

On Infrastructure and Economic Development

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This study aims at quantifying the relationship between economic development and infrastructure. A macro concept, infrastructure has many components. How and to what extent each component affects development are explicitly examined from the angle of human development. A mathematical digression on the concept and measurement of human development is made in this paper and alternative Human Development Indices (HDI) are analytically discussed. The question of sensitivity of alternative HD indices is also examined. The quantitative study on the relationship between infrastructure and human development is made using West Bengal's district level data for the years 1980-81, 1990-91, 1995-96 and 1999-2000.

Infrastructure functionally stimulates and structurally transforms an economy (Joshi, 1990; Pal and Basu, 1998). An attempt has been made in this paper to study the quantitative relationship between economic development and infrastructure. Being a macro concept, infrastructure has many components. How and to what extent each component affects development are explicitly examined. Economic development is viewed from the angle of human development. A mathematical digression on the concept and measurement of human development is made in this paper and alternative Human Development Indices (HDI) are analytically discussed (Section I). The question of sensitivity of alternative HD indices is also examined (Section II). The quantitative study on the relationship between infrastructure development and human development is made using West Bengal's district level data for the years 1980-81, 1990-91, 1995-96 and 1999-2000 (Section III & IV). Section V contains concluding remarks.

I Human Development: Concept and Measurement

The concept of Human Development (HD) has been firstly used by UNDP in its Human Development Report (1990). In the traditional approach of per capita income, a proxy of welfare index, is used as an index of development. Though per capita income plays a vital role to explain welfare, cannot capture human well being in its totality. UNDP has defined HD as a process of (a) enhancing the basic capabilities and (b) widening the range of choices by the people such that they will be able to improve the basic means of their well being. Attainment of high level of income is naturally not the sole factor of HD. Healthy living and long life, upgradation of knowledge and skills, social awareness and initiative of the people, people's participation in administration and gender equality etc., are also important for the development of a nation.

HDI is hence defined in terms of choices and capabilities to which people have access in the economy. Let X_{ij} be the i th capability which people of the j th locational unit have, $i = 1, 2, \dots, m$ and $j = 1, 2, \dots, n$. $X_j = \{ X_{ij} \}$ is the capability set for the locational unit j and $X = (X_j)$ be the matrix of capabilities for the economy

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