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Empowering Women Through Financial Awareness and Education

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ABSTRACT/RÉSUMÉ

Empowering women through financial awareness and education (OECD WORKING PAPERS ON FINANCE, INSURANCE AND PRIVATE PENSIONS: No. 14)

The potential implications of gender differences in financial literacy are far-reaching. This paper describes the findings of a review of the literature on gender differences in financial literacy with the aim to better understand their causes and consequences, as well as possible policy responses. It provides a starting point to collect further evidence, develop analytical work and case studies, and to identify areas that deserve further research, thus paving the way for future work to be developed by the OECD and the INFE.

A relatively broad range of empirical literature documents the existence of gender differences in financial literacy in various countries and along several dimensions. On average, women perform worse than men on tests of financial knowledge and have less confidence in their financial skills. However, so far policy awareness of the existence and relevance of these differences is quite low.

The literature (albeit so far limited) on what drives such gender differences points to several potentially complementary explanations including differences in skills, attitudes, and opportunities. In this context, the contribution of improved and targeted financial education programmes aimed at better addressing women's needs is promising and worth exploring further.

JEL codes: D14, D18, D91, J16
Key words: financial literacy, financial capability, financial education, consumer protection, gender, women.

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Le rôle de la sensibilisation et l'éducation financière dans l'autonomisation des femmes (OECD WORKING PAPERS ON FINANCE, INSURANCE AND PRIVATE PENSIONS : No. 14)

Les implications des différences entre hommes et femmes en matière de culture financière sont potentiellement significatives. Cet article décrit les résultats de l'examen de la recherche existant sur le sujet afin de mieux en appréhender les causes et conséquences, et d'identifier de possibles réponses en matière de politiques publiques. Cet article fournit une base solide pour collecter de nouvelles données, développer l'analyse et des études de cas et d'identifier les zones qui méritent d'être approfondies, ouvrant ainsi la voie aux prochains travaux de l'OCDE et l'INFE en la matière.

Un éventail relativement large de recherches empiriques montre l'existence de différences entre hommes et femmes en matière de culture financière dans divers pays et sur plusieurs déterminants de cette culture. En moyenne, les femmes ont de moins bons résultats que les hommes aux tests de connaissances financières et ont moins confiance en elles quand il s'agit de leurs compétences financières. La prise de conscience politique de l'existence et de la pertinence de ces différences reste néanmoins à ce jour plutôt faible.

La recherche (quoique limitée) portant sur les facteurs expliquant ces différences met en avant plusieurs explications potentielles et complémentaires comme les différences de compétences, de comportements, et d'opportunités. Dans ce contexte, la contribution que peuvent apporter des programmes d'éducation financière performant et adaptés aux besoins des femmes est prometteuse et mérite d'être explorée plus avant.

Codes JEL : D14, D18, D91, J16
Mots clés : Connaissances financières, capacité financière, éducation financière, protection des consommateurs, genre, femmes.

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EXECUTIVE SUMMARY

In 2010 the OECD International Network on Financial Education (INFE) created an expert subgroup on Empowering Women through Financial Awareness and Education, jointly chaired by Australia and India. As part of its original roadmap, the expert subgroup commissioned a review of the literature to better understand the causes and consequences of differing levels of financial literacy by gender and gender-specific approaches to improving financial literacy. This paper describes the findings of that review.

The premise for this work is the growing, but disparate, evidence that indicates that on average women have lower levels of financial knowledge than men. Emerging evidence also points to a gap in financial skill levels of men and women, although the direction of this gap appears to vary. Within the global movement to encourage 'gender mainstreaming', it has been recognised that the potential implications of gender differences in financial literacy are far-reaching. This is particularly true when the difference disadvantages women, as they are already frequently shown to be at a financial disadvantage when compared with their male peers. Lower levels of financial literacy have the potential to reduce women's active participation within the economy; economic power within the household; transmission of knowledge to the next generation and to worsen existing social disparities. Moreover, as public policies in many countries shift a greater burden of long-term financial decision-making to individual consumers, the demand for financial literacy skills increases and women may then be disproportionately vulnerable. Policies designed to help consumers acquire financial literacy may need to address the different root causes underlying gender differences and design interventions with men's and women's learning styles in mind.

This paper reviews data and research available to date on women and financial literacy. Being based on the evidence currently available, it provides a starting point to collect further evidence and case studies, and to identify areas that deserve further research. It includes evidence from the academic and grey literature, as well as from existing country surveys of financial literacy, including pilot data from 12 countries participating in the OECD/INFE Financial Literacy Survey. In addition, the paper reports the results of a survey carried out among OECD/INFE members about gender differences in financial literacy and the policy responses in their home countries.

The review reveals a relatively broad range of empirical literature documenting the existence of gender differences in financial literacy in various countries, and an emerging literature making international comparisons. There is more limited, context-specific evidence on vulnerable sub-populations, as well as on the determinants of gender differences, and relatively sparse information on financial education programmes with proven efficacy.

Overall, we find that after examining a range of studies conducted across various countries, women are typically equally or less financially literate than men along most dimensions. Women have fewer key financial skills and less confidence in their skills. On average, they perform worse than men on tests of financial knowledge—such as calculating interest, or demonstrating an understanding of risk

diversification. In a small sample of studies that examine broader measures of financial literacy, women generally perform better in household money management, while men tend to outperform in long-term planning, choosing products and staying informed. Specific subpopulations, for example women at either end of the age spectrum, low-income women, and widows, may be more vulnerable to the negative consequences of low levels of financial literacy than other women, or men in the same subgroups.

The research literature on what drives gender differences in financial literacy is currently limited but provides several potentially complementary explanations including differences in skills, attitudes, and traditional gender roles in household decision making and in society that affect the opportunities of women and girls. Given the difficulty to single out factors affecting gender differences in financial literacy and to pin down causal links, more systematic research in this area is needed. Such work is being carried out by the INFE dedicated subgroup with most deliverables to be finalised by 2013.

While highly targeted and specific interventions may positively impact women's financial behaviour, relatively little research has directly studied the effects of financial education on reducing gender differences in financial literacy. Some evidence suggests that training can impact men and women but may do so differently, and more research on the design and effectiveness of financial education programmes is also needed.

The survey of authorities in OECD/INFE member countries reveals a mixed policy response and a lack of awareness. Only eight countries (out of the 27 that answered the survey) agreed that the need to address the financial literacy of women and girls was an important issue. Only four had programmes directly targeting women and girls while another six had financial literacy programmes in place or under development that were focused on women (but open to all). Lack of evidence may hamper the ability to design effective policies. While the most frequently cited opinion was that women score "somewhat lower" than men on financial knowledge, skill and confidence, more than half the respondents reported a lack of evidence enabling them to evaluate possible gender differences in financial literacy. The extent of programme evaluation is very limited with only two countries reporting any kind of programme evaluation.

INTRODUCTION

This background paper provides an initial overview of the literature and currently available data on women and financial literacy, building on preliminary data and resources from OECD member countries and members of the International Network on Financial Education (INFE). The paper focuses to a great extent on financial knowledge issues, since much of the available evidence so far is related to this particular aspect of financial literacy. However, gender differences in attitudes, skills and behaviour are also discussed, wherever possible.

The goal of this report is threefold: to offer an overview of main issues related to financial education and women, to highlight possible explanations and solutions, as well as programmes to address these and finally to identify priority areas for further relevant research. Given the limited evidence currently available and the difficulty in identifying single explanatory factors, the paper is also meant to be a starting point for collecting further evidence and case studies.

Background and Context

The OECD's financial education project[1] was launched in 2003 to address member governments' growing concerns over the adverse effects of low financial literacy levels. Following formal recognition of financial education's importance by the G8 finance ministers, the INFE was created in 2008 to expand this work and as a means to enable data collection, research collaboration, policy coordination, development of international guidance and analytical work and information-sharing. There are currently more than 200 public institutions from over 90 countries and territories who are regular members of the OECD International Network on Financial Education (INFE).

In its 2011/2012 programme of work, the INFE indicated its willingness to expand into specific target groups including women. Given that women are often over-represented in disadvantaged groups in the community and have lower levels of retirement savings than men, this is relevant to INFE's work on financial literacy measurement, the role of financial education for financial inclusion, and on savings, investments and pensions.

In response to some INFE countries further identifying women's financial education needs as an important area of additional research, an expert subgroup on financial education and women was created to address this issue in October 2010. This expert subgroup is jointly chaired by Delia Rickard of ASIC, Australia and Prashant Saran of SEBI India, with members including representatives from Egypt, New Zealand, the Philippines, Turkey, the British Virgin Islands and the United Kingdom, indicating the widespread international interest in this topic. The subgroup had its first meeting on 23 May 2011.

In order to launch this new work stream, RAND was commissioned to develop an initial scoping exercise and help the subgroup and INFE identify relevant areas of knowledge expansion and/or targeted policy recommendations.

[1] www.financial-education.org

Definitions and Conceptual Framework

To date, there remains little generally-accepted consensus on the definition and conceptual modelling of financial literacy[2]. For the purposes of this report and to ensure consistency with other OECD and INFE research, we use the term "financial literacy" in line with the following OECD/INFE definition:

> 'A combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing.'

Working with the definition, it appears that individual traits such as cognitive ability (particularly numeracy), personality type, and preferences may affect financial knowledge and skills acquisition, inherent motivation and confidence to make consequential financial decisions and thus impact on levels of financial literacy.

Learning-by-doing generates an internal feedback loop – individuals update their knowledge, skills, motivation and confidence with more financial experience. A lack of financial literacy, therefore, all else equal, can both lead to and arise from differences in opportunities to gain knowledge and exposure to financial matters.

Most saliently for policymakers, individuals may be exposed to financial education policies or programmes to increase their financial literacy and know-how. Financial education includes "*the process by which financial consumers/investors improve their understanding of financial products, concepts and risks and, through information, instruction and/or objective advice, develop the skills and confidence to become more aware of financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being*" (OECD, 2005). Information provided to consumers includes facts, data and specific knowledge to make them aware of financial opportunities; instruction involves ensuring that individuals acquire the skills and ability to understand financial terms and concepts through training and guidance; and advice involves providing consumers with counsel about generic financial issues and products to help them make the best use of available financial information and instruction.

Finally, features of the external environment other than policies with an explicit financial literacy mandate may also affect the acquisition of financial literacy, such as the availability of basic education or cultural norms surrounding the acquisition of material wealth.

This simple conceptual framework describes the different factors that feed into financial literacy. Insofar as gender differences in these various factors exist (i.e. differences in personal traits, learning opportunities and exposure or access to enabling features of the external environment), these may then contribute to the existence of gender differences in financial literacy. In the next section we review the role of gender in more detail.

The importance of gender in the context of financial literacy and education

Empirical evidence suggests financial literacy's positive impact on financial behaviour and financial status in a number of behavioural domains. Financially-literate individuals do better at budgeting, saving money, and controlling spending (Moore, 2003; Perry and Morris, 2005); handling mortgage and other debt (Campbell, 2006; Lusardi and Tufano, 2009); participating in financial markets (Van Rooij, Lusardi et

[2] Note that in practice, it should be recognized that the term "financial literacy" overlaps considerably in use with the term "financial capability", although we refer exclusively to the former in this report.

al., 2011; Christelis, Jappelli et al., 2010; Yoong, 2010); planning for retirement (Lusardi and Mitchell, 2007a; Lusardi and Mitchell, 2008); and ultimately, successfully accumulating wealth (Stango and Zinman, 2009). Other work has further demonstrated the link between financial status and other important aspects of household well-being, notably low financial status correlates with poorer physical, mental and emotional health outcomes for all household members and lower educational attainment of children (see for instance Kessler and Neighbors, 1986; McLoyd, 1989; Seccombe, 2000; Lorant, Deliege et al., 2003; Hammack, Robinson et al., 2004; Marmot, 2005; Mackenbach, Stirbu et al., 2008; Shanks and Danziger, 2010). These effects operate through such mechanisms as job characteristics (Bosma et al., 1998); family relationships (Conger, Elder Jr et al., 1990); and a higher likelihood of experiencing stressors more generally (Eaton and Muntaner, 1999). Finally, on a macro-level, households that accumulate formal financial experience generate greater demand for financial products; pressure for market transparency, competitiveness and efficiency; while increased wealth accumulation and increases in the private savings rate—in combination with well-functioning markets—builds economic stability, stimulates economic activity and leads to increased development.

We note that, despite its significance, recent international efforts to measure financial literacy (reviewed in more detail later) suggest that levels of financial literacy are low, on average, on a number of metrics across countries. The typical consumer has limited objective as well as perceived subjective understanding of financial issues, and many consumers express lack of ability/motivation to gain and understand financial information and knowledge (see Yoong, 2010 for a more expanded description). Individuals' ability to make appropriate financial decisions may be increasingly important to ensure positive outcomes as the external environment becomes more challenging. Such challenges include the decline of public welfare policies; a shift to defined contribution pension schemes in many countries; increased life expectancy and health care costs in old age; the development of more complex financial markets; and the recent effects of the global financial crisis and recession.

Surprisingly, while the need for financial literacy may be largely acknowledged, the importance of a gender dimension remains a subject for debate. While recognising that country-specific context varies widely, we argue that there are three key aspects of a general rationale for considering the needs of women.

Firstly, where gender differences in financial literacy do exist, there are both philosophical and pragmatic reasons for addressing them. While it is important to refrain from *ex-ante* assuming the direction of a gender gap, evidence discussed later in the text suggests that women tend to have lower levels of financial knowledge. Women are also shown to be relatively less financially skilled than men along several dimensions. Such gaps represent fundamental problems for social equity, with several important follow-on implications.

- There may be unrealised potential for gains in economic efficiency among one-half of the population, particularly in societies where a relatively large share of production takes place in informal home-based enterprises run by women. Low levels of female financial literacy and confidence may impede their more active participation in the economy.

- Financial literacy differences may affect relative economic power within the household. This has implications for well-being if men and women allocate household resources according to different preferences. Research in many countries suggests that households do not act as a single unitary decision maker. Instead, household resources in women's hands has been observed to be more likely spent on improving family well-being, particularly that of children (e.g. see Thomas, 1993; Haddad, Hoddinott et al., 1997; Rawlings and Rubio, 2005; Handa and Davis, 2006; Doepke and Tertilt, 2011 for an overall summary of the literature).

- In situations where women are primarily responsible for the care of children and more likely to be single parents, this may impede the intergenerational transmission of financial literacy, affecting the early learning, behaviours and attitudes of next generation consumers.

- Such differences are potentially compounded by the existence of the experiential feedback loop, as such differences can further reinforce and exacerbate other disparities between men and women.

Establishing and protecting economic empowerment on an equal basis for men and women has been recognised both as a basic human right, and as an issue for policymakers. Indeed, women's empowerment is seen as a "prerequisite for sustainable development, pro-poor growth and the achievement of all the Millennium Development goals" (GENDERNET, 2011).

Secondly, women may be in greater need of long-term wealth management skills for a combination of reasons related to labour and demography. Women's labour market tenure tends to be shorter and both tenure and occupational choice may be more constrained by social norms, access to labour markets and family issues such as childbearing. In some countries, women are also subject to lower pay relative to men, all else equal, setting the stage for lower accumulated savings. At the same time, demographic considerations place women in a position of economic need. As well as being primary caregivers for children in many instances, women are more likely to be lone parents. The financial consequences of divorce are also more severe for women (see later discussion). More generally, women's life-expectancy is longer and, in some countries, women are disadvantaged in terms of legal and property rights which can be exacerbated by widowhood. On average—looking across 121 countries representing a wide mix of developing and developed nations—women live five years longer than men (Møller, Fincher et al., 2009). Past research has shown that the death of a spouse often precipitates women into poverty. Early US research using data from the Longitudinal Retirement History Survey (Hurd and Wise, 1989) showed that the death of a husband increased the household probability of poverty from less than 10 to more than 35 percent. Similarly, the loss of a spouse substantially decreases women's economic well-being in a study of four developed countries (Weir and Willis, 2000; Burkhauser, Giles et al., 2005). More recent US and cross-national research in developed countries confirms that older, single women continue to be disproportionately poor as compared with older single men and older married couples (Gillen and Kim, 2009; Gornick, Munzi et al., 2009).

Finally, even in settings where no observed gender gap in financial literacy exists, understanding the gender-specific causes of financial literacy in a particular country setting is essential for effective policy design. To return to the conceptual framework, variation in individual preferences and other inherent characteristics among populations of women and men may affect their desire or ability to acquire financial literacy. Demographic differences, e.g. age or life expectancy; personality traits (such as patience and risk-aversion); and basic environmental constraints (such as rudimentary formal education and mathematics training) may all factor into differences in the learning patterns by gender. Women and men may also experience different environmental constraints—e.g. occupational and cultural norms—limiting where, when and how they best learn about personal finance.

Distinguishing between these differences is important as they may call for very different policy responses: effective financial education interventions may need to address different root causes and be designed with the learning styles of men and women in mind. It is especially important to avoid further gender marginalisation as an unintended consequence of bad policy design.

The remaining part of the report reviews the existing evidence on gender differences in financial literacy and factors which may underpin them. New data from a survey of women's financial literacy, policy issues, and related programmes among a selected group of INFE members are reported. The conclusions highlight both general and INFE-specific areas for further research.

1. WHAT IS KNOWN ABOUT GENDER EFFECTS IN FINANCIAL LITERACY AND EDUCATION?

This section reviews evidence from a range of existing sources, including country surveys of financial literacy; the academic and grey research literature; and preliminary data from the 2011 OECD/INFE financial literacy measurement pilot.

In addition, we augment the review with results from a short survey of INFE member-countries conducted in April 2011 as part of the scoping exercise. This survey provides an important complementary perspective to the types of data above. The survey questionnaire was developed to investigate policymakers' perceptions of gender gaps in financial literacy in respondent countries; the level and type of policy concerns; and details of relevant programmes conducted within the last 5 years addressing these issues. To ensure consistency with past surveys, questions were developed with reference to previous INFE member surveys. As of July 20, 2011, a total of 28 agencies in 27 countries had responded: Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, India, Japan, Lebanon (two responses from different agencies), Luxembourg, Malaysia, Netherlands, New Zealand, Palestine, Paraguay, Poland, Portugal, Serbia, Singapore, Slovenia, Spain, Switzerland, Turkey and the United Kingdom. Relevant results are reported here but the complete consolidated responses to the questionnaire are compiled in the Updated Compilation of Responses to the Questionnaire on Financial Education and Women/Girls [INFE(2011)12/REV1].

1.1. Are there Gender Differences in Financial Literacy across Countries?

1.1.1. Nationally-Representative Household Surveys

In the recent past, public and private entities have undertaken nationally-representative surveys to ascertain financial literacy levels among their populations. A review of these initial individual country-efforts reveals the diversity of metrics used—including self-reported behaviour, attitudes, questions on numeracy, and knowledge of financial products and services—reflecting the complexity involved in defining and measuring financial literacy in a country-specific context.

A number of these surveys measure the knowledge/skill aspect of financial literacy by directly incorporating the original or a modified version of a brief assessment first designed by Lusardi and Mitchell (2011a) for use in the US Health and Retirement Study. The basic assessment consists of three questions on interest, inflation and risk diversification; a more expanded version includes additional knowledge questions. Another complementary approach that has gained international traction relates to a more holistic concept of "financial capability"/literacy[3], first pioneered by the UK Financial Services Authority baseline study (UK Financial Services Authority, 2006). This approach captures financial capability/literacy in five dimensions vital to financial well-being (namely, making ends meet, keeping

[3] Note that the term "financial literacy" used for this report and the INFE work in general encompasses this approach. Financial capability/literacy will therefore be used in the rest of the document whenever reference is made to countries that use "financial capability" rather than literacy (e.g. the UK and the US).

track of finances, planning ahead, choosing products and staying informed about financial matters). Researchers administer a full battery of questions, and conduct *ex-post* factor analysis to derive scores specific to the five underlying components.

The Lusardi and Mitchell (2011a) assessment questions have the advantage of being simple, brief and objectively correct or wrong. The measures are extremely narrow, although well-validated in terms of their predictive relationship to a range of financial outcomes. Conversely, the financial capability approach is implicitly driven by a more comprehensive underlying conceptual model that accounts for the decision-making process as well as types of behaviour. Although important constructs such as attitudes and behaviours are captured in addition to knowledge, of necessity, the approach taken to data collection relies heavily on self-reported information. Notably also, the factor-analytic scores are driven by country-specific weightings for individual questions. Therefore, it is not straightforward to quantitatively interpret a comparison of raw financial capability/literacy scores across countries, even though answers on similarly-worded individual questions can be compared qualitatively. More recent national surveys, such as the US Financial Capability Survey, have drawn productively on both approaches – using knowledge-based questions as well as broader measures of financial capability, assessment questions and self-reported attitudes and behaviours.

Notable larger-scale efforts have recently sought to realise the potential gains from cross-country comparisons. Lusardi and Mitchell (2011b) have gathered studies from national surveys conducted in Germany, Italy, the Netherlands, New Zealand, Russia, Sweden, Japan, and the United States under the Financial Literacy Around the World (FLatWorld) Initiative. The FLatWorld initiative substantially improved the availability of internationally comparative financial literacy data, however with some limitations. All measures are based on financial knowledge. Although survey questions were similarly worded in most countries, some differences remain. Therefore, cross country comparisons of the results from this initiative should be made with caution.

A more radical approach is to collectively harmonize measures going forward. With the goal of obtaining robust, comparable data on a representative population across each participating country, OECD/INFE has developed an internationally-comparable questionnaire measuring personal financial literacy reflecting best practice to date[4]. Thirteen countries from the OECD/INFE have recently pilot-tested the questionnaire. These countries vary in their development level, extent of financial inclusion, on their financial and economic systems and in terms of their geographic location.

For this report, we reviewed several nationally-representative surveys reporting on gender disparities in financial literacy. Table 1 shows a list of the surveys covered, including all country reports from the FLatWorld Initiative. We note that not all of these surveys reported evidence disaggregated by gender, and not all surveys that reported gender-disaggregated estimates reported tests of statistical significance. In addition, as of November 2011, we examined preliminary data focusing on financial knowledge available from the twelve countries included in the OECD/INFE pilot for which data is currently available: Albania, Armenia, Czech Republic, Estonia, Germany, Hungary, Ireland, Malaysia, Norway, Poland, UK, and South Africa[5].

[4] Financial Literacy: Results of the OECD INFE Pilot Study (INFE(2011)15); Financial Literacy: Methodological Report of the OECD INFE Pilot Study (INFE(2011)16); Core Questionnaire (for piloting) (INFE(2010)3/REV2).

[5] Note that further research on gender differences in other aspects of financial literacy – such as attitudes and behaviour – will be conducted under the aegis of the INFE based on the results of the INFE pilot exercise.

Table 1. Nationally Representative Household Surveys

Country	Survey Name	Most Recent Survey Publication Year	Approach (may include country-specific modification)		
			Knowledge (Lusardi and Mitchell,2011a)	Capability (FSA, 2006)	Other
Singapore	National Financial Literacy Survey	2005			X
United Kingdom	Financial Services Authority Baseline Survey On Financial Capability	2006		X	X
Indonesia	World Bank Access to Finance Survey	2007	X		X
Ireland	Irish Financial Capability Survey	2007		X	X
Australia	ANZ Survey of Adult Financial Literacy in Australia	2008			X
Italy	Bank of Italy Survey on Household Income and Wealth	2008	X		X
Russia	National Agency for Financial Studies -World Bank Financial Literacy Survey	2008	X		X
Azerbaijan	World Bank-Central Bank of the Republic of Azerbaijan-SECO Financial Literacy Survey	2009	X		X
Canada	Canadian Financial Capability Survey	2009		X	X
Germany	SAVE Household Survey	2009	X		X
New Zealand	ANZ/Retirement Commission Survey of Financial Literacy	2009	X		X
Japan	Survey of Living Preferences and Satisfaction	2010	X		X
The Netherlands	Dutch National Bank Household Survey (DHS)	2010	X		X
Romania	World Bank Financial Literacy Survey	2010	X	X	X
Sweden	Swedish Financial Supervisory Authority Survey	2010	X		X
United States	US National Financial Capability Survey	2009	X	X	X

Note: The table represents the most recent surveys. A number of countries have previous waves of similar surveys available, including Australia, Italy and New Zealand.

Bearing in mind that directly making quantitative comparisons across countries can be misleading, in Figures 1 and 2, we examine qualitative trends in performance on interest-related questions based on the latest available nationally-representative data separately for both the FlatWorld Initiative countries and the OECD / INFE pilots. We note that such comparisons across the full set of countries should be made with caution. While the underlying construct is common across the studies, specific details can be important. The typical question in the FLatWorld Initiative countries is based on Lusardi and Mitchell (2011a) and posed in multiple-choice format:

> "Suppose you had $100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow? - Exactly $102 / Less than $102 / More than $102".

In the OECD/INFE pilots, understanding of compounding is assessed using a measure that consolidates two questions, one on simple interest rate and one on compound interest rate. Furthermore, the specific interest rate, currency and the value of the sum varies across countries, which may introduce other effects related to differences in the nominal values.

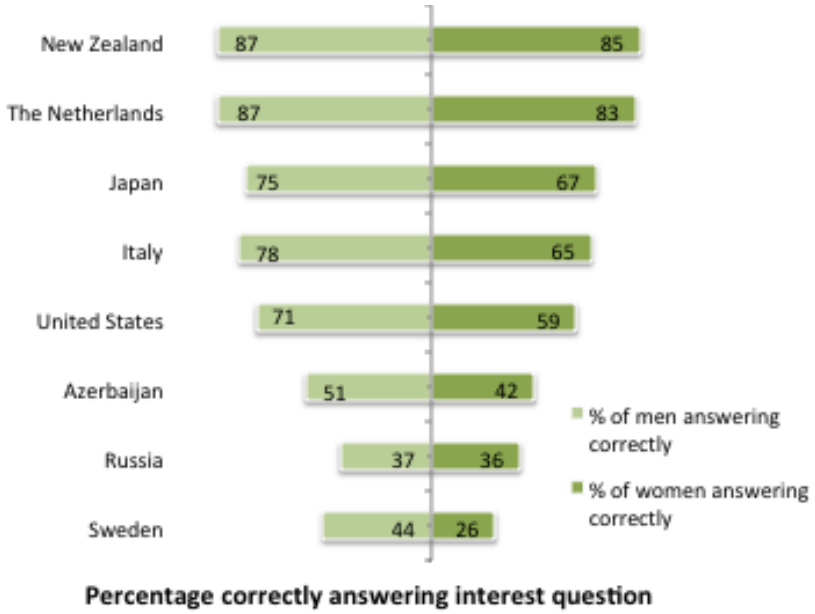
With the firm caveats above in mind, three important general observations can be made about women's understanding of interest rates:

- Firstly, across the different countries and measures, women's understanding of this basic concept is not universal.

- Secondly, again, across different countries and measures, the gender gap favours men: incremental differences in correct responses for men versus women are generally larger than or equal to zero.

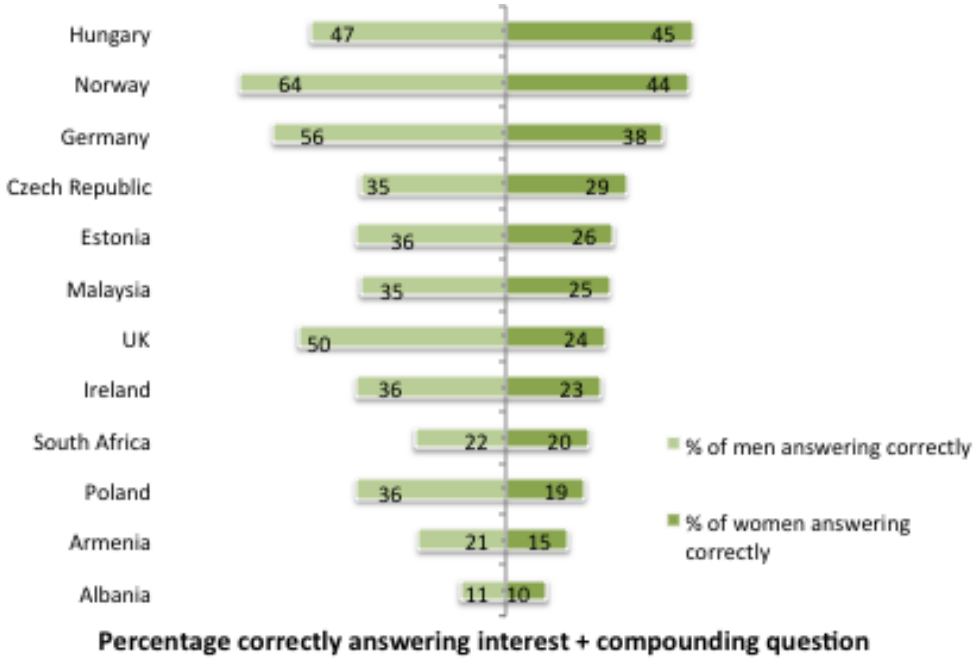
- Finally, in spite of these consistent trends, there is considerable heterogeneity across countries in terms of the gender differences. Looking at Figure 1, in New Zealand, almost all men and women alike appear to have a relatively sound grasp of the interest concept. In other countries, the data suggest issues with either the absolute and relative level of women's understanding, or both. It should be noted that examples of low female financial literacy and/or gender gaps are present in countries with very different per capita income and average education levels.

Figure 1. Gender Differences in Understanding of Interest, FLatWorld Initiative Studies 2006-2011



Note: Summary statistics from studies reporting results of nationally-representative surveys collected between 2006 and 2011 in the FLatWorld Initiative (http://www.financialliteracyfocus.org/academics/FLatW.html) and the World Bank Financial Literacy Surveys (only from the Azerbaijan Microfinance Association (2009)). For countries with multiple waves/surveys, the most recent is used. Countries with both FLatWorld and OECD/INFE data available are represented in Figure 2 with OECD/INFE data.

Figure 2. Gender Differences in Understanding of Interest, OECD/INFE Pilot



Note: Data reflect weighted summary statistics from 12 of the 13 OECD/INFE pilots as of August 2011.

We also note that in general, not only are women less likely to give the correct answer, they are also more likely to respond 'don't know'; this difference is both unconditional (of the entire population, more women respond 'don't know' than men) and conditional (of those who do not provide the right answer, more women respond 'don't know' than men). This illustrates a difference not only in objective skill but also attitudes towards financial knowledge. While women may have a lower level of skill on average, their higher conditional level of don't know responses suggests they may also be less confident in their abilities.

These trends are consistent with the findings derived from other types of knowledge/skills data collected in these surveys. Qualitatively similar results hold for the inflation and risk diversification questions across surveyed countries (although the wording varies somewhat more). In some surveys, additional questions are also asked. For instance, in the US Financial Capability Survey and the Dutch DNB survey, women's relative performance on a subsequent set of more complex questions related to investing —e.g. questions on asset fluctuations, diversification, financial instrument risk and bond pricing— is worse than that of men (van Rooij, Lusardi et al., 2011). Finally, field knowledge questions used in the Canada Financial Capability Survey and the ANZ Bank Survey in Australia are not directly comparable, but confirm that women tend to perform either as well or less well than men.

We next examined gender effects reported across a small set of financial capability/literacy surveys conducted in a few countries. These studies include a broader set of financial literacy measures, such as perceptions and attitudes, in addition to reporting on financial behaviours and knowledge.

Table 2 reports results drawn from a review of studies focusing on financial literacy. The table summarises gender differences in the various dimensions of financial capability/literacy. Unlike the summary statistics in Figure 1, the results in Table 2 reflect estimates derived from regression analysis with controls for other socio-demographic characteristics.

Firstly, this comparison shows that gender effects do not uniformly favour one gender over the other – for instance, in the United Kingdom, women outperformed men at keeping track of finances. The results of the Canadian survey also indicated that women marginally outperformed men on making ends meet and keeping track of finances, although these differences were not statistically significant and hence are not reported in the table.

Table 2. Reported Gender Differences in Financial Capability/literacy Across Countries

	Making ends meet	Keeping track of finances	Long-term planning	Choosing Financial Products	Staying Informed
United Kingdom 2005	None	Women	Men	Men	Men
Ireland 2008	None	None	Men	None	Men
Canada 2008	None	None	Men	Men	Men

Note: Raw data from the United Kingdom are publicly available. Raw data from the United States Financial Capability Survey is available in SPSS form but a comparable computation of factor scores and disaggregation by gender was not undertaken as part of the scope of this paper. Only statistically significant effects reported.

Secondly, it should also be noted—albeit across an admittedly small and selected sample of relatively developed countries—that a striking similarity emerges: parity tends to occur only in the domains of household money management, while men perform better in the areas of long-term planning, choosing products and staying informed.

Finally, in the 2008 ANZ Banking Group survey of Australians, women's scores were significantly lower than men's on a composite financial score measuring numeracy, attitudes and behaviours (ANZ Banking Group, 2008). Whilst women's control of day-to-day financial matters is equal to that of men, this does not spill over to the full spectrum of knowledge, skills, attitudes and behaviours associated with wealth accumulation, i.e. understanding of compounding, planning and engaging with the financial marketplace. Worryingly, women appear to be less likely to stay abreast of new developments, making them more vulnerable to being left behind in the face of financial innovation.

1.1.2. Other Household Surveys

Since comparable data from nationally-representative datasets is presently somewhat limited, we also report below on evidence gathered from other relevant sources.

A relatively large body of evidence from the United States corroborates the findings above using various different instruments. Using the RAND American Life Panel, a probability sample of US households interviewed over the internet, Lusardi and Mitchell (2007a) find that women consistently score lower on the same questions from Lusardi and Mitchell (2011a). Using largely the same sample of individuals, the Cognitive Economics Survey, Delavande et al. (2008) show that women's mean scores are lower than men's on 25 financial knowledge questions, including more sophisticated financial concepts such as portfolio diversification, institutional knowledge, and aspects of how annuities work. The US National Council on Economic Education administered an online survey to a sample of American teens and adults drawn from the Harris Interactive online panel of double opted-in respondents. Knowledge was ascertained in five domains; economics and the consumer; factors pertaining to production; money, interest rates and inflation; government and trade in economics; and personal finance. Overall performance was higher for men, on average, than for women (Markow and Bagnaschi, 2005). Finally, in the US National Foundation for Credit Counseling's fifth annual financial literacy survey conducted in March, 2011, women (2%) are significantly less likely than men (8%) to give themselves a failing grade for their personal finance knowledge (National Foundation for Credit Counseling, 2011).

An international effort in 2010 by MasterCard Worldwide measured financial literacy in 24 markets. Survey topics included basic money management, financial planning and investments. The results of the survey are broadly consistent with other previous results, but provide some additional information on women in the Asia Pacific, Africa and Middle East regions. Although this is an interesting study conducted in several markets where knowledge gaps exist, the survey's sampling frame has important limitations, as it selects only urban adult residents with a bank account, and is therefore not representative of the country's population as a whole (Mastercard International, 2011).

1.1.3. INFE Member Survey

The INFE Member survey (INFE, 2011) and its findings provides a useful complement to the previous reports of consumers' measured and self-reported financial literacy, by asking whether, in turn, policymakers have considered financial literacy and gender issues in their countries. To reiterate, respondents to the survey are the agencies involved in financial education in INFE member countries. The first section of the questionnaire covers the extent to which respondents are aware of gender differences in levels of basic literacy and numeracy, financial knowledge, financial skills, financial access, and confidence with financial matters in their countries.

Figure 3. Policymakers' Perceptions Regarding Gender Differences

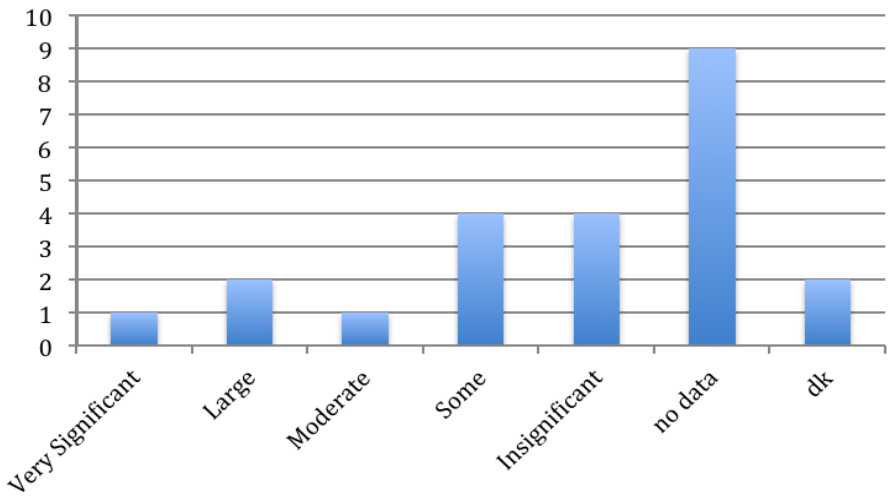
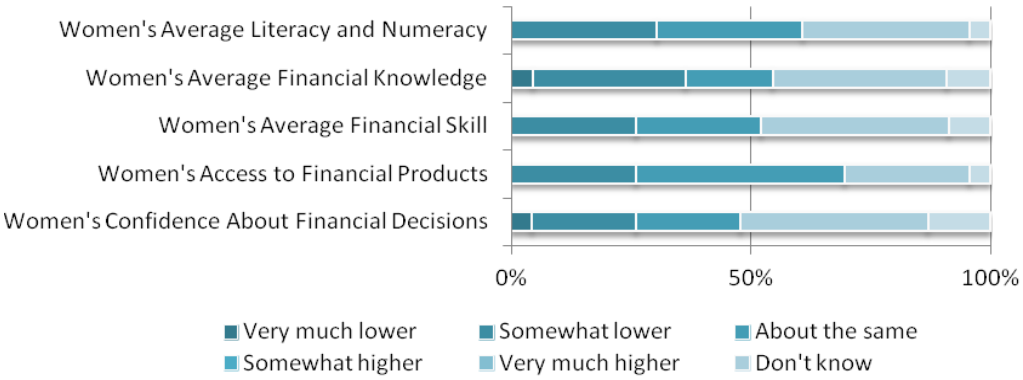


Figure 4. Policymakers' perceptions of women's status in their country (relative to men)



23 respondents (out of 28) answered the part of the questionnaire about gender differences in levels of financial literacy.[6] The responses accord with the surprising dearth of information available on gender and financial literacy - in half the cases, respondents reported having insufficient information to make a determination (nine responses indicated that relevant data on the matter is not available, and two indicated that they did not know). Figure 3 shows the distribution of responses regarding the availability of evidence, while Figure 4 summarizes the respondents' perceptions of gender differences in basic literacy and numeracy, financial knowledge, financial skills, financial access, and confidence with financial matters.[7]

[6] The countries that answered this part of the questionnaire are: Australia, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, India, Japan, Lebanon (two responses from different agencies), Luxembourg, Netherlands, New Zealand, Palestine, Paraguay, Portugal, Serbia, Slovenia, Spain, Turkey and the United Kingdom

[7] Australia's response to the financial knowledge question is not included. They indicated that they thought the appropriate response was somewhere between "Somewhat lower" and "About the same."

The modal opinion among respondents is that compared to men, women score "somewhat lower" on financial knowledge, skill, and confidence. Data on access to financial products seems to be more prevalent (possibly because of the ability to obtain such data from other surveys or administrative data), when compared to data on individual financial literacy. We note that no country reported women's status was somewhat or very much higher than men's, on even a single indicator.

Overall, most respondents agreed that financial literacy was an important policy issue in their country: eighteen responding agencies agreed, four disagreed and two did not know. Similarly, most also agreed that gender equality was an important policy issue in their country: seventeen respondents agreed, two disagreed and four did not know. However, only a minority reported policy interest in the intersection of these issues – eight respondents agreed that the need to address the financial literacy of women and girls was an important issue, while twelve disagreed and four did not know. Respondents noting the importance of women and girls' financial literacy as a national policy issue were asked which aspects of financial concern were the most pressing.

Table 3. Key Areas of Policy Concern

Areas of Policy Concern	Country	Count
Knowledge of basic financial concepts	Chile, India, Lebanon (b), Turkey	4
Access to financial products and services	Australia, Palestine, Lebanon (a), Turkey	4
Awareness of financial products and services	Chile, Palestine, Turkey	3
Managing credit	Australia, India, Lebanon (b)	3
Long term planning for retirement	Australia	1
Confidence when dealing with financial products and services	Chile, Lebanon (a)	2
Saving and investing wisely	India, Lebanon (a)	2
Day-to-day financial management and budgeting	Lebanon (b)	1
Other: no relevant data available	Slovenia	1
Other: financial fraud on elderly, esp. elderly women	Japan	1
Other: Gender disparities in financial matters are not recognized as an issue	Czech Republic	1

Despite limited survey results due to the relatively small sample size, the responses received demonstrate the range of policymakers' awareness regarding gender differences in financial literacy. Roughly half of the respondents reported that such gender differences are not an important policy concern. Note that this does not discount the importance of gender gaps themselves: a closer look reveals that of these eleven countries, only three reported insignificant gender differences.

In most instances, the issue is somewhat more nuanced. In some cases, countries where there is a measured gender difference report a variety of activities, such as Australia.[8] Australia reported that financial literacy skills (particularly in relation to superannuation) are seen as an integral part of improving women's economic security, one of three nationally-agreed priority areas for women's policy. In Australia, even in

[8] See http://www.fahcsia.gov.au/sa/women/overview/ofw/Pages/default.aspx for more information.

instances where measured average gender gaps are not large, policy makers are proactively carrying out activities such as research on risk factors for negative impacts on women in retirement. In countries where financial systems are only beginning to develop or where overall financial literacy is extremely poor, gender differences may not yet be obvious. It may also be the case that the ability to conclusively establish disparities is too limited; three of the seven responding countries reported that relevant data on gender differences is not available. However, a comparison of responses received from the INFE Member Survey to Figure 3 reveals two instances where respondents from countries with survey data reported 'not knowing' or 'having no relevant data' available. In another two instances, respondents indicated that the evidence suggested no significant gender differences, in spite of contradictory reported findings from their country surveys. This suggests a possible disconnect between efforts to collect and analyze data, and efforts to disseminate existing information and research findings. The dissemination of research results still needs to be a high priority within the policy community.

Furthermore, for the eight countries indicating that gender differences are an important policy issue, even the most basic financial knowledge is an area of particular concern. As discussed later, all countries responding the question about subpopulations indicated that "low-income" is an important group. In these countries, at least, there is a strong perceived need around women with little or no financial literacy coupled with lower socio-economic status (lower income, lower employment, lower educational access).

1.2. How do gender differences affect specific subgroups?

1.2.1. Evidence from the literature

It is important to consider not only disparities between women and men, but also disparities within the larger population of women in any one country. However, many national surveys do not have sufficient statistical power to permit subgroup analysis. In this section, we rely primarily on the general research literature and review studies that were found to cover specific subgroups of women (hence, groups that were not explicitly found in the literature were not included). Although few such studies quantitatively measure financial literacy, it may be possible to gain qualitative insights about either the level of financial literacy or its particular importance for the subgroup of interest.

Elderly Women. Using their battery of financial knowledge questions (Lusardi and Mitchell, 2008; Lusardi, Mitchell et al., 2009b) find that women over 50 in the 2004 and 2008 Health and Retirement Study have significantly lower financial literacy than men. Similarly, evidence from Australia shows that women aged 70 years or over have significantly lower mean financial literacy scores than men of the same group, as well as women on average (ANZ Banking Group, 2008). These insights are echoed by qualitative studies such as those undertaken by Into (2003), which indicates that older women value financial independence but worry about their ability to retain it as they age.

Young Women. In the United States, low levels of financial knowledge among women have been found in surveys covering younger groups of the population (Lusardi, Mitchell et al., 2009a; Lusardi and Tufano, 2009). Using a sample of 924 US college students, Chen and Volpe (2002) found that male college students outperformed female students on general knowledge, savings and borrowing, and insurance and investment questions. In Canada, a 2008 survey of youth showed that young Canadian women were less likely to save, stick to their budgets, and have sole responsibility for day-to-day finances as compared with men in the same group. While they were more likely to own mainstream financial products such as checking and savings accounts and student loans, they were also more likely to hold credit card debt and report they could not cover all their expenses in some months (Financial Consumer Agency of Canada, 2008).

We note however, that results from the Jump$tart Coalition for Personal Financial Literacy, a biennial nationwide survey of the financial knowledge of US high school students, have shown that high school students perform at a "failing" level, with scores getting worse over the years. Although males performed marginally better in 2008, this trend has since reversed, resulting in no statistically significant differences in mean scores by gender over the years. Furthermore, in 2008, when the survey was administered at the college level, women outperformed men (Mandell, 2008).

In addition to performance on knowledge tests, there are other important attitudinal factors that may be at play in this population. Young women express less interest in personal finance than young men (Chen and Volpe, 2002). Girls also appear to be less confident in learning mathematics – perhaps indicating a discomfort when working with numbers that could impact on their later financial behaviour: among school-aged children on average, across all 59 participating countries girls report feeling less confident than boys in learning mathematics even though eighth-grade girls outperformed boys on the TIMMS test of mathematical achievement (Mullis, Martin et al., 2008)[9].

More data on youth is forthcoming in the first large-scale internationally comparable assessment of youth financial literacy in 2013—as part of the 2012 OECD Programme for International Student Assessment (PISA), an internationally standardised assessment for 15-year-old students. The next scheduled PISA test—focused on mathematical literacy—will be conducted among sixty-five participating countries or regions in 2012. Students in 19 countries: Australia, Belgium (Flemish Community), Brazil, Shanghai-China, Colombia, Croatia, Czech Republic, Estonia, France, Israel, Italy, Latvia, New Zealand, Poland, Russia, Slovak Republic, Slovenia, Spain and the United States will be asked financial literacy questions. Results, to be made available in 2013, will enable researchers to make gender comparisons among youth using internationally comparable data.

Women Affected By Family Status. Although few studies were found linking variations in economic well-being by family status to financial literacy, more generally it is important to recognise that financial literacy can be an important part of providing women with the skills to navigate the economic impact of life-events related to family status (for example, divorce may entail reduced household income, housing issues and becoming a lone parent). There is significant evidence, moreover, documenting that marriage, childbirth, divorce, or widowhood differentially affect the financial behaviour of women as compared to men. Using data from the British Household Panel Survey (BHPS), Westaway and McKay (2007) find that women's savings and debt levels are more subject to life transitions and recover more slowly and less completely than men's. Women are also more likely to be vulnerable to transmitted debt – that is taking on debt from a spouse or partner as guarantors of loans— this debt remains even if separation occurs. Separation and divorce are therefore more likely to impact older women's economic well-being, resulting in increased vulnerability to poverty (Davies and Denton, 2002). Similar findings in the United States show that although marital disruption (through separation or death) reduces the wealth of both men and women, the effects are more profound for women (Gillen and Kim, 2009). The changing status of families in present societies may therefore lead to increased vulnerability for certain groups of women.

Female Entrepreneurs in High and Low Income Countries. One important feature of household economic life that is less frequently analysed in national surveys (due to small sample sizes) is self-employment, or entrepreneurship. In many instances, the line between household finance and business skills is not well-defined, particularly if the enterprise is very small. Financial literacy for women is

[9] Fifty-nine countries participated in TIMMS 2007, see: http://timss.bc.edu/timss2007/PDF/TIMSS2007_InternationalMathematicsReport.pdf for a complete list.

particularly relevant to this domain, especially in societies where women's economic participation outside the home is limited to the typical context of small-scale, informal household enterprise. A host of development organisations, for instance the microfinance and self-help group movement, has thus attempted to increase women's empowerment by building women's ability to successfully start and manage small-scale or micro-enterprises (Van Leeuwen, 2003; Lee, 2004)

Across a number of countries[10], both qualitative and quantitative evidence shows that women are usually less, and never more likely to become entrepreneurs than men (Langowitz and Minniti, 2007; Startiene and Remeikiene, 2008; Minniti and Naude, 2010). Studies from a wide range of countries and contexts, including the United States, the Dominican Republic, Malaysia, Malawi, Ghana, Mexico and South Africa, suggest that when they do in fact start businesses, they are less successful (Robb and Wolken, 2002; Robb, 2002; Fairlie and Robb, 2009; Espinal and Grasmuck, 1997; Karupiah, 2010; Chirwa, 2008; Bhasin, 2009; Cohen, Everett et al, 2009 and Mahadea, 2001).

The literature has put forward many non-exclusive explanations: women may have fewer years of experience and less formal education (Chaganti and Parasuraman, 1996; Espinal and Grasmuck, 1997), different preferences over labour time (Fairlie and Robb, 2009; Verheul, Carree et al., 2009), may experience potentially discriminatory limitations on access to finance (Kevane and Wydick, 2001; Bushell, 2008; Muravyev, Talavera et al., 2009; Bellucci, Borisov et al., 2010) and may be restricted to less profitable industries (Espinal and Grasmuck, 1997; Husseini, 1997; S. de Mel, D. McKenzie et al., 2009).

The contribution of financial literacy to successful micro-entrepreneurship is also potentially a critical factor (and the implicit assumption behind many ongoing training programmes, discussed later). While few studies have included explicit measures of financial literacy in their analysis, recent work in the United States examining gender differences in measures of entrepreneurial ability (apart from formal education) finds that it can account for a significant portion of the gender gap in entrepreneurship (see Thebaud, 2010), controlling for other factors in a setting where discrimination in access to finance can be ruled out (Robb and Wolken, 2002; Blanchard, Zhao et al., 2008). In South Asia, new evidence from randomised trials on microfinance loans for women in India has found that microfinance leads to increased entrepreneurship but ultimately yields mixed results on actual household expenditures and no effects on health, education and other welfare outcomes (Banerjee et al., 2010). Other evidence suggests that microfinance clients may still have much to learn about how their loans work. Working with two large, women-only lenders in India, Tiwari, Khandelwal et al. (2008) find that microfinance borrowers know very little about the interest rate at which they have borrowed or about the total interest expense on the loan and instead think about loans in terms of what they owe from week to week.

The knowledge aspect of financial literacy alone however may not be enough: in developing countries, a seminal study of entrepreneurs receiving small grants in Sri Lanka by de Mel et al. (2009) finds greater investment returns among men as compared with women, even when controlling for industry. While they find no evidence that the performance gap was explained by differences in financial knowledge, women still puzzlingly either failed to invest in their enterprises or did not generate additional profits when making investments, suggesting failures in some other aspect of literacy. Key attitudinal factors that are part of financial literacy such as motivation and confidence may also be important, especially where institutional and social barriers are high, regardless of a country's level of

[10] Countries include Argentina, Canada, Denmark, Finland, Germany, Hungary, India, Israel, Japan, Korea, New Zealand, Poland, Portugal, Russia, Singapore, South Korea, Sweden, and the United States.

development (Shabbir and diGregorio, 1996; Amine and Staub, 2009 Bowman, 2009 ; Bowman, Cutura et al., 2009; Rodriguez and Santos, 2009).

Immigrants, Indigenous groups and Other Marginalized Populations. While quantitative studies on these populations are limited, qualitative studies in a number of countries on women from indigenous groups, female immigrants and asylum seekers suggest the demands of being financially literate not only include learning how to navigate a financial system with different institutional features but also require overcoming additional social barriers. Language barriers may themselves be sufficient to prevent economic participation. For instance, even if a woman (or man) with a minority linguistic, ethnic or religious background speaks the local language, her accent and colloquialisms may prevent her from gaining full acceptance, capping her economic participation though a discriminatory "accent ceiling" (Billore, Zainuddin et al., 2010; Collins and Low, 2010; Selvamalar, 2010).

1.2.2. INFE Member Survey

OECD/INFE member countries responding to the INFE Member survey (INFE Member Survey on Gender and Financial Literacy, 2011) were asked to provide information on subpopulations of women whose financial literacy is of particular concern. The twelve survey responses are summarized in Table 4. Nine responding agencies indicated that the financial knowledge of low-income women is an important issue. Other subpopulations commonly mentioned include both young and old women, and also those who lack access to mainstream financial services.

Table 4. INFE Members' Perceptions of Women Vulnerable Subgroups

Groups	Country	Count
Low-income	Australia, Chile, India, Lebanon (a), New Zealand, Netherlands, Palestine, Spain, Turkey	9
Youth	Australia, Chile, India, Lebanon (a), Lebanon (b), Turkey	6
Elderly	Australia, Chile, Japan, New Zealand, Turkey	5
Unbanked/Underbanked	Chile, India, Palestine, Turkey	4
Recently-separated/widowed/divorced	Netherlands, New Zealand, Spain	3
Immigrants	Australia, Netherlands, Spain	3
Single mothers	Australia, Netherlands	3
Ethnic minorities	New Zealand, Spain	2
Employees	Lebanon (b), Turkey	2
Other: Women with disabilities	Australia, Lebanon (a)	2
Other: Women in remote areas	Australia	1
Other: All elderly people, not only women	Czech Republic	1

2. WHAT FACTORS MAY DRIVE GENDER DIFFERENCES?

At this stage, potential causes of gender differences in financial literacy – where they exist – should be considered with caution as research in this area is still in its infancy. In addition to this, the factors affecting gender differences are not easily identified, and it is difficult to establish links of causality. One important component of the future work of the subgroup and INFE will be to further explore and qualify these causes where possible. Taking this into account, this section reviews some preliminary avenues for further research based on indications of what the existing literature and INFE survey suggest.

2.1. Evidence from the literature

Firstly, differences in underlying skills are likely to play a critical role. In developing countries, a first order concern in this respect is girls' access to schooling (Alderman, Behrman et al., 1996). Research drawing on the OECD-PISA scores among students in 55 countries, shows a positive association between educational attainment, performance on the PISA test of knowledge and skills and economic literacy (Jappelli, 2010). There are three aspects of this problem: firstly, in many regions of the developing world girls continue to receive less education than boys (Glick, 2011). Secondly, where girls nominally have access to schooling, educational choice may be constrained by economic or social norms; for instance, qualitative research in India notes that Punjabi women report discrimination in their access to colleges and government training programmes. Courses available to rural women provided skills that would assist them in the marriage market and not in the labour market (Simmons and Supri, 1999).

The argument that skill differences are caused (in part) by external constraints is relatively clear. However, even in developed countries where access to schooling is virtually universal, important and relevant differences persist and evidence on their nature and cause remains less than conclusive. Gaps in advanced mathematical skill may be particularly important if we believe that financial literacy depends on numeracy or arithmetic: In mathematics, tertiary graduation rates for females are still lower than the graduation rates for males (OECD, 2009). In mathematics in PISA 2003, males often outscored females, and in PISA 2006, males were better at explaining phenomena scientifically (OECD, 2009). However, in contrast, the results of the 2007 Trends in International Mathematics and Science Study (TIMMS) test conducted among 425,000 students in 59 countries worldwide finds no difference in average male and female mathematical achievement in the fourth grade. By the eighth grade-level, girl's scores are actually statistically significantly higher than that of boys (Mullis, Martin et al. 2008). Furthermore, Hyde and Linn (2006) review 46 meta-analyses addressing gender differences in mathematical, verbal, and spatial abilities; aggression; leadership effectiveness; self-esteem; and computer use, covering more than 5000 individual studies and 7 million subjects. There were no gender differences in deeper understanding of mathematical concepts at any age, but for complex problem solving, a small difference favouring boys emerges in high school related to mathematical performance and spatial perception. Given these mixed findings, this is an area that warrants further exploration.

Another possible explanation for gender differences in financial literacy relates to differences in opportunity for exposure to financial products and the opportunity to learn by doing. In the household context, a primary reason for this could be intra-household specialisation. Depending on cultural and societal norms, men may hold primary or exclusive responsibility for certain aspects of financial decision making. Other barriers to women's participation in household financial matters include explicit and implicit barriers to working outside the home, accessing credit or holding property. Even in a more developed country setting, such as the United States, within most married households, men are usually the financial managers (Hsu, 2011). Although work by Smith, McArdle et al. (2010) and Fonseca, Mullen et al. (2010) find that relative levels of numeracy and formal education are the underlying determinant of who makes financial decisions, Hsu (2011) finds that intra-household specialisation still plays a role. Hsu shows that some variation can be explained as a strategic response to incentives over the life cycle, since women's self-assessed and measured financial literacy increases in anticipation of widowhood, as does their seeking out of financial information. Other evidence shows that divorced women have less financial knowledge as compared to those who were never married (Zissimopoulos, Karney et al., 2008).

Outside the household context, in some countries, institutional and social barriers to financial access for women may reduce opportunities for experiential learning. Using the cross-country Business Environment and Enterprise Performance Survey (BEEPS), Muravyev, Talavera et al. (2009) find that women lack access to formal credit - female-managed firms are less likely to obtain a bank loan; and female entrepreneurs are charged a higher interest rate on loan approval[11]. Using data from a Brazilian microfinance institution, Agier and Szafarz (2011) show discrimination in loan allocation to female entrepreneurs. It is reasonable to assume that these differences may attenuate in more financially developed countries. Consistent with this argument, Blanchard, Zhao et al. (2008) and Robb and Wolken (2002) find that United States lenders do not discriminate against women. Barriers to access, moreover, may be more subtle: an analysis of detailed lending transactions made by Italian regional banks in 2004 and 2006 reveals no gender price discrimination but does find evidence of higher cost and tighter borrowing requirements for women, even controlling for borrower characteristics (Alesina, Lotti et al., 2008; Bellucci, Borisov et al., 2010). In the absence of access to formal financial services, women may thus turn to a range of coping strategies that involve social networks and mutual assistance. For instance, research in Ghana shows that female entrepreneurs tend to have more difficulties in accessing bank financing but they compensate by cultivating social relationships and using the social capital derived from them as a resource leveraging mechanism (Kuada, 2009). While such strategies may help women get by, the larger picture suggests that this may create a self-perpetuating cycle that inhibits women's learning about the formal financial marketplace.

A third possible explanation for gender differences in financial literacy can be found in differences in how men and women acquire financial literacy, given the same endowments and opportunities. Attitudes related to self-efficacy can significantly impact learning. As noted earlier, girls report feeling less confident in learning mathematics even when they outperform boys. The TIMMS report indicates a correlation between self-reported confidence in learning mathematics in the fourth grade and later mathematics achievement (Mullis, Martin et al., 2008). Hirschfeld, Moore et al. (1995) suggest that confidence and competitiveness explain gender differences in the scores of US male and female college students taking the Graduate Record Exam (GRE) Subject Test in Economics.

[11] 29 Countries are included in BEEPS; Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Macedonia, Moldova, Poland, Romania, Russian Federation, Serbia, Slovak Republic, Slovenia, Tajikistan, Turkey, Ukraine, Uzbekistan, Kosovo and Montenegro.

Women's learning is also potentially more responsive to the social environment. In a developing country context, this may mean that women's ability to learn is embedded within a social network. For instance, in rural Paraguay, a woman's social network is found to affect her demand for financial capital – female demand for finance rises with the proportion of social ties to other capital-seeking women (Fletschner and Carter, 2008). However, even in a developed country context, stereotypes that affect learning may persist: Spencer, Steele et al. (1999) provide experimental evidence from the United States that negative stereotypes inhibit women's mathematics performance: women are found to greatly underperform when explicitly told that the math test is gender biased – and to perform equally well when the test is purported not to yield gender differences, controlling for maths background/qualifications.

Finally, one alternative explanation of the gap in men and women's financial literacy that has been suggested is differential responses to test format, such as the use of multiple-choice questions versus essay-format, which is reported to reduce gender differentials (Hirschfeld, Moore et al., 1995). Although the impact of test design is relatively small compared to the overall size of the observed gaps (Walstad and Robson, 1997), it should be noted that recent research into this field suggests that attention to format can help. This point has been taken into consideration during the design of the OECD Financial Literacy Questionnaire, which involves a range of question formats in order to reduce bias.

2.2. INFE Member Survey

The 2011 INFE survey also asked respondents about possible causes of gender differences in financial literacy. We received responses from ten countries on these questions.

The following causes have been stressed:

- Almost all countries cite gender differences in *socioeconomic conditions* as a possible cause for gender differences.
- Seven responses specifically mention women's typically *disadvantaged status in the labou*r market—either lower employment or lower income.
- Traditional gender roles in household decision making (including finances) was cited in four responses
- Four responses cite *lower access and attainment in education for women and girls* as a possible cause of gender differences in financial literacy.
- One country's response indicated that *key differences in the way that men and women process information* may explain important differences in women's lower financial knowledge.

3. FINANCIAL EDUCATION PROGRAMMES AIMED AT ADDRESSING WOMEN'S NEEDS

3.1. Review of literature and programmes

For policymakers, given that there is reasonable evidence of gender differences in financial literacy, and that these typically disadvantage women, financial education for women appears to be a straightforward solution. The key question given women's differential environmental considerations and learning styles would appear to be which types of programmes are best suited for women. However, it is difficult to answer this question, as there is a surprising dearth of robust academic research on financial education programmes for women. This is partly a result of the lack of evaluation more generally (see, for example, INFE 2010; Lusardi 2011; Lyons, Palmer et al., 2006; Hathaway and Khatiwada, 2008; Lyons and Neelakantan, 2008; O'Connell, 2008 for a review of issues related to the evaluation of financial education programmes). Surprisingly, even when qualitative or quantitative evaluation was available, few studies explicitly examined the potential for financial education to close the gender gap (mostly examining results only for women rather than for women relative to men). Many social programmes with a financial training component do not evaluate that component independently. Below, we review highlights of the small existing literature.

Of the programmes that were reviewed, consistent with the previous findings related to gender differences in developed countries, most programmes focused on savings, retirement planning and long-term wealth accumulation. In general, evidence from developed countries suggests that a variety of financial education programmes in the workplace, school or through other means, can positively affect financial literacy related to retirement savings for both men and women (Duflo and Saez, 2003; Bernheim and Garrett, 2003; Lusardi, 2004; Lusardi and Mitchell, 2007b).

Some of these programmes, such as those for low-income populations may *de facto* be targeting women. In the United States, financial education for participants in matched-savings (Individual Development Accounts) programmes is not specifically for women, but 80% of IDA participants are women and 79% are unmarried. Similarly, in Australia, the Saver Plus programme funded by ANZ and the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs, provides matched savings for participants. The programme is not specifically targeted at women, but the independent evaluation of the programme over 2006-2009 indicated that the majority of participants were female (86.4%). Research from the US suggests within the IDA scheme, each additional hour of financial education up to a ceiling of 12 hours, has a large, positive effect on savings, . However, beyond 12 hours, there is no additional benefit from financial education (Clancy, Grinstein-Weiss et al., 2001).

However, even a generic financial education programme may affect women and men differentially. Given that women are less (over)confident, it is possible that women are more "teachable" than men. In a positive example, Lyons and Scherpf (2003) examined the impact of the FDIC's Money Smart programme—a financial education campaign that encourages participants to open a bank account – and found that female participants were more likely to report intent to do so after the programme. Likewise,

in the United States, Cole and Shastry (2010) find that increases in the number of mathematics courses required in high school affects the financial behaviour of women but not men. On the other hand, in the United Kingdom, Burke, FitzRoy et al. (2002) showed that generic post-compulsory education and professional training are related to the size and value of men's businesses but have a negligible effect on female entrepreneur's performance.

There is also the issue of differential programme take-up. For example, in the United States Bernheim and Garrett (2003) found that women were more likely to work for employers offering retirement education, but despite the greater availability to women of retirement education programmes in this study, their use of such programmes is not proportionally higher. Even if educational programmes have the potential to positively affect women's financial literacy, education will not occur if women fail to respond.

If women do not respond well to generic financial education it may be necessary to specifically target them through programme marketing and design. Indeed following their critical review of financial education programme impact, Hathaway and Khatiwada (2008) conclude that highly targeted and timely programming directed at definite subpopulations and relevant to specific financial activities is needed for programmes to be effective. Some financial education programmes have achieved success by paying particular attention to a subpopulation of interest. For example, the Women's Financial Information Program (WFIP), a large-scale 7-week programme in the United States aimed at midlife and older women is found to positively affect women's self-reported financial behaviour and confidence (deVaney, Gorham et al., 1995). Other programmes have targeted groups in a timely way, for example the German scheme "Finanzmanagement in jungen Haushalten" or "Financial management in young households" (Habschick, Seidl et al., 2007) and similarly the United Kingdom's "Parents Guide to Money" addressed the financial education of new mothers and parents.

In developing countries, many financial education schemes focus on remedying the barriers to credit and formal labour force participation that disproportionately affect women. A large number of economic development microcredit and micro-enterprise programmes are targeted largely or even exclusively at women. In practice, at present, many such programmes *de facto* if not *de jure* include a financial counseling and support component either through formal training or via peer education, regular meetings, and mentoring. For example, such support is a vital part of BRAC's benchmark Ultra Poor programme, an asset-transfer programme which aims to help the very poorest women accumulate wealth (Halder and Mosley, 2004). In India, Creevey and Edgerton (Creevey and Edgerton, 1997) find that training in the context of microenterprise programmes can have independent, positive impacts on income-generating ability, as well as other effects on increasing socio-political participation for the enrolled women. This is also the case for low-income populations in high-income countries: Ehlers and Main (1998) argue that the training component of microenterprise programmes in the United States for low-income and welfare-dependent women is particularly important, as it can reinforce rather than eliminate gender differences by steering women into low-return 'pink-collar' businesses.

It is important to note however, that given the complexity of the environment in which they operate, such programmes face many challenges and may have unexpected results. Financial education may end up benefiting some groups more than others, or may fail to help those most in need. For instance, work on female micro-entrepreneur clients of a bank in Peru finds that financial literacy training had no impact on business income or assets but resulted in higher repayment and client retention rates for the lender (Frisancho et al 2008, cited in Cole et al. 2009). In another example, Field, Jayachandran et al (2010) conducted a field experiment with basic financial literacy training for poor self-employed

women in India. While the training helped women whose businesses had been held down by social restrictions, women subject to extreme restrictions had too little agency to easily change their aspirations or activities.

3.2. INFE Member survey

This section uses the results tabulated from eleven responding countries on their known past, ongoing, or planned financial education programmes addressing the needs of women and girls. Details gathered include target groups, participation, programme purpose, and programme implementation. Finally, the third section of the survey asked about financial education programme evaluation methods and findings. Twelve respondents reported on some kind of financial education programme. Portugal and Slovenia noted that national financial education programmes are planned, but they will not be specifically targeted to women and/or girls. In more than half the sample, consistent with the data on policy priorities, respondents said that there were no programmes reported that affected women's financial literacy, even indirectly. Figure 5 summarises the responses received.

A small but active minority of five responses - Australia, India, Lebanon (the response from Al Majmoua - The Lebanese Association for Development), Singapore and Turkey - reported financial education programmes that are exclusively designed for women or girls. In Australia, the Financial Literacy Foundation conducted the Women Understanding Money campaign in 2008[12]. Australia also noted that many community sector organisations and consumer groups (sometimes in partnership with state governments) provide financial literacy programmes and / or information products targeting disadvantaged groups, including women. India reported a range of women's economic empowerment programmes across the country. Lebanon reported its program, Femmes Entrepreneuses en Mediterranee. Singapore's Citi-Tsao Foundation Financial Education Programme for Mature Women targets low-income women aged 40 and over. In October 2010, the Capital Markets Board of Turkey launched their programme on capital markets-related financial education for women.

Figure 5. What Kinds of Financial Education Programmes For Women Currently Exist?

Exclusive to women/girls	Australia, India, Lebanon (a), Singapore, Turkey
Targeted to women/girls	Australia, Lebanon (b), New Zealand, Palestine, Poland, UK
Targeted to other groups, but most participants female	Australia, Spain
Not targeted to women and girls	Australia, Portugal, Slovenia
No programmes reported	Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, Japan, Luxembourg, Malaysia, Netherlands, Paraguay, Serbia, Switzerland

The Lebanese Council of Women, New Zealand, Palestine, Poland, and the UK reported programmes that are open to all, but targeted on women and girls. In New Zealand, Te Puni Kōkiri (Ministry of Māori Development) funds a financial education programme implemented by the Maori Women's Welfare League. In Palestine, the USAID Expanded and Sustained Access to Financial services (ESAF) programme funds a public awareness campaign that aims to enhance financial knowledge, increase access to financial

[12] The Financial Literacy Foundation ceased operation in June 2008 and its functions transferred to ASIC. ASIC has drawn on the findings of this campaign in developing content for its new MoneySmart website

products, and change attitudes and behaviour. The Polish Financial Supervision Authority is preparing an educational campaign targeting families, focusing on the role of women in Polish households. Poland also noted that two banks supervised by the Polish Financial Supervision Authority have launched campaigns targeting women. In the UK, the Social Responsibility Levy on financial services firms funds a Parents' Guide to Money implemented by the Money Advice Service. The guide, which is distributed to expectant mothers by midwives, aims to reinforce confidence in financial decisions, enhance financial knowledge, provide practical skills, and provide information on benefits and entitlements for families[13]. Lastly, Spain reports on a financial education programme that targets low-income families, but in practice, most participants are women.

Although the INFE Member Survey requested information on performance evaluation and results, the response was negligible; leading us to conclude that the extent of programme evaluation is presently very limited. Only three programmes—in Lebanon, Spain and the UK have completed evaluations, while Turkey and Palestine report that evaluation is forthcoming or underway. The Lebanese Association for Development reports conducting both process and impact evaluations, using both raondomly-selected control groups and a before-and-after evaluation design. Process and impact evaluations of the Spanish programme*, Educacion Y Asesoramiento Financiero* were conducted using qualitative, quantitative and monitoring data. Similarly, a post- exposure outcome evaluation of the UK "A Parent's Guide to Money" was performed using quantitative methods. Both countries reported that results showed that participant's confidence in financial matters, self-assessed ability, financial knowledge and financial behaviour were all better after exposure.

Overall, the findings of the INFE member survey have highlighted that even within a fairly small group of countries, perceptions, needs and policies regarding gender disparities in financial literacy are quite diverse. Some countries have designed and implemented financial education programmes to meet women's needs, and a few are starting to report success in doing so. However, in general evaluation is an area that could be further encouraged in order to identify useful and replicable best practices.[14]

[13] While the "Parent's Guide to Money" is not as extensive a programme as others reported under the definition in the survey, it has been kept in our sample as an example of an aspect of the UK national strategy designed specifically to target women (whilst not excluding men).

[14] The OECD has a range of resources to support countries wishing to evaluate financial education programmes, including High-level Principles for the Evaluation of Financial Education Programmes (INFE(2010)12/REV2), Guide to Evaluating Financial Education Programmes (2010), and Detailed Guide to Evaluating Financial Education Programmes (2010), both available from www.financial-education.org.

CONCLUSIONS AND NEXT STEPS

The existing research literature shows that while financial literacy is an important basis for effective financial decision-making (and ultimately financial well-being), there are significant differences by gender across a range of developed and developing countries.

Broadly speaking, women's financial knowledge and confidence are typically found to be the same as or lower than that of men. Although some studies of financial capability/literacy show that women tend to do better at day-to-day household money management, they still fare worse in other critical areas of planning, choosing products and staying informed. These domains are fundamental not only to long-term wealth-building but also for improving financial inclusion and entrepreneurial skills. However, apart from these broad trends, we also note that the extent of the problem is not uniform: levels of financial literacy for women, both absolute and relative, vary significantly across countries. Moreover, it is difficult to identify the factors affecting gender differences in financial literacy and to pin down causal links. Research on the likely determinants of these disparities highlights some barriers that require further investigation, including fewer opportunities for experiential learning through participation in household financial decision-making and working outside the home, accessing credit or holding property as well as gender-specific differences in the process of learning about financial literacy.

It should be noted that much of the previous literature relies on disparate datasets, only a few of which have common measures; when drawing global inferences, therefore, much caution has to be used. New research using internationally-comparable measures is needed not just to explore new research questions but also to revisit and extend existing analyses and conclusions with new data that also allow for international comparisons. Moreover, there is scope for further data collection and research efforts addressing financial skills and attitudes, rather than just financial knowledge, such as those carried out through the OECD/INFE financial literacy measurement pilot and the OECD PISA financial literacy assessment.

Finally, given the gender differences, the question of how women can individually and collectively gain economic empowerment is still very much an issue. Based on both secondary research as well as a survey of INFE members, we found that the policy response is relatively mixed. An important issue is that truly actionable evidence about the nature of the gender gap, and the appropriate design, implementation and measurement of suitable interventions is either non-existent, or as the results imply, may not be available. The findings also suggest that few existing programmes have put in place strong evaluations designed to yield results for future policymakers.

On the basis of the research review, and on the suggestions of the two co-chairs, a roadmap for the INFE subgroup work in 2012/2013 has been put forward based on 3 main interconnected work streams. The roadmap lays out the key steps needed to help countries around the world improve financial literacy and status of women: collection and analysis of systematic, internationally comparable data; identifying and analyzing effective financial education programmes; and development of high-level policy analysis. The outputs of the proposed roadmap will make significant strides toward the ultimate goal of economic empowerment for women.

APPENDIX: AUGMENTING LITERATURE SEARCH METHODOLOGY

Search Strategy

The purpose of this search was to augment the research papers already selected for inclusion in the literature review on the gender gap in financial literacy. The initial literature keyword searches has been conducted in the economics literature using econlit, JSTOR, google scholar, NBER, and using material provided by the OECD. Only very high quality academic studies with direct relevance to women and financial literacy had been selected and reviewed.

To augment the initial searches, we used a multi-step search strategy. First, a broadly relevant range of published and working papers was collected using a title keyword search in fifteen bibliographical databases. Titles were subsequently screened for topical relevance to the OECD literature review and for the quality of the research. The titles were then divided into several subtopics where our existing knowledge was thin. Papers in each subtopic area were screened for quality and then reviewed in detail. Papers passing the final quality screen were included in the paper.

The first stage of the augmenting literature search employed a comprehensive keyword title search using individual search terms at the intersection of two domains; finance or financially-related behaviour and women. Individual search terms were used in combination with the terms from the other construct domain, to ensure retrieval of the breadth of potentially relevant studies. As shown in Table A1 below, combinations of the search terms in formats applicable to each database and website were used. Truncation was used as appropriate (e.g. financ* AND economic*). Thesauri and indexes were consulted in those databases that have these features (for example, EconLit). Relevant subject headings were included as appropriate, along with keywords from titles and abstracts.

Table A1. Literature at the intersection of finance and gender were sought using broad search terms

Finance	Women
financ* OR economic* OR business* OR enterprise* OR entrepreneur* OR management OR pension* OR "financial planning" OR retir* OR saving* OR save OR invest OR investing OR invests OR investment* OR debt OR borrow* OR loan OR accounting OR money OR cash OR budget* OR microcredit* OR microfinanc* OR microloan* OR "micro finance" OR "micro credit" OR "micro loan" OR "micro-credit" OR "micro-finance" OR "micro-loan"	TITLE (wife OR wives OR women OR woman OR girl* OR female* OR gender OR mother* OR "intra-household" OR intrahousehold OR "within-household" OR "intra household" OR "within household" OR intrafamily OR "intra-family" OR "intra family")

Titles in fifteen bibliographical databases were searched using the search terms in Table A1; 3ie, Academic Search Elite, Business Source Premier, Contemporary Women's Issues, Econlit, JSTOR, National

Bureau of Economic Research, PAIS (Public Affairs Information Service), Social Science Abstracts, Sociological Abstracts, United Nations, Web of Science, WorldCat, Worldwide Political Science Abstracts, World Bank.

The time period covered was from 1995 - 6/28/2011 and searches were conducted of English-titles only.

Results

A total of 5,345 documents were tagged and imported into an Endnote library using the broad title search strategy. A researcher subsequently screened each title for topic relevance, identifying a subset of 1,097 titles that addressed gender gaps in financial knowledge, attitudes, perceptions and behaviour and their underlying causes.

Based on a more in depth review of the title and abstract, the researcher then grouped the papers according to subtopics where the existing literature was thin. About 400 papers were sorted into the subgroups; including women's entrepreneurship; minority and low-income women; financial education and training; and papers looking at mechanisms causing women's lower levels of financial literacy.

The titles and abstracts in each subgroup were further reviewed for quality and kept if they were published in reliable, peer-reviewed journals or if they were working papers from known international institutions.

Table A2. Subtopics in women's financial literacy and empowerment identified and papers reviewed

	Women's Entrepreneurship	Minority and low-income women's financial literacy	Financial education and training	Causal mechanisms determining the gender gap
Number of papers in the subgroup	187	140	61	10
Number passing the relevance and quality screen	70	29	22	5
Number of references cited	63	29	12	5

A copy of the paper was obtained, read and again reviewed for quality – topically-relevant papers meeting this final quality screen were included in the literature review.

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