Health and the Future Course of Labor Force Participation at Older Ages

Michael D. Hurd
RAND, NBER and NETSPAR

Susann Rohwedder
RAND and NETSPAR

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Labor force participation of men to 2013
Labor force participation of women to 2013
Used data on subjective probability of working past 62/65 from the Health and Retirement Study to predict future course of labor force participation.

Thinking about work in general and not just your present job, what do you think the chances are that you will be working full-time after you reach age 62? ...65?

P62
P65
Average subjective probability of working full-time past age 65, male workers

Similar for female workers
But noted disturbing trend in health, which is an important determinant of labor force participation.
Nonetheless concluded:

Actual and predicted labor force participation rates

<table>
<thead>
<tr>
<th></th>
<th>60-64</th>
<th>65-69</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>46.7</td>
<td>29.9</td>
</tr>
<tr>
<td>~2023</td>
<td>53.8</td>
<td>38.0</td>
</tr>
<tr>
<td>Change</td>
<td>7.1</td>
<td>8.1</td>
</tr>
</tbody>
</table>
Objective of this paper

Closer look at trends in labor force participation, subjective probability of working and health.
Male labor force participation to 2016
Female labor force participation to 2016
First differences in labor force participation

Males, ages 65-69, three-year moving average
Has upward trend in labor force participation ceased?

Females, ages 65-69, three-year moving average
P65 with an additional HRS wave
This paper
Study the relationship between health and retirement as measured by subjective probability of working
Use subjective probability working past 65
P65
Want to study P65 for population, not just workers

Account for entry into labor force at older ages

But P65 asked of nonworkers 2006 to present, not prior to 2006.

*PWork* asked of nonworkers 1994 to present

...what are the chances that you will be working for pay at some time in the future?

Estimate relationship between P65 and PWork from 2006 to 2014 data

Coefficient on PWork 0.46 (0.02) for males. 0.45 females

Fitted value of P65 for nonworkers prior to 2006

Increase with age for workers
Decrease with age for nonworkers
Explanations for flattening of P65

Worsening self-rated health or possibly changing relationship between self-rated health and P65

Cohort analysis
Percent of population, self-rated health, ages 55-59, HRS waves 2-12 (1994-2014)

Percent excellent/v.good declined 0.38 ppts per wave
Males. Age-adjusted variation in P65 by self-rated health, four cohorts ages 55-59, workers and nonworkers
Females. Age-adjusted variation in P65 by self-rated health, four cohorts ages 55-59, workers and nonworkers
To quantify change in variation of P65 with health

Regression of P65 on

- self-rated health
- wave number (linear in time)
- self-rated health interacted with wave number
## Regression of P65

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-0.278</td>
<td>-0.631</td>
</tr>
<tr>
<td>SRH excellent</td>
<td>10.512</td>
<td>0.618</td>
</tr>
<tr>
<td>SRH very good</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>SRH good</td>
<td>-2.379</td>
<td>-1.011</td>
</tr>
<tr>
<td>SRH fair</td>
<td>-5.637</td>
<td>-5.992</td>
</tr>
<tr>
<td>SRH poor</td>
<td>-14.599</td>
<td>-11.022</td>
</tr>
<tr>
<td>Wave number (W#)</td>
<td>1.811</td>
<td>1.678</td>
</tr>
<tr>
<td>SRH excellent*W#</td>
<td>-0.831</td>
<td>0.096</td>
</tr>
<tr>
<td>SRH very good*W#</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>SRH good*W#</td>
<td>-0.562</td>
<td>-0.317</td>
</tr>
<tr>
<td>SRH fair*W#</td>
<td>-1.324</td>
<td>-0.809</td>
</tr>
<tr>
<td>SRH poor*W#</td>
<td>-1.559</td>
<td>-1.219</td>
</tr>
</tbody>
</table>

All significant at 0.01 level except greyed entries
Extract

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wave number (W#)</td>
<td>1.811</td>
<td>1.678</td>
</tr>
<tr>
<td>SRH poor</td>
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<td>-1.559</td>
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</tr>
</tbody>
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Among males: Overall increase in P65 over time: 18% over 20 years (10 HRS waves)

Among those in poor health relative to very good, P65 is

- 15% lower
- Decreased by 16% over 20 years...almost no gain

Similar for females
Empirical specification does not permit flattening out of P65 observed in data

Regression of P65 on

• self-rated health
• wave number (linear in time)
• wave number squared (quadratic in time)
• self-rated health interacted with wave number
• self-rated health interacted with wave number squared
Fitted values of P65: Males

Workers and nonworkers, 1994-2014 evaluated at age 57

Hardly any gain for those in poor health
Increasing difference in P65 by health status.
Fitted values of P65: Females evaluated at age 57
Possible causes of increasing gradient
Meaning of self-rated health
Frequency of diabetes

- Excellent: 92-96
- Very Good: 98-02
- Good: 04-08
- Fair: 10-14
- Poor and Total
Number of ADL limitations
Similar upward trend for

- Limitations of large muscle function
- Limitations gross motor function
- Limitations of fine motor function
Cognition score

-excellent
-very good
-good
-fair
-poor
-Total

-92-96
-98-02
-04-08
-10-14
Frequency: health limits work. Less obvious upward trend
Subjective probability of survival

Asked in all HRS waves

Changes of living to age 75 (85)

As

- A health indicator;
- An indicator of longevity inducing later retirement
Survival to age 75. Ages 55-59
Subjective survival to age 75, males 55-59

- Excellent
- Very good
- Good
- Fair
- Poor
- All

Categories:
- 2-4
- 5-7
- 8-9
- 10-12
Subjective survival to age 75, females 55-59
Quantify trend in subjective probability of survival to age 75
### Regression of subjective survival to age 75

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</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.1802</td>
<td>0.0215</td>
</tr>
<tr>
<td>SRH excellent</td>
<td>7.80227</td>
<td>5.91892</td>
</tr>
<tr>
<td>SRH very good</td>
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<td>--</td>
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<tr>
<td>SRH good</td>
<td>-6.57148</td>
<td>-6.57744</td>
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<tr>
<td>SRH fair</td>
<td>-20.1436</td>
<td>-18.3857</td>
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<tr>
<td>SRH poor</td>
<td>-31.191</td>
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<tr>
<td>Wave number (W#)</td>
<td>-0.05808</td>
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<tr>
<td>SRH excellent*W#</td>
<td>-0.07365</td>
<td>0.04256</td>
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<tr>
<td>SRH very good*W#</td>
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<td>--</td>
</tr>
<tr>
<td>SRH good*W#</td>
<td>-0.42168</td>
<td>-0.22391</td>
</tr>
<tr>
<td>SRH fair*W#</td>
<td>-0.0110</td>
<td>-0.16573</td>
</tr>
<tr>
<td>SRH poor*W#</td>
<td>-0.33181</td>
<td>-0.2068</td>
</tr>
</tbody>
</table>

Coefficients significant at 0.01 level except greyed out.
Doesn’t allow apparent downturn in P75
Regress P75 on quadratic in wave (time)
Show fitted values by self-rated health
Fitted P75, males ages 55-59 by self-rated health
Fitted P75, females ages 55-59 by self-rated health
Summary and conclusions

• Increase in actual labor force participation has (so far) ceased
• Increase in subjective probability of working has (so far) ceased
• Variation in subjective probability of working as a function of self-rated health increased among later cohorts
• Those in worse health had little gain in subjective probability of working past age 65
• “Meaning” of self-rated health changed
  o Those with fair or poor health in later cohorts have greater number of objective health conditions
  o For cohort comparisons, possible need new summary health measure

Implication
Increased dispersion of projected retirement age by health status
  Exacerbates inequality in economic preparation for retirement