Please weight: when confronted by a large Indian statistic, divide by population

The latest wealth index by New World Wealth that looks at multimillionaires has ranked India eighth in the global rich list. But **Maitreesh Ghatak** *and* **Debraj Ray** *contend that looking at absolute numbers can be misleading. Accounting for population and economic differences across countries, it shows that while India does not stand out in terms of income going to the top 1%, it does in terms of income going to the top 0.1%.*

The Times of India recently reported, not without a certain self-congratulatory air, that:

> *"The latest wealth index by New World Wealth that looks at multimillionaires — an individual with net assets of at least US$10 million — has ranked India eighth in the global rich list, below countries such as the US, China, Germany and the UK but above Singapore and Canada."*

This has certainly sent Indian cyberspace into a little tizzy. A common celebratory headline: "India has more multimillionaires than Australia, Russia and France!" And given that the largest number of the world's poor also live in India, a common admonitory reaction is: "See? Told you so! India is just a corrupt society."

It's the population

This isn't the first time we've been gobsmacked by the sort of numbers India can generate. Recently, farmer suicides did the rounds, with the already large numbers (around 300,000 since 1995) helped along by the Indian numbering system: read here for why some participants in a recent BBC debate had it wrong by a factor of 10. All quite understandable: India is so large that nobody has a real sense of the numbers anyway. This is why the following handy little motto should always be clutched close to heart and brain: when confronted by a Large Indian Statistic, consider dividing by the population.

We learn from the same source (New World Wealth) that the world has 495,000 multimillionaires, and India has 14,800 of them. Divide: India has just 3% of the world's multimillionaires. It has, however, 17% of the world's people. Suddenly India is looking like it does not have its 'fair share' of multimillionaires.

Now, of course, India is a poorer country. The real question is whether India has more than its expected share of multimillionaires, once we take into account this fact. To do this in a lot of detail will take some real work, but we're in a back-of-the-envelope mood for this post. So, whipping out a handy envelope on World Bank letterhead, we carry out some quick calculations.

In 2012 Indian per-capita income was US$1,550, and world per-capita income around US$10,235, suggesting that the ratio of Indian per-capita income to the world average is a measly 0.15. Meanwhile, the multimillionaire ratio (India's share relative to its population) is 3/17 = 0.17. These two ratios are very close, which suggests that neither self-congratulation nor admonition is quite called for at this stage. But we will need to dig deeper.

Accounting for differences in income and inequality

Let's think about millionaires for a moment: those with assets of US$1 million or more. According to WealthInsight (see this link), India had 251,000 millionaires in 2012, around 0.02% of the population. The corresponding number for the United States is 5,231,000, around 1.64%. Thus, using the United States as a benchmark, India's millionaire share in the population relative to the US is 1.22% (the ratio of 0.02 to 1.64). At the same time, India's per capita income is only 3% of that of the US. So: does India have *too few* millionaires relative to the United States, after making the income correction?

Not really: if two countries have the same level of relative inequality but different average incomes, a halving of average income predicts a change in the percentage of (multi)millionaires in the population by a factor that typically *comes down by more than half*, the exact prediction depending on the distribution of wealth. This is (in part) because "millionaire" or "multimillionaire" is a threshold concept: a fixed monetary figure (US$1 million for the former, US$10 million for the latter) has to be crossed. One good way to explore the predicted change is to employ a Pareto distribution of wealth (see below), along with the population-weighted average Gini coefficient for wealth distributions (which is a bit over 0.65, and calculated from this link). Then a halving of per-capita income is expected to lower the (multi)millionaire share of the population by a factor of approximately 2.38.

If we really go out on that limb and plummet from the heights of US per-capita income (US$ 50,660) to that of India (US$ 1,550), we would expect both the millionaire share and the multimillionaire share in India to be approximately 1.28% that of the United States. Since the actual millionaire share in India relative to the United States is 1.22%, which is remarkably close to the prediction, India does not appear to be out of line, as far as *millionaires* are concerned (and after we have corrected for economic differences). But the case of *multimillionaires* tells a rather different story. In India the multimillionaire share is 0.001% of the population, while in the United States it is 0.058%. Taking ratios, we see that the multimillionaire share in the population in India is 2.06% of the corresponding share in the United States. This number is surely high relative to the prediction of 1.28%.

This parallels findings by Piketty and his colleagues. India does not stand out in terms of income going to the top 1%, but it does in terms of income going to the top 0.1%. While there is noise in all these data, we would tentatively conclude that India, controlling for economic differences, has 'more multimillionaires than it should.' While this may generate applause in some circles, we would therefore side with the admonitory warning bell sounded by Raghuram Rajan.

Remembering that the United States is itself a country with very high inequality, this is additional cause for concern. For instance, China comes in below its predicted value for both millionaires and multimillionaires, but admittedly, data issues are a bigger concern for it. Countries such as Japan and Germany also come in far below the predictions for multimillionaires, as does the world as a whole. Countries with a significantly higher share than their predicted values are Hong Kong, Singapore and Switzerland (Table 1). Another major issue is the presence of the shadow economy. According to a 2010 World Bank study, the fraction of India's national income that is unreported is at least 20%, which is twice that of richer countries. It is widely believed that this is a gross underestimate. Therefore, the real extent of the presence of multimillionaires is likely to be higher.

Table 1. Actual shares vs. predicted relative shares of millionaires and multimillionaires.

Country	Relative Income	M-Share	MM-Share	Predicted Relative Share	Relative M-Share	Relative MM-Share
India	0.03	0.020	0.001	1.28	1.22	2.06
China	0.11	0.094	0.002	6.54	5.71	3.38
Hong Kong	0.72	2.604	0.213	65.88	158.56	370.25
UK	0.75	1.053	0.034	70.08	64.12	58.76
Germany	0.88	1.643	0.031	85.44	100.03	54.62
Japan	0.94	1.656	0.017	92.73	100.85	28.68
US	1.00	1.642	0.058	100.00	100.00	100.00
Singapore	1.01	2.908	0.122	101.06	177.07	212.20
Switzerland	1.60	3.639	0.224	179.66	221.61	389.25
World	0.20	0.167	0.007	13.54	10.18	11.97

Notes and Sources: Relative Income is country per-capita income relative to US per-capita income (World Bank Databank). *M-Share* is millionaire divided by population, in %, and *MM-Share* is multimillionaire divided by population, in % (Times of India, New World Wealth, WealthInsight, and UN). *Predicted Relative Share* uses Relative Income and a Pareto distribution, along with the population-weighted average of within-country wealth Ginis (approx. 0.67) to generate predicted relative share of millionaires and multimillionaires in each country relative to the United States, in %. Relative M-Share and Relative MM-Share are the actual relative shares generated from columns 3 and 4, by expressing those numbers relative to the US numbers in %.

Take-away points

India is poorer than the world average and so naturally has a greater percentage of poor people and a lower percentage of rich people. Yet using the absolute numbers, India has more of almost everything, which is misleading. Indeed, correcting for income differences, India has the 'expected share' of millionaires relative to the United States. However, looking at the super-rich, namely, the multimillionaires, India does have more than its expected share: something not too savory is cooking on the very end of the right tail.

Lesson: for India, always do the percentages, whether for multimillionaires or for farmer suicides. We might then learn something.

Note: The Pareto distribution is a distribution commonly used to study the right tail of a distribution, which in the case refers to income or wealth. It captures the way a larger fraction of the wealth of any society is owned by a smaller percentage of the people in that society.

A version of this article has appeared in the Economic Times, and on the Ideas for India *blog.*

About the Authors

Maitreesh Ghatak *is Professor of Economics at the LSE. He is Lead Academic on the* IGC *India-Bihar country team and Economic Organisation and Public Policy Programme Director at* STICERD*.*

Debraj Ray *is the Silver Professor, Faculty of Arts and Science, and Professor of Economics at New York University.*