CEO Regression Discontinuity Design (RDD) Checklist

Study Title:

Report type:

Contractor:

Criteria and Sub-criteria	Clear and Concise? Y/N
RDD Characteristics	
Report adequately describes the policy or decision or eligibility rule (e.g. administrative eligibility criteria) that generates the discontinuity in treatment assignment required for the regression discontinuity (RD) design?	
Report provides an adequate description of the scoring and treatment assignment process (including: the forcing variable used, other treatment selection criteria that are observed or unobserved in the study, the cutoff value selected, who selected the cutoff, who determined the values of the forcing variable, when the cutoff was selected relative to determining the values of the forcing variable, and whether individuals assigned to treatment had any knowledge of the cut-off values)?	
The regression discontinuity design ensures no systematic manipulation of the forcing variable by the units receiving treatment that could lead to systematic differences in their no-treatment outcomes around the cut-off values?	
Report discusses whether there are multiple discontinuities in the RD design (e.g. eligibility based on multiple forcing variables or multiple cut-off values).	
Report notes how the sample was collected, whether a random sample, or a stratified sample (a sample that oversamples certain populations). If a stratified sample, are sampling weights used in the analysis to reweight the sample back to random proportions?	
Report uses statistical tests or graphical analysis to establish the smoothness of the density of the forcing variable right around the cutoff, as would be expected when there is no systematic manipulation of the forcing variable. Bunching of values above or below the cut-off could be indicative of manipulation.	
Report clearly indicates whether the RDD design is sharp or fuzzy and includes a graph of the probability of receiving treatment as a function of the cut-off value, before and after the cut-off that clearly shows the discontinuity around the cut-off.	
Report discusses whether treatment effects are assumed to be homogeneous or heterogeneity and the interpretation of the IV estimate as a local average treatment effect (LATE) estimator in the case of heterogeneous treatment effects. Report considers whether LATE is an appropriate parameter of interest for the hypotheses being examined.	
Report discusses the degree of precision for detecting impacts with the RDD design, in particular, the minimum number of observations needed above and below the cut-off to detect a treatment effect of a desired magnitude (e.g. 5%, 10%)? Alternatively, does the report report the minimal detectable effect size (MDES) given the study's numbers of observations?	
Report presents number of individuals assigned to the treatment and comparison group samples, the number of individuals on either side of the cut-off who actually received treatment and any sample attrition or dropouts.	
Report establishes (or presents) baseline equivalence in the average values of key covariates around the cutoff of the forcing variable to establish that groups are comparable in observable dimensions.	
Report demonstrates that there is no evidence of unexplainable discontinuities in the outcome-score relationship at score values other than cutoff.	
Report includes appropriate citations and justification for use of RDD.	
Sharp Regression Discontinuity (SRD) Design	
Report provides a graphical depiction of the data using the average value (or weighted average value, using, for example, kernel weights) of the outcome variable within bins defined by ranges of the forcing variable. Does the bandwidth (bin width) selected provide a sufficient amount of precision to ensure smooth plots on either side of the cutoff value while still depicting the clear jump around the cutoff value?	

Criteria and Sub-criteria	Clear and Concise? Y/N
Report estimates and presents local linear regression results (regressions using only data in bins above and below cut-off values and for comparison purposes using all the data) for the outcome variables with and without controlling for covariates on both sides of the cutoff point.	
Report computes robust standard errors for each regression.	
Report presents and justifies the procedure by which the optimal bandwidth (bin width) was selected. (e.g. cross-validation)	
Report looks at possible jumps in the value of other covariates at the cutoff point that could be evidence of manipulation.	
Report tests for possible discontinuities in the conditional density of the forcing variable.	
Report looks at whether the average outcome is discontinuous at other values of the forcing variable.	
Report shows or discusses the sensitivity of the results to varying the bandwidth.	
Fuzzy Regression Discontinuity (SRD) Design (additional recommendations)	
Report provides some insight as to the source of fuzziness – that is, why some individuals eligible for treatment or assigned to treatment did not receive it, or vice versa.	
Report provides a summary of the number of individuals who received treatment and fall on the wrong-side of the cutoff (and vice versa).	
Report provides a graphical depiction of the data using the average value of the outcome variable over a set of bins as well as the probability of receiving treatment.	
Report estimates the treatment using local two-stage least squares (regressions using only data in bins above and below the cut-off value and, for comparison purposes, using all the data), with and without controlling for covariates and providing some justification for the selection of particular covariates.	
Report estimates two-stage least squares robust standard errors.	
Report computes the ratio in the estimate of the jump (at the cutoff point) in the outcome variable over the jump in the treatment variable.	
Report presents and justifies the procedure by which the optimal bandwidth was selected.	
Results	
Are the goals of the study clear in terms of hypotheses being tested clear? Is the intended use of the estimated treatment effect results clear?	
Are results from the estimations appropriately presented and discussed?	
Are the results presented in an objective manner, including evidence found that may not be supportive of hypotheses being examined?	
Are the results compared to any other results from similar studies reported in the literature?	
Is there justification given for focusing on a particular subset of the results?	
Does the report include the sample sizes, means and standard deviations for key background characteristics and for baseline measures of the key outcomes for the analysis sample? Are the results presented separately for the treatment/control groups, overall and for the bins around the cut-off values?	
Was multiple hypothesis testing conducted? How many outcomes were there?	
If multiple hypothesis testing is conducted, does the report adjust the statistical critical value?	
Is attrition appropriately considered and addressed in the study?	
Is potential measurement error in any of the key variables discussed and are any remedies considered?	
Is it clear how treatment is defined, that is, whether treatment is defined as being exposed to some intervention of whether it is defined as completing some course of treatment?	

Criteria and Sub-criteria	Clear and Concise? Y/N
Does the report provide standard errors in addition to stars/bolding to indicate levels of statistical significance?	
Does the report indicate the duration of time over which outcomes are measured?	
Is the period over which outcomes are estimated sufficiently long enough to effectively measure the treatment effects?	
Does the report consider whether treatment effects that are estimated are likely to be sustained over longer run periods?	
Conclusions	
Are the conclusions consistent with the research questions asked?	
Are the conclusions based on objective reporting of information?	
Does the report reach appropriate conclusions or are results overstated and/or not supported by appropriate evidence?	
Does the report make note of any limitations of the study?	
Does the report make policy recommendations or recommendations for future studies that might address existing limitations?	
Are the conclusions drawn reasonable and/or useful to the implementing agency?	
General Comments	
Is the report concise and clear? Can it be understood by the intended audience?	
Did the report identify clearly what is conjecture, speculation or opinion—and the sources of such views?	

Key References

Bloom, H. S. 2012. "Modern Regression Discontinuity Analysis." Journal of Research on Educational Effectiveness 5 (1): 43-82.

Imbens, G. W., and T. Lemieux. 2008. "Regression Discontinuity Designs: A Guide to Practice. Journal of Econometrics 142 (2): 615-635.

Lee, D. S., and D. Card. 2008. "Regression Discontinuity Inference with Specification Error. Journal of Econometrics 142 (2): 655-674.

Lee, D.S, and T. Lemieux. 2010. "Regression Discontinuity Designs in Economics." Journal of Economic Literature 48: 281-355.

McCrary, J. 2008. "Manipulation of the Running Variable in the Regression Discontinuity Design: A Density Test." Journal of Econometrics 142 (2): 698-714.

Nichols, A. 2007. "Causal Inference with Observational Data." *Stata Journal* 7.4 : 507-41.

Schochet, P., Cook, T., Deke, J., Imbens, G., Lockwood, J.R., Porter, J., Smith, J. 2010. "Standards for Regression Discontinuity Designs." Retrieved from What Works Clearinghouse website: http://ies.ed.gov/ncee/wwc/pdf/wwc_rd.pdf.2