Small Business Compliance: Further Analysis of Influential Factors

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INTRODUCTION

Because voluntary compliance by small businesses could significantly impact the tax gap, last year's Annual Report to Congress presented preliminary results from a survey of a national sample and selected community populations of small business proprietors concerning tax compliance and related socio-economic attitudes.[2] Essentially, this 2012 report identified correlations between questionnaire responses and tax compliance as measured for purposes of the survey. The preliminary report anticipated further analysis of the national survey based on multivariate statistical techniques. Consequently, factor and related analyses are discussed below.

The report also anticipated further analysis of the community survey with respect to geographic characteristics of compliant or low-compliant populations. Accordingly, geographic analysis is discussed below.

METHODOLOGY FOR INFLUENTIAL FACTORS

For the 2012 Report, the Taxpayer Advocate Service (TAS) developed and administered a survey to a representative national sample of sole proprietors (*i.e.*, those filing Schedule C, *Sole Proprietorship,* of Form 1040, *U.S. Individual Income Tax Return*) to study the factors that appear to influence their compliance behavior.[3] TAS relied on internal IRS computer-generated estimates that an audit would produce an adjustment (called a Discriminant Index Function or "DIF" score) as a proxy for tax compliance.[4] TAS divided the DIF score into ten deciles.

- Taxpayers with returns in the first and second deciles have the lowest DIF scores for a low probability of audit adjustment and, accordingly, are assumed to be the most compliant.

- Those in the ninth and tenth deciles have the highest DIF scores for a high probability of audit adjustment and, accordingly, are assumed to be the least compliant.

- All other deciles are considered moderately compliant.

The national sample was large enough to support a confidence level of at least 95 percent that the results reflect the views of the population of taxpayers from which the sample was selected.[5]

The 2012 report assumed the existence of certain factors and the relevance of survey questions. Now we employ principal components analysis (PCA), a technique of exploratory factor analysis, to empirically analyze the factors underlying the survey questions. We then use logistic regression, a statistical method of estimating the relationship between dependent and independent variables, to determine whether the factors identified appear to influence taxpayer compliance behavior. The discussion below presents PCA first and logistic regression second.

In general, PCA uses computer algorithms to analyze the correlations among the values of a set of variables. The theory of PCA is that variables that are highly correlated all relate to a more general,

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2   *See* National Taxpayer Advocate 2012 Annual Report to Congress, Vol. 2, § 1 at 1 (*Factors Influencing Voluntary Compliance by Small Businesses: Preliminary Survey Results*).

3   TAS contracted with a research firm to administer the survey via telephone.

4   The DIF is based on data obtained and periodically updated from IRS National Research Program examinations. *See* National Taxpayer Advocate 2012 Annual Report to Congress, Vol. 2, § 1, n. 7 at 9.

5   *See* National Taxpayer Advocate 2012 Annual Report to Congress, Vol. 2, § 1, at 9 (discussing methodology to develop the national sample).

unobserved concept that subsumes them. Consequently, PCA is useful in identifying these underlying concepts, or components, also commonly referred to as factors.

Here, the variables are the questions contained in the survey. We used PCA to analyze the response patterns for the survey questions. Questions with response patterns that are highly correlated (either positively or negatively) come together in "factors." Thus, a group of questions represents a factor.[6] In addition, PCA can extract variables representing these factors that can then be used in regression analysis. We used PCA in both ways.

While researchers frequently use PCA to analyze survey data based on the Likert scale (*i.e.* a multiple choice, subjective series of responses),[7] PCA is designed for interval data. Interval data refers to equally spaced values for variables, *e.g.*, the space between $1 and $2 is exactly the same as that between $2 and $3. On the other hand, the Likert scale uses numbers to order the data values, but the size of the interval between values may vary. For example, the Likert scale may measure the level of agreement or disagreement with a statement, but the interval between "strongly agree" and "agree" may be different from that between "disagree" and "strongly disagree."[8]

To address the difference between interval and ordinal data, we first confirmed that our data were suitable for PCA using the Kaiser-Meyer-Olkin (KMO) statistic in software known as SPSS (Statistical Package for the Social Sciences).[9] We then conducted the analysis in software known as SAS (Statistical Analysis System) using a two-stage approach. In the first stage, we used the SAS PRINQUAL procedure to transform the data to make it suitable for PCA.[10] In the second stage we used the SAS FACTOR procedure to conduct PCA on the transformed data.

Two challenges when conducting PCA are to determine which variables (here, the survey questions) to retain, and how many factors to construct. In general, we retained questions that had factor loadings of at least 0.4.[11] We used the "Kaiser criterion" to determine the number of factors to consider for retention, basing our decision on a review of the factors at or near the Eigenvalue threshold.[12] If the factor "made sense" we retained it. To "make sense," the factor should have at least two questions with high factor loadings (above 0.6) that appear to relate to some underlying concept. We then used logistic regression to evaluate the factors' influence on taxpayer compliance behavior.

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6   We used the varimax rotation, an orthogonal rotation, meaning that after rotation each of the factor axes is at right angles to the other axes in n-dimensional space. This is the most common rotation method. It has the effect of making it easier to see which factor subsumes each variable (because the variable is most highly correlated with that factor).

7   *See* Rensis Likert, *A Technique for the Measurement of Attitudes*, Archives of Psychology (1932).

8   The survey used the Likert scale to measure the respondents' level of agreement. The values ranged from one to five, where one denoted "strongly agree" and five denoted "strongly disagree." *See* National Taxpayer Advocate 2012 Annual Report to Congress vol. 2, § 1, Appdx. I. "The average of 'fair' and 'good' is not 'fair-and-a-half'; which is true even when one assigns integers to represent 'fair' and 'good'!" Susan Jamieson, *Likert Scales: How to (Ab)Use Them*, 38 Medical Educ'n 1217 (2004).

9   Data with a KMO score of 0.5 or greater are considered suitable for PCA. The KMO score for our data exceeded 0.8. We also tested the data in SAS subsequent to transforming it with PRINQUAL. The transformed data had a KMO of 0.9.

10   We used the maximum total variance (MTV) method and optimal scoring (OPSCORE) transform to transform the Likert scale data for PCA. *See* G. David Garson, *Factor Analysis*, Statistical Associates Blue Book Series (2013).

11   The factor loading for a variable shows the extent to which the variable is correlated with the factor that subsumes it.

12   PCA creates factors and orders them from highest to lowest based on Eigenvalue, which is a measure of the amount of data variance the factor explains. The Kaiser criterion states that factors with Eigenvalues lower than one should be discarded.

We used the taxpayer's compliance level (low or high) as our dependent variable in the regression models. Because each model had a binary dependent variable (where one represents low compliance and zero represents high compliance), we used logistic regression, which transforms the dependent variable to overcome difficulties that binary dependent variables introduce when performing regular regression (*i.e.,* ordinary least squares regression).[13] The factor scores computed in SAS were the independent variables in the regression model.[14] We ranked the relative influence of the factors on compliance behavior based on their statistical significance in the regression model.

FACTOR ANALYSIS

Based on a review of tax morale and associated compliance literature, the 2012 report identified six influential factors in Table A below. Survey questions as set forth in that report elicited responses regarding the factors. The 2012 report distinguished between high- and low-compliance groups with respect to responses pertinent to certain factors, as presumed by the literature. This approach left open questions of whether each presumed factor actually existed, and if so, of the relative influence of each factor on compliance. The statistical technique that can help answer the first question is exploratory factor analysis, specifically PCA, as discussed above. To clarify, factor analysis derives from data latent factors that may or may not be the same as the factors originally drawn from the literature.[15] Discussed below is the statistical technique of logistic regression, with regard to whether the identified factors influenced taxpayer compliance behavior.

TABLE A, Factors Potentially Driving Voluntary Compliance[16]

Factor	Description
Deterrence	People comply when the potential sanction multiplied by the perceived likelihood of getting caught outweighs the economic gain from cheating. However, the deterrence model is incomplete because it seems economically irrational for so many taxpayers to comply given the low probability of getting caught cheating.
Norms	According to social norms and reciprocity theories, taxpayers who believe most other taxpayers comply are more likely to reciprocate by complying.
Tax morale	Taxpayers who cheat may feel guilty when they break the norm if it has been adopted as the taxpayer's own tax morale. In addition, those who trust the government and feel the tax laws and procedures are fair and fairly enforced may be more likely to feel a moral obligation to comply, even if the outcome of those procedures is unfavorable.
Trust	Taxpayers may use unfair rules or procedures, unreasonable penalties, bad experiences with the IRS, or a lack of faith in government or the IRS to justify either reducing efforts to comply or active noncompliance.
Complexity and convenience	Taxpayers who face complicated rules may be unable to comply, or may use complexity as a reason to justify noncompliance.
Preparers and other third parties	Tax preparers may have a significant effect on tax compliance.

13 In logistic regression, the binary dependent variable, which has a value of either one or zero, is transformed into a logit, which is the natural log of the odds associated with an outcome of one.

14 For a given factor, SAS computes a factor score for each respondent representing that respondent's position relative to the other respondents in the distribution of factor scores for that factor.

15 *See generally* Alan O. Sykes, *An Introduction to Regression Analysis*, Coase Lect., Working Paper in L. & Econ., Univ. of Chicago (Dec. 1, 1992), *available at* http://www.law.uchicago.edu/node/1309 (last visited Aug. 19, 2013); J. Scott Armstrong, *Derivation of Theory by Means of Factor Analysis or Tom Swift and His Electric Factor Analysis Machine*, 21 Amer. Statistician 17 (1967).

16 National Taxpayer Advocate 2012 Annual Report to Congress, Vol. 2, § 1 at 8.

As discussed in the 2012 report, the National Survey contained a battery of 37 substantive questions inspired by factors from the literature review.[17] Applying factor analysis yields 26 questions in six groups of correlated responses. Because similar responses came from the questions in each of the six groups, each group represents an underlying factor. These empirically generated factors appear as groups of questions in Table B, Factor Analysis of All Low- and High-Compliant Taxpayers in the Appendix, for comparison with the factors from the literature review. Further iterations of factor analysis applied to three subcategories of respondents, characterized by use of a preparer, low income, and high income, respectively appear in the Appendix in Tables C, Factor Analysis of Taxpayers who used a Preparer, D, Factor Analysis of Low Income Taxpayers, and E, Factor Analysis of High-Income Taxpayers, each resulting in seven factors.

The overall analysis, Table B, resulted in six factors, in order of explanatory importance with respect to variance in survey responses:

1. *Taxpayer Service.* The seven questions in this group relate to IRS service, encompassing both pre-filing (e.g., forms) and post-filing (*e.g.* collection) treatment of taxpayers. All these questions came from a part of the questionnaire that had ten questions eliciting responses about trust in government, but the factor analysis reduced the most correlated questions to these seven. Thus, taxpayer service is the primary factor.

2. *Norms.* These four questions are about perceptions of reporting compliance of other small businesses as well as collection of taxes by the IRS. Focusing on social perceptions, the second factor is norms.

3. *Fairness.* These five questions are about fairness in the tax law and unfair advantages of large businesses and the wealthy. Thus, the third factor is fairness. Like the first factor, fairness may be encompassed within trust.

4. *Tax Policy.* This group combines three questions about government benefits with one about financial risk. In short, the fourth factor is tax policy. That is, compliance may reflect agreement or disagreement with legislative design, potentially resulting in noncompliance of the type classified by researchers as symbolic.[18] Because this factor relates to (lack of) faith in the government, which includes the IRS, tax policy also may be an aspect of trust.

5. *Tax Morale.* These three questions relate to moral obligation, discussed in the literature as tax morale.

6. *Economics.* The sixth group of three questions relates to financial status or cost-benefit motivations. The 2012 report did not find that deterrence (*e.g.* penalties) thwarted noncompliance, perhaps because small business owners may be motivated by short-term cash flow (making ends meet).[19] While confirming the importance of economics, this factor may subsume deterrence among outweighing motivations.

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17 *See* National Taxpayer Advocate 2012 Annual Report to Congress, Vol. 2, § 1, App. 1, Q. 7-10 at 43-45.

18 *See* National Taxpayer Advocate 2012 Annual Report to Congress, Vol. 2, § 1, Table 1 (Typology of Noncompliance) at 7.

19 *See id*., n. 43 at 28.

The analysis of respondents who used a preparer, Table C, resulted in seven factors, in order of importance:

1. *Trust in Government.* The nine questions in this group consist of the same seven questions about taxpayer service as in the primary factor in the overall analysis, Table B discussed above, plus two questions about fairness. Both service and fairness may be elements of trust.

2. *Norms.* This group of four questions is the same as in the second factor in the overall analysis, Table B above.

3. *Tax Morale.* This group of three questions is the same as in the fifth factor in the overall analysis, Table B above.

4. *Preparers.* This group of four questions relates to return preparation.

5. *Fairness.* This group of three questions about unfair advantages of large businesses and the wealthy is a subset of the five questions in the third factor in the overall analysis, Table B above. Two questions about tax fairness were included in the first factor, trust, above. Again, fairness may be a component of trust.

6. *Complexity.* This group of four questions touches on complexity, the role of government, and financial status. Complexity may seem to justify noncompliance, especially for taxpayers who disagree with the government or confront financial pressure. Nevertheless, this factor ranks low in importance or explanatory power over statistical variation in responses to the questions.

7. *Tax Policy.* This group of three questions about government benefits is a subset of the four questions in the fourth factor in the overall analysis, Table B above. Again, tax policy is encompassed by trust in government.

The analysis of low income respondents, Table D, resulted in seven factors, in order of importance:

1. *Trust in Government.* The eight questions in this group consist of the same seven questions about taxpayer service as in the primary factor in the overall analysis, Table B discussed above, plus one question about fairness. Both service and fairness may be elements of trust.

2. *Norms.* This group consists of the same four questions as in the second factor in the overall analysis, Table B above, plus one question about penalties.

3. *Welfare.* This group of seven questions touches on government benefits, complexity, fairness, and financial status. This broad range of topics goes to the well-being of society.

4. *Tax Morale.* This group consists of the same three questions as in the fifth factor in the overall analysis, Table B above (plus one about recordkeeping).

5. *Fairness.* This group contains the same three questions as in the fifth factor for the Table C preparer category discussed above, plus one about detection by the IRS.

6. *Economics.* This group contains two of the same questions about financial status as in the sixth factor in the overall analysis, Table B above, plus one question about deterrence. In other words, this factor encompasses the ineffectiveness or effectiveness of deterrence.

7. *Tax Policy.* These two questions, one of which appeared in the fourth and seventh factors in the two analyses of Tables B and C above, are about the role of government. Thus, the tax policy factor relates to trust in government.

The analysis of high-income respondents, Table E resulted in seven factors, in order of importance:

1. ***Taxpayer Service.*** These seven questions, six of which overlap with those in the first factor from the overall analysis, Table B discussed above, relate to IRS service, including pre- and post-filing treatment of taxpayers.

2. ***Welfare.*** These eight questions touch on government benefits, complexity, financial status, and fairness, half of which overlap with the third factor in the Table D low income analysis discussed above.

3. ***Tax Morale.*** This group consists of the same three questions as in the fifth factor in the overall analysis, Table B above, plus one about penalties.

4. ***Fairness.*** This group contains four of the same five questions, about fairness in the tax law and unfair advantages of large businesses and the wealthy, as in the third factor of the overall analysis, Table B above.

5. ***Economics.*** These three questions relate to financial status, deterrence, and recordkeeping. One of these three questions overlaps with a question in the "Economics" factor in Table B, while another of these three questions also appeared in D.

6. ***Norms.*** This group consists of two of the same questions as in the second factor of the overall analysis, Table B above, about reporting, plus one question about financial status.

7. ***Trust in Government.*** These four questions, the first of which also appeared in the first factors of both Tables C and D, above, relate to government services and tax reporting.

In sum, the factor that explains the most statistical variance in responses to the questionnaire on voluntary compliance by small proprietors is taxpayer service, which contributes to trust in government. At the same time, factor analysis disaggregated fairness as a separate factor, related to trust as described in the literature. Similarly, tax policy appeared as a distinct factor in this analysis, suggesting that agreement or disagreement with legislative design influences compliance. Likewise, the tax policy factor may be another aspect of trust in government. These findings are consistent with the 2012 report's emphasis on trust.

When applied to income subcategories, factor analysis isolated a concern about welfare, parallel but variant between low and high-income respondents. As anticipated by the literature review, perhaps the second most important factor, with respect to the variance in the data that it explains, consists of norms. Tax morale, preparers, and complexity are also influential. Although the 2012 report could not confirm the influence of deterrence, this analysis identifies economics, or motivations that may counter deterrence, as a distinct factor.

LOGISTIC REGRESSION

While the literature review and factor analysis identify the most important factors in explaining variance in questionnaire responses, they do not predict high- or low-compliance behavior. To associate responses with high or low compliance, statistical techniques such as logistic regression are useful. We used logistic regression to measure whether the factors we identified in our exploratory factor analysis appear to influence tax compliance behavior.

As discussed in Factor Analysis above, analysis of the population of low- and high-compliant taxpayers yielded six factors. Table X1 below shows the results of our logistic regression that uses these factors to predict compliance behavior.[20]

TABLE X1, Logistic Regression — All Low- and High-Compliant Taxpayers

Factor	Coefficient	Std. Error	Lower Bound	Upper Bound	t statistic	Degrees of Freedom	Statistical Significance
(Intercept)	-0.007	0.077	-0.158	0.144	-0.093	2905	0.926
Taxpayer Service	0.124	0.058	0.011	0.237	2.145	2905	0.032
Norms	-0.222	0.058	-0.336	-0.108	-3.82	2905	0
Fairness	-0.071	0.047	-0.162	0.021	-1.512	2905	0.131
Tax Policy	0.022	0.075	-0.125	0.168	0.289	2905	0.773
Tax Morale	-0.056	0.056	-0.167	0.054	-0.995	2905	0.32
Economics	-0.039	0.054	-0.144	0.067	-0.724	2905	0.469

The highlighted rows above are the factors that were significant at the five-percent level, meaning that there is at least a 95-percent chance that these factors are significant in predicting the compliance level of these taxpayers.[21] The two significant factors are taxpayer service and norms, with norms being the most significant.[22] The results suggest that these factors influence taxpayer compliance behavior.

Interestingly, our analysis of the subcategory of taxpayers who used preparers (shown below) had four factors that were significant at the five-percent level and one factor, trust in government, that was significant at the ten-percent level (highlighted rows below).[23] This suggests that most of the factors we identified (five out of seven) probably influence the compliance behavior of this group of taxpayers. Again, norms is the most significant, being the only factor significant at the one-percent level, meaning there is at least a 99-percent chance that norms help predict the level of compliance behavior.

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20 The dependent variable for the regression is the logit of the binary variable representing low- and high-compliant taxpayers, where one is low-compliant and zero is high-compliant.

21 The decimal value in the Significance column shows the level of statistical significance of the factor coefficient. A factor is statistically significant if its coefficient is statistically significant. A decimal value of 0.05 or less indicates statistical significance at the five-percent level, meaning that there is at most a five-percent chance that coefficient is not significant, and therefore at least a 95-percent chance that it is significant. A value of 0.10 or less means the factor is significant at the ten-percent level, *i.e.*, there is at most a ten-percent chance the coefficient is not significant, and at least a 90-percent chance that it is significant.

22 Since the decimal value for norms is less than 0.01, norms are significant at the 1-percent level, meaning that there is at least a 99-percent chance that this factor is significant in predicting compliance behavior.

23 Significance at the ten-percent level means that there is at least a 90-percent chance that this factor was significant in predicting compliance behavior.

TABLE X2, Logistic Regression — Low- and High-Compliant Taxpayers Who Used Preparers

Factor	Coefficient	Std. Error	Lower Bound	Upper Bound	t statistic	Degrees of Freedom	Statistical Significance
(Intercept)	0.136	0.09	-0.041	0.312	1.508	2233	0.132
Trust in Gov.	0.125	0.067	-0.005	0.256	1.885	2233	0.06
Norms	-0.171	0.061	-0.289	-0.052	-2.817	2233	0.005
Tax Morale	-0.136	0.065	-0.265	-0.008	-2.084	2233	0.037
Preparers	-0.103	0.048	-0.197	-0.01	-2.165	2233	0.03
Fairness	-0.118	0.057	-0.229	-0.006	-2.073	2233	0.038
Complexity	0.099	0.066	-0.031	0.229	1.494	2233	0.135
Tax Policy	0.025	0.078	-0.128	0.177	0.32	2233	0.749

Below are the results of the logistic regression using the factors we identified for the group of taxpayers with the lowest incomes. Two factors are significant at the five-percent level: trust in government and fairness, suggesting that these factors influence the compliance behavior of the low income group of taxpayers.

TABLE X3, Logistic Regression — Low- and High-Compliant Taxpayers in the Group of Taxpayers with the Lowest Incomes

Factor	Coefficient	Std. Error	Lower Bound	Upper Bound	t statistic	Degrees of Freedom	Statistical Significance
(Intercept)	0.005	0.116	-0.223	0.233	0.043	699	0.965
Trust in Gov.	0.234	0.113	0.011	0.456	2.058	699	0.04
Norms	-0.21	0.128	-0.462	0.043	-1.631	699	0.103
Welfare	-0.097	0.164	-0.419	0.226	-0.588	699	0.557
Tax Morale	-0.087	0.138	-0.357	0.183	-0.633	699	0.527
Fairness	-0.268	0.12	-0.503	-0.032	-2.231	699	0.026
Economics	-0.002	0.117	-0.232	0.227	-0.021	699	0.983
Tax Policy	-0.132	0.136	-0.4	0.136	-0.965	699	0.335

Finally, Table X4 below presents the results of the logistic regression using the factors we identified for the group of taxpayers with the highest incomes. While none of the factors are significant at the five-percent level, the taxpayer service and welfare factors are significant at the ten-percent level, suggesting that they probably influence the compliance behavior of taxpayers in the high-income group.

TABLE X4, Logistic Regression — Low- and High-Compliant Taxpayers in the Group of Taxpayers with the Highest Incomes

Factor	Coefficient	Std. Error	Lower Bound	Upper Bound	t statistic	Degrees of Freedom	Statistical Significance
(Intercept)	-0.002	0.114	-0.226	0.222	-0.021	761	0.984
Taxpayer Service	-0.173	0.095	-0.361	0.014	-1.816	761	0.07
Welfare	0.208	0.113	-0.012	0.429	1.852	761	0.064
Tax Morale	-0.068	0.111	-0.285	0.149	-0.612	761	0.54
Fairness	-0.087	0.098	-0.28	0.105	-0.893	761	0.372
Economics	0.1	0.116	-0.128	0.328	0.861	761	0.389
Norms	0.001	0.109	-0.213	0.215	0.007	761	0.995
Trust in Gov.	-0.016	0.108	-0.227	0.196	-0.145	761	0.885

METHODOLOGY FOR COMMUNITY STUDY

The community survey within the 2012 report on the compliance study mapped low-compliance sites as they occurred not randomly but heavily clustered in regions where geographers have classified cultures of the South and West.[24] At the same time, responses to a set of questions in the community survey tended to link low compliance levels with social affiliations or networks associated especially with volunteering, voting, and congregations (*i.e.* houses of worship of any denomination). Consequently, the question arises whether low-compliance sites are located in regions where those social networks are prevalent.

To answer that question, further analysis focuses on one state containing low-compliance sites among other sites not so classified. In particular, the state is composed of 23 counties, six of which contained low-compliance sites.[25] Physical geography divides the counties into areas labeled Valley, Hills, and Shore (East & West). According to geographers, the Valley and East Shore fall into cultures of the North and South, respectively.[26] The Hills and adjacent West Shore run between those two areas, hosting a regional Metropolitan corridor classified by geographers as Megalopolis.[27] The low-compliance sites were located in Megalopolis.

Given this geographic layout, this analysis employs a fairly transparent methodology as follows. Table Y in the Appendix juxtaposes statistics reported by the Census and other published sources on relevant

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24 From all areas, cities, and towns, in the U.S., those with median DIF scores in the top or bottom 30 percent constituted the low- or high-compliance communities, respectively. *See* National Taxpayer Advocate 2012 Annual Report to Congress vol. 2, § 1, 1 at 30 (*Factors Influencing Voluntary Compliance by Small Businesses: Preliminary Survey Results*).

25 While the data are publicly available as cited, the purpose of this study is to make observations of general applicability rather than focus on the names of the state and counties.

26 *See* Wilbur Zelinsky, *Cultural Geography of the U.S.* (Prentice Hall, 1973) 127.

27 *See* Raymond Gastil, *Cultural Regions of the U.S.* (Seattle: Univ. of Wash. Press, 1975) Map 14 at 61.

demographics, urban concentration,[28] congregational membership,[29] charities, and voter turn-out. County-level data are averaged into the four physical areas, with the two middle areas again averaged for Megalopolis, which has the highest urban concentration.

ANALYSIS OF GEOGRAPHIC AREAS

The demographic and related statistics for the geographic areas identified above reveal the following. Megalopolis has the highest percentages of population involved in congregations, living in families,[30] and turning out to vote (depending on which election). Within Megalopolis, the six counties containing low-compliance sites had high rates of urban concentration and ethnic diversity. On the other hand, the Valley has the most charities per ten thousand population. The Valley has the lowest rates of voter turnout and population living in families. Overall, the Valley's population is the oldest, least ethnically diverse, and most masculine (*i.e.* has the highest male to female ratio) of the three average areas. Finally, the East Shore population was the youngest and least religious, but most rural.

In sum, Megalopolis had some expected characteristics related to social networks. However, another area turned out to be more charitable. Accordingly, Table Y may be inconclusive at this point while additional research could uncover further, more accurate data. If further research could confirm that the least compliant area is the densest in social networks, an implication might be that those networks could be a medium for messages about tax compliance.

Potentially, future research could extend to field studies at a granular level. More generally, future research alternatively could survey relevant social science literature for attributes statistically linked to the prevalence or density of social networks. If a collection of attributes is readily available at a regional level, larger-scale computer analysis of low-compliant communities could be possible.

To recapitulate, the analysis above shows that taxpayer service and trust in government account in significant part for high or low levels of voluntary compliance. Unlike generic economic tendencies, such as risk aversion or rational maximization, taxpayer service with associated trust are socially conditioned and thus geographically identifiable. These factors travel along social networks. By mapping these networks, tax administration can focus outreach more effectively.

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28 "The Census Bureau's urban-rural classification is fundamentally a delineation of geographical areas, identifying both individual urban areas and the rural areas of the nation. The Census Bureau's urban areas represent densely developed territory, and encompass residential, commercial, and other non-residential urban land uses. The Census Bureau delineates urban areas after each decennial census by applying specified criteria to decennial census and other data. The Census Bureau identifies two types of urban areas: Urbanized Areas (UAs) of 50,000 or more people; Urban Clusters (UCs) of at least 2,500 and less than 50,000 people. 'Rural' encompasses all population, housing, and territory not included within an urban area." U.S. Census Bureau, *Urban & Rural Classification, available at* http://www.census.gov/geo/reference/urban-rural.html (last visited Aug. 27, 2013).

29 "Congregational adherents include all full members, their children, and others who regularly attend services. The 2010 reports contain incomplete counts of congregations and adherents belonging to the eight largest historically African-American denominations." Assoc'n of Relig. Data Archives, *County Membership Rep't, available at* http://www.thearda.com/rcms2010/r/c/24/rcms2010_24001_county_name_2010.asp (last visited Aug. 27, 2013).

30 The Census reports on population living in families, generally defined as "those related to each other by birth, marriage or adoption." U.S. Census Bureau, *Families & Living Arrangements, available at* http://www.census.gov/hhes/families/about/ (last visited Aug. 27, 2013).

CONCLUSION

The theory of factor analysis is that variables that are highly correlated all relate to a more general, unobserved concept that subsumes them. Consequently, factor analysis is useful in identifying these underlying concepts, also commonly referred to as factors. Factor analysis orders the factors it identifies based on the extent to which empirical data supports their existence. Factor analysis identified taxpayer service, which contributes to trust in government, as the highest ranking factor. At the same time, factor analysis identified fairness and tax policy as separate factors, related to trust. These findings are consistent with the 2012 report's emphasis on trust.

Factor analysis ranked norms as the second most important factor in accounting for various survey responses. Tax morale, preparers, and complexity are also important factors. Although the 2012 report could not confirm the influence of deterrence, this analysis also identifies economics, or motivations that may counter deterrence, as a distinct factor.

It is important to note that while factor analysis provides statistical evidence for the existence of concepts, it does not evaluate whether these concepts influence compliance behavior. We used logistic regression for that purpose. The results of the logistic regressions show that norms and trust in government (specifically the taxpayer service and fairness components of trust in government) appear to have the most influence on taxpayer compliance behavior. The preparer and tax morale factors also appear to influence the compliance behavior of the subcategory of taxpayers who use preparers. In sum, further analysis lends support to the suggestion in the 2012 report that improvements in taxpayer service could increase voluntary compliance by small business proprietors.[31]

Additionally, the 2012 report contemplated future analysis of the community survey in the nature of market research, as discussed above. While this survey elicited direct responses from taxpayers, the "social" nature of norms should be observable even beyond these responses, potentially by observing characteristics of the high- and low-compliance communities or regions. Future research could build upon the survey results by investigating social noncompliance and compliance in sites where they occur. Further investigation would relate to tax administration vis-à-vis regional traditions.

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31   *See* National Taxpayer Advocate 2012 Annual Report to Congress, Vol. 2, § 1 at 39.

APPENDIX OF TABLES

TABLE B, Factor Analysis of All Low- and High-Compliant Taxpayers[32]

Questions	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
9.10 I Am Satisfied With The Quality Of The Federal Tax Services The IRS Provides	0.778	-0.021	-0.044	-0.080	0.042	0.008
9.3 The IRS Treats Taxpayers With Respect	0.757	0.010	0.015	-0.011	0.023	-0.016
9.1 The IRS Treats Taxpayers Fairly	0.739	-0.174	-0.148	-0.073	0.014	-0.082
9.9 It Is Easy For Me To Access The Federal Tax Services That The IRS Provides	0.720	-0.053	0.029	0.068	0.079	-0.012
9.8 The IRS Offers All Of The Federal Tax Services I Need	0.689	-0.038	-0.056	-0.057	0.125	-0.047
9.5 Because The IRS Treats Taxpayers Fairly, I Accept Its Decisions Even If I Disagree With Them	0.644	0.393	0.007	-0.033	-0.020	0.157
9.4 The IRS Will Work With You If You Have Difficulty Paying Your Taxes	0.611	0.324	0.139	-0.054	0.030	0.171
10.1 Many Small Businesses Do Not Report All Of Their Income	0.044	0.737	0.064	0.076	0.133	0.042
10.3 Most Small Businesses Could Not Survive If They Reported All Of Their Income	0.029	0.729	0.084	0.115	0.137	0.078
9.2 The IRS Is More Concerned With Collecting As Much As It Can, Than With Collecting The Correct Amount Of Tax	-0.248	0.555	0.209	0.201	0.010	0.137
10.2 Most Of My Competitors Report All Of Their Income	-0.079	-0.669	-0.086	-0.040	-0.246	0.026
8.9 The Wealthy Have Ways Of Minimizing Their Federal Taxes That Are Not Available To The Average Taxpayer	0.033	0.130	0.738	0.006	0.188	0.082
8.8 Large Businesses Have Loopholes To Reduce Their Federal Taxes That Smaller Businesses Do Not Have	-0.020	0.141	0.678	0.199	0.039	0.085
9.6 Wealthy Taxpayers Have An Advantage When Dealing With The IRS	0.046	0.260	0.604	0.019	0.119	0.183
8.5 The Federal Tax Laws Are Fair	0.426	-0.002	-0.505	-0.319	-0.011	0.068
8.7 Under Our Federal Tax Laws, Everyone Pays Their Fair Share Of Taxes	0.056	0.077	-0.698	-0.298	-0.016	-0.122
8.2 Taxes Fund Important Federal Government Benefits And Services	0.046	0.219	0.201	0.676	0.088	-0.064
7.3 Taking Risks Is Necessary To Achieve Financial Success	-0.026	0.234	0.049	0.591	0.051	0.287
8.4 The Federal Government Is Involved In Areas Best Left To The Private Sector	-0.106	-0.018	0.254	0.501	0.149	0.258
8.3 Taxpayers Would Tolerate Higher Taxes If It Meant Improved Federal Government Services	0.113	0.025	-0.106	-0.758	-0.086	0.049
10.6 I Feel A Moral Obligation To Correctly Report All Of My Income	0.087	0.128	0.150	0.125	0.815	0.127
10.5 Everyone Should Correctly Report All Of Their Income	0.105	0.154	0.082	0.248	0.812	-0.010
10.7 If Others Found Out I Did Not Report All Of My Income, I Would Be Embarrassed	0.079	0.246	0.099	-0.010	0.756	0.075
7.4 A Person's Status In My Community Depends On Their Financial Status	0.123	-0.008	0.054	0.094	0.064	0.708
7.1 These Days, It Is Difficult To Make Ends Meet	-0.067	0.123	0.253	0.004	0.044	0.694
7.2 Achieving Financial Success Is Important To Me	-0.038	0.159	0.097	0.441	0.087	0.475

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32 The numbers in the second and succeeding columns are the factor loadings for the variables, which in our case are survey questions, in each of the factors. The factor loading for a variable shows extent to which the variable is correlated with the factor. Ideally the loading will be high for the factor that contains the variable, and relatively low for the other factors.

TABLE C, Factor Analysis of Taxpayers Who used a Preparer

Questions	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
9.10 I Am Satisfied With The Quality Of The Federal Tax Services The IRS Provides	0.804	-0.002	0.064	0.013	0.061	0.043	-0.045
9.1 The IRS Treats Taxpayers Fairly	0.800	-0.092	0.033	0.008	0.073	0.079	0.022
9.9 It Is Easy For Me To Access The Federal Tax Services That The IRS Provides	0.788	-0.024	0.061	0.099	0.088	0.028	-0.082
9.3 The IRS Treats Taxpayers With Respect	0.740	0.075	0.083	0.061	0.004	-0.094	-0.034
8.5 The Federal Tax Laws Are Fair	0.732	-0.018	0.085	-0.070	-0.109	-0.067	0.189
8.7 Under Our Federal Tax Laws, Everyone Pays Their Fair Share Of Taxes	0.702	0.078	0.068	-0.039	-0.091	-0.047	0.110
9.8 The IRS Offers All Of The Federal Tax Services I Need	0.626	-0.001	0.215	-0.005	0.154	0.137	-0.039
9.5 Because The IRS Treats Taxpayers Fairly, I Accept Its Decisions Even If I Disagree With Them	0.620	0.542	0.021	0.061	0.131	-0.088	0.050
9.4 The IRS Will Work With You If You Have Difficulty Paying Your Taxes	0.614	0.466	-0.007	0.176	0.132	0.003	-0.023
10.1 Many Small Businesses Do Not Report All Of Their Income	0.019	0.786	0.148	0.082	-0.021	-0.102	-0.064
10.3 Most Small Businesses Could Not Survive If They Reported All Of Their Income	0.047	0.776	0.152	0.075	0.058	-0.038	-0.095
10.2 Most Of My Competitors Report All Of Their Income	0.013	0.621	0.273	0.075	0.213	0.108	-0.003
9.2 The IRS Is More Concerned With Collecting As Much As It Can, Than With Collecting The Correct Amount Of Tax	-0.040	0.533	0.001	0.083	0.286	-0.195	-0.212
10.5 Everyone Should Correctly Report All Of Their Income	0.112	0.194	0.792	0.104	0.026	-0.048	-0.232
10.6 I Feel A Moral Obligation To Correctly Report All Of My Income	0.270	0.073	0.747	0.109	0.174	-0.143	-0.009
10.7 If Others Found Out I Did Not Report All Of My Income, I Would Be Embarrassed	0.125	0.246	0.742	0.117	0.119	-0.021	0.030
7.11 I Always Follow The Instructions Or Advice From The Person Who Prepares My Return	-0.024	0.086	0.140	0.647	0.241	-0.180	-0.115
7.9 I Make Sure That I Understand Every Item That Is Included Or Omitted From My Return Before Signing It	0.152	0.087	0.242	0.629	0.134	-0.098	-0.099
7.8 Even Though Someone Else Prepared My Return, I Know The Federal Tax Laws Well Enough To Prepare My Own Tax Return	0.005	0.379	-0.042	0.575	0.113	-0.231	0.014
7.10 The Person Who Prepares My Return Finds Creative Ways To Minimize Taxes	0.005	0.004	-0.018	-0.756	0.013	0.007	0.088
8.9 The Wealthy Have Ways Of Minimizing Their Federal Taxes That Are Not Available To The Average Taxpayer	0.050	0.059	0.224	0.184	0.764	0.016	-0.119
8.8 Large Businesses Have Loopholes To Reduce Their Federal Taxes That Smaller Businesses Do Not Have	0.003	0.140	-0.002	0.088	0.656	-0.274	-0.156
9.6 Wealthy Taxpayers Have An Advantage When Dealing With The IRS	0.161	0.221	0.110	0.125	0.617	-0.155	-0.085

Questions	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
7.5 The Rules About What To Report As Income Are Clear	0.053	0.012	-0.005	-0.199	0.070	0.660	0.142
8.1 The Federal Government Spends Tax Dollars Wisely	0.229	0.060	-0.054	0.024	-0.250	0.562	0.309
7.2 Achieving Financial Success Is Important To Me	0.083	0.202	0.100	0.329	0.158	-0.516	-0.022
7.1 These Days, It Is Difficult To Make Ends Meet	0.094	0.157	0.060	0.033	0.348	-0.538	0.073
8.3 Taxpayers Would Tolerate Higher Taxes If It Meant Improved Federal Government Services	0.113	-0.012	-0.054	-0.092	-0.038	0.135	0.784
8.2 Taxes Fund Important Federal Government Benefits And Services	0.000	-0.265	-0.036	-0.179	-0.199	-0.005	0.681
8.4 The Federal Government Is Involved In Areas Best Left To The Private Sector	0.105	0.066	0.163	0.042	0.175	-0.425	-0.538

TABLE D, Factor Analysis of Low Income Taxpayers

Questions	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
9.10 I Am Satisfied With The Quality Of The Federal Tax Services The IRS Provides	0.820	0.052	0.060	0.067	0.066	0.010	0.045
8.5 The Federal Tax Laws Are Fair	0.789	0.009	0.059	0.043	-0.008	0.212	-0.023
9.9 It Is Easy For Me To Access The Federal Tax Services That The IRS Provides	0.781	0.008	-0.036	0.133	0.120	-0.018	0.000
9.3 The IRS Treats Taxpayers With Respect	0.763	0.093	-0.044	0.067	0.019	0.038	0.090
9.1 The IRS Treats Taxpayers Fairly	0.691	-0.131	-0.021	0.085	-0.040	0.169	-0.231
9.5 Because The IRS Treats Taxpayers Fairly, I Accept Its Decisions Even If I Disagree With Them	0.634	0.572	-0.028	0.021	0.106	0.167	-0.015
9.8 The IRS Offers All Of The Federal Tax Services I Need	0.611	-0.016	0.115	0.279	0.148	0.012	0.023
9.4 The IRS Will Work With You If You Have Difficulty Paying Your Taxes	0.572	0.484	-0.010	0.011	0.130	0.194	-0.087
10.3 Most Small Businesses Could Not Survive If They Reported All Of Their Income	0.027	0.788	-0.057	0.091	0.082	0.148	0.021
10.1 Many Small Businesses Do Not Report All Of Their Income	0.036	0.778	-0.042	0.176	0.031	-0.042	0.063
10.2 Most Of My Competitors Report All Of Their Income	-0.039	0.592	-0.042	0.352	0.231	-0.003	-0.165
9.2 The IRS Is More Concerned With Collecting As Much As It Can, Than With Collecting The Correct Amount Of Tax	-0.008	0.570	-0.251	-0.099	0.243	0.061	0.157
10.4 People Who Do Not Report All Of Their Income Are Likely To End Up Paying Even More In Penalties And Interest	-0.022	-0.448	0.165	-0.175	-0.087	0.010	-0.442
8.3 Taxpayers Would Tolerate Higher Taxes If It Meant Improved Federal Government Services	0.089	0.012	0.768	-0.115	0.044	0.117	-0.144
7.5 The Rules About What To Report As Income Are Clear	0.146	0.093	0.640	0.126	-0.100	-0.004	-0.132
8.2 Taxes Fund Important Federal Government Benefits And Services	-0.032	-0.333	0.579	-0.236	0.005	0.095	-0.113
8.7 Under Our Federal Tax Laws, Everyone Pays Their Fair Share Of Taxes	-0.388	0.055	0.536	0.001	-0.342	-0.135	0.027
8.6 The Tax Rules Are So Complicated That It Is Very Difficult To Get A Tax Return Exactly Right	0.100	0.246	-0.491	-0.039	0.359	0.105	0.173
7.2 Achieving Financial Success Is Important To Me	0.054	0.221	-0.534	0.080	0.044	0.480	0.040
7.3 Taking Risks Is Necessary To Achieve Financial Success	-0.077	0.299	-0.602	0.150	0.024	0.337	-0.088
10.7 If Others Found Out I Did Not Report All Of My Income, I Would Be Embarrassed	0.093	0.225	0.091	0.735	0.132	0.137	0.047
10.5 Everyone Should Correctly Report All Of Their Income	0.229	0.147	-0.231	0.727	-0.034	-0.097	0.127
10.6 I Feel A Moral Obligation To Correctly Report All Of My Income	0.408	0.030	-0.100	0.545	0.204	0.125	0.088
8.9 The Wealthy Have Ways Of Minimizing Their Federal Taxes That Are Not Available To The Average Taxpayer	0.057	0.107	-0.021	0.214	0.751	0.112	0.057

Questions	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
9.6 Wealthy Taxpayers Have An Advantage When Dealing With The IRS	0.215	0.261	-0.099	0.043	0.605	0.088	0.112
8.8 Large Businesses Have Loopholes To Reduce Their Federal Taxes That Smaller Businesses Do Not Have	-0.042	0.185	-0.407	-0.027	0.585	0.002	0.168
9.7 The IRS Probably Knows When People Do Not Report All Of Their Income	0.389	0.012	0.078	0.346	0.456	-0.005	-0.129
7.4 A Person's Status In My Community Depends On Their Financial Status	0.288	-0.043	0.005	-0.001	0.026	0.641	0.089
7.1 These Days, It Is Difficult To Make Ends Meet	0.098	0.240	0.016	-0.034	0.282	0.545	0.326
7.7 Hearing About People Who Were Caught Not Reporting Their Taxes Makes Me Tend To Be Even More Careful With My Own Taxes	0.094	0.059	-0.087	0.418	0.062	0.510	0.065
8.4 The Federal Government Is Involved In Areas Best Left To The Private Sector	0.106	0.139	-0.227	0.185	0.089	0.236	0.639
8.1 The Federal Government Spends Tax Dollars Wisely	0.234	0.104	0.259	0.008	-0.187	-0.179	-0.526

TABLE E, Factor Analysis of High-Income Taxpayers

Questions	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
9.3 The IRS Treats Taxpayers With Respect	0.773	-0.145	-0.007	-0.020	-0.136	-0.113	0.057
9.1 The IRS Treats Taxpayers Fairly	0.736	-0.290	-0.037	0.017	-0.085	0.020	0.060
9.10 I Am Satisfied With The Quality Of The Federal Tax Services The IRS Provides	0.723	-0.290	0.109	-0.060	-0.068	-0.026	0.179
9.9 It Is Easy For Me To Access The Federal Tax Services That The IRS Provides	0.675	0.012	0.000	-0.086	-0.105	-0.140	0.051
9.4 The IRS Will Work With You If You Have Difficulty Paying Your Taxes	0.631	-0.061	-0.246	-0.024	0.151	-0.248	0.086
9.8 The IRS Offers All Of The Federal Tax Services I Need	0.608	-0.158	0.079	-0.065	-0.211	-0.145	0.309
9.2 The IRS Is More Concerned With Collecting As Much As It Can, Than With Collecting The Correct Amount Of Tax	-0.610	0.306	0.117	0.086	-0.250	0.112	0.098
8.4 The Federal Government Is Involved In Areas Best Left To The Private Sector	-0.144	0.730	0.134	0.059	0.119	0.034	-0.167
8.6 The Tax Rules Are So Complicated That It Is Very Difficult To Get A Tax Return Exactly Right	-0.238	0.507	-0.103	0.274	0.115	0.187	-0.100
7.1 These Days, It Is Difficult To Make Ends Meet	-0.184	0.473	0.133	0.167	0.041	0.345	0.192
8.3 Taxpayers Would Tolerate Higher Taxes If It Meant Improved Federal Government Services	-0.191	0.471	0.217	0.223	0.016	-0.108	-0.228
7.3 Taking Risks Is Necessary To Achieve Financial Success	-0.017	0.459	0.134	-0.087	0.359	0.122	-0.316
7.5 The Rules About What To Report As Income Are Clear	0.186	-0.408	0.339	0.004	0.233	-0.322	0.025
8.5 The Federal Tax Laws Are Fair	0.265	-0.548	-0.069	-0.315	-0.239	-0.065	0.209
8.1 The Federal Government Spends Tax Dollars Wisely	0.228	-0.694	-0.069	-0.030	-0.099	-0.097	-0.050
10.6 I Feel A Moral Obligation To Correctly Report All Of My Income	0.005	0.036	0.805	0.101	0.219	0.064	0.034
10.5 Everyone Should Correctly Report All Of Their Income	-0.058	0.079	0.765	0.107	0.208	0.109	-0.001
10.7 If Others Found Out I Did Not Report All Of My Income, I Would Be Embarrassed	0.029	0.061	0.699	0.137	0.134	0.071	-0.171
10.4 People Who Do Not Report All Of Their Income Are Likely To End Up Paying Even More In Penalties And Interest	0.138	-0.137	-0.531	-0.119	-0.067	-0.020	0.275
8.9 The Wealthy Have Ways Of Minimizing Their Federal Taxes That Are Not Available To The Average Taxpayer	0.032	0.091	0.094	0.794	0.173	-0.037	-0.018
8.8 Large Businesses Have Loopholes To Reduce Their Federal Taxes That Smaller Businesses Do Not Have	0.036	0.139	0.119	0.722	0.027	0.065	-0.197
9.6 Wealthy Taxpayers Have An Advantage When Dealing With The IRS	-0.341	0.106	0.237	0.603	-0.040	0.168	-0.030
8.7 Under Our Federal Tax Laws, Everyone Pays Their Fair Share Of Taxes	0.132	-0.407	-0.089	-0.453	-0.289	-0.092	0.157

Questions	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
7.2 Achieving Financial Success Is Important To Me	-0.121	0.198	0.173	0.115	0.642	0.231	0.142
7.7 Hearing About People Who Were Caught Not Reporting Their Taxes Makes Me Tend To Be Even More Careful With My Own Taxes	-0.081	0.118	0.178	0.114	0.577	0.099	-0.070
7.6 My Record Keeping System Makes It Easy For Me To Compute The Amount Of Income Tax I Need To Report On My Return	0.001	0.075	0.227	0.086	0.570	-0.160	-0.121
10.1 Many Small Businesses Do Not Report All Of Their Income	-0.217	0.014	0.178	0.023	0.207	0.706	-0.169
7.4 A Person's Status In My Community Depends On Their Financial Status	-0.134	0.186	-0.066	0.117	0.324	0.552	-0.193
10.2 Most Of My Competitors Report All Of Their Income	0.181	-0.167	-0.160	-0.056	0.170	-0.687	0.124
9.5 Because The IRS Treats Taxpayers Fairly, I Accept Its Decisions Even If I Disagree With Them	0.335	-0.221	-0.056	-0.064	0.040	-0.163	0.615
9.7 The IRS Probably Knows When People Do Not Report All Of Their Income	0.123	-0.035	-0.102	-0.171	-0.152	-0.145	0.514
8.2 Taxes Fund Important Federal Government Benefits And Services	-0.074	0.042	0.236	0.392	0.105	0.040	-0.433
10.3 Most Small Businesses Could Not Survive If They Reported All Of Their Income	0.003	0.132	0.490	0.089	-0.138	0.114	-0.519

TABLE Y, County Data

County	Demographics [33]	Urban % [34]	Congreg. % pop'n [35]	Charities [36]		Voter T/o [37]	
				#/10K	%	2010Q	2012%
Valley							
A	Family % 81.9 Non-Hisp. White % 97.3 Median Age 42.7 M:F .987	16.1	36.6	52	9.41	2	70.5
B	Family % 68.4 Non-Hisp. White % 88.2 Median Age 40.9 M:F 1.07	72.8	47.0	39	13.1	2	71.1
C	Family % 76.6 Non-Hisp. White % 88.3 Median Age 39.7 M:F 1.03	70.5	37.7	41	10.1	1	72.2
Hills							
D	Family % 83.1 Non-Hisp. White % 77.8 Median Age 38.6 M:F .986	74.8	41.9	38	8.46	3	79.4
E*	Family % 75.5 Non-Hisp. White % 90.8 Median Age 41.1 M:F .975	60.5	43.0	30	9.75	4	79.5
F*	Family % 77.5 Non-Hisp. White % 62.7 Median Age 39.1 M:F .896	93.5	41.3	36	10.1	3	75.1
G	Family % 84.8 Non-Hisp. White % 79.2 Median Age 39.4 M:F .957	82.2	39.1	27	6.39	4	78.9
H*	Family % 81.3 Non-Hisp. White % 49.3 Median Age 38.5 M:F .923	97.6	39.6	51	9.68	2	74.1
I	Family % 85.1 Non-Hisp. White % 59.2 Median Age 38.4 M:F .960	90.8	43.1	39	7.70	4	81.3

* Counties containing low-compliance sites.

33 U.S. Census data for population in families, by race, age & sex *available at* http://planning.maryland.gov/msdc/home.shtml.

34 U.S. Census data for urban & rural population at *ibid*.

35 Pop'n adhering to any religious congregation compiled by Assoc'n of Relig. Data Archives *available at* http://www.thearda.com/rcms2010/r/c/24/rcms2010_24001_county_name_2010.asp (last visited Aug. 27, 2013).

36 IRC § 501(c)(3) organizations per 10,000 pop'n and non-profit percent of workforce *available at* http://mdnonprofits.simplicitymetrics.com/.

37 Voter turn-out by quintile for 2010 General Election computed from State Bd. of Election data by State Univ. *available at* www.capc.umd.edu/rpts/2010/Turnout.pdf/. Voter turn-out by percent for 2012 General Election *available at* http://www.elections.state.md.us/press_room/.

County	Demographics [33]	Urban % [34]	Congreg. % pop'n [35]	Charities [36]		Voter T/o [37]	
				#/10K	%	2010Q	2012%
Shore (W)							
J*	Family % 80.5 Non-Hisp. White % 72.4 Median Age 38.4 M:F .977	94.7	38.1	30	6.61	4	74.8
K*	Family % 78.1 Non-Hisp. White % 14.9 Median Age 34.9 M:F .922	98.0	45.6	41	4.86	1	68.6
L	Family % 86.4 Non-Hisp. White % 79.7 Median Age 40.1 M:F .971	61.3	62.1	30	8.88	4	77.7
M*	Family % 85.5 Non-Hisp. White % 48.4 Median Age 37.4 M:F .935	70.5	37.0	29	5.01	3	77.2
N	Family % 81.9 Non-Hisp. White % 75.5 Median Age 36.0 M:F .990	49.6	37.1	29	5.35	2	74.9
Shore (E)							
O	Family % 82.6 Non-Hisp. White % 87.4 Median Age 38.9 M:F .990	57.9	31.1	24	7.33	2	68.2
P	Family % 72.6 Non-Hisp. White % 78.1 Median Age 45.6 M:F .913	27.4	49.6	77	20.6	5	79.1
Q	Family % 84.6 Non-Hisp. White % 87.3 Median Age 42.6 M:F .987	45.5	36.8	33	3.46	4	77.3
R	Family % 79.3 Non-Hisp. White % 79.0 Median Age 47.4 M:F .912	45.3	42.8	64	15.0	5	81.1
S	Family % 82.0 Non-Hisp. White % 78.2 Median Age 38.7 M:F .952	24.0	33.7	35	13.6	2	73.8
T	Family % 78.5 Non-Hisp. White % 66.2 Median Age 43.3 M:F .913	43.8	36.5	40	10.4	3	77.2
U	Family % 73.7 Non-Hisp. White % 66.6 Median Age 35.7 M:F .912	74.2	37.8	39	11.5	2	74.9

* Counties containing low-compliance sites.

County	Demographics [33]	Urban % [34]	Congreg. % pop'n [35]	Charities [36]		Voter T/o [37]	
				#/10K	%	2010Q	2012%
V	Family % 78.3 Non-Hisp. White % 80.3 Median Age 48.1 M:F .948	64.5	48.4	40	5.10	5	76.3
W	Family % 60.3 Non-Hisp. White % 52.1 Median Age 36.5 M:F 1.15	54.2	22.3	28	10.8	1	73.8
Averages							
Valley	Family % 75.6 Non-Hisp. White % 84.8 Median Age 41.1 M:F 1.03	53.1	40.4	44	10.9	1.7	71.3
Shore (E)	Family % 76.9 Non-Hisp. White % 79.4 Median Age 36.8 M:F .863	48.5	37.7	42.2	10.9	3.2	75.7
Megalopolis Hills + Shore (W)	Family % 81.9 Non-Hisp. White % 62.0 Median Age 38.3 M:F .955	79.0	42.7	34.3	7.41	3.1	76.4
Hills	Family % 81.2 Non-Hisp. White % 69.8 Median Age 39.2 M:F .950	83.2	41.3	36.8	8.68	3.3	78.1
Shore (W)	Family % 82.5 Non-Hisp. White % 58.4 Median Age 37.4 M:F .959	74.8	44.0	31.8	6.14	2.8	74.6
E, F, H, J, K & M	Family % 79.7 Non-Hisp. White % 56.4 Median Age 38.2 M:F .938	85.8	40.8	36.2	7.67	2.8	74.9

* Counties containing low-compliance sites.

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