

There's a cold, hidden truth that lies behind the country's low refrigerator ownership

What's Inside India's Fridge



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The electric refrigerator was invented in the early 1910s. Nearly all US households owned one by 1950. The adoption rates were also similarly high in a number of other countries. Such a fast diffusion rate of a household appliance indicates that families attached an enormous value to the refrigerator's ability to preserve food at a uniform temperature—which resulted in a quantum jump in family welfare.

A number of studies show that the refrigeration of food drastically improves health outcomes, especially for children. It also lowers time and effort spent on household tasks such as grocery shopping and cooking by women. A study published in 2006, *Engines of Liberation* by Jeremy Greenwood, Ananth Seshadri and Mehmet Yoruloglu (Review of Economic Studies, 73(3)), showed that between 1900 and 1970, the introduction of such durable goods reduced the time spent on household work by nearly 70%.

By saving women's time in housework, the adoption of a refrigerator, along with other consumer durables such as the washing machine and microwave oven, eased women's entry into the job market in advanced economies. In turn, it raised family incomes and leisure time. A number of studies consider this as a critical factor in raising women's emancipation.

Nearly 90% families in China today have a refrigerator. What about India? The 2016 ICE360 survey showed that a little less than 30% of Indian

families have a refrigerator. At first glance, we may conclude that a fridge is still an aspirational product that doesn't fit into the majority of Indian families' budgets. That reasoning, however, does not hold up.

The same survey showed that even in the top 20% of the richest Indian families, only six out of 10 families have a fridge. This suggests that constraints other than affordability are at work here that influence households' decision to buy a refrigerator.

While a threshold level of income is a necessary condition for the purchase of a refrigerator, it is not the sufficient condition.

The 2011 census shows that nearly twice the number of households in rural India own a two-wheeler, which costs much more than a fridge. This kind of hierarchical pattern in the ownership of a two-wheeler and a fridge in India is unlike in any other major economy.

So Women can Chill

In a March 2017 paper in the *Journal of Quantitative Economics* (From Income to Household Welfare: Lessons from Refrigerator Ownership in India, by Sowmya Dhanraj, Vidya Mahambare and Poonam Munjal), this apparent puzzle is explored.

Following a robust statistical methodology and controlling for the impact of a number of other determinants such as regional influences, two factors stood out.

One, a refrigerator is unique among all energy-using consumer durables. Unlike the television or air conditioner, the decision to purchase a fridge depends not only on the access but also reliability and duration of residential power.

Unlike a TV, a fridge is of little use unless uninterrupted power supply is guaranteed. Nearly 43% of rural households and 13% of urban households in India either do not have access to electricity, or receive electricity for less than eight hours. This



The light at the end of the panel

makes it a major constraint to buy a durable such as a refrigerator. In fact, only around half of India's population receives residential power for more than 16 hours a day.

Two, unlike a TV, which is a leisure good, a refrigerator disproportionately benefits women in the family. As a result, a decision to purchase a consumer durable is also driven by their bargaining and decision-making power within a family. And what would tilt the intra-household bargaining power in favour of women? It is largely the function of the education level of women.

The results of the study suggest that in both rural and urban areas, female education and its potential impact on increasing their earning capacity raise women's decision-making power within a household. In turn, it raises the probability of refrigerator ownership.

A related—and an often overlooked—fact about the role of women is that India is set to forgo a large share of its so-called demographic dividend if more women do not begin to work outside home. Rough calculations suggest, if the percentage of work-

ing-age women who work outside home in India and China stays at their current levels—27% and 64% respectively—India would have an overall lower labour force even in 2030, despite having a much larger working-age population.

Policies in Cold Storage

To sum up, the slow penetration rate of refrigerator ownership is largely an outcome of the failure of India's social and economic policies. A rise in incomes per se does not necessarily lead to an increase in welfare, unless the government plays a supportive role, in this case by improving the energy and education policies.

The results also have implications for demand forecasting for firms selling durable goods such as refrigerators. The projected adoption rates of durables such as a fridge or a washing machine (piped water is a major constraint in India), based purely on the income levels, would overestimate the actual demand.

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Across the country, female education and its potential impact on increasing their earning capacity raise women's decision-making power within a household

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