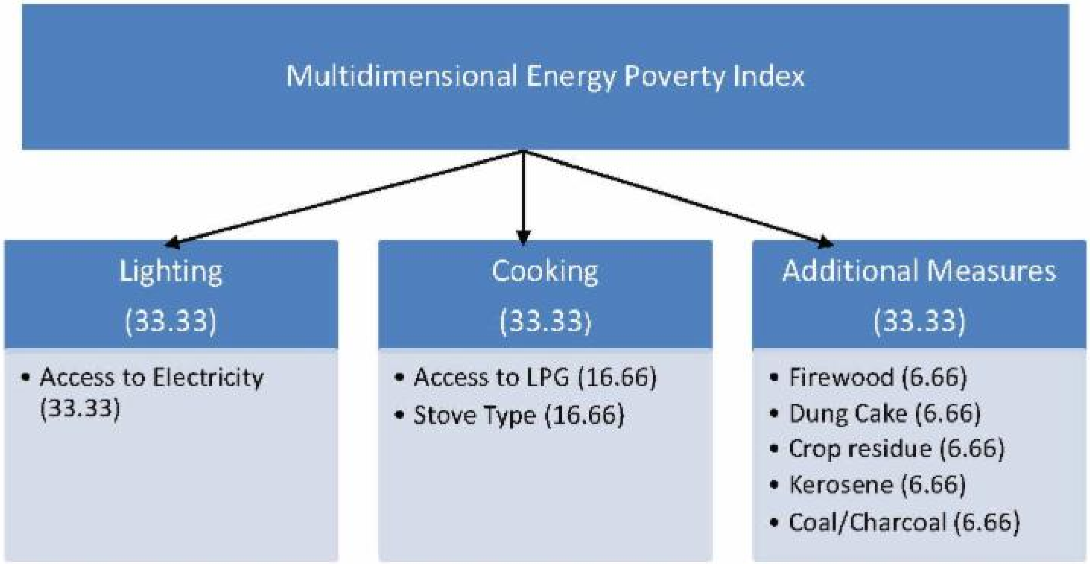
from Humboldt-Universität zu Berlin, and holds a Master of Advanced Studies (Path III in Mathematics) from Cambridge University, UK.

Assessing the extent and intensity of energy poverty using Multidimensional Energy Poverty Index: Empirical evidence from households in India

By Anver C. Sadath and Rajesh H. Acharya

In this paper, the authors have made a comprehensive assessment of the extent and various socio-economic implications of energy poverty in India. Amartya Sen's capability approach to development underpins the analysis of household-level data taken from the India Human Development Survey-II (IHDS-II), 2011-12 using the Multidimensional Energy Poverty Index (MEPI). The overall results show the widespread existence of energy poverty in India, which also coincides with other forms of deprivations such as income poverty and social backwardness. For example, Dalits and Adivasis are found to be extremely energy-poor as compared to the other social groups in India. The results also reveal that in traditional Indian households, women are responsible for domestic chores such as the collection of firewood and making of dung cake, and that the inefficient use of such biomass fuels is found to cause health hazards.

Dimensions and Corresponding Variables of Energy Poverty



Note: Each indicator weight is multiplied by the deprivation code assigned and the sum of these values represents the multi-dimensional energy poverty index. For example, a household does not have access to LPG and uses a Chula with chimney, has access to electricity, uses firewood, dung cake, crop residue, kerosene and coal/charcoal for lighting, heating or cooking purposes. The energy poverty score of the household will be {[(16.665*1+ (16.665*0)] + [(33.33 *0)] + [(6.66*1) + (6.66*1) + (6.66*1) + (6.66*1) + (6.66*1)]} = 50 percent.

Full Paper Here

Anver C. Sadath is Assistant Professor in the Department of Economics at Central University of Kerala. Prior to this, he was Assistant Professor of Economics at Aligarh Muslim University Malappuram Centre; and Indira Gandhi National Open University (IGNOU), New Delhi. His core research interest lies in Energy Economics. He has published extensively in national and

international journals and presented papers at various conferences on a wide range of topics including energy price fluctuations, energy subsidy reforms, energy poverty, and the impact of oil price fluctuation on macroeconomic variables. He received his PhD in Economics from University of Hyderabad.

Rajesh H. Acharya is Assistant Professor at the School of Management, National Institute of Technology, Karnataka, Surathkal. His research interest is mainly in the area of Energy Economics. In his recent publications, he has assessed the impact of energy price fluctuations at firm level investment, energy subsidy reforms in India, energy poverty, and the impact of oil price fluctuations on macroeconomic variables. He received his PhD in Economics from University of Hyderabad.

IHDS in the News

- Mehta, Anupma. "The Female Principle", *The Pioneer*, November 27, 2017. Link.
- Arora, Sonal. "Empowering Women through Job Creation", *Livemint*, November 28, 2017. Link.
- Kulkarni, Varsha S. and Raghav Gaiha. "Beyond Piketty: On Income Inequality",*The Hindu,* November 18, 2017. Link.

Recent Publications Using IHDS

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- Jacob, J.F. (2017). *Human Capital and Higher Education: Rate of Returns across Disciplines* Paper presented at the IARIW-ICIER Conference on "Experiences and Challenges in Measuring Income, Inequality, and Poverty in South Asia", New Delhi. Accessed on November 21, 2017. Link.
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- Kjelsrud, A., and R. Somanathan. (2017). "Food security and child malnutrition in India, ref. no. F-35125-INC-1". *Final Report—International Growth Centre*. Accessed on November 14, 2017.Link.
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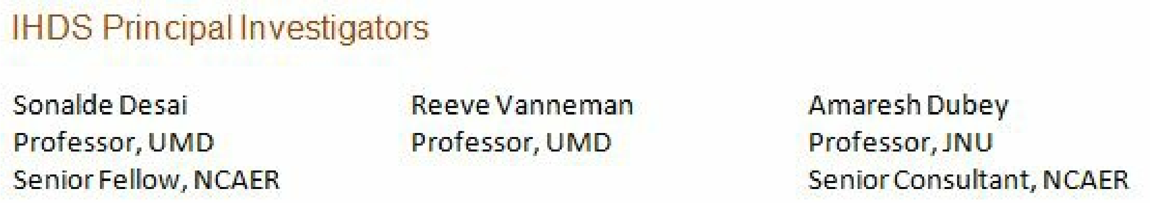
- Kastor, A., and K.P. Shrestha. (2017). "Reassessing the gender differences in type and place of health care utilisation in India: does the gender gap no longer exist?" *Journal of Public Health*. doi: 10.1007/s10389-017-0862-8. Accessed on November 7, 2017. Link.
- Thampi, A., and I. Anand. (2017). "Income Inequality and Polarization in India: The Role of Caste." Accessed on November 4, 2017. Link.
- Kumar, P., and U. Ram. (2017). "Patterns, factors associated and morbidity burden of asthma in India." *PLoS One, 12*(10), e0185938. doi: 10.1371/journal.pone.0185938. Accessed November 2, 2017. Link.
- Dubey, A., and A. Verschoor. (2017). "Income Mobility and Poverty Dynamics across Social Groups in Rural India, 1993–2005", in S. Bathla and A. Dubey (eds.), *Changing Contours of Indian Agriculture: Investment, Income and Non-farm Employment* (pp. 149-161). Springer

Singapore. Accessed on November 2, 2017. Link.

About IHDS

The India Human Development Survey (IHDS) is a nationally representative, multi-topic survey of 41,554 households in 1503 villages and 971 urban neighbourhoods across India. The first round of interviews was completed in 2004-05; data are publicly available through ICPSR. A second round of IHDS re-interviewed most of these households in 2011-12 (N=42,152) and data for the same can be found here.

IHDS has been jointly organised by researchers from the University of Maryland and the National Council of Applied Economic Research (NCAER), New Delhi. Funding for the second round of this survey is provided by the National Institutes of Health, grants R01HD041455 and R01HD061048. Additional funding is provided by The Ford Foundation, IDRC and DFID.



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