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Australian Council for Educational Research

Australian Journal of Career Development
2019, Vol. 28(1) 61–72

DOI: 10.1177/1038416218810220
journals.sagepub.com/home/acd
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# Eight types of "baby boomer" entrepreneurs

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**Abstract**

This study developed a typology of eight heterogeneous types of baby boomer entrepreneurs and extended the occupational choice model regarding driving factors for entrepreneurialism in this population. The study relied on monthly USA Current Population Survey data across 11 years (2006–2016), and using 2-sample t-tests and multilevel mixed-effects logistic regression models that incorporated both individual- and metropolitan-level effects, found that *new* and *unincorporated* baby boomer entrepreneurs were more likely than their *continuing* and *incorporated* counterparts, respectively, to come from central cities, and that *continuing*, *new opportunity*, *full-time*, and *incorporated* baby boomer entrepreneurs were more likely than *new*, *new necessity, part-time, and unincorporated* baby boomer entrepreneurs, respectively, to be physically healthier and better educated. The typology and findings on USA baby boomers have global implications for career progression in older workers.

**Keywords**

Baby boomer entrepreneurs, new entrepreneurs, necessity entrepreneurs, opportunity entrepreneurs, full-time entrepreneurs, part-time entrepreneurs, incorporated entrepreneurs, unincorporated entrepreneurs

As the USA baby boomers (born between 1946 and 1964) approach retirement age, managing this transition becomes a wide concern. However, functioning as entrepreneurs could help retain these workers longer in the labour force and help mitigate potential fiscal challenges related to an aging labour force (Zhang, 2008). Unfortunately, our understanding of baby boomer entrepreneurs is very limited. Baby boomer entrepreneurs, although sharing similar birth years, are by no means a homogenous group, as different demographic and socioeconomic backgrounds shape them into different types of entrepreneurs.

This study defined and measured eight different types of baby boomer entrepreneurs using public accessible national USA Current Population Survey (CPS) data for the years 2006–2016. The study also investigated the driving factors behind these eight types of entrepreneurs to paint a clearer picture of baby boomer entrepreneurs. Ageing reduces entrepreneurial willingness (Lévesque & Minniti, 2006), but enhances entrepreneurial opportunities (Blanchflower, Oswald, & Stutzer, 2001); while entrepreneurial activity increases with age for sole proprietor, it decreases for owner-managers (Kautonen, Down, & Minniti, 2014). The complex age-entrepreneurship relationship reveals the need for identifying different entrepreneur types.

The four pairs (eight types) of entrepreneur types proposed are *new* versus *existing*, *new opportunity* versus *new necessity*, *full-time* versus *part-time*, and *incorporated* versus *unincorporated* entrepreneurs. *New* entrepreneurs are those who become entrepreneurs for the first time, differing from *continuing*. *New opportunity* entrepreneurs start a new venture to realize a business opportunity, whereas *new necessity* entrepreneurs are pushed to start a new business with no better career alternatives. *Full-time* entrepreneurs work more hours than *part-timers*. *Incorporated* and *unincorporated* entrepreneurs are *incorporated* or *unincorporated* self-employed workers. Figure 1 shows the eight types of baby boomer entrepreneurs.

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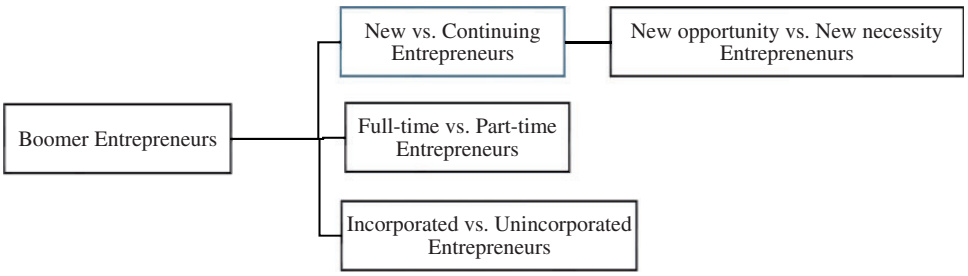


**Figure 1.** Four pairs of baby boomer entrepreneur types.

The next section of the paper reviews the literature, followed by a section that develops the hypotheses to be tested. Then the empirical model and the variables are presented. The section 'Data and variable measures' examines the data and presents the summary statistics. The penultimate section provides the results, and the final section presents the summary and limitations of the study.

## Literature review

Previous entrepreneurship research has identified many factors related to entrepreneurial propensity, but has not identified the factors driving different entrepreneur type propensities, and has not done this for baby boomer entrepreneurs.

### *Literature on occupational choice*

Utility theory and occupation choice models have been used to characterize baby boomers' decisions regarding tradeoffs between work, retirement, and leisure (e.g. Lévesque & Minniti, 2006). The identified factors driving entrepreneurial propensity include education (Velilla & Ortega, 2017), health (Zhang & Carr, 2014), unemployment rates (Fairlie & Fossen, 2017), prior (quasi-) entrepreneurial experience (Hsu, Shinnat, Powell, & Betty, 2017), wealth (Schmalz, Sraer, & Thesmar, 2017), age (Lee & Vouchilas, 2016), gender (Hörisch, Kollat, & Brieger, 2017), race (Friedline & West, 2016), urban residence (Glaeser, 2007), responsibility for family care (Walker, Grant, Meadows, & Cook, 2007), local economic settings (Fairlie & Fossen, 2017), and liquidity constraints (Schmalz et al., 2017). This study extends occupational choice models into choice among entrepreneurial types.

While willingness and intention to start a business decrease with age (Van Praag & Van Ophem, 1995) due to a higher discount rate of wage utility from the future (Lévesque & Minniti, 2006), the opportunity to start a business increases with age because of higher accumulated physical, social, and human capital (Lee & Vouchilas, 2016). Parker (2009) has reported a nonlinear age trend on entrepreneurship, peaking around ages of 35–44 years. However, prior studies also show a more pronounced self-employment rate (Zissimopoulos & Karoly, 2007)[1] and/or a sharper rising share in new entrepreneur rates[2] (Fairlie, Morelix, Reedy, & Russell, 2016) for older workers.

Part of the inconclusive age effects in entrepreneurship could be related to entrepreneur types. Kautonen et al. (2014) demonstrated that entrepreneurial activity increased almost linearly with age for sole proprietors, but increased until the late 40s and then decreased for people who aspired to hire workers (i.e. owner-managers) using European samples. Block and Wagner (2010) noted *opportunity* and *necessity* entrepreneurs differed in age.

### *Literature on entrepreneur types*

Prior literature has referred to different entrepreneur types, but did not focus on the different driving factors for those entrepreneur types. Anokhin, Grichnik, and Hisrich (2008) argued that *continuing* and *new entrepreneurs* have significantly different skills, competencies, and information. With different entrepreneurial motivation, *opportunity* and *necessity* entrepreneurs are driven by "pull" and "push" factors, respectively (Bergmann & Sternberg, 2007).

*Part-time* entrepreneurs usually test a business opportunity without making an irrevocable investment (Wennberg, Folta, & Delmar, 2006), need fewer physical and financial resources for less marginal cost (Folta, Delmar, & Wennberg, 2010), and have more flexibility and time for themselves or family commitments (Block & Landgraf, 2013) than *full-timers*. Some seniors prefer *part-time* over *full-time* entrepreneurs because they run their own businesses as "bridge jobs" between wage-and-salary employment and retirement (Bruce, Holtz-Eakin, & Quinn, 2000).

In general, there are more *unincorporated* than *incorporated* entrepreneurs because of the relative ease of becoming the former (Levine & Rubinstein, 2013). Compared to *unincorporated entrepreneurs, incorporated* entrepreneurs earn more (Levine & Rubinstein, 2013), have higher levels of education, experience, and resources (Light & Munk, 2015), and run larger businesses (Glover & Short, 2009), with a greater likelihood of having paid employees (Hipple & Hammond, 2016).

## Research hypotheses

Combining the above two streams of literature, the following research hypotheses are developed. Anokhin et al. (2008) argued that *continuing* and *new entrepreneurs* have significantly different skills, competencies, and information: *new* entrepreneurs tend to have limited information and networks or resources, and tend to be located in urban centres, as they might not have the mature networks that *continuing* baby boomer entrepreneurs have. Becoming a *new* entrepreneur requires much time, commitment, and a new social network, which gives those who are not currently married (including never married, divorced, separated, widowed) an advantage, without concern that changes will affect spouses. In addition, when approaching retirement age, baby boomers can switch to become entrepreneurs and elevate the odds for *new* entrepreneurs. Therefore, I expected:

> ***Hypothesis 1:*** *New baby boomer entrepreneurs are more likely than continuing baby boomer entrepreneurs to emerge from older, post-retirement, baby boomers, who are not married and reside in central cities, as well as from those with limited resources, such as female, African American, non-White, less educated, less healthy baby boomers.*

Since entrepreneurial opportunities increase with age, older baby boomers are expected to have higher odds for being *opportunity* entrepreneurs. While *new opportunity* entrepreneurs start a new venture to realize a business opportunity (Weber & Schaper, 2004) or to self-actualize (Kautonen, Kiblera, & Minniti, 2017), *new necessity* entrepreneurs are pushed to start a business as they have fewer job alternatives. Different from *new necessity* entrepreneurs (Block & Wagner, 2010), *new opportunity* entrepreneurs are expected to be equipped with better access to market opportunities, with potentially more knowledge and information, better social network via marriage, and better health. For the baby boomers, male workers are often better equipped with working experience and business ties and have more resources. Therefore, healthier and better educated males should be more likely to be *opportunity* versus *necessity* entrepreneurs. It is thus expected:

> ***Hypothesis 2:*** *New opportunity baby boomer entrepreneurs are more likely than new necessity entrepreneurs to be males who are healthier, better educated, and older.*

Since *full-time* entrepreneurship requires more time, energy, and commitment, those with no children, unmarried, and healthier should be more likely to have the capacity to be *full-time* versus *part-time* entrepreneurs. Many baby boomer men have more working experience than women, and thus are more likely to be *full-time* versus *part-time* entrepreneurs. In addition, the definitional differences suggest that economic downturn (higher unemployment rates) could push more individuals to *part-time* versus *full-time* entrepreneurship. It is therefore hypothesized:

> ***Hypothesis 3:*** *Full-time baby boomer entrepreneurs are more likely than part-time baby boomer entrepreneurs to be male, unmarried, have better health, fewer young children, and be living in an area with a lower unemployment rate.*

Since *incorporated* entrepreneurs typically run larger businesses outside of urban settings, have a more mature business network and more resources, and are better paid, they should be more likely to be healthier, married, and better educated than *unincorporated* entrepreneurs. It is therefore expected:

> ***Hypothesis 2d:*** *Incorporated baby boomer entrepreneurs are more likely than unincorporated baby boomer entrepreneurs to be better educated, married, healthier, and residing outside of central-city locations.*

## Methodology and empirical models

First, using two-sample t-tests for unequal variances, entrepreneur characteristics are compared between *new* and *continuing*, *new opportunity* and *new necessity*, *full-time* and *part-time*, and *incorporated* and *unincorporated* baby boomer entrepreneurs to test whether one of the pair has a statistically larger mean value than the other. To test the hypotheses, multivariate analyses that controlled for all other variables were used: specifically, logistic regressions were employed to determine entrepreneurial type propensities. The outcome variables were *new* or *continuing* entrepreneur (coded 1 or 0, respectively), *new opportunity* or *new necessity* entrepreneur (coded 1 or 0), *full-time* or *part-time* entrepreneur (coded 1 or 0), and *incorporated* or *unincorporated* entrepreneur (coded 1 or 0).

As the data were hierarchical and the variables clustered, multilevel mixed-effects logistic regression analyses were used (Hörisch et al., 2017). Entrepreneurial behaviour is an employment behaviour subject to local market conditions and labour pools; workers are interdependent in areas where knowledge, information, labour, and social networks flow easily. In such cases, fixed-effect logistic regression is limited, not only because it assumes independence among individuals, but also because it does not allow for necessary random effects across different local areas. Also, the analyses did not fix local areas as individuals could move between different local areas. Although using cluster standard errors can address the independence issue across each individual record, they do not allow for random effects across different local areas.

Mixed-effects logistic regression contains both fixed effects and random effects and have been used extensively in various social science studies, such as Ng, Carpenter, Goldstein, and Rasbash (2006) and Rabe-Hesketh and Skrondal (2012). In longitudinal data and panel data, random effects are useful for modeling intra-metropolitan area correlations; that is, workers or entrepreneurs in the same metropolitan area are correlated because they share common metropolitan area-level random effects. For the data used in this study, the base unit of analysis was individual worker or entrepreneur, and the higher-level unit of analysis was metropolitan area. A metropolitan area typically included one or more urban centres that formed an employment-based commuting circle. The basic logistic cumulative distribution function employed in the study is therefore available from a two-level, mixed-effects logistic regression that incorporates binary entrepreneur type choices with two levels of analysis—an individual worker level and a metropolitan area level—controlling for individual workers' attributes and metropolitan area economic settings.

## Data and variable measures

In this study, baby boomer entrepreneurs are defined as *unincorporated* and *incorporated* non-agricultural, self-employed, in the knowledge-based sectors. Self-employment is often used to measure entrepreneurship (see Fairlie & Fossen, 2017). Alternative measures include research and development expenditure and number of startups; however, the former tends to underestimate small-business entrepreneurship (Acs & Audretsch, 1990) and the latter does not fully capture sustainability issues (Audretsch & Keilbach, 2004). To avoid the drawbacks of using self-employment status, and to address perspectives of new technology and innovation and knowledge spillover (Acs, Audretsch, Braunerhjelm, & Carlsson, 2010), the study used knowledge-based, non-agricultural, self-employment categories. Florida's (2004) "creative class" was used to define knowledge-based occupations.[3] Also, to reflect business creators, the study includes *incorporated* and *unincorporated* entrepreneurs (see Evans & Leighton, 1989).

### Data source

To measure the nuanced entrepreneur types, the study relied mainly on the longitudinally linked USA Census CPS data for the years 2006–2016, as compiled by Flood, King, Ruggles, and Warren (2015) in the Integrated Public Use Microdata Series for the following reasons:

1. The CPS has been used as a reliable measure of national employment for many years, is the source of official statistics on USA self-employment (Karoly & Zissimopoulos, 2004), and has the highest response rates (90%) among government household surveys (U.S. Bureau of Labor Statistics & U.S. Census Bureau, 2006), which reduces the effect of social desirability bias typically seen in small, single-purpose surveys (Binder & Coad, 2013).
2. The month-to-month employment changes, including voluntary and involuntary unemployment, help to define entrepreneur types, particular for opportunity versus necessity entrepreneurs.
3. The CPS provides microdata at the individual level, with flexible geographic identification that can be more readily integrated with other data sources.

Households in the CPS are interviewed according to a 4–8-4 rotation pattern: households from all States and the District of Columbia are interviewed for four consecutive months, dropped out of the sample for the next eight months, and interviewed again in the next four months, after which they leave the sample permanently.[4] The 4–8-4 rotation has the added benefit of allowing the sample to be constantly replenished, with continuity and without an excessive burden on respondents (U.S. Bureau of Labor Statistics & U.S. Census Bureau, 2006); however, it only offers the ability to track a person for eight months. The data cover 132 monthly data points with only eight monthly measures for each worker; they therefore avoid the problem of using a single response at a single point in time and avoid common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), often existing in self-identified information.

In addition, the study used the Bureau of Labor Statistics unemployment rate for metropolitan areas to control for local economic conditions. Linked via the metropolitan area Federal Information Processing Standards code, the metropolitan unemployment rates were added, although not all metropolitan areas were covered in the observations.

### Measures of dependent variables

New *versus* continuing *baby boomer entrepreneurs.* *New* baby boomer entrepreneurs refer to those who reported being an entrepreneur in the reference month but not in any of the previous seven samplings. In contrast, *continuing* baby boomer entrepreneur refers to those who were entrepreneurs in the reference month and at any time in the previous three months or the previous 12–15 months. This does not necessarily mean that this was the first time a person ever became an entrepreneur, since each individual can only span 16 months in the data. Although imperfect, this approach does distinguish baby boomers who are *new* entrepreneurs from those who have

been entrepreneurs for a long time. This study focuses more on the *new* baby boomer entrepreneurs to test the common belief that older entrepreneurs are only *continuing* entrepreneurs who grew older after becoming an entrepreneur at a young age.

Opportunity *versus* new necessity *baby boomer entrepreneurs*. *New necessity* baby boomer entrepreneurs are *new* baby boomer entrepreneurs who were unemployed workers or workers who left the labour force because they were unable to work, retired, or for other involuntary reasons in the previous calendar month. Correspondingly, *new opportunity* entrepreneurs refer to those who were in the armed forces, had a job, or left a job voluntarily in the previous calendar month. Not all *new* entrepreneurs are classified as either *necessity* or *opportunity*. This measure of *necessity* versus *opportunity* coincides somewhat with Fairlie et al. (2016), but adds more nuance in terms of whether a job loss was voluntary or not.

Full-time *versus* part-time *baby boomer entrepreneurs*. *Full-time* baby boomer entrepreneurs are those who reported having worked at least 35 hours per weekly during the reference month.

Incorporated *versus* unincorporated *baby boomer entrepreneurs*. *Incorporated* baby boomer entrepreneurs refer to those who had *incorporated* self-employment, compared to those who had *unincorporated* self-employment. The measures of *unincorporated* and *incorporated* entrepreneurs are largely consistent with Kautonen et al.'s (2014) sole proprietor and owner-manager concepts, respectively.

### *Measures of independent variables*

Consistent with the literature, the independent variables used to characterize each individual included human capital (health and educational attainment), social capital (such as job experience), demographic, and socioeconomic factors. The basic demographic and socioeconomic variables include age and age squared for the nonlinear age effect, gender (using the dummy variable male), race (using the dummy variables White, African American[5]), marital status (using dummy variables married, never married, widowed, divorced, separated[6]), and residence (whether the individual is residing in the central city or in more rural/suburban areas).

Health is represented by the dummy variable *any difficulty* as a proxy. It indicates whether an individual had any physical or cognitive difficulties during the observation month. For educational attainment, the dummy variables for *high school graduate*, *some college*, *bachelor's degree*, and *advanced degree* were included; those who did not report their educational attainment information or attained less than a high school degree were omitted. As some baby boomers might still have responsibility for their children or grandchildren, which might affect time and commitment, the variable *children under 16* was used to test whether this was a factor related to entrepreneurial propensity and, if so, how strong a factor it was. For work history, (a) the number of continuous weeks unemployed by the end of the previous month, and (b) the number of hours worked on the main job in the previous month were used. Work history contributes to how attached an individual is to the labour market, which can contribute to their motivation, social capital, and choice of entrepreneurship as an occupation. Also included was the local business cycle indicator, as measured by metropolitan unemployment rates, as a control for macroeconomic conditions. Previous literature has offered controversial evidence on the relationship between the unemployment rate and entrepreneurial propensity, and thus was considered worth controlling. More importantly, the unemployment rate is directly associated with the definition of *necessity* entrepreneurship and contributes to the hypothesis on the importance of this factor. Previous literature has indicated that role liquidity constraints contribute to entrepreneurial propensity. However, the CPS data contain no good measure for cumulative family wealth, and the earnings information has many missing values; thus, these were dropped.

### *Measures of control variables*

Since the previous literature does not provide consistent evidence of an unemployment rate effect, year dummy variables were included to help control for business cycle effects. The year dummy variables can help control for different economic years, including pre-, in-, and post-recession years, and post-recovery years. Year dummies also help to control for unobserved time variant effects. The better economic years were omitted as the base, including the pre-recession years 2006 and 2007, and the most recent year of economic growth, 2016.

## Descriptive statistics

This section first describes the data and age trends by baby boomer entrepreneur types, and is then followed by the results of two-sample t-tests. It ends with summary statistics of the variables used in the models.

### *Baby boomer versus non-boomer entrepreneurs*

Among the 1,856,272 workers in the study as shown in Table 1, 36% were baby boomer workers, and 9% were entrepreneurs (including baby boomers and non-boomers), consistent with Karoly and Zissimopoulos' (2004) 9.4% non-agricultural self-employment rate. Of the 671,147 baby boomers (that is, 36% of all-age knowledge-based non-agricultural workers), 12% were entrepreneurs, consistent with Blanchflower et al.'s

(2001) finding on a higher self-employment rate for older than younger worker. The share of *new opportunity* (versus *new necessity*) entrepreneurs was higher among baby boomer entrepreneurs (60%) than all entrepreneurs (52%).

## Age trend of various baby boomer entrepreneurs

Figure 2 shows the age trends for different entrepreneurial types. The entrepreneur (versus wage-and-salary employment) rate among workers rises with age. *Continuing* (versus *new*), *full-time* (versus *part-time*), *incorporated* (versus *unincorporated*) entrepreneur rates among all entrepreneurs had an n-shaped age trend peaking in the 40s, consistent with previous literature. The rate of *new opportunity* entrepreneurs was higher than for *new necessity* entrepreneurs. The age span for baby boomers was 42–70 years during the data years 2006–2016, as shown in the grey-stippled area.

## Attributes by entrepreneur types

Table 2 compares the attributes by baby boomer entrepreneur types using two-sample t-tests with unequal variances. Most differences are statistically significant at $p \leq .05$ level. *New* baby boomer entrepreneurs were more likely than *continuing* baby boomer entrepreneurs to be in the central city. *New opportunity* baby boomer entrepreneurs were more likely than *new necessity* baby boomer entrepreneurs to be better educated, married, and have fewer physical and mental difficulties. *Incorporated* baby boomer entrepreneurs were more likely than *unincorporated* baby boomer entrepreneurs to be better educated, have higher hourly earnings, and be in suburban

**Table 1.** Comparing probability among four pairs of baby boomer entrepreneur types.

| Variable | Obs. | Mean | Std. Dev. | Obs. | Mean | Std. Dev. |
|---|---|---|---|---|---|---|
| | Among all-age knowledge-based non-agricultural workers | | | Among baby boomer knowledge-based non-agricultural workers | | |
| Baby boomer (vs. all workers) | 1,856,272 | 36% | 48% | | | |
| Entrepreneurs (vs. workers) | 1,856,272 | 9% | 29% | 671,147 | 12% | 33% |
| | Among all-age entrepreneurs | | | Among baby boomer entrepreneurs | | |
| *New* Entrepreneurs | 167,206 | 23% | 42% | 81,055 | 21% | 41% |
| *Full-Time* Entrepreneurs | 152,089 | 68% | 47% | 73,904 | 70% | 46% |
| *Incorporated* Entrepreneurs | 167,206 | 48% | 50% | 81,055 | 51% | 50% |
| | Among all-age *new* entrepreneurs | | | Among baby boomer *new* entrepreneurs | | |
| *New Opportunity* Entrepreneurs | 4856 | 52% | 50% | 2066 | 60% | 49% |

Note: About 91% of entrepreneurs were either *full-time* or *part-time* entrepreneurs; only 13.6% of *new* entrepreneurs were classified as either *necessity* or *opportunity* entrepreneurs, according to definition.

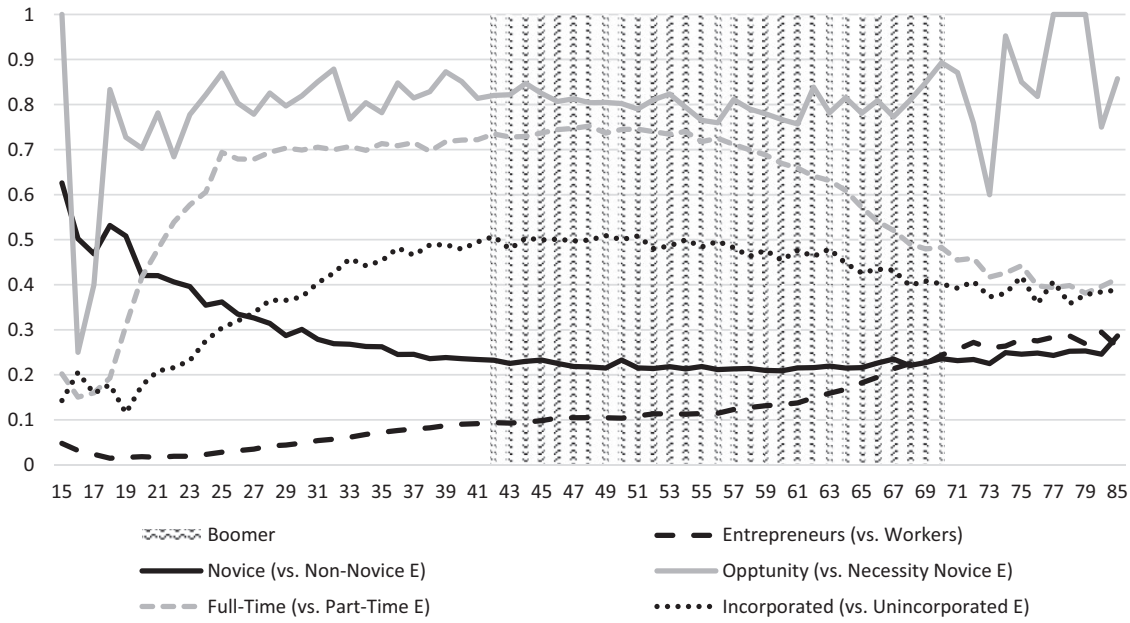


**Figure 2.** Entrepreneur rates by age and entrepreneur type from CPS data from 2006 to 2016.

**Table 2.** Two-sample t-tests with unequal variances comparing baby boomer entrepreneur types.

| | Types of Baby Boomer Entrepreneurs | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Variable | New vs. continuing | | New opportunity vs. new necessity | | Incorporated vs unincorporated | | Full-time vs. part-time | |
| Rural | – | *** | – | *** | – | *** | + | *** |
| Central City | + | *** | – | *** | – | *** | – | *** |
| Suburb | – | *** | + | *** | + | *** | + | *** |
| Male | – | *** | – | *** | + | *** | + | *** |
| White | – | *** | + | *** | + | *** | – | *** |
| African American | + | *** | + | *** | + | *** | + | *** |
| Asian | + | *** | + | *** | + | *** | + | *** |
| Mixed | + | ** | – | *** | – | *** | – | *** |
| High School | + | *** | – | *** | – | *** | + | *** |
| Some College | – | *** | – | ** | – | *** | – | *** |
| Bachelors | – | *** | + | *** | + | *** | + | *** |
| Advanced | – | *** | + | *** | + | *** | – | ** |
| Married | – | *** | + | *** | + | *** | + | *** |
| Sep/Div/Widowed | + | *** | – | *** | – | *** | – | *** |
| Never Married | + | *** | – | *** | – | *** | – | *** |
| Child Under 16 | ns | | + | *** | + | *** | + | *** |
| Cont Weeks UnEmp | – | *** | + | *** | + | *** | ns | |
| Hrs Work Main Job | + | *** | – | *** | – | *** | – | *** |
| Lost Left Job in last 3 year | + | *** | – | *** | – | *** | – | *** |
| Hourly Wage | – | ** | ns | | + | *** | + | *** |
| Employed 1 Yr Ago | ns | | ns | | + | ** | + | *** |
| Any Diff | + | *** | – | *** | – | *** | – | *** |
| Physical Diff | + | *** | – | *** | – | *** | + | *** |

"+" indicates first entrepreneur type in each pair has a higher value, "–" indicates the second group in each pair has a higher value; ns: non-significant. Sep: separated; Div: divorced; Cont: continued; UnEmp: unemployed; Hrs: hours; Yr: year; Diff: difficulty.
**$p < .05$, ***$p < .01$.

areas. *Full-time* baby boomer entrepreneurs had fewer physical difficulties than *part-time* baby boomer entrepreneurs, although *part-time* entrepreneurs might work more hours at the main job.

### *Summary statistics for entrepreneurship determinants*

Table 3 presents the summary statistics for the independent variables across the eight types for the period 2006–2016. *New* (particularly *new necessity*) and *unincorporated* entrepreneurs tended to come from central cities; men were more likely to be *full-time* and *incorporated* entrepreneurs; the highest proportion with high school or some college education were *new necessity* entrepreneurs; married baby boomer entrepreneurs were mostly *incorporated* entrepreneurs; baby boomer entrepreneurs with physical or mental difficulties or from higher unemployment rate areas had a higher representation in *new necessity* entrepreneurs. These results were consistent with expectations and prior literature.

## Findings

As shown in Table 4, unmarried, female, African American, non-White, less well educated, less healthy, central-city baby boomers were more likely to be *new* versus *continuing* entrepreneurs. The u-shaped age effect suggested that after a certain age, older baby boomers were more likely to be *new* versus *continuing* entrepreneurs; consistent with Hypothesis 1.

Unlike *necessity* entrepreneurs, who had fewer work alternatives, *opportunity* entrepreneurs potentially recognized a new business opportunity and took time to explore it. Consistent with expectations in Hypothesis 2, the results showed that male baby boomers with fewer physical or mental difficulties were more likely to be *opportunity* entrepreneurs. Older baby boomers with retirement and rising entrepreneurial opportunities were also more likely to become *opportunity* versus *necessity* entrepreneurs.

*Full-time* entrepreneurs require more time and more commitment to run businesses than *part-time* entrepreneurs. They were usually male, separated, divorced, or widowed baby boomers with no child-care responsibilities, and no physical or mental difficulties; higher unemployment rates and fewer employment opportunities also pushed more seniors to become *part-time* entrepreneurs. These results reflect Hypothesis 3.

*Incorporated* baby boomer entrepreneurs tended to be more experienced, established, with more resources, and to operate larger businesses than *unincorporated* baby boomer entrepreneurs. They were thus

**Table 3.** Variable summary statistics.

| | *E* | New *E* | New *Opprt.E* | New *Necc. E* | Contin-uing *E* | *FT E* | *PT E* | *Inc. E* | *Uninc. E* | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Obs* | 167206 | 38088 | 2810 | 2369 | 129118 | 10298 | 49104 | 80282 | 86924 | | |
| Variable | Mean | Mean | Mean | Mean | Mean | Mean | Mean | Mean | Mean | Min | Max |
| | (sd.) | (sd.) | (sd.) | (sd.) | (sd.) | (sd.) | (sd.) | (sd.) | (sd.) | – | – |
| *Central City* | 0.36 | **0.39** | 0.41 | **0.42** | 0.36 | 0.36 | 0.37 | 0.33 | **0.39** | 0 | 1 |
| | (*0.48*) | (*0.49*) | (*0.49*) | (*0.49*) | (*0.48*) | (*0.48*) | (*0.48*) | (*0.47*) | (*0.49*) | | |
| *Age* | 50 | 49 | 46 | 43 | 51 | 50 | 52 | 51 | 50 | 15 | 85 |
| | (*12.91*) | (*13.80*) | (*13.32*) | (*14.55*) | (*12.60*) | (*11.90*) | (*14.29*) | (*11.94*) | (*13.74*) | | |
| *Male* | **0.63** | 0.61 | 0.59 | 0.45 | 0.63 | **0.72** | 0.47 | **0.69** | 0.57 | 0 | 1 |
| | (*0.48*) | (*0.49*) | (*0.49*) | (*0.50*) | (*0.48*) | (*0.45*) | (*0.50*) | (*0.46*) | (*0.49*) | | |
| *African Amer* | 0.06 | 0.07 | 0.09 | 0.10 | 0.05 | 0.06 | 0.05 | 0.05 | 0.06 | 0 | 1 |
| | (*0.23*) | (*0.25*) | (*0.28*) | (*0.30*) | (*0.22*) | (*0.23*) | (*0.21*) | (*0.22*) | (*0.24*) | | |
| *White* | **0.87** | 0.85 | 0.82 | 0.81 | 0.88 | 0.87 | 0.89 | 0.88 | 0.87 | 0 | 1 |
| | (*0.33*) | (*0.36*) | (*0.38*) | (*0.39*) | (*0.33*) | (*0.34*) | (*0.31*) | (*0.33*) | (*0.34*) | | |
| *HS* | 0.14 | 0.14 | 0.14 | **0.17** | 0.13 | 0.14 | 0.12 | 0.14 | 0.13 | 0 | 1 |
| | (*0.34*) | (*0.35*) | (*0.35*) | (*0.38*) | (*0.34*) | (*0.35*) | (*0.33*) | (*0.35*) | (*0.34*) | | |
| *Some College* | 0.21 | 0.22 | 0.21 | **0.26** | 0.21 | 0.21 | 0.22 | 0.20 | 0.22 | 0 | 1 |
| | (*0.41*) | (*0.41*) | (*0.41*) | (*0.44*) | (*0.41*) | (*0.40*) | (*0.41*) | (*0.40*) | (*0.41*) | | |
| *Bachelors* | 0.32 | 0.32 | **0.34** | 0.31 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0 | 1 |
| | (*0.47*) | (*0.47*) | (*0.47*) | (*0.46*) | (*0.47*) | (*0.47*) | (*0.47*) | (*0.47*) | (*0.47*) | | |
| *Advanced* | 0.30 | 0.29 | 0.27 | 0.19 | 0.31 | 0.31 | 0.31 | 0.31 | 0.29 | 0 | 1 |
| | (*0.46*) | (*0.45*) | (*0.45*) | (*0.39*) | (*0.46*) | (*0.46*) | (*0.46*) | (*0.46*) | (*0.46*) | | |
| *Sep Div Wid* | 0.14 | 0.15 | 0.14 | 0.15 | 0.14 | 0.14 | 0.15 | 0.12 | 0.16 | 0 | 1 |
| | (*0.35*) | *0.36* | *0.34* | *0.35* | *0.35* | *0.34* | *0.36* | *0.33* | *0.37* | | |
| *Never Married* | 0.14 | 0.17 | 0.22 | 0.30 | 0.13 | 0.13 | 0.14 | 0.10 | 0.17 | 0 | 1 |
| | (*0.34*) | (*0.38*) | (*0.42*) | (*0.46*) | (*0.33*) | (*0.34*) | (*0.34*) | (*0.30*) | (*0.38*) | | |
| *Married* | **0.72** | 0.68 | 0.64 | 0.55 | 0.73 | 0.73 | 0.71 | **0.78** | 0.66 | 0 | 1 |
| | (*0.45*) | (*0.47*) | (*0.48*) | (*0.50*) | (*0.44*) | (*0.44*) | (*0.45*) | (*0.41*) | (*0.47*) | | |
| *ChildUnder16* | 0.31 | 0.30 | 0.31 | 0.33 | 0.32 | 0.33 | 0.29 | 0.34 | 0.29 | 0 | 1 |
| | (*0.46*) | (*0.46*) | (*0.46*) | (*0.47*) | (*0.47*) | (*0.47*) | (*0.45*) | (*0.47*) | (*0.45*) | | |
| *Hrs Wrk Mn Job* | 229 | 239 | 225 | 441 | 227 | 162 | 263 | 187 | 269 | 0 | 999 |
| | (*382*) | (*390*) | (*380*) | (*482*) | (*380*) | (*310*) | (*420*) | (*342*) | (*412*) | | |
| *Any Diff* | 0.04 | 0.05 | 0.03 | **0.09** | 0.04 | 0.03 | 0.06 | 0.04 | 0.05 | 0 | 1 |
| | (*0.21*) | (*0.22*) | (*0.18*) | (*0.28*) | (*0.20*) | (*0.17*) | (*0.24*) | (*0.19*) | (*0.22*) | | |
| *Unemploy Rt* | 7.23 | 7.19 | 7.12 | **7.36** | 7.24 | 7.21 | 7.22 | 7.24 | 7.22 | 2.4 | 19.5 |
| | (*2.29*) | (*2.29*) | (*2.24*) | (*2.30*) | (*2.29*) | (*2.26*) | (*2.31*) | (*2.29*) | (*2.28*) | | |

Note: The acronyms used are: "E": entrepreneurs. "Opprt": opportunity. "NECC": necessity. "FT": full-time. "PT": part-time. "Inc": incorporated. "Uninc": unincorporated. "Amer": Americans. "Sep": separated. "Div": divorced. "Wid": widowed. "HS": high school. "Hrs Wrk Mn Job": hours worked at the main job. "Diff": difficulty. "Unemploy Rt": unemployment rate.

more likely to be male, educated, married baby boomers with limited physical or mental difficulties, and residing outside of central cities where there is potentially more adequate space for a larger business. This supports Hypothesis 4.

The expected education effect for Hypothesis 2 was non-significant. While education offers knowledge that helps with opportunity recognition, many other factors could be more important as one accumulates more experience and information over time. In addition, the estimates from this study showed that baby boomers who were unemployed for longer were more likely to be *opportunity* instead of *necessity* entrepreneurs. By definition, *necessity* entrepreneurs were those involuntarily unemployed. However, those who were unemployed (particularly voluntarily unemployed) for longer might choose not to work so as to have time to prepare for the new business. In that case, a longer unemployment (particularly voluntarily) could result in a higher likelihood to be an *opportunity* entrepreneur.

Inconsistent with Hypothesis 3, never-married baby boomers were found to be more likely to be *part-time* versus *full-time* entrepreneurs. Baby boomers who never married could have been choosing between options for marriage or not committed to being married; marital status could reflect a preference for *part-time* instead of *full-time* entrepreneurship.

In addition, among baby boomer entrepreneurs, a slightly u-shaped age effect for being *new, new opportunity, part-time,* and *unincorporated*

**Table 4.** Multilevel mixed-effects logistic regression estimate for baby boomer entrepreneurs.

| | *New vs. Continuing E* | | | *New Opportunity vs. Necessity E* | | | *Full-Time vs. Part-Time E* | | | *Incorporated vs. Unincorporated E* | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Coef. | SE | P | Coef. | SE | P | Coef. | SE | P | Coef. | SE | P |
| Residence Location | | | | | | | | | | | | |
| *Central City* | 0.05 | 0.02 | *** | −0.09 | 0.10 | | −0.02 | 0.02 | | −0.19 | 0.02 | *** |
| Demographics | | | | | | | | | | | | |
| *Age* | −0.19 | 0.03 | *** | −0.80 | 0.16 | *** | 0.31 | 0.03 | *** | 0.08 | 0.02 | *** |
| *Age2* | 0.00 | 0.00 | *** | 0.01 | 0.00 | *** | −0.00 | 0.00 | *** | −0.00 | 0.00 | *** |
| *Male* | −0.10 | 0.02 | *** | 0.55 | 0.10 | *** | 1.05 | 0.02 | *** | 0.45 | 0.02 | *** |
| *Race (base: other minority and mixed races)* | | | | | | | | | | | | |
| *African Amer* | 0.16 | 0.05 | *** | −0.06 | 0.24 | | −0.29 | 0.05 | *** | −0.34 | 0.05 | *** |
| *White* | −0.11 | 0.04 | *** | −0.00 | 0.18 | | −0.27 | 0.04 | *** | −0.13 | 0.03 | *** |
| Socioeconomic Status | | | | | | | | | | | | |
| *Educational Attainment (base: less than high school or unreported)* | | | | | | | | | | | | |
| *HS* | −0.04 | 0.06 | | −0.01 | 0.32 | | 0.25 | 0.06 | *** | 0.55 | 0.06 | *** |
| *Some College* | −0.07 | 0.06 | | −0.10 | 0.31 | | 0.16 | 0.06 | ** | 0.46 | 0.05 | *** |
| *Bachelors* | −0.09 | 0.06 | | 0.24 | 0.31 | | 0.17 | 0.06 | *** | 0.48 | 0.05 | *** |
| *Advanced* | −0.14 | 0.06 | ** | 0.46 | 0.31 | | 0.23 | 0.06 | *** | 0.49 | 0.05 | *** |
| *Marital Status (base: married)* | | | | | | | | | | | | |
| *Never Married* | 0.13 | 0.03 | *** | −0.11 | 0.16 | | −0.21 | 0.03 | *** | −0.62 | 0.03 | *** |
| *Sep Div Wid* | 0.10 | 0.02 | *** | −0.04 | 0.13 | | 0.05 | 0.02 | ** | −0.38 | 0.02 | *** |
| *Family Responsibility* | | | | | | | | | | | | |
| *Child Under 16* | −0.05 | 0.03 | * | −0.04 | 0.14 | | −0.09 | 0.03 | *** | 0.01 | 0.02 | |
| *Work Experience* | | | | | | | | | | | | |
| *Cont Weeks UnEmp* | −0.00 | 0.00 | *** | 0.00 | 0.00 | *** | | | | 0.00 | 0.00 | *** |
| *Hrs Work Main Job* | −0.00 | 0.00 | | −0.00 | 0.00 | *** | −0.00 | 0.00 | *** | −0.00 | 0.00 | *** |
| *Health* | | | | | | | | | | | | |
| *Any Diff* | 0.15 | 0.04 | *** | −1.10 | 0.18 | *** | −0.48 | 0.04 | *** | −0.30 | 0.04 | *** |
| Metro Business Cycle | | | | | | | | | | | | |
| *Unemployment Rt* | 0.01 | 0.01 | | 0.02 | 0.03 | | −0.02 | 0.01 | * | 0.00 | 0.01 | |
| *Year Dummy Variables* | | Yes | | | Yes | | | Yes | | | Yes | |
| *Constant* | 4.55 | 0.82 | *** | 21.53 | 4.45 | *** | −6.81 | 0.80 | *** | −2.76 | 0.71 | *** |
| *Random-Effects Parameters: Metropolitan Areas; Identity* | | | | | | | | | | | | |
| *sd(_cons)* | 0.1 | 0.0 | ** | 0.0 | 0.1 | | 0.3 | 0.0 | ** | 0.5 | 0.0 | ** |
| *LR test vs. logistic model: chibar2(01)* | 1 | | | 0 | | | 397 | | *** | 2417 | | *** |
| *Number of obs* | 81055 | | | 2066 | | | 73904 | | | 81055 | | |
| *Number of groups* | 144 | | | 135 | | | 144 | | | 144 | | |
| *Obs per group:* | | | | | | | | | | | | |
| *min* | 11 | | | 1 | | | 5 | | | 11 | | |
| *avg* | 563 | | | 15 | | | 513 | | | 563 | | |
| *max* | 5872 | | | 190 | | | 5425 | | | 5872 | | |
| *Log likelihood* | −41497 | | | −1236 | | | –41988 | | | –53101 | | |
| *Wald chi2(25)* | 302 | | *** | 235 | | *** | 5844 | | *** | 3387 | | *** |

Notes: * indicates statistical significance at 0.1 level, ** indicates statistical significance at 0.05 level, and *** indicates statistical significance at 0.01 level. The acronyms used are: "E": entrepreneurs. "Amer": Americans. "HS": high school. "Sep": separated. "Div": divorced. "Wid": widowed. "Cont": continuous. "UnEmp": unemployed. "Hrs": hours. "Diff": difficulty. "Rt": rate..

entrepreneur types was observed, which implies a slightly n-shaped age effect for *continuing, new necessity, full-time,* and *incorporated* types. This is consistent with findings for baby boomers reported in Figure 2. Baby boomers ranged in age from 42 to 70 years during the study period, which meant that the rate of *new, new opportunity, part-time,* and *unincorporated* baby boomer entrepreneurs rose at a higher age (probably 55 and above).

## Robustness check

For the multilevel mixed-effects logistic regression models, the Wald chi-square statistics were all statistically significant ($p < .001$), indicating overall significant effects from the independent variables. The statistically significant ($p = 0.01$) random-effect parameters indicated the advantage of using mixed-effect multilevel or hierarchical modeling instead of

one-level analysis. The statistically significant log likelihood ratio test statistics versus logistic regressions reflected the expected advantage of using a cross-sectional time-series panel data model rather than a simple logistic regression. In addition, the findings were mostly consistent across all four models and consistent with the two-sample t-test results, observations from the data, and expectations, demonstrating robustness of the analyses.

## Summary of findings and limitations of study

This study for the first time defined eight different baby boomer entrepreneur types and examined the variables driving selection to these types. The study used a well-represented public national dataset for entrepreneur typology and defined the following eight different entrepreneur types (four pairs): *new* versus *continuing, incorporated* versus *unincorporated, full-time* versus *part-time,* and *new opportunity* versus *new necessity*. The study added nuance to the entrepreneurial types for older entrepreneurs. It not only modeled across individuals for the fixed effects, it also incorporated random effects across metropolitan areas with the multilevel mixed-effects logistic regression models. It used the most current (2006–2016) nationally representative data, which covered 132 months of information (11 years).

The findings, based on four multivariate multilevel mixed-effects logistic regression models, supported most of the hypotheses that were developed from the literature. Central city, not married, female, African American, non-White, less well educated, less healthy older baby boomers were more likely to be *new* versus *continuing* entrepreneurs. Healthier, male, older baby boomers were more likely to be *new opportunity* instead of *new necessity* entrepreneurs. Married, healthier, better educated, non-central city baby boomers were more likely to be *incorporated* versus *unincorporated* entrepreneurs. Male, healthier, separated/divorced/widowed baby boomers with fewer young children and living in areas with lower unemployment rates were more likely to be *full-time* versus *part-time* entrepreneurs. However, never married baby boomers were found to be more likely to be *part-time* versus *full-time* entrepreneurs.

Understanding baby boomer entrepreneurs better and assisting them to develop entrepreneurship could be an effective strategy for our aging population. The findings of this study can help identify strategies to develop baby boomer entrepreneurship. For example, since female, African American, less healthy baby boomers were more likely to be *new* (versus *continuing*) entrepreneurs and *new necessity* (versus *new opportunity*) entrepreneurs, increasing entrepreneurship awareness and targeting entrepreneurship training to them could facilitate unemployed baby boomers or baby boomers lacking in entrepreneurship experience to become entrepreneurs. Since *new* entrepreneurs were also more likely than *continuing* entrepreneurs to reside in central cities, this entrepreneurship training could be delivered efficiently in central cities. Also, as baby boomers with fewer young children were more likely to be *full-time* than *part-time* entrepreneurs, child care support, including tax credits, might help baby boomers who prefer to be *full-time* entrepreneurs to better engage in their entrepreneurial activities. For certain communities or families, this could mean shifting from child care roles into entrepreneurial roles.

As the first study to identify and address eight types of baby boomer entrepreneurs, it is acknowledged that there is more to be examined. This typology can be applied to more nuanced studies using types. Future studies could explore whether what was observed in this study was unique to this baby boomer generation, or universal across other generations. Further studies comparing across generations would be worthwhile. Although the study used data on USA baby boomer entrepreneurs, the topology and findings developed in the study potentially have global implications. Another stream of future study could include comparing baby boomer entrepreneur experience across countries.

### Acknowledgments

The author appreciates the valuable advice from Professors Zoltan Acs, Charlie Karlsson, Simon Parker, Enrico Santarelli, and several other scholars from the American Economic Association 2018 Annual Meeting. The content of this study is solely the responsibility of the author and does not necessarily reflect the views of the Kauffman Foundation.

### Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The author acknowledges the Ewing Marion Kauffman Foundation for its generous grant support for this study.

### Notes

1. Using Health and Retirement Study data.
2. This new entrepreneur rate captures all new incorporated or unincorporated, employer or non-employer business owners, using the Current Population Survey data.

3. The "creative class" occupations include management, business and financial operations, computer and mathematical, architecture and engineering, science, law, education, arts and media, health-care practitioners, and high-level sales management jobs.
4. Thus, individuals who are interviewed monthly in January through April of one year are interviewed again in the next January-April period.
5. Other race is the omitted.
6. Being married is omitted.

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