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How Does Diabetes Influence the Impact of Aging on the Probability of Employment?

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Abstract

Objective: The purpose of this study is to evaluate how diabetes and complications from diabetes impact the relationship between age and attachment to the workforce for people nearing retirement age. Research Design and Methods: The study uses data from the 2015 Medical Expenditures Panel Survey to examine how the relationship between age and attachment to the workforce differs across three health groups â?? (1) people without diabetes, (2) diabetics with no diabetic complications, and (3) diabetics with complications impacting either eyes or kidneys. Research Design and Methods:The study uses data from the 2015 Medical Expenditures Panel Survey to examine how the relationship between age and attachment to the workforce differs across three health groups -(1) people without diabetes, (2) diabetics with no diabetic complications, and (3) diabetics with complications impacting either eyes or kidneys. The sample covers 3314 people between the age of 58 and 66. The dependent variable in the logistical regression models is whether a person was currently employed or attached to an employer during the survey period. The coefficients of the logistical regression models are used to obtain employment probabilities for a specific worker at ages ranging between the age of 58 and 66. These probability estimates allow us to examine how the impact of aging on employment probability is affected by diabetes and complications from diabetes.

Index terms—

1 Introduction

revious research indicates diabetes has a statistically significant impact on employment or other work related productivity measures (1)(2)(3)(4)(5)(6). Diabetes is not the only disease associated with lower employment levels. A recent blog post presented preliminary results indicated several diseases (diabetes, complications from diabetes, complications for diabetes, stroke, arthritis, asthma coronary heart disease, emphysema and cancer) reduced the likelihood a person nearing retirement age would remain employed.

Previous research has not examined how diabetes affects the impact of age on employment probability. The exact age at which a person leaves the workforce has a large impact on household financial security, retirement income workforce participation and the Social Security system.

The financial incentives from Social Security on employment and on the decision of when to claim Social Security benefits are complex. The maximum Social Security benefit can only be received by workers with an income history of 35 years. 62 is the earliest age where workers can claim Social Security retirement benefits but some workers may be eligible for a disability benefit prior to age 62. The full Social Security retirement benefit for workers born between the years of 1943 and 1954 is 66 and workers who delay their retirement until 70 will further increase their retirement benefits.

Studies typically find that most people do not delay claiming Social Security after leaving work. One highly influential study found that around 10 percent of men who retired before their 62nd birthday delayed claiming Social Security (7).

The relatively small percentage of people who are can delay claiming Social Security benefits after leaving the workforce suggests that the ability of people to remain in the workforce may be the most important determinant of financial security during retirement. Furthermore, incentives designed to persuade people to work longer may be ineffective if a person is in poor health. The empirical work presented here attempts to provide insight on how diabetes and complications from diabetes impacts attachment to the workforce as people age.

2 II.

3 Research design and Methods

The study employs data from the 2015 Medical Expenditures Panel Survey (MEPS). The MEPS survey contains detailed information on a wide variety of health topics including insurance, expenditures, and diseases of respondents. Data from the survey can be used to obtain estimates of national totals and averages. The data can also be used to estimate relationships between economic variables and health variables.

The survey contains information on respondent employment status, whether the respondent has been diagnosed as having diabetes, whether diabetes has impacted eyes or kidneys, the respondent's age and respondent's education level.

The information on employment was obtained from questions EMPST53. The dependent variable was set to 1 if the person responded she was employed at the time (option 1), had a job to return to during the round (option 2), or had a job at some point during the round. This employment measure does not correspond to the concept of workforce participation used by labor economists. People who are unemployed but actively looking for a position are considered workforce participants.

The key health related variables used in this study were obtained from variables DIABDX, DSKIDN53, and DSEYPR53. DIABDX asks whether a person has been diagnosed as a diabetic. DSKIDN53 provides information about whether diabetes has ever caused kidney problems. DSEYPR53 provides information on whether diabetes has ever caused eye problems. The complications from diabetes variable used in this study is defined as having either kidney problems or eye problems caused by diabetes.

The MEPS database had a variable SEX used to create a dummy variable set to 1 if the respondent was male. The dummy variables ba_deg (has a BA degree or higher) and no_college (has not attended college) were created from responses to question EDUYRDG.

The first model considered in this paper involves using the entire sample to estimate the impact of diabetes and complications from diabetes on employment probability. This approach implicitly assumes that the impact of aging on employment probability does not depend on whether the respondent has or does not have diabetes or diabetic related complications.

The second model considered in this paper involves the estimation of logistical regression models for three samples -(1) people without diabetes, (2) people with diabetes but no complications, and (3) people with diabetic related complications. This approach allows us to contain separate estimates of the impact of age on employment probabilities for the three groups.

The regression coefficients obtained from logistical regression models can be used to examine the employment probability of an individual with specific characteristics at different age levels. These probability estimates are generated by the following formula.

4 P=Exp (XB)/(1+Exp (XB))

In this formula X is the vector of variable values and B is the vector of coefficients.

This formula was used to estimate the employment probability for a specific individual (a white male with a college degree) at the five age groups (58-59, 60-61, 62, 63-64 65-66). These estimates provide insight on when people with and without diabetes with and without complications from diabetes tend to leave the workforce.

In this model, employment probability estimates for females and people with educational background different than college educated would simply be a shifted version of the results for males with a college degree. The model specification used here does not allow for the impact of age on employment to vary with gender or sex. The parsimonious model was selected due to the limited sample size in the MEPS database.

There is always room for additional sensitivity analysis of the model to alternative specification. Am happy to look at specific suggestions from reviewers.

5 III.

6 Results

Most of the previous research motivating this paper involved an examination of how a disease impacted employment variables over a sample covering people in an age range.

The results of this approach for a model on how diabetes and diabetes related complications impacted employment based on people between the age of 58 and 66 from the MEPS database is presented below.

The coefficient of the full-sample employment logit regression model reveal that both diabetes and complications from diabetes significantly decrease the likelihood that a person is employed. This is consistent with other literature on the relationship between disease and employment.

The reported coefficients on the age variables are reflective of the difference in employment at specified age and the base group, which is people who are 62 years old. The age coefficients for the model estimated with the full sample, people with and without diabetes, reveals that increases in age are generally but not always related to a decreased likelihood of being employed.

? At age 58-59 the employment probability is significantly higher than at age 62.

? At age 63-64 the difference between employment probability at age 62 is not significant with a one tailed test at alpha equal to 0.05. ? At age 65-66 the employment probability is significantly lower than at age 62.

The impact of age on the employment probability may differ for people with diabetes and for people without diabetes. Similarly, the impact of age on employment may differ between diabetics with no complications and diabetics with complications. This issue can be considered by comparing logistical regression models for the three groups. The results from the three logistical regressions are presented below.

The results presented here indicate that the impact of aging on employment probability differs sharply for the three groups of people.

The age 589 coefficient is a measure of differences between employment probability at age 58-59 and age 62. It is positive and significantly different from zero for people without diabetes but insignificantly different from zero for both diabetics with no complications and for diabetics with complications. The lesson here is that diabetics with or without complications tend to leave the workforce early, often before they are eligible for any retirement Social Security benefits.

The age6566 coefficient is a measure of differences between employment probability at age 65-66 and age 62. The point estimates are negative for all three groups. The difference is significant for people without diabetes and for diabetics without complications. The difference is not significant for people with diabetic related complications Aging is not a statistically significant explainer of the employment probability for diabetics with complications. None of the coefficients for the age variables are statistically different from zero (at alpha equal to zero) for the sample of 145 individuals with complications related to diabetes. This occurs partially because the smaller sample size reduces the power of the statistical tests and possible because the employment probability is already lower at an earlier age.

Economists and health professionals could also benefit from information on the magnitude of differences in employment probabilities at different ages for different health profiles.

Separate employment probability estimates are presented for a male with a college degree for the three health condition groups.

Results for a college-educated male. Estimates for females and people with different education backgrounds would be a shifted version of this chart.

The estimates reveal that employment probability at age 58-59 is 7 percentage points higher for people without diabetes compared to people with diabetes and no complications. The employment probability gap between people without diabetes and people with diabetic related complications is over 51 percentage point at age 58-59.

The decrease in employment probability from age 58-59 to age 62 is 11.6% for people without diabetes, 6.2 percent for diabetics with no complications, and -0.9% for diabetics with complications. The lower decrease in employment probability for the two diabetic categories stems from the fact that many diabetics had already left the workforce at age 58-59.

The estimated employment probabilities at age 65-66 is 17 percentage points higher for people with no diabetes and diabetics with no complications. The employment probability gap between diabetics with no complications and diabetics with complications at age 65-66 is around 29 percentage points. Only 11.5% of diabetics with complications are employed at age 65-66.

The decrease in employment probability from age 62 to 65-66 is 22.9% for non-diabetics, 44.0% for diabetics with no complications, and -64.0 percent for diabetics with complications.

The examination of magnitudes in the shift of employment probability variable is especially important to better under the diabetes with complications group. The age variables are not statistically significant. However, the age 65-66 employment probability is only 11.5 percent, very low compared to other groups at this age.

7 IV.

8 Conclusions

Diabetes substantially reduces the ability of people to stay in the workforce as they age. The impacts of aging on employment are especially large for diabetics with complications impacting eyes or kidneys. A substantial number of diabetics especially those with complications leave the workforce before becoming eligible for Social Security Retirement benefits. Diabetics especially those with complications appear unable to prolong employment to increase their Social Security benefit.

Diabetes is not the only disease impacting the relationship between age and employment. A recent blog post using the same database employed in this paper found that a 10-factor disease index also affects the impact of aging on employment probability (7).

8 CONCLUSIONS

Many financial economists are fearful that improvements in health which increase life expectancy could worsen the finances of the Social Security system. The results presented here indicate that improved health could increase workforce participation and spur economic growth. [1]

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[Tunceli et al. ()] , K Tunceli , Bradley C Nerenz , D , Williams L Pladevall , Lafata . *J The Impact of Diabetes on Employment and Work Productivity* 2005. 28 p. . (Diabetes Care)

[Courtney et al. ()] 'Delays in Claiming Social Security Benefits'. C Courtney , P Diamond , J Gruber , A Jousten . *Journal of Public Economics* 2002. 84 p. .

[Kahn ()] 'Health and labor market performance: the case of diabetes'. M E Kahn . *J Labor Econ* 1998. 16 p. .

[Kraut et al. ()] 'Impact of diabetes on employment and income in Manitoba'. A Kraut , R Walld , R Tate , C Mustard . *Canada. Diabetes Care* 2001. 2 p. .

[Ng et al. ()] 'Productivity losses associated with diabetes in the U'. Y C Ng , P Jacobs , J A Johnson . *S. Diabetes Care* 2001. 24 p. .

[Bastida and Pagan ()] 'The impact of diabetes on adult employment and earnings of Mexican Americans: findings from a community based study'. E Bastida , J A Pagan . *Health Econ* 2002. 11 p. .

[Bernstein] *The Impact of Disease on Employment for People Nearing Retirement Age*, D Bernstein . http://financememos.blogspot.com/2018/04/impact-of-disease-on-employment-for.html

[Mayfield et al. ()] 'Work disability and diabetes'. J A Mayfield , P Deb , L Whitecotton . *Diabetes Care* 1999. 2 p. .