

Analyzing the Association Between SNAP Eligibility and Health Outcomes  
By Brandon Parham  
Master of Applied Economics  
Washington State University

**Background:** In 1939, the first food stamp program was created and the first person to receive food assistance from this program was Mabel McFiggin of Rochester, New York on May 16, 1939.<sup>1</sup> Since its inception in 1939, this federal assistance program throughout the decades has helped to greatly lift millions of Americans to a higher quality of life by addressing food insecurity and providing increased nutrition. When the 2008 Farm Bill was passed, the food stamp program was renamed to the Supplemental Nutrition Assistance Program (SNAP) but some still refer to it informally as the food stamp program.<sup>2</sup> In a given average month in 2024, SNAP provided benefits to more than 41 million residents in the United States.<sup>3</sup> The United States Census Bureau estimated the United States population to be 340.1 million on July 1, 2024 meaning that the average number of 41 million SNAP recipients in the United States in 2024 comprised approximately 12% of the total US population.<sup>4</sup>

**Motivation:** Malnutrition from food insecurity can lead to adverse health outcomes that can be very costly to counter. According to a study, food insecurity was shown to have an association with increased healthcare expenditures and healthcare usage even after adjusting for certain socioeconomic factors.<sup>5</sup> This study along with many other studies have also found a strong association between food insecurity and higher healthcare expenditures. In terms of food consumption choices of SNAP participants, one study found that those eligible for the SNAP program were spending more on less healthy foods such as convenience foods while spending less on healthy foods such as vegetables.<sup>6</sup> Another study found no major differences in the food purchasing patterns in SNAP and non-SNAP households.<sup>7</sup> The effects of the nutrition from this

---

<sup>1</sup> USDA. 2024. "A Short History of SNAP | Food and Nutrition Service." [Www.fns.usda.gov](https://www.fns.usda.gov/snap/history). July 9, 2024. <https://www.fns.usda.gov/snap/history>.

<sup>2</sup> "The History of SNAP | Snap to Health." 2018. [Snapttohealth.org](https://www.snapttohealth.org). 2018. <https://www.snapttohealth.org/snap/the-history-of-snap/>.

<sup>3</sup> "Policy Basics: The Supplemental Nutrition Assistance Program (SNAP)." 2022. Center on Budget and Policy Priorities. Center on Budget and Policy Priorities. June 9, 2022. <https://www.cbpp.org/research/food-assistance/the-supplemental-nutrition-assistance-program-snap>.

<sup>4</sup> Bureau, US Census. 2024. "New 2024 Population Estimates Show Nation's Population Grew by about 1% to 340.1 Million since 2023." [Census.gov](https://www.census.gov). December 19, 2024.

<sup>5</sup> Berkowitz, Seth A, Hilary K Seligman, James B Meigs, and Sanjay Basu. 2018. "Food Insecurity, Healthcare Utilization, and High Cost: A Longitudinal Cohort Study." *The American Journal of Managed Care* 24 (9): 399. <https://pubmed.ncbi.nlm.nih.gov/articles/PMC6426124/>.

<sup>6</sup> Franckle, Rebecca L., Alyssa Moran, Tao Hou, Dan Blue, Julie Greene, Anne N. Thorndike, Michele Polacsek, and Eric B. Rimm. 2017. "Transactions at a Northeastern Supermarket Chain: Differences by Supplemental Nutrition Assistance Program Use." *American Journal of Preventive Medicine* 53 (4): e131–38. <https://doi.org/10.1016/j.amepre.2017.06.019>.

<sup>7</sup> "FOODS TYPICALLY PURCHASED by SUPPLEMENTAL NUTRITION ASSISTANCE PROGRAM (SNAP) HOUSEHOLDS Nutrition Assistance Program Report Food and Nutrition Service Office of Policy Support." 2016. [https://www.foodpolitics.com/wp-content/uploads/SNAPFoodsTypicallyPurchased\\_16.pdf](https://www.foodpolitics.com/wp-content/uploads/SNAPFoodsTypicallyPurchased_16.pdf).

program on different measures of health outcomes is to be studied in this project between those who qualified for the program and those who did not qualify for the program. While there are some studies examining the effect of SNAP program eligibility and healthcare expenditures, there are not many studies which also examine the association between eligibility for the SNAP program and other health outcomes such as mental health outcomes which is to be studied in this project.

**Research Question:** The purpose of this project is to examine whether eligibility for the SNAP program is associated with generally improved health outcomes or not compared to ineligibility for the SNAP program. In addition, the potential mechanism variables that can help lead to improved health outcomes in relation to SNAP eligibility will be examined.

**Data:** The survey data for this project is to be derived from the IPUMS Medical Expenditure Panel Survey (MEPS) ranging from the years of 2007 through 2022.<sup>8</sup> A summary of the variables used in the study are shown in table 1. The federal eligibility for the SNAP program is that gross family income must be at or below 130% of the federal poverty line. There is a variable that captures the gross family income of the survey respondent as a percentage of the federal poverty line from the MEPS database and this variable functions as the independent variable. The main dependent variables to be examined include the depression screen summary score variable and the variable relating to the score of how physical and/or emotional health interfered with social activities. The mechanism variables which are used to explain certain trends in the data are the three expenditure variables of the total annual healthcare expenditures, total annual prescribed medications expenditures, and the total annual hospital related expenditures. There will also be subsamples of data to be examined based on age where the young age subsample represents people aged 18 to 39, the middle age subsample representing people aged 40 to 64 and the old age subsample representing people aged 65 and older. Table 2 displays the summary statistics for the variables for the data ranging from a gross family income from 100% of the federal poverty line to 160% percent of the federal poverty line meaning a bandwidth of 30 about the 130% cutoff point.

---

<sup>8</sup> “IPUMS MEPS.” n.d. Meps.ipums.org. <https://meps.ipums.org/meps/>.

**Table 1: Information about variables used**

Variable	Definition	Source
Depression screen summary score	A score ranging from 0 to 6 where a higher number indicates a higher tendency towards depression.	IPUMS MEPS database
Score of how physical and/or emotional health interfered with social activities	A score ranging from 0 to 4 where a higher number means a higher degree to which physical and/or emotional health interfered with social activities within the past 4 weeks of the survey being taken.	IPUMS MEPS database
Health status score	A score ranging from 1 to 5 where a higher number relating to worse health status.	IPUMS MEPS database
Total annual number of visits to office-based medical provider	The number of visits to an office-based medical provider in a given year.	IPUMS MEPS database
Total annual healthcare expenditures (\$) (Adjusted for inflation and given in terms of 2024 US dollars)	Captures the total annual sum of direct healthcare expenditures, insurance payments, but not over-the-counter drug payments.	IPUMS MEPS database
Total annual prescribed medications expenditures (\$) (Adjusted for inflation and given in terms of 2024 US dollars)	Measures the total annual sum of direct prescribed medications expenditures, insurance payments, not including over-the-counter drug payments.	IPUMS MEPS database
Total annual hospital related expenditures (\$) (Adjusted for inflation and given in terms of 2024 US dollars)	Represents the total annual sum of direct payments for hospital facility use, separate billing doctors but not including over-the-counter drug payments and expenses related to newborns without complications who left the hospital on the same day as the mother.	IPUMS MEPS database
Binary variable of whether unemployment compensation is received or not	A binary variable equal to 0 if unemployment compensation is not received and 1 if unemployment compensation is received.	IPUMS MEPS database

In table 2, the mean of the depression summary screen scores are 0.558, 0.93, and 0.865 for the young, middle age, and old subsamples respectively with the mean for all ages being 0.758. The mean for the entire sample of 361914 individuals is 0.579 which is lower than the mean of 0.758 for the all age group sample within the bandwidth of 30. This indicates that the sample of individuals with income levels closer to the cutoff point have a higher tendency towards depression compared to the entire sample of individuals. The mean for all ages being 0.758 is higher than the mean for the young subsample and lower than the mean for the middle age and old subsamples. The mean of the score of how physical and/or emotional health interfered with social activities are 0.479, 0.854, and 0.944 for the young, middle age, and old subsamples respectively with the mean for all ages being 0.715. The mean for the entire sample of 361914 individuals is 1.585 which is greater than the mean of 0.715 for the all age group sample within the bandwidth of 30. This means that the survey respondents within the bandwidth of 30 have a lower degree to which their physical and/or emotional health interfered with social activities compared to the entire sample of individuals. The mean for all ages of 0.715 is higher than the mean for the young subsample but lower than the mean for the middle age and old subsamples. Since a lower value for the depression screen summary scores and score of how

physical and/or emotional health interfered with social activities is associated with better health outcomes, the mean of the young subsample being the lowest for both scores shows the association between better health outcomes with younger age which is to be intuitively expected. The means of the three health expenditure mechanism variables also backs up the association between youth and generally better health outcomes with the mean expenditures being lowest for the youngest subsamples across all three variables. The mean of the total annual hospital related expenditures for the old subsample is 4074.32 which is almost five times greater than that of the young subsample of 862.34 which shows how much health-related expenditures can increase with age.

**Table 2:** Summary statistics for a bandwidth of 30

	All ages (46963 observations)		Young subsample (19871 observations)		Middle-age subsample (16890 observations)		Old subsample (10202 observations)	
Variable	Mean [Min, Max]	Standard Deviation	Mean [Min, Max]	Standard Deviation	Mean [Min, Max]	Standard Deviation	Mean [Min, Max]	Standard Deviation
Depression screen summary score	0.758 [0, 6]	1.409	0.558 [0, 6]	1.191	0.93 [0, 6]	1.569	0.865 [0, 6]	1.472
Score of how physical and/or emotional health interfered with social activities	0.715 [0, 4]	1.115	0.479 [0, 4]	0.923	0.854 [0, 4]	1.192	0.944 [0, 4]	1.231
Health status score	2.758 [1, 5]	0.992	2.435 [1, 5]	0.926	2.933 [1, 5]	0.993	3.096 [1, 5]	0.928
Total annual number of visits to office-based medical provider	5.24 [0, 386]	12.22	2.607 [0, 367]	8.223	5.714 [0, 386]	13.936	9.584 [0, 204]	14.194
Total annual healthcare expenditures (\$)	7237.083 [1.07, 1431956]	21517.27	2840.797 [1.07, 1431956]	16627.08	7887.253 [1.07, 808992.45]	22430.928	14724.488 [1.07, 477901.68]	25798.308
Total annual prescribed medications expenditures (\$)	1956.146 [0, 1378012]	10259.44	553.32 [0, 1378012]	11000.01	2456.849 [0, 274599.78]	9188.44	3859.67 [0, 298655.19]	10061.235
Total annual hospital related expenditures (\$)	1956.802 [0, 883009.61]	11599.95 5	862.34 [0, 883009.61]	8994.811	1965.579 [0, 363133.57]	11784.938	4074.32 [0, 368063.44]	15004.172
Binary variable of whether unemployment compensation is received or not	0.04 [0, 1]	0.196	0.046 [0, 1]	0.209	0.054 [0, 1]	0.226	0.005 [0, 1]	0.068
Age	46.623 [18, 85]	19.349	28.117 [18, 39]	6.5	51.216 [40, 64]	7.19	75.068 [65, 85]	6.679
Poverty Level as a percentage of the federal poverty line	129.774 [100, 160]	17.298	129.852 [100, 160]	17.271	129.989 [100, 160]	17.391	129.266 [100.01, 159.98]	17.184

**Empirical Methods:** In this study regression discontinuity can be used to analyze the difference in outcomes of each of the dependent variables around a certain cutoff point. A regression discontinuity is an empirical method where the causal effect of a treatment or program is evaluated by the jump between the predicted outcomes between the control group and the treatment group at the cutoff point with the bandwidth defining the range of data within the cutoff point used to calculate the treatment effect. A positive treatment effect means that there is an upward jump from the regression line to the left of the cutoff to the regression line that is to the right of the cutoff. A negative treatment effect means that there is a downward jump from the regression line to the left of the cutoff to the regression line to the right of the cutoff. Regression discontinuity is commonly used to evaluate the effects of an intervention or a policy by comparing outcomes near the cutoff point of interest.

For this study, the cutoff point of interest is the maximum SNAP point of eligibility of 130% of the federal poverty line. The treatment group would be the group of survey respondents who are eligible for SNAP benefits whose gross family income is at or less than 130% of the federal poverty line. The control group would be the group of survey respondents who are ineligible for SNAP benefits whose gross family income is greater than 130% of the federal poverty line. A bandwidth of 30 for example for this case where the cutoff point is the gross family income at 130% of the federal poverty line, means that the data from survey respondents whose gross family income as a percentage of the federal poverty line ranging from 100% to 160% would be used in calculating the treatment effect. The effect of the SNAP program eligibility can be estimated with the treatment effect. Further information about the functional form used and other relevant empirical mathematical information is shown in the appendix section.

The general hypothesis here is that those survey respondents in the treatment group who are eligible for SNAP benefits would be associated with improved health outcomes compared to those survey respondents in the control group who are ineligible for SNAP benefits. Specifically, for the health expenditures data being examined this would mean that eligibility for SNAP benefits would be associated with lower health expenditures which would mean a positive treatment effect for the health expenditures variables. If eligibility for SNAP benefits is associated with better mental health outcomes, then the treatment effect for the depression screen summary score would be positive since a higher number indicates the survey respondent's tendency towards depression is higher. If eligibility for the SNAP program is associated with generally improved health outcomes, then the variable relating to the score of how physical and/or emotional health interfered with social activities would be associated with a positive treatment effect since a higher number means that the survey respondent's physical and/or emotional health has a greater interference with their social activities. If eligibility for the SNAP program is associated with generally improved health outcomes, then the variable relating to the total annual number of visits to office-based medical providers would be associated with a positive treatment effect if less visits are associated with having better health

outcomes. If eligibility for the SNAP program is associated with generally improved health outcomes, then the health status score variable would be associated with a positive treatment effect since a higher number indicates worse health outcomes. Since it is hypothesized that the treatment effects for all of these variables of interest are positive, I would also hypothesize the treatment effects to be positive and greater, along with being more statistically significant for the younger subsamples compared to the older subsample groups since the younger demographic would be more likely to derive utility from the program as younger demographics tend to consume more calories.

**Results<sup>9</sup>:**

Table 3 refers to the treatment effect coefficients for the dependent variables for a bandwidth of 30. Data on the treatment effect coefficients in the other bandwidths are documented in the appendix section in tables 1A-1G. Figures 1A-1H, 2A-2H, 3A-3H, and 4A-4H in the appendix section are graphs of the coefficient values with 95% confidence interval error bars across the different bandwidths. In table 3, one set of notable results relates to the depression screen summary score variable. The treatment effect for the full age group of individuals for this variable is 0.078 which is statistically significant at the 1% level. A graph of the regression discontinuity at the bandwidth of 30 for the full age group of individuals for the depression screen summary score variable is shown in figure 1. The 0.078 treatment effect means that the control group is associated with having a depression screen summary score of 0.078 higher than the treatment group at the cutoff point. The treatment effect for the young subsample is 0.092 which is statistically significant at the 1% level of statistical significance. For the middle age subsample, the treatment effect is 0.076 which is not statistically significant at any reasonable level of significance. The treatment effect for the old subsample is 0.031 which is not statistically significant at any reasonable level of significance. These results match the hypothesis that the younger subsample would have the greatest magnitude and most statistically significant positive treatment effect compared to the older subsamples.

---

<sup>9</sup> The results discussed in this section pertain to the results for the bandwidth of 30. Further data on the results at other bandwidths are shown in the appendix section. The red shaded regions surrounding the regression lines on the graphs represent the 95% confidence intervals for the different predicted values on the regression lines.

**Table 3: Regression discontinuity results for a bandwidth of 30**

Variable	Results for full sample	Results for young subsample	Results for middle age subsample	Results for old subsample
Depression screen summary score	0.078*** (0.016)	0.092*** (0.017)	0.076 (0.054)	0.031 (0.026)
Score of how physical and/or emotional health interfered with social activities	0.054*** (0.009)	0.057*** (0.01)	0.067** (0.03)	-0.005 (0.046)
Health status score	0.023 (0.023)	0.013 (0.033)	0.038 (0.055)	-0.019 (0.057)
Total annual number of visits to office-based medical provider	0.239 (0.204)	-0.095 (0.107)	0.378 (0.531)	0.285 (0.9)
Total annual healthcare expenditures (\$)	418.843 (592.295)	230.608 (478.506)	756.469 (852.885)	-415.011 (934.718)
Total annual prescribed medications expenditures (\$)	-155.47 (189.398)	-193.344 (284.778)	84.321 (337.267)	-671.717** (279.663)
Total annual hospital related expenditures (\$)	265.244 (239.843)	330.185 (216.575)	588.357 (482.696)	-595.091** (292.426)
Binary variable of whether unemployment compensation is received or not	0.008 (0.006)	0.019** (0.009)	0.002 (0.014)	-0.002 (0.003)
Number of observations	46963	19871	16890	10202

**\*p<0.10, \*p<0.05, \*p<0.01, standard errors shown in parentheses below coefficient values.**

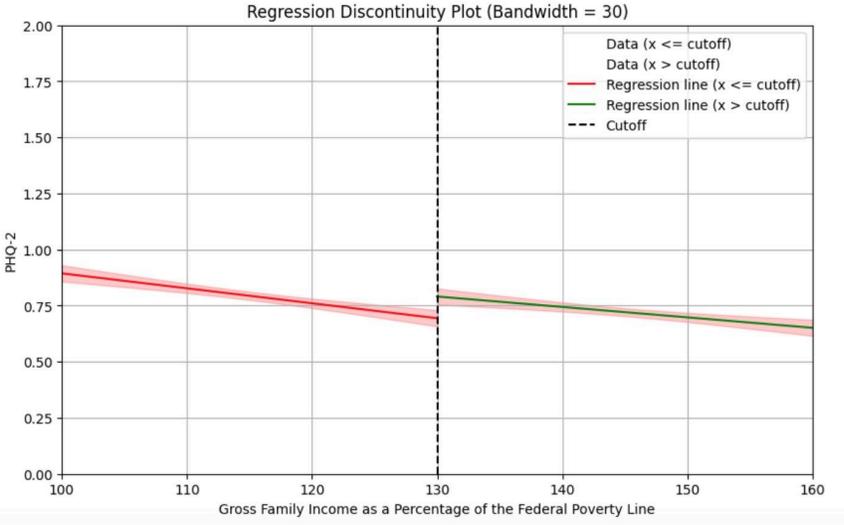
A larger, more significant positive treatment effect for the young subsample means that when compared to the older subsamples, the treatment group in the young subsample is associated with having a more significantly lower depression screen summary score compared to the control group which is indicative of better health outcomes for the treatment group eligible to receive SNAP benefits.

A second set of significant notable results relates to the variable of the score of how the survey respondent's physical and/or emotional health interfered with social activities within the past 4 weeks of the survey being taken. The results for this variable are 0.054, 0.057, 0.067, and -0.005 for the full age group sample, young subsample, middle-age subsample, and old subsample respectively. A graph of the regression discontinuity at the bandwidth of 30 for the full age group of individuals for this variable is shown in figure 2. The results for the full age group sample in addition to the young subsample are significant at the 1% level of significance with the results for the middle age group subsample significant at the 5% level of significance

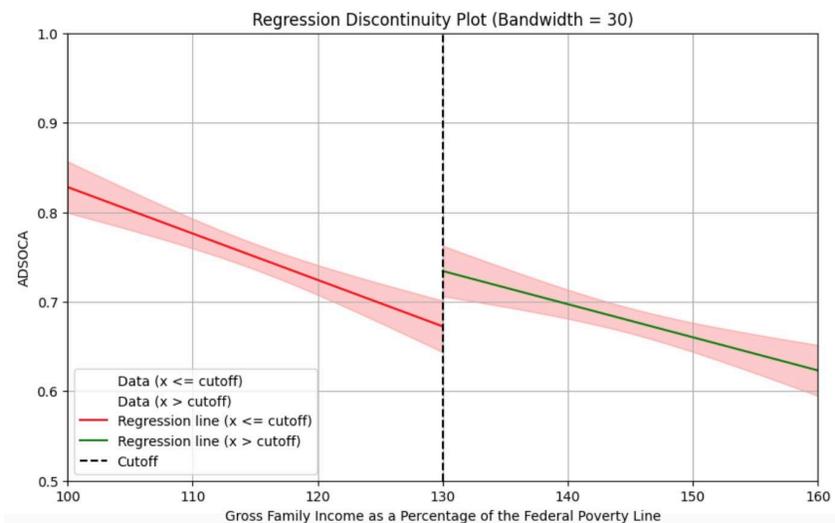
and the old subsample not being statistically significant at any reasonable level of significance. These second set of results goes against the hypothesis that the coefficient for the young subsample would be the greatest since the middle age subsample had the greatest coefficient value. However, the treatment effect for the young subsample is still more statistically significant than the middle age subsample and the old subsample.

A third set of results to take note of is in regards to one of the mechanism variables of the total annual prescribed medications expenditures where the treatment effect results are -155.47, -193.344, 84.321, and -671.717 for the full age group sample, young subsample, middle age subsample, and the old subsample respectively. The treatment effects for this variable are mainly negative with the exception of the treatment effect for the middle age group. The treatment group being associated with spending overall more on prescribed medications with the predominantly negative treatment effects could somewhat explain why the treatment groups were associated with healthier depression screen summary scores and a healthier score of the degree to which their physical and/or emotional health interfered with social activities since the increased spending on prescribed medications can help improve health outcomes. The treatment group being eligible for SNAP benefits can help them to save money that would normally be used on food that can be used instead to help pay more for prescribed medications compared to those in the control group who are barely ineligible for SNAP benefits. It is important to also take note that the mechanism variable of the total annual prescribed medications expenditures did not have statistically significant treatment effects except for the old subsample which was statistically significant at the 5% level, so this is a mechanism that overall can only weakly explain the other health related variables of interest.

**Figure 1:** Graph of the regression discontinuity plot for the full sample at the bandwidth of 30 for the depression screen summary score variable:



**Figure 2:** Graph of the regression discontinuity plot for the full sample at the bandwidth of 30 for the variable of the score of how physical and/or emotional health interfered with social activities:



**Implications:** Survey respondents in the treatment group who are eligible for the SNAP program benefits seem to be strongly associated with improved mental health outcomes in addition to improved physical and/or emotional health outcomes compared to those in the control group ineligible for receiving benefits from the SNAP program. The mechanism variables can weakly explain and point towards possible reasons to help explain the differences in health outcomes between the treatment and control groups with these mechanism variables usually not being very statistically significant. If SNAP benefits were expanded so that the eligibility point of an individual’s gross family income as a percentage of the federal poverty line of 130% increases to 140%, there are percent decreases in the full age group of 4.579% and 0.231% in the mean depression screen summary score and the mean score of how physical and/or emotional health interfered with social activities respectively for the additional 10% compared to the original treatment group for the bandwidth of 30. On the other hand if SNAP benefits were reduced so that the eligibility point of an individual’s gross family income as a percentage of the federal poverty line of 130% decreases to 120%, the percent decreases in the full age group are 9.182% and 2.039% for the mean depression screen summary score and the mean score of how physical and/or emotional health interfered with social activities respectively for the decreased 10% compared to the treatment group for a bandwidth of 30. Since a lower value for both of these scores equate to better health outcomes, both expanding or reducing SNAP benefits would mean including a group that has better mean health outcome values compared to the original treatment group within the bandwidth of 30. The control group would be more socio-economically diverse if SNAP benefits were reduced so that people who were formerly eligible for SNAP benefits become ineligible for SNAP benefits thus joining the control group. Conversely if SNAP benefits were expanded, the treatment group would be more

socio-economically diverse. If there is a change in the future that would prevent SNAP benefits being used to purchase certain unhealthy junk foods, then it would not be surprising to see even more significant treatment effects between the treatment and control groups with the treatment group having even better overall health outcomes.

**Appendix:**

The basic equation for the regression discontinuity is given by:

$Y = \beta_0 + \beta_1(D) + \beta_2(X - c) + \varepsilon$ , where Y is the outcome variable,  $\beta_0$  is the intercept, D being the dummy variable, which is equal to one for the treatment group and zero for the control group, X being the “running variable” which for this project is the gross family income as a percentage of the federal poverty line, c being the cutoff point, and  $\varepsilon$  being the error term.

A fixed effects regression model was used for this repeated cross-sectional survey data accounting for yearly and regional fixed effects with cluster-robust standard errors. There is a bias-variance tradeoff between a larger bandwidth and a smaller bandwidth. Specifically, a larger bandwidth introduces more bias from data points further away from the cutoff point which means a less precise, more diluted treatment effect but with less variance while a smaller bandwidth has more variance but with a more precise estimate around the cutoff and reduced bias. As a test of robustness, the results across different bandwidths can be examined to see how the treatment effect coefficient, standard errors of the treatment effect coefficients, and the statistical significance of the treatment effect changes across different bandwidths. In this project the bandwidths of 1, 15, 20, 25, 30, 35, 40, and 45 are used for analysis. The number of observations vary for each of the different regression discontinuity bandwidths.

In the tables below of data for the bandwidths of 1, 15, 20, 25, 35, 40, and 45, the coefficient of the treatment effect for each variable is shown in the third row with the standard error of the treatment effect coefficient shown in parentheses underneath.

**Table 1A: Results for a bandwidth of 1**

Variable	Results for full sample	Results for young subsample	Results for middle age subsample	Results for old subsample
Depression screen summary score	-0.183 (0.129)	0.028 (0.118)	-0.308 (0.193)	-0.593 (0.534)
Score of how physical and/or emotional health interfered with social activities	-0.129 (0.162)	-0.239** (0.121)	-0.129 (0.255)	-0.022 (0.412)
Health status score	0.12 (0.078)	0.132 (0.128)	0.073 (0.155)	-0.029 (0.244)
Total annual number of visits to office-based medical provider	0.457 (1.776)	-0.156 (1.922)	0.98 (1.604)	0.037 (3.976)
Total annual healthcare expenditures (\$)	-267.621 (1939.823)	-1200.348* (663.081)	8.656 (2652.336)	-1195.103 (4681.791)
Total annual prescribed medications expenditures (\$)	-236.843 (706.69)	-67.699 (280.768)	-748.851 (1575.319)	2.418 (1408.148)
Total annual hospital related expenditures (\$)	340.293 (465.674)	-528.982** (215.8)	842.207 (576.443)	387.008 (2414.399)
Binary variable of whether unemployment compensation is received or not	0.041* (0.022)	0.049* (0.029)	0.042 (0.051)	0 (0.003)
Number of observations	1521	611	562	348

**Table 1B:** Results for a bandwidth of 15

Variable	Results for full sample	Results for young subsample	Results for middle age subsample	Results for old subsample
Depression screen summary score	0.053* (0.03)	0.08** (0.036)	0.046 (0.065)	-0.023 (0.054)
Score of how physical and/or emotional health interfered with social activities	0.044*** (0.017)	0.064*** (0.031)	0.037 (0.029)	-0.033 (0.066)
Health status score	0.007 (0.033)	-0.007 (0.044)	0.019 (0.079)	-0.047 (0.089)
Total annual number of visits to office-based medical provider	0.002 (0.342)	-0.456* (0.276)	-0.006 (0.777)	0.306 (1.445)
Total annual healthcare expenditures (\$)	380.367 (685.746)	-85.109 (464.258)	659.007 (1054.071)	-340.967 (1710.617)
Total annual prescribed medications expenditures (\$)	68.125 (133.85)	45.993 (159.708)	199.351 (417.143)	-433.951 (357.488)
Total annual hospital related expenditures (\$)	-39.451 (341.393)	11.609 (351.149)	432.766 (681.952)	-1324.8* (736.548)
Binary variable of whether unemployment compensation is received or not	0.009 (0.006)	0.026** (0.012)	-0.003 (0.017)	0 (0.003)
Number of observations	23633	10003	8423	5207

**Table 1C: Results for a bandwidth of 20**

Variable	Results for full sample	Results for young subsample	Results for middle age subsample	Results for old subsample
Depression screen summary score	0.054** (0.021)	0.069*** (0.022)	0.049 (0.054)	0.008 (0.048)
Score of how physical and/or emotional health interfered with social activities	0.042*** (0.012)	0.051** (0.02)	0.042 (0.028)	-0.012 (0.059)
Health status score	0.009 (0.03)	-0.005 (0.045)	0.017 (0.069)	-0.023 (0.08)
Total annual number of visits to office-based medical provider	0.122 (0.263)	-0.292 (0.185)	0.112 (0.728)	0.439 (1.109)
Total annual healthcare expenditures (\$)	394.491 (676.969)	44.612 (530.154)	573.554 (1085.933)	-186.731 (1375.274)
Total annual prescribed medications expenditures (\$)	-44.063 (156.28)	-119.475 (126.362)	148.756 (432.702)	-481.969* (281.119)
Total annual hospital related expenditures (\$)	100.182 (312.146)	209.142 (293.041)	370.762 (633.351)	-890.085 (602.209)
Binary variable of whether unemployment compensation is received or not	0.008 (0.006)	0.024** (0.011)	-0.002 (0.016)	-0.001 (0.003)
Number of observations	31251	13280	11121	6850

**Table 1D:** Results for a bandwidth of 25

Variable	Results for full sample	Results for young subsample	Results for middle age subsample	Results for old subsample
Depression screen summary score	0.064*** (0.016)	0.083*** (0.017)	0.056 (0.053)	0.018 (0.036)
Score of how physical and/or emotional health interfered with social activities	0.048*** (0.01)	0.053*** (0.013)	0.055* (0.029)	-0.009 (0.051)
Health status score	0.022 (0.026)	0.015 (0.04)	0.03 (0.061)	-0.018 (0.067)
Total annual number of visits to office-based medical provider	0.174 (0.215)	-0.165 (0.126)	0.188 (0.592)	0.377 (0.94)
Total annual healthcare expenditures (\$)	381.76 (630.497)	166.593 (498.201)	605.048 (917.204)	-348.315 (1131.471)
Total annual prescribed medications expenditures (\$)	-119.602 (179.5)	-178.328 (226.69)	115.041 (383.696)	-616.08** (252.808)
Total annual hospital related expenditures (\$)	201.939 (275.797)	300.029 (249.456)	490.796 (543.031)	-723.841* (430.061)
Binary variable of whether unemployment compensation is received or not	0.009 (0.006)	0.021** (0.01)	0.002 (0.015)	-0.002 (0.003)
Number of observations	39352	16623	14128	8601

**Table 1E:** Results for a bandwidth of 35

Variable	Results for full sample	Results for young subsample	Results for middle age subsample	Results for old subsample
Depression screen summary score	0.085*** (0.018)	0.094*** (0.017)	0.093 (0.06)	0.029 (0.019)
Score of how physical and/or emotional health interfered with social activities	0.058*** (0.01)	0.059*** (0.009)	0.077** (0.033)	-0.007 (0.041)
Health status score	0.025 (0.022)	0.011 (0.029)	0.042 (0.053)	-0.013 (0.051)
Total annual number of visits to office-based medical provider	0.253 (0.203)	-0.099 (0.096)	0.512 (0.575)	0.183 (0.869)
Total annual healthcare expenditures (\$)	383.531 (555.673)	195.63 (458.56)	832.853 (817.093)	-515.246 (813.401)
Total annual prescribed medications expenditures (\$)	-193.842 (200.452)	-231.733 (304.924)	62.245 (305.387)	-710.259** (296.003)
Total annual hospital related expenditures (\$)	286.386 (194.047)	324.6* (188.993)	666.196 (411.337)	-572.183** (229.342)
Binary variable of whether unemployment compensation is received or not	0.007 (0.005)	0.015** (0.008)	0.002 (0.013)	-0.002 (0.002)
Number of observations	54904	23260	19850	11794

**Table 1F:** Results for a bandwidth of 40

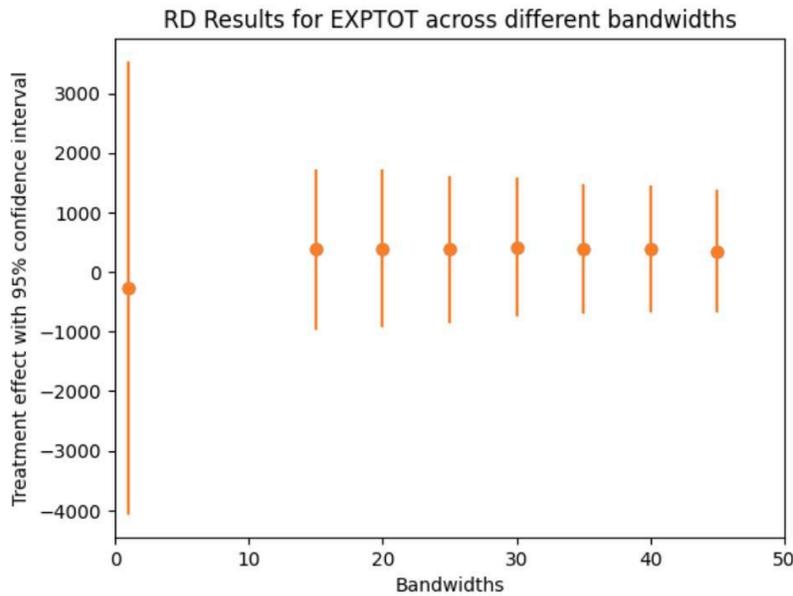
Variable	Results for full sample	Results for young subsample	Results for middle age subsample	Results for old subsample
Depression screen summary score	0.086*** (0.019)	0.09*** (0.016)	0.098 (0.063)	0.026 (0.019)
Score of how physical and/or emotional health interfered with social activities	0.057*** (0.011)	0.056*** (0.008)	0.078** (0.033)	-0.007 (0.038)
Health status score	0.026 (0.023)	0.011 (0.026)	0.041 (0.053)	-0.008 (0.046)
Total annual number of visits to office-based medical provider	0.268 (0.199)	-0.085 (0.107)	0.585 (0.599)	0.123 (0.814)
Total annual healthcare expenditures (\$)	395.279 (541.616)	293.682 (452.823)	879.033 (804.353)	-681.419 (730.587)
Total annual prescribed medications expenditures (\$)	-187.141 (200.775)	-151.813 (338.88)	12.899 (282.502)	-750.666*** (279.973)
Total annual hospital related expenditures (\$)	291.919 (177.984)	315.401* (174.406)	743.986* (380.855)	-635.06** (184.94)
Binary variable of whether unemployment compensation is received or not	0.006 (0.005)	0.013* (0.007)	0.001 (0.011)	-0.001 (0.002)
Number of observations	62596	26486	22666	13444

**Table 1G: Results for a bandwidth of 45**

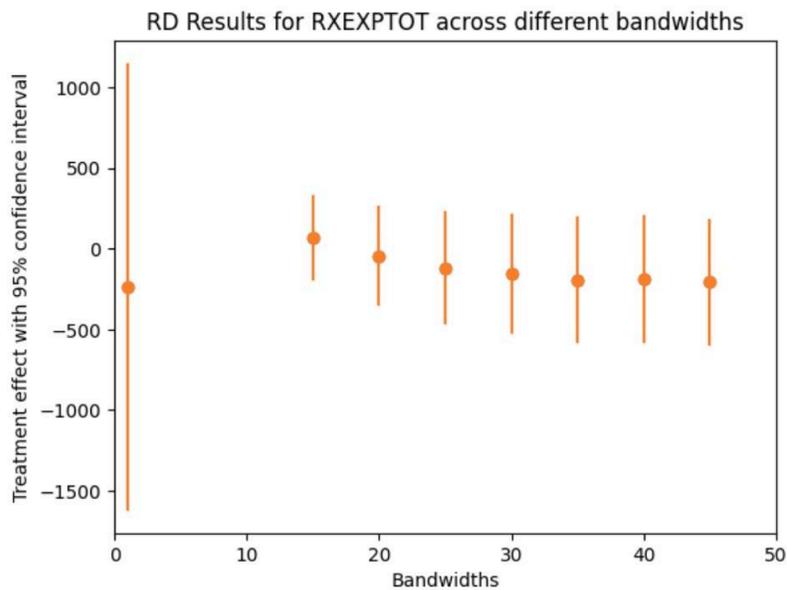
Variable	Results for full sample	Results for young subsample	Results for middle age subsample	Results for old subsample
Depression screen summary score	0.081*** (0.022)	0.084*** (0.017)	0.093 (0.067)	0.026 (0.022)
Score of how physical and/or emotional health interfered with social activities	0.053*** (0.015)	0.05*** (0.009)	0.074** (0.034)	-0.008 (0.036)
Health status score	0.024 (0.025)	0.012 (0.024)	0.035 (0.054)	-0.008 (0.044)
Total annual number of visits to office-based medical provider	0.274 (0.195)	-0.057 (0.129)	0.628 (0.619)	0.085 (0.787)
Total annual healthcare expenditures (\$)	351.088 (527.889)	350.189 (443.652)	857.87 (828.79)	-843.145 (664.485)
Total annual prescribed medications expenditures (\$)	-208.391 (198.925)	-110.686 (351.786)	-43.442 (275.991)	-807.967*** (271.403)
Total annual hospital related expenditures (\$)	301.955* (174.78)	316.97* (168.658)	779.545* (374.577)	-613.878*** (134.4)
Binary variable of whether unemployment compensation is received or not	0.004 (0.004)	0.011 (0.007)	-0.001 (0.01)	0 (0.002)
Number of observations	69952	29704	25260	14988

**Pictures of coefficients for full age group sample with 95% confidence interval error bars across different bandwidths**

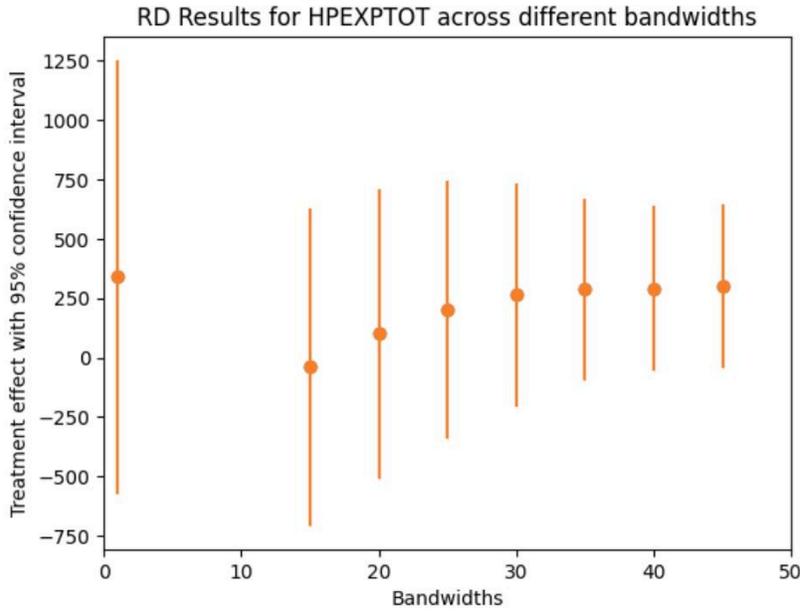
**Figure 1A:** Regression discontinuity results of the total annual healthcare expenditures variable across different bandwidths for the full age group sample.



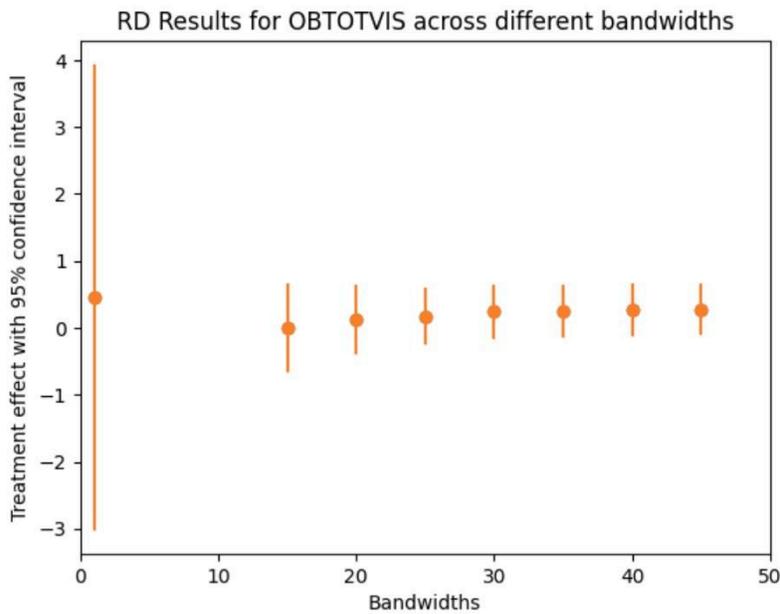
**Figure 1B:** Regression discontinuity results of the total annual prescribed medications expenditures variable across different bandwidths for the full age group sample.



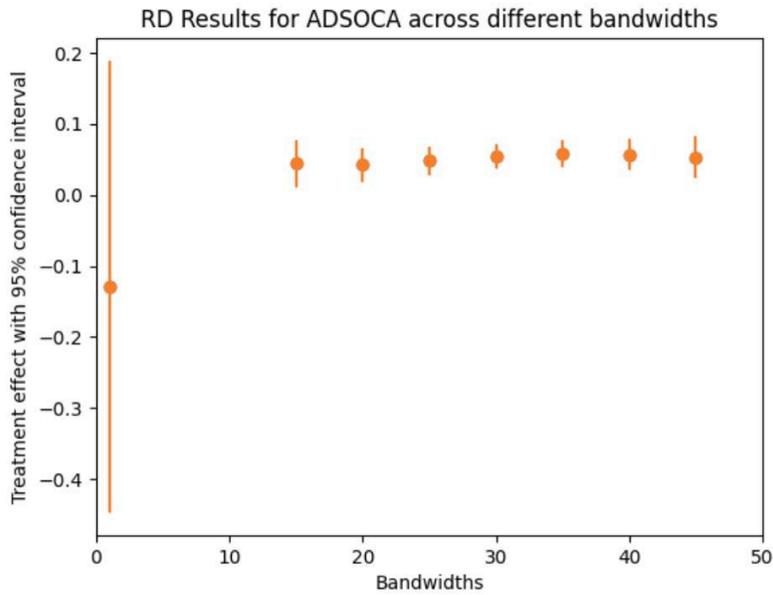
**Figure 1C:** Regression discontinuity results of the total annual hospital related expenditures variable across different bandwidths for the full age group sample.



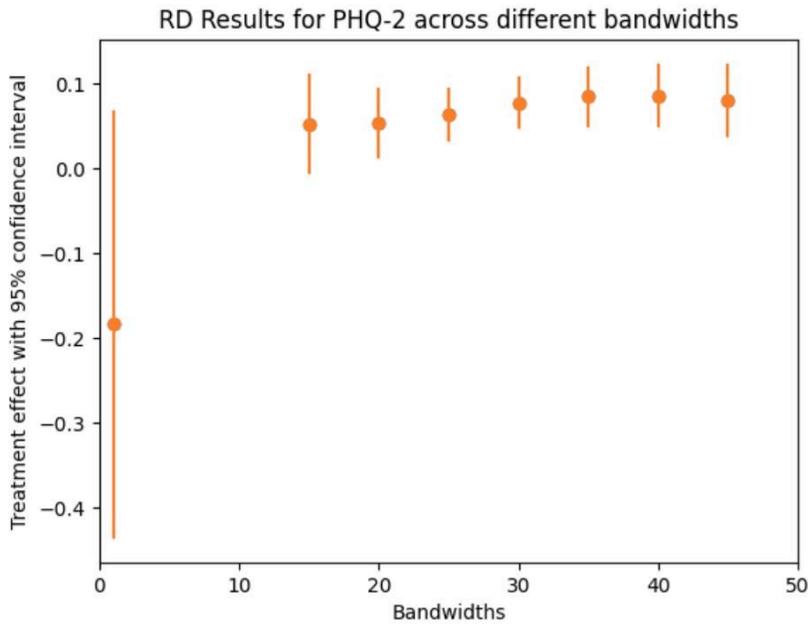
**Figure 1D:** Regression discontinuity results of the total annual number of visits to office-based medical provider variable across different bandwidths for the full age group sample.



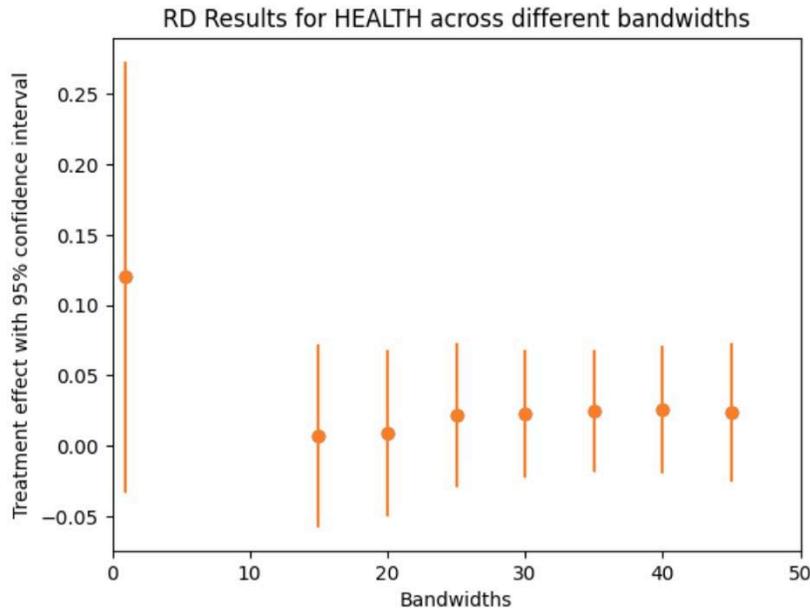
**Figure 1E:** Regression discontinuity results of the score of how physical and/or emotional health interfered with social activities variable across different bandwidths for the full age group sample



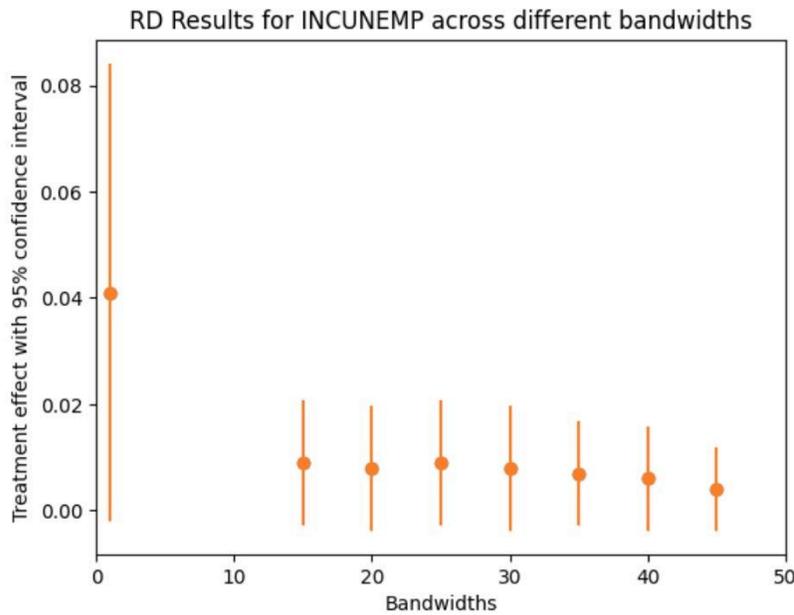
**Figure 1F:** Regression discontinuity results of the depression screen summary score across different bandwidths for the full age group sample.



**Figure 1G:** Regression discontinuity results of the health status score across different bandwidths for the full age group sample.

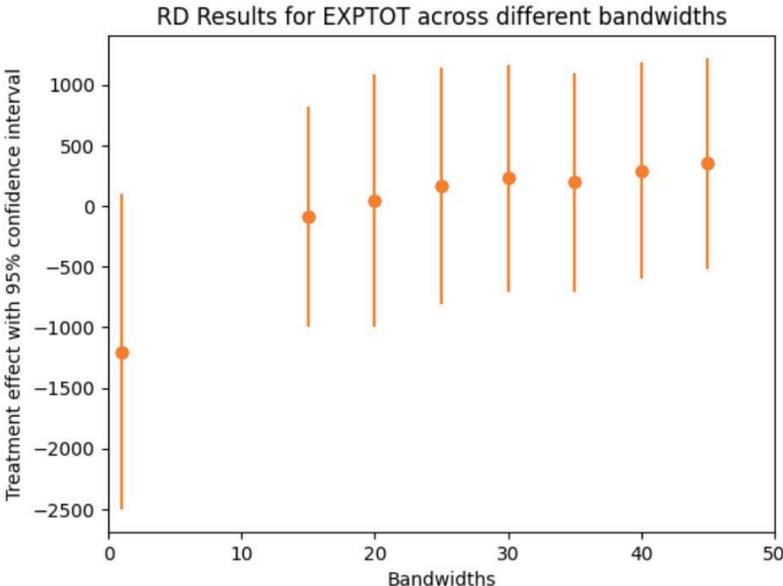


**Figure 1H:** Regression discontinuity results of the binary variable of whether unemployment compensation is received or not across different bandwidths for the full age group sample.

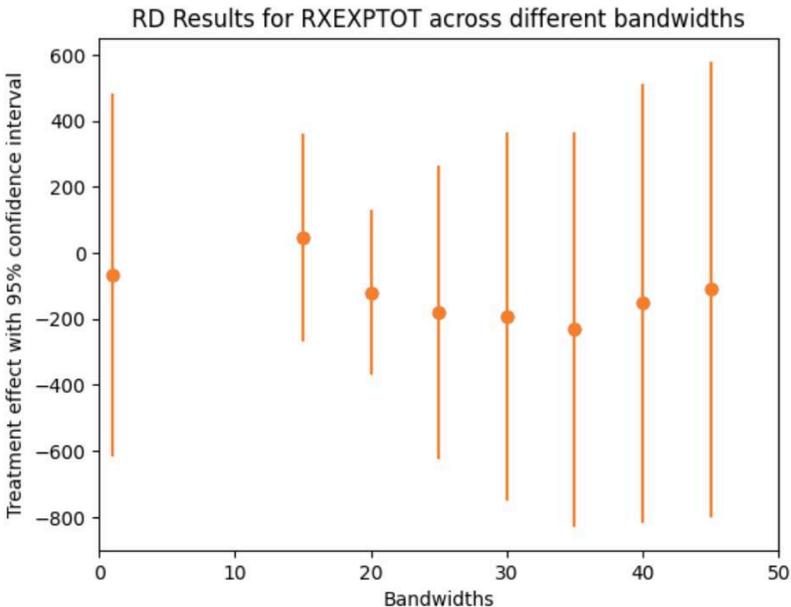


**Pictures of coefficients for young age subsample (18-39 years old) with 95% confidence interval error bars across different bandwidths**

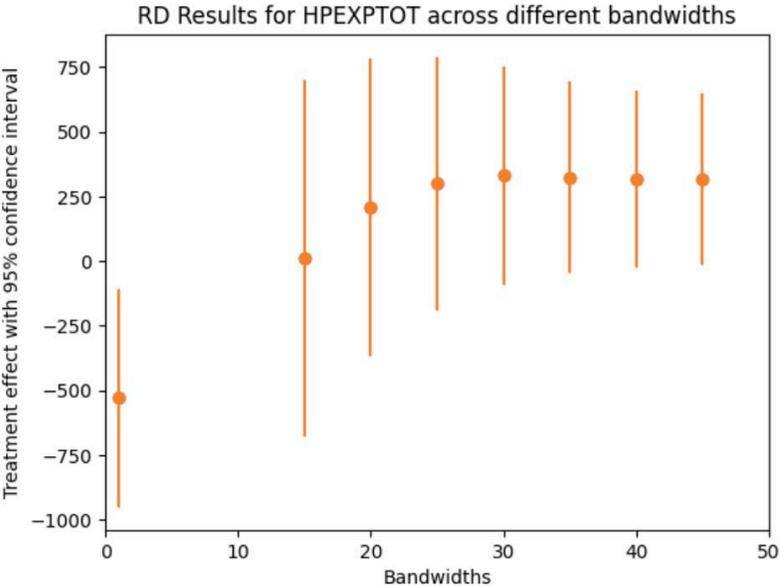
**Figure 2A:** Regression discontinuity results of the total annual healthcare expenditures variable across different bandwidths for the young age group sample.



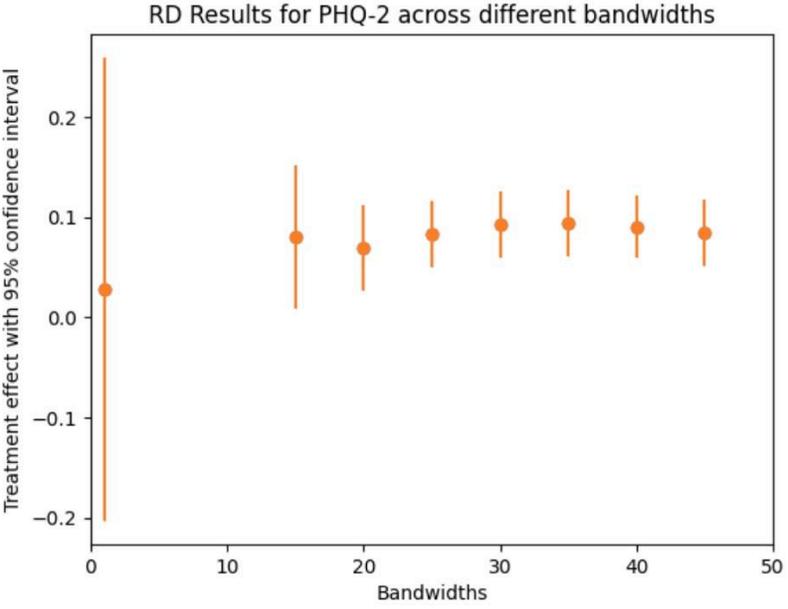
**Figure 2B:** Regression discontinuity results of the total annual prescribed medications expenditures variable across different bandwidths for the young age group sample.



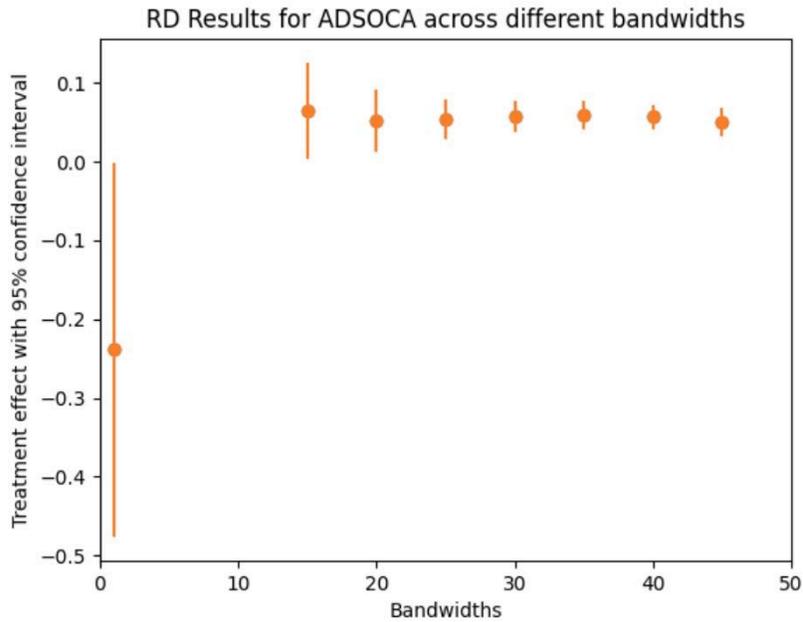
**Figure 2C:** Regression discontinuity results of the total annual hospital related expenditures variable across different bandwidths for the young age group sample.



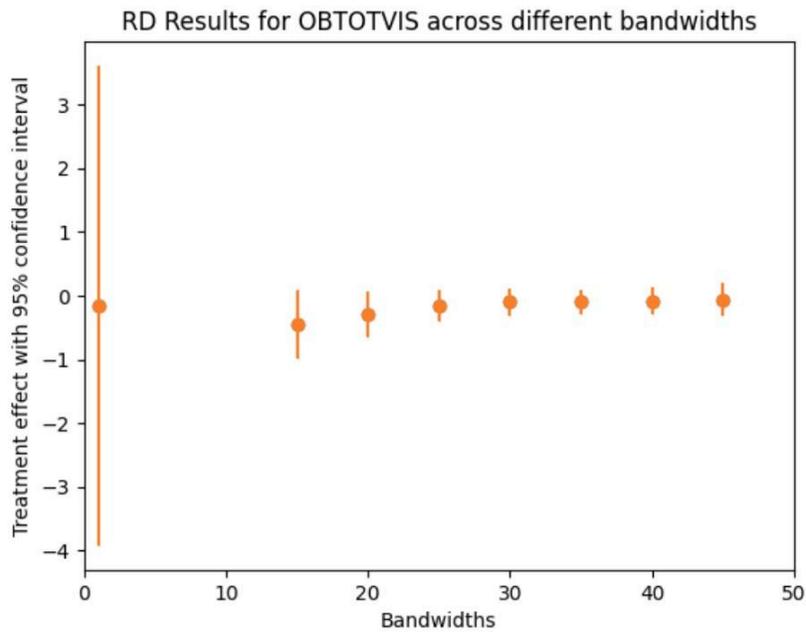
**Figure 2D:** Regression discontinuity results of the depression screen summary score across different bandwidths for the young age group sample.



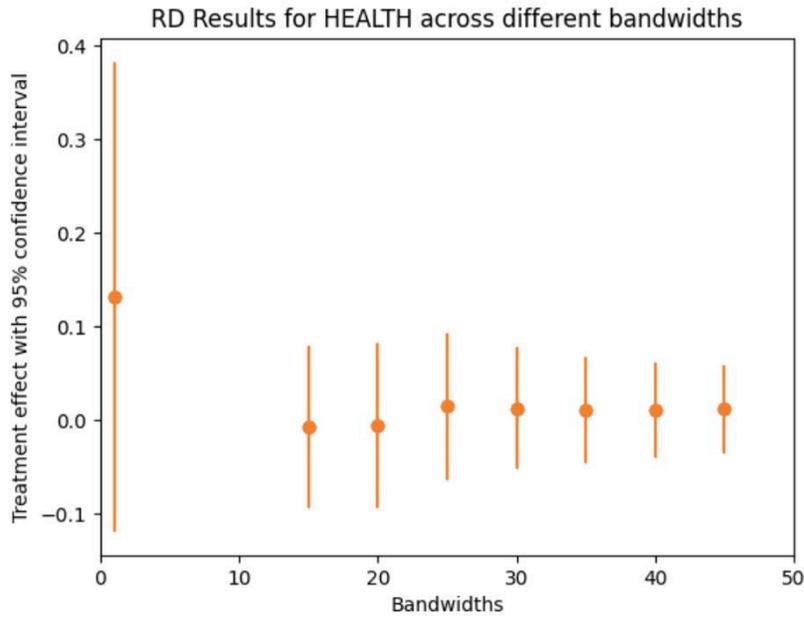
**Figure 2E:** Regression discontinuity results of the score of how physical and/or emotional health interfered with social activities variable across different bandwidths for the young age group sample



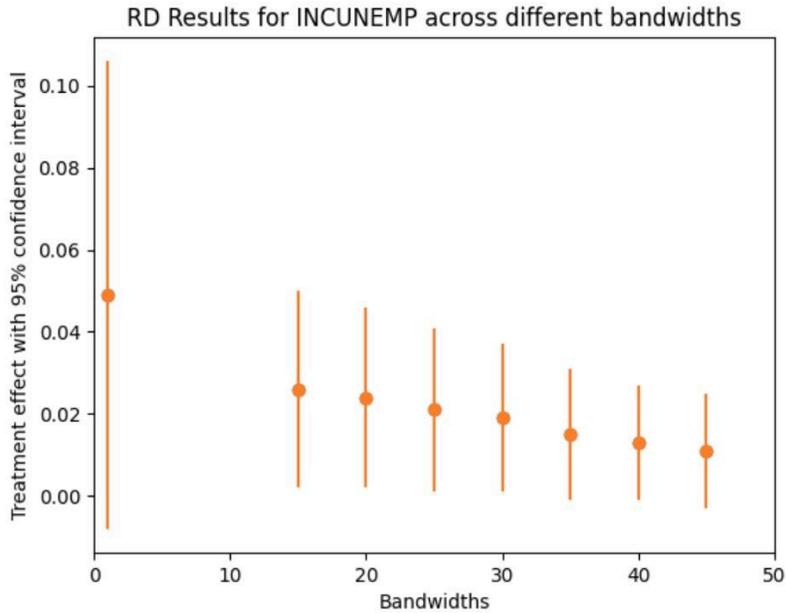
**Figure 2F:** Regression discontinuity results of the total annual number of visits to office-based medical providers variable across different bandwidths for the young age group sample.



**Figure 2G:** Regression discontinuity results of the health status score across different bandwidths for the young age group sample.

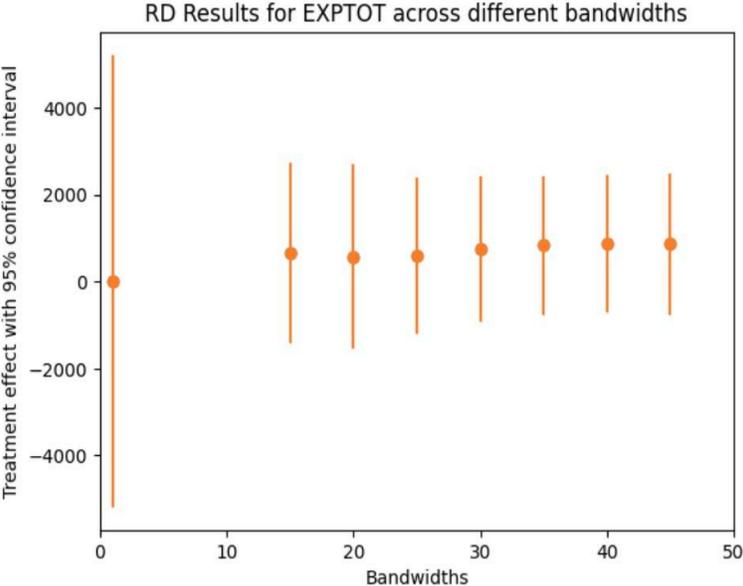


**Figure 2H:** Regression discontinuity results of the binary variable of whether unemployment compensation is received or not across different bandwidths for the young age group sample.

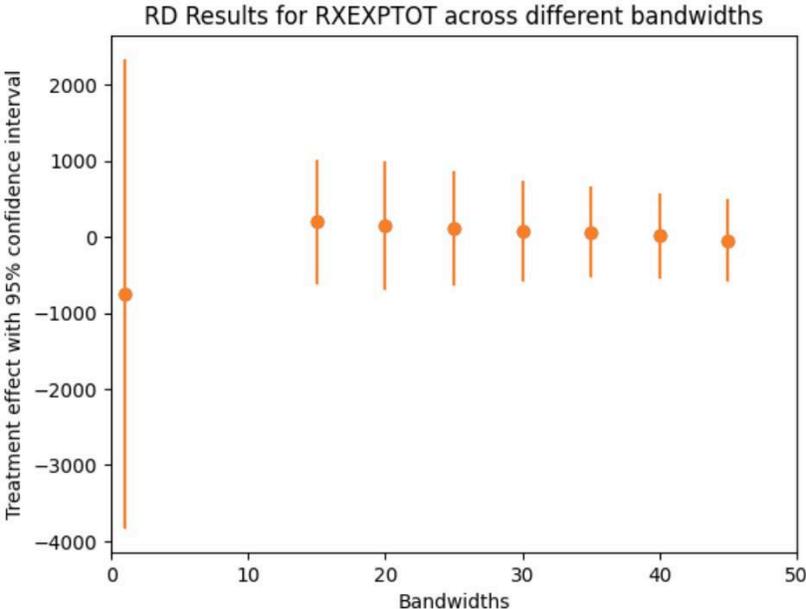


**Pictures of coefficients for middle age subsample (40-64 years old) with 95% confidence interval error bars across different bandwidths.**

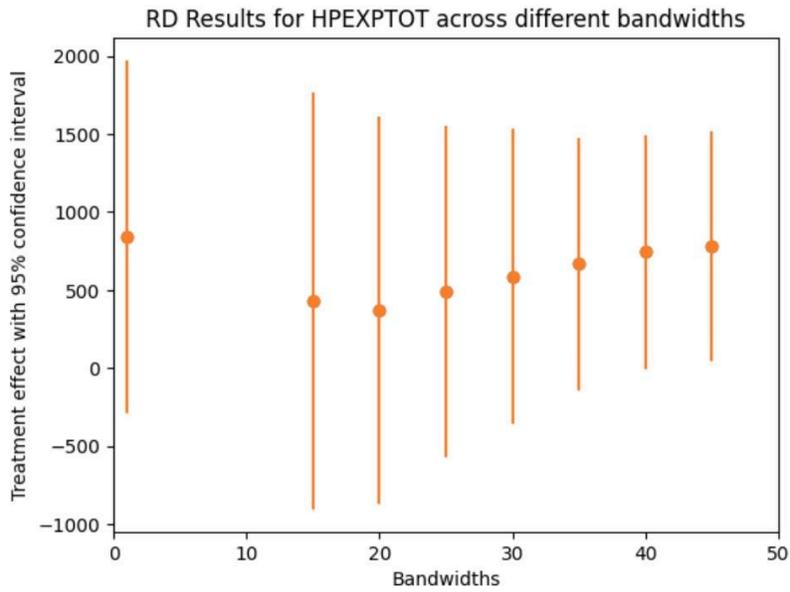
**Figure 3A:** Regression discontinuity results of the total annual healthcare expenditures variable across different bandwidths for the middle age group sample.



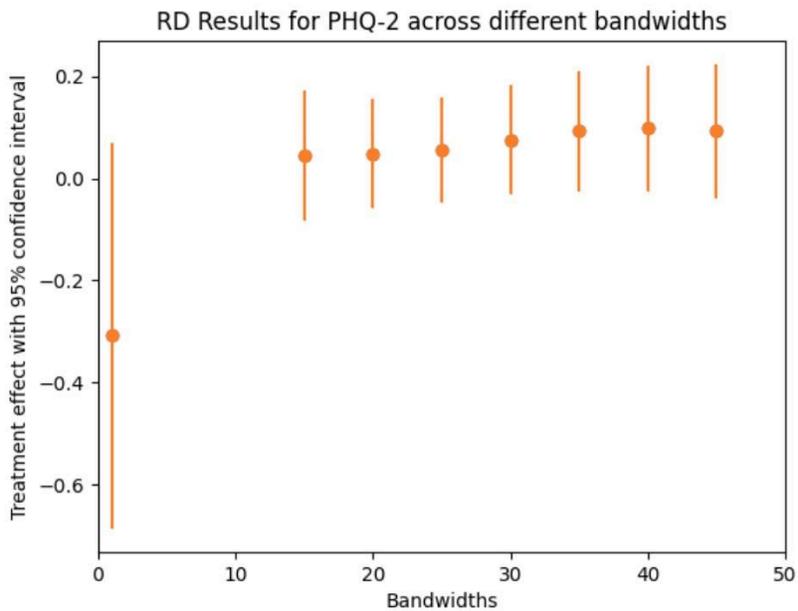
**Figure 3B:** Regression discontinuity results of the total annual prescribed medications expenditures variable across different bandwidths for the middle age group sample.



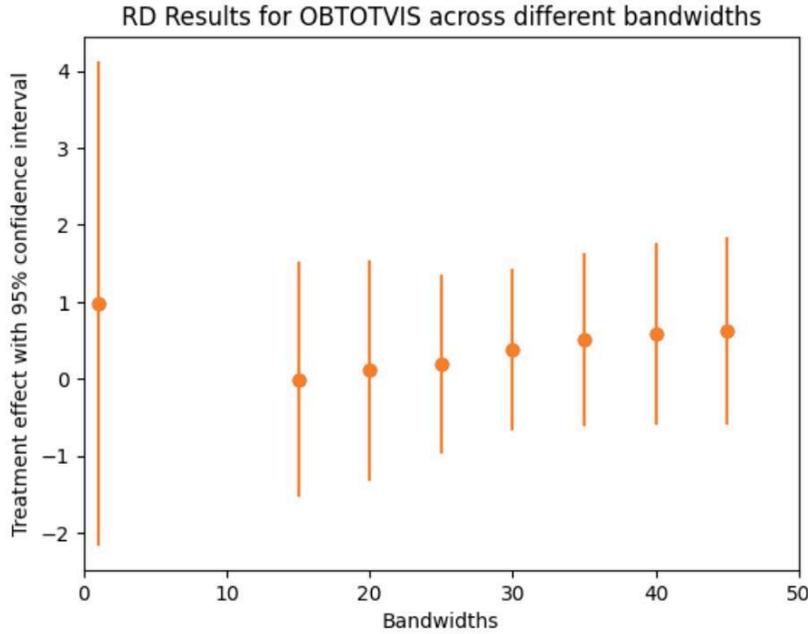
**Figure 3C:** Regression discontinuity results of the total annual hospital related expenditures variable across different bandwidths for the middle age group sample.



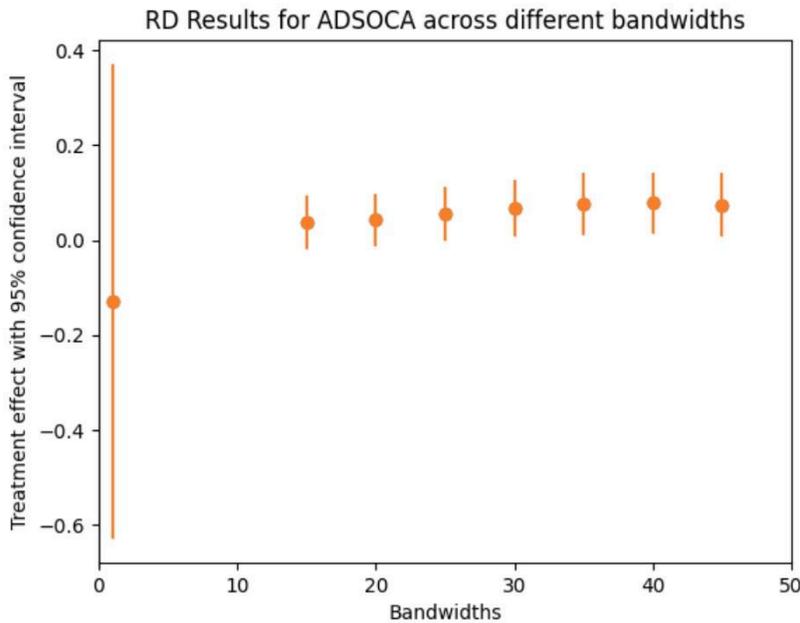
**Figure 3D:** Regression discontinuity results of the depression screen summary score across different bandwidths for the middle age group sample.



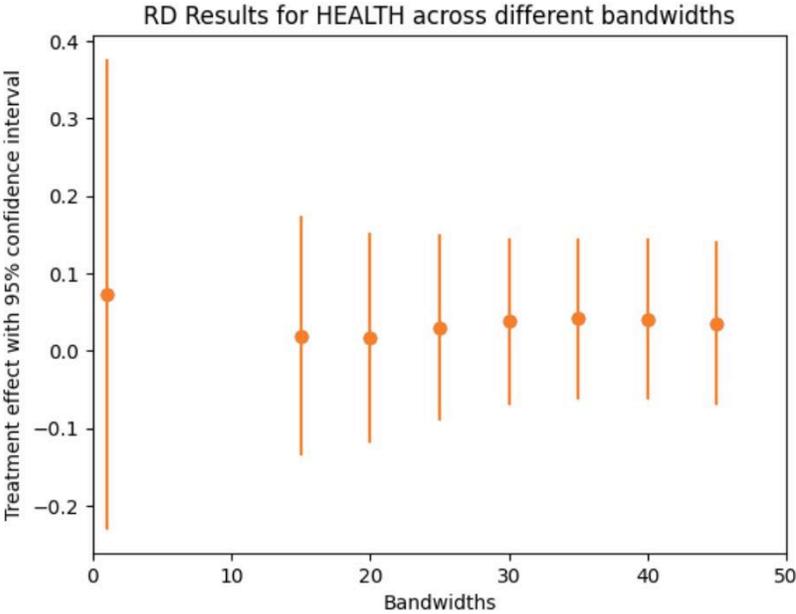
**Figure 3E:** Regression discontinuity results of the total annual number of visits to office-based medical providers variable across different bandwidths for the middle age group sample.



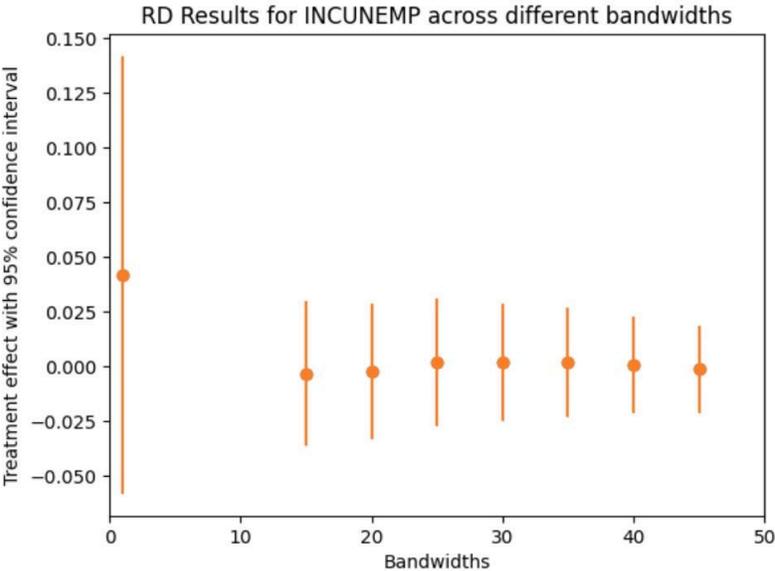
**Figure 3F:** Regression discontinuity results of the score of how physical and/or emotional health interfered with social activities variable across different bandwidths for the middle age group sample.



**Figure 3G:** Regression discontinuity results of the health status score across different bandwidths for the middle age group sample.

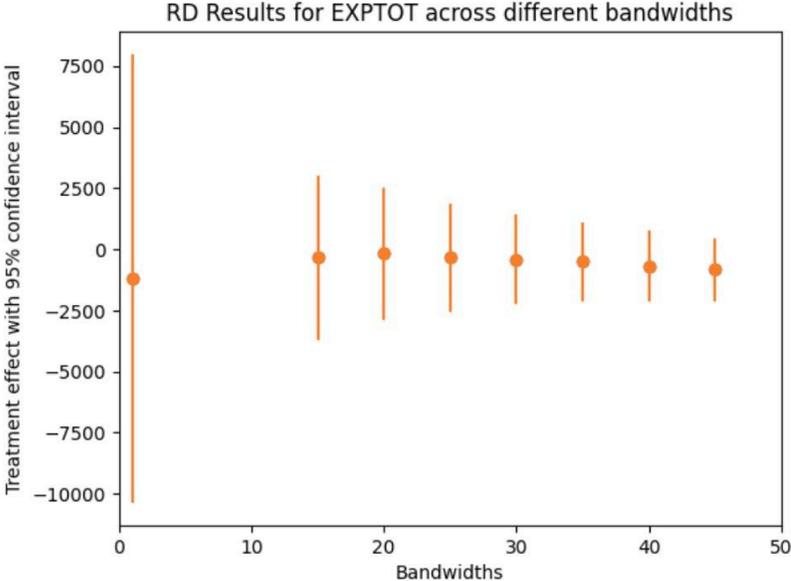


**Figure 3H:** Regression discontinuity results of the binary variable of whether unemployment compensation is received or not across different bandwidths for the middle age group sample.

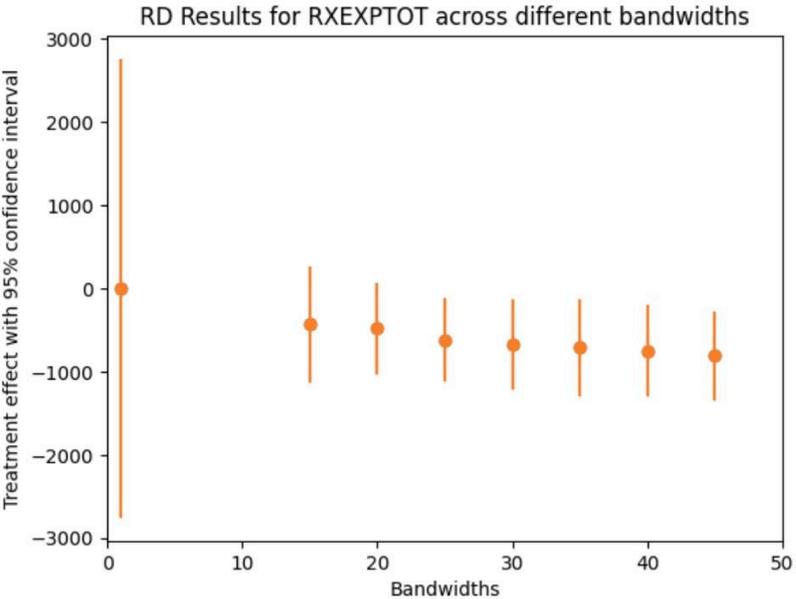


**Pictures of coefficients for old age subsample (65+ years old) with 95% confidence interval error bars across different bandwidths**

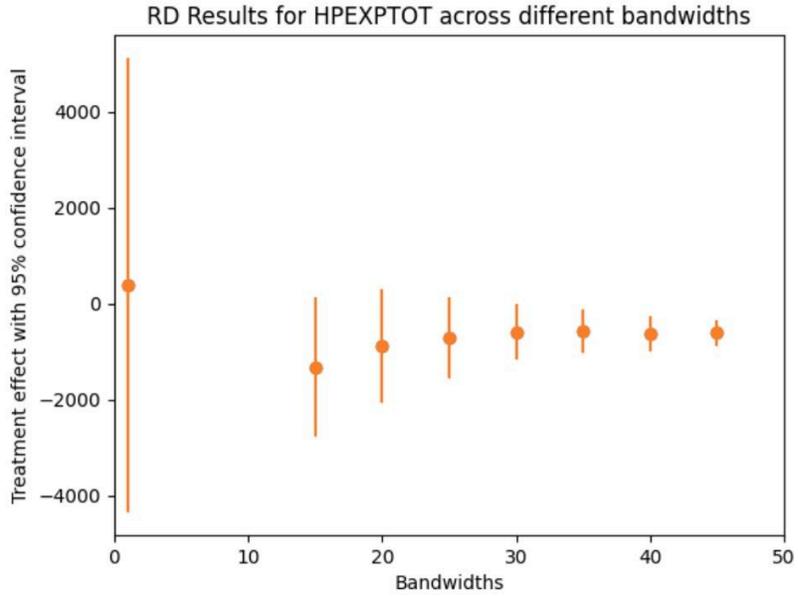
**Figure 4A:** Regression discontinuity results of the total annual healthcare expenditures variable across different bandwidths for the old age group sample.



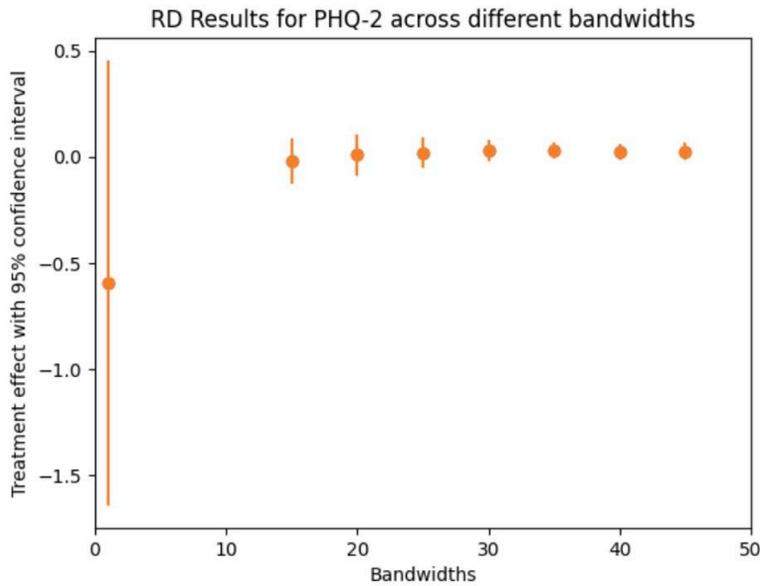
**Figure 4B:** Regression discontinuity results of the total annual prescribed medications expenditures variable across different bandwidths for the old age group sample.



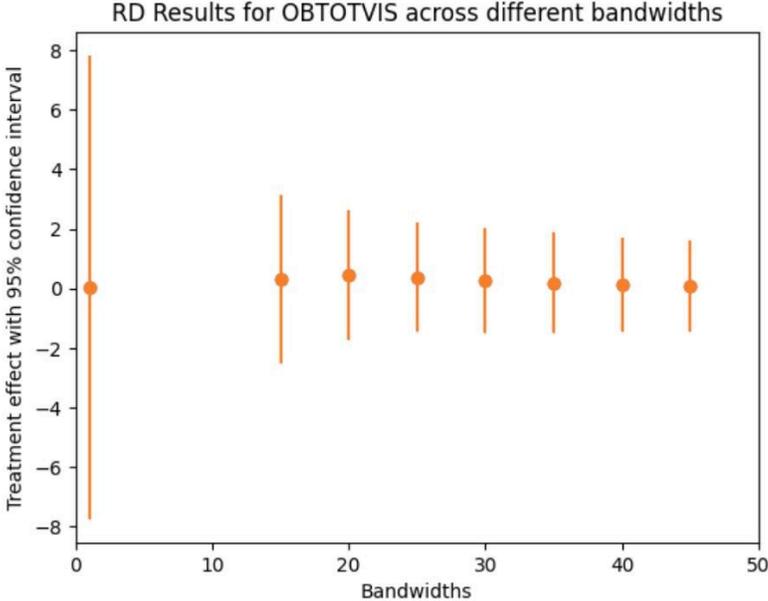
**Figure 4C:** Regression discontinuity results of the total annual hospital related expenditures variable across different bandwidths for the old age group sample.



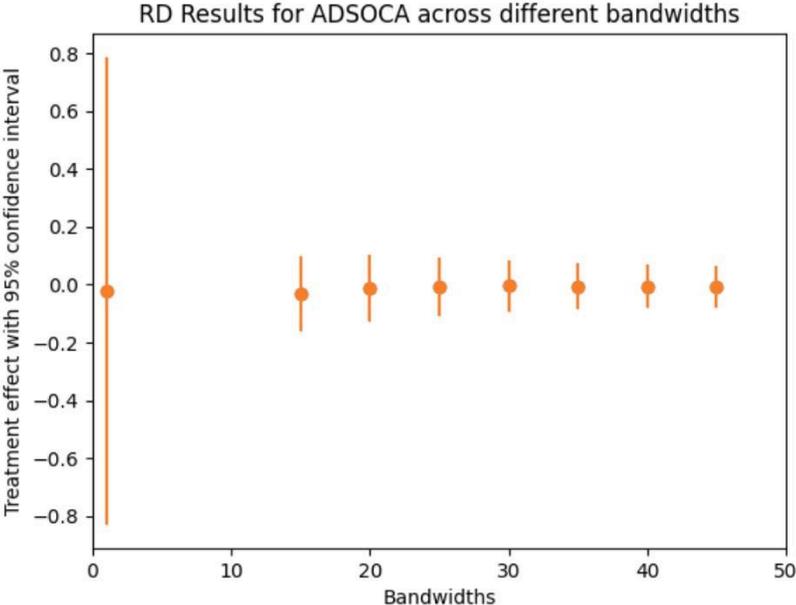
**Figure 4D:** Regression discontinuity results of the depression screen summary score across different bandwidths for the old age group sample.



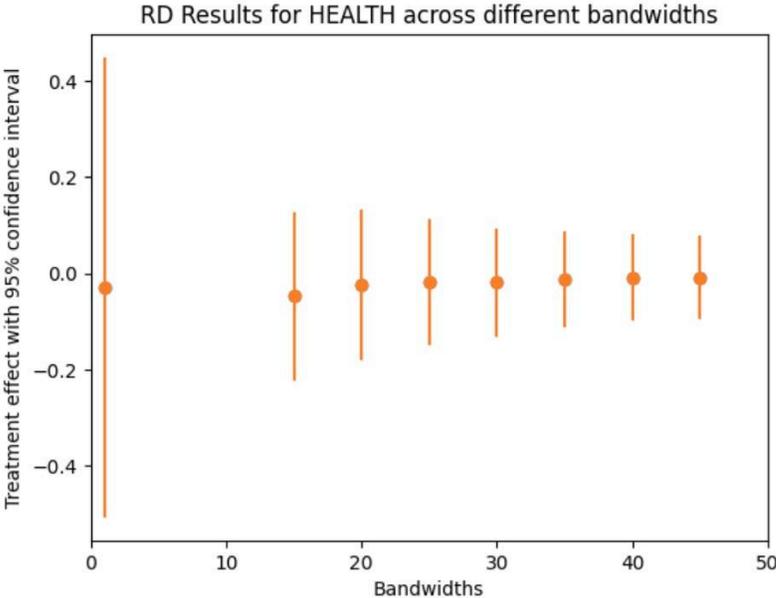
**Figure 4E:** Regression discontinuity results of the total annual number of visits to office-based medical providers variable across different bandwidths for the old age group sample.



**Figure 4F:** Regression discontinuity results of the score of how physical and/or emotional health interfered with social activities variable across different bandwidths for the old age group Sample.



**Figure 4G:** Regression discontinuity results of the health status score across different bandwidths for the old age group sample.



**Figure 4H:** Regression discontinuity results of the binary variable of whether unemployment compensation is received or not across different bandwidths for the old age group sample.

