RESEARCH ARTICLE

Assessing Tax Fairness Dimensions in a Small Developing Economy

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Abstract
Tax fairness is a critical canon of a good tax system. Taxpayers' perceptions of the fairness of a tax have been identified by researchers as important for policy makers due to the potential impact on tax compliance. It is against this background that this paper seeks to determine whether selected tax fairness dimensions are applicable for a small developing economy. The principal component technique showed that general fairness is a relevant tax dimension in a country that is politically and economically stable. Interestingly, fewer participants were concerned about their personal self-gain, suggesting that people had greater interest in the overall effect of taxes on the public.

Keywords: Tax fairness/equity; factor analysis; small open economy.

1. Introduction

The tax canon, fairness, has induced much interest for wide-ranging empirical research as researchers accentuated the importance of taxpayers' perceptions of fairness on compliance level [1, 2]. A fair tax can be described as one where the greater burden of the tax is borne by individuals who are more financially well-off and capable of paying the tax. Since taxes affect the tax bearer, it is important to understand how taxpayers will respond to adjustments in fiscal policies. The perceptions of taxpayers' on the burdens and benefits associated with tax decisions allow for more effective functioning of the tax system [3] and can help mitigate tax avoidance and evasion. Therefore, understanding behavioural or cultural issues is essential to ensure more content residents. This is especially true when an economy is predominantly driven by its workers, as in the case of many small economies through the tourism, manufacturing or agricultural sectors.

Since Barbados is undersupplied in natural resources, taxes have always been a key source of revenue for the government. Table 1 provides the contribution of different taxes to total revenue in Barbados. Throughout 1955 to 1985, taxes on income and profit played an important role in the economy's generation of tax revenue, contributing over 40% of revenue. The 1986 tax reform that focused on redistributing income resulted in a lowering of income tax rates and a shift to taxes on goods and services as the main revenue earner. The tax-to-GDP ratio for Barbados indicated values greater than 20%, which are high when compared with other developing countries - Lotz and Morss [4] and Chelliah *et al.* [5] found that the average tax-to-GDP ratio ranged between 5% and 18% and between 13% and 15%, respectively.

Table 1: Tax contributions as a percentage of revenue for Barbados, 10-year averages.

Period	Categories of Taxes			
	Income & Profit (%)	Goods & Services (%)	International Trade (%)	Tax/GDP (%)
1956–1965	41	19.6	36.4	20
1966–1975	45	20.7	25.8	21
1976–1985	40.7	26.8	19.1	23.3
1986–1995	29.6	35.7	11.5	26.9
1996–2005	35.5	47.2	9.2	31.7

Source: Average percentages were calculated from statistics in various issues of the Central Bank of Barbados' Annual Statistical Digest.

Earlier studies on tax fairness dimensions have concentrated on developed countries such as United States, United Kingdom and Australia and have only recently examined emerging markets in the Asian territory. To date, there has been no empirical research done in the Caribbean. This study, therefore, attempts to fill this gap by empirically testing whether the tax fairness dimensions, as identified by Gerbing [6] for the US, holds for Barbados – a small open developing country. Using primary data, the study employed a factor analysis technique.

This paper is timely as the mid-2007 financial crisis has placed additional burden on the revenues of many small dependent economies. Several of these countries have sought to adjust various tax structures in an attempt to mitigate a worsening fiscal imbalance. However, undertaking such tax changes without considering behavioural factors can lead to tax evasion issues. Therefore, by identifying the dimensions that affect tax fairness perceptions, tax administrators can improve the equity of the tax system which may promote greater tax compliance.

The paper is organised as follows. The next section examines the empirical literature of taxpayers' perceptions of tax fairness with a focus on highlighting tax fairness dimensions. Section 3 outlines the methodological approach and provides a description of the demography of the sample. Section 4 provides the results while section 5 summarises the main findings of the paper as well as provides the key policy implications of the significant tax fairness factors.

2. Literature Review

Seminal work on tax fairness dimensions was done by Gerbing [6] who undertook a survey to identify the existence of five fairness dimensions: general fairness/distribution, exchange with government, attitude towards taxes of the wealthy, progressive versus flat tax rate, and self-interest. The majority of research on taxpayers' perceptions of tax fairness has been undertaken mainly in developed countries [7–10]. Andreoni *et al.* [11] urged for a greater need to investigate tax compliance in jurisdictions outside of the United States. In an attempt to heed this call, Richardson [12] examined the dimensions for Hong Kong. The factor analysis approach in addition to an ordinary least square (OLS) multiple regression analysis showed that general fairness, middle-income earners tax share or burden, and exchange with the government were statistically significant in influencing the behaviour of taxpayers' tax morale.

Gilligan and Richardson [13] analysed fairness dimension factors on tax compliance for two distinct countries, one developed and the other emerging. The statistics showed that there were significant variations of opinions between the participants from Australia and Hong Kong as it relates to general fairness, tax rate structure on the ability to pay and self-interest. Australians indicated slightly lower mean scores for tax compliance behaviour. The findings from the study suggested that there are no universally accepted relationship between the different aspects of tax fairness perceptions and tax compliance behaviour.

Chittenden and Foster [14] also employed a multi-cultural approach to investigate tax simplicity, tax transparency and tax burden. The study analysed Hong Kong, Singapore, Canada, the United States, the United Kingdom and Australia.[1] On average, the respondents agreed that the tax system in their country is fair. For Hong Kong and Singapore, the study found that generally taxpayers viewed the tax system as fair and simple to understand due to better communication from tax authorities. For Canada, the US, Australia, and the UK, the respondents' ratings averaged below neutral (3), that is, 2.74, 2.93, 2.55 and 2.46, respectively. Taxpayers consistently gave Hong Kong and Singapore's tax systems good ratings when questioned on the tax structures' simplicity and transparency while Australia and the UK had the lowest ratings.

Azmi and Perumal [15] attempted to reinvestigate the importance of tax fairness dimensions, as indicated in Gerbing [6], for Malaysia. The summarised mean scores indicated that Malaysians perceived the tax system to be moderately fair. Utilising the principal component factor analysis, responses of respondents suggested that only three dimensions: general fairness, distribution of tax burden, and exchange with government were statistically significant among Malaysians when identifying tax fairness.

Indeed, the literature of tax preferences and fairness indicates that most people do not like paying taxes. The studies on the Asian territory suggested that taxpayers were generally more satisfied with the current tax system than Australians and Americans. Such variations may be due to the differences in the history of communities as it relates to culture and ethical behaviour.

[1] 97, 46, 266, 132, 42, 1122 usable responses were considered for Australia, Canada, Hong Kong, Singapore, US, and the UK, respectively.

3. Methods

3.1. Methodology

This section gives the procedure for showing whether selected tax fairness dimensions, as found in Gerbing [6], are relevant for Barbados. The dimensions adopted in this study are: general fairness/distribution, exchange with government, and self-interest since the Barbadian tax system is considered less complex than the U.S. The study employed a survey questionnaire to collect information on taxpayers' behaviour with respect to changes in personal income tax and the tax system in general. The questions for general fairness were rated using a five point Likert scale ranging from "1 = Very Unfair" to "5 = Very Fair" while the questions for exchange with government and self-interest were rated using a five point Likert scale ranging from "1 = Strongly Disagree" to "5 = Strongly Agree". It should be noted that a modified version of the questions found in Azmi and Perumal [15] has been adopted.

Individuals who were employed and eligible to vote in Barbados were randomly selected. The responses for 302 respondents were used in the analysis, which is consistent with previous studies [6, 12, 13, 15] thus providing substantive evidence for a general analysis. Statistical analyses were undertaken using the Statistical Package for the Social Sciences (SPSS) software.

Table 2: Statements measuring tax fairness dimensions.

Tax Fairness Dimension	Statements
General fairness	*Likert Scale:1=Very Unfair to 5=Very Fair* Q6. The income tax system for the average taxpayer Q7. The income tax system for you personally
Exchange with government	*Likert scale:1=Strongly disagree to 5=Strongly agree* Q8. The benefits that you receive from the government (e.g. health, education) equate your personal contribution towards tax revenue Q9. The income taxes that you pay are unreasonably high considering the benefits provided by the government Q10. The benefits that you receive from the government in exchange for income tax payments are reasonable
Self-interest	*Likert scale:1=Strongly disagree to 5=Strongly agree* Likert scale:1=Strongly disagree to 5=Strongly agree Q11. Current tax laws require you to pay more than your fair share of income taxes Q12. Compared to other taxpayers, you pay less than your fair share of income taxes Q13. Compared to the amount paid by more wealthy taxpayers, you pay more than your fair share of income taxes

To test the tax fairness dimensions, a number of methods were considered. Descriptive analysis, such as the mean and standard deviation, was used to give an average indication of how the subjects felt about each item of the tax fairness dimensions. Factor analysis was then employed to determine whether respondents classified tax fairness under similar dimensions to Gerbing [6]. Factor analysis is appropriate for this study since it groups related items into one factor, disentangles complex interrelationships into their major and distinct regularities, and compensates for random error and invalidity. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's test of sphericity were also considered to show that factor analysis was appropriate for the data. The recommendations from Kaiser [16] are considered in this paper.[2]

[2] The KMO statistic ranges between 0 and 1. A value close to 0 suggests that factor analysis is inappropriate while a figure close to 1 indicates that factor analysis is suitable since it yields distinct and reliable components. Kaiser [16] recommended accepting values greater than 0.5 as statistics below this value suggested that the data was irrelevant. Values between 0.5 and 0.7 are mediocre, between 0.7 and 0.8 are good, between 0.8 and 0.9 are great and above 0.9 are superb.

Bartlett's measure tests the null hypothesis that the original correlation matrix is an identity matrix. If the R-matrix is an identity matrix then all correlation coefficients would be zero. For factor analysis to work, relationships among the variables are necessary. The dimensions discovered from the rotated component matrix are tested for reliability using the Cronbach's Alpha technique. The Cronbach's α is a coefficient of consistency and measures how well a set of variables or items measures a single, unidimensional latent construct and is defined as follows:

$$\alpha = \frac{N}{N-1}\left(1 - \frac{\sum_{i=1}^{N} \sigma_{Y_i}^2}{\sigma_x^2}\right)$$

where *N* is the number of components or items, σ_x^2 is the variance of the observed total test scores, and $\sigma_{Y_i}^2$ is the variance of component *i*. When the average inter-item correlation is low, α will also be low; conversely, a high inter-item correlation indicates that the items are measuring a similar core factor. The study uses Nunnally [17] acceptable minimum level of reliability of 0.70.

3.2. Data analysis

Table 3 shows the descriptive statistics of the sample. Fifty-five percent of the respondents were females while males made up 45%. Most of the interviewees were over 20 years with the oldest participant being 63 years. Single and married taxpayers represented the bulk of the respondents: 61.3% and 32.1%, respectively. Over 85% of the respondents had some form of tertiary education. These statistics are similar to the population thus suggesting no major implications for the interpretation of the results in representing the general public.

Table 3: Selected demography of respondents.

	Frequency	%		Frequency	%
Gender			***Educational Level***		
Male	136	45	Secondary	36	11.9
Female	166	55	Diploma	73	24.2
Age			Bachelor	117	38.7
Below 20	11	3.6	Master/Doctorate	64	21.2
20-29	120	39.7	Other	12	3.9
30-39	78	25.8			
Above 39	93	30.8	***Occupation***		
Marital Status			Clerical	104	34.4
Single	185	61.3	Specialist	100	33.1
Married	97	32.1	Other	98	32.5
Divorced	11	3.6			
Other	9	3			

4. Results

4.1. Initial results on tax fairness

In this section, an overview is provided on the responses of the respondents to questions on the fairness of the Barbadian tax system. From the survey, a significant amount of respondents (42.7%) expressed the view that on average, the income tax is fair when higher income individuals bear most of the burden. About 35% and 24.2% of the respondents were uncertain about the effect income tax rates have on the general public and themselves, respectively. This finding was consistent regardless of the respondents' education, age, income level and gender.

A considerable number of persons (31%) expressed neutrality when asked whether income taxes equated the benefits they received from the government. However, slightly more respondents (35%) felt that the benefits derived from the administrators did not equate their personal contribution to tax revenue, suggesting that taxpayers would prefer improved accessibility to public goods and services. The majority of respondents (67%) opposed the notion that their tax payments were unreasonably high considering the services provided by the government. About 40% of the sample believed that the benefits obtained in exchange for income tax payments were satisfactory.

In terms of self-interest, most respondents felt that they had contributed their fair share of the tax burden. Some 33.8% of the respondents expressed disagreement in paying more than their fair share of income taxes while 28.8% found otherwise. An overwhelming 54.3% disagreed that they contributed less than their fair share when compared to other taxpayers while 9.9% admitted to not paying their fair share. Additionally, 39.1% suggested that they transferred more of their earnings to government than wealthy taxpayers. Concerning the nature of taxes, over 75% of the respondents indicated support for a progressive income tax, that is, where individuals with a higher income pay a greater percentage of their wages/salaries in tax than taxpayers with lower incomes.

Generally, taxpayers were contented with the fairness of the structure of personal income tax. Furthermore, the statistics showed that fewer participants were concerned about personal gain, which can suggest that people care more about the overall effect of taxes on the public.

4.2. Tax fairness dimensions

Table 4 presents the mean and standard deviation for the tax fairness dimensions for this study as well as reports the findings from Gilligan and Richardson [13] for comparative purposes. For Barbados, the mean scores for all items ranged between 2.4 and 3.4, with participants generally disagreeing that they pay less than their fair share of income taxes in comparison with other taxpayers, and more or less agreeing that the income tax system is fair for the average taxpayer. The general fairness statistics showed that participants were somewhat pleased with the income tax system for both themselves and others. For exchange with the government, however, taxpayers were somewhat uncertain about their contributions being equal to the benefits received from government.

Nonetheless, the respondents believed that the goods and services provided by the government to the public, and what they personally received were sufficient given their income tax contributions. Regarding self-interest items, survey participants generally noted that the tax system was unfair when they considered what they paid in comparison to wealthy taxpayers. Respondents were neutral on whether the current tax structure required them to pay more than their fair share. From the mean scores in Table 4, taxpayers perceived the Barbadian tax system as relatively fair.

Cross-country comparisons show that in all three categories Barbadians demonstrated higher approval of their income tax system than Australia but had similar means to Hong Kong. The z-test for differences between sample means reported equal means, indicating no significant differences in taxpayers' rating of the tax system between Barbados and Hong Kong, and Barbados and Australia. This is a good indicator for Barbados since Hong Kong is considered to have one of the lowest tax rates in the world [18] while Barbados has one of the highest tax rates in the Americas. One possible factor for Barbadians positive attitude toward the tax system is contentment with the general macroeconomic performance of their country in relation to the rest of the world. The country has a long economic history of maintaining a fixed exchange rate to the US dollar and is ranked in the top 35 countries for the highest Human Development Index (HDI)[3].

With regard to ensuring the use of sensible variables in testing for tax fairness dimensions, the correlation matrix showed that the majority of values were statistically significant, which indicated importance for each question. There were also no unusually high (>0.80) correlation coefficients to suggest any multi-colinearity or singularity. To further support this, the determinant of the matrix was 0.148, which is significantly greater than the required value of 0.00001. Consequently, all items for this section correlated fairly well, thus indicating no need to eliminate any questions or variables.

Inspection for factor analysis suitability was derived from Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, which were both statistically significant, thereby providing evidence of a relationship between the variables to be analysed and the adoption of factor analysis. Consequently,

[3] The HDI consists of three indicators: life expectancy, literacy rate, and standard of living

principal components analysis was undertaken in order to extract the common factors. The results from the eigenvalues associated with each linear component (factor) suggest that Barbadians have grouped the tax fairness dimensions into three elements.

Table 4: Mean and standard deviation (SD) for tax fairness dimensions.

	Barbados		Gilligan and Richardson [13]			
			Australia		Hong Kong	
Item	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
General Fairness	***3.3***	***0.92***	***2.92***	***1.025***	***3.31***	***0.91***
Average taxpayer	3.32	0.863	2.94	1.01	3.34	0.88
Personally	3.28	0.976	2.9	1.04	3.27	0.93
Exchange with government	***2.97***	***1.037***	***2.85***	***0.98***	***2.9***	***0.8***
Equity of benefits	2.97	1.116	3.18	1	3.14	0.82
Benefits received low	2.8	1.049	2.78	0.89	2.79	0.79
Benefits received fair	3.15	0.946	2.58	1.05	2.76	0.8
Self-interest	***2.88***	***0.993***	***2.75***	***0.97***	***2.87***	***0.76***
Amount I pay	2.99	1.008	3.17	1.08	3.02	0.8
Comparison of other tax payers	2.41	0.927	2.32	0.85	2.72	0.72
Comparison of wealthy taxpayers	3.23	1.043	NA	NA	NA	NA

Table 5 presents the rotated component matrix, which is a matrix of the factor loadings for each variable onto each factor. One of the three dimensions tested were clearly found in Barbados as questions 6 and 7 were extracted only in component 2, thus, suggesting that general fairness was a necessary dimension for taxpayers when analysing the fairness of a tax system. However, there was no clear pattern that differentiated the other questions into the dimensions of self-interest and exchange with the government. As such, component 1 and 3 had a mixture of both dimensions. This result is supported by 76.2% of the respondents, whose preference is for a progressive tax system. Thus, suggesting that self-interest is not a core factor in determining tax fairness.

Table 5: Rotated Component Matrix.

QUESTIONS	COMPONENTS		
	1	**2**	**3**
Q13	0.78		
Q9	0.68		
Q11	0.65		
Q10	-0.64		
Q6		0.88	
Q7		0.84	
Q12			0.91
Q8	-0.48		0.48
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotations coverged in 4 iterations.			

5. Conclusion

This study examined taxpayers' perceptions of tax fairness and investigated whether the tax fairness dimensions of Gerbing [6] applied for a small developing economy. The results indicated that taxpayers perceived the Barbadian tax system as relatively fair and specifically concentrated on general fairness of the tax rather than focusing on self-interest. This is generally pleasing to any government, as it provides an indication of the taxpayers' satisfaction of the current tax system, thereby, suggesting greater tax compliance and higher revenues.

The absence of self-interest and exchange with government in the determination of a fair tax system is not surprising since the culture of Barbadians is different from that of countries in previous studies. This provides room for further research where researchers can formulate new questions on tax fairness that is appropriate for the environment. Nonetheless, the finding suggests that the government has a population that is somewhat contented with the tax structure, which makes it easier for the government to modify the tax system in an attempt to achieve the most effective redistribution of income.

Competing Interests
None declared.

References

[1] Levaggi R, 2007. Tax evasion and the cost of public sector activities. Public Finance Review, 35 (5): 572–585.

[2] Fjeldstad O-H, Semboja J, 2001. Why people pay taxes: The case of the development levy in Tanzania. World Development, 29 (12): 2059–2074.

[3] Hin PE, 2007. Fiscal misperceptions associated with tax expenditure spending: The case of pronatalist tax incentives in Singapore. eJournal of Tax Research, 5 (1): 5–39.

[4] Lotz J, Morss E, 1967. Measuring tax effort in developing countries. IMF Staff Papers, 14: 478–495.

[5] Chelliah R, Bass H, Kelly M, 1975. Tax ratios and tax effort in developing countries - 1969–1971. IMF Staff Papers, 22: 187–205.

[6] Gerbing MD, 1988. An empirical study of taxpayers' perceptions of fairness. PhD thesis, University of Texas.

[7] Hite P, Roberts M, 1991. An experimental investigation of taxpayer judgments on rate structures in the individual income tax system. Journal of the American Taxation Association, 13: 115–137.

[8] Sheffrin S, 1993. What does the public believe about tax fairness? National Tax Journal, 46 (3): 301–308.

[9] Wilson S, Breusch T, 2003. Taxes and social spending: The shifting demands of the Australian public. Australian Journal of Social Issues, 38(1): 39–56.

[10] Hammar H, Jagers S, Nordblom K, 2009. Perceived tax evasion and the importance of trust. Journal of Socio-Economics, 38 (2): 238–245.

[11] Andreoni J, Erard B, Feinstein J, 1998. Tax compliance. Journal of Economic Literature, 36: 818–860.

[12] Richardson G, 2006. The impact of tax fairness dimensions on tax compliance behaviour in an Asian jurisdiction: The case of Hong Kong. The International Tax Journal, 32(1): 29–42.

[13] Gilligan G, Richardson G, 2005. Perceptions of tax fairness and tax compliance in Australia and Hong Kong – A preliminary study. Journal of Financial Crime, 12(4): 331–343.

[14] Chittenden F, Foster H, 2008. Perspectives on fair tax. London: Certified Accountants Educational Trust.

[15] Azmi A, Perumal K, 2008. Tax fairness dimensions in an Asian context: The Malaysian perspective. International Review of Business Research Papers, 4(5): 11–19.

[16] Kaiser HF, 1974. An index of factorial simplicity. Psychometrika, 39(1): 31–36.

[17] Nunnally J, 1978. Psychometric theory. New York: McGraw Hill Book Company.

[18] Reynolds A, 2006. Say it isn't so, Hong Kong. The Washington Times.
[http://www.washingtontimes.com/news/2006/jul/29/20060729-104400-8593r/?page=all]