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PERFORMANCE EVALUATION OF SALES TAX ADMINISTRATION: A CASE STUDY OF GUJARAT, INDIA

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ABSTRACT

This paper provides a methodology of evaluating performance of tax administration on the basis of available data on effort and achievement variables over a number of years. A case study of sales tax administration in Gujarat State of Indian Union is made to identify the achievement and effort variables. Improvement in total tax potential and realisation of tax revenue and reduction in the level of unrealised revenue are found to be achievement variables. Expenditure on enforcement and training efforts are identified as effort variables. A simultaneous causation model in terms of effort and achievement variables is found to work excellently well to explain past performance. Relatively enforcement expenditure is found to provide more profitable contribution to State revenue in comparison to expenditure on training but several other considerations lead to suggest to work out optimal solutions for both the effort variables in relation to chosen objective of tax administration.

PERFORMANCE EVALUATION OF SALES TAX ADMINISTRATION : A CASE STUDY OF GUJARAT, INDIA

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P.N. Misra and T.K. Jayaraman*

1. The Problem

Sales tax is the largest source of finance in most states of Indian Union[1]. In Gujarat, it is about 67 per cent of the total revenue. Naturally, any attempt to mobilise further resources for planned development or otherwise requires a careful look at the possible potential of this source of revenue besides introduction of new taxes if any. The State of Gujarat has levied this tax since its inception and by this time ample data are available to uncover the problems involved in its implementation. Simplification of the tax structure and procedure could possibly improve the tax potential[2] but one must learn as to which factors play relatively more important role in tax administration irrespective of the kind of tax structure in vogue. Such an understanding could be used straightaway to identify such instrumental factors that could be used to achieve desired level of tax realisation. A general approach to study and evaluate the tax administrative machinery is not appropriate owing to possible variation in methods and styles over various States. Therefore, we have chosen the State of Gujarat to study the problem in details but the approach could be applied to any other state or region.

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Though literature on sales tax continues to grow yet there is hardly any attempt to provide a quantitative assessment of performance of tax administration that could enable us to suggest ways of improving efficiency. A beginning is made in this direction in the present study. To start with we describe very briefly, in Section 2, the structure of tax administration in Gujarat and identify the tasks as well as links amongst them. This discussion provides us the sources of hypotheses which are modelled in Section 3 of the paper. We use data over period 1961-62 to 1975-76 to quantify the models and those finally selected on economic as well as econometric grounds are presented in Section 4. The last section is devoted to drawing relevant inferences from these results.

2 Organisation and Structure of Sales Tax Administration in Gujarat

Sales Tax is levied in Gujarat according to the system of dual levies[3]. It consists of imposing sales tax at the primary stage of processing in some cases, at the final stage of processing in others and a combination of the two in case of such commodities whose trade channels are difficult to identify. Manufactured goods and industrial raw materials are easily controllable at the first point of manufacture and therefore taxed at the first stage itself. The firms falling in this category are fewer in number but better organised in respect of book-keeping and accounting. A large number of commodities, specially belonging to agriculture and primary sector, are taxed at the final stage of processing. In a limited sense value added is also operative under the system known as 'recognition sector'. In this system inputs are tax free for certain recognised goods and only final products are

There are limits of turnover for the tax payers. Dealers who are basically resellers and have annual turnover of Rs 30,000 are liable to register themselves for tax payment. This limit is of Rs. 20,000 for manufacturers and importers.

Sales tax administration in the State of Gujarat is headed by Commissioner of Sales Tax. He is assisted by certain staff at the head quarters as well as by certain others located at divisional headquarters. At the headquarters, an Additional Commissioner deals with personnel matters and a Deputy Commissioner is in-charge of state-wide enforcement and intelligence wings. At the division level, each division is supervised by a Deputy Commissioner assisted by four to five assistant Commissioners who in turn are assisted by Sales Tax Officers, inspectors and clerks. Sales Tax Officers attend to duties of registration of dealers, assessment work, audit work, enforcement and intelligence work. The Assistant Commissioners supervise the work of Sales Tax Officers as well as function as appellate authorities. One of the Assistant Commissioners in each division is exclusively earmarked for enforcement and intelligence work.

In terms of thinking of the tax administration, enforcement task appears to get top priority. The enforcement machinery in Gujarat consists of eight units. Each unit has three Sales Tax Officers along with inspectors and clerks etc. These units are located at Ahmedabad, Rajkot, Bhavnagar, Jamnagar, Baroda and Surat with Ahmedabad City having three units. These units are equipped to watch tax evasion, build market intelligence, spring up raids on suspicious places and seize books of account.

Besides this, the administration has set up a modest training centre for fresh recruits as well as in-service tax personnels. These include Sales Tax Inspectors, clerks and Sales Tax Officers. The courses organised are of short duration and conducted with the help of experienced officials in the administration. The centre has only a minimal strength in terms of training personnels. Training expenditure in the State started from Rs 0.10 million in 1964-65 and slowly grew up to Rs 0.35 million in 1975-76. It includes the salaries of the officials while on deputation or direct posting for training.

Adoption of aggressive attitude on the part of administration is justifiable because it helps in correcting attitudes of the tax payers towards tax laws[4]. While some tax payers may make mistakes owing to their ignorance but several others may be doing so deliberately to avoid the taxes. A passive attitude on the part of administration could undermine the entire structure by indirectly encouraging the honest tax payers to follow the dishonest ones. Audit is an important aspect of enforcement of tax laws because it helps in checking the reliability of the tax returns. It also serves educative purpose in so far as it coerces the tax payers to understand the process of correct reporting for future purposes.

Certain knowledge and skill are expected to be necessarily possessed by the tax personnel in case they are supposed to carry on their jobs with professional efficiency. Skills in respect of building up of information on the trade channels, checking up the reliability of tax payers' records and returns, reconstructions of records when found missing or

tampered with, modes of possible evasion of taxes, proper accounting and book keeping etc., are must for tax personnels. They should be trained at the same time to adopt better methods of collecting market intelligence and make proper inferences from the data thus collected.

Keeping in view the foregoing description of tasks of tax administration and justification thereof we observe that the tax administration may like to categorise its main tasks as:

(a) enforcement of the tax laws on the liable parties

(b) training of tax personnels to improve their efficiency

(c) identification and improvement of tax potential of the State.

Obviously, the first two tasks, if carried out properly will lead to achievement of the third task in a major way. But it must be supplemented with micro study of the States' economy to identify the deserving new taxes to be imposed and the undeserving old taxes to be deleted so as to arrive at a widely acceptable tax-structure. Even this task of research and study in fiscal planning can be entrusted to the training-cum-research centre of the tax department. To make sure that training wing is equipped to carry on this task, it should better be supplemented with a research unit. It turns out ultimately that enforcement and training are two important instruments available to tax administration to achieve its goal of realising larger sales tax revenue. Its performance can, therefore, be evaluated by quantifying the contributions of enforcement and training efforts to tax realisation and then making proper inference regarding their relative performance.

3 The Model

Granting that enforcement effort (EE) and training effort (TE) are main tasks of tax administration to achieve higher or desired tax revenue (RV) we may treat EE and TE as causal variables and RV as the corresponding effect variable. Besides these causal variables sales revenue may also depend upon health of the state economy, business level and cooperation level of the tax payers. All these factors lead to improvement in tax potential (TP) of the State and this factor can be thought to be contributing positively to tax revenue. Therefore, in general we may represent this cause and effect relation as

$$(3.1) \qquad RV = f(EE, TE, TP, u)$$

where f represents 'function of' and u represents error in equation, if any.

The causal relation in (3.1), however, ignores the possibility that tax potential is itself influenced by enforcement and training expenditure. Current tax potential may also be influenced by the level of previous tax potential in so far as tax potential can be thought to represent cooperative or uncooperative attitude of the tax payers. It is quite likely that cooperative attitude of the tax payers will enhance tax potential and if the cooperative mood is carried on in future owing to habit or inertia effect, then lagged tax potential (TPL) will influence the current tax potential. This possibility can be expressed mathematically as

$$(3.2) \qquad TP = f(TPL, EE, TE, v)$$

where v represents error in equation, if any. . .

All the causal variables in relation (3.1) and (3.2) are seen to be positively contributing to the corresponding effect variables. This leads to expect that the corresponding marginal contributions are all positive. Thus we can write

$$(3.3) \qquad \frac{\partial RV}{\partial EE} \geq 0, \frac{\partial RV}{\partial TE} \geq 0, \frac{\partial RV}{\partial TP} \geq 0$$

$$\frac{\partial TP}{\partial TPL} \geq 0, \frac{\partial TP}{\partial EE} \geq 0, \frac{\partial TP}{\partial TE} \geq 0$$

4 Empirical Results

Data on sales tax revenue and enforcement and training expenditures are readily available. Data on tax potential are difficult to obtain directly but can be proxied by sum total of revenue collected and revenue pending for recovery. Even this measure will be underestimate because revenue pending for recovery represent unrealised amount from dealers falling under the tax net and excludes those who might have been eluding the same. Nevertheless, the proxy can be used effectively provided it bears the same trend as the true variable irrespective of whether it is over or underestimate and this possibility is likely to hold good in the present case. The data on the variables involved are collected from Facts and Figures, Supplement to Sales TaxiDigest, Gujarat and presented in Table 1 below.

Using these data linear as well as non-linear forms of models (3.1) and (3.2) were estimated. While doing so all combinations of the causal

Table 1

Data on Variables (In rupees)

Year	RV	TP	TE	EE
Units of Measurement	10^8	10^8	10^5	10^5
1961-62	1.38	1.47	0.00	1.00
1962-63	1.54	1.64	0.00	1.00
1963-64	1.96	2.08	0.00	1.31
1964-65	2.48	2.64	1.00	1.51
1965-66	2.70	2.88	1.00	1.71
1966-67	3.51	3.71	1.00	2.55
1967-68	3.92	4.15	1.12	3.22
1968-69	4.59	4.83	1.09	3.42
1969-70	5.46	5.75	1.51	2.38
1970-71	6.38	6.69	2.77	3.20
1971-72	7.36	7.72	3.08	3.86
1972-73	8.65	9.15	4.27	5.34
1973-74	9.40	10.06	4.39	5.24
1974-75	13.61	14.43	3.45	7.63
1975-76	15.71	16.81	3.50	8.28

variables in terms of current and lagged values were considered and the empirical results judged from economic as well as econometric considerations in each case. The following specifications scored better in terms of above mentioned considerations and these are reported along with relevant empirical details. The figures in parentheses denote t values.

$$(4.1) \quad RV = \underset{(170.53)}{0.932^{*}}\,TP + \underset{(1.27)}{0.021}\,TE + 0.030$$

$$R^2 = 0.999, \quad DW = 1.86$$

$$(4.2) \quad TP = \underset{(4.87)}{0.736^{*}}\,TPL + \underset{(3.25)}{0.815^{*}}\,EE - 0.383$$

$$R^2 = 0.988, \quad DW = 2.08$$

The estimated slope coefficients are all positive so that the requirements of relation (3.3) are met in full. Estimated R^2 are close to unity in either case indicating that the chosen models have high predictive power as well as high compatibility with the sample data. All the slope coefficients except that of training effort are statistically significant at 95 per cent level of confidence. Estimated values of Durbin Watson (DW) statistic indicate absence of first order autocorrelation when tested against 95 per cent level of confidence. This suggests that the estimated model is acceptable from the point of view of economic as well as econometric considerations.

There is, however, one more aspect of the models as above which requires attention before we decide to use these results for policy purposes. This relates to the fact that the models (4.1) and (4.2) constitute a simultaneous causation model whereas the estimates are obtained according to ordinary least-squares procedure. The tax potential variable is working simultaneously as cause as well as effect variable. Therefore we may consider RV and TP as endogenous variables. We may remember the way we proxied TP and therefore unrealised revenue (UR) can be considered as the third endogenous variable because we can write it as

(4.3) UR = TP-RV

These considerations are suggestive of treating the model implied by (4.1), (4.2) and (4.3) as three equation complete system model in terms of three endogenous variables, namely, RV, TP, UR, and four predetermined variables, namely, unity, TE, EE and TPL. The order condition of identifiability tests leads us to conclude that the models implied by (4.1) and(4.2) are over-identified. We have, therefore, treated the model as complete system and estimated the coefficients according to two-stage least-squares. The estimated model is reported below:

(4.4) RV = 0.032 + 0.930TP + 0.025 TE

TP = -0.383 + 0.736TPL + 0.815 EE

A comparison of the above two sets of estimates shows that the tax potential equation remains unchanged while the revenue equation is altered slightly interms of coefficient estimates. This is because tax potential variable works as causal as well as effect variable while revenue variable works as effect variable only.

5 Policy Conclusions

Considering equations (4.4) and (4.3) we can solve for endogenous variables in terms of predetermined variables. The solutions are given below:

(5.1) RV = -0.324+0.684TPL+0.758EE+0.025TE

UR = -0.059+0.052TPL+0.057EE-0.025TE

TP = -0.383+0.736TPL+0.815EE

These relations indicate that tax potential is not affected by training effort while revenue realised as well as pending are influenced by training and enforcement efforts. Training effort contributes positively to revenue

and negatively to revenue pending while enforcement effort contributes positively to all the endogenous variables. Inference relating to marginal contributions is difficult to make from the relations (5.1) because of presence of lagged tax potential variable in each equation. To overcome this problem we proceed as follows.

First of all we evaluate the values of the endogenous variables for the last sample period and represent this step by '00'. Then we increase EE by one unit and obtain the values of the endogenous variables for the next year. This step is represented by '10'. Similar calculations are made by increasing TE by unity and we represent it by '01'. In either case unit increase is equal to increase by 10^5 rupees. The results of these calculations are presented in Table 2 with the exception that the figure 18.64 in column 01 is obtained by using relation (4.3).

Table 2

Estimated Endogenous Variables

Step / Variables	00	10	01
RV	15.90	18.30	17.56
UR	1.08	1.26	1.18
TP	16.98	19.56	18.64

These estimates can be used to obtain marginal contributions of steps 10 and 01 by treating step 00 as the base. The results are given in Table 3.

Table 3

Marginal Contributions

Step	10	01
Variables		
RV	2.40	1.65
UR	0.18	0.10
TP	2.58	1.76

The results in Table 3 suggest that emphasis on enforcement effort is more advantageous as compared to emphasis on training efforts. Increase of enforcement expenditure by Rs 0.1 million leads to increase in sales tax revenue by Rs 240 millions and thus generates a surplus of 239.9 millions. This surplus remains unsurpassed by step 01. Revenue pending is however reduced by increase in training effort but its contribution to revenue is relatively low. These results considered together suggest that strenghtening of enforcement has good potential of increasing sales tax revenue but emphasis on this factor alone is undesirable. A greater emphasis on training effort can, though, generate relatively lower revenue but it can reduce the magnitude of unrealised revenue. Since training wing needs proper attention which it did not get before, its impact on the endogenous variables is not significant when analysed on the basis of past data. It does not imply that its impact will continue to be same eventhough training programme were organised better. In fact the empirical evidence suggests that effect of training is in right direction.

These results can be used to provide control solution of enforcement and training efforts for chosen growth in tax revenue and tax potential.[5] Such calculations will, however, be more meaningful provided the data were available for the latest period and the objective of the tax administration were decided in unambiguous terms.

These inferences are valid for short term conclusions only because in the long term the underlying structure might get changed. For all practical purposes one may continue using short term conclusions by first updating the data base, then re-estimating the proper model and finally using the estimated model to deduce the policy for the next period. Such an approach would account for any change in relative importance of enforcement and training efforts over time. This will provide efficient use of enforcement and training efforts over various time-periods in future and thus ensure efficiency of these efforts over long term as well.

REFERENCES

1 The Constitution of India empowers the States by virtue of item 52 of the list II of its seventh schedule to levy a tax on the sale and purchase of commodities other than newspapers. The enabling statutes generally are the sales tax acts passed by the state legislatures. For example, in the State of Gujarat, the enabling Acts are (a) the Gujarat Sales Tax Act, 1969 and (b) The Bombay Sales of Motor Spirits Taxation Act, 1953. In addition to these State Acts, there is a federal legislation in respect of levy of sales tax on transactions of sale in the course of inter-state trade. This is known as Central Sales Tax Act, 1956 which lays down that the proceeds from such a levy should be collected by the States and would go to the exchequers of the States of origin. For a comparative picture of enactments of different States in India, see Walter Mahler, (Jr.) Sales and Excise Taxation in India: Bombay Orient Longman Ltd., 1970. Part III, Chapters 2 and 3.

In the relatively more urbanised and industrialised States such as Tamil Nadu, Maharashtra and Gujarat the proportion of tax yield from sales tax to total tax received is above sixty per cent and is about forty to fifty per cent among other states. These figures are drawn from Government of Gujarat, Commissioner of Sales Tax: Facts and Figures Supplement to Sales Tax Bulletin, Bhavnagar: Government Press, September 1977.

2 If the revenue yield is far below potential, the usual practice is to resort to higer rates or to add new taxes. Thus, the nominal rate becomes higher and the chances of evasion become greater. John F. Due significantly observes: "Many governments have added more and more taxes instead of seeking to enforce effectively those they have; and the number of taxes acceptable under usual standards is, after all, rather limited. Thus, less acceptable taxes are used, and compliance and administrative costs are increased". For greater details, see J.F.Due, Indirect Taxation in Developing Countries: The Role and Structure of Customs Duties, Excise and Sales Taxes, Baltimore, The Johns Hopkins Press, 1970, pp.160-161.

If the choice is between reforms and strengthening the existing administrative machinery, Stanley S. Surrey would advocate for the latter. For a cogent case on the need for a more efficient tax machinery, see his paper on "Tax Administration in under Developed Countries" in Richard M. Bird and Oliver Oldman, Readings on Taxation in Developing Countries, Baltimore, The Johns Hopkins Press, 1967, pp. 498-499.

3 For a detailed description of the Sales Tax System as obtained in Gujarat the following Government publications may be consulted:

(a) Government of Gujarat, Report of the Sales Tax Inquiry Committee, 1967, Ahmedabad, Gujarat; Manager Government Press and Stationery Department, 1968.

(b) Government of Gujarat: Report of the Sales Tax Study Team, 1977, Gandhinagar, Gujarat: Government Press, 1978.

4 See Stanley B. Surrey, op.cit. p. 506.

5 See Misra, P.N., Forecasting and Control with Applications to Demand and Sales, Chapter 8, forthcoming.