

**Attachment G. Propensity Models for  
Performer and Funder Stratification**

## Propensity Models for Form 990 and Form 990-PF Stratification

The modeling included 99,869 organizations (1,705 likely performers or funders) for the Form 990 model and 17,827 (631 likely performers or funders) for the Form 990-PF model. Hospitals were excluded from the modeling because they will be a separate stratum and will require steps to unduplicate the frame to not overlap with those that are eligible for the Higher Education Research and Development survey (HERD).

For both the Form-990 and Form 990-PF models, we followed the following process:

- 1) Developed a base model with the classification variables available on the core file and three major financial variables, total revenues, total assets, and gross receipts.

**Base model:**

Major NTEE Grouping (First Character)  
NAICS code Major Sectors (First 2 digits)  
Common Code (last 2 digits of NTEE)  
Foundation Code  
Gross receipts  
Total Revenues  
Total Assets

- 2) Calculated the individual effects of the financial variables by introducing to the base model one at a time. For each financial variable, evaluated the continuous value (e.g. total investment income) as well as a binary measure reporting a non-zero value for this variable (e.g. 1 = positive net investment income; 0 = nonpositive net investment income)
- 3) Made all individual effects significant at 0.05 eligible for the final model building.
- 4) Tested for multi-collinearity—removed highly correlated variables or created variations of the variable. For example, program revenue is highly correlated with total revenues so we created a variable to represent the percent of program revenue (program revenue / total revenue).
- 5) Used stepwise selection to select final variables for model.

The significant model effects for the Form 990 and Form 990-PF models are presented below.

Form 990—Final Model

Variable	DF	WaldChiSq	ProbChiSq
<b>NTEE major group</b>	17	791.49	<.0001
<b>NAICS</b>	10	125.43	<.0001
<b>NTEE Common code</b>	7	113.22	<.0001
<b>Reason for 501(c)(3) status</b>	6	101.97	<.0001
<b>Non-Private Foundation Reason Code</b>	1	56.92	<.0001
<b>Has positive revenue from sales of securities (0, 1)</b>	1	132.76	<.0001
<b>Has positive royalty income (0,1)</b>	1	67.43	<.0001
<b>Compensation for officers</b>	1	50.95	<.0001
<b>Has positive compensation for officers (0,1)</b>	1	66.44	<.0001
<b>Has positive tax exempt bond liabilities, end of year (0, 1)</b>	1	44.05	<.0001
<b>Has other income (0,1)</b>	1	18.52	<.0001
<b>Has positive total gross income from interest etc.: 170(b)(1)(A)(iv)+(vi)</b>	1	37.18	<.0001
<b>Has positive investment income (0,1)</b>	1	10.98	0.0009
<b>Payroll taxes</b>	1	12.73	0.0004
<b>Has retained earnings at beginning of year</b>	1	26.69	<.0001
<b>Total gross income from interest etc.: 170(b)(1)(A)(iv)+(vi)</b>	1	23.01	<.0001
<b>Has positive liabilities, end of year (0,1)</b>	1	11.01	0.0009
<b>Special events direct expenses</b>	1	25.10	<.0001
<b>Has positive net income (loss) from fundraising events (0,1)</b>	1	59.54	<.0001
<b>Has positive contributions from gifts and grants (0,1)</b>	1	10.48	0.0012

Tables notes: 170(b)(1)(A)(iv) an organization which normally receives a substantial part of its support (exclusive of income received in the exercise or performance by such organization of its charitable, educational, or other purpose or function constituting the basis for its exemption under section 501(a) from the United States or any state or political subdivision thereof or from direct or indirect contributions from the general public, and which is organized and operated exclusively to receive, hold, invest, and administer property and to make expenditures to or for the benefit of a college or university which is an organization referred to in clause (ii) of this subparagraph and which is an agency or instrumentality of a state or political subdivision thereof, or which is owned or operated by a state or political subdivision thereof or by an agency or instrumentality of one or more States or political subdivisions

Form 990-PF—Final Model

Variable	DF	WaldChiSq	ProbChiSq
NTEE major group	12	42.01	<.0001
NAICS	4	19.14	0.0007
Paid compensation to or reimbursed expenses of disqualified person (0,1)	1	15.98	<.0001
Has positive compensation for officers (0,1)	1	25.31	<.0001
Compensation of officers, directors, trustees, etc.	1	61.82	<.0001
Furnished goods, services, or facilities to a disqualified person (0,1)	1	19.95	<.0001
Has positive total disbursements for charitable purposes oper and adm exps (0,1)	1	15.74	<.0001
Provided a grant to an individual for travel, study, or other similar purposes (0,1)	1	11.93	0.0006
Provided a grant to an organization other than charity (0,1)	1	7.92	0.0049
Has positive other income (0,1)	1	11.21	0.0008
Has positive investments - corporate bonds, book value end of year (0,1)	1	6.88	0.0087
Has positive tax overpayment to be credited to subsequent year (0,1)	1	8.84	0.0029
Has positive investments - other, book value end of year (0,1)	1	6.08	0.0136
Has positive contributions, gifts, grants paid as per books (0,1)	1	8.25	0.0041
Has positive net investment income (0,1)	1	7.08	0.0078
Investments - U.S. and state government obligations, book value end of year	1	9.06	0.0026
Has positive cash - non-interest-bearing, book value end of year (0,1)	1	13.18	0.0003
Has positive total liabilities, book value end of year (0,1)	1	4.68	0.0305
Has positive interest on savings and temporary cash investments (0,1)	1	9.42	0.0021
Has positive assets alternative test (last 4 years) (0,1)	1	5.40	0.0202
Had investment expenses and disbursements	1	12.75	0.0004
Total excise tax based on investment income	1	4.30	0.0381
Borrowed/lent money or otherwise extended/accepted credit to a disqualified person? (0,1)	1	3.85	0.0496
Ratio of total fair market value of assets not for charitable purposes to total assets	1	5.25	0.0220