

Global Research on Women's Entrepreneurship: An Overview of Available Data Sources & Limitations

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Abstract

Empirical relationships that exist between gender and entrepreneurship still pose many unanswered questions. We provide a launch point for further research on women's entrepreneurship. Through extensive research on available global databases, we: 1) highlight the continued importance of empirical research in this domain, 2) establish a base point of past research on issues related to women's entrepreneurship, 3) provide an overview of available country-level data sources for researchers to utilize, and 4) discuss the limitations of multilevel, global research that currently exist in entrepreneurship and propose future directions.

Keywords: Women, Entrepreneurship, Data, Global, Research

1. Introduction

The field of entrepreneurship and entrepreneurship-related inquiry are growing at an impressive rate (Dean, Shook, & Payne, 2007; Short, Ketchen, Combs, & Ireland, 2010). Over roughly the last 10 years, it is reported that the Entrepreneurship Division of the Academy of Management has witnessed 155% increase in membership indicating the steady growth of the discipline (Crook, Shook, Morris, & Madden, 2010), but the field has nonetheless been criticized for not deploying enough rigor in its empirical research as other fields (Low, 2001). As a result, entrepreneurship articles have accounted for as little as 2% of the total articles published in leading management journals (Busenitz et al., 2003). Although there is consensus about the domain of study in entrepreneurship, the field seems to be challenged with taking the next step, which is the probing of interesting and important issues, in a rigorous way, and from a solid foundation. Even though entrepreneurship as a research discipline has progressed past the infancy stage, some believe that we still should not yet feel a respectable level of confidence with making "normative recommendations regarding the exact nature of the varied and complex relationships studied under the umbrella of entrepreneurship research (Chandler & Lyon, 2001, p. 112)."

Further research in this domain is important especially because entrepreneurship is vital for successful and sustainable economic development. Prior research has shown that, with the right societal-level structures in place, as entrepreneurship increases, so does GDP, societal wealth, and quality of life, resulting in sustainable economic development when government focus is on growth-oriented and innovative new ventures (Morris, 2001; van Stel, Carree, & Thurik, 2005; Wennekers, van Stel, Thurik, & Reynolds, 2005). Entrepreneurship development programs promote environmental sustainability and business development skills in unemployed or under-employed people (Adeoti, 2000). Entrepreneurship is also important for the creation of new jobs, as viable opportunities for employment in larger companies and government are limited (Arzeni, 1998). Entrepreneurship also allows rural areas to move in new economic directions through the combination of the informal rural economy with new product and service development (MacKenzie, 1992). It is the entrepreneur who initiates economic change and encourages consumers to want new goods and services which differ in some way from those they already have (Schumpeter, 1934).

Narrowing our focus within the entrepreneurship discipline, we look to the importance of research specifically on the global entrepreneurial activity of women. The United Nations' Millennium Development Goals (UN, 2003) specifically address women-related issues, promoting gender equality and the empowerment of women. The UN Division for the Advancement of Women (DAW) (UN, 2005) also promotes equality with men across the world for sustainable development, peace and security, governance, and human rights. Since women make up the majority of

the informal working poor, a focus on women's entrepreneurial activity is needed to strengthen the organization of the working poor into a representative voice for effective policy making (M. Chen et al., 2005).

Despite existing literature that shows that gender matters for many business related topics, empirical relationships that exist between gender and entrepreneurship still pose many unanswered questions. Scholars conclude that there still remains a research gap in studying women entrepreneurs (Ahl, 2006; M. Minniti, 2009), despite the magnitude of women's entrepreneurial activities. In the U.S. alone, there are 10.4 million women-owned firms, where women have more than 50% ownership stake, who employ about 12.9 million employees, have a total sales of \$1.9 trillion, and represent 40% of privately held firms (Center for Women's Business Research, 2008).

The factors that affect women leading businesses are different across the world, changing with the dynamic nature of the environments in which they live (Baughn, Chua, & Neupert, 2006; X.-P. Chen & Li, 2005; Erez & Gati, 2004). In order to understand the contexts that affect women in business it is imperative to do a multi-level analysis of the independent variables that affect women's participation in entrepreneurship, i.e. economics, the business environment, political freedoms, infrastructure and technology, and cultural norms.

The purpose of this research note is to provide a current launch point for further research on women in entrepreneurship. We do this in order to establish a base point of past research on issues related to women in business and to discuss the data limitations of global multilevel women's entrepreneurship research. Specifically, in the following order, we: 1) highlight the continued importance of empirical research in this domain, 2) establish a base point of past research on women in business, 3) provide an overview of available country-level data sources, and 4) discuss the limitations of multilevel, global research that currently exist in entrepreneurship and propose future directions. Our intention is to pick up where previous review articles (e.g. Ahl, 2006; C.G. Brush, 2006; S. Carter, Anderson, & Shaw, 2001; Gatewood, Carter, Brush, Greene, & Hart, 2003; M. Minniti, 2009; Terjesen, Elam, & Brush, 2011) on the subject left off and to provide new information with data resources for scholars to exploit in their pursuit of novel, theory-driven, empirical research.

2. Women in entrepreneurship and business leadership literature

We see women entrepreneurs as leaders in their communities, creating jobs, and setting examples for other women to start businesses, and therefore find the intersection between leadership and entrepreneurship relevant for a discussion of how research in both domains affects future research on women entrepreneurs. Encouraging women's roles in business leadership is critical for the growth of the economy (Afrin, 1999; Caputo & Dolinsky, 1998; S. Coleman, 2004; Maria Minniti, Arenius, & Langowitz, 2004). Many organizations and government institutions (ILO, 2005; Sidani, 2005; UN, 2005; UNIFEM, 2008) have long recognized the importance of women, in both developed and developing nations, for the process of increased economic development (I. Coleman, 2004). Women are credited with the role of primary caregiver and their efforts outside the home to generate income positively affect a strong, burgeoning family (Afrin, 1999; Barnett, 1995; I. Coleman, 2004; S. Coleman, 2004; Dana, 2000; ILO, 2005; Kantor, 2002; Mitra, 2002; Oppedisano, 2004; Shabbir & Di Gregorio, 1996; UN, 2005).

The topic of females as business leaders in a cross-cultural context is still understudied in terms of rigorous, empirical research, though it has been increasing. The following literature review is intended to set the foundation on which the study of women in and entrepreneurship and business leadership is built, which includes past research on women and (1) entrepreneurship, (2) work-family balance, (3) glass ceiling effects, (4) gender stereotypes, and (5) gender-leader role incongruity and international efforts made toward gender equality issues. Given the enormous amount of work done in some of these areas, this review is in no way meant to be exhaustive, but rather to highlight some of the main literature streams. This review also does not span the many disciplines outside of Business that also do research on women (e.g. general economics, labor economics, political science, feminist theory and women studies, etc.), although these domains would also benefit from what data arguments we make in this paper. In addition, considering the dynamic and rapidly changing nature of gender issues in today's globalized world, the majority of this literature review focuses on research published in approximately the last 10 years, with seminal pieces referenced where prudent.

2.1 Women in entrepreneurship

Since the 1990s, gender has become a "lens" for constructing theoretically-based research through which we can capture issues that impact women's participation in economic activity (Greene, Brush, & Gatewood, 2006). However, in their literature review of studies that talk about women entrepreneurship, Brush, de Bruin, and Welter (2009) found that from 1996-2006 only 16 articles mentioned women's entrepreneurship in 2 leading Entrepreneurship journals: *Journal of Entrepreneurship Theory & Practice* and *Journal of Business Venturing*. When they dug deeper to examine if women were used as a lens or if gender was simply a variable included in the study, they found that 11 used gender as a variable and only 5 used gender as a lens for theoretically-based research. In addition, an examination of the top 8 entrepreneurship journals revealed that since 1994 only 6-7% of research has addressed

female entrepreneurship issues (For an overview of the subject and a summary of eight prominent literature reviews on gender and new venture creation, see Terjesen, et al., 2011).

Two leading research efforts on women entrepreneurs have come from 1) the Global Entrepreneurship Monitor, an annual assessment of entrepreneurial activity at the national level of both men and women in 56 countries (GEM, 2010), and 2) the DIANA Consortium of 5 leading scholars with a specialized conference to promote research on this topic (Gatewood, Brush, Carter, Greene, & Hart, 2009). Research out of GEM showed that while fewer women than men start or own businesses, women's entrepreneurship is increasing. Women who are educated, have self-confidence, and have jobs with higher incomes, have a higher likelihood of being entrepreneurs (Allen, Elam, Langowitz, & Dean, 2008).

Minniti and Nardone (2007), also GEM researchers, argue that socio-economic and contextual factors affect gender differences in entrepreneurial activity. Brush, de Bruin, and Welter (2009) created a framework calling for the importance of incorporating the household and family context of female entrepreneurs, as well as cultural norms and societal expectations, which all pose challenges for women entrepreneurs that are different from their male counterparts. They build on the premise that all entrepreneurship is socially embedded (Davidsson, 2003; Steyaert & Katz, 2004) and the study of norms, values, and external expectations are critical for a complete understanding of women's entrepreneurship (Elam, 2008). Culture may also mediate the impact of the traditional factors of money, management, and markets on entrepreneurship (Candida G. Brush, et al., 2009; Elam, 2008). Because women's roles differ across countries, they are likely to face varying career choice complexities in an effort to create a balance between economic and domestic roles (Gilbert, 1997).

The typical "masculine" descriptions of entrepreneurs as bold, calculative, and unafraid of risk (Ahl, 2006), can be discouraging for women who seek to become entrepreneurs (Bird & Brush, 2002). Bird and Brush (2002) argue that venture creation theory has traditionally taken a masculine-gender framework and call for a more balanced approach that considers a feminine perspective in studying the processes (C. G. Brush, 1990) and managerial strategies (N. M. Carter, Gartner, & Reynolds, 1996) of starting a new venture.

2.2 Work-Family Balance

One of the hot topics in the gender literature addresses the tightrope that women walk in order to successfully balance their work and family lives. As women have joined the workforce and climbed into higher positions of influence, particularly in Western societies, they have increasingly been beset with mastering the task of wearing multiple hats at the same time. This multitasking characteristic is one that some may argue women have mastered in order to juggle all the responsibilities of the home and family (i.e. Jennings & McDougald, 2007; Ruderman, Ohlott, Panzer, & King, 2002).

While much of the work-family balance research is Western-centric, it is important to review for its contribution to the field. Aldrich and Cliff (2003) demonstrate that major transformations have occurred in family composition and that these changes in roles and relationships can have a major influence on the working lives of both women and men. These scholars explain that in North America up until the 1950's and 60's, "'family' usually meant a nuclear two-generational group with parents and children sharing the same household ... when few women worked outside the home ..." (pg. 578). Over the next 50 years or so, the family system has changed because of transformations in the composition of households, including both family and non-family members, and in the roles and relationships among family members (Aldrich & Cliff, 2003). Family and business are embedded together and spillovers exist between the two realms. Applying this family embeddedness perspective to women in business, family systems influence the processes involved in women's decisions to engage in positions of leadership by affecting resources, family transitions, and ultimately the norms, attitudes, and values of each family member.

Work-life balance issues can result in positive outcomes, like a growth in entrepreneurial ventures pursued by women that give them flexible schedules (Rehman & Muhammad Azam, 2012) and the enriching properties of utilizing and enhancing multitasking skills that are required for both spheres (Rothbard, 2001). Women are known for their collaborative, nurturing, participative, and democratic management styles (Eagly & Johnson, 1990; Moore, Moore, & Moore, 2011; Weikart, Chen, Williams, & Hromic, 2006), which have been greatly enhanced throughout generations of family care-giving and are extremely useful qualities for business leadership (Kirkland, Peterson, Baker, Miller, & Pulos, 2013; Sappleton, 2009). Nonetheless, women persistently face more household demands and family responsibility (Huang, Hammer, Neal, & Perrin, 2004; Jurik, 1998; Milkie & Peltola, 1999; Moen & Yu, 2000; Rothbard, 2001) even when working outside the home, because women are still expected to be the primary caregivers. This reduces time available for work and increases stress, leading to more work-family conflict, and attitudes and behaviors that interfere with business leadership. Men on the other hand are expected to be good economic providers for their families and devote time to business. Therefore, as "breadwinners" men are better positioned than women to maintain their family and work demands at the same time (Jennings & McDougald, 2007;

Simon, 1995). Men tend to make greater sacrifices at home in order to maintain their work responsibilities, whereas women do the opposite (Jennings & McDougald, 2007; Martins, Eddleston, & Veiga, 2002; Milkie & Peltola, 1999; Moen & Yu, 2000; Rothbard, 2001).

Female business leaders will experience less work schedule autonomy and flexibility if they continue to work in the typical retail and personal services industries which have either inflexible hours or demanding clients (Bates, 2002; Cliff, 1998; Kim & Ling, 2001) leaving women less control over their work environments and higher levels of work-family conflict. Family-work constraints can lead women to pull double duty with home and work responsibilities, and in turn restrict business growth rather than encourage it, give higher priority to their spouse's careers, and make sacrifices in their own. This results in smaller employment size, revenues, and income levels of women-led businesses. (Jennings & McDougald, 2007),

Individuals experience the work-family interface when there is conflict from incongruity between the two spheres because of stress, time, and incompatible behaviors required for each. These work-family interface factors offer a more robust explanation for differences between men and women (on factors like human capital, social capital, financial capital, growth orientations, and industry choice). The different life experiences that women face will cause women-led businesses to face more challenges compared to men-led businesses (Jennings & McDougald, 2007), to respond differently to their environment, and in turn to lead in a manner that is different than men (Weikart, et al., 2006) and for different reasons.

Individuals also experience the work-family interface in more positive ways through the benefits and enriching properties of both work and family and the effects that both realms simultaneously have on each other (Jennings & McDougald, 2007). Ruderman, Ohlott, Panzer, and King (2002) counter the role scarcity argument (Goode, 1960) that women have a fixed amount of time and energy sectioned into pieces of a figurative pie and that for more time or energy to be allocated to one slice, another slice needs to be reduced. They argue, alternatively, that the roles present in women's personal lives psychologically enhance their effectiveness in business roles. In other words, emotional abilities, multitasking, interpersonal skills, and leadership activities involved in women's personal spheres positively spill-over into professional realms. Ruderman et al. (2002) refer to this as the role accumulation perspective – the idea that multiple roles provide some people with more energy, rather than deplete a set reserve (Marks, 1977; Sieber, 1974), although certainly role overload and role stress can stretch a person's limits and become burdensome. Role accumulation can be beneficial because of available enhanced psychological resources, social resources, and learning opportunities (Ruderman, et al., 2002).

2.3 The Glass Ceiling

Context plays a crucial role in women's involvement in entrepreneurship and positions of business leadership, in that if women feel alienated from leadership positions, they are discouraged from participating (Vinnicombe & Singh, 2002). Powell and Butterfield (1994) combined prior definitions (Morrison, White, & Van Velsor, 1987; U.S. Department of Labor, 1991) to describe the glass ceiling for women as "a barrier to entry into top-level management positions ... based on attitudinal or organizational bias ... simply because they are women rather than because they lack the ability to handle jobs at higher levels" (pg. 68). Because this is such a popular topic in modern gender discussions, a tremendous amount of work has been done with opposing findings (Burrell, 1996; Darcy, Welch, & Clark, 1994; Elder, 2004; Ogden, McTavish, & McKean, 2006; Seltzer, Newman, & Leighton, 1997; Smith & Fox, 2001)

Context plays a significant role on glass ceiling effects. For example, the more a country has reached higher levels of gender empowerment and equality, the less likely it may be that women will face glass ceiling obstacles. Context also matters in terms of mediating and moderating variables that may affect the relationship between gender and the glass ceiling. For example, in organizations or societal cultures where women are generally accepted at higher levels of leadership, glass ceiling effects may be considerably minimized. The opposite may be true in places where women are severely marginalized and the proverbial "glass" ceiling is actually made of steel. In these cases, women not only cannot attain levels of leadership, they can't even envision them.

Glass ceiling issues may be felt less in organizations started by women themselves. Women often start their own businesses in an effort to circumvent the old boy's network or glass ceiling issues faced with traditional, large organizations where higher positions have been held predominately by men. This leads to a motivation toward women leading their own businesses based on an inflexibility of employers toward working women with family responsibilities, women's aspiration to run their own businesses (Jennings & McDougald, 2007), and the desire to choose the flexible hours associated with this in an effort to achieve better work-life balance (Walker & Webster, 2007).

2.4 Individual Differences, Stereotypes, and Role Congruity Studies

Entrepreneurship scholars have long looked for individual differences based on gender, with some successes (e.g. Kroeck, Bullough, & Reynolds, 2010; Renko, Kroeck, & Bullough, 2012). While we want to understand gender differences in order to enhance entrepreneurship research and women's entrepreneurial activity, research in individual differences also leads scholars to uncover stereotypes and biases that might negatively impact women. This section of the literature review covers past research that has been done on individual differences (with only perceived by others or empirically verified) between men and women in entrepreneurship or leadership style, and how these lead to stereotypes and an incongruity with expectations about leader characteristics. We extend our review past the entrepreneurship literature on individual differences based on gender to include the women in leadership literature. We do this for two reasons: 1) women entrepreneurs are also business leaders, making the intersection of these two disciplines relevant, and 2) it is the leadership literature that provides the most material on stereotypes and biases.

Eagly and Carli (2004) suggest that women hold fewer high-level positions in the United States because of: 1) a lower investment in human capital because women experience interruptions in their work history due to family responsibilities, and 2) women and men lead differently, causing perceived inconsistencies with leader role expectations, and therefore discrimination ensues (Eagly & Carli, 2004). The role congruity theory of prejudice toward female leaders proposes that a perceived incongruity between the female gender role and the leadership role leads to prejudice (Eagly & Karau, 2002) or a glass ceiling. One form of this prejudice involves the perception of women less favorably than men as potential occupants of leadership roles. A second form of prejudice includes evaluating behaviors that fulfill the prescriptions of a leader role less favorably when it is enacted by a woman. Consequently, attitudes are less positive toward female leaders, making it more difficult for women to become leaders and to achieve success in these roles (Eagly & Karau, 2002).

Some stereotypes are exceptionally persistent in certain cultures, even as feelings about women's roles have evolved (Powell, Butterfield, & Parent, 2002). Past literature explains that sex-role stereotyping depicts men as superior in leadership pursuits because they are considered to possess the masculine, agentic qualities (e.g., men are more assertive, competitive, daring, and courageous) that are needed to gain the necessary level of respect for the successful supervision of followers (Eagly & Mitchell, 2004). Women are then expected to display relatively feminine, communal values (e.g. by acting affectionate, cooperative, and compassionate) and are generally not expected to exhibit the characteristics typically associated with leaders, such as being assertive, ambitious, dominant, strong, independent, and self-confident (Eagly & Mitchell, 2004).

Rather than focusing on the differences between men and women and the ways in which they lead, some scholars (i.e. Foels, Driskell, Mullen, & Salas, 2000; Porter, Geis, Cooper, & Newman, 1985; Sargent, 1981) have recognized the obvious benefits of combining both male and female leadership styles (Vinnicombe & Singh, 2002). In this way, leaders are nurturing, supporting, inclusive, assertive, decisive, and competitive all at the same time and depending on the circumstances. Toughness and management skills in times of crisis have been found to be valuable traits. Women who can demonstrate these skills, while simultaneously taking advantage of the perceived female edge in compassion, may have an advantage (Hansen & Otero, 2006).

3. International Efforts and Research on the Inclusion of Women

As decision makers who are more educated and better trained, and less burdened with family and household responsibilities, men have been more likely to reap the benefits of economic growth than women. Extending education and training to women in order for them to become more active in the paid and productive workforce has shown to enhance economic development efforts further (Boserup, 1986). Brown (2006) explains that women are affected differently than men by modernization, development, and social change. As is characteristic of any development effort originating in the developed world, the women in development (WID) movement holds modernization as its central tenet, viewed as a linear process that is measured in economic terms (Chowdhry, 1995), even though much of the modernization of the colonial era had marginalized women when new technology and innovation was targeted toward men (Boserup, 1970, 1986).

Even though one of WID's central goals was the incorporation of women into capitalist models of development, this era spawned pushback against First World ideas that were not applicable in the Third World (Brown, 2006; Ghodsee, 2003) and stimulated demands from feminists that women are to be included in development efforts, and the international community listened and responded (UNDP, 2003; UNIFEM, 2008; World Bank, 2004). The response has been a gender and development approach (GAD) which switched the focus from women and women's roles, to the gender relations between women and men and the interaction of women's and men's roles together at all levels of the social, political, and economic spectrum. This movement includes Third World women's organizations as well as efforts proposed by the developed world. GAD is a more sensitive, varied, and flexible approach to complex gender

structures and addresses the shortcomings in the WID approach (For a comparison between the two approaches, see Brown, 2006) however it was more ambitious in its challenge of long-standing social forces, and therefore difficult to implement. The WID projects tended to be politically and practically easier to implement (Brown, 2006; Chowdhry, 1995; Ghodsee, 2003; Vavrus & Richey, 2003).

A combination of the two approaches – a GAD approach to WID policies – may be more effective and easier to implement while still focusing on social, economic, and political factors that affect both genders – “a programmatic shift toward a ‘gender mainstreaming’ paradigm that integrates a gender analysis into all aspects of sustainable development” (Silber, 2007 p. 171). The women participating in WID programs themselves can then shape these efforts over time in the direction of their choosing to become more in line with both practical and strategic benefits – development with a gradual transformation of gender relations (Brown, 2006). For example, the Goldman Sachs’s 10,000 Women initiative serves an example of a large corporation becoming involved in business development training for women, utilizing a GAD approach to WID policies. The program involves partnerships with premier developed country business schools and developing country universities, who work in partnership to design state-of-the-art curriculum that is applicable to female entrepreneurs who have not had access to formal business education or prior training.

Finally, on the international front, micro-credit has also been described as dramatically increasing social benefit (Ricart, Enright, Ghemawat, Hart, & Khanna., 2004) and studies have shown that access to micro-credit helps reduce poverty for women borrowers and their villages, and thus benefits poor participants and the local economy simultaneously (Khandker, 2005). In addition, micro-enterprise training has empowered women to achieve economic self-sufficiency, develop management skills, build new homes, and create new jobs through small-scale businesses that have grown into larger enterprises (Andaleeb & Wolford, 2004; Dumas, 2001; Isserles, 2003).

Micro-credit initiatives are widely used to help establish small-scale industries which consist of responsible individuals with the training to economically move a community or country toward further growth through trade with the international community (Mujtaba, 2005). Small-scale industry involves the coming together of firms and the subsequent competitive advantage derived from local economies and efficiencies produced by the collective (Schmitz, 1995). Large multinational enterprises (MNE’s) have begun to recognize the benefit of supporting small business training initiatives in developing countries for the purposes of training employees to be productive in other industries once their labor is no longer useful to the MNE. This includes trade training for women, micro-credit, and business development in an effort to promote self-help enterprise development (Eweje, 2006; Mujtaba, 2005).

4. Overview of current data sources

All of the previous research presented above could benefit from large scale international data analysis, although a few main limitations to the global study of entrepreneurship exist because of the lack of data available. First, there are only slightly more than 200 countries that exist in the world for data collection, meaning the sample size will never provide the level of comfort afforded in other studies with bigger populations. Second, there is no one source that provides data for the business environment, societal development, economics, infrastructure and technology, political freedom, and culture together. Such a study requires gathering data from numerous secondary sources to compile into one dataset. Third, not only do different sources collect data on slightly different countries, but the data available are missing by year or by country, or both, for any given variable, which is particularly the case with the World Bank Group and United Nations Development Program data sets. With a sample size between 100 and 200, assigning values by any method for missing values risks gross manipulation of the data. These are limitations researches are required to find empirically sound ways to navigate through, but the richness of the available data makes such an exercise worthwhile for adding to the body of knowledge in entrepreneurship.

Given these limitations, there are nonetheless unlimited empirical possibilities. We provide below in Table 1 a list of global entrepreneurship data sources. In Table 2, we provide all the variables that are available delineated by gender. We did this through an extensive literature review and research into archives and existing data sources. We also utilized professional librarian services and interviewed other research experts with knowledge of potential global data sources. The second column in Table 2 indicates “yes” if the variable is available for both genders or can be easily calculated to derive statistics for males. “N/A” indicates that the variable is not available for males. In Table 2, the most important variables are Self-Employed and Employers, gathered by the International Labour Organization (ILO) for both females and males, and found in the World Bank’s World Development Indicators database, now publicly available on the World Bank website (data.worldbank.org). The variable definitions provided are gathered directly from these sources.

Table 1. Entrepreneurship Databases

Data	Agency	Description
Global Entrepreneurship and Development Index (GEDI)	Zoltan Acs, from CEPP at George Mason University and Laszlo Serb, University of Pecs have created the Global Entrepreneurship and Development Index (GEDI). www.thegedi.org	Captures the contextual feature of entrepreneurship across countries. Can be individual (personal or business) level or institutional (environmental). All individual level variables are from the GEM Adult Population Survey. Covering 71 countries from 2002-2008. Consists of three sub-indexes, fourteen pillars and thirty-one variables. Offers a measure of the quality and quantity of the business formation process in 71 of the most important countries in the world. The GEDI captures the contextual feature of entrepreneurship by focusing on entrepreneurial attitudes, entrepreneurial activity and entrepreneurial aspirations
Global Entrepreneurship Monitor (GEM)	The Global Entrepreneurship Monitor (GEM) Dataset www.gemconsortium.org	An annual assessment of the national level of entrepreneurial activity for 59 economies (2010). GEM survey data document the behavior and characteristics of nascent entrepreneurs, new entrepreneurs, and established business owners. The degree of innovativeness, competitiveness, and growth expectations of early-stage and established business owners, as well as the existence and characteristics of social environments conducive to entrepreneurship are also documented
Enterprise Surveys	World Bank Enterprise Survey www.enterprisesurveys.org	Includes are available on 120,000+ firms in 125 countries. Data are used to create indicators that benchmark the quality of the business and investment climate across countries. The surveys identify the main features of firms—type of ownership, size of the enterprise, sector of operation, years of market experience, composition of the workforce, and performance in the economy. In some countries the data can be disaggregated by the gender of the owner.
World Bank Group Entrepreneurship Survey	http://econ.worldbank.org/research/entrepreneurship	The 2008 World Bank Group Entrepreneurship Survey measures entrepreneurial activity in over 100 developing and industrial countries over the period 2000-2007. The database includes cross-country, time-series data on the number of total and newly registered businesses, collected directly from Registrar of Companies around the world.

Table 2. Measures for Females at the Country Level

Economic Activity & Labor		
Variable Name	Males	Data Sources
Self-employed, female (% of females employed)	Yes	International Labour Organization, Key Indicators of the Labour Market database.
Employers, female (% of employment)	Yes	ILO Key Indicators of the Labour Market (KILM)
Female headed households (% of households with a female head)	Yes	Demographic and Health Surveys by Macro International
Firms with female participation in ownership (% of firms)	N/A	World Bank, Enterprise Surveys (http://www.enterprisesurveys.org/).
Share of women employed in the nonagricultural sector (% of total nonagricultural employment)	No	International Labour Organization, Key Indicators of the Labour Market database.
Child employment in agriculture, female (% of female economically active children ages 7-14)	Yes	Understanding Children's Work project based on data from ILO, UNICEF and the World Bank
Proportion of seats held by women in national parliaments (%)	Yes	United Nations, Women's Indicators and Statistics database (www.ipu.org).
Child employment in manufacturing, female (% of female economically active children ages 7-14)	Yes	Understanding Children's Work project based on data from ILO, UNICEF and the World Bank
Child employment in services, female (% of female economically active children ages 7-14)	Yes	Understanding Children's Work project based on data from ILO, UNICEF and the World Bank
Labor force with tertiary education, female (% of female labor force)	Yes	International Labor Organization, Key Indicators of the Labor Market database
Labor participation rate, female (% of female population ages 15+)	Yes	International Labor Organization, Key Indicators of the Labor Market database.
Long-term unemployment, female (% of female unemployment)	Yes	International Labour Organization, Key Indicators of the Labour Market database.
Contributing family workers, female (% of females employed)	Yes	International Labour Organization, Key Indicators of the Labour Market database.
Part time employment, female (% of total female employment)	Yes	International Labour Organization, Key Indicators of the Labour Market database.
Part time employment, female (% of total part time employment)	Yes	International Labour Organization, Key Indicators of the Labour Market database.
Employees, agriculture, female (% of female employment)	Yes	International Labour Organization, Key Indicators of the Labour Market database.

Table 2. Measures for Female at the Country Level (Continued)

Males	Males	Data Sources
Employees, industry, female (% of female employment)	Yes	International Labour Organization, Key Indicators of the Labour Market database.
Ratio of female to male wages in manufacturing	N/A	International Labour Organization, Key Indicators of the Labour Market database.
Unemployment, female (% of female labor force)	Yes	International Labour Organization, Key Indicators of the Labour Market database.
Employees, services, female (% of female employment)	Yes	ILO Key Indicators of the Labour Market (KILM).
Unemployment with primary education, female (% of female unemployment)	Yes	International Labour Organization, Key Indicators of the Labour Market database.
Unemployment with secondary education, female (% of female unemployment)	Yes	International Labour Organization, Key Indicators of the Labour Market database.
Employment to population ratio, 15+, female (%)	Yes	International Labour Organization, Key Indicators of the Labour Market database.
Unemployment with tertiary education, female (% of female unemployment)	Yes	International Labour Organization, Key Indicators of the Labour Market database.
Employment to population ratio, ages 15-24, female (%)	Yes	International Labour Organization, Key Indicators of the Labour Market database.
Unemployment, youth female (% of female labor force ages 15-24)	Yes	International Labour Organization, Key Indicators of the Labour Market database.
Labor force, female (% of total labor force) Labor force, total	Yes	International Labour Organization, using World Bank population estimates.
Vulnerable employment, female (% of female employment)	Yes	International Labour Organization, Key Indicators of the Labour Market database.
Labor force with secondary education, female (% of female labor force)	Yes	International Labour Organization, Key Indicators of the Labour Market database.
Wage and salaried workers, female (% of females employed)	Yes	International Labour Organization, Key Indicators of the Labour Market database.
Economically active children, female (% of female children ages 7-14)	Yes	Understanding Children's Work project based on data from ILO, UNICEF and the World Bank.
Economically active children, study and work, female (% of female economically active children, ages 7-14)	Yes	Understanding Children's Work project based on data from ILO, UNICEF and the World Bank.
Share of women employed in the nonagricultural sector (% of total nonagricultural employment)	Yes	International Labour Organization, Key Indicators of the Labour Market database.
Unemployment, female (% of female labor force)	Yes	International Labour Organization, Key Indicators of the Labour Market database.

Table 2. Measures for Female at the Country Level (Continued)

Education		
Variable Name	Males	Data Sources
Children out of school, primary, female	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Repeaters, primary, female (% of female enrollment)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Repeaters, secondary, female (% of female enrollment)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
School enrollment, preprimary, female (% gross)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Gross intake rate in grade 1, female (% of relevant age group)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Literacy rate, adult female (% of females ages 15 and above)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Literacy rate, youth female (% of females ages 15-24)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Net intake rate in grade 1, female (% of official school-age population)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
School enrollment, primary, female (% gross)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
School enrollment, primary, female (% net)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Ratio of female to male secondary enrollment (%)	N/A	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Ratio of young literate females to males (% ages 15-24)	N/A	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
School enrollment, secondary, female (% gross)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
School enrollment, secondary, female (% net)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
School enrollment, tertiary, female (% gross)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Primary completion rate, female (% of relevant age group)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Secondary education, general pupils (% female)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Primary education, pupils (% female)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Primary education, teachers (% female)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.

Table 2. Measures for Female at the Country Level (Continued)

Variable Name	Males	Data Sources
Secondary education, teachers (% female)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Secondary education, teachers, female	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Progression to secondary school, female (%)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Secondary education, vocational pupils (% female)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Total enrollment, primary, female (% net)	Yes	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Ratio of female to male primary enrollment (%)	N/A	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Trained teachers in primary education, female (% of female teachers)	Yes	United Nations Educational, Scientific, and Cultural Organization, special data collection for the Education for All Initiative.
Ratio of girls to boys in primary and secondary education (%) Mortality rate, adult, female (per 1,000 female adults)	N/A	United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.
Mortality rate, female child (per 1,000 female children age one)	Yes	Demographic and Health Surveys by Macro International, Multiple Indicators Cluster Surveys by UNICEF, Reproductive Health Surveys by U.S. Center for Disease Control, and Family Health Surveys by Pan Arab Project for Family Health.
Condom use, population ages 15-24, female (% of females ages 15-24)	Yes	Demographic and Health Surveys by Macro International.
Population, female (% of total)	Yes	United Nations Population Division. 2009. World Population Prospects: The 2008 Revision. New York, United Nations, Department of Economic and Social Affairs (advanced Excel tables). Available at http://esa.un.org/unpd/wpp2008/index.htm .
Fertility rate, total (births per woman)	N/A	(1) United Nations Population Division. 2009. World Population Prospects: The 2008 Revision. New York, United Nations, Department of Economic and Social Affairs (advanced Excel tables). Available at http://esa.un.org/unpd/wpp2008/index.htm . (2) Census reports and other statistical publications from national statistical offices, (3) Eurostat: Demographic Statistics, (4) Secretariat of the Pacific Community: Statistics and Demography Programme, (5) U.S. Census Bureau: International Database, and (6) household surveys conducted by national agencies, Macro International, and the U.S. Centers for Disease Control and Prevention
Pregnant women receiving prenatal care (%)	na	UNICEF, State of the World's Children, Childinfo, and Demographic and Health Surveys by Macro International

Table 2. Measures for Female at the Country Level (Continued)

Health/Population/ Social Development		
Variable	Males	Data Source
Life expectancy at birth, female (years)	Yes	(1) United Nations Population Division. 2009. World Population Prospects: The 2008 Revision. New York, United Nations, Department of Economic and Social Affairs (advanced Excel tables), (2) Census reports and other statistical publications from national statistical offices, (3) Eurostat: Demographic Statistics, (4) Secretariat of the Pacific Community: Statistics and Demography Programme, and (5) U.S. Census Bureau: International Database.
Population, female (% of total)	Yes	United Nations Population Division. 2009. World Population Prospects: The 2008 Revision. New York, United Nations, Department of Economic and Social Affairs (advanced Excel tables). Available at http://esa.un.org/unpd/wpp2008/index.htm .
Survival to age 65, female (% of cohort)	Yes	United Nations Population Division. 2009. World Population Prospects: The 2008 Revision. New York, United Nations, Department of Economic and Social Affairs (advanced Excel tables). Available at http://esa.un.org/unpd/wpp2008/index.htm
Teenage mothers (% of women ages 15-19)	N/A	Demographic and Health Surveys by Macro International
Life expectancy at birth, female (years)	Yes	(1) United Nations Population Division. 2009. World Population Prospects: The 2008 Revision. New York, United Nations, Department of Economic and Social Affairs (advanced Excel tables), (2) Census reports and other statistical publications from national statistical offices, (3) Eurostat: Demographic Statistics,
Wanted fertility rate (births per woman)	N/A	Demographic and Health Surveys by Macro International
Female adults with HIV (% of population ages 15+ with HIV)	Yes	UNAIDS and the WHO's Report on the Global AIDS Epidemic
Prevalence of HIV, female (% ages 15-24)	Yes	UNAIDS and the WHO's Report on the Global AIDS Epidemic
Pregnant women receiving prenatal care (%)	N/A	UNICEF, State of the World's Children, Childinfo, and Demographic and Health Surveys by Macro International.
Smoking prevalence, females (% of adults)	Yes	WHO Report on the Global Tobacco Epidemic

It is our hope that researchers utilize the datasets we provide in Tables 1 and 2 for useful theory-driven arguments and investigate the data for worthwhile relationships among key variables that affect, are affected by, mediate, or moderate women's entrepreneurship. While there are limitations to these data sources, which we outline below, there is a tremendous amount of rich data available at the global level with a lot still to be learned.

5. Conclusions

According to the Global Entrepreneurship Monitor 2009 Report, women's participation in entrepreneurship varies significantly across countries, across different phases of the entrepreneurial process, and with different sources of motivation. Such variations may attribute to different cultures and customs that are likely to impact women's participation in entrepreneurial activities. In addition, not all countries are equally committed to facilitating an increased economic presence of entrepreneurs (Bosma & Levie, 2009). Some countries have put in place systems to encourage entrepreneurship while others were not as successful in generating significant new business development, although such activity has brought us closer to defining frameworks for country determinates of entrepreneurial activity (Spencer & Gomez, 2004). This poses limitless opportunities for further research in this area. Furthermore,

the more we understand about the determinants and antecedents of women's entrepreneurship at the societal level, we can devise more effective programs for women to earn the independence associated with running their own businesses (Rindova, Barry, & Ketchen, 2009).

Do gender distinctions impact a country's entrepreneurship frequency, outcomes, strategies, etc? What are these gender issues that we need to account for? What important factors are we not capturing by not accounting for gender? Unless, we start to do more research that empirically examines women's entrepreneurial economic activity across countries, we will not be able to answer these questions to know if and how they matter. We are also unable to adequately understand the specific challenges, opportunities, process, and strategies facing women. Through careful empirical examination of variables that capture women's entrepreneurship, we are likely to reveal interesting relationships between country factors and female entrepreneurs which may result in a better understanding of gender as a lens within the context of entrepreneurship.

6. Limitations & Directions for Future Research

Based on data analysis limitations, this paper specifically calls for more widespread data collection from the International Labor Organization, World Bank World Development Indicators, the World Bank Enterprises Survey, the World Bank Doing Business Survey, or the United Nations Development Program. These organizations and databases provide some of the most important and rich data available at the country level, however the limitations outlined here are severe. Of particular importance are the data provided on the business environment in the World Bank Enterprise Survey, which is only collected on just over 100 developing countries, rendering impossible any potential learning from valuable comparisons between developing and developed nations.

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