

Working paper

Rates, Redistribution and the GST

Monica Singhal

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Overview

For all of modern India's history, the sales tax system has been jointly controlled by the Union and State governments. The State governments hold most of the statutory power over commodity taxation, but lack important powers like the ability to regulate services and inter-state commerce. In response to a dearth of other tax-raising powers – the Union government can also levy income and wealth taxes, production excises, and most taxes related to trade and travel – the states have historically relied on sales taxes as their largest and most reliable source of income. The states have typically adjusted the tax code to reduce effective rates for poor households, and steer consumption in socially desirable directions. The resulting tax system is complicated and distortionary, and is at best an indirect and inefficient way of achieving revenue and distribution goals. By 1994, Bihar alone had at least 20 different rates varying from 0 to 25%. Revenues were low and tax evasion rampant, in part because the complexity made it easier for firms to disguise revenue from tax collectors.

In 2005, the Indian tax system underwent the most significant reorganization in its history. The reform, known as the value added tax (VAT), dramatically simplified the tax system. In Bihar, goods were recategorized into one of four categories: tax-exempt, or taxed at one of 1%, 4%, 12.5% or 20-50%. Staples like rice and rice products, edible oils, and kerosene were taxed at 4% or below. As we argue in our accompanying memo, *Distribution of the Commodity Tax Burden in Bihar, 1994-2010*, this reform reduced effective rates for most households and substantially increased the progressivity of the system. Despite the lower rates, tax revenue increased above and beyond that expected by economic growth, in part because the simpler system made collection easier.

Although the new system was an improvement in many aspects, it was equally deficient in a number of others. A true value added tax is usually defined by the following characteristics: (1) there is a single national rate for all goods and services; and (2) the tax applies only to the value that a firm adds during production, not to the entire cost of their output. The Indian VAT violates both these principles, diluting the efficiency gains from the tax. First, each state has been free to adjust the rate and composition of each category of good. The catch-all category usually includes alcohol and tobacco, and rates vary widely across states. Each state and district is still empowered to collect other types of tax, severely undermining the statutory uniformity of the rates. A number of states did not implement the VAT, and all still have aspects of the old, more complicated system. Second, there is no mechanism to allow firms credit for tax paid on inputs produced in other states – making the system analogous to 35 separate tax codes, rather than a true national system.

The upcoming general sales tax (GST) is aimed to solve the existing problems with the VAT, generating gains of 0.9-1.7% of GDP (National Council of Applied Economic Research, 2009). Although the final details of the GST are still being negotiated by the states and centre, the existing outline is detailed enough to allow some analysis. Using NSS consumption data, we estimate the effect of the GST reform on the rates and progressivity for households in Bihar. We find that the GST severely undermines the progressivity of the existing system. Under certain assumptions, the system even becomes regressive with respect to expenditure. In the aggregate, the effective rate on households is not much different from a single-rate VAT, with both low- and high-expenditure families paying similar rates.

Data

We collect and clean data from the most recent National Sample Survey of India (NSS). The 2010 NSS surveyed about 200,000 Indian households, and 9,135 households in Bihar. It contains information on a number of demographic factors, including family size and structure, religion and caste, and age, education, occupation and marital status for each household member. Most importantly, it contains household-level consumption information for hundreds of categories. Fortunately for our purposes, many of the NSS expenditure categories are similar to the commodity definitions used by state tax officials.

We also clean and organize tax data from the private data firm Instavat for the year 2010, to understand the effective rates and progressivity of the current VAT system. Information on the Central VAT comes from the website EximGuru. Accurate historical information on customs rate is not, to our knowledge, readily available, so our analysis carries the assumption that imported goods are taxed at the Central VAT rate for each category.

Calculating the Tax Burden and Tax Progressivity

Tax Rates and Implied Tax Burdens

Although the details of the upcoming GST have yet to be published, we examine three different scenarios. In each scenario, there are three rates: for services, for normal goods, and for essential goods. We assume respective rates of 16%, 20%, and 12%, which is in line with current expectations (Indian Express, 2010). These rates are the combined state-federal rates — technically, each rate is made up of a federal portion and a state portion, although the state percentage will be fixed so that the rate is the same nation-wide.

We adjust our hypothetical tax codes to allow for goods being in different categories. Scenario 1 taxes the strict essentials of rice, wheat, sugar, pulses, edible oils, and kerosene at the 12% rate. Alcohol and petrol, which are rumored to be excluded from the GST system, are taxed at their current rates of 50 and 24.5%, respectively. Remaining goods are taxed at 20% and services at 16%. Scenario 2 expands the essential category to all goods that Bihar taxed at the concessional rate or below in 2010. Most significantly, this includes all food items and clothing, all fuels except petrol and diesel, jewellery and some household durables. All other rates are kept at the same level. Finally, Scenario 3 assumes that goods that are currently exempt will remain exempt, while otherwise maintaining the rate structure of Scenario 2.

We apply this statutory rate to expenditure categories from 2010. For example, if a household spends 300 Rs. on spices in a year, and the tax rate on spices is 20%, we assume that the amount of tax is $300 \times 20 / 100 = 60$ Rs. We then do the same across consumption categories and aggregate to the level of the household. Using Instavat data for 2010, we also calculate expected tax rates for households in 2010. Note that these calculations make implicit assumptions about (1) the economic incidence of taxes; (2) tax compliance; and (3) the level of home production. These assumptions are examined in more detail in our accompanying memo, but one point needs to be addressed in further detail: how cascading affects sales taxes differently than a VAT.

As in our other work, we assume that the incidence of the tax is fully on the consumer, except for in the case of the Central VAT in 2010, which we address below. In the current VAT system, taxes are often (but not always) levied on each stage of production, meaning that for products with multi-stage production, the total amount of taxation is somewhat higher than the rate alone would imply. There is a system for tax credits on inputs, but it is incomplete in two main ways. First, credit is not available for inter-state trade. A firm buying inputs from a firm in another state would have to pay tax on the entire value of their output, rather than just the value-added. The federal Central Sales Tax (CST) applies to inter-state trade, but cannot be used as credit against state VAT payments.

Second, tax credits are available only for goods, not services, and credit is not available for a manufacturer producing tax-exempt goods. The result is that for certain complicated supply chains, the tax is paid multiple times.

For example, if a good is used as an input to a service that is an input to another good, tax would be paid twice on the original input. Firms tend to avoid such double payment by limiting inter-state trade and reducing the use of contractors in certain situations, but there is still some tax cascading, which results in higher government revenues than a pure VAT at the same rate would produce.

The Central VAT is an excise tax levied by the Centre on the production of goods. Since the share of the price that comes from actual production (as opposed to the service components) is different in each good that the consumer actually purchases, the implicit tax rate varies for each category of good, on top of the explicit variation from having different tax rates for different goods. Furthermore, some research suggests that the incidence of taxes on developing-country manufacturers can be less than 1. Jeetun (1978) suggests a value of 0.35 for Pakistan, citing fixed-rate markups by producers and wholesalers. To compensate for these two factors, we weight each tax rate by the 2012 non-service share of the economy (44.4%), and the estimated incidence rate.

Under the GST, rates are significantly higher but are levied only on the value-added at each production stage, eliminating cascading. The two systems are expected to raise a similar amount of revenue, implying that our 2010 estimates understate the true effective rate. We therefore focus our attention primarily on the progressivity of the proposed GST and not on the effective rate, which according to current proposals, should be approximately the same on average.

Results

We present estimated VAT rates for Bihar in 2010 in Table 1 and Figure 1. The exhibits indicate moderate progressivity, with most of the increase in tax rates for higher-expenditure households coming in the last two deciles. We provide figures under two assumptions: that all consumption is taxed at the statutory rate, and that home production is excluded. The latter is the more realistic, but home production has shown large decreases in the last decades and will continue to do so as India modernizes. The all-consumption rate is included as a reference point for what the proposed system would look like as home production drops towards zero. We first discuss estimated tax rates not allowing for home production, and then turn to the implications of home production.

The estimated tax rates by decile are presented in Figure 2. The first important fact to note is that implied tax rates are substantially higher for all households under all three Scenarios relative to the current system (Figure 1). This is not surprising, since the rates assumed for the GST reform are much higher than the existing combined VA-Central VAT rate. Two factors are important to note when making this comparison. First, as implementation comes closer, the number of goods classified as tax-exempt could be anywhere between Scenarios 1 and 3, or potentially even higher to offset the higher rates on non-essentials. Not allowing such exceptions will create a simpler, more consistent tax code, but will be a major departure from the existing system which taxes many staples (comprising a large share of household expenditure) at rates far lower than the proposed “essentials” rate. Second, as discussed above, the 2010 statutory rates may be underestimates of the true current effective tax rates due to cascading.

Moving from Scenario 1 to Scenario 2 reduces the levels of effective tax rates, since more goods are assumed to fall into the “essentials” category. However, it does not change the overall shape of the average tax rate schedule. Aggregate rates in Scenario 3 are again lower than in Scenario 2, because Scenario 3 assumes that Bihar maintains current exemptions on basic foodstuffs, clothing and firewood. These patterns across Scenarios hold when we take home production into account below.

Implied tax progressivity under the current system vs. the GST scenarios is quite different. Under the current system, the average rate by expenditure varies from 3.7 to 5.1%. Under the simulated GST, however, the lowest- and highest-tax consumption deciles are 14.4 and 15.1%, under Scenario 1. Implied tax rates are close to flat through the expenditure distribution, with only modest increases even at the very top. This is due to relatively

low variance in levels of staple consumption. Using the relatively strict Scenario 1 definition, the bottom decile spends 36% of their budget on staples. The top decile still spends 21%.

We next turn to the effects of home production. As noted in Figure 1, taking home production into account does not affect the implied tax schedule under the current system, since most home production goods are exempt or taxed at very low rates. This is no longer the case under the proposed GST reforms.

Figure 3 presents the same simulations as Figure 2 but now allows home production to be untaxed. Note that this analysis is a simplification, since the level of home production itself might change if the GST reforms were actually implemented. Using the NSS 2010 levels of home production by consumption category, we see that the high variance in home production across the expenditure distribution results in large variation in effective tax rates. Figure 3 displays this variance in terms of deciles means, where the effective rate varies from 13.7% to 12.0% under Scenario 1. In all three Scenarios, the implied tax system becomes regressive with respect to expenditure. Again, this occurs largely because high expenditure households (in particular, high landholding households) engage in more home production, thus avoiding taxes paid on these commodities by poorer households. In addition, since much of home production is explained by land ownership, the system implies higher effective tax rates for urban households than rural households, with this gap being largest at higher deciles of the distribution.

Table 1 summarizes the information from Figures 1, 2, and 3 with implied rates by expenditure decile.

Conclusion

The GST is currently scheduled to be implemented in 2013, but could conceivably be delayed for several years, conditional on the negotiations between the Centre and the States. The analysis above necessarily relies on strong assumptions about the form of the eventual system that is adopted. However, these results suggest several factors of particular importance to consider going forward.

First, the proposed rate structure (at least as it has currently been made public) implies substantially higher tax rates for goods comprising the majority of household expenditure than the current system. This may result in strong pressure to exempt more goods from the GST system. Second, the GST Scenarios analyzed here all imply reduced progressivity as compared to the current system in Bihar. These distributional considerations will need to be considered carefully in the upcoming debates. Finally, the role of home production is important when thinking about the effective progressivity of the system. At the time of implementation, home production will still be a significant factor in effective the rates and progressivity of the tax code, but will likely have declined further from the 2010 patterns we use in this analysis. The true shape of the effective tax code will likely be somewhere between Figures 2 and 3. It is also important to note that the proposed reforms will likely create a greater tax wedge between purchases and home production than under the current system, potentially distorting household production decisions.

Figures

Figure 1: VAT Rates by Expenditure Decile, 2010

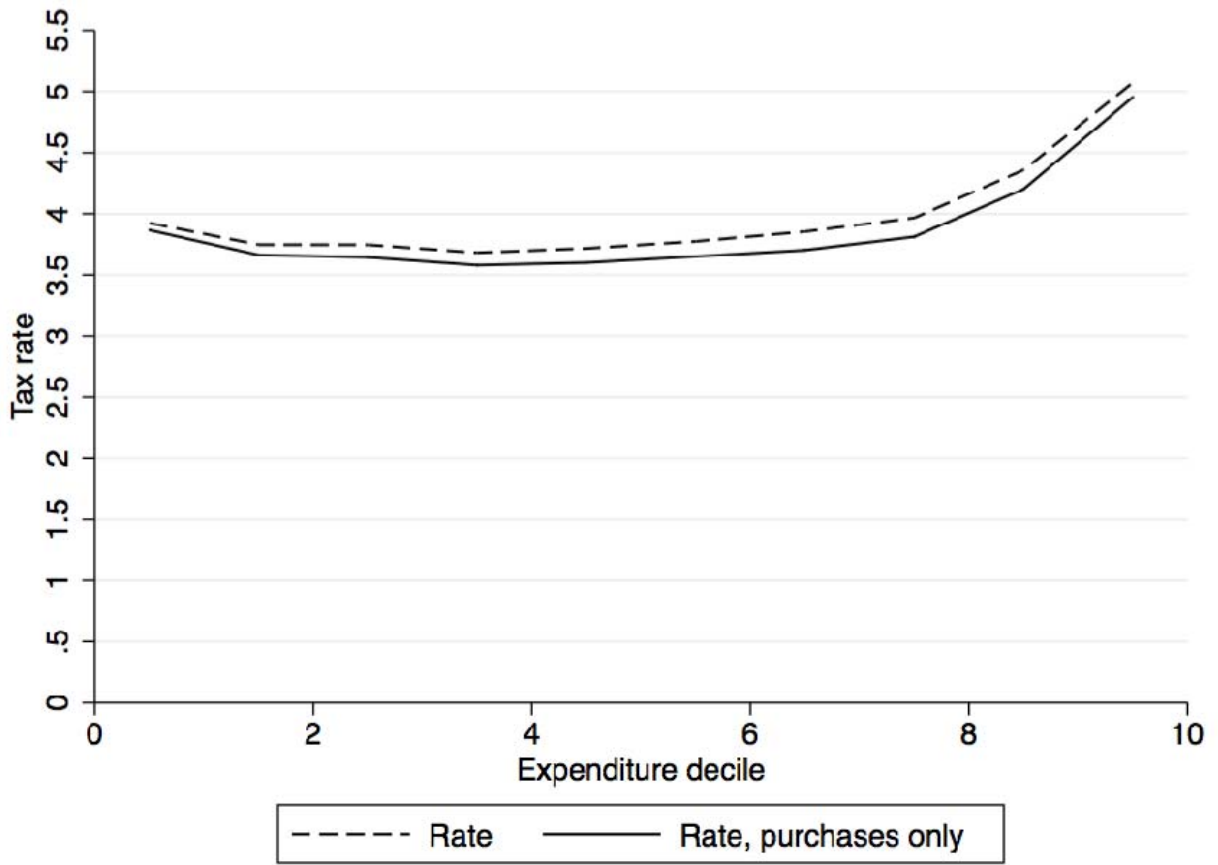


Figure 2: Predicted GST Rates by Decile, 2010 Consumption Data

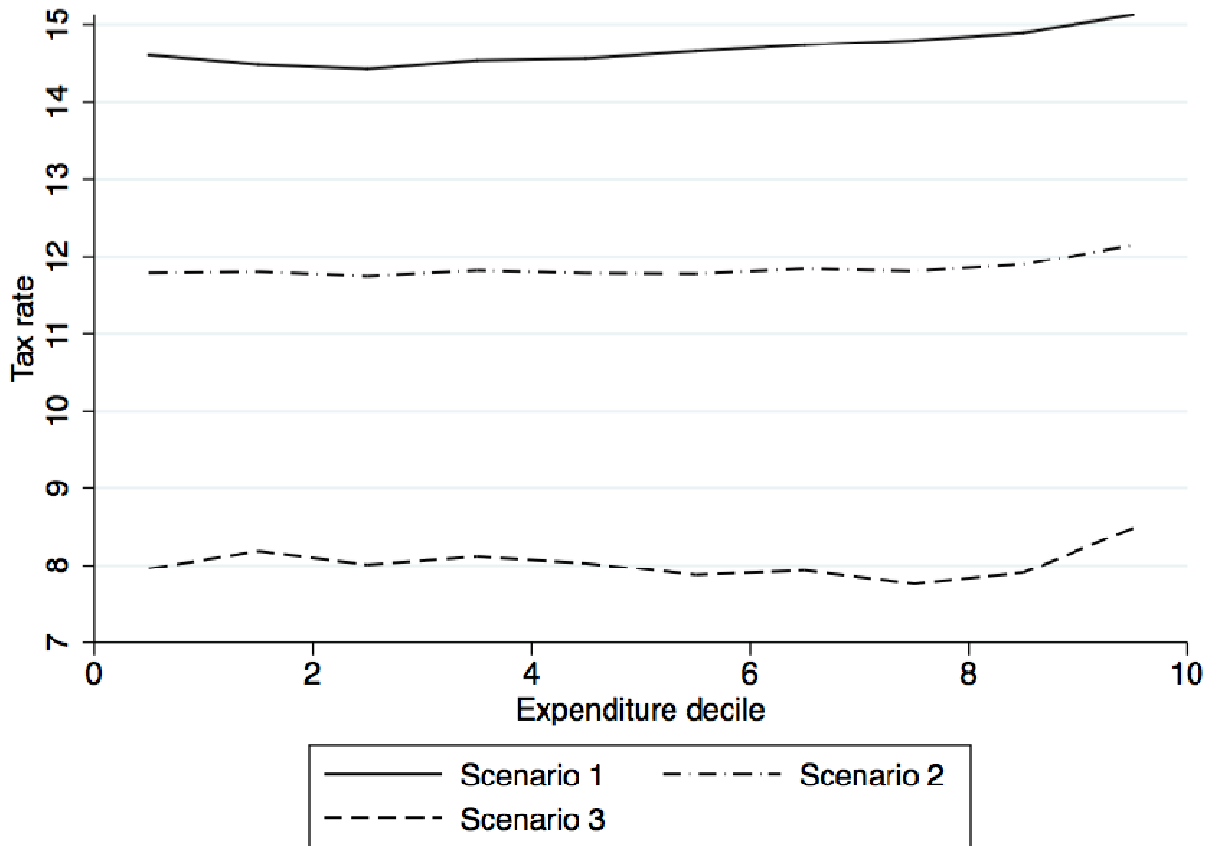
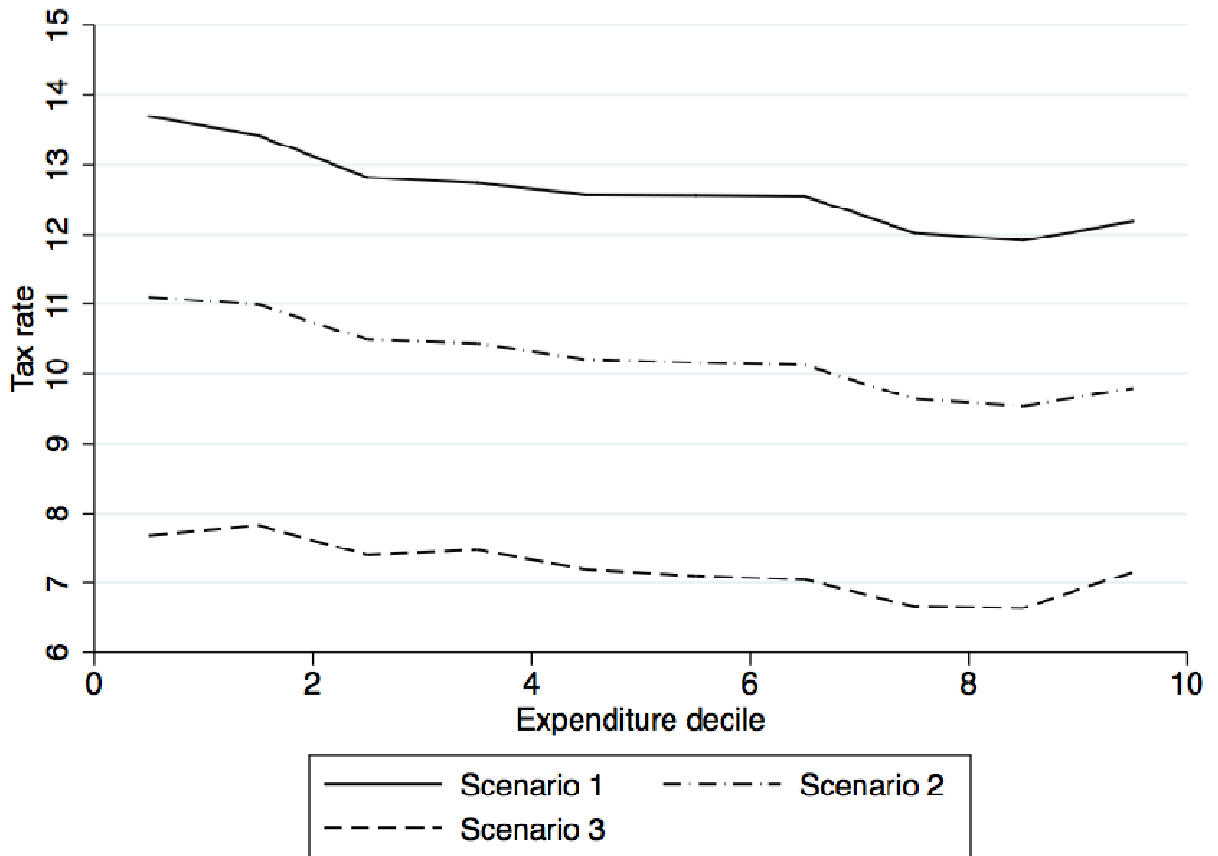


Figure 3: Predicted GST Rates by Decile, 2010 Consumption Data and Purchases Only



Tables

Table 1: Effective Tax Rates in Bihar Under VAT and GST

	VAT		GST					
	Rate	Purchase Only	Rate			Purchase Only		
			1	2	3	1	2	3
1	3.9	3.9	14.6	11.8	8.0	13.7	11.1	7.7
2	3.7	3.7	14.5	11.8	8.2	13.4	11.0	7.8
3	3.7	3.6	14.4	11.7	8.0	12.8	10.5	7.4
4	3.7	3.6	14.5	11.8	8.1	12.7	10.4	7.5
5	3.7	3.6	14.6	11.8	8.0	12.6	10.2	7.2
6	3.8	3.7	14.7	11.8	7.9	12.6	10.2	7.1
7	3.9	3.7	14.7	11.8	7.9	12.5	10.1	7.0
8	4.0	3.8	14.8	11.8	7.8	12.0	9.6	6.7
9	4.4	4.2	14.9	11.9	7.9	11.9	9.5	6.6
10	5.1	5.0	15.1	12.1	8.5	12.2	9.8	7.2
Total	4.0	3.9	14.7	11.8	8.0	12.6	10.2	7.2

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