Protocol for a meta-analysis on crowding-out effects

Arjen de Wit, February 2015

1. *Criteria of inclusion*. Our meta-analysis concerns studies containing quantitative empirical research on the relation between government subsidies to a certain goal and private donations to the same goal. We include studies with charitable donations by individuals or households, either observed or self-reported, as dependent variable. Donations should be charitable in the sense that the donors don't have a personal relation with the recipients, so private transfers between households are not in this meta-analysis. Studies with incidence of donations are excluded, we are interested in amounts. The independent variable of interest is the amount of government contributions to a goal or organization, either real or simulated. Government contributions should be unconditional, so matches, rebates and tax and price elasticities of private donations are excluded. Studies that use contributions from other private donors as independent variables are excluded as well. Our meta-analysis includes estimates of the association between government contributions and private donations as mean differences, unstandardized or standardized regression coefficients or correlation coefficients. Regression coefficients of (logarithmic) transformed variables are included as such. In this stage of the research we narrow our query to articles published in peer-reviewed journals.

2. *Searching the literature*. We browsed the literature in two ways. First, we carry out a keyword search in the Web of Science database. Firstly, we search for all studies included the term 'crowding-out' in the title, keywords or abstract. Secondly, we search for studies that use a pair of possible formulations of the dependent and independent variable. Our search command looks as follows: "(crowding-out OR crowding out OR crowd-out OR crowdout OR crowd out) OR ((donations OR giving) AND (government OR subsidies OR tax OR taxing OR taxes OR matching OR rebate OR rebates OR altruism))". On February 26, 2015 this command yielded 4,930 records. We only included studies that were available online. We start browsing the search results in chronological order starting with the most recent articles. We examine whether the study is relevant first by reading title and abstract. If the study indeed concerns the relation we are interested in we browse the article itself and, if available, in online appendices. Second, we browsed all references in the studies that were included in our sample to find articles that are published in peer-reviewed journals outside the Web of Science database. The titles that appear in the reference lists were retrieved with Google Scholar.

3. *Coding*. The codebook with variable names and value labels is provided below. Different study characteristics are coded including characteristics of the sample, research design, and measurement of the variables. Depending on the way it is reported we adopt the effect size either as a regression coefficient, difference between the means of independent groups, or correlation coefficient. We only include effect sizes that are reported in a clear, transparent way. If effect sizes are estimated with different models or with different sub-samples, we include all coefficients.

4. *Crowding-out effect.* After the basic coding procedure we calculate a crowding-out measure COE: what is the change of private donations in the case of a $1 increase in government contributions? In the case of an unstandardized regression or correlation coefficient of 0.5 and independent and dependent variables measured in absolute values, the estimate equals 0.5. When a treatment group faced a government contribution of $25 and the control group $5, and the mean difference of private donations is $10, the estimate equals 10/(25-5)=0.5. If a standardized regression coefficient (Beta) of 5.0 is reported, subsidies have a standard deviation of $100 and donations have a standard deviation of $10, COE=(5.0x10)/100=0.5. We do not compute a COE in the case of transformed variables like logarithmic variables or relative measures. Neither do we include a COE if the model includes a quadratic term of government support. In this stage of the research we don't take inflation or currency exchange rates into account.

5. *Weighting*. Weighting by sample size or inversed variance doesn't make sense when we compare different research designs; experimental designs will be outweighted by large-n studies. Weighting might be useful when comparing similar designs in subgroup analyses, however. We therefore include sample sizes and variances of each parameter. We include standard errors from regression coefficients in order to calculate the variance.

6. *Software*. Articles are retrieved and saved with EndNote X7; coding happens in Excel; analyses are carried out in Stata.

7. *Analyses*. Firstly, we give an overview of the evidence by vote-counting the number of (significant) results of all studies in the analyses. After that, we exclude studies that did not provide an association in absolute values. Secondly, we analyze heterogeneity within and between studies by comparing fixed and random effect models where COEs are nested in studies. Thirdly, we use the COEs to estimate a mean crowding-out effect. Finally, we use correlation and regression techniques to find out which study characteristics correlate with finding a larger crowding-out effect.

Codebook

Type
n = nominal (0/1)
c = categorical
i = interval
s = string

Value label
888 = Not applicable
999 = No information provided

Var	Name	Type	Label	Value	Value label
ID variables					
	idbase	n	Database	1	Web of Science
				2	Other (through references)
	idstudy	s	Citation *Author names and year of publication. In case of 3 or more authors we mention the first author and 'et al.'. Don't use commas and diacritical signs. E.g. an article by Bönke, Massarrat-Mashhadi & Sielaff published in 2013 will be 'Bonke et al. 2013'.*	[author yr]	
	idest	i	Estimate id number *Number for each unique estimate of an effect size in a certain study. Starts with '1' for each study.*	[#]	
	idauth	s	Author name(s) *The last names of all authors, separated by commas and '&'. Don't use diacritical signs. E.g.: 'Bonke, Massarrat-Mashhadi & Sielaff'.*	[last name]	
	idyear	i	Publication year	[year]	
	idtitle	s	Article title	[title]	
	idjour	s	Journal name	[journal]	
	idfield	c	Research field *Main focus of the journal, determined by the field that is provided by the publisher; if no field is provided it is inferred from the name of the journal.*	1	Economics/Econometrics
				2	Philanthropic studies
				3	Psychology
				4	Fiscal studies
				5	Public administration
				6	Sociology/Political science
				7	Social welfare
				8	Organizational science
				9	Development studies
				10	Arts/cultural studies
				11	Education studies

Sample

sdtype	c	Type of data	1	Laboratory experiment
If organizations report revenues through a survey, sdtype=4. If the source is an estimate based on a combination of sources including tax data (e.g. Giving USA), sdtype=4.			2	Field experiment
			3	Survey among individuals
			4	Archival (tax) data
			5	Survey experiment
sdirs	n	IRS tax data	0	No
The study uses tax return data from the US Internal Revenue Service.			1	Yes
sunits	c	Units of analysis	1	Individuals
If a group of organizations is the unit of analysis (e.g. donations to a sector over time), sunits=2.			2	Organizations
			3	Countries
sstudent	n	Sample consists of students	0	No
			1	Yes
ssize	i	Sample size	[*n*]	
No. of unique observations (individuals/organizations/countries).				
ssizee	i	estimated sample size	[*n-hat*]	
In case no n is provided we estimate a sample size here, based on the information that is provided.				
stime	i	Time points	[*time*]	
The number of moments in time each subject is measured. If each subject is measured only once, stime=1. If subjects participate in an experiment with repeated measures, stime=1.				
sfrom	i	Sample period from …	[year]	
Starting year of the target period.				
sto	i	Sample period to …	[year]	
End year of the target period.				
scntry	c	Country	1	USA
The country where the data is gathered.			2	Canada
			3	Other North-America
			4	UK
			5	Germany
			6	Spain
			7	China
			8	Japan
			9	Korea
			10	Taiwan
			11	Other Asia
			12	South-America
			13	Africa

			14	Cross-country
			15	Australia
			16	Austria
			17	Israel
			18	Italy
sstate	s	US state	[state]	
The state in the US where the data is gathered.				

Design

dcaus	C	Direction of causal relation	1	Government contributions → private donations
Causal claim that is examined in the theoretical model. If the design doesn't include ways to deal with causality but the hypotheses predict an effect of government contributions on private donations, dcaus=1.			2	Private donations → government contributions
			3	No causal claim
dlong	c	Longitudinal	0	No
Both the data and the specification are longitudinal; if the data is over multiple years but the specification does not estimate longitudinal effects, dlong=0. If each variable is measured at one point in time but the specification includes a lagged dependent, dlong=0.			1	Yes
dspec	c	Model specification	1	OLS
			2	Other linear regression
			3	Tobit
			4	2SLS
			5	LIML
			6	Other instrumental variable regression
			7	Regression discontinuity
			8	Difference in differences
			9	Other quasi-experimental regression
			10	First differences
			11	Other time-series regression (DOLS, FMOLS)
			12	Censored quantile regression
			13	GMM
			14	Cointegration test
			15	Granger causality
			16	SURE
dfe	n	Units fixed effects	0	No
The model controls for the effects of factors that differ across units but are constant over time.			1	Yes
dnovars	i	Number of predictors in regression model (excl. intercept)	[*X*s]	
dninstr	i	Instrumental variables	0	No
Model uses variables in two-stage regression to estimate an independent effect of the independent variable.			1	Yes

dnoctrl	i	Number of control variables	[#]	
No. of variables that are not of interest for the hypotheses but serve to control for confounding effects. If no controls are included, dnoctrl=0.				

Experimental design

dinc	i	Participants' income/endowment	[$]	
The amount of the budget subjects start with. If subjects don't play with money at all, dinc=888. If subjects play with points/tokens from which the value is not sure, dinc=999.				
dblind	c	Experiment: blind trial	0	No
Subjects don't know what treatment they are in. If subjects participate in different conditions but they are not told what the aim of the experiment is, dblind=1.			1	Yes
drepeat	n	Experiment: repeated measures	0	No
The trial is part of a repeated measures design, i.e. respondents participate in different conditions.			1	Yes
daware	n	Rs aware of need	0	No
Respondents know where they donate to, i.e. this information is provided by the researchers. If it concerns donations to an organization, yaware=0. If the need is not described (e.g. 'a public good'), yaware=999. If the need is another participant in the experiment, yaware=1.			1	Yes
dfinite	n	Need is finite	0	No
Respondents donate to a delimited need that can be completely fulfilled, e.g. a specific project. If the goal is abstract (e.g. poverty, a public good) or a recipient with no further specified need, dfinite=0. If it concerns observed donations to an organization and not to a specific project, dfinite=0.			1	Yes
dvote	n	Rs vote over government contribution	0	No
Respondents decide over a mandatory donation/explicit tax by voting. If a real government contributes from public funds, xvote=0.			1	Yes

Private donations

yreal	n	R gives real money	0	No
Respondents give money instead of points. If respondents receive money for their earned points/credits/tokens after an experiment, yreal=1.			1	Yes
yown	n	R gives own money	0	No
Respondents give money that was already theirs. When			1	Yes

they receive a budget/income/endowment from the researchers, yown=0.

yselfrep	n	Self-reported	0	Observed
Donations are observed (e.g. in a dictator game or by archival/tax data) or self-reported by the individual donor (e.g. in a survey)			1	Self reported
yperiod	c	Target period	1	One time (e.g. only during experiment)
Donations are measured only once (e.g. in an experiment) or over a longer period of time.			2	Less than a month
			3	1 month
			4	1-12 months
			5	A year
			6	More than a year
yperson	n	Personal giving	0	No
R donates to a specific person, e.g. another participant in the experiment.			1	Yes
ysector	c	Sector	1	Religion
Goal where respondents donate to. If the need is not described (e.g. 'a public good', or another participant in the experiment), ysector=999.			2	Health
			3	International aid
			4	Environment/nature/animal
			5	Education/research
			6	Culture/arts
			7	Sports/recreation
			8	Public/social
			9	Other
			10	Combination
ytrans	n	Variable is transformed	0	No
Including natural or other logarithms, donations as a percentage of income, donations as a share of GDP, etc.			1	Yes
ymean	i	Mean of private donations	[$\bar{x}$]	
ysdev	i	Standard deviation of private donations	[s]	

Government contributions

xgov	C	Government	1	National/federal government
The other donor that contributes to the recipient. When researchers simulate government contributions in an experiment, xgov=5. If government support is not specified in terms of level of government, xgov=4.			2	State government
			3	Local government
			4	National/federal and state/local government
			5	Researchers
			6	State and local government
xctrlf	n	Controlled for federal spending	0	No
The regression model includes a control variable for national or federal government spending. If xgov=1 or xgov=4 or xgov=5, xctrlf=999.			1	Yes

xctrls	n	Controlled for state spending	0	No
The regression model includes a control variable for state government spending. If xgov=2 or xgov=4 or xgov=5 or xgov=6, xctrls=999.			1	Yes
xctrll	N	Controlled for local spending	0	No
The regression model includes a control variable for local government spending. If xgov=3 or xgov=4 or xgov=5 or xgov=6, xctrlf=999.			1	Yes
xcontr	C	Government contribution	1	Expenditures
The way in which government contributes. Expenditures are contributions from public funds that go directly to the beneficiary. When the government (simulated by researchers in an experiment) obliges respondents to donate a certain amount to the beneficiary, xcontr=3.			2	Subsidies to organizations
			3	Mandatory donation/explicit tax
xtrans	n	Variable is transformed	0	No
Including natural or other logarithms, subsidies as a share of GDP, subsidies as a share of total expenditures, etc.			1	Yes
xmean	i	Mean of government contributions	[$\bar{x}$]	
xsdev	i	Standard deviation of government contributions	[s]	

Effect size

ecoef	i	Regression coefficient *B*	[*B*]
ecoefse	i	Standard error of *B*	[*SE*]
ecoefp	i	*p*-value of *B*	[*p*]
ebeta	i	Standardized regression coefficient Beta	[Beta]
ebetase	i	Standard error of Beta	[*SE*]
ebetap	i	*p*-value of Beta	[*p*]
emctrl	i	Mean of control group	[μ_1]
Mean of group treated with the least subsidies			
emctrls	i	Standard deviation of control group	[s]
emtrt	i	Mean of treatment group	[μ_2]
Mean of group treated with most subsidies			
emtrts	i	Standard deviation of treatment group	[s]

emd	i	Mean difference	[μ_2- μ_1]	
ecorr	i	Correlation coefficient *r*	[*r*]	
ecorrv	i	Variance of *r*	[V_r]	
eco	c	Crowding-out	1	Crowding-out
Direction of the estimate. If government contributions have a negative effect on private donations, eco=1. If government contribuions have a positive effect on private donations, eco=2.			2	Crowding-in
ecosig	n	Significant effect	0	No
Estimate is significant at the 5% level			1	Yes
ecoe	i	Crowding-out effect	[*COE*]	
The effect of a $1 increase in government contributions on the amount of private donations. If not reported we calculate the effect. Calculations are saved in the spreadsheet. If the coefficient is based on transformed variables, ecoe=888. If no effect size is provided, ecoe=999.				