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Tax Attitudes and Tax Evasion in Puerto Rico:
A Survey of Upper Income Professionals*

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This study uses survey data from a sample of upper income working professionals in Puerto Rico to gauge the relationships between the perceived equity of the individual income tax and the taxes paid-benefits received trade-off and tax compliance behavior. Tax resistance is found to be a positive function of perceived tax structure inequities, the opportunity for greater than average tax fraud, contact with tax evaders, self-employment, and steeply rising marginal tax rates.

I. Introduction

The economic modeling of tax evasion behavior sets the taxpayer up as a utility-maximizer whose supply and demand functions for evasion are determined within the context of the perceived equity of the tax system and the taxes paid-benefits received trade-off, the tax fraud penalty structure, and the probability of detection. This alone suggests that there is a host of economic and

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non-economic variables which may influence tax compliance decisions on the part of the taxpayer. Recent public finance literature is abundant in both theoretical and empirical efforts in this area, efforts which appear to be at least partially a function of the growing concern with the interrelated problems of taxpayer disaffection, tax evasion, the underground economy, and budget deficits. The empirical work in this field may be placed in one of three general categories: game simulations,[1] analyses which use public fisc revenue data,[2] and taxpayer interview surveys.[3] The present study falls in the latter category, and deals with the personal income tax.

Although the survey underlying this study was carried out on a sample of taxpayers in Puerto Rico, the study's results and implications are most likely applicable to other countries where high marginal income tax rates and other elements impinge upon taxpayer perceptions of tax and benefits received inequities. It is evident that behind the tax evasion decision lies a bundle of norms and attitudes that can be either counteracted or reinforced by the strength of tax administration (which includes administrative efficiency and the penalty structure). Clearly, where normative commitment to tax compliance is weak, tax administration problems multiply. Thus, in those situations where tax compliance problems are large, it is important to reach an understanding of the aspirations and motives of the taxpayer vis-à-vis the tax system. Doing so might aid policy-makers and tax administrators to better shape the public revenue structure and its components.

Among the hypotheses to be analyzed in this article are:

1. High and steeply rising marginal tax rates lead to generalized taxpayer dissatisfaction and non-compliance.
2. The likelihood of tax fraud is highest the greater the extent to which the taxpayer perceives his terms of trade (taxes paid versus benefits received) with the government as inequitable.
3. The greater the taxpayer's contact with tax evaders, the more likely he is to also commit tax fraud.

1 For example, see Spicer and Becker.

2 For example, see Mork, Clotfelter, and Witte and Woodbury.

3 For example, see Vogel, Spicer and Lundstedt, Song and Yarbrough, Lewis, and Mason and Calvin.

4. The self-employed have greater evasion opportunities than do salaried taxpayers.
5. The greater the awareness of illegal tax opportunities, the greater is the magnitude of tax evasion.

II. The Setting: Puerto Rico and Its Personal Income Tax

The individual income tax laws of the Commonwealth of Puerto Rico that were in effect during the survey period (1984) were adapted from the United States Internal Revenue Code of 1954, and in general terms, structure, and application were similar to U.S. statutes. In 1984 the personal income tax accounted for 36% of central government general fund domestic tax revenue (i.e., excluding trust funds, custom duties collected by the federal government, and other non-tax and/or non-domestic revenues). Thus, both for its revenue importance and its historical growth (in 1956 the cited proportion was 19%) the individual income tax is clearly vital to the public fisc.

Although in the late 1970s and early 1980s marginal tax rates were slightly reduced, as of 1984 these rates on net taxable income ranged from 10.26% at the bottom to 67.55% at the top.[4] This range by itself is not especially onerous on an internationally comparative basis. However, the steepness with which the marginal rates rose is another story, especially in light of the fact that income splitting was not permitted under the tax statutes. Moreover, there existed only one tax schedule regardless of marital/family status, the value of exemptions and deductions had fallen well behind the inflation rate over the years, and the absolute value of personal exemptions was far below levels in the U.S. In 1984 marginal tax rates on net taxable income reached 26% at $10,000, 35% at $18,000, 44% at $26,000, and 52% by $38,000. The rapidity of these marginal tax rate rises impacted heavily upon the island's growing professional classes, who aspire to and often earn incomes similar to their U.S. counterparts. Furthermore, the tax compliance of these groups is essential to tax yields. In 1984 those in the net taxable income brackets over

[4] This top rate was reduced to 50% as of tax year 1986, and applied to net taxable income over $38,000. However, the marginal rates relevant to this study whose data base was generated in 1984 are those that rise to 67.55%.

$18,000 filed only 7% of tax returns but paid 45% of personal income taxes; the corresponding figures for the brackets over $38,000 were 0.9% and 17%.

Regardless of whether or not there exists a positive correlation between tax evasion and these highly progressive marginal rates, that tax evasion in Puerto Rico is a serious problem is confirmed by the Puerto Rico Treasury Department's own estimates. Individual income tax evasion is estimated to be at least 50% of actual personal income tax collections. Clearly, tax non-compliance is not merely a theoretical exercise. By severely reducing the tax base it creates the need for high and rapidly rising marginal rates, while at the same time this rate structure may be a principal cause of evasion.

III. The Sample Survey

The data base for this study was generated via a mailed multiple choice questionnaire sent in 1984 to a representative sample of Puerto Rico's lawyers, certified public accountants (CPAs), and medical doctors. The random sample was large, consisting of approximately 40% of all registered lawyers, one-third of all MDs, and 70% of all CPAs. In all, 4698 questionnaires were received by the addressees (302) were returned by the post office), and 1060 completed questionnaires were returned. The resulting response rate of 22.6% (1060/4698) must be considered excellent for a mail survey with no reminder or repeat mailing. Response rates did differ by profession, being highest for CPAs (30.6%) and lowest for lawyers (20.3%). The nature of the questions and statements contained in the questionnaire can be easily appreciated from the contents of Tables 2-4.[5] Table 1 presents information on the demographics of the respondents.

It is apparent that the sample is not representative of the average Puerto Rican taxpayer. However, it may be fairly well representative of Puerto Rico's professional classes, who are those most affected by the income tax. There are numerous solid reasons for having selected such a sample. These professionals are

[5] Some 18 of the 33 questions contained in the Spanish language questionnaire were patterned after those used in Vogel.

Table 1

SELECTED SAMPLE CHARACTERISTICS

(Percentages)

A. Profession		B. Job Status	
1. Lawyer	44	1. Salaried	27
2. Public Accountant	21	2. Self-Employed	65
3. Medical Doctor	33	3. Both	8
4. Lawyer/Accountant	2		
C. Age (years)		D. Number of Years in Profession	
1. 25-35	23	1. 5 or less	14
2. 36-45	33	2. 6-10	27
3. 46-55	23	3. 11-20	29
4. over 55	21	4. More than 20	30
E. Average Hours Worked Per Week		F. Gross Income Levels	
1. 30 or less	10	1. $20,000 or less	10
2. 31-40	20	2. $20,000-$40,000	36
3. 41-50	34	3. $40,000-$60,000	28
4. 51-60	22	4. $60,000-$100,000	16
5. More than 60	14	5. Over $100,000	10

most likely to display far greater income tax consciousness than average, thereby suggesting that they are likely to be particularly sensitive to tax disincentives, incentives, and opportunities for tax evasion.[6] Moreover, since their product is personal services, they are more likely than average to be self-employed. Self-employed job status is key, for the self-employed are more able to respond to tax disincentives than are those (salaried workers) more subject to institutional rigidities. Moreover, the self-employed ordinarily enjoy better tax evasion opportunities. And, to reiterate, it is precisely these upper income groups who are most affected by high and steeply rising marginal tax rates.

[6] This tax (marginal rate) consciousness *cum* knowledge was substantiated by the inclusion in the questionnaire of two separate and differently worded queries regarding those marginal rates applicable to each respondent. By cross-checking these responses with each other and with the respondents' income levels it became evident that by far the large majority was well aware of the marginal tax rate to which it was subject.

IV. The Tax-Public Expenditure Benefit Exchange

Taxpayer consciousness of the exchange relationship with the government (sacrificing purchasing power in return for public goods and services) can be postulated as vital to the tax compliance decision. If it can be assumed that the taxpayer implicitly carries out a cost-benefit analysis of the taxes paid-benefits received trade-off, then it follows that the amount of satisfaction (dissatisfaction) perceived in this exchange will be a powerful determinant of the degree of tax compliance. Findings from the field of social psychology suggest that perceived inequities at the least provide the rationale to right such perceived inequities. In the case of the taxpayer who feels that his terms of trade in the tax-expenditure exchange with the government are biased against him, such feeling might well provide the incentive to engage in tax fraud. Spicer and Lundstedt, for example, found empirical evidence supporting this view. Moreover, others[7] have found that there exists a positive relationship between higher income levels and antipathy toward the tax system, for as marginal tax rates rise fewer social services are received.

Measures of the perceived equity (inequity) of the Puerto Rican fiscal system are displayed in Table 2. From Parts A, B, and C it is readily noted that, with respect to the overall sample, from two-thirds to four-fifths of the respondents perceived a great deal of inequity *cum* dissatisfaction with their taxes paid-benefits received exchange. A clear relationship between income levels and tax dissatisfaction emerges, especially from Part C. Close to nine-tenths of those persons in the upper income levels felt that their taxes were unreasonably high given the benefits received from public expenditures.[8] Differences between the salaried and

[7] Refer to Voegel and Lewis.

[8] This is not all surprising. In Puerto Rico the middle upper to upper income classes benefit little from public spending on the most visible functional categories. They enroll their children in private schools and stay away from public hospitals due to the perceived low quality of educational and health services. Government spending on police protection appears to do little to hold down an increasing crime rate, with the consequence that a rising amount of private spending on personal and home security occurs. The benefits accruing to family income classes from public spending in Puerto Rico have been quantified under a cost of service approach by Mann. This study revealed that relative benefits (as a proportion of income) declined as income rose, but this did not necessarily happen in an absolute sense. However, by positing different types of underlying utility functions even these conclusions were not consistently sustained; see Mann and Perlis.

Table 2

PERCEPTIONS REGARDING THE TAX-PUBLIC EXPENDITURE BENEFIT EXCHANGE

(Percentages)

	Overall Sample	Income Level ($1,000) Under 30	30-60	Over 60	Job Status Salaried	Self-Employed	Age (years) 25-35	36-45	46-55	Over 55
A. Large part of taxes used for meaningless purposes (in agreement)	63	65	61	64	56	65	60	68	63	59
B. Have you benefited more or less than average taxpayers from public spending?										
1. More	1	2	1	1	0	2	2	1	1	2
2. Less	81	71	83	86	81	81	77	87	86	70
3. Same	18	27	16	13	19	17	21	12	13	28
C. Considering the benefits you receive, are your taxes reasonable? (disagreement)	79	69	79	88	82	78	81	81	83	67

Table 2 (Continued)

(Percentages)

	Overall Sample	Income Level ($1,000) Under 30	30-60	Over 60	Job Status Salaried	Self-Employed	Age (years) 25-35	36-45	46-55	Over 55
D. Opinion regarding public spending on:										
1. Police										
a. Too high	12	19	9	9	12	12	16	11	10	11
b. All right	30	36	30	22	35	28	31	29	29	31
c. Too low	58	45	61	69	63	60	53	60	61	58
2. Food stamps and unemployment compensation										
a. Too high	74	71	75	77	70	76	75	79	76	61
b. All right	21	22	23	16	22	20	19	17	22	32
c. Too low	5	7	2	7	8	4	6	4	2	7
3. Education										
a. Too high	7	9	4	5	5	7	5	5	7	6
b. All right	26	28	27	20	28	25	22	23	28	31
c. Too low	67	63	69	75	67	68	73	72	65	63
4. Public health										
a. Too high	10	10	9	10	9	10	7	10	13	7
b. All right	29	28	30	28	35	28	27	30	29	33
c. Too low	61	62	61	62	56	62	66	60	58	60
5. Social security										
a. Too high	33	26	34	36	30	34	31	37	36	24
b. All right	47	50	49	41	51	44	46	45	45	52
c. Too low	20	24	17	23	19	22	23	18	19	24

self-employed are not so clear cut; on one hand the self-employed expressed greater concern that a large part of their taxes was being used for meaningless purposes (Part A), but a slightly smaller proportion felt that their taxes were unreasonable given the benefits received (Part C). With respect to age, however, there are definite patterns, as the upper age class (56 years and over) displayed distinctly lower levels of dissatisfaction with its tax-benefit terms of trade. This squares with other empirical findings.[9]

That negative attitudes toward the public goods exchange question strongly prevailed does not necessarily label the survey respondents as fiscal/political conservatives, although this might well be the conclusion reached from the first two components of Part D of Table 2. Here it is observed that almost three-fifths of the sampled felt that public spending on police protection was too low, whereas three-fourths found outlays on food stamps and unemployment too high.[10] However, such judgments have a life and cause independent of this particular sample, for representative public opinion surveys of the island's population have identified crime as by far the number one cause of concern. Moreover, the idea of "workfare' for able-bodied food stamp recipients is much discussed. In other words, these are attitudes shared by the entire socioeconomic spectrum, and not merely by the upper income individuals found in this survey. Far more "liberal" attitudes toward public expenditures were displayed regarding spending on public education and health, where around two-thirds felt that the level of public outlays was too low. This is rather surprising, for in Puerto Rico middle and upper income families enroll their children in private schools and are loath to use public health facilities. In other words, dissatisfaction with the tax-benefit exchange equation apparently did not overly bias the respondents against those types of public (merit) expenditures that are perceived as beneficial both for the individual and for society as a whole.

9 Refer to Vogel, and Witte and Woodbury.

10 This is the same food stamp program existent in the U.S. as administered by the U.S. Department of Agriculture. As such, it is funded by the U.S. taxpayer, not the Puerto Rican. There is, however, a Puerto Rican variation on the program. Since 1982 persons benefitting from the program have received money in lieu of stamps, and these monies can be spent as desired on food and non-food items. In 1984 food stamp benefits amounted to 6% of personal income, but for lower income families were a far more significant income source. The unemployment program is established under federal law and is operated as in a state.

V. Perceptions Regarding the Income Tax Burden

Having looked at the overall tax-benefit exchange equation, attention turns to those attitudes associated with the burden and distribution of the individual income tax. Given the largely negative biases already observed, what emerges from the summarized information found in Table 3 is expected. Both the burden of the tax and its marginal rates are categorized as too high; some two-thirds of the respondents found the burden too high and over 90% rated the marginal rates too high. Moreover, less than one-tenth rated the tax burden distribution as fair. Clearly, there exists a large amount of resentment toward the income tax *as presently structured.* The distinction between the structure of the tax and the tax itself should be noted. The responses registered here probably do not represent opposition to the income tax as such. Rather, they measure opposition to the structure of the tax, which is perceived as generating an onerous and unjust burden.

This latter contention is buttressed by the fact that there emerged only minority support for the pure flat rate tax concept; one-third felt that marginal tax rates should be the same for everyone (Part C). On the other hand, almost one-half did support a flat marginal rate above a given (and undefined) base level (Part D).

As already noted from Table 2, there did exist significant group differences of opinion regarding the fairness of the income tax. Upper income persons and/or the self-employed consistently displayed the most negative attitudes toward the tax (there is a great deal of overlapping between these two not mutually exclusive groups). And there also emerged a dichotomy between those in the oldest age category (56 years and over) and the other age categories. While this might imply that older professionals hold the income tax in higher regard, the responses might simply be a function of lower income levels resulting from semi-retirement.

VI. The Tax Attitude-Tax Evasion Link: Descriptive Results

The previously observed overtly negative attitudes toward the

Table 3

PERCEPTIONS REGARDING THE PERSONAL INCOME TAX BURDEN

(Percentages in Agreement with Statement)

		Income Level ($1,000)			Job Status		Age (years)			
	Overall Sample	Under 30	30-60	Over 60	Salaried	Self-Employed	25-35	36-45	46-55	Over 55
A. Tax burden must be lowered at any cost.	64	55	65	71	55	67	59	67	70	58
B. Tax system generates fair distribution of tax burden.	8	12	9	4	7	9	7	6	5	18
C. Marginal tax rates should be same for everyone regardless of income levels.	33	23	35	41	31	34	31	36	37	37
D. Additional income above a given base should be taxed at constant rate.	49	51	49	45	46	49	49	47	53	48
E. Marginal tax rates are too high.	94	89	94	97	94	93	95	95	95	90

personal income tax set the stage for the results presented in Table 4. In Part I it is found that the respondents, while being almost unanimous in condemning tax evasion in general, displayed much more flexibility when they linked existing tax burdens to tax fraud. From Part B it is seen that a mere 3% of respondents opine that "it doesn't matter that people evade taxes," while in Part E 86% of the sample condemned tax evasion even when it is thought that tax fraud is widespread. Yet, in contrast, 35% (Part C) are willing to excuse tax fraud given the existing tax burden, 61% (Part D) feel that persons are forced to evade for the same reason "in order to survive," and 46% (Part F) find it "easy to forget some income when making out a tax return." Once again, the distinction between paying the income tax itself and its ("unjust") structure appears significant. Moreover, while in the abstract people oppose tax evasion, at the nitty-gritty personal level approximately half of those sampled appear willing to engage in some type of tax fraud. Whether this is solely a function of negative tax attitudes or of other socio-economic-psychological variables cannot be discerned. For example, it cannot be dismissed that pure, plain greed plays a major role in the tax fraud decision.

While the evidence found in the first part of Table 4 does not directly link the respondents with tax evasion, it is certainly suggestive. Given the nature of the method (one mailing) used to generate the basic data for this survey, no direct tax evasion/fraud questions were framed in order to improve the response rate (although it was made clear to the respondents that there was no way of identifying the individual with his questionnaire). Data from other surveys of the same nature have led to the conclusion that tax evasion is more prevalent among those who hold negative feelings toward taxes and/or the tax-benefit exchange. Moreover, it has been found that contact with tax evaders increases the probability that one also will become an evader,[11] the risk that the fiscal authorities will detect tax fraud reduces the probability of evasion,[12] and enhanced opportunity to evade increases the fraud possibility. These latter three points are picked up in the second part of Table 4.

11 Refer to Vogel, and Spicer and Lundstedt.

12 See Spicer and Lundstedt, and Witte and Woodbury.

Table 4

ATTITUDES TOWARD TAX EVASION AND EVASION OPPORTUNITIES

	Overall Sample	Income Level ($1,000) Under 30	30-60	Over 60	Job Status Salaried	Self-Employed	Age (years) 25-35	36-45	46-55	Over 55
I. Percentage in agreement with statement:										
A. Tax rates would be lower if nobody evaded.	72	66	75	74	71	72	62	70	78	81
B. The government receives enough tax income. Therefore, it doesn't matter that people evade taxes.	3	3	3	2	3	3	4	2	2	2
C. Given the existing tax burden, one cannot blame tax fraud.	35	33	33	40	27	39	37	40	36	25
D. The tax burden is so heavy that many are forced to evade in order to survive.	61	56	61	65	54	64	61	64	62	53

Table 4 (Continued)

	Overall Sample	Income Level ($1,000) Under 30	30-60	Over 60	Job Status Salaried	Self-Employed	Age (years) 25-35	36-45	46-55	Over 55
E. Since tax fraud is so common, one cannot be blamed for evasion.	14	13	13	17	9	15	12	15	16	9
F. It is easy to forget some income when filing a tax return.	46	46	46	46	38	50	48	48	45	41
II. Percentages responding "yes":										
G. Do you know persons who don't report all their taxable income?	82	74	85	86	82	83	89	87	79	70
H. If you were to evade taxes, do you think fiscal authorities would detect it?	83	79	83	88	77	85	73	82	87	92
I. Do you feel you have a better than average chance to evade without detection?	30	31	31	30	16	37	37	34	25	23

In Part G it is shown that over four-fifths of those sampled know tax evaders. This proportion is almost invariable over all groups with the exception of age, where it is a decreasing function of age (which, by itself, may carry tax compliance implications for the future). It can certainly be hypothesized that an initial negative attitude toward the personal income tax that is strongly supported by the knowledge that "others are doing it and getting away with it" will increase the likelihood of tax fraud.

There appears to be somewhat of a contradiction between the responses to Parts H and I. On the one hand, 83% of the respondents felt that their tax evasion activities would be detected by the authorities, and yet 30% felt they had a better than average opportunity to get away with evasion.

Cross-tabulations done on these three responses lend strong support to the links between them. Of those who are acquainted with persons who don't report all their income (Part G), one-fifth don't think the fiscal authorities would detect them (Part H); for those who do not know tax evaders only 7% feel they would go undetected. Cross-tabbing this same Part G with the feeling of having a better than average chance to evade without being detected (Part I), 35% of those acquainted with persons who don't report all their income count their chances of avoiding detection as above average; the corresponding percentage for those who don't know tax evaders is only 7%. Clearly, then, the more tax evaders known by a taxpayer, the higher is the probability that he too will be (or become) a tax evader.

VII. The Tax Attitude-Tax Evasion Link: Regression Results

Many of the variety of elements which might impinge upon the tax compliance decision are brought together at this juncture. Two indexes were constructed with the assistance of factor analysis. The first, labeled the inequity index, represents the sum of the responses to seven different questionnaire items that were originally designed to gauge respondent perception to the inequity of existing tax laws and structure; the responses were recoded so that a value of one indicated a perceived inequity and a value of

zero the absence of inequity.[13] The second, the resistance index, is the sum of five other questionnaire parts for which a positive (after recoding) response indicates a willingness to accept as justified some form of tax evasion.[14]

In order to assess the interrelations between survey elements and to select the components of the two indexes, factor analysis was employed using an orthogonal varimax rotation to produce four factors. The seven items used to construct the inequity index were significantly loaded on the first factor, and the second factor was loaded with the five components of the resistance index.

After construction of the indexes, several analyses were undertaken to assess the hypotheses of interest (see the Introduction). Using the resistance index as a measure of the relative propensity to evade taxation, simple t-tests were performed on selected variables in which the statistical significance was high and the expected signs emerged as postulated. A correlation analysis was also run to investigate the correlation between the propensity to evade as measured by the resistance index and other variables. These correlation results demonstrated:

1. A significant correlation between the resistance index, high marginal tax rates, and high incomes, indicating that high marginal tax rates (and high incomes) correlate positively with the propensity to evade.
2. Self-employment, the greater than average opportunity to evade, and knowledge of persons who do evade all correlate positively with the tax resistance index.
3. The probability of detection by the fiscal authorities was negatively correlated with the tax resistance index, but only at the 0.079 level.

Since these initial analyses indicated statistically significant relationships between the propensity to evade taxes (as reflected by scores on the resistance index) and key variables taken individually, a multiple regression analysis was performed to assess the overall relationships and to evaluate the relative contributions of the explanatory variables. The tax resistance index was taken

[13] The components of the inequity index are Parts A, B, and C of Table 2 and Parts A, B, C, and E of Table 3.

[14] The resistance index components are Parts B, C, D, E, and F of Table 4.

as the dependent variable, with the elements found in the first column of Table 5 as the independent variables.

The multiple regression results substantiate the simple t-test and correlation results, and support the initial hypotheses presented in Introduction. There emerges from Table 5 a

Table 5

ELEMENTS ASSOCIATED WITH TAX RESISTANCE

Explanatory Variable	Partial Regression Coefficient	Standard Error	Standardized Regression Coefficient
Evasion Opportunity	0.258**	0.104	0.095
Inequity Index	0.241***	0.031	0.284
Detection Possibility	-0.011	0.121	-0.003
Evaders Known	0.356***	0.122	0.108
Age	-0.103**	0.043	-0.090
Marginal Tax Rate	0.005*	0.003	0.062
Self-Employed	0.307***	0.101	0.115

R^2 = 0.151
Standard Error = 1.141
F-Value = 18.607

***Significant at 1% level.
**Significant at 5% level.
*Significant at 10% level.

positive relationship between tax resistance (the propensity to non-compliance) and tax evasion opportunities, the perceived inequity of the tax system and the taxes paid-benefits received trade-off, knowledge of tax evaders, the height of marginal tax rates, and self-employment. Note that all these variables are statistically significant at levels equal to or below 10%. Moreover, there also emerges the expected inverse relationships between tax resistance and the probability of detection and age, although the former independent variable is not statistically significant.[15]

15 The fact that the value of the coefficient of determination (R^2) is low indicates that some important independent variable(s) is(are) lacking. However, this variable

The standardized regression coefficients (or Beta weights) found in the last column of Table 5 give the relative importance of each element in explaining the total variance in the tax resistance index. By far the most important element is the inequity index, which is comprised of respondent perceptions regarding the inequity of the individual income tax structure by itself and of the taxes paid-benefits received exchange. Farther down the scale in relative importance emerge the elements of self-employed status, knowledge of other tax evaders, and the opportunity for carrying out non-compliance activities.

The relatively low significance level (F-value = 2.962) of the marginal tax rate is somewhat disappointing, but occurs only after the other variables (in particular the inequity index) are brought into the analysis. When a regression was run with hierarchical inclusion entering the marginal rate first, such entry occurred with an F-value of 10.912, thereby indicating significance at better than 1%. There is a clear relationship between the marginal tax rate and the inequity index, as demonstrated by correlation analysis. Due to this correlation the marginal rate variable appears to contribute little additional information beyond that given by the inequity index. The point is that a good deal of the perceived income tax inequity appears to point toward the marginal rate structure as the culprit, although no definitive cause and effect relationship can be inferred.

An alternative statistical approach to the tax attitude-tax evasion link was also employed. A probit analysis was applied on the individual components of the resistance index,[16] and the results

(variables) may not even be measurable. While the equation does have a great deal of unexplained variation, it is important to focus upon the fact that the key variables in the model are statistically significant even with the low R^2. The model was run with additional variables. For example, while income and resistance, inclusion of the income variable meant only a miniscule increase in the value of R^2. This is not surprising. After the inequity index is factored into the equation the income variable has nothing more to contribute because any relationship between income levels and resistance is accounted for by considering taxpayer perception of inequity.

16 The probit model incorporates fewer assumptions about the distribution of the dependent variable, with the consequence that the results generated are more reliable. But it is not as sensitive as the full regression model using the overall resistance index. This is because the analysis of each resistance index component *separately* loses information in the sense that a taxpayer who expresses resistance on the overall index is more likely to evade the payment of taxes than a taxpayer who expresses resistance on only one of the index components.

were similar to those presented in Table 5. For example, the inequity index consistently emerged as significant (and with the expected relationship) on each and every resistance index component. The second most consistently emergent statistically significant variable (also with the anticipated sign) was that of evasion opportunity, which emerged on four of the five resistance index components. The independent variables self-employed and evaders known emerged as statistically significant on two of the five resistance index components. The signs of all the significant variables were in accordance with expectations.

VIII. Summary and Policy Implications

In this paper the linkages between tax attitudes, tax ethics, and tax compliance behavior have been explored. There appears little doubt that the perceived inequities generated by the structure of the personal income tax itself and by the poor terms of trade implied in the taxes paid-benefits received relationship form part of the rationale leading to non-compliance. Those elements that are strongly associated with tax resistance — contact with tax evaders, higher than average evasion opportunities, self-employment job status, high marginal tax rates —[17] are not unique to Puerto Rico, and the findings square very well with other (international) studies.

There does remain the question of whether or not tax evasion is "really a response to perceptions of inequity and reference group behavior, or are the latter merely rationalizations for illegal and socially undesirable behavior."[18] Perceived tax inequities can strongly influence compliance behavior within the context of social acceptance of evasion activities and the weakness of penalties for unsuccessful evasion. In Puerto Rico no real social stigma is attached to tax evasion, and the potential cost of non-compliance is relatively low. Tax enforcement mechanisms are not particularly strong and the penalties for tax evasion are relatively inexpensive.

[17] Clotfelter found a positive relationship between marginal rates and tax evasion in the U.S. However, his conclusions have been questioned by Graetz and Wilde.
[18] Spicer and Lundstedt.

From the tax administration viewpoint there are no swift and easy solutions to the non-compliance problem. The reduction of marginal rates would be a starting point, although no panacea. While reducing one rationalization for evasion, it would not really affect the benefits received side of the exchange equation.

There are probably two better lines of action. The first is obvious, and involves the improvement of tax enforcement and the strengthening of tax fraud sanctions. The former entails beefing up information-collection mechanisms, withholding procedures,[19] and third-party reporting (accompanied by matching). The second avenue involves changing the overall tax structure, placing less emphasis on the income tax and more on consumption-based taxation. The personal income tax is a highly visible levy, whereas from the political viewpoint the best tax is a hidden one. For certain types of societies less visible taxes may be more efficient from an administrative and taxpayer behavioral angle. It may well be that it is not so much the magnitude of the tax burden that has led to taxpayer disaffection as it is the use of visible taxes. While this might be labeled taxation by deceit, it does have tax psychology appeal. And rather than being viewed as surrender, it might better be visualized as the acceptance of reality.

19 Interest withholding was initiated by the Puerto Rico Treasury Department in 1985.

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