Revised Project Title

Design of a Pro-Poor Value Added Tax (VAT) System in a Federal Economy like India

REVISED
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1. Short Abstract -

In the short run, economic policy change in the economy affects the income levels of different income/social groups mainly through prices of commodities they consume or income transfers. However, in many developing countries, income transfer schemes for the poor are usually constrained by the lack of information that government agencies have on the distribution of well being. This makes indirect taxation a predominant tool for social welfare policy in these countries. The problem of how to improve the design of indirect taxes and subsidies so as to meet both poverty and efficiency criteria then becomes an important element of poverty alleviation strategy.

The proposed study intends to analyse the pro-poor nature of the switch from a sales tax regime to Value Added Tax (VAT) for some major states in India, by utilising the concepts of welfare and poverty dominance. The pro-poor dimension will be accommodated by studying the
consumption dominance of some major commodity taxes. This will also highlight the progressivity of these taxes, inter alia (166 words).

2. Main Research Queries and Core Research Objectives

Among different types of taxes, evidence suggests that the case for direct tax reforms, such as income tax reforms, is more on efficiency and equity considerations and is not in itself an instrument of a poverty reduction strategy as the poor are not liable for personal income tax (Gemmel and Morrissey, 2002). For all LDCs for the period 1991-95, the study showed that the proportion of direct taxes to total revenue was 39.35% while the proportion of indirect taxes in total revenue was 47.29%. For low income countries, proportion of direct taxes is further lower at 30.26% of total revenue while that of indirect taxes was an impressive 57.69%. Income transfers and Social Security instruments are also not effectively used in developing and low income countries, thus limiting effectiveness of direct taxes as a welfare improving tool through re-distribution. [Gemmel & Morrissey, 2002]. Evidence from the same study also suggests that the principal taxes paid by the poor are sales taxes and tariffs on the goods they consume. The tax system could be made pro-poor if such items are taxed at very low rates. Such policy initiatives are not always feasible as indirect taxes are the main source of tax revenue for many, particularly sub-national governments, in developing countries.

Given this constraint, the basic question that will be addressed is how far welfare improving commodity taxes reforms, based on welfare dominance criteria, can play an important role in overall pro-poor tax reforms design. It is generally difficult to achieve significant redistribution through indirect taxes, but efficiency in taxation can be significantly enhanced by minimising dead weight loss or the excess burden with lower rate on goods and services which are predominantly consumed by the poor.

The study will try to assess the impact of a pro-poor indirect tax reform on different household groups in the urban and the rural sectors. It is widely held that sales tax-excise duty-import duty based indirect tax structure in developing countries is inefficient due to a large number of factors, chief among
which are: complex tax laws; a multiplicity and large dispersion of rates; overlapping, fragmented, partial and, in the case of excises, difficult-to-administer bases; the taxation of inputs; the erection of barriers to domestic trade; and administrative weakness [Burgess, Howes & Stern, 1993]. Introduction of Value Added Tax (VAT) has been recommended due to its basic characteristics: enhanced efficiency and buoyancy, removal of cascading effects of taxation, simple rate structure with one or two tax rates and administrative advantages. For these reasons, VAT has been the main domestic ‘replacements’ tax for tariffs and a wide array of excises in many reforms, and were used in the majority of LDCs [Gemmel & Morrissey, 2002]. India has initiated major reforms in indirect taxes with the introduction of Value Added Tax (VAT) with effect from April 1, 2005 in majority of the states. However, the poverty alleviation is not viewed as an important goal of this changeover to a VAT regime, which is something this project wishes to focus and analyse.

**Specific sense in which VAT may be made Pro-Poor**

The tax system could be made pro-poor if items mostly consumed by the poor are taxed at very low rates. This requires that the VAT increases efficiency by decreasing excess burden with lower rate on goods and services which are predominantly consumed by the poor.

Studies have suggested that although in general VAT is regressive if applied at a general rate to all commodities and services, VAT can be made progressive with suitable low rates for goods and services which are mostly consumed by the poor. The empirical illustration in the study by Duclos, Makdissi and Wodon (2004) suggests that tax reform in Mexico, which aimed at the elimination of zero rating and exemptions of VAT for food expenditures maintaining the budget deficit, has a potential negative impact on the poor.

Another study by Hossain [2003] indicates that a revenue-neutral uniform VAT is regressive in its impact on different households- it benefits the richer groups and adversely affects the poorer households. But the study found that an alternative policy package consisting of a basic rate of VAT with exemption and excise taxes for certain groups chosen on the basis of their distributional characteristics, is more progressive. To identify the distributional
characteristics of the commodities suitable for exemptions under VAT, it proposed to look at the expenditure share of these commodities in the consumption basket of the urban and rural household groups.

Studies by Gemmel & Morissey (2002) also suggest that commodity taxes can be made pro-poor by ensuring zero rates on goods that are consumed predominantly by the poor rather than by rich, and on activities that are engaged in predominantly by the poor. The study further suggests that since the poor predominate in the informal sector, one would not tax informal sector activities.

Study by Munoz & Cho [2003] reports the results of a Poverty and Social Impact Analysis (PSIA) of the tax incidence of the new VAT in Ethiopia and compares it to the incidence of the sales tax that it replaced. It used the 1999/2000 Household Income, Consumption and Expenditure Survey to evaluate the tax incidence of the VAT. The analysis shows that the VAT is progressive when total expenditure at the national level is analyzed. However, because it has fewer exemptions and only one rate, the VAT is less progressive than the sales tax it replaced. In Ethiopian case, most of the exempt goods and services are disproportionately consumed by the relatively well-to-do, so the exemptions cannot be justified on equity grounds. The study suggests that even though exemptions complicate administration, erode the tax base and distort input-output decisions, exemption of some items to improve the distributional impact of the tax is a potentially reasonable trade off.

In India, the exemption list of recently introduced VAT contains items mostly natural and unprocessed products, which are in unorganized sector, and items, which have social implications. It also contains, unlike in the previous Sales Tax regime, foodgrains such as paddy, rice, wheat and pulses which are disproportionately consumed by the poor. In India, the exemption list under VAT is mostly same across the states, with a few variations due to different social and economic set-up in different States.

Since VAT is implemented by the majority of states in India from April 1, 2005, the resulting expenditure pattern by income groups is not available. However, the expenditure pattern under the previous sales tax regime is available for different states in India. So the best one may try to do is to judge
whether the new VAT rates satisfy the welfare dominance criteria as suggested by the sales tax regime which preceded it.

3. Scientific Contribution

As any tax, direct or indirect, affects individual utility and hence social welfare of an economy adversely by decreasing utility, the traditional view of the Economists is that the commodity tax rates should be decided in such a way that the decrement in utility is minimum while fulfilling such revenue requirements. Economists thus tried to calculate such “Optimal” commodity taxes by maximizing social welfare subject to the revenue requirements of the Government. While the basic model was proposed by Ramsey (1927), it was developed as a full fledged many person model by Diamond & Mirrlees (1971) and illustrated and empirical work done in India’s context by Ahmad & Stern (1984) and R.Ray (1990).

The vast literature on optimal commodity taxation in general and calculation of optimal commodity tax rates for India in particular, however, suffer from the assumption of representative agent and estimation of a social welfare function based on this assumption (Yitzhaki and Selmrod, 1991; Mayshar and Yitzhaki, 1995). Following this, economists have introduced the ideas of concentration curves and consumption dominance to explain the welfare improvement and poverty reduction (Duclos et al, 2004; Duclos and Bibi, 2004; Younger, Sahn, Haggblade and Dorosh, 1999; Yitzhaki and Lewis, 1996). This approach avoids the estimation of individual demand and utility functions as a result of which the impact of marginal tax reforms can be assessed from the observed data alone (Duclos et al, 2004).

As already mentioned, studies by Hossain [2003] also tried to investigate the poverty/income distributional implications of introducing a VAT. Likewise, study by Munoz & Cho [2003] reports the results of a Poverty and Social Impact Analysis (PSIA) of the tax incidence of the new VAT in Ethiopia and compares it to the incidence of the sales tax that it replaced. Most of the exempt goods and services are disproportionately consumed by the relatively well-to-do, so the exemptions cannot be justified on equity grounds. The progressivity of the VAT
comes mainly from the high ratio of in-kind transactions for poorer households, but this share is expected to decrease as the economy moves into a stable growth track and becomes more market-based. Therefore, the VAT in Ethiopia is likely to become less progressive in the future, even at the national level. Moreover, the VAT is regressive or at most neutral in urban areas. Considering the growing urbanization in Ethiopia and the fact that most urban immigrants consist of poor people, this could have significant consequences for the poor. The replacement of the sales tax with the VAT has had an adverse impact on the poorest 40 percent of the population. However, the impact is very small (about 1 percent of their consumption). Thus, this reform has not had a major adverse effect on the poor, especially in light of the higher expenditures on poverty-reducing activities that can be financed out of these revenues. Our estimates indicate that if the additional revenues from the VAT were allocated for higher spending on primary education and health, the poorest 40 percent of the population would be net beneficiaries.

The study by Munoz & Cho[2003] suffers from the same limitations as that of Hossain[2003]. The model assumes a single rate of VAT on all goods and services with some exemptions. The model considers a federal VAT as applicable to Ethiopia and does not consider the case of a two-tier federal-State VAT. The study concentrates on investigating progressivity of VAT versus sales taxes and does not go into the poverty and welfare implications of VAT rates for different income groups and different commodity groups.

In the light of above existing studies on the subject, the knowledge gap appears to be the absence of a robust theoretical model to calculate pro-poor (according to income differences) VAT rates in a federal developing country like India, with two-tier dual VAT structure. It should also accommodate as far as feasible the desirability of a rural urban differential in taxes. The pro-poor character of VAT, as revealed by the consumption dominance approach (Duclos et al, 2004), is not studied in the Indian context at all and need to be analysed without delay since VAT is a new regime introduced in India very recently. The model must be used to compare these rates with previous sales tax rates on commodities to investigate the
distributional implications of introduction of such a VAT, from the Poverty and Social Impact Analysis (PSIA) point of view.

4. **Policy Relevance**

Many developing countries are introducing long-term fiscal reform policies aimed at fiscal prudence and enhancing fiscal responsibility of different levels of the government. However, early experience suggests that there is an analysis gap – that is policies are being formulated and implemented without adequate poverty and social impact analysis.

The proposed research work is aimed at providing a socially desirable direction for poverty-alleviating tax reform. It also provides a framework for poverty and social impact analysis by comparing the pre and post reform effects of such a tax reform policy on different income or social groups. The study intends to compare the previous rates of sales tax and excise duties with the recently introduced State VAT rates and will try to estimate the welfare effects of such changes. Also, it will highlight the differences in tax rates when urban-rural divide is accommodated.

The novelty of this proposed research work is that of relating indirect tax reform to poverty alleviation efforts. The major aim of tax reform is towards increasing tax revenues by lessening the burden on the consumers. Although this might be taken to be a positive step towards consumer and social welfare, this has to be directly and explicitly related to the issue of simulating the possible impact of such reform on the lower income groups. Thus, although VAT qualifies as a desirable tax on a number of counts, its impact on alleviating poverty through targeted tax reduction on ‘poor man’s commodities’ is a rather ‘under-researched’ area. Hence, it is felt that a direct investigation on possible linkages between tax reform leading to VAT and reduction of poverty is urgently called for. Since India has just moved towards a VAT regime, and also it is the home of millions of poor people, the finding of the project is expected to have significant implications on policy of both central and state governments in India.
5. **Methodology to be used:**

The proposed study intends to follow the consumption dominance approach to judge the impact of tax reforms (Duclos et al., 2004; Duclos and Bibi, 2004; Davidson and Duclos, 1997). This approach had its real beginning from the important contribution of "Welfare Dominance" by Yitzhaki and Slemrod (1991). They showed that by constructing concentration curves, which plot cumulative percent of household from poor to rich on the horizontal axis and cumulative share of taxes paid on the vertical axis, one may compare them with the line of equality and Lorenz curve to judge progressivity of taxes. Then, Yitzhaki and Slemrod argued, a rise in taxes on commodity $x$ with a compensating fall in taxes on commodity $y$ assuming full shifting of taxes and no change in producer prices, so that total revenue of the government remains constant, will be welfare improving if the concentration curve for $x$ dominates that of $y$. In other words, even if both are progressive, if the concentration curve of $y$ is everywhere below the concentration curve of $x$, then the above marginal tax reform is welfare improving and will be by construction 'pro-poor'.

Yitzhaki and Slemrod (1991) and subsequently Yitzhaki and Lewis (1995) use the concept of Marginal Efficiency Cost of Funds (MECF) which measures the burden of one more unit of revenue obtained by raising taxes on commodity $i$. They have shown that under the assumption of identical MECF for two commodities, the second-order welfare dominance or a Dalton improving tax reform is relevant if concentration curves do not intersect. This however, relaxes the condition of equal social welfare weights as is assumed for the representative individual cases.

Further improvements in this regard came from Duclos, Makdissi and Wodon (2004). In case living standards are simply censored at $z$ (or, say a poverty line is defined there), then ordering two distributions is known as "pen-improving tax reforms". The "Dalton Improving tax reforms" postulate that a mean preserving transfer of income from a higher-income person to a lower-income person constitutes a social improvement. This is the previously quoted second order welfare dominance. The third order dominance, known as 'Kolm-improving tax reforms" implies that a beneficial Dalton transfer within the lower
part of the distribution of income with an adverse Dalton improving transfer within the upper part of the distribution will improve social welfare. The paper clearly proves that welfare improvement of any order requires economic efficiency in terms of suitable values of MECF. But economic efficiency is not needed for poverty improvement. In fact, increasing the order of dominance also increases the range of poverty lines over which a reform is poverty improving.

Fortunately, although the proofs of all the above in terms of actual data may seem a monumental task, the availability of DAD software, developed by Duclos et al (2005 version 4.4) makes actual calculation quite easy. Based on this software we intend to empirically carry out the following exercises to judge the pro-poor character of tax regime change in some important states in India:

1. Calculate the progressivity of previous sales taxes on some important commodities for the major states in India. The tools to be used are the concentration curves and Lorenz ratios. One may calculate the concentration ratios in this context.

2. Calculate the poverty dominance through the impact of tax reform (IMTR) on the FGT poverty index for a pair of commodities. This will use the poverty line as defined by the planning commission of India and separately by the world bank. The calculation will also require the assumption of revenue neutrality, equal MECF for the commodities and the order of stochastic dominance.

3. In addition it wishes to calculate the impact of tax reform on the Atkinson Social Welfare Index (IMWTR), which requires the additional value for the risk aversion parameter.

4. Calculation of indirect tax dominance to calculate the distributional benefit ratio with respect to poverty line will also be part of the overall calculation.

We should note that all these calculations will be made for the sales tax regime prevalent just before the introduction of VAT, since the expenditure data all relate to the pre-VAT sales tax-excise duty regime. The above calculation will clearly show the directions toward which tax reform should proceed. We will compare the newly introduced VAT rates to the previous sales tax regime to see
the directions of reform as far as poverty reduction and welfare improvement are considered. The exercise will be carried on different income groups of the rural and the urban sector, classified on the basis of household expenditure data and different poverty lines. The commodities will be carefully chosen which will have a mixture of increase in VAT rates as well as decrease. For example, the rate on cereals has gone down while those on clothing have gone up. Similarly tax on edible oil has gone down while that on other food has gone up. We will try to get as much meaningful dis-aggregation as possible.

One problem that should be kept in mind in empirical calculation for this indirect tax reform in India is that some of the tax rate changes may not be marginal as it is a switch from sales tax regime to a new VAT regime. Thus it might lead to some error whose magnitude is nevertheless not very high (Duclos et al., 2004).

6. **Data requirements and sources**

The data sets to be used in the empirical exercise of the model are data on consumer expenditure, tax rates, prices and income of individuals. While data on consumer expenditure income-wise for different commodities and commodity prices are available from consumer expenditure surveys published regularly by the National Sample Survey (NSS) and the Central Bank (Reserve Bank of India) publications respectively, data on tax rates and government revenue are normally available in official public finance statistics published in Budget Documents of Government of India and State Governments. The data set to be used is the time series on household budget surveys from National Sample Survey Reports (Tables with notes on Consumer Expenditure). In the absence of retail price data, wholesale price index data will be used, which is available in Chandok and Reserve Bank of India. Initial values of Central and State VATs are available in National Institute of Public Finance and Policy.

7. **Short list of key references**


Duclos Jean-Yves, Paul Makdissi and Quentin Wodon (referred as Duclos et al also) (2004), "Socially Improving Tax Reforms", CIRPEE working paper 04-01.


8. **Dissemination strategy**

Dissemination of the research will be done through several key mediums- (a) publication of journal articles, both academic and semi-academic (b) Seminar presentations (c) Implementation stages. Some of the related papers are already done by two of the authors and seminar presentations on the same were made in several seminars. Also, one of the authors of the proposal used this in several documents prepared for the government.

The results of this project will be presented in two dissemination workshops with local participants. **One may have a large scale workshop provided additional funding is available specifically for this purpose.** The most important results coming out of the exercise will be shared with the state tax authorities in the state of West Bengal, where the investigators are located. The results may be published as working papers from the Research Centre of the Economics Department of Jadavpur University, where one of the investigators is associated. We intend to publicise the most important findings in couple of leading newspapers in Kolkata with national editions. Finally, one expects couple of academic articles which may be published in related academic journals. Apart from that, one expects additional dissemination through PEP website.

9. **List of Team Members**

**Team Leader – Ajitava Raychaudhuri**, Age 47 years, Sex- Male. Currently he is a Professor of Economics at Jadavpur University in Kolkata, India. Guided the doctoral dissertation on Optimal Commodity Taxation done by one team member in the project, namely, Sudip Kumar Sinha. Also, teaching public economics in Under graduate classes in Jadavpur University. The Team Leader is well-conversant with the techniques used in the optimal commodity tax
literature as well as the tax literature. His main task will be to lead the team and provide guidance for the overall project implementation

**Team Members –**

1) **Sudip Kumar Sinha**, Age 41 years, Sex- Male. He had done his Ph.D on Optimal Commodity Taxation and has published couple of papers. He works in the sales tax department of the State Government of West Bengal in India and knows the practical side of tax administration and implementation minutely. He will use his theoretical and practical knowledge in the actual formulation and simulation exercises.

2) **Poulomi Roy**, Age – 28 years, Sex – Female. She is currently working for doctoral work on the role of Public capital in growth of a developing country like India. Knows the micro foundation of public economic theory very well. She has also worked on a gender budgeting project and the report is already published. Will help the team in data analysis, relating them to some of the theories.

10. **Description of the research capacities that team members and their institutions are expected to build through their participation in this project:** The proposed research have team members from both academic and government organizations. In case of the academic part, the research will build capacities in the following ways- (a) The youngest of the team member will utilize this towards her doctoral level work (b) Jadavpur University, with which the team leader is associated has introduced semester system having public economics and development as special papers on which emphasis is laid. This project will certainly help him to introduce both theoretical and empirical topics on public policy and poverty alleviation in relevant courses. This will help the students learning some hitherto neglected but very important policy issues (c) The third member of the team is associated with tax department of a state government and is actively involved in the transition of the system to the VAT regime. Thus the work will certainly benefit in the actual implementation stages of the public policy related with the VAT regime. The following is an elaboration
on the specific areas and techniques that the team members will learn in the process.

Following the adoption by the international community of the poverty reduction strategy paper (PRSP) approach, there has been a resurgence of interest in the poverty and social impact analysis (PSIA) of different policy reforms facing the countries. While many of the reforms in the area of taxation and expenditure policy, are aimed at reducing fiscal deficits, improving macroeconomic stability, and enhancing economic efficiency, many of the measures affect different income and social groups differently and may hurt or benefit the poor, vulnerable and low-income groups more. Given the poverty reduction goal of the PRSP, policymakers need to know the distributional impact to assess the desirability or feasibility of a policy change, as well to address the possible adverse poverty/income distributional impact through alternative policy instruments.

From the project, the team members will gain significant insights on the issues relating to measurement of poverty indices, measurement of concentration ratios and curves, and calculation of consumption dominance of different taxes. Team members will cover the majority of the existing literature and theories on the aforesaid topics.

The team members will also learn the techniques of empirical model building for welfare and poverty dominance. Since the model estimation will be based on a user-friendly software (DAD), the team members will be able to upgrade their statistical skills regarding poverty analysis significantly.

The proposed study will help the third member of the team, who is a tax administrator and policy maker in the sub-national Government, to understand the PSIA approach to tax policy reforms, measure distributional impacts and suggest necessary changes in tax and expenditure policy reforms.

The team leader wishes to incorporate the acquired knowledge in the course curriculum of Public economics and macroeconomics in the university where he teaches these subjects. This would be a long-term capacity building exercise for the younger generation. Also, there is ample scope of supervising dissertation works in the doctoral and M.Phil levels utilizing the techniques learnt in the process of this project work.
The youngest team member has started her doctoral work and she needs to upgrade her theoretical knowledge of poverty analysis related to tax reforms. Also, she is not very conversant with the computer based poverty and welfare related statistical softwares which she will learn in the process.

11. Any ethical, social, gender or environmental issues or risks which should be noted- NONE

12. List of past, current or pending projects in related areas involving team members (name of funding institution, title of project, list of team members involved)

Ajitava Raychaudhuri wrote the ‘Infrastructure’ section for the State Development Report of West Bengal, India, funded by the Planning Commission, Government of India, 2002. He also wrote the paper on “Land Reform in West Bengal” for the World Bank funded project on Reducing Poverty, 2003-04.

Poulami Roy was a team member of the UNIFEM funded project on ‘Gender in Fiscal Policies’, executed by the NGO Sachetana based in Kolkata, India, 2002-03. She is also doing her doctoral work on Public Capital and Development, funded by State Government Scholarship in Jadavpur University.