

For India's Rural Poor, Growing Towns Matter More Than Growing Cities

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Summary. — We demonstrate that it is theoretically ambiguous whether growth of cities matters more to the rural poor than growth of towns. We then test empirically whether the economic growth of India's secondary towns mattered more to recent rural poverty reduction than did growth of the big cities. Satellite observations of night lights are used to measure urban growth on both extensive and intensive margins in the context of a spatial Durbin fixed-effects model of poverty measures for rural India, calibrated to a panel of 59 regions observed four times over 1993–2012. Lit area expansion had more effect on rural poverty measures than did intensive margin growth in terms of the brightness of light from urban areas. For India's current stage of development, growth of secondary towns may do more to reduce rural poverty than does big city growth although our theoretical model suggests that cities may eventually take over from towns as the drivers of rural poverty reduction.

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Key words — cities and towns, luminosity, poverty, spatial Durbin model, India

1. INTRODUCTION

There appears to be a broad consensus among development economists that agricultural growth, and rural development more broadly, is good for rural poverty reduction (although this was not always widely accepted).¹ Models of the development process have also attached importance to the scope for rural poverty reduction through urban economic growth, and some observers have seen this as the more important channel for rural poverty reduction.² Urban economic growth is expected to contribute to reducing rural poverty through two main channels:

- (i) Labor absorption: an expanding urban economy will benefit the rural poor by either absorbing surplus rural labor, as in the classic Lewis (1954) model, or by tightening rural labor markets (leading to higher wage rates).
- (ii) Backward linkages: growth in the urban economy increases public or private resources that benefit the rural poor; for example, greater urban demand for rural products may increase rural incomes or labor-augmenting technical progress in urban areas may increase the remittances sent back to rural families.

The strength of these channels has been an important issue for setting development priorities for India, as elsewhere. The evidence suggests that India's urban economic growth in the post-Independence period up to around 1990 did rather little to reduce rural poverty, although urban growth had reduced urban poverty, and rural poverty was primarily driven by rural growth (Ravallion & Datt, 1996). Since economic reforms began in earnest in India in the early 1990s, there has been considerable progress in reducing poverty, with trend rates of decline that are higher than in the pre-reform era (Datt, Ravallion, & Murgai, 2016). The indications are that urban economic growth since the early 1990s has been more poverty reducing, and that this has come with larger gains to India's rural poor (Datt & Ravallion, 2011; Datt et al., 2016).

Lanjouw and Murgai (2014) conjecture that the link from urban development to rural poverty reduction is stronger if urban economic growth stems from India's secondary towns rather than from the big cities. The secondary towns may be more tightly connected to the surrounding rural hinterland than are the cities, so growth in small towns may have more effect on rural poverty. Yet it is the big cities, defined as those with population above one million, that have the lowest poverty rates and that appear to be growing faster than the smaller statutory towns, with the share of the urban population in the big cities rising from 38% in 2001 to 42% in 2011 (Tripathi, 2013). Higher wage rates in larger cities will to some degree spill over to the towns and rural areas both through labor market adjustment and because they may generate larger trade and remittance flows. Thus, it is theoretically ambiguous whether larger cities generate larger gains to the rural poor.

The Lanjouw and Murgai hypothesis that India may have experienced faster poverty reduction if smaller towns had grown as fast as the cities is consistent with evidence from other countries on the relationship between poverty and city size (Ferré, Ferreira, & Lanjouw, 2012). However, it is difficult to test this hypothesis for India, or more generally to relate variation in growth of different types of cities to variation in rural poverty reduction. One difficulty arises because it is only once every ten years that city growth (in terms of population rather than economic output) is measured in India, using the census. A lot of the variation in rural poverty reduction occurs within a ten-year censal period and so would be missed by studies that rely on the census data to measure urban growth. Another difficulty is the absence of timely and spatially detailed (e.g., at city level) economic statistics.

* We are grateful to two anonymous referees and participants in the Secondary Towns, Jobs and Poverty Reduction Conference at the World Bank for their helpful comments, and to Geua Boe-Gibson for the preparation of the maps. Final revision accepted: May 12, 2017.

This study tests the hypothesis that it is the growth in India's secondary towns, rather than the big cities, that matters most for rural poverty reduction. Recognizing the lack of spatially disaggregated production data, we use night lights data to indicate urban economic growth, following [Henderson, Storeygard, and Weil \(2011\)](#). We distinguish between growth on the extensive and intensive margins, and between the growth of cities and of secondary towns. These new measures of urban economic activity using night lights data are econometrically related to sub-national poverty estimates that are formed at a finer spatial resolution than in the existing literature. Specifically, we use a division of India into 59 National Sample Survey (NSS) regions that are more finely grained than the usual division into states and union territories. Our study covers four observations for each of these regions between 1993/94 and 2011/12, based on NSS "thick" rounds (with larger sample sizes such that the survey is representative at the NSS regional level). We also account for the spatial autocorrelation that is increasingly apparent in patterns of rural poverty in India.

The following section provides a simple theoretical model of a three-sector labor market in which one of the sectors—the "big city"—has a labor market distortion, but wages are flexible in the other two sectors, the secondary towns and the rural hinterland, with workers free to move between the two. For this model, we derive conditions under which a given proportionate gain in output of the big cities has less impact on the rural wage rate than does growth in output of the secondary towns. However, this is only one possible outcome. Even in this simple model, city growth could more effectively "trickle down" to the rural poor. It is an empirical question as to which type of urban growth is better for the rural poor.

Section 3 describes our data for addressing that question, in which we have formed a regional panel data set, combining results from household surveys with data on the extent of nightlight. Section 4 explains our econometric model, which is calibrated to the panel data. Alternative models are described and are shown to be testable restrictions on our preferred (encompassing) specification. Our results are then presented in Section 5, which provide strong support for the hypothesis that economic growth in secondary towns has more impact on rural poverty than does growth of the big cities. Section 6 concludes.

2. A SIMPLE THEORETICAL MODEL

The purpose of the following model is to illustrate one source of urban–rural linkage, namely through the labor market, for which urban economic growth emanating from cities brings different gains to the rural poor than growth in towns. We suppose that the urban economy comprises two sectors, a town and a city. These are, of course, spatially separated, and there is also a rural hinterland. (In our empirical work we will use regional observations, with inter-regional spillover effects, but we do not need a concept of "region" for the present purpose.) In the spirit of the classic [Harris and Todaro \(1970\)](#) model of rural–urban migration in the presence of an urban labor market distortion, we assume that the wage rate in the city is fixed above the market clearing level, but the wages in the town and the rural economy are fully flexible, and come into parity. An increase in the marginal product of labor in the town leads to higher wages there, and also in the rural hinterland due to the integrated labor markets; indeed, in equilibrium the wage gains will be the same. Growth in the cities will

increase employment there, which will attract workers out of unemployment and from both the town and rural areas. This will bring gains to wages in the latter sectors.

In the context of this model, we ask whether economic growth in the town has more impact on poverty than does growth in the city. There is no inequality within sectors (although this can be relaxed to assume an inequality-neutral growth processes). The poor in this model are taken to be all workers except those who get a job in the city (i.e., rural plus township workers, plus the urban unemployed). In other words, the poverty line is below the city wage rate but above the rural and town wage rates.

In more formal terms, the model is as follows: The production functions are $A_i F_i(N_i^e)$ ($i = c, t, r$) for the city, town and rural areas respectively, where N_i^e denotes employment in sector i and A_i is an exogenous proportionate shift parameter. When we refer to "economic growth" in sector i we mean an increase in A_i . We only consider the comparative static effects of changes in A_c and A_t so we set $A_r = 1$. All three production functions are strictly increasing and strictly concave in employment. The respective wage rates are W_i for $i = c, t, r$. These are all taken to be normalized by the poverty line. The town and rural wage rates are flexible, such that all those who want work can find it; in equilibrium, $W_t = W_r$. The city wage rate is fixed, such that $N_c - N_c^e$ are left unemployed and they are assumed to earn nothing (where N_c is the city workforce, including the unemployed). In equilibrium, the rural wage rate is equated with the expected wage rate in the city (the probability of getting a city job times the city wage rate), $W_r = (N_c^e/N_c)W_c$. Firms maximize profits, requiring that wage rates equate with marginal products, $W_i = A_i F_i'(N_i^e)$ ($i = c, t, r$), with (variable) wage elasticities of labor demand denoted $\eta_i (< 0)$. Total population is normalized at unity ($N_c + N_t^e + N_r^e = 1$). We now consider the effects on rural poverty of a proportionate shift in output in the town versus the city. Since all rural workers are taken to be poor, we will only consider impacts on the rural poverty gap index (PG), which is the mean distance of the rural wage rate below the poverty line. Since $PG = 1 - W_r$ in our model, we focus solely on the rural wage rate.³

Proposition 1. *Economic growth in the town will have a larger (smaller) proportionate impact on the rural wage rate than does growth in the city if the ratio of the city workforce (employed plus unemployed) to the town's workforce is lower than (greater than) the ratio of the wage elasticity of town's labor demand to that of city labor demand.*

To verify this claim, consider the effects on the rural wage rate of an increase in A_c and compare this to the effect of an increase in A_t . On log differentiating and solving (invoking the usual implicit function theorem) we obtain:⁴

$$\frac{\partial \ln W_r}{\partial \ln A_t} = \frac{\eta_t N_t^e}{\eta_r N_r^e + \eta_t N_t^e - N_c} > 0 \quad (1.1)$$

$$\frac{\partial \ln W_r}{\partial \ln A_c} = \frac{\eta_c N_c}{\eta_r N_r^e + \eta_t N_t^e - N_c} > 0 \quad (1.2)$$

Growth in either urban sector reduces the rural poverty gap. The ratio of the two proportionate effects on rural wages is:

$$\frac{\partial \ln W_r}{\partial \ln A_c} \bigg/ \frac{\partial \ln W_r}{\partial \ln A_t} = \frac{\eta_c N_c}{\eta_t N_t^e} \quad (2)$$

Thus Proposition 1 follows.

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