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Fiscal Misperceptions Associated with Tax Expenditure Spending: The Case of Pronatalist Tax Incentives in Singapore

Poh Eng Hin*

Abstract

connection between the benefits of public sector output and the tax costs of such output[3]. Econometric analyses of archival data[4] as well as experimental research techniques[5] have also been used to investigate the extent, sources and consequences of fiscal illusion. Fiscal illusion (which potentially results from the lack of fiscal consciousness) is described in the literature (e.g. Oates, 1988) as voters' systematic misperception of important fiscal parameters, leading possibly to their inability to make informed decisions and hence the distortion of their fiscal choices. Various structural or institutional elements of the fiscal system have long since been identified as potentially contributing to fiscal illusion (see e.g. Puviani, 1903 and Buchanan,

this regard, some specific issues that are rarely addressed empirically include the following:

1. To what extent is there public cognisance of the hidden (opportunity) cost

programs. These deficiencies therefore may be overcome by appropriate design of the tax expenditure provisions, and by subjecting tax expenditure proposals and legislation to formal budgetary control and periodic review. In short, there appears to be no reason why tax expenditures cannot be designed to replicate the effects of direct subsidies on resource allocation and income distribution. However, tax expenditures do differ from direct expenditures in that different government agencies or departments are vested with jurisdiction over the spending programs – a tax expenditure program inevitably requires the involvement of the tax administration whereas a direct expenditure program is administered by a separate spending agency. Weisbach and Nussim frame the question of whether a spending program should be implemented through the tax system or via a direct expenditure program as one of institutional design, wherein the concern should be with how best to implement.iho

generalisability given the specific nature, objectives and structure of the particular tax expenditure program studied and in view of jurisdictional-specific variables that may have a bearing on the general level of fiscal consciousness. This paper presents one such specific inquiry in investigating the extent and determinants of fiscal misperceptions arising from the use of tax expenditures in the context of pronatalist policy in Singapore.

PRONATALIST TAX POLICY IN SINGAPORE

Fertility rates in Singapore declined dramatically between the 1960s and the mid 1970s as a result of social and cultural transformation brought about by economic development, the availability of labour market participation opportunities for women, and a comprehensive antinatalist policy on the part of the Government. However, persistent below-replacement fertility rates in the 1980s led to fears that a shrinking and ageing population would adversely affect the sustainability of economic growth and the adequacy of existing health-care and social support systems. Furthermore, a trend emerged whereby many highly educated women were either remaining single or marrying later and having significantly fewer children than their less-educated counterparts. This raised concerns that the higher-educated and more talented strata of the population were not adequately replacing themselves.[15] These concerns led eventually to a reversal in the national fertility policy in the 1980s from one of antinatalism to one of selective pronatalism, with various specific financial and non-financial incentives announced in 1984 and 1987.[16]

The 1984 changes consisted of eugenic measures aimed at improving the quality of the population. These measures were an attempt at correcting the observed lopsided fertility pattern mentioned abous15(ad4.5(c0.121-3.4(nc 1hf951t6.2(ag(-6.5(e .6111 Tc-0.ou6.5(o)-141d45ci

concerns, had resulted in a vehement public debate, widespread resentment, and even protest votes cast against the governing political party at the 1984 General Elections.

STR took the form of non-refundable tax credits that could be set off against the gross income tax liabilities of the eligible parent/s over a stipulated number of years. These tax credits were first introduced in 1987 in respect of the third child of the family born in/after that year. The incentive was subsequently extended to the fourth child of the family born in/after 1988, and to the second child born in/after 1990. The rebate for the second child comprised a one-time non-refundable tax credit, which could be shared between the child's parents for set-off against their respective gross tax liabilities. The amount of the tax credit ranged from S$0 to S$20,000, depending on the mother's age at the time of delivery of the child. The rebates for the third child and for the fourth child consisted of two components. Each component also took the form of a one-time non-refundable tax credit. The first component was a lump sum S$20,000 tax credit, which could be shared between the child's parents. The second component amounted to 15% of the mother's earned income in the year of birth of the child, and this tax credit could be set off only against the mother's gross tax liabilities.

In most cases, the parent's/parents' gross tax liability/liabilities for the first year after the birth of the child would be insufficient to fully utilise the STR tax credit. In this regard, any balance of the tax credit remaining unutilised could be carried forward for set-off against the future tax liabilities of the

Significant reforms to the personal income tax system in the 1990s and early 2000s contributed to a further skew of the pronatalist tax subsidies in favour of the rich. In particular, the major structural tax reform of 1994, which saw the introduction of the Goods and Services Tax in place of significant cuts in income tax, resulted in some 70% of resident individuals dropping out of the scope of income taxation (IRAS, 1995). This meant that all low-income and some middle-income couples effectively were excluded from enjoying any of the pronatalist tax subsidies from the mid 1990s. Although the significant income tax cuts in the 1990s and 2000s also reduced the tax subsidies enjoyed by high-income and upper middle-income couples, the effect was relatively minimal for high-income couples while the effect for upper middle-income couples was mitigated by an amendment in 1994 that extended the maximum set-off period for the non-refundable tax credits from seven years to nine years.[22]

In summary, the use of tax expenditures to deliver fertility incentives appears to be an administratively and politically expedient way for the Singapore Government to implicitly pursue its policy of selective pronatalism. Other factors that facilitate this strategy include the political dominance and perceived credibility of the governing political party, the culture of top-down policy decision-making, and the absence of any form of tax expenditure reporting that might have highlighted the costs of the

The survey was conducted in December 2001 through visits made to various randomly selected households living in public flats and private residential properties across the city-state. Respondents were asked to complete a five-page questionnaire available in either English or Mandarin. The survey administrators were on hand to render any clarifications/assistance required by the respondents.

Sample Profile

The socio-economic profile of the sample of 350 respondents who participated in the survey is presented in Table 1, together with the profile of the relevant population of

intended by the researcher given the specialised and technical nature of the subject matter of the survey. Intuitively, those with low education (and incomes) are less likely to gain from the tax incentives, less aware of their existence and less knowledgeable of their effects. It therefore made sense to sample proportionately more of higher-educated (and higher-income) respondents since it is this group to whom the incentives are targeted and who will enjoy the largest proportion of the benefits. For this same reason, those in the lowest income group (annual incomes not exceeding S$24,000) are under-represented – in fact, since the major tax reform of 1994 (discussed earlier in Section 3), these individuals generally are not liable to pay any income tax and will almost certainly not benefit at all from the tax incentives. Finally, there is also a slight over-representation of married individuals who are younger, who have no children, and who are in white-collar occupations.

Survey Questions

The survey questionnaire incorporated a number of questions that sought to ascertain respondents' awareness, knowledge and perceptions of the STR and ECR tax incentives. Five of the questions elicit respondents' perceptions on various aspects pertaining to the cost and distributive effects of the incentives and these responses are of particular relevance to this paper. The five questions are reproduced below and are numbered Q1, Q2, Q3, Q4A and Q4B for ease of reference:

> Q1: "Tax incentives, such as STR and ECR, reduce the taxes paid by those benefiting from the incentives. Unlike a direct cash subsidy, the Government does not directly pay out any money to those benefiting from the tax incentives. Which statement below do you agree with?
>
> - Tax incentives, such as STR and ECR, are provided at a cost to taxpayers at large since the Government is spending (i.e. allocating and re-distributing) resources.
> - Tax incentives, such as STR and ECR, are provided without any cost to taxpayers at large since the Government is not spending (i.e. not allocating or re-distributing) any resources.
> - I don't know."
>
> Q2: "Malay couples form about 15% of all married couples of child-bearing age. Which statement below do you agree with?
>
> - Malay couples enjoy more than 15% of the total tax savings under the STR and ECR tax incentives because a Malay couple, on the average, has more children than a non-Malay couple.
> - Malay couples enjoy less than 15% of the total tax savings under the STR and ECR tax incentives even though a Malay couple, on the average, has more children than a non-Malay couple.
> - I don't know."
>
> Q3: "Which statement below do you agree with?
>
> - Generally, a higher-educated married individual enjoys more tax savings from the STR and ECR tax incentives than does a lower-educated individual with the same number of children and in the same circumstances.
> - Generally, a higher-educated married individual enjoys less tax savings from the STR and ECR tax incentives than does a lower-educated individual with the same number of children and in the same circumstances.
> - I don't know."

Q4: "Assume that there are two married individuals, H and L. Both are allowed STR and/or ECR for the same number of children and are in exactly the same circumstances, except that H's annual income (say, $60,000) is two times L's annual income (say, $30,000).

[A] Which statement below do you agree with?

- H's tax savings from STR and/or ECR will be more than L's tax savings.
- H's tax savings from STR and/or ECR will be less than L's tax savings.
- I don't know.

[B] Which statement below do you also agree with?

- H's tax savings from STR and/or ECR will be more than two times L's tax savings.
- H's tax savings from STR and/or ECR will be less than two times L's tax savings.
- I don't know."

Responses to Q1 will reveal if there is misperception on the part of respondents in thinking that a tax expenditure is costless and, in that sense, not equivalent to a direct expenditure. Responses to Q2, Q3 and Q4 will reveal if respondents are able to perceive the distribution of the pronatalist tax subsidies as effectively biased against Malay couples but favouring higher-educated and higher-income couples. Q4A presents the distribution of the tax subsidies in absolute dollar terms whereas Q4B frames the distribution of the subsidies in terms of whether it is income-regressive or income-progressive.

Limitations

A couple of limitations to this study ought to be noted. These stem from the fact that the original objective of the survey was not to investigate fiscal misperceptions but rather to gain an insight into the extent to which the pronatalist tax incentives are taken into account in married couples' decisions to have children. The first limitation relates to the survey sample, which excludes, amongst others, all single persons even though findings relating to their awareness and perceptions of the tax expenditures are

In examining the correlation between respondents' ability to perceive the cost/ distributive effects and their socio-economic characteristics, both bivariate and multivariate approaches are adopted. From a bivariate perspective, two measures of association, Cramer's V and Somer's d, are reported. Cramer's V is a symmetric measure of the strength of the association between two nominal variables. On the other hand, Somer's d provides a directional measure of the strength of the association between two ordinal variables, with respondents' ability to perceive as the dependent variable in the analysis. From a multivariate perspective, a logistic regression is run to regress the log odds of respondents' ability to perceive against various predictor variables that take into account respondents' socio-economic characteristics. The regression equations are arrived at using the backward stepwise method based on the Likelihood Ratio Test and significance levels of 5% and 10% respectively for entry and removal of variables.

Eight socio-economic variables are used as independent variables in the exploratory research:[23]

- GEN: Gender (female v male).
- AGE: Age (<30 v 30-39 v ≥

- Middle-income beneficiaries, i.e. respondents with annual incomes from S$24,001 to S$60,000 who have qualifying children; and
- High-income beneficiaries, i.e. respondents with annual incomes exceeding S$60,000 who have qualifying children. In view of the features of the STR incentive described in Section 3, high-income beneficiaries enjoy disproportionately more tax savings than middle-income beneficiaries with the same number of children. In particular, and unlike for middle-income beneficiaries, high-income beneficiaries are able to fully utilise their statutory STR tax credits over the nine-year set-off period).

FINDINGS

Awareness of the existence of the pronatalist tax expenditures

Out of the 350 respondents surveyed, 275 (78.6%) claimed to be aware of the STR incentive and 264 (75.4%) of the ECR incentive. 318 (90.9%) knew of at least one of the two incentives, with the remaining 32 (9.1%) having not heard of either incentive.

because they could not logically be expected to provide any useful responses of their perceptions of the distributive effects of the tax expenditures.

General

Table 3 reports the numbers and percentages of respondents who are, and who are not, able to perceive the five different aspects relating to the cost and distributive outcomes

distribution of the subsidies is income-progressive or income-regressive, only 18% of the respondents knew that it is income-regressive. A higher percentage of the respondents (38%) were able to perceive the elitist slant of the tax expenditures favouring higher-educated couples. There are two plausible reasons for this relatively higher level of consciousness. Firstly, educational qualification was an explicit qualifying condition for the ECR incentive and the prescribed minimum qualification was clearly stated in Inland Revenue literature referred to by taxpayers when completing their annual income tax returns. Secondly, the very intense and, to some extent, acrimonious public debate that followed the announcement of the controversial pronatalist measures in 1984 had very much focussed public attention on the fertility imbalance between the higher and lower educated, and had highlighted the eugenic bias of the incentives. The distributional aspect least perceived is the implicit bias of the tax expenditures against Malay couples. Only 17% of respondents were perceptive of this ethnic bias, and more than double this number (i.e. 36%) were in fact deluded into thinking that Malay couples enjoy benefits commensurate with the number of children they have. The relatively low perceptibility rate is unsurprising given that the ability to perceive this aspect required respondents not only to be aware that the incentives do not favour the lower educated and the lower income, but also to be cognisant of the fact that the lower educated and lower income are disproportionately Malay.

It may also be observed that issues relating to the distribution of the pronatalist tax subsidies by income had the highest percentages of 'don't know' responses. 63% of respondents stated that they did not know whether the benefits of the tax expenditures are distributed in an income-progressive or income-regressive manner while, somewhat surprisingly, as many as 55% of respondents stated that they did not know whether higher-income couples enjoy more or less dollar savings than lower-income couples in the same circumstances.

In the remaining analyses that follow, responses relating to each aspect will be classified into two categories – 'perceptive' and 'not perceptive', with the latter category incorporating the 'deluded' and 'don't know' responses.

Perceptibility of the spending implications and hidden cost

Table 4 reports the bivariate association between respondents' ability to perceive the spending implications and hidden cost of the pronatalist tax expenditures and each of the socio-economic variables.

TABLE 5: ABILITY TO PERCEIVE THE SPENDING IMPLICATIONS AND HIDDEN COST OF THE PRONATALIST TAX EXPENDITURES AMONGST HIGH-INCOME RESPONDENTS (

TABLE 6: LOGISTIC REGRESSION – ABILITY TO PERCEIVE THE SPENDING IMPLICATIONS AND HIDDEN COST OF THE PRONATALIST TAX EXPENDITURES

N = 288 Nagelkerke R^2 = .218

Likelihood Ratio Test for Overall Model:
-2LL for final model = 141.395 Chi-square = 46.605 df = 5 p-value = <.0005

Hosmer and Lemeshow Test for Goodness-of-Fit:
Chi-square = 9.369 df = 6 p-value = .154

Variables in the Equation:

	Parameter estimate	Std error	Wald	df	p-value	Odds ratio
EDU [1]	1.016	.381	7.120	1	.008	2.762
TRAIN [2]	.892	.351	6.454	1	.011	2.440
OCC_PRO [3]	.711	.301	5.563	1	.018	2.036
Income			9.514	2	.009	
- LOW_INC [4]	-1.536	.573	7.175	1	.007	.215
- MID_INC [5]	-.788	.322	6.001	1	.014	.455
INTERCEPT	-1.539	.434	12.576	1	<.0005	.215

Likelihood Ratio Tests for Individual Variables:

	-2LL of reduced model	Chi-square	df	p-value
INTERCEPT	141.395	.000	0	
EDU	149.239	7.844	1	.005
TRAIN	147.736	6.341	1	.012
OCC_PRO	146.907	5.512	1	.019
Income (LOW_INC and MID_INC)	151.345	9.950	2	.007

[1] EDU (0 = Non-tertiary-educated, 1= Tertiary-educated)
[2] TRAIN (0 = Not tax trained, 1 = Tax trained)
[3] OCC_PRO (0 = Other occupation, 1 = Professional/managerial occupation)

Perceptibility of the ethnic bias

All bivariate associations between respondents' ability to perceive the bias of the tax expenditures against Malay couples and the various socio-economic variables (except for beneficiary status) are weak and statistically insignificant. One conclusion therefore is that Malays are not significantly more, or less, likely than non-Malays to perceive that the incentives are effectively biased against them.[25]

The data (Table 7), however, provides some statistical support for the contention that beneficiaries are more perceptive than non-beneficiaries of the hidden ethnic bias of the tax incentives (although this association is a relatively weak one).

TABLE

TABLE 8: ABILITY TO PERCEIVE THE EUGENIC BIAS OF THE PRONATALIST TAX EXPENDITURES BY VARIOUS SOCIO-ECONOMIC VARIABLES

		Cramer's V [1]		Somer's d [2]	
Ability to perceive (No v Yes) **by the following socio-economic variables:**	N	Value	p-value	Value	p-value
Gender (Female v Male)	318	.033	.554	-.033	.555
Age (<30 v 30-39 v ≥40) [3]	310	.187	.004	.136	.007
Ethnicity (Non-Malay v Malay)	318	.037	.508	.058	.517
Education (Non-Tertiary v Tertiary)	318	.008	.884	-.008	.885
Tax training (Not trained v Trained)	318	.218	<.0005	.282	<.0005
Income (≤$24K v >$24K-$60K v >$60K)	312	.077	.400	-.057	.241
Beneficiary status (Non-ben v MI ben v HI ben)	313	.069	.475	.007	.903
Occupation (Other v Professional)	299	.054	.350	.057	.354
Occupation (Other v Finance-related)	299	.158	.006	.207	.010
Completion of married woman's tax return (No v Yes)	316	.151	.007	.148	.006

TABLE 9: LOGISTIC REGRESSION – ABILITY TO PERCEIVE THE EUGENIC BIAS

N = 291 Nagelkerke R^2 = .128

Likelihood Ratio Test for Overall Model:

-2LL for final model = 47.728 Chi-square = 28.847 df = 4 p-value = <.0005

Hosmer and Lemeshow Test for Goodness-of-Fit:

Chi-square = 1.743 df = 4 p-value = .783

Variables in the Equation:

	Parameter estimate	Std error	Wald	df	p-value	Odds ratio
AGE_40 [1]	.885	.301	8.652	1	.003	2.424
TRAIN [2]	.926	.350	6.975	1	.008	2.523
OCC_FIN [3]	.617	.362	2.904	1	.088	1.852
WRET [4]	.529	.261	4.115	1	.042	1.697
INTERCEPT	-1.273	.228	31.178	1	<.0005	.280

Likelihood Ratio Tests for Individual Variables:

	-2LL of reduced model	Chi-square	df	p-value
INTERCEPT	47.728	.000	0	
AGE_40	56.435	8.707	1	.003

publicity given to the heated exchanges in the 1980s appear, more than fifteen years on, to have left an imprint on older respondents of the present survey. Respondents old enough to recall the controversies and acrimony of the mid 1980s are found to be more likely to perceive the eugenic bias of the incentives. Younger respondents to the survey would have been too young back then to appreciate or rem 2 689.ut-4.9(a)(y)-18(to)5tT-

TABLE 11: LOGISTIC REGRESSION – ABILITY TO PERCEIVE THAT HIGHER-

Tables 12 and 13 report respectively the bivariate associations and the logistic regression relating to respondents' ability to perceive that higher-income couples enjoy more tax subsidies as a percentage of income than do lower-income couples in the same circumstances.

TABLE 12: ABILITY TO PERCEIVE WHETHER HIGHER-INCOME COUPLES ENJOY MORE TAX SUBSIDIES AS A PERCENTAGE OF INCOME (I.E. THE INCOME-REGRESSIVE BENEFIT DISTRIBUTION) BY VARIOUS SOCIO-ECONOMIC VARIABLES

		Cramer's V [1]		Somer's d [2]	
Ability to perceive (No v Yes) **by the following socio-economic variables:**	N	Value	p-value	Value	p-value
Gender (Female v Male)	317	.003	.962	-.002	.962
Age (<30 v 30-39 v ≥40)	309	.034	.833	.003	.947
Ethnicity (Non-Malay v Malay)	317	.022	.701	.026	.713
Education (Non-Tertiary v Tertiary)	317	.020	.727	.016	.724
Tax training (Not trained v Trained)	317	.103	.067	.105	.109
Income (≤$24K v >$24K-$60K v >$60K) [3]	311	.193	.003	-.052	.249
Beneficiary status (Other v HI ben) [4]	313	.127	[5] .034	.172	.077
Occupation (Other v Professional)	298	.028	.627	-.024	.619
Occupation (Other v Finance-related)	298	.050	.390	.052	.422

[1] Symmetric measure of nominal-by-nominal association.
[2] Directional measure of ordinal-by-ordinal association, with ability to perceive as the dependent variable.
[3] Respondents with incomes up to $24,000 are more perceptive than those in higher income groups. The 2x2 classification (≤$24K v Other) yields the following statistics: N = 311; V = .176 (p = .002); d = -.180 (p = .011).
[4] There is no statistically significant difference in ability to perceive between non-beneficiaries and middle-income beneficiaries. These two groups are collapsed into one labelled 'Other' in order to obtain a 2x2 classification to which Fisher's Exact Test is applied.
[5] Using Fisher's Exact Test (rather than Chi-square Test) due to one cell having an expected frequency of less than 5.

TABLE 13: LOGISTIC REGRESSION – ABILITY TO PERCEIVE THE INCOME-REGRESSIVE BENEFIT DISTRIBUTION

N = 309 Nagelkerke R^2 = .083

Likelihood Ratio Test for Overall Model:
-2LL for final model = 23.494 Chi-square = 15.880 df = 2 p-value = <.0005

Hosmer and Lemeshow Test for Goodness-of-Fit:
Chi-square = .015 df = 1 p-value = .902

Variables in the Equation:

	Parameter estimate	Std error	Wald	df	p-value	Odds ratio
LOW_INC [1]	1.254	.358	12.278	1	<.0005	3.504
HI_BEN [2]	1.283	.455	7.938	1	.005	3.607
INTERCEPT	-1.976	.202	96.025	1	<.0005	.139

Likelihood Ratio Tests for Individual Variables:

	-2LL of reduced model	Chi-square	df	p-value
INTERCEPT	23.494	.000	0	
LOW_INC	34.971	11.477	1	.001
HI_BEN	30.571	7.076	1	.008

[1] LOW_INC (0 = Other income levels, 1 = Income not exceeding S$24,000)
[2] HI_BEN (0 = Other respondent, 1 = Beneficiary with income exceeding S$60,000)

The main findings from Tables 10 to 13 may be summarised as follows. Firstly, TRAIN and OCC_FIN are important determinants of whether a respondent can perceive the absolute dollar distribution of the tax subsidies (Tables 10 and 11). However, neither variable is statistically significant as a determinant of the ability to perceive the income-disproportionate distribution of the tax subsidies (Tables 12 and 13). It does appear that many people do not think in income-proportionate terms when evaluating the distribution of tax subsidies, and that this is the case even for those trained in personal income taxation and/or whose work involve dealing with finance-related matters (including taxation). Secondly, there is some evidence (at the 10% significance level) that Malays are more perceptive (than non-Malays) of the absolute dollar distribution of the tax subsidies, but they are not any more perceptive of the income-disproportionate distribution of those subsidies.

Thirdly, there is no statistically significant difference between lower-income

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incentives. These findings highlight the potential of tax expenditures as a politically useful covert spending instrument to target and deliver benefits to a select few while ensuring that the underlying distributive ef

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