

Understanding the Gender-gap in Financial Literacy: A Decomposition Analysis

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Overview

Financial literacy is the ability to use knowledge and skills to effectively manage financial resources at a personal-level. It is more than numeracy—“being good with numbers” although numeracy is important in its own right. It includes for example the understanding of compound interest rates, nominal and real interest rates and financial risk diversification. The USA President's Advisory Council on Financial Capability defines personal financial literacy as the: “... ability to use knowledge and skills to manage financial resources effectively for a lifetime of financial well-being” (PACFC, 2014). Individuals who are more financial literate have been shown to make more economically rational decisions pertaining to real estate purchases, insurance purchases, investing, saving, tax planning, retirement planning and pension planning. Financial literacy is a form of “human capital”. Hence one would expect it to yield a return or benefit. If it is beneficial, then some will invest in it in the same way as some invest in other form of human capital such as higher education. It is considered to be one of the “next big topics” in the economics and finance, with potential spill-overs to other disciplines in the social sciences (see Lusardi and Mitchell, 2014).

In the USA, financial literacy is at the centre of an important public policy debate. Low financial literacy has been used to explain the high-level of personal indebtedness and the collapse of the sub-prime mortgage market. This debate is driven by a “blame game”. That is, who is responsible for the financial crisis—the borrowers or the lenders? If borrowers are primarily responsible (by borrowing money that they could not afford to pay it back) then the main policy response is to improve financial literacy through education and training. If lenders are primarily responsible (by lending money to borrowers who they knew could not afford to pay it back) then the main policy response is to regulate the lending sector. It is clear that understanding the level of and variation in financial literacy is critical to understanding what the most appropriate policy response is.

Information relating to financial literacy is almost exclusively collected through questions on surveys. These include subjective measures that try to capture an individual’s self-assessment of financial literacy. There are also objective measures, which are basically tasks operationalised as multiple-choice questions. There are various dimensions of financial literacy. Research to date (mostly from the USA) suggests that there are three key dimensions of financial literacy:

1. Understanding of interest rates, especially compounding
2. Understanding of inflation
3. Understanding of risk diversification

Annamaria Lusardi with various colleagues has developed several modules of questions aimed at measuring financial literacy. Depending on the amount of available survey time, these modules include 3, 5, 7 or 17 questions. The three question module is aimed at capturing the above-mentioned three dimensions of financial literacy in three easily understood questions (Lusardi and Mitchell, 2011). The questions are:

Q1: Suppose you have £100 in a savings account and the interest rate is 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?

- (i) More than £102
- (ii) Exactly £102

- (iii) Less than £102
- (iv) Don't know
- (v) Refuse to answer

Q2: Imagine that the interest rate on your savings account is 1% per year and inflation is 2% per year. After 1 year, how much would you be able to buy with the money in this account, assuming you buy the same things?

- (i) More than today
- (ii) Exactly the same
- (iii) Less than today
- (iv) Don't know
- (v) Refuse to answer

Q3: Which is the riskier asset to invest in?

- (i) A single company's share
- (ii) A portfolio of different company shares
- (iii) The risk is the same
- (iv) Don't know
- (v) Refuse to answer

On average it takes less than 30 seconds to answer these questions. They have been shown to be internationally comparable. They have been included in the USA, Netherlands, Germany, Japan, Australia, New Zealand, Switzerland, Italy, Sweden, France, Russia and Romania (see Lusardi and Mitchell, 2014).

Research to date that has focussed on understanding the determinants of financial literacy has concluded that there are four key factors that explain most of the variance across individuals. The first is *education*, with higher levels of education being associated with higher levels of financial literacy. The second is age, with financial literacy increasing with age, reaching a maximum around age 55-65 years and declining thereafter. The third is *unemployment*, with individuals who are unemployed having lower level of financial literacy. The fourth factor, which is the topic of this paper, is *gender*. As Lusardi and Mitchell (2014) point out, in all countries where data is available, financial literacy is lower (and in some countries considerably lower) for woman compared to men. It is important to note that these difference persist when these factors, along with other possible determinants, are modelled jointly with multiple regression.

The female-male gap is a "puzzle". In high-income countries, there are not huge differences in education, age and unemployment rates between men and women. Therefore, it is unlikely that there will be an easy explanation along the lines: "Financial literacy is lower for women, because women have less education and/or have higher rates of unemployment and/or are much older or younger on average than men. Even though it is well documented that the gender gap exist, there has been little serious research (and particularly empirical research) aimed at establishing why this difference exists.

The purpose of this paper is to examine the female-male financial literacy gap through the application of a statistical composition technique used widely in the estimation of gender and race labour market discrimination.

One of the authors (Wright) included the three financial literacy measures discussed above on the *British Election Study* (BES). The BES is a long-running (since 1962) nationally-representative social science survey. Its main aim is to collect information to further the understanding of political attitudes and behaviour (see <http://www.britishelectionstudy.com>). In addition, a wide range of socioeconomic and labour market variables are collected. In this paper, data from Wave 5, collected in the autumn of 2014, is used. This is the so-called “enhanced Scottish sample”, which was an over-sampling of the population of Scotland in the two months that followed the *Scottish Independence Referendum*. The total sample size is around 10,000 individuals, making it one of the largest datasets available for any country that includes information about financial literacy.

In the empirical analysis is based on multiple regressions. Regressions are estimated for men and women where the dependent variable is the number of correct responses to the three financial literacy questions. In addition to age, education and employment status, the list of independent variables also includes ethnicity, country of birth, occupation, sector, union status and several demographic factors such as marital status. The BES is rich in potential explanatory factors.

The estimated regression equations are then used to carry out a statistical decomposition of the difference the number of correct answers between women and men. This method, named after Oaxaca (1973) and Blinder (1973), is of the form:

$$(1) FL_M = \beta_M X_M$$

$$(2) FL_F = \beta_F X_F$$

where the subscripts “*M*” and “*F*” represents men and women respectively. “*FL*” is the number of correct answers; “*X*” is a vector of explanatory variables (including a constant); and “ β ” is a vector are parameters to be estimated. The gender gap, “*Gap*” is

$$(3) Gap = FL_M - FL_F = \beta_M X_M - \beta_F X_F$$

After rearranging terms

$$(4) Gap = FL_{mean_M} - FL_{mean_F} = \hat{\beta}_M (X_{mean_M} - X_{mean_F}) + (\hat{\beta}_M - \hat{\beta}_F) X_{mean_F}$$

Given $FL_{mean_M} > FL_{mean_F}$, the component “ $\hat{\beta}_M (X_{mean_M} - X_{mean_F})$ ” is the amount of the gap “explained” by differences in the included explanatory variables between females and males. The component “ $(\hat{\beta}_M - \hat{\beta}_F) X_{mean_F}$ ” is the amount of the gap “unexplained” or due to differences in the parameter values between men and . It is this last component that is usually attributed to discrimination when the variable of interest is wages or earnings. In order to consider the robustness of the findings, this decomposition is also carried out separately for each of the three financial literacy questions.

The empirical analysis demonstrates that little of the financial literacy gap is “explained” in the sense that it can be attributed differences in the included explanatory variables. Most of the gap is “unexplained” in the sense that it can be attributed to differences in the parameter values. This finding is robust when each financial literacy question is considered separately. It is important to note that gender differences in the occupation distribution is not important (a new

finding). More generally, the analysis suggests that much of the female disadvantage with respect to financial literacy has its roots in the period before women enter the labour market.

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