

# **Gender and Economic Development in Millennium Challenge Corporation Indicators: An Assessment and Recommendations**

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Millennium Challenge Corporation**

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## TABLE OF CONTENTS

List of Tables.....	iv
Foreword.....	v
Acknowledgments.....	vi
Abbreviations and Acronyms.....	vii
Executive Summary.....	ix
<b>Introduction.....</b>	<b>1</b>
<b>I. Gender and Economic Development: What Do We Know?.....</b>	<b>2</b>
A. Market Participation and Gender Equality.....	2
<i>Labor Force Participation and Wages.....</i>	<i>2</i>
<i>Childcare Access.....</i>	<i>4</i>
<i>Entrepreneurship.....</i>	<i>5</i>
<i>Credit Access.....</i>	<i>5</i>
<i>Agriculture.....</i>	<i>6</i>
B. Macroeconomic Policies and Gender Equality.....	7
<i>Gender-Responsive Budgeting.....</i>	<i>7</i>
<i>Trade Policy.....</i>	<i>8</i>
C. Land Use and Gender Equality.....	9
<i>Property Rights and Access to Land.....</i>	<i>9</i>
<i>Infrastructure Development.....</i>	<i>10</i>
<i>Environmental Management.....</i>	<i>11</i>
D. Health Services and Gender Equality.....	13
<i>Maternal Health Services.....</i>	<i>13</i>
<i>Reproductive Health Services.....</i>	<i>14</i>
<i>Cervical Cancer Screenings.....</i>	<i>16</i>
E. Education and Gender Equality.....	16
<i>Primary Education.....</i>	<i>16</i>
<i>Secondary Education.....</i>	<i>17</i>
<b>II. Gender and Economic Development: MCC Indicators.....</b>	<b>23</b>
A. Market Participation and Gender Equality.....	23
<i>Regulatory Quality.....</i>	<i>23</i>
<i>Business Start-Up.....</i>	<i>24</i>
B. Macroeconomic Policies and Gender Equality.....	26
<i>Trade Policy.....</i>	<i>26</i>
<i>Inflation.....</i>	<i>27</i>
<i>Fiscal Policy.....</i>	<i>28</i>
C. Land Use and Gender Equality.....	28
<i>Land Rights and Access.....</i>	<i>28</i>
<i>Natural Resource Management.....</i>	<i>29</i>
D. Health Services and Gender Equality.....	31
<i>Immunization Rates.....</i>	<i>31</i>
<i>Health Expenditures.....</i>	<i>33</i>
E. Education and Gender Equality.....	34

<i>Primary Education Expenditures</i> .....	34
<i>Girls' Primary Education Completion Rate</i> .....	35
<b>III. Gender and Economic Development: Indicator</b>	
<b>Recommendations</b> .....	<b>39</b>
A. Market Participation and Gender Equality.....	40
<i>Business Start-Up</i> .....	40
<i>Credit Markets</i> .....	41
B. Macroeconomic Policies and Gender Equality.....	42
<i>Gender-Responsive Budgeting</i> .....	42
C. Land Use and Gender Equality .....	44
<i>Land Rights and Access</i> .....	44
<i>Natural Resource Management</i> .....	46
D. Health Services and Gender Equality.....	48
<i>Women's Health</i> .....	48
E. Education and Gender Equality .....	52
<i>Primary Education Expenditures</i> .....	52
<i>Girls' Secondary School Enrollment Rate</i> .....	54
<b>Recommendations and Conclusion</b> .....	<b>57</b>
<b>Works Cited</b> .....	<b>59</b>
<b>Appendices</b> .....	<b>72</b>
Appendix A: International Finance Corporation's Assumptions about the Business .....	72
Appendix B: New Data Sources Used in Section III Indicators.....	73
Appendix C: Alternative Policy Instruments and Measures.....	74
Appendix D: World Economic Forum's Economic Participation and Opportunity Sub-Index.....	81
Appendix E: Calculation of the Modified Natural Resource Management Indicator .....	82
Appendix F: Calculation of the Women's Health Indicator .....	85
Appendix G: Calculation of the Primary School Expenditures Indicator.....	87

### List of Tables

Table 1. Policy Opportunities: Economic Development Through Gender Equality .....	21
Table 2. Gender Sensitivity of Current MCC Indicators.....	37
Table 3. Analysis of Gender-Sensitive Instruments for Economic Growth.....	56
Table B-1. Data Sources for Recommended Indicators.....	73

## **FOREWORD**

Students in the Master of International Public Affairs (MIPA) program in the Robert M. La Follette School of Public Affairs at the University of Wisconsin–Madison produced this report for the Millennium Challenge Corporation, represented for this project by Andria Hayes-Birchler, Development Policy Officer. The students are enrolled in the Workshop in International Public Affairs, the capstone course in their graduate program. The workshop provides MIPA students the opportunity to improve their analytical skills by applying them to an issue with a substantial international component and to contribute useful knowledge and recommendations to their client.

The La Follette School offers a two-year graduate program leading to a Master of Public Affairs or a Master of International Public Affairs degree. In both programs, students develop analytic tools with which to assess policy responses to issues, evaluate implications of policies for efficiency and equity, and interpret and present data relevant to policy considerations.

The workshop provides practical experience applying the tools of analysis acquired during three semesters of coursework to actual problems clients face in the public, non-governmental, and private sectors. Students work in teams to produce carefully crafted policy reports that meet high professional standards. The reports are research-based, analytical, evaluative, and (where relevant) prescriptive responses to real-world clients. This culminating experience is the ideal equivalent of the thesis for the La Follette School degrees in public affairs. While the acquisition of a set of analytical skills is important, it is no substitute for learning by doing.

The opinions and judgments presented in the report do not represent the views, official or unofficial, of the La Follette School or of the client for which the report was prepared.

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Professor of Public Affairs and Political Science  
May 2011

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## **ABBREVIATIONS AND ACRONYMS**

CDC	U.S. Centers for Disease Control and Prevention
DALY	Disability Adjusted Life Year
DHS	Demographic and Health Survey
DPT3	Diphtheria-Pertussis-Tetanus
ECD	Early Childhood Development
EFA	Education for All
GDI	Gender-Related Development Index
GEI	Social Watch's Gender Equity Index
GDP	Gross Domestic Product
GEM	UNDP's Gender Empowerment Measure
GGHE	General Government Health Expenditure
GRB	Gender-Responsive Budgeting
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IMF	International Monetary Fund
MCC	Millennium Challenge Corporation
NRM	Natural Resource Management
UIS	UNESCO Institute for Statistics
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNIFEM	United Nations Development Fund for Women
USAID	United States Agency for International Development
WHO	World Health Organization





## EXECUTIVE SUMMARY

Recent scholarship indicates that promotion of gender equality represents a meaningful investment in a robust economic future. The Millennium Challenge Corporation (MCC) is committed to the realization of gender equality as a means of bolstering economic growth. The MCC dispenses foreign aid according to an applicant country's performance against a set of indicators. In this report, we assess the gender sensitivity of the MCC's existing indicators and offer recommendations aimed at enhancing the MCC's capacity to encourage economic growth through gender equality. The MCC requested that we consider indicators in the MCC's Economic Freedom and Investing in People categories specifically.

In Section I, we review the empirical evidence of a relationship between gender equality and economic growth. To gather this evidence, we relied on recent, high-quality research, and we emphasize findings that are particularly pertinent to low-income and lower middle-income countries. We focus our review on five broad areas: market participation, macroeconomic policies, land use, health services, and education. In each area, we identify specific policy instruments of gender equality and examine the degree to which each instrument contributes to economic growth.

We employ the findings reviewed in Section I to inform our critique of existing MCC indicators in Section II. We analyze each indicator to determine whether and to what degree its measurements are gender-sensitive. We also assess each indicator's strength in encouraging low-income and lower middle-income countries to pursue policies that promote gender equality. Specifically, we consider gender sensitivity of data collection and analysis, gender equality in terms of access to and outcomes of policies, and relevance to the policy instruments reviewed in Section I.

In Section III, we propose modifications to some existing MCC indicators and recommend some new indicators for MCC adoption. For each proposed change, we briefly review how the policy instrument promotes economic growth through gender equality. We provide a detailed description of each indicator's calculation and identify the source for relevant data. Finally, we assess the feasibility of implementing each policy instrument in low-income and lower middle-income countries. Specifically, we propose modifications, aimed at enhancing the gender sensitivity of measurements, to four existing MCC indicators: Business Start-Up, Land Rights and Access, Natural Resource Management, and Primary Education Expenditures. Additionally, we recommend four new indicators: Domestic Credit Market, Gender-Responsive Budgeting, Women's Health, and Girls' Secondary School Enrollment Rate. Together, our proposed modifications and recommended indicators improve the gender sensitivity of MCC measurements and better enable the agency to promote economic growth through gender equality.



## INTRODUCTION

The Millennium Challenge Corporation (MCC), a U.S. federal agency, dispenses foreign aid to low-income and lower middle-income countries whose governments have a demonstrated commitment to promoting development within their countries. The MCC evaluates applicant countries against a set of indicators to identify the countries in which foreign aid will most effectively contribute to poverty reduction and economic growth. The MCC relies on databases developed and maintained by third parties to calculate its indicators. The MCC sorts the indicators into three broad categories—Ruling Justly, Investing in People, and Encouraging Economic Freedom—specified at the establishment of the MCC by the Millennium Challenge Act of 2003.<sup>1</sup>

The MCC reviews its indicators and associated methodology annually and implements changes based on the results of this evaluation. This year, the MCC has directed that some of this evaluation should analyze the gender sensitivity of its measures to comply with the organization’s directive to include a gendered perspective in all stages of policy design, implementation, and evaluation. Specifically, in determining a country’s eligibility based on Investing in People, the Millennium Challenge Act calls for “investments in the people of such country, particularly women and children.”<sup>2</sup> This statutory mandate, along with the MCC’s Gender Policy—developed to better incorporate into the broad category of Economic Freedom the notion that gender inequality can constrain poverty reduction and economic growth—directs the organization to encourage aid that removes impediments to gender equality. In its own work and in the selection of the indicators it employs, the MCC strives to reduce gender inequality and, in so doing, bolster economic growth in recipient countries.

At the MCC’s request, we analyze the gender sensitivity of current and potential indicators for use in evaluating applicant countries. Our aims are threefold: (1) to identify which key policy instruments promote economic growth through gender equality, (2) to discern whether the indicators the MCC employs are sufficiently gender-sensitive and accurately reflect investments in gender equality, and (3) to propose gender-sensitive measures or new gender-related indicators for the MCC to consider. Our report is structured according to these three objectives. It is divided into the following three sections: Gender and Economic Growth: What Do We Know?, Gender and Economic Growth: MCC Indicators, and Gender and Economic Growth: Indicator Recommendations.

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<sup>1</sup> 22 U.S.C. §7701

<sup>2</sup> 22 U.S.C. §7706(b)(3)

## **I. GENDER AND ECONOMIC DEVELOPMENT: WHAT DO WE KNOW?**

Although gender equality has long been recognized as a socially important goal, achieving gender equality was once thought to entail substantial costs and constrain economic growth (see Smith & Bettio, 2008). Recent scholarship has shifted this discourse by demonstrating that gender equality in fact constitutes a meaningful investment in a robust economic future. A substantial body of literature now suggests that because women possess unique strengths as well as distinct needs and vulnerabilities, gender-sensitive approaches to economic policy may be essential for economic development.

In this section, we review the empirical evidence of a relationship between gender equality and economic growth. To gather this evidence, we relied on recent, high-quality research published in academic journals and reports of the United Nations, World Bank, and International Monetary Fund (IMF). We focus our review on five broad areas: market participation, macroeconomic policies, land use, health services, and education. Within each category, we identify specific instruments of gender equality and examine the degree to which each instrument contributes to economic growth. We concentrate on evidence that is especially pertinent to low-income and lower middle-income countries. Where the literature lacks consensus on the relationship between an instrument of gender equality and economic growth, we clarify whether the evidence is weak, mixed, or context-dependent. We conclude this section with a table in which we summarize findings for the 15 policy instruments reviewed.<sup>3</sup> This literature review informs our analysis of the MCC's inclusion of gender-sensitive indicators, the subject of the next two sections of our report.

### **A. MARKET PARTICIPATION AND GENDER EQUALITY**

We first consider the broad intersection of gender and the labor force. We note that a lack of access to child care constrains women's wage-work. We discuss barriers to women's business ownership, under entrepreneurship and credit access. Finally, we consider the gender dimensions of economic growth in the agricultural sector.

#### ***Labor Force Participation and Wages***

A review of the literature on the relationship between gender equality in employment and wages and economic growth yields conflicting results. Generally, the literature indicates that gender equality in employment and earning impacts economic growth through three broad mechanisms:

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<sup>3</sup> See Table 1. Policy Opportunities: Economic Development Through Gender Equality, page 21.

allocative efficiency, demographic effect, and bargaining power of women in the household.

Gender inequality in employment results in allocative inefficiency by artificially reducing the supply of labor available to employers. Using panel data from 1961 to 1991 for 16 states in India, Esteve-Volart (2004) finds that the ratio of female-to-male managers and the ratio of female-to-male workers are positively related to total output per capita. Specifically, a 10 percent increase in the female-to-male ratio of managers improves per-capita output by 2 percent, while a 10 percent increase in the female-to-male ratio of all workers expands per-capita output by 8 percent. Some researchers find that women are better suited to certain jobs compared to men, which has important implications for women's wages. For example, Galor and Weil (1996) determine that, as the capital per worker increases, women's relative wages likewise increase because capital is more complementary to women's labor inputs than to those of men.

The reduction of gender inequality in employment and pay can lead to economic growth through the demographic effect that accompanies reduced fertility. Galor and Weil (1996) find that as women's relative wages increase, fertility rates fall. This reduced fertility in turn raises the capital per worker, which ultimately leads to increased output and higher per-capita incomes. Young (1995) calculates that the growth in the supply of labor resulting from falling fertility rates and rising female labor force participation rates accounts for about 0.6 percent to 1.6 percent of annual per-capita growth in the four East Asian "tiger economies" between 1966 and 1990. Conversely, Cavalcanti and Tavares (2007) find that wage discrimination leads to lower output per capita, directly due to a decrease in female labor force participation and indirectly through an increase in fertility.

As women's employment and earnings increase, their bargaining power in terms of decision making within the household is likewise enhanced (Klasen & Lamanna, 2009). This improved bargaining power can lead to economic growth in several ways. First, it results in a higher aggregate savings rate because women have a greater propensity to save than do men (Floro & Seguino, 2002). Second, it leads to increased investments in health and education for children, allowing for future economic growth (World Bank, 2001).

As suggested earlier, our review of the relevant literature indicates that gender *inequality* in employment and pay can actually contribute to economic growth. For example, Blecker and Seguino (2002) find that high gender pay gaps, and specifically low female wages, enhance the competitiveness of export-oriented semi-industrialized nations. Busse and Spielmann (2006) likewise determine that gendered wage inequality is positively associated with comparative advantage in labor-intensive goods.

Nevertheless, in a more recent study, Seguino et al. (2010) acknowledge that while low wages for women may increase profits, investment, and exports in the short run, this inequality will harm the country's long-run productivity and growth. Furthermore, Busse and Spielmann (2006) determine that gender inequality in terms of labor force participation discourages economic growth.

Our review of the empirical evidence indicates that the causal relationship between gender equality in employment and wages is inconclusive in the short run. However, enhancing gender equality in employment and wages may lead to economic growth in the long run by improving allocative efficiency, reducing fertility rates, and increasing the intra-household bargaining power of women.

### ***Childcare Access***

Women's labor force participation is constrained by the need to care for young children. Research finds that the price of child care has nontrivial effects on women's workforce participation rates (Connelly, DeGraff, & Levinson, 1996; Wong & Levine, 1992). When a mother cannot command high wages and cannot rely on family members to provide child care, she is less likely to engage in wage work. Employing data from Kenya, Lokshin et al. demonstrate that the high costs associated with formal child care discourage mothers from pursuing wage work (Lokshin, Glinskaya, & Garcia, 2004). Evidence from Togo, Brazil, and Guatemala likewise confirms that women's labor force participation is enhanced when low-cost childcare options are readily available. Less clear, however, is whether women's wages improve as access to child care expands (Tabbert, 2009; Hallman, 2003; Deutsch, 1998).

Several countries in Latin America have piloted home-based childcare programs, in which one mother is responsible for the care of 10-15 neighborhood children. This model is relatively inexpensive for both the government and participating families, allows mothers to enter the workforce, and produces long-term positive effects for enrolled children (Attanasio & Vera-Hernandez, 2004; Ruel, 2002). Such community arrangements and other low-cost childcare options help to facilitate women's equal access to the labor market.

Lack of access to childcare likewise dampens the secondary school enrollment rates of older, female siblings. When a mother opts to engage in wage-work but lacks access to affordable child care, her daughters serve as substitutes for home production and care of younger children (Lokshin, Glinskaya, & Garcia, 2004). Adolescent girls in Kenya are 41 percent less likely to attend secondary school when a child under the age of 3 resides in their household (Deolalikar, 1998). In sum, convincing evidence finds that the provision of low-cost child care not only enhances women's access to the labor market, it also improves secondary education rates for girls.

### ***Entrepreneurship***

Economic development requires a functioning private sector. The government plays an important role in fostering a vibrant business climate by minimizing unnecessary regulation and ensuring that markets function efficiently. The government supports markets by providing a legal infrastructure and allowing entrepreneurs to easily join markets and conduct transactions. As explained above, an expansion of women's income facilitates poverty alleviation; it is therefore problematic that women constitute the minority of registered business owners (Boserup, 2007). Women do, however, appear to often fulfill an entrepreneurial role in informal businesses (Charmes, 2000). Despite an apparent link between an entrepreneur's gender and participation in the formal economy, we found no studies to suggest that laws or regulations regarding business start-up and transactions are the cause of women's exclusion (Ahl, 2006).

In theory, gender inequality in entrepreneurship and in access to the resources required to start a business leads to allocative inefficiency, which in turn negatively impacts economic growth. However, literature that examines the impact of gender equality in entrepreneurship on economic growth is limited, particularly for low-income and lower middle-income countries. In addition, the few studies that do exist yield inconclusive results. Bardasi et al. (2007) suggest that gender-specific barriers do have an adverse impact on enterprise development, productivity, and competitiveness in Africa. On the other hand, some researchers argue that women are more likely to choose to invest their extra earnings on their family's welfare and, as a result, women may forgo opportunities to expand their businesses. Kevane and Wydick (2001) find that female entrepreneurs do not hire as many employees as do their male counterparts (implying that women-owned businesses are not growing as fast) during childbearing years. De Mel et al. (2009) report higher social returns from female-owned businesses supported by microfinance than from similar male-owned businesses. Based on the current lack of empirical evidence, it is difficult to generalize whether and how gender equality in entrepreneurship contributes to economic growth.

### ***Credit Access***

Substantial literature dating to the 1960s unequivocally demonstrates the imperative of functioning credit markets for economic growth (see Carter, Waters, Branch, Ito, & Ford, 2004). Credit minimizes three common impediments to an efficient economy: risk constraints, or the ability to share risk among investors; liquidity constraints, or the ability to maintain sufficient cash flows for daily operation; and savings constraints, or efficient methods of investing extra capital (Boucher, Barham, & Carter, 2005).

Recent microeconomic literature focuses on the effects of credit on borrower household expenditure and wealth and in particular on women borrowers. Initially, two economic rationales existed for offering more financial products

to women: 1) women traditionally were excluded from conventional credit markets, and 2) women faced significant economic barriers that could be overcome through access to credit. The results of early studies suggested a third rationale: providing credit access to women may have a greater effect on poverty reduction than offering the same to men (Morris & Meyer, 1993; Besley, 1995; Khandker & Chowdbury, 2005). According to one estimate, after eight years with credit access, female borrowers can bring their families above the poverty line and sustain themselves there (Khandker & Chowdbury, 2005). In addition, some literature suggests that credit access enhances women's autonomy and affects household family planning decisions (Amin & Li, 1996; Amin, Becker, & Bayes, 1998).

Despite an abundance of recent literature on credit and gender, there is reason to doubt the generalizability of the findings. Many of the studies are from novel microcredit programs in South Asia and may not be applicable worldwide. Moreover, some economists argue that increasing credit access to women rather than to men has a larger economic effect because women are generally more credit constrained (Berger, 1999). As access to credit equalizes, so may the positive outcomes (Morris & Meyer, 1993). Empirical literature supports the argument for gender equality in credit access but has yet to demonstrate that women merit preferential credit access.

### ***Agriculture***

Improvements to agricultural markets generate particularly high payoffs. Substantial empirical evidence demonstrates that improving agricultural outputs has large and significant effects on poverty alleviation (Datt & Ravillion, 1998; Irz, Lin, Thirtle, & Wiggins, 2001). Studies find that countries that lack a functioning agricultural system rarely develop sustainable economic growth (Ruttan, 2002; Christiaensen & Demery, 2007). Agriculture plays a dual role: as an industry, it is the primary source of income for more people than any other sector; as sustenance, it is inseparable from the health of subsistence farmers and the people small commercial farmers feed. Women are highly involved in the agricultural sector; indeed, in Africa, women are responsible for 70 percent of agricultural production (Bruinsma, 2003).

### ***Liberalizing Traditional Gender Roles***

To maximize household income, all members ought to pool their resources, regardless of traditional gender roles. However, empirical studies suggest that households do not defy gender norms in an effort to maximize household production. For instance, if sowing is traditionally a man's job but his wife is the more efficient planter, the spouses will not trade roles simply for efficiency's sake (Duflo, 2005; Udry, 1996). In cases where cultural norms of agricultural roles are exogenously liberalized, perhaps due to an economic or demographic shock, households enjoy large increases in agricultural production that result in improved income and nutrition (Tibaijuka, 1994). Yet, as gender norms and agricultural production processes vary from



country to country, it is unlikely that the few available studies are generalizable worldwide.

### *Education and Extension*

Agricultural technical extension and education represents a successful method for improving agricultural outputs (Birkhaeuser, Evenson, & Feder, 1991). Numerous studies demonstrate that farmers with more formal education and many technical and extension products have higher agricultural productivity and are more likely to adopt new technologies (Quisumbing, 1995; Lockheed, 1980). Strengthening women as commercial farmers merits attention, as evidence indicates that improvements in women's income produce greater positive effects for children's nutritional and educational outcomes (Thomas, 1990; Kennedy & Peters, 1992). Women are also more likely than men to work in subsistence farming (Posel & Casale, 2001; Pingali, 1997). Subsistence farming, often overlooked in estimates of production, has a larger and more direct effect on household nutrition than does production for markets (DeWalt, 1993).

Despite the evidence that women farmers are a better investment for poverty alleviation, most agricultural extension and education is provided to men (Kandiyoti, 2008; Mehra & Gammage, 1999). Evidence also suggests that there are gender linkages to household technology adoption (Morris & Doss, 2001). Research from sub-Saharan Africa shows that women prefer incremental technological change, group risk-taking, and different forms of pedagogy than men (Morris & Doss, 2001; Saito & Weidemann, 1990). These findings imply that for education and extension to be effective, projects must be tailored to the intended audience and must consider the different preferences of men and women. Although the body of literature on gender in agricultural extension and education is growing, cultural context confounds current findings and limits the degree to which these findings can be generalized across low-income and lower middle-income countries.

## **B. MACROECONOMIC POLICIES AND GENDER EQUALITY**

Although often difficult to perceive, macroeconomic policy has real implications for individual well-being. In the past two decades, a substantial body of research has clarified how broad macroeconomic policies directly affect particular demographics of a country. We consider gender-responsive budgeting and trade policy specifically.

### ***Gender-Responsive Budgeting***

Gender-responsive budgeting entails the incorporation of a gender-sensitive perspective into the design, development, adoption, and execution of all budgetary processes. Gender-responsive budgeting aims to promote equitable, effective, and appropriate resource allocation and establish adequate budgetary allocations to support gender equality (United Nations,

1995). Because budgets set forth a government's priorities and the commitment of financial expenditures to achieve those priorities, gender-responsive budgeting has been recognized as central to the achievement of gender equality (UNFPA & UNIFEM, 2006).

Government budgets are assumed to be gender-neutral because they are generally presented in financial aggregates, with no specific references to men or women. However, recent studies demonstrate that gender-insensitive macroeconomic policies produce different impacts on men and women. For example, because women usually earn less than men and their work lives are more likely to be interrupted for family-related matters, women contribute less to welfare funds and therefore receive lower average social welfare payments (Rubin & Bartle, 2005). Rubin & Bartle (2005) also find that reductions in government spending on healthcare are likely to increase the amount of time that women spend in care-related work to compensate for the lost public services.

The gender insensitivity of macroeconomic policies not only impedes progress toward gender equality but also results in inefficient budgeting allocations, thus hindering economic growth. By recognizing and accounting for gender-differentiated needs, gender-responsive budgeting contributes to improved economic efficiency through better-informed financial allocations (Balmori, 2003). Because gender-responsive budgeting provides a means of assessing whether stated objectives have been achieved, it can also produce better regulatory quality through increased government transparency, accountability, predictability, and participation, which are preconditions for the sustainable economic growth (Rubin & Bartle, 2005). Last but not least, in light of persistent inequalities in terms of human rights, including education and health, gender-responsive budgeting is a powerful policy instrument to "situate people's rights at the core of their policies" (Rubin & Bartle, 2005; Durojaye, Keevy, & Oluduro, 2010).

### ***Trade Policy***

Strong evidence suggests that open trade policies are a precondition for economic growth (Pleskovic & Stern, 2003). Trade policies inherently alter the portfolio of industries important to an economy and consequently alter the relative power of factions within the labor force. As such, trade policies can significantly affect the creation or elimination of institutionalized economic inequality (Goldberg & Paveenik, 2004).

Trade policies affect the national job profile while gender norms influence the jobs available to men and women (Goldberg & Paveenik, 2004; Robbins, 1996). If a liberalized trade policy increases the economic opportunity of men more than it does for women, the gendered wage gap will increase. As outlined above, an increase in a woman's income yields improved educational and nutritional outcomes for her children more so than does a

similar increase in men's income. Thus, trade policy that improves men's employment rate while decreasing women's employment rate reduces investments in family well-being and undermines long-term economic growth. Several studies find that an increase in the availability of labor-intensive manufacturing employment provides the greatest increase in earnings for women (Menon & van der Meulen Rodgers, 2009) and is therefore a powerful means of alleviating poverty.

### **C. LAND USE AND GENDER EQUALITY**

Below, we highlight the gendered dimensions of the relationship between property rights and poverty alleviation. We also consider the effects of incorporating a gender-sensitive perspective into infrastructure development and environmental management.

#### ***Property Rights and Access to Land***

The causal link between property rights and poverty reduction is well established. Gender equality in property rights encompasses statutory guarantees and customary practices that enable women to access land through purchase or inheritance. Additionally, equality in access to land implies that women are able to utilize their property for personal, business, or agricultural purposes (Mak, 2005).

Property rights, particularly when bestowed upon women who live with a head-of-household man, correlate with women's increased participation in household finances. When women control household funds, they tend to spend more money on their family's food, education, and healthcare than would their male counterparts (Grown, Gupta, & Pande, 2005). This enhanced investment in human capital, in turn, promotes economic growth.

The increase in household wealth that stems from gender equality in property rights also allows for expanded investment in land or business ventures. Household wealth consisting primarily of property ownership is less dependent on wage labor; thus, a specific benefit of independent household wealth in the form of property is a greater resiliency to changes in a region or country's economic cycles (World Bank, 2003). This overall increase in household wealth based on property ownership leads to poverty reduction. Land reform efforts that equalized women's land access in India and the Philippines resulted in significant income growth and increased personal investment (Gersbach & Siemers, 2010).

However, maximal utilization of the land requires clear definition of the property's boundaries (maintained through bureaucratic means) and statutory devices to enable the property owner to easily secure the property without expending additional resources on defense. The value of land that is considered secure in its ownership is reported to be 30-80 percent higher than land that is insecure (World Bank, 2003).

In sum, gender equality in property rights and land access can lead to economic development (Mak, 2005). However, where access to credit or other formal markets is lacking, the economic benefits of property rights may not be sufficient to outweigh the costs associated with government maintenance and defense of property boundaries (Feder & Feeny, 1991). Therefore, gender equality in property rights, while contributing to poverty reduction and economic growth, is not sufficient in and of itself.

### ***Infrastructure Development***

Infrastructure development (including water, sanitation, transportation, energy provision, and telecommunications) has traditionally been a top-down process dominated by technological concerns, with little social engagement. Most literature on the relationship between infrastructure development and economic growth lacks a gender-sensitive perspective. However, it has become increasingly apparent that a failure to provide adequate and affordable infrastructure facilities and services according to gender-differentiated needs can have negative economic and social implications (Masika & Baden, 1997). Below we outline the mechanisms by which a failure to incorporate a gender perspective in infrastructure development can impede economic growth.

Research on the impact of a micro hydro-electricity plant in Sri Lanka shows striking evidence of gender-differentiated perceptions of infrastructure services: men saw the benefits of electricity in terms of leisure, quality of life, and education for their children; women saw it as providing the means for reducing their workload, improving health, and reducing household expenditures (Barnett, 2000). This is a clear example of how a gender-based division of labor (in which women are responsible for domestic needs, including water, household energy supply, and sanitation) has resulted in gender-differentiated needs and preferences for infrastructure.

Gender-related differences in physical attributes restrict women's access to infrastructure. Masika & Baden (1997) demonstrate that water pumps, introduced to provide clean water, with handles designed for use by men have failed because women and children (the principal water bearers in the community) are unable to operate them. Certain features of culture and custom also constrain women's access to infrastructure. For example, in Africa, because of the importance women place on safety, security, and privacy, as well as men's reluctance to allow vehicles to be used for "women's tasks," women are under-represented in the ownership and operation of motorized and non-motorized vehicles for the transportation of agricultural goods (Amponsah, Turner, Grieco, & Guitink, 1996).

Women's relatively weak property and economic rights (e.g., access to credit) compound with inequalities in intra-household relations to constrain women's ability to afford infrastructure facilities and services (Doran, 1990).

For example, due to limited access to land titles, women are often unable to secure the credit necessary to make infrastructure improvements. Female-headed households are particularly vulnerable in low-income countries, where they cannot secure loans for private infrastructure improvements and public finance is inadequate to address all infrastructure needs.

Gender-sensitive infrastructure development can benefit the economy through linkages with enhanced access to credit and markets, improved health, and greater educational attainment. Infrastructure development that is targeted to women's needs reduces the demands on women's time from domestic responsibilities. The time saved can instead be invested in activities that are more beneficial to the economy (e.g. income-generating activities through access to credit or markets), thereby improving overall economic efficiency (Masika & Baden, 1997). Grown et al. (2005) and Mwaniki et al. (2002) find that improving the accessibility and affordability of transportation services increases women's and children's use of health services. Guio-Torres & Taylor (2006) find that taking women's needs into account when improving sanitation facilities increases women's use of these facilities, reduces violence against women, and makes maintenance and cleaning tasks of women easier. Furthermore, gender-sensitive sanitation projects improve girls' school attendance. Recognizing gender-differentiated needs and preferences for infrastructure improves efficiency by optimizing the use of limited funds and human resources (Guio-Torres & Taylor, 2006).

In sum, the incorporation of a gender-sensitive perspective in infrastructure development can benefit economic growth through a variety of mechanisms. Still, without fundamental gender equality in land rights, economic rights, health, and education, infrastructure development alone is insufficient for economic growth.

### ***Environmental Management***

While preserving the environment is widely recognized as an important aspect of sustainable economic growth, introducing a gender perspective into this causal relationship is a relatively new notion. Preliminary linkages between gender and the environment and the implications of these linkages for poverty reduction have been identified. Guio-Torres & Taylor (2006) estimate that 90 percent of the world's 1.1 billion poor rely on the environment for at least a fraction of their income through small-scale farming, fishing, hunting, and collection of firewood, herbs, or other natural products. In poor households where the gender-based division of labor is especially pronounced, women meet domestic needs, including water, food, and sanitation. Therefore, women are disproportionately vulnerable when the environment suffers.

Although the direct benefits of introducing a gender-sensitive perspective into environmental management have not been adequately examined, the

potential mechanisms through which gender equality in environmental management may impact economic growth are fairly clear. We summarize these mechanisms below.

First, a gender-sensitive perspective in environmental management has the potential to significantly affect women's health, safety, and well-being. Because of the gender-based division of labor, when the environment suffers women often stand to lose their local means of subsistence; as a result, they may need to travel longer distances to collect needed environmental goods, thus facing higher levels of mental, economic, and social stress (Organisation for Economic Co-operation and Development, 2002; Guio-Torres & Taylor, 2006). Scientific evidence demonstrates that women are generally more vulnerable to chemical pollution than men because women tend to have higher percentages of body fat, which traps environment toxins (United Nations Environment Programme, 2005). Generally, because women live and work in comparatively closer contact with nature, environmental pollution can have a more significant impact on women's health.

Second, the misalignment between the supply of resources and the needs and preferences of women, the primary users of these resources, can result in diminished household supply, which in turn decreases economic efficiency and even threatens the health and well-being of all household members. Research by Dankelman (2005) finds that women's knowledge of and interest in environmental resources are often ignored in environmental management decision-making and development planning. Enhancing women's participation in environmental management can result in better technology selection, earnings equity and capacity, and environmental stewardship (Guio-Torres & Taylor, 2006). These improvements reduce the time women spend in resource collection and increase household access to essential resources, leading to greater economic efficiency (Organisation for Economic Co-operation and Development, 2002; Guio-Torres & Taylor, 2006; Lwanga, 2001).

Third, because of women's comparatively limited access to education, their ability to make informed and sustainable choices is constrained. Women's overexploitation of resources endangers the environment and threatens economic growth (Skutsch, 1996; Gurung, Thapa, & Gurung, 2000; Organisation for Economic Co-operation and Development, 2002; Clancy, 2003; Guio-Torres & Taylor, 2006). At the same time, women appear to be better attuned to the needs of the environment and more committed to its protection than men, provided women have access to the necessary knowledge and are permitted to participate in decision-making (United Nations Environment Programme, 2005). In this regard, giving women equal access to knowledge and decision-making in environmental resource management can better preserve the resources needed for sustainable economic growth.

In sum, a gender-sensitive approach to environmental management can benefit economic growth through channels such as improved health outcomes, increased household supply, and better conservation techniques. However, more research is needed to establish direct links and further clarify the mechanisms connecting gender-sensitive environmental management and economic growth. Gender sensitivity in environmental management does not, in and of itself, contribute significantly to economic growth.

#### **D. HEALTH SERVICES AND GENDER EQUALITY**

We consider three mechanisms (maternal health services, reproductive health services, and early detection and treatment of cervical cancer) by which gender-sensitive health services can improve mortality and morbidity rates for women, guarantee the health and well-being of future generations, and contribute to economic growth.

Illness or premature death of a mother results in acute economic repercussions for her family, in the form of medical expenses and lost income. Women are likewise responsible for non-income-generating tasks that ensure family well-being, including food preparation and firewood collection. Given a mother's pivotal role in supporting the education of her children, high rates of maternal mortality will likely harm the next generation's stock of human capital. Evidence from Tanzania lends support for this relationship: children living in households in which an adult woman has died in the past 12 months spend half as much time in school as their peers whose households have not experienced such a death or where an adult male has died. Finally, loss of a woman's labor due to illness or death affects the wider economy, as women are responsible for nearly 75 percent of food production in low-income and lower middle-income countries (Tsu & Levin, 2008).

In contrast, good health is strongly associated with enhanced economic growth. Healthy workers are more effective, more efficient, and better able to dedicate more time to productive activities (Balducci, Clements, Gupta, & Cui, 2004). Having calculated that a one-year improvement in a population's life expectancy results in a 4 percent increase in aggregate output, Bloom and colleagues observe: "increased expenditures on improving health might be justified purely on the grounds of the impact on labor productivity" (Bloom, Canning, & Sevilla, 2004). A gender-sensitive approach permits for a more precise articulation of the preventative health services necessary for the promotion of gender equality and economic growth.

##### ***Maternal Health Services***

Maternal health is improved through the provision of accessible and affordable services throughout pregnancy, childbirth, and the postpartum period. The United Nations Population Fund (UNFPA) calculates that only one-half of women who give birth each year receive any form of maternal healthcare. Of those who do receive some maternal health services, many

more do not benefit from all essential components including antenatal care, delivery assistance, and postpartum care (Singh, 2009). The provision of adequate maternal health services would prevent 70 percent of maternal deaths, reducing the annual incidence of maternal mortality from 360,000 to 90,000 per year (WHO, UNICEF, UNFPA and The World Bank, 2010). Furthermore, fewer women would suffer from fistula, an outcome of obstructed labor that is socially ostracizing and compels 22 percent of afflicted women to beg for food (Ahmed & Holtz, 2007). The U.S. Agency for International Development (USAID) estimates that the economic impact of maternal and newborn mortality amounts to \$15 billion per year in lost productivity (United States Agency for International Development (USAID), 2002). The prevention of maternal mortality and other complications of pregnancy and childbirth permit young women, during their most productive years, to continue to serve as mothers and workers.

A key component of comprehensive maternal care is the provision of adequate nutrition. A study published in *The Lancet* in 2008 examined the health and human capital of individuals born to malnourished mothers. The research team determined that health at birth is associated with crucial adult health outcomes, including height, body-mass index, and susceptibility to chronic diseases such as diabetes and hypertension (Victora, 2008).<sup>4</sup> Because height and body-mass index affect productivity in manual labor, children born to well-nourished mothers will likely benefit from improved work capacity as adults, as recent studies from Guatemala suggest (Hass, 1995). Birth weight is positively associated with academic achievement. In contrast, poor nutrition before and immediately following birth can cause structural damage to the brain and has likewise been shown to impair exploratory behavior, dampening cognitive development. Furthermore, children who experience poor fetal growth or stunting are more likely to themselves have children with decreased birth weight (Victora, 2008). In sum, in order to ensure the health and productivity of future generations, pregnant women must be equipped with the resources necessary to birth healthy, well-nourished babies.

### ***Reproductive Health Services***

Reproductive health services ensure that women are capable of controlling the number and spacing of their children. The UNFPA estimates that 215 million women who want to avoid pregnancy are nevertheless not using an effective family planning method (Singh, 2009). Lower fertility rates have a

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<sup>4</sup> Although such chronic diseases were previously mostly confined to economically developed countries, hypertension, obesity and diabetes now rank among the major health problems threatening the developing world. Indeed, according to a recent article in the *New England Journal of Medicine*, the prevalence of hypertension is already higher in developing than developed countries. In the past 20 years, obesity rates have tripled in developing countries. By 2030, the number of people in the developing world with diabetes will increase from 84 million to 228 million (Hossain, Kavar, & Nahas, 2007).



demonstrated, positive effect on economic growth in low-income countries (Bloom, Canning, & Malaney, 2000). In fact, family planning has been deemed one of the most cost-effective investments available to governments seeking to overcome entrenched poverty and promote economic development (Singh, 2009). Lower fertility rates imply a lower dependency burden, which permits for an increase in per-capita income even if wages and productivity remain stagnant. Therefore, as the dependency burden falls, the rate of savings and investment are expected to increase (Klasen, 2002). Bloom and colleagues attribute one-third of East and Southeast Asia's rapid economic growth during the 1990s to substantial fertility declines, or what they deem the "demographic dividend" (Bloom, Canning, & Malaney, 2000). In this way, guaranteeing women access to the reproductive health services they desire will enhance economic growth.

Failing to achieve universal access to maternal and reproductive health will render other development targets unachievable as well. Child health is closely related to reproductive patterns: when pregnancies occur early or late, are numerous or closely spaced, infant and child mortality rates are higher. Data from Bolivia, Guatemala, and Peru confirm that children born after birth intervals of 24-29 months are 70 to 90 percent more likely to die before age five than children born after intervals of 36-41 months (UNFPA, 2007). Even when these children survive to adulthood, their health may be compromised and their contributions to economic growth dampened. Women who experience closely spaced births frequently discontinue breastfeeding of the older child earlier than recommended (Lindstrom & Berhanu, 2000; Defo, 1997). The American Dietetic Association advocates for exclusive breastfeeding for the first six months of life, followed by breastfeeding with complementary foods until at least 12 months of age. These guidelines are intended to ensure optimal health of the child and mother as well as reduce healthcare costs (James, 2009). Breastfeeding protects infants from infection and lowers their risk for certain acute and chronic illnesses. The prevention of chronic diseases, including diabetes, hypertension, and obesity, implies a substantial savings in healthcare expenditure and allows for enhanced productivity. The World Health Organization has further determined that children who are breastfed as infants out-perform their peers on intelligence tests and demonstrate better schooling outcomes through adolescence (Horta, 2007). Researchers have confirmed that poor nutrition in the first years of life is strongly associated with impaired cognition, less schooling and reduced economic productivity (Victora, 2008), all of which impede poverty reduction and economic growth.

When reproductive healthcare is lacking and fertility rates are high, education objectives are undermined. Children from large families may be denied an education altogether or their schooling may be "delayed, interrupted or shortened." Smaller family size, in contrast, permits for a greater investment in the education of each child. A multi-year study

conducted in low-income, rural communities reports that the introduction of family planning services increases the education rates for girls by 15 percent and for boys by 12 percent (UNFPA, 2007). In the absence of sufficient reproductive health services, the likelihood that a woman will fulfill her own educational goals is diminished. Specifically, an adolescent girl whose need for family planning services remains unmet may find herself unable to complete her education due to an unplanned pregnancy (Singh, 2009). In this way, neglecting to provide reproductive health services will only exacerbate the gender inequality in secondary school completion rates.

### ***Cervical Cancer Screenings***

An estimated 300,000 women die each year from cervical cancer (Kankaranarayanan & Boffetta, 2010). Of these women, more than 85 percent reside in low-income or lower middle-income countries (Jamel, 2011). Disparities in cervical cancer risk and survival rates reflect poor access to screening services, as evidenced by the fact that 80 percent of cervical cancer in the developing world is diagnosed in the advanced stages of the disease (Kanavos, 2006; Kankaranarayanan & Boffetta, 2010). Mortality rates from cervical cancer could be substantially reduced if women in low-income and lower middle-income countries were afforded access to early detection and treatment services. Efficient and cost-effective techniques for detection of precancerous lesions have been identified and successfully implemented in low-resources settings (Kankaranarayanan & Boffetta, 2010; Jamel, 2011). Most recently, a study conducted in rural India found that a single round of screening (using the technique of DNA testing for the human papillomavirus) resulted in a 50 percent reduction in the incidence of advanced cervical cancer and associated deaths (Jamel, 2011). The provision of cervical cancer screenings, as one component of comprehensive gender-sensitive health services, promises to substantially reduce the disease burden and mortality rates of women in the developing world. Through sustained contributions as healthy members of families and communities, these women would support economic growth.

## **E. EDUCATION AND GENDER EQUALITY**

We now turn to the impact of gender equality in education on economic growth and poverty reduction. We consider both primary and secondary school and outline the mechanisms by which equality in education contributes to economic growth.

### ***Primary Education***

The effects of girls' primary education on economic growth in low-income and lower middle-income countries are well-documented, as evidenced by the MCC's inclusion of a girl-specific primary education indicator in the Investing in People category. Primary education completion by girls positively correlates with other policy instruments discussed above: the

market, with higher wages and increased labor productivity; land use, with higher agricultural productivity; and healthcare, with decreased mortality for both mother and child and slower population growth through lower fertility rates (Schultz T. P., 1999; Psacharopoulos & Patrinos, 2004; Subbarao & Rainey, 1995)

Although improving education completion rates generally benefits a developing country, specifically increasing girls' education rates is most beneficial for economic growth. Because fewer girls are sent to primary school and because girls have lower completion rates than boys, UNICEF has calculated a gender gap in primary school completion of more than 10 percentage points between boys and girls in low-income and lower middle-income countries (Herz & Sperling, 2004). This gap leads to a higher marginal return for educating the average girl in the developing world; that is, due to gender disparity in educational access, a country's economic growth is positively affected by additional girls' education, while the same effect is not found with educating more boys (Knowles, 2002).

### ***Secondary Education***

The provision of continued education to a young woman beyond the primary level solidifies the benefits associated with a primary education in terms of reduced fertility and improved health outcomes for her children. Continued education also confers additional benefits to the woman, her family, and her society. We begin by describing the economic returns associated with a girl's secondary education. We then detail the benefits of a girl's secondary education in terms of postponed marriage and pregnancy, lower fertility rates, protection from HIV/AIDS, reduction in maternal and infant mortality, and improved child health.

#### ***Returns on Investment in Girls' Secondary Education***

Gender equality in secondary education allows for economic growth by enhancing the country's stock of human capital. Enhanced levels of human capital, in turn, imply a higher return on investment. By boosting a country's investment rate, gender equality in secondary education permits for economic growth (Klasen, 2002). Thus, economic growth is achieved directly and indirectly as a consequence of extending secondary education opportunities to girls.

Three seminal studies demonstrate the substantial returns associated with girls' secondary education.<sup>5</sup> Dollar and Gatti estimate that a 1 percent increase in the proportion of women enrolled in secondary school will generate a 0.3 percent growth in annual per-capita income (Dollar & Gatti,

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<sup>5</sup> The most recent estimates presented in this section are from 2004. In our review of the relevant literature, the results of these three studies continue to be cited, and it does not appear that updated estimates are available.

1999). This contribution to economic growth is dramatic considering that most low-income countries generally achieve only 3 percent gains in per-capita income each year (Herz & Sperling, 2004). Psacharopoulos and Patrinos (2004) determine that the returns on a girl's secondary education exceed the returns enjoyed by her male counterparts. Specifically, a girl's secondary education produces an 18 percent return while a boy's secondary education results in a 14 percent return. Schultz (1999) likewise calculates that the returns to a girl's secondary education fall between 15 and 20 percent. Not surprisingly, the rate of return varies among and within countries; however, Schultz concurs that the returns for females generally surpass the returns for male students. In contrast, the returns on a primary education are in fact higher for boys (20 percent) than girls (13 percent). Patrinos (2008) therefore cautions that the relatively low returns on primary education may discourage families from investing in a daughter's schooling, unless opportunities to attend secondary school are readily available and affordable. Thus, the provision of secondary education may advance the goal of universal primary education as well.

An additional year of secondary school will increase a girl's future earning potential by 10 to 20 percent, while secondary school will improve a boy's wages by 5 to 15 percent (Psacharopoulos & Patrinos, 2004). Thus, the observed gender inequality in secondary enrollment rates appears to contradict the optimal investment, from the perspective of the family or the society more broadly. However, Dollar and Gatti (1999) are careful to note that not all underinvestment in girls' secondary education stems from market failure; rather, societal preferences may dictate that only boys continue in school. Similarly, Amin and Al-Bassusi (2004) observe that cultural or religious norms may prevent women, educated through the secondary level, from subsequently entering the workforce. Under these circumstances, gender equality in secondary education may not produce the anticipated economic outcomes and the efficacy of government interventions will likely be constrained.

### *Marriage and Fertility Decisions*

Marriage and pregnancy often preclude women from entering the labor market or compel women to curtail their wage-work substantially. For a woman with a secondary education, marriage and motherhood entail a higher opportunity cost, as her earning potential exceeds that of her less-educated or uneducated peers (Mathur, Greene, & Malhotra, 2003). Enrollment in secondary school is associated with a decline in the rates of early marriage for girls, defined as married before age 18. A global review of early marriage determined that a primary education is insufficient in this regard (Grown, Gupta, & Pande, 2005). Secondary education likewise reduces the rate of premarital sex among young women (Lloyd, 2005). In Kenya, adolescent girls who remain in school are four times less likely to be sexually active than their peers who have exited the education system (Herz

& Sperling, 2004). Postponement of marriage and motherhood allows young women to enter the workforce, realize the returns to the investment in their education, and contribute as wage earners to economic growth in their communities.

Women with a secondary education not only delay their first pregnancy, but also demonstrate lower fertility rates overall. Subbarao and Rainey (1995) present a model, based on data from 65 low-income and lower middle-income countries, that suggests that if the proportion of women with a secondary education were to double, the average fertility rate would fall from 5.3 to 3.9 children per woman. Reduced fertility rates likely reflect the finding that women educated through secondary school are more knowledgeable about specific family planning methods and better equipped to access such services (Roudi-Fahimi & Moghadam, 2003). As noted in the discussion of women's health above, lower fertility rates offer an opportunity for a demographic dividend, including improved per-capita income, higher savings, and enhanced economic growth.

#### *Improved Health Outcomes for Mothers and Children*

When adolescent girls do become sexually active, those who remain in school are more inclined to use contraceptives. As a consequence, girls in secondary school are less likely to experience unplanned pregnancy and demonstrate a reduced risk for sexually transmitted infections (Lloyd, 2005). In rural Uganda, girls with a secondary education are three times less likely to be HIV-positive than those without an education (Herz & Sperling, 2004). The difference in Zimbabwe is even more striking: adolescent girls who have dropped out of school are six times more likely to be HIV-positive than their counterparts who remain in school. Additionally, women with a secondary education exhibit lower HIV-infection rates for years after graduating (Gregson, Waddell, & Chandiwana, 2001). Preventing the spread of HIV/AIDS allows for cost-savings in terms of healthcare expenditure and enables women to continue in their productive roles as mothers and workers.

Although women with a primary education are more likely to utilize maternal health services, the effect is consistently more pronounced for women with a secondary education (Grown, Gupta, & Pande, 2005). Maternal and infant mortality rates are consequently lower for those women who have obtained a secondary education. For example, in Egypt children of uneducated mothers are more than twice as likely to die as children born to mothers with a secondary education (Roudi-Fahimi & Moghadam, 2003). As noted, a woman educated through the primary level will likely raise healthier, better-educated children. A secondary education further empowers women to access public services for herself and her children, even if she is a member of an indigenous or otherwise marginalized group. Additionally, a secondary education appears to embolden women to defy societal norms, if necessary, in order to guarantee adequate health and education for their children

(Grown, Gupta, & Pande, 2005). For example, in India, women with a secondary education are consistently and significantly less likely to share the societal preference for sons (Pande & Astone, 2007). Throughout much of the developing world, including the Middle East, North Africa, South Asia, and Southeast Asia, son preference results in the poor health of girls relative to boy children and contributes to girls' excess mortality. To summarize, girls' secondary education results in delayed marriage and pregnancy, lower fertility rates, and improved health for both mother and child.

In Table 1, we outline the 15 policy instruments discussed in Section I. We summarize research findings as to whether and to what degree the policy contributes to economic development. We also highlight the relationships among the various policy instruments.

**Table 1. Policy Opportunities: Economic Development Through Gender Equality**

	<b>Policy Instrument</b>	<b>Relevant Scholarship</b>	<b>Impact on Development</b>	<b>Linkages with Other Policy Instruments</b>
<b>Market</b>	Labor Force Participation and Wages	Contradictory evidence, especially in the short run	Unclear	Fertility dependent on employment and pay of women
	Childcare Access	Consensus on labor market participation; mixed on wages	Moderate to Big	Girls' secondary education, children's academic achievement, and children's health dependent on child care
	Entrepreneurship in Formal Economy	Lack of research linking bias to government regulation	Unclear	Participation in formal economy linked to labor force participation, credit access, and traditional gender roles
	Credit Access: Equality of Access	Consensus	Moderate	Effects maximized with property rights and market access
	Credit Access: Preferential Access for Women	Contradictory	Unclear	Preferential credit access increases effect on improved agricultural methods
	Agriculture: Liberalizing Traditional Gender Roles	Sparse Evidence	Small	Effects of changes in gender norms maximized with market access, education, and credit access
	Agriculture: Education and Extension	Consensus	Moderate	Effectiveness increased with credit access, market access, infrastructure, and property rights Environmental management affected by education and extension
<b>Macroeconomics</b>	Gender-Responsive Budgeting	Consensus	Moderate to Big	Market access, infrastructure development, environmental management, health, and education dependent on gender-responsive budgeting
	Trade Policy	Strong link to women's income, unknown final effect on poverty	Unclear	Strong link to labor force participation and wages

	<b>Policy Instrument</b>	<b>Relevant Scholarship</b>	<b>Impact on Development</b>	<b>Linkages with Other Policy Instruments</b>
<b>Land Use</b>	Property Rights and Access to Land	Consensus on effect; applicability dependent on cultural norms	Moderate	Property rights dependent on credit access and market access
	Infrastructure Development	Sparse evidence	Moderate	Property rights, market access, and credit access preconditions for effect on economic growth Healthcare and education dependent on infrastructure
	Environmental Management	Sparse evidence	Small	Property rights and infrastructure development preconditions for effect on economic growth Women's health dependent on environmental management
<b>Health Services</b>	Maternal Health Services	Consensus	Big	Child health and academic achievement dependent on maternal nutrition
	Reproductive Health Services	Consensus	Big	Child health, schooling opportunities, and academic achievement dependent on reproductive health Adolescent girls' schooling dependent on reproductive health
	Cervical Cancer Screenings	Consensus	Moderate	Not applicable
<b>Education</b>	Primary Education	Consensus on general education effects; unclear on primary education only	Moderate	Wages, labor force participation, fertility rates, maternal mortality, and agricultural productivity affected by primary education completion
	Secondary Education	Consensus	Big	Primary school enrollment perhaps dependent on secondary school opportunities Women's wages, timing of marriage/motherhood, fertility rates and HIV/AIDS infection rates, maternal health and child health, and children's schooling opportunities dependent on secondary education

Source: Authors' Analysis



## II. GENDER AND ECONOMIC DEVELOPMENT: MCC INDICATORS

Having reviewed the empirical evidence on the relationship between gender equality and economic growth in Section I, we now assess the gender sensitivity of the existing MCC indicators. We classify the indicators from the MCC's Economic Freedom and Investing in People policy categories into the same five broad areas used in Section I—market participation, macroeconomic policies, land use, health services, and education. We analyze each indicator to determine if its measurements are gender-sensitive. We also assess each indicator's strength in encouraging low-income and lower middle-income countries to pursue policies that promote gender equality. We employ modified criteria developed by the United Nations Development Programme (UNDP) and United Nations Development Fund for Women to create a matrix for consistent evaluation of each indicator (Corner & Repucci, 2009). Specifically, we consider gender sensitivity of data collection and analysis, gender equality in terms of access to and outcomes of policies, and relevance to the policy instruments reviewed in Section I. We conclude this section with a table in which we present the analysis matrix for the 11 MCC indicators reviewed.<sup>6</sup> This analysis informs our final section, in which we offer recommendations for enhancing the gender sensitivity of existing indicators and propose some alternative policy measures.<sup>7</sup>

### A. MARKET PARTICIPATION AND GENDER EQUALITY

First, we assess two of the MCC's indicators of Economic Freedom that broadly relate to market participation, namely Regulatory Quality and Business Start-Up.

#### *Regulatory Quality*

The Regulatory Quality indicator aims to measure government capability and commitment to formulate and implement policy that promotes a healthy private sector. In contrast to indicators that directly measure a single phenomenon, the World Bank's Worldwide Governance Indicators for Regulatory Quality serves as a clearinghouse of 19 separate indicators of a government's regulatory quality and its success in creating a climate conducive to business.

#### *Data*

Each of the 19 measures in the Worldwide Governance Indicators for Regulatory Quality is based on one or more surveys of public perceptions of governmental regulation policy. Any indicator that bases its findings on

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<sup>6</sup> See Table 2. Gender Sensitivity of Current MCC Indicators, page 37.

<sup>7</sup> For a detailed explanation of individual indicators, including, source, methodology, and relationship to economic growth, see "Guide to the MCC Indicators and the Selection Process" (Millennium Challenge Corporation, 2011).

public perception risks losing legitimacy if it does not sample from men and women equally. Although the majority of Worldwide Governance Indicators surveys do sample men and women equally, no surveys appear to disaggregate data by sex. None of the surveys appear to discuss gender issues as they relate to business regulation.

### *Policy*

The goal of monitoring regulatory quality is to ensure that governments place minimal constraints on private businesses and intervene when markets fail. Here, gender equity of access includes ensuring that any regulatory burden falls equally on men and women and that attempts to address market failure consider both male and female market actors. The pervasiveness of regulation makes ensuring its gender sensitivity pivotal; the current Regulatory Quality indicator is weak in this regard.

### *Relevance*

Given our findings in Section I on the importance of gender equality in labor force participation, access to property rights, access to credit markets, and agriculture participation, gender equality in regulation of these various markets is highly relevant, particularly given the impact regulation can have on gender equality in the regulated systems. Therefore, enhancing the gender sensitivity of the Regulatory Quality indicator would help to identify other potential gender-based limitations to economic growth in these systems.

### ***Business Start-Up***

The Business Start-Up indicator measures the time and cost associated with starting and formally operating an industrial or commercial business. The Business Start-Up indicator is composed of two variables obtained from the International Finance Corporation's (IFC) Doing Business Survey. The first variable measures the number of days required to comply with officially mandated procedures to start and operate a business. The second variable measures the cost of starting a business as a percentage of a country's per-capita income. The MCC normalizes the former variable to create the composite Business Start-Up indicator.

### *Data*

Since the IFC only records the procedures that are officially required to start and operate a business, one would not expect to observe differences in time and cost based on the gender of the business owner and hence it is not possible to obtain sex-disaggregated data. However, if inequality exists between men and women in terms of owning and operating businesses, the data collection and analysis would be more effective if it accounted for this gender inequality. Indeed, a recent study by the World Bank finds that of the 128 countries examined with respect to equality in terms of business and law, 20 countries treat men and women equally (International Bank for

Reconstruction and Development/World Bank, 2010). According to the report, inequality is more pronounced in some countries than in others. For example, a married woman must obtain authorization from her husband before signing a contract or starting a business in the Democratic Republic of Congo. Similarly, in Nigeria it is illegal for women to work at night in agriculture or manufacturing. The Business Start-Up indicator in its present form is unable to account for these gender inequalities in business ownership and operation.

### *Policy*

A closer examination of the criteria used to classify an entity as a “business” by the IFC suggests that these criteria may be restrictive and may induce a gender bias into the Business Start-Up indicator. Some of the criteria used by the IFC that may induce gender bias are discussed below.<sup>8</sup>

- Requiring the business to operate in the country’s largest business city may produce gender bias if one gender is more likely to engage in business activity in a rural setting.
- Requiring the start-up capital to be at least 10 times the income per capita may result in gender bias if businesses owned by one gender tend to have lower invested capital. The requirement that the invested capital be in cash further exacerbates this bias.
- Requiring the number of owners to be at least five may result in gender bias if one gender is more likely to form a smaller business. Similarly, requiring the number of employees to be between 10 and 50 may produce gender bias if one gender is more likely to engage in smaller businesses.
- Requiring the revenue to be at least 100 times the income per capita of the country may induce gender bias if one gender is more likely to be engaged in smaller businesses.

Based on the criteria used to classify an entity as a business, it is safe to conclude that the Business Start-Up indicator fails to capture the cost and time associated with starting and operating a business that is small and/or rural. If one gender is more likely to engage in these types of business activities, then this indicator will suffer from gender bias.

Bruhn (2009) finds that women-owned businesses tend to have fewer employees, lower sales, lower invested capital, and lower profit. This suggests that the Business Start-Up indicator disproportionately excludes businesses typically owned by women as a result of its restrictive definition of a “business.” Therefore, women do not enjoy equitable access under the Business Start-Up indicator and this inequitable access will likely lead to inequitable outcomes.

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<sup>8</sup> A detailed list of all the assumptions made by International Finance Corporation regarding a business is included in Appendix A.

### *Relevance*

In Section I, we highlighted that gender equality in employment and wages, entrepreneurship, and credit access generally has the potential to contribute to economic growth. In light of these considerations, modifying the gender sensitivity of the Business Start-Up indicator would likely enhance its effectiveness. Specifically, this indicator needs to be modified to account for the constraints women face in terms of starting and operating a business. In addition, the definition of a business must be altered to ensure that women-owned businesses enjoy equitable outcomes of business start-up policy.

## **B. MACROECONOMIC POLICIES AND GENDER EQUALITY**

Below, we evaluate the MCC's Economic Freedom indicators that relate to macroeconomic policies: Trade Policy, Inflation, and Fiscal Policy.

### *Trade Policy*

The MCC's current Trade Policy indicator, which uses the Heritage Foundation's Trade Freedom indicator, measures government efforts to minimize tariffs and non-tariff barriers to trade. This choice of indicator is based on the notion that barriers to free trade limit an economy's ability to interact with world markets in a way that permit it to grow through exports and enjoy the reduced prices that imports bring. However, the Trade Freedom indicator is not tailored to the context of low-income and lower middle-income countries and high marks may disproportionately burden women and poor people.

### *Data*

The indicator primarily consists of a ranking of trade-weighted tariff rates. Additionally, the Heritage Foundation uses discretion to lower a country's score based on its non-tariff barriers. As a macroeconomic measurement, the indicator is based on products and tariff rates; it contains no direct form of gender bias in its data collection.

### *Policy*

As a measure of trade liberalization, the Trade Policy indicator leaves little wanting. The indicator transparently and objectively describes one component of trade policy. However, by measuring tariff levels exclusively, the indicator sacrifices nuance and relevance to developing countries for objectivity. The indicator places equal weight on all traded goods and ignores the varying importance of different goods to poverty alleviation. For example, Guatemala's exports to the United States included an equal value of jewelry and soybeans last year (U.S. Census Bureau, 2010). While a tariff on jewelry would have a much smaller effect on Guatemala's economic growth and poverty alleviation, a tariff on either would have the same effect on the indicator's value.

The Trade Freedom indicator ignores the different baskets of goods of different households—poor and non-poor, female-headed and male-headed. A more gender-sensitive indicator would weigh the importance of trade barriers by the relative importance of the product to poor households and particularly poor, female-headed households.

### *Relevance*

The current indicator measures inputs into trade policy (i.e., specified tariffs) but not the outcomes of an effective trade policy: increased access to jobs and reduced prices on consumption goods for the majority of a country's residents. As we indicated in Section I, trade policy is related to gender equality in employment opportunities. Additionally, the basket of goods in which prices are reduced will affect men and women in distinct ways, given their distinct roles and needs. A more gender-sensitive trade indicator would consider these outcomes.

### *Inflation*

The MCC focuses on inflation as an indicator of sustainable monetary policy. Sound monetary policy is necessary for macroeconomic stability. Excessive inflation is also a concern because it disproportionately hurts those with limited assets (Easterly & Fisher, 2001). To determine the Inflation indicator, the MCC relies on macroeconomic data the IMF publishes regularly.

### *Data*

Due to the nature of macroeconomic data, collection is not gender-sensitive (nor insensitive).

### *Policy*

Although prudent fiscal management is in the interest of men and women, some evidence suggests that attempts to minimize inflation rates have a disproportionate effect on women. National efforts to reduce inflation typically result in moderate short-term decreases in employment. Women's employment levels decrease more than men's in these periods, resulting in a disproportionate burden on women (Braunstein & Heintz, 2006). In sum, while minimizing inflation is important, doing so exclusively may produce gender-biased results. Given the potential negative effects of contractionary inflation, alternative measures are worth considering.

### *Relevance*

Contractionary inflation policies lower women's labor force participation. As discussed in Section I, increased female labor force participation alleviates poverty and improves household economic growth to a greater extent than increased male labor force participation.

### ***Fiscal Policy***

Chronic fiscal deficits in low-income and lower middle-income countries can result in fears of inflation and harm exchange rates. By minimizing the risk of macroeconomic crises and encouraging responsible public expenditures, fiscal policy remains an important component of economic development. The MCC relies on the IMF's World Economic Outlook database to calculate the Fiscal Policy indicator.

### ***Data***

The MCC measures prudent fiscal management as a three-year average of net government lending and borrowing as a percent of gross domestic product (GDP). As with other macroeconomic indicators, there is no clear gender dimension to measurement to be addressed.

### ***Policy***

There is no obvious gender dimension to the impact or measurement of fiscal deficits. Thus, gender equality in terms of access to and outcomes of policies associated with the existing indicator is not a concern. Nevertheless, by only focusing on deficits, this indicator is insulated from other important fiscal policy issues. It would be appropriate to seek an indicator that considers equity of access to public dollars through gender-responsive budgeting.

### ***Relevance***

Fiscal policy not only refers to the relative magnitude of revenues and expenditures, but also to a country's budget's composition. The current Fiscal Policy indicator only reflects the former. A more gender-sensitive indicator would consider how a government's budgetary allocations affect men and women in distinct ways. As we highlighted in Section I, gender-responsive budgeting considers governmental services through a gender-sensitive lens and helps to identify how gender-bias in service provision hinders economic growth and poverty alleviation.

## **C. LAND USE AND GENDER EQUALITY**

The MCC employs two indicators relating to land use: Land Rights and Access under the Economic Freedom category, and Natural Resource Management under the Investing in People category. We consider the gender sensitivity of these two indicators below.

### ***Land Rights and Access***

The current Land Rights and Access indicator is based on a country's institutional, legal, and market mechanisms and measures the extent to which these systems allow for secure and equitable land use by its residents. Using data from the International Fund for Agricultural Development (IFAD) and the IFC, this indicator equally weights access to rural land and the days

and costs required to register property in peri-urban areas, measured as the urban areas including and surrounding capital cities.

### *Data*

This indicator is moderately successful in incorporating assessments of gender equality into its existing framework, with its rural property measures greatly surpassing the peri-urban measures in terms of gender sensitivity. The data on rural land access, which account for 50 percent of the overall indicator, include as one of five components a measure of legal guarantees to secure land access for women and other vulnerable groups. Two additional measures of rural land access consider a country's land market and its success in registering and titling land. These are two hurdles to land security that often disproportionately affect women, particularly in countries with established cultural property norms (World Bank, 2003). These measures of rural land access have the potential to capture whether women's property rights are adequately protected; however, because the data for these measures are not sex-disaggregated, a thorough, gender-sensitive analysis may prove difficult.

The other half of the Land Rights and Access indicator, which measures the days and costs required to register property for business use in peri-urban areas, demonstrates no gender sensitivity in its data collection or analysis.

### *Policy*

The Land Rights and Access indicator succeeds in its measurement of gender equality in rural land access but fails to incorporate gender-sensitive measures for peri-urban land access. The indicator incorporates some measures that relate to outcome equality, namely, the ability of an individual to access land markets and to utilize official land registration systems. However, other significant factors (i.e., market access and credit access) that also determine outcome equality in terms of land rights are already included in other indicators and probably should not be double-counted in the Land Rights and Access indicator.

### *Relevance*

In light of the research cited in Section I establishing that gender equality in property rights can significantly affect a country's economic development (in particular, through poverty alleviation for female property owners), the gender sensitivity of this indicator is highly relevant to the broad goal of using gender equality to achieve economic growth. The current indicator is a qualified success in incorporating gender concerns.

### ***Natural Resource Management***

The Natural Resources Management (NRM) indicator seeks to measure national-level sustainability, resilience, and vulnerability. Specifically, the

NRM indicator measures eco-region protection, access to improved sanitation, access to improved water, and child mortality. Data for this indicator are made available through Columbia University's Center for International Earth Science Information Network and the Yale Center for Environmental Law and Policy.

### *Data*

Given our discussion in Section I, it is apparent that the four measures included in the NRM indicator could disproportionately affect women. However, the data are not disaggregated by sex, which makes it difficult to analyze the indicator's impact in a gender-sensitive manner.

Gender equality in NRM cannot be effectively measured until reliable sources of sex-disaggregated data are made available (Dankelman, 2003; Schultz, Hummel, & Empacher, 2001). Problematically, however, there is little consensus on how access to and outcomes of NRM services should be measured and which types of data should be collected. Currently, estimates of gender equality in the outcomes of NRM rely on proxies, such as poverty, education, health, and decision-making/policy formation, for which sex-disaggregated data are available (Akiyode, 2010). Measuring the gender gap in access to NRM services directly is challenging because base-line survey data regarding gender-differentiated needs, perceptions of problems and solutions, and intensity of use are generally not available on a national scale (Schultz, Hummel, & Empacher, 2001).

### *Policy*

The NRM indicator is relatively stronger in measuring access to services but fails to measure whether men and women enjoy equality in specific policy outcomes. Three of the four measures that constitute the NRM indicator (namely eco-region protection, access to improved sanitation and access to improved water measure access) measure access to services; only one indicator (child mortality) measures outcomes. Furthermore, because the child mortality indicator is not sex-disaggregated, it cannot capture a gap between girls and boys.

A lack of sex-disaggregated data impedes a gender-sensitive assessment of NRM policy outcomes. Sex-disaggregated data would demonstrate gender-differentiated socio-economic changes and would facilitate the formulation of efficient gender-sensitive NRM responses (e.g., projects, programs, and policies). Furthermore, sex-disaggregated data would help to ensure that gender is mainstreamed throughout the monitoring and evaluation process of relevant NRM responses (e.g., assessing the progress made toward the UN Millennium Development Goal of gender equality in the area of NRM) (Food and Agriculture Organization, 2003).



In sum, the NRM indicator is moderately successful in guaranteeing equality of access but fails to hold governments accountable for ensuring gender equality in the outcomes of NRM policies.

### *Relevance*

In Section I, we identified three channels through which a gender-sensitive approach to natural resources management can improve economic growth: namely, better health outcomes, economic and social empowerment through increased supply of household resources, and better conservation techniques through education and outreach. The current NRM indicator mainly captures the mechanism regarding health and well-being; the indicator does not incorporate measures of other important processes that are also highly relevant to natural resources management, such as empowerment and education. Specifically, women's participation in NRM decision-making provides a channel for their voices to be heard and their needs to be addressed. Additionally, women's participation in educational outreach and knowledge-sharing activities enables them to make environmentally sound decisions and further empowers them socially and politically. An indicator that neglects to measure these two critical gender-responsive processes cannot effectively evaluate the gender sensitivity of NRM policy responses.

## **D. HEALTH SERVICES AND GENDER EQUALITY**

Next, we assess the gender sensitivity of the MCC's Investing in People indicators that pertain to health: Immunization Rates and Health Expenditures.

### ***Immunization Rates***

The Immunization Rates indicator is intended to proxy a government's commitment to providing public health services and preventing child mortality. Indeed, immunization campaigns are critical for reducing child deaths: each year 2.5 million children's lives are saved as the result of immunization for a vaccine-preventable disease (UNICEF, 2010). Immunizations represent a cost-effective strategy for ensuring the health and productivity of future workers and, in this way, contribute to economic growth. The Immunization Rates indicator relies on estimates of immunization coverage published by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF).

### *Data*

Immunization coverage is calculated as the number of doses administered to the target population divided by the total estimated number in the target population. The WHO and UNICEF supplement administrative data with contributions from local experts and consideration of potential biases to determine an accurate estimate of immunization coverage (Grown, Gupta, & Pande, 2005). Data of immunization administration, as reported by the WHO

and UNICEF, are not disaggregated by sex. Because sex-disaggregated data are necessary for gender-sensitive analysis, such an analysis is not feasible.

### *Policy*

Country case studies reveal that girls do not enjoy equitable access to immunizations. Girls in Pakistan are substantially less likely than boys to have received the diphtheria-pertussis-tetanus (DPT3) vaccine: while 62 percent of boys are immunized, the coverage rate is 55 percent for girls (UNICEF, 2010). In India, the likelihood that a girl will be immunized with the DPT3 and measles vaccines is 5 percentage points lower than that for boys (Borooah, 2004). Similarly, case studies in Zambia (Pillai & Conaway, 1992) and Bangladesh (Chowdhury, 2006) find that female children are less likely to be immunized.

Immunization campaigns aim to reduce child mortality rates and guarantee the health and productivity of the future workforce. Due to certain biological advantages, female infants are more likely to survive to their first birthday. Because most child mortality occurs within the first year of life, the under-5 mortality rate is consequently lower for girls than for boys in most countries (UNICEF, 2010). However, where girls are denied equitable access to basic healthcare, this pattern is reversed and the under-5 child mortality ratio is higher for girls than boys (see Barcellos, Carvalho, & Lleras-Muney, 2010). Thus, inequitable access to basic healthcare, including immunizations, produces inequitable outcomes in terms of child mortality.

Because immunization data are not disaggregated by sex, discrepancies in the outcomes of immunization policy cannot be readily identified. The utility of sex-disaggregated data is apparent in the following case study: in India, girls are less likely than boys to be vaccinated in health facilities; however, outreach programs that immunize children at home successfully reach and immunize girls (Collaborators, 2010). In this way, sex-disaggregated data can serve to inform policies and ensure more equitable access to and outcomes of basic healthcare services.

### *Relevance*

The Immunization Rates indicator serves as a proxy measure for a government's commitment to public health and, more specifically, it represents a government's investment in preventative health measures. As we outlined in Section I, a gender-sensitive approach to healthcare reinforces the importance of other preventative health services for gender equality and economic growth. Specifically, maternal health services, reproductive health services, and cervical cancer screenings facilitate women's continued, productive contributions as mothers and workers. Through the provision of adequate nutrition to pregnant women and sustained breastfeeding for infants, made possible by adequate birth spacing, these gender-sensitive,

preventative health services likewise reduce child mortality and promote the health of future generations.

### ***Health Expenditures***

The Health Expenditures indicator measures a government's commitment to the health and well-being of its population. As we outlined in Section I, investments in health allow for economic growth and poverty reduction. The MCC calculates the Health Expenditures indicator using data from the WHO.

### ***Data***

The Health Expenditures indicator measures general government health expenditure (GGHE) as a percentage of GDP, where the measurement includes outlays for health maintenance, restoration, or improvement made by federal, state, or local authorities or other financing agents. To determine the GGHE, the MCC relies on data from the WHO's National Health Accounts, which monitor resource flows within a country's health system. In particular, the accounts track where resources are spent, where services are purchased, and who benefits (World Health Organization, 2011b). In addition, the WHO includes a Reproductive Health subaccount that tracks maternal and reproductive health services (World Health Organization, 2009). In sum, the National Health Accounts offer high-quality, sex-disaggregated, and gender-sensitive data. However, the Health Expenditures indicator does not reflect the more detailed data available through the National Health Accounts or the Reproductive Health subaccount; rather, the indicator relies exclusively on expenditures in the aggregate. In this way, the MCC's Health Expenditures indicator does not reflect a gender-sensitive approach in the data analysis phase.

### ***Policy***

The National Health Accounts are explicitly designed to assist policy makers in allocating funds in an efficient and equitable manner (World Health Organization, 2011b). Therefore, the accounts along with the Reproductive Health subaccounts ought to reveal whether government health expenditure facilitates equity of access and equity of outcome for women. However, because the Health Expenditures indicator does not consider sex-disaggregated data, a gender-sensitive critique of health policy is not possible.

### ***Relevance***

The Health Expenditures indicator fails to account for the distinct healthcare needs of women, as expenditures in the aggregate do not provide adequate information regarding the provision of maternal and reproductive health services. Funding for reproductive health services in low-income and lower middle-income countries has been steadily declining as a percentage of health expenditure since the mid-1990s. Whereas spending by donor countries for infectious disease has ballooned in recent years, budgets for

family planning and maternal health have remained stagnant: as a percentage of total health-related funding, family planning fell from 55 percent in 1995 to just 5 percent in 2007 (Engelman, 2009). These statistics reinforce the inadequacy of aggregate measures of health expenditures in ensuring that the health needs of women are appropriately addressed. As we detailed in Section I, neglecting to adequately emphasize maternal and reproductive health services will not only compromise the MCC's dedication to gender equality, but will also jeopardize other strategies of poverty reduction and economic growth.

## **E. EDUCATION AND GENDER EQUALITY**

Finally, we analyze the MCC's Primary Education Expenditures and Girls' Primary Education Completion rate indicators. We consider whether these indicators, which fall under the Investing in People category, are sufficiently gender-sensitive.

### ***Primary Education Expenditures***

The Primary Education Expenditures indicator is one of the few MCC indicators that measures inputs as a proxy for outcomes. Education outcomes are difficult to measure because of the time needed for an educational policy to foster change and the difficulty in acquiring quality data from low-income and lower middle-income countries. Relevant data for the Primary Education Expenditures indicator are available through UNESCO's Institute for Statistics.

#### *Data*

This indicator measures total expenditures on primary education—an aggregate of spending by local, regional, and central governments—divided by GDP. By using a single measure of expenditures on primary education, neither the data collection process nor the analysis of the data is gender-sensitive.

#### *Policy*

Given the lack of gender-sensitive data, the Primary Education Expenditures indicator cannot provide information on gender equality in terms of access to or outcomes of education policy. Research confirms that girls' access to schools is enhanced with the provision of private latrines for girls, safe and reliable transportation to school, and an increase in female teachers (Herz & Sperling, 2004). If available, sex-disaggregated data on specific education expenditures could reveal the presence of such gender-sensitive policies.

For the Primary Education Expenditures indicator to measure policies in a gender-sensitive manner, disaggregated data detailing specific, gender-related investments are required.

### *Relevance*

Given the linkages between girls' education and poverty reduction outlined in Section I, this indicator's lack of gender sensitivity is a cause for concern. As this indicator presents the best proxy—of the MCC's current indicators—of the quality of education provided, its revision to include data on gender-specific education expenditures could provide important insight into the gender equality of a country's investment in girls' education at all levels.

### ***Girls' Primary Education Completion Rate***

The Girls' Primary Education Completion Rate indicator measures a government's commitment to educating young girls. Specifically, the indicator seeks to measure girls' access, enrollment, and retention in primary school. This indicator relies on the International Standard Classification of Education (ISCED) definition of the primary school cycle and the necessary data are available through the UIS.

### *Data*

The Girls' Primary Education Completion Rate indicator employs the gross intake ratio into the last grade of primary school as a proxy for primary school completion. Specifically, the indicator is a measure of the total number of female students enrolled in the last grade of primary school, minus the number of female students repeating that grade, divided by the total female population of the standard age for entering the last grade of primary school.

The UIS offers sex-disaggregated data for all indicators, including enrollment by grade in primary education, repeaters by grade in primary education, and school age population. Thus, the Girls' Primary Education Completion Rate indicator is gender-sensitive in the data collection phase. However, because the MCC neglects to consider girls' completion rate compared to boys' completion rate, the MCC's indicator is gender-biased rather than gender-sensitive. Furthermore, a gender-sensitive approach requires a thorough analysis of all sex-disaggregated data. In this way, merely presenting the sex breakdown of data, in the absence of an analysis of differences, is insufficient (Corner & Repucci, 2009).

### *Policy*

Gender equality at the policy level implies equity in terms of both access to and outcomes of primary education. The MCC relies on completion rates as a proxy for girls' access to primary education. As indicated above (see Primary Education Expenditures indicator), research has identified more precise variables that determine whether girls enjoy equitable access to schools. To enhance the gender sensitivity of the Girls' Primary Education Completion Rate indicator, these additional variables could be considered. In the absence of data regarding boys' primary school completion rate, it is difficult to ascertain whether girls enjoy equitable access to primary school.

The MCC has determined that educational quality and learning outcomes are too difficult to calculate and compare cross-nationally (Millennium Challenge Corporation, 2007). As a consequence, the gender sensitivity of the MCC's education indicators can only be assessed according to equality of access.

### *Relevance*

The Girl's Primary Education Completion Rate indicator encourages governments to invest in equitable access, enrollment, and retention of girls to capture the economic growth associated with their education. Educating a girl both improves her earning potential and produces social outcomes that contribute to poverty reduction, such as lower fertility rates, improved maternal health, and better educational outcomes for her children. However, as we outlined in Section I, these outcomes are amplified when a girl is enrolled in secondary school.

To demonstrate girls' improved earning potential, the MCC references Psacharopoulos and Patrinos' finding that girls who obtain one extra year of schooling beyond the average will eventually enjoy a 10-20 percent boost in earnings (Millennium Challenge Corporation, 2011). Yet, Psacharopoulos and Patrinos (2004) determine that the returns to a primary education are in fact higher for male students. The returns to girls' education only surpass the returns achieved by boys at the secondary school level. The non-wage outcomes of a girls' education are likewise more pronounced at the secondary level, as we detailed in Section I. While completion of primary education is, of course, a necessary precursor to a secondary education, a primary education may prove less relevant for economic growth and poverty reduction than enrollment in secondary school.

In Table 2, we summarize our review of 11 of the MCC indicators, including our evaluation of the gender sensitivity of the data, how well the indicator measures gender equity in terms of access and outcome, and the indicators' relevance to the policy instruments outlined in Section I.

**Table 2. Gender Sensitivity of Current MCC Indicators**

	MCC Indicator	Data		Policy		Relevance to Section I Policy Instruments
		Collection	Analysis	Access Equity	Outcome Equity	
Market	Regulatory Quality	Mixed: Only some sub-indicators included interviews of both sexes	Moderate: Sex-disaggregation not conducted, but also not vital	Weak: No indicator component assessing regulatory quality variation by sex	Weak: No measurements based on outcome	Moderate: Regulatory quality has broad effects on economic participation of men and women
	Business Start-Up	Weak: Data cannot be sex-disaggregated in current form; structure induces gender bias	Weak: Because collection not disaggregated by sex, analysis not sensitive	Weak: Ignores disproportionate constraints on women in starting and operating businesses	Weak: Inequitable access produces inequitable outcomes	Moderate: Gender inequality in employment, wage, and credit access may also adversely impact economic growth
Macroeconomics	Trade Policy	Not applicable	Not applicable	Weak: Does not account for differential effects of various products on poverty and growth	Weak: Does not consider outcome equity	Moderate: Alters job profile and thus economic opportunity of men and women, affecting labor market participation
	Inflation	Not applicable	Not applicable	Varied: Ignores possible women's employment penalty for excessive inflation management	Weak: Does not address outcome equity	Moderate: If contractionary, disproportionately harms women
	Fiscal Policy	Not applicable	Not applicable	Moderate: Discusses deficits but overlooks potential fiscal policy problems	Moderate: Does not address outcome equity	Weak: Ignores importance of gender-aware public budgeting

	MCC Indicator	Data		Policy		Relevance to Section I Policy Instruments
		Collection	Analysis	Access Equity	Outcome Equity	
Land Use	Land Rights and Access	Mixed: Rural measures include data on legal guarantees for women, peri-urban measures do not	Mixed: Analysis on rural rights fairly strong, but peri-urban analysis weak because of collection	Mixed: Access to rural land rights addressed, while access to peri-urban/urban land rights not addressed	Weak: Not included in this indicator, but outcome effects could be captured in other indicators	Strong: Indicator aligns with property rights and access to land instruments
	Natural Resource Management	Weak: Data not sex-disaggregated	Weak: Because of collection, analysis cannot provide evidence of gender gap	Moderate: Data limit ability of three access indicators to measure gender differences	Weak: Single indicator on outcome compromises accountability	Moderate: Index captures health and well-being, not education or political empowerment
Health Services	Immunization Rates	Weak: Data from WHO and UNICEF not sex-disaggregated	Weak: Because collection not disaggregated by sex, analysis not sensitive	Weak: Although case studies suggest girls lack equitable access, data inhibit assessment of access equity	Weak: Method of data collection and analysis means outcome equity is not assessed	Weak: Reproductive and maternal services and cervical cancer screenings not included as other preventative measures
	Health Expenditures	Strong: Gender-sensitive, sex-disaggregated data	Weak: Only considers aggregated health expenditures	Weak: Data analysis method means access equity cannot be assessed	Weak: Data analysis method means outcome equity is not assessed	Weak: Does not allow for analysis of investment in women's health needs
Education	Primary Education Expenditures	Weak: Current data not sex-disaggregated	Weak: Because of collection, cannot show evidence of gender gap	Weak: Data analysis method means access equity cannot be assessed	Weak: Because of data analysis, outcome equity not assessed	Weak: Does not allow for analysis of gender-specific education expenditures
	Girls' Primary School Completion	Strong: UNESCO collects sex-disaggregated data	Gender-biased: girls' completion rates not compared to boys' rates	Moderate: enrollment is proxy for access	Weak: MCC will not consider measures of educational outcomes	Moderate: Wage and non-wage returns to girls' secondary are greater than those to primary education

Source: Authors' Analysis



### **III. GENDER AND ECONOMIC DEVELOPMENT: INDICATOR RECOMMENDATIONS**

In this final section, we propose modifications to some existing MCC indicators and recommend some new indicators for adoption. Our proposed changes reflect the literature review we conducted for Section I on the linkages between gender equality and economic growth and stem from our analysis in Section II on the gender sensitivity of current MCC indicators. We offer at least one recommendation in each of the five broad areas considered: market participation, macroeconomic policies, land use, health services, and education. Specifically, we propose modifications aimed at enhancing the gender sensitivity of measurements to four existing MCC indicators: Business Start-Up, Land Rights and Access, Natural Resource Management, and Primary Education Expenditures. Additionally, we propose four new indicators: Domestic Credit Market, Gender Responsive Budgeting, Women's Health, and Girls' Secondary School Enrollment Rate. The Domestic Credit Market indicator differs from our other proposed indicators in that the measure we employ is not inherently gender-sensitive; rather, inclusion of a Domestic Credit Market indicator, by expanding the availability of credit absolutely, benefits women and contributes to economic growth.

For each proposed modification or potential indicator, we briefly review how the policy instrument promotes economic growth through gender equality. We provide a detailed description of each indicator's calculation and identify the source for relevant data (see Appendix B for a brief overview of data sources). We acknowledge limitations of the proposed measure or data source. Finally, we assess the feasibility of implementing each policy instrument in low-income and lower middle-income countries.

Additionally, in Appendix C we provide information on alternative policy instruments noted in Sections I and II. We opt to include policy instruments in Appendix C, rather than in our main recommendation section, where high-quality data are not currently available, implementation is not feasible, or no change to the existing indicator is required. Nevertheless, we encourage the MCC to revisit Appendix C; as data collection and dissemination improve, these alternative policy instruments may present important opportunities to encourage gender equality and promote economic growth.

We conclude this section with a table in which we summarize the feasibility and impact of each policy instrument recommended in Section III and reviewed in Appendix C.<sup>9</sup>

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<sup>9</sup> See Table 3. Analysis of Gender-Sensitive Instruments for Economic Growth, page 56.

## **A. MARKET PARTICIPATION AND GENDER EQUALITY**

Under the broad topic of market participation, we propose a modification to the Business Start-Up indicator and recommend a new Domestic Credit Market indicator.

### ***Business Start-Up***

To enhance the effectiveness and gender sensitivity of the Business Start-Up indicator, we propose modifying the existing indicator by incorporating a new measure of women's economic participation and opportunity.

### ***Rationale for Proposed Indicator***

In Section I, we demonstrated that gender equality in employment and wages, entrepreneurship, and credit access generally has the potential to contribute to economic growth. In Section II, we concluded that the current Business Start-Up indicator fails to account for gender inequality in business ownership and operation. We further noted that women-owned businesses likely receive inequitable treatment under this indicator because of the IFC's criteria for classifying an entity as a "business." Ideally, the existing indicator would be modified to account for the additional restrictions that women face in starting businesses and the IFC's criteria for "business" would be expanded. However, both of these actions require changes to the IFC data collection and methodology. As the MCC cannot compel the IFC to alter its indicator, we propose that the IFC score be supplemented with a gender-sensitive measure for a composite Business Start-Up indicator. Specifically, we recommend the use of a gender-sensitive measure to account for gender disparities in terms of economic participation and market access. Our proposed composite indicator enhances the gender sensitivity of the existing indicator without compromising its strength.

### ***Description and Data***

The World Economic Forum publishes, as a sub-index of the Global Gender Gap Index, information on women's economic participation and opportunity. Specifically, the sub-index aims to capture any gender differences in participation, compensation, or advancement. Composed of five ratios the forum compiles, the measure uses a scale from 0 to 1, where 1 represents perfect equality between men and women. The five areas covered are: ratio of female to male labor force participation; ratio of female to male wage for similar work; ratio of estimated female earned income to male earned income; ratio of female legislators, senior officials, and managers to male counterparts; and ratio of female professional and technical workers to males. (See Appendix D for a detailed description of each measure and the relevant data sources.) This metric satisfies all the criteria recommended for indicators by the MCC. In addition to the World Economic Forum's economic

participation and opportunity measure, we also considered several other gender-sensitive measures of economic participation.<sup>10</sup>

Our proposed composite indicator assigns equal weights to the existing Business Start-Up indicator and to the World Economic Forum's economic participation measure. Since both metrics are on a 0 to 1 scale, calculation of the new Business Start-Up indicator is relatively straightforward.

### *Feasibility*

Given our conclusion in Section I that reducing gender inequality in labor force participation and wages leads to economic growth in the long-run and the inadequacy of the current Business Start-Up indicator in accounting for gender inequality in business ownership and operation, discussed in Section II, we recommend that the current Business Start-Up indicator be modified to create a new composite indicator by incorporating the World Economic Forum's economic participation and opportunity sub-index.

### **Credit Markets**

In addition to the MCC's existing indicators that measure a government's commitment to a competitive and vibrant private sector, we recommend the adoption of a Domestic Credit Market indicator.

### *Rationale for Proposed Indicator*

Credit markets are vital to innovation and daily operation of a country's private sector. Although the MCC's Regulatory Quality indicator includes a component regarding the financial sector, it is merely one of 25 making up the indicator. Furthermore, the financial sector influences the Regulatory Quality indicator less than does trade policy, which the MCC captures via another indicator. We believe that a Domestic Credit Market indicator would properly prioritize credit in the MCC's set of indicators.

As discussed in Section I, access to capital is essential for functioning private markets and poverty alleviation. As women often lack access to other forms of capital (such as personal wealth), they are particularly reliant upon a functioning credit sector as a source of capital. Because credit markets are of particular import to women, the inclusion of a Domestic Credit Market indicator improves the gender sensitivity of the MCC's set of indicators.

### *Description and Data*

We propose a Domestic Credit Market indicator, calculated as the domestic credit provided by the financial sector to the private sector as a percentage of GDP. The IMF collects these data on an annual basis for nearly all low-income

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<sup>10</sup> The measures we considered were the UNDP's Gender Empowerment Measure (GEM), and Social Watch's Gender Equity Index (GEI). See Appendix C for a description of these measures and details on why we opted to exclude them from our recommended indicator.

and lower middle-income countries as part of its International Financial Statistics database. This measure provides substantial insight into the availability of formal credit access and the size of the credit market. By focusing on domestic credit, this indicator explicitly measures the private sector's ability to provide credit, as opposed to freedom of international funds. This focus ensures that the indicator measures the type of borrowing that is more directly associated with poverty alleviation.

We found no measure of credit markets that disaggregates credit access data by gender; such data would require records of each loan, which is not feasible in many low-income and lower middle-income countries. Although our proposed measure is not inherently gender-sensitive, its inclusion improves the gender sensitivity of MCC's basket of indicators by focusing on an issue of particular importance in improving women's economic freedom. Even if a country, motivated by MCC's indicators, sought to improve the size of its credit markets through programs that neglected to consider women borrowers specifically, an absolute increase in available credit should improve women's access on the margins of the credit market.

### *Feasibility*

Given the importance of functioning credit markets to a country's private sector, the adoption of a Domestic Credit Market indicator would provide insight into the financial health of a country. The feasibility of our proposed Domestic Credit Market indicator is enhanced by the objectivity of the measurement and the indisputable importance of credit for economic growth.

## **B. MACROECONOMIC POLICIES AND GENDER EQUALITY**

To strengthen the gender sensitivity of the MCC's indicators of macroeconomic policies, we recommend a new Gender-Responsive Budgeting (GRB) indicator.

### ***Gender-Responsive Budgeting***

To enhance the gender sensitivity of the MCC's fiscal policy instruments, we propose the adoption of a GRB indicator employing women's political empowerment as a proxy measure.

### *Rationale for Proposed Indicator*

In Section I, we highlighted that gender-responsive budgeting can contribute to economic growth through effective resource allocations that account for gender-differentiated needs, can lead to sustainable and high quality growth through better governance and regulatory quality, and is a powerful policy instrument to ensure fundamental equality in education and health for men and women. Thus, the adoption of a GRB indicator would greatly enhance the MCC's efforts to promote economic growth through gender equality.

Research confirms that including women's voices in the political process enhances a country's macroeconomic stability: due to different economic preferences, including women in the electorate reduces average per-capita budget deficits by a statistically significant amount (Krogstrup & Walti, 2007). However, the fact that macroeconomic policies are traditionally not gender-sensitive impedes progress toward gender equality and can produce negative repercussions for women's political participation and empowerment (Mehra & Gupta, 2006).

Women's political empowerment is necessary for a successful GRB process. Rwanda's experience demonstrates that political will, especially from the highest levels of government, is essential. As Budlender and Hewitt note, in a summary of lessons gleaned from the Rwanda experience, "any budget is intrinsically political. The budget determines from whom the state gets resources, and to whom and what it allocates them. Each decision is a political one, as is the decision on the overall size of the budget" (Budlender & Hewitt, 2002). In other words, without women's participation in and commitment to this highly political process, garnering sufficient political will for gender-responsive budgeting is likely to be difficult.

#### *Description and Data*

Despite several recent efforts to compare gender-responsive budgeting cross-nationally, data sources remain incomplete. Rubin & Bartle (2005) list 61 countries that had undertaken GRB initiatives at the national or sub-national level of government as of 2003. This list is likely outdated; however, at this time no international agency maintains data on GRB initiatives.

In a study of GRB efforts in commonwealth countries, Budlender and Hewitt (2002) determine that a country's political, economic, social, and cultural context strongly influences the process. For example, GRB can be undertaken by parliament or government agencies as a top-down process or by civil society as a bottom-up, grassroots effort; international organizations can also engage in an advocacy or supportive role (Budlender & Hewitt, 2002). Therefore, creating a uniform set of criteria to evaluate the relative progress of GRB cross-nationally is very difficult.

Due to the inadequacy of data directly measuring GRB, we recommend women's political empowerment as a proxy indicator. Specifically, our proposed GRB indicator measures the percentage of parliamentary seats in single or lower chamber occupied by women (i.e. women's share of parliamentarians). This measure is indicative of women's empowerment at national-level decision-making, a precondition for successful gender-responsive budgeting. The data necessary to calculate this indicator are made available through the United Nations Statistics and Indicators on Women and Men, which draws from member countries' reports of administrative records.

### *Feasibility*

Although international organizations have engaged with governments for several decades to advocate for gender-responsive budgeting to be mainstreamed, political barriers remain. First, GRB is a politically sensitive issue and requires a tremendous amount of political commitment, especially on the part of women. As many women are not empowered politically, especially in low-income and lower middle-income countries, these women cannot readily engage in politics or advocate for GRB. Second, such efforts can be undertaken by government agencies, parliament, or civil society and incorporate data from various financial streams. These entities may prove unwilling to share sensitive financial data, especially when private entities are involved. At this time, therefore, the use of women's political empowerment as a proxy measure for the GRB indicator is most feasible.

### **C. LAND USE AND GENDER EQUALITY**

We propose modifications to the existing Land Rights and Access and NRM indicators to enhance their gender sensitivity.

#### ***Land Rights and Access***

We propose that the Land Rights and Access indicator be modified to include gender-sensitive data on general property rights. Our proposed modifications better measure a country's commitment to ensuring gender equality in the government-guaranteed rights to own and access property for personal use or business.

#### ***Rationale for Proposed Indicator***

The current MCC indicator only addresses property rights insofar as they affect the property owner's business capabilities; that is, half of the indicator measures rural property access promoting agriculture and the other half of the indicator measures peri-urban property access that encourages other types of business. In light of findings, reviewed in Section I, that property rights are important to individual families' poverty reduction for reasons other than starting businesses, we recommend that this indicator better incorporate additional measures of overall property rights, rather than only those that promote business.

Additionally, the gender sensitivity of the MCC's existing indicator ought to be enhanced to ensure that women's property rights are upheld along with general property rights in low-income and lower middle-income countries. Given the cultural restrictions that impede women's property rights (as discussed in Section II), we contend that adding weight to those components of the indicator that specifically measure women's access to land and assurances of property rights for women is necessary to determine whether governments provide these rights equitably.

### *Description and Data*

The IFAD's methodology—used to calculate the rural property access half of the Land Rights and Access indicator—includes one component that measures the extent to which women and other vulnerable populations are guaranteed secure land tenure by law. The other four measures do not use sex-disaggregated data and thus lack gender sensitivity. However, IFAD recently analyzed its data collection and analysis methods and concluded, in part, that its frameworks were weak for lack of sex-disaggregation. Consequently, the analysis recommended using sex-disaggregated data in future collection and increasing data collection to include specific indicators that assess gender equality (International Fund for Agricultural Development (IFAD) Office of Evaluation, 2010).

Sex-disaggregated data will enhance at least three of the other four measures of rural property access: the measure of land titling and registration will indicate whether women face barriers in terms of property ownership; the measure of land markets will indicate whether women face discrimination in purchasing land; and the measure of government policies on sustainable common property resource management will indicate whether women are disproportionately affected by infrastructure development and maintenance policies.

Although IFAD calculates this component of the Land Rights and Access indicator as a measure of barriers to rural land use (including agriculture), most of the measures we mention also can serve as proxies for general property rights. Therefore, we recommend that these measures instead be assigned a weight of 75 percent of the overall Land Rights and Access indicator to indicate the relative importance of measuring general property rights over those specific to an area or intended use. The other 25 percent will remain the measure of peri-urban land registration timeframe and cost, as described in Section II.

### *Feasibility*

Because the sources of data remain the same, our proposed changes should be easy to implement upon revision of IFAD's measures. The change in the indicator's weights better reflects the overall goal of the indicator—to measure how property rights and access are guaranteed by law—than do the current weights, which place equal emphasis on a measure of peri-urban land transfers in very specific situations and the broader measures that indicate a country's dedication to ensuring property rights.<sup>11</sup> Therefore,

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<sup>11</sup> Although our recommendation relies on availability and incorporation of sex-disaggregated data in IFAD's calculation, we propose re-weighting this indicator as described above regardless of a change in the data. As discussed in Section II, the IFAD component of the Land Rights and Access indicator not only includes one specific measure on women, but also measures the presence of barriers that disproportionately prevent

upon availability of gender-sensitive data from IFAD, the modified Land Rights and Access indicator more thoroughly reflects both the importance of general property rights, along with business-specific property rights, and the guarantees of gender equality in accessing those rights as a means to poverty reduction and economic development.

### ***Natural Resource Management***

The current NRM indicator comprises eco-region protection, access to improved sanitation, access to improved water, and child mortality. We propose that the MCC adopt one additional measure, namely environmentally related diseases mortality rate. We also propose that the MCC replace the child mortality measure with healthy life expectancy at birth.

### ***Rationale for Proposed Indicator***

In Section II, we noted that strengthening the outcome measurements associated with natural resource management represents a key opportunity for improving the gender sensitivity of the MCC's existing indicator. However, measuring gender differences in terms of access to NRM services directly is not possible due to a lack of sex-disaggregated data on a global scale (Schultz, Hummel, & Empacher, 2001). However, gender-sensitive measures of health can be employed as proxies for NRM outcomes.

According to the WHO, infectious diseases account for about one-quarter of all deaths worldwide and are the number one cause of mortality in sub-Saharan Africa (Colwell, 2004). Malaria, cholera, dengue fever, typhoid, and diarrheal diseases are some of the most common infectious diseases that result from contaminated water and poor sanitation. While infectious diseases continue to pose a substantial challenge to the health and well-being of residents in low-income and lower middle-income countries, chronic non-communicable diseases now pose an additional, environmentally related health concern. Although historically regarded as the “diseases of the rich,” recent statistics show that almost 80 percent of all deaths caused by non-communicable diseases now occur in low-income and lower middle-income countries (Ogoinaa & Onyemelukweb, 2009).

Environmental factors (e.g., exposure to chemical pollutants) have been identified as one of the key determinants of non-communicable diseases incidence. Other major risk factors for non-communicable diseases, such as one's traits and lifestyle also have a high degree of correlation with how the environment is managed and how infrastructure is developed (Ogoinaa & Onyemelukweb, 2009; World Health Organization, 2007a). Furthermore, there is a clear gender dimension to the causal relationship between

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women from owning and using property. Therefore, re-weighting this indicator makes the overall measure more gender-sensitive, even without the presence of sex-disaggregated data.



environmental factors and non-communicable diseases, namely chronic respiratory disease. Women are more likely to cook and perform other household tasks that require burning solid fuels. Women also tend to spend more time indoors where these fuels are burned. As a consequence, women face an increased risk of developing chronic respiratory diseases (The NCD Alliance, 2010).

### *Description and Data*

We recommend that the MCC include an environmentally related diseases measure, consisting of the mortality rates from infectious and parasitic diseases, respiratory infections, and chronic obstructive pulmonary disease. The necessary data are available through the WHO Global InfoBase. The InfoBase collects, stores, and displays information reported by member states on the global burden of diseases and associated risk factors. The InfoBase contains sex-disaggregated mortality rates (per 100, 000) for the categories of environmentally related diseases we have recommended. We further propose that the MCC track the mortality rate for infectious and parasitic diseases, respiratory infections, and chronic obstructive pulmonary disease in a sex-disaggregated manner. Separating the male and female mortality rates for these diseases makes the best use of the available data and ensures that this sub-indicator is as gender-sensitive as possible.

We also recommend that the MCC replace the current child mortality measure with a measure of equally distributed healthy life expectancy at birth. We favor this substitution for three reasons. First, data for infant mortality and mortality rates for children under 5 years of age are not sex-disaggregated. In contrast, sex-disaggregated data are available for life expectancy at birth, through the United Nations Statistics Division. Second, we did not find a strong body of literature clearly linking all under-5 child mortality to environmental causes. In contrast, the measure of equally distributed healthy life expectancy, although still unable to rule out non-environmental risk factors, can provide a more gender-sensitive measure of a given country's capacity to ensure that its residents enjoy lives that are long and free of disease and disability. Third, although male and female life expectancies have a natural gap due to biological differences, the data can be made comparable using a formula developed by the UNDP (see Appendix E for a detailed explanation).

In summary, under our modified NRM indicator, eco-region protection, access to improved sanitation, and access to improved water together account for 50 percent of the overall indicator. The proposed indicators of mortality rate from environmentally related diseases and male-to-female ratio of healthy life expectancy at birth account for 25 percent of the

indicator each (see Appendix E for a sample calculation of the indicator).<sup>12</sup> In this way, the Natural Resource Management indicator is improved in terms of its ability to hold countries accountable for the gender-sensitive outcomes of NRM policies.

Our proposed measurement has some limitations. First, many of the diseases measured rarely cause death; rather, these diseases are more likely to cause serious illness and thus impede people's ability to live a healthy and productive life. For this reason, we would ideally not measure deaths but time lost to illness. The Disability Adjusted Life Year (DALY) measurement expresses disability in terms of years and subsequently combines death and disability into a single index (see Appendix E for a detailed definition). Although we would prefer to employ DALYs as opposed to mortality rate, the WHO does not regularly update its DALY database. Second, diarrheal disease is another communicable disease with a clear link to the environment; however, due to a lack of available data, we cannot recommend that diarrheal disease be included in the indicator at this time. Third, although the environment is also one of the major risk factors for other major non-communicable diseases (i.e. cancer, diabetes, and cardiovascular diseases) the multi-factorial nature of these diseases makes it difficult to insist that a government reduce the mortality rate of these diseases simply by making improvements to the environment. Thus, we do not recommend that other non-communicable diseases be included in the indicator at this time.

### *Feasibility*

Health is widely recognized to be an essential human right and ranks among the top priorities of national agendas in low-income and lower middle-income countries. As the data sources we recommend are already publicly available, we anticipate very little external political resistance to our proposed changes. In sum, the environmentally related diseases and life expectancy at birth measures serve as useful proxies for the outcomes of NRM policies and enhance the NRM indicator in terms of both policy relevance and gender sensitivity.

## **D. HEALTH SERVICES AND GENDER EQUALITY**

We recommend a new Women's Health indicator aimed at improving the gender sensitivity of the MCC's set of health policy indicators.

### ***Women's Health***

To enhance the gender sensitivity of the MCC's health policy instruments, we propose the adoption of a Women's Health indicator. This new indicator serves as a complement to the existing Immunization Rates and Health

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<sup>12</sup> The three components of the environmentally related diseases measure (i.e. infectious and parasitic diseases, respiratory infections, and chronic obstructive pulmonary disease) should be equally weighted, each accounting for 33 percent of the sub-indicator.

Expenditures indicators. The Women's Health indicator consists of two measures, one pertaining to maternal health and the other related to reproductive health.

#### *Rationale for Proposed Indicator*

For the maternal health component of the Women's Health indicator, we recommend percentage of births attended by skilled health personnel. This measure is intended to proxy a government's commitment to providing adequate care for pregnant women. For the reproductive health component, we recommend unmet need for family planning. This measure is indicative of a government's efforts to assist women in achieving the lower fertility rates they desire. We propose a two-pronged indicator because maternal health and reproductive health influence economic growth and poverty reduction in distinct ways.

As we highlighted in Section I, maternal mortality imposes substantial economic costs on low-income and lower middle-income countries in terms of lost productivity. A woman's premature death inflicts economic consequences on her family and society, in terms of lost income and decreased agricultural production. Access to skilled health professionals during delivery promises to dramatically reduce maternal mortality and other complications of childbirth. An investment in maternal health permits women to continue in their roles as mothers, workers, and farmers during their most productive years.

Reproductive health services, in turn, ensure that women are able to control the number and spacing of their pregnancies. As we indicated in Section I, governments possess a vested interest in granting women access to the reproductive health services they desire, as lower fertility rates imply a lower dependency burden that facilitates economic growth. Furthermore, lower fertility rates render other development goals more attainable, as smaller family size permits for an enhanced investment in the health, education, and well-being of each child.

In Section II, we noted that the MCC's current health indicators do not consider sex-disaggregated data. An evaluation of equitable access to and outcomes of healthcare is therefore not feasible. Data limitations, described in Appendix C, preclude us from recommending changes to the Immunization Rates or Health Expenditures indicators directly. Our proposed Women's Health indicator nevertheless improves the MCC's set of health indicators, by encouraging governments to adequately address the unique reproductive health needs of women.

### *Description and Data*

Each component of the Women's Health indicator accounts for 50 percent of the total score. For a detailed explanation of the indicator's calculation, see Appendix F.

### *Description and Data: Maternal Health*

The maternal health measure is calculated as the number of women age 15-49 with a live birth attended by skilled health personnel, expressed as a percentage of women age 15-49 with a live birth in the same period. Skilled health personnel include doctors, nurses, and midwives who are trained in providing lifesaving obstetric care. Traditional birth attendants are not included in this estimate (United Nations Statistics Division, n.d.a).

UNICEF relies on national-level household surveys, including the Multiple Indicator Cluster Survey and the Demographic Health Survey (DHS), to determine country estimates of births attended by skilled health personnel. These surveys are conducted every three to five years. Prior to entry into the global database, UNICEF and the WHO communicate with field offices to verify country data. Each December, UNICEF publishes the latest available estimates in *The State of the World's Children* report. Currently, data are available for 140 countries (United Nations Statistics Division, n.d.a).

This measure has several limitations. First, the presence of a skilled attendant may not adequately reflect the quality of care provided, particularly if complications arise. Second, though the household surveys have sought to standardize the definition of skilled health personnel, it is likely that training and ability vary between countries. Third, this measure focuses exclusively on care at the time of delivery and does not indicate whether women have access to care during pregnancy or post-partum.

The use of the maternal mortality ratio would partially address the third concern, as it includes deaths that occur during pregnancy, delivery, or the post-partum period. Additionally, the maternal mortality ratio is an outcome measure and we recognize that the MCC prefers to measure outcomes and not inputs. However, we do not recommend that the MCC employ the maternal mortality ratio as an indicator of maternal health. Large sample sizes are required to accurately measure maternal death rates. To reduce the costs associated with large sample size, the sisterhood survey method is employed, in which respondents report on the survivorship of their sisters. Problematically, this method produces estimates for the previous six to 12 years and the results are therefore not conducive to monitoring progress or examining the impact of an intervention. Furthermore, the maternal mortality ratio estimates are accompanied by large confidence intervals (United Nations Statistics Division, n.d.a). In sum, maternal mortality ratio

estimates are not suitable for assessing progress within a country or for cross-country comparisons.

### *Description and Data: Reproductive Health*

The unmet need for family planning measure indicates the gap between women's reproductive intentions and their contraceptive behavior (United Nations Statistics Division, n.d.a). International estimates are based on women who are married or in a consensual union. For a detailed description of the indicator's computation, see Appendix F.

Data for the unmet need measure are collected through the DHS, the Reproductive Health Survey, and other national surveys. These surveys are undertaken every three to five years. The DHS is the primary source of data on unmet need for low-income and lower middle-income countries. The Reproductive Health Survey likewise collects data from these countries and receives technical assistance from the U.S. Centers for Disease Control and Prevention (CDC). National surveys generally incorporate either the DHS or CDC methodology, and any variation in the definition of unmet need is flagged in the dataset. The UNFPA updates the World Contraceptive Use database annually and publishes the data every two years in December. Data are available for 100 countries; importantly, coverage is strong for those countries where contraceptive use is low and monitoring of progress is most needed (United Nations Statistics Division, n.d.a).

In addition to the relatively low country coverage, the unmet need for family planning measure presents a few limitations. Although the definition of unmet need has undergone several revisions to improve precision, slight differences in definition persist. The definition of unmet need was last articulated in 1998. Data prior to 1998 cannot be accurately compared with more recent data, which may impede attempts to assess progress. Finally, women who rely on a traditional method (as opposed to a modern method) of contraception are not considered to have an unmet need; however, traditional methods are considerably less effective and this discrepancy is not captured by the unmet need measure (United Nations Statistics Division, n.d.a).

We prefer unmet need for family planning to alternative measures, such as contraceptive use among married women, because the definition of unmet need is more precise and consistent across countries (United Nations Statistics Division, n.d.a). Additionally, unmet need for family planning implies an opportunity for government intervention (i.e., the provision of affordable methods of contraception) whereas a lack of contraceptive use does not provide information on women's preferences regarding contraception.

### *Feasibility*

For the past decade, the international community has monitored both components of the Women's Health indicator, the percentage of births attended by skilled health personnel and unmet need for family planning, to assess progress toward Millennium Development Goal 5: Improve Maternal Health. Additionally, the MCC currently considers percentage of births attended by skilled health personnel as supplemental information. Thus, officials from low-income and lower middle-income countries are accustomed to being ranked according to their commitment to maternal and reproductive health and are familiar with these two measures specifically.

As investments in women's health services have the potential to substantially improve economic growth, we recommend that the MCC introduce a Women's Health indicator. Because maternal and reproductive health services influence poverty alleviation in distinct ways, we advise the MCC to employ an indicator that captures both aspects. Our proposed Women's Health indicator, in contrast to the current use of the maternal health measure as supplemental information, improves the gender sensitivity of the MCC's health indicators and signals to low-income and lower middle-income countries that the particular health needs of women must be prioritized.

### **E. EDUCATION AND GENDER EQUALITY**

Finally, we recommend a modification to the Primary Education Expenditures indicator and we propose the adoption of a Girls' Secondary School Enrollment Rate indicator. Our recommendations improve the gender sensitivity of the MCC's education indicators and more closely reflect our findings from Section I on the returns to a girl's education.

#### ***Primary Education Expenditures***

As a modification to the MCC's current Primary Education Expenditures indicator, we propose the addition of a measure of specific expenditures that promote girls' primary school attendance and thereby allow countries to capture the economic growth associated with girls' education.

#### ***Rationale for Proposed Indicator***

As discussed in Section II, the current MCC indicator employs a simple measure of a country's aggregate expenditures on primary education as a proxy for the expected educational outcomes. The efficacy of gathering and analyzing sex-disaggregated data on expenditures per girl pupil will not be as useful as disaggregating the data to include specific expenditures that are known to affect the quality of a girl's education. Adding a component to the existing indicator that measures gender-sensitive education expenditures provides a more complete picture of a country's dedication to gender equality in education, which in turn allows for the economic growth outcomes identified in Section I. Expenditures on female teachers, safe and

reliable transportation to school, and separate latrines for girls are among the specific expenditures that promote daily school attendance by girls and thereby influence the quality of education girls receive (Caillods, 2010).

### *Description and Data*

The World Bank's World Development Indicators collects data on female teachers as a percentage of a country's teachers, which provides a good proxy for a government's willingness to spend on female teachers. However, we did not find any broadly representative, quality data that measures expenditures on latrines or public transportation specifically for educational purposes. While World Development Indicators does collect data on some forms of public transportation, along with expenditures on roads, the data cannot be generalized among countries because of substantial differences in the location of schools generally and the types of transportation needed to get to school.

However, UNESCO's World Education Indicators Program does evaluate specific countries based on their provision of transportation to school or subsidies provided to students for transportation (UNESCO Institute for Statistics, 2002). While the data are collected irregularly and only in selected countries, UNESCO'S framework can be used to request that countries report on expenditures for transportation to schools, with a score from 0-100 percent awarded based on the country's report.<sup>13</sup>

In sum, we recommend modifying the Primary Education Expenditures indicator to include a measure of the percentage of teachers who are female and a measure of the transportation provision for primary education. These two measures together are weighted as 25 percent of the overall modified indicator, with the female teacher component comprising the entire 25 percent if the applicant country does not report on transportation expenditures (see Appendix G for a sample calculation of the modified indicator).

### *Feasibility*

The modified Primary Education Expenditures indicator incorporates data on specific expenditures that we found to most affect the attendance rates of girls in low-income and lower middle-income countries. Because our proposed indicator relies in part on countries' reports of their own transportation expenditures, the data may not be as reliable; in particular, since lack of data would increase the relative weight of the female teacher percentage, an applicant country would conceivably only report their

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<sup>13</sup> This measure must be scored as a percentage to be incorporated with the other components of the indicator. 0 percent = no transportation provision; 33 percent = transportation partially subsidized; 67 percent = transportation fully subsidized; 100 percent = transportation provided.

education transportation data if exceptional. Our proposed indicator may not have the same political feasibility as the existing indicator, given the decrease in accountability for countries that do not provide transportation or subsidies for transportation to primary school students.

Nevertheless, in light of the finding that spending in these specific areas is so important for girls' access to and outcomes of education, a consideration of specific expenditures is necessary to make the Primary Education Expenditures indicator gender-sensitive. Emphasizing female teachers and safe transportation to schools in this indicator would demonstrate the MCC's commitment to overcoming obstacles to female education and would allow low-income and lower middle-income countries to capture the economic growth associated girl's education.

### ***Girls' Secondary School Enrollment Rate***

We propose that the MCC replace the existing Girls' Primary Education Completion Rate indicator with a Girl's Secondary School Enrollment Rate indicator.

#### ***Rationale for Proposed Indicator***

Our review of the relevant literature suggests that the wage and non-wage returns to girls' education are more pronounced at the secondary school level. The economic returns to a girl's education only surpass the returns achieved by male students at the secondary level, while the non-wage, social outcomes of a girl's education—postponement of marriage and motherhood, reduced HIV infection rates, and improved child health and education outcomes—are amplified when she is enrolled in secondary school. Consequently, we recommend that the MCC emphasize girls' secondary education rather than primary education.

Furthermore, as we indicated in Section I, when secondary school opportunities are readily available, families may prove more inclined to invest in their daughters' primary education. Thus, it is imperative that governments guarantee girls ready access to secondary school if universal primary education is to be realized.

We opt to emphasize secondary school enrollment over secondary school completion for two reasons. First, Psacharopoulos and Patrinos (2004) determine that one additional year of schooling beyond the average improves a girl's earnings by 10 to 20 percent. This finding indicates that some secondary education is sufficient to boost girls' earning potential. Second, several of the positive, social outcomes associated with a girl's secondary education, including delayed marriage, delayed first pregnancy, and reduced HIV infection rates, are more directly related to girls' enrollment than girls' completion of secondary schooling.



In Section II, we critiqued the MCC's Girls' Primary Education Completion Rate indicator for neglecting to present the data in such a manner that girls' disadvantage could be assessed. Our proposed indicator enhances the gender sensitivity of the MCC's education indicators, in that it allows for a comparison of girls' enrollment to boys' enrollment. In so doing, the Girls' Secondary Education Enrollment Rate indicator captures whether girls enjoy equitable access to secondary school.

#### *Description and Data*

The proposed Girls' Secondary School Enrollment Rate indicator consists of two components: girls' secondary school enrollment rate and the gender parity index for secondary school enrollment. Each component accounts for 50 percent of the indicator. A composite score of 1 indicates that all eligible girls are enrolled in secondary school and that gender parity in enrollment rates has been achieved.<sup>14</sup> In sum, the Girls' Secondary School Enrollment Rate indicator encourage governments to simultaneously pursue gender parity in secondary school enrollment and to maximize the percentage of girls enrolled.

The MCC relies on data published by the UIS to determine its existing education indicators. The UIS likewise collects and publishes the data necessary to calculate the Girls' Secondary School Enrollment Rate indicator. Specifically, the UIS compiles and publishes data on the secondary school-age population and enrollment rates for females at the secondary level. The UIS likewise calculates the gender parity index for net enrollment rate at the secondary level. We are confident that the UIS, as the source for both of the MCC's current education indicators, offers high-quality data.

#### *Feasibility*

We do not anticipate that the Girls' Secondary School Enrollment Rate indicator would confront political opposition in low-income or lower middle-income countries. Through the Dakar Framework for Action and the Millennium Development Goals, governments have already openly expressed a commitment to the pursuit of gender equality in secondary education. The MCC already encourages countries to invest in girls' education, through the Girls' Primary Completion Rate indicator. We advise the MCC to now emphasize girls' secondary education, given that the private and public returns to a girl's secondary school enrollment exceed the returns from a completed primary education.

In Table 3, we summarize the impact and feasibility of each proposed change or new indicator.

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<sup>14</sup> The composite score may exceed 1, where girls' secondary school enrollment surpasses boys' enrollment. In such cases, the value of the composite score is truncated to 1.

**Table 3. Analysis of Gender-Sensitive Instruments for Economic Growth**

	Proposed Policy Instrument <sup>a</sup>	Proposed Change <sup>b</sup>	MCC Criteria <sup>c</sup>	Impact of Policy		Feasibility
				Economic Growth	Gender Sensitivity	
<b>Market</b>	Regulatory Quality*	No action	Mixed	---	---	---
	Business Start-Up*	Modified MCC	Strong	Unclear	Moderate to High	High
	Labor Force Participation and Wages					
	Childcare Access	No action	Mixed	---	---	---
	Credit Access	New	Strong	Moderate	Moderate	High
	Agriculture	No action	Weak	---	---	---
<b>Macro</b>	Trade Policy*	No action	---	---	---	---
	Inflation*	No action	---	---	---	---
	Fiscal Policy*	No action	---	---	---	---
	Gender-Responsive Budgeting	New	Moderate	Moderate to Big	High	Moderate
<b>Land Use</b>	Land Rights and Access*	Modified MCC	Moderate to Strong	Moderate	High	High
	Natural Resource Management*	Modified MCC	Strong	Moderate	Moderate	High
	Infrastructure Development	No action	Weak	---	---	---
<b>Health Services</b>	Immunization Rates *	No action	Weak	---	---	---
	Health Expenditures*	No action	Weak	---	---	---
	Maternal Health Services	New Women's Health indicator	Moderate	Big	High	High
	Reproductive Health Services					
	Cervical Cancer Screenings	No action	Weak	---	---	---
<b>Education</b>	Primary Education Expenditures*	Modified MCC	Moderate	Moderate to Big	High	Moderate
	Girls' Primary Completion Rate*	Replace MCC with secondary enrollment indicator	Strong	Big	High	High
	Girls' Secondary Education Enrollment Rate					

Source: Authors' Analysis

<sup>a</sup> For more discussion on proposed changes, see Section III; for discussion on unchanged indicators, see Appendix D.

<sup>b</sup> Change, when recommended, would modify existing MCC indicators, as opposed to the creation of an indicator.

<sup>c</sup> MCC favors indicators that are developed by an independent third party; utilize an analytically-rigorous methodology and objective, high-quality data; are publicly available; have broad country-coverage; are comparable across countries; have a clear theoretical or empirical link to economic growth and poverty reduction; are policy-linked; and have broad consistency in results from year to year.

\* Current MCC indicators are designated with an asterisk.

## RECOMMENDATIONS AND CONCLUSION

To enhance the gender sensitivity of existing indicators, we propose that the MCC supplement the Business Start-Up, Natural Resource Management, and Primary Education Expenditures indicators with additional measures for which sex-disaggregated data are available. Specifically, we recommend that the Business Start-Up indicator include a measure of women's economic participation and opportunity. For the Natural Resource Management indicator, we propose replacing the child mortality measure with an alternative measure of healthy life expectancy, as sex-disaggregated data for the latter are available. We also recommend a measure of environmentally related disease that is gender-sensitive in the diseases it considers and the data it employs. We recommend modifying the Primary School Expenditures indicator to include information on specific expenditures (i.e., female teachers and safe transportation) that encourage girls' equitable access to and outcomes of primary school.

We propose one additional modification to an existing indicator: namely, a reweighting of the Land Rights and Access indicator. In the near future, the data source for the rural property component of the indicator likely will be altered to reflect a more gender-sensitive approach. We recommend that the MCC change the weights of this indicator to more prominently highlight the gender-sensitive component.

In addition to these proposed modifications to existing indicators, we recommend that the MCC adopt four new indicators. For the Economic Freedom category, we propose the use of a Domestic Credit Market indicator and a Gender-Responsive Budgeting indicator. For the Investing in People category, we propose the use of a Women's Health indicator and a Girls' Secondary School Enrollment Rate indicator.

The Domestic Credit Market indicator encourages low-income and lower middle-income countries to expand credit availability. As women's access to credit increases, their capacity to participate equitably in the business and agricultural sectors will likewise improve. Our proposed Gender-Responsive Budgeting indicator relies on women's political participation as a proxy measure. As women engage in the political process, government expenditures on infrastructure, environmental management, and health (among other policy areas) will better reflect the distinct needs of women, rendering these investments more efficient and effective. Our Women's Health indicator includes both a maternal health component and a reproductive health component and thereby encourages economic growth through averted maternal deaths and lowered fertility rates. The Girls Secondary School Enrollment Rate indicator encourages low-income and lower middle-income countries to capitalize on the economic and social

outcomes of educating girls, including enhanced earning potential, delayed marriage and pregnancy, and improved maternal and child health.

We recognize that our proposed modifications and recommended indicators vary in terms of gender sensitivity and feasibility. Unlike our other proposals, the Domestic Credit Market indicator we suggest here is not gender-sensitive, due to data limitations. We have nonetheless determined that the inclusion of a Domestic Credit Market indicator is justified: women face particular constraints in accessing credit, and an absolute expansion of credit is likely to benefit women. Our proposed Girls' Secondary School Enrollment Rate indicator is unique in that it replaces the existing Girls' Primary Education Completion Rate indicator. We contend that this substitution is justified: our review of the literature clearly indicates that both the wage and non-wage returns to a girls' education are more pronounced at the secondary school level.

In sum, our overall recommendations reflect recent, high-quality research regarding the linkages between gender equality and economic growth and employs reliable, broadly representative data sources. Together, the four proposed modifications to existing indicators and the four proposed new indicators represent a feasible and effective means of improving the gender sensitivity of MCC indicators and of encouraging low-income and lower middle-income countries to pursue economic growth through gender equality.

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## APPENDICES

### APPENDIX A: INTERNATIONAL FINANCE CORPORATION'S ASSUMPTIONS ABOUT THE BUSINESS

Only entities meeting the following criteria are considered a "business" for the purpose of the Doing Business Survey. An entity is a business if it:

- Is a limited liability company. If there is more than one type of limited liability company in the economy, the limited liability form most popular among domestic firms is chosen. Information on the most popular form is obtained from incorporation lawyers or the statistical office.
- Operates in the economy's largest business city.
- Is 100% domestically owned and has 5 owners, none of whom is a legal entity.
- Has start-up capital of 10 times income per capita at the end of 2009, paid in cash.
- Performs general industrial or commercial activities, such as the production or sale to the public of products or services. The business does not perform foreign trade activities and does not handle products subject to a special tax regime, for example, liquor or tobacco. It is not using heavily polluting production processes.
- Leases the commercial plant and offices and is not a proprietor of real estate.
- Does not qualify for investment incentives or any special benefits.
- Has at least 10 and up to 50 employees 1 month after the commencement of operations, all of them nationals.
- Has a turnover of at least 100 times income per capita.
- Has a company deed 10 pages long.<sup>a</sup>

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<sup>a</sup> The bulleted content is quoted directly without change from World Bank, International Finance Corporation. (2011c). *Starting A Business Methodology*. Retrieved from Doing Business:<http://www.doingbusiness.org/methodology/starting-a-business>

## APPENDIX B: NEW DATA SOURCES USED IN SECTION III INDICATORS

In Table B-1, we briefly list new data sources for proposed changes or recommended indicators.

**Table B-1. Data Sources for Recommended Indicators**

Indicator	New Measure	Publisher	Link
Business Start-Up	Economic Participation and Opportunity Sub-Index	World Economic Forum	<a href="http://www.weforum.org/issues/global-gender-gap">http://www.weforum.org/issues/global-gender-gap</a>
Credit Markets	Total Domestic Credit as Percentage of GDP	World Bank	<a href="http://data.worldbank.org/indicator/FS.AST.DOMS.GD.ZS">http://data.worldbank.org/indicator/FS.AST.DOMS.GD.ZS</a>
Gender-Responsive Budgeting	Women's Share of Parliamentarians	UN Statistics Division	<a href="http://unstats.un.org/unsd/demographic/products/indwm/default.htm">http://unstats.un.org/unsd/demographic/products/indwm/default.htm</a>
Land Rights and Access	No change in data sources		
Natural Resource Management	Environmentally Related Diseases Mortality Rate	WHO	<a href="https://apps.who.int/infobase/">https://apps.who.int/infobase/</a>
	Equally Distributed Healthy Life Expectancy at Birth	UN Statistics Division	<a href="http://unstats.un.org/unsd/demographic/products/socind/health.htm">http://unstats.un.org/unsd/demographic/products/socind/health.htm</a>
Women's Health	Percentage of Births Attended by Skilled Health Personnel	UNICEF	<a href="http://www.unicef.org/sowc/">http://www.unicef.org/sowc/</a>
	Unmet Need for Family Planning	United Nations	<a href="http://www.un.org/esa/population/publications/wcu2010/WCP_2010/Data">http://www.un.org/esa/population/publications/wcu2010/WCP_2010/Data</a>
Primary Education Expenditures	Female Teachers as a Percentage of a Country's Teachers	World Bank World Development Indicators	<a href="http://data.worldbank.org/indicator/all">http://data.worldbank.org/indicator/all</a>
	Expenditures on Education-Related Transportation	Country-reported	
Girls' Secondary School Enrollment	Girls' Secondary School Enrollment Rate	UNESCO	<a href="http://stats.uis.unesco.org">http://stats.uis.unesco.org</a>
	Gender Parity Index in Secondary School Enrollment	UNESCO	<a href="http://stats.uis.unesco.org">http://stats.uis.unesco.org</a>

## **APPENDIX C: ALTERNATIVE POLICY INSTRUMENTS AND MEASURES**

In Appendix C, we provide additional information on alternative policy instruments and measures in the categories of market participation, macroeconomic policies, land use, and health services. We highlighted these policy instruments in Sections I and II; however, we did not include them in our Section III recommendations because high-quality data are not available, implementation is not feasible, or no change to the existing indicator is required. As data collection and dissemination improve, we believe that these alternatives may present important opportunities to encourage gender equality and promote economic growth.

### **A. MARKET PARTICIPATION AND GENDER EQUALITY**

#### ***MCC Indicator: Regulatory Quality***

Ideally, we would propose modifications to the current Regulatory Quality indicator to better incorporate gender-sensitive measures and ensure that the indicator is weighted to reflect the overall gender sensitivity of a given country's regulations. Because the current Regulatory Quality indicator is calculated independently by the Worldwide Governance Indicators project, any change to this indicator would require the MCC to compile the data and calculate the overall score for each country. Additionally, since the sources of the data used by Worldwide Governance Indicators are varied, the availability of sex-disaggregated data is unknown. Furthermore, the few areas in which sex-disaggregated data would be useful in determining gender equality in government regulation policies—labor market policies for wages and hiring practices, property title regulations, and business start-up administrative requirements—are all represented in other gender-sensitive indicator recommendations. Whereas changes to the existing indicator, through the use of sex-disaggregated data where applicable, could provide a more complete picture as to the gender equality of a government's regulations, we do not recommend any modifications given the difficulties in implementing such changes and potential redundancy in the outcome measured.

#### ***Labor Force Participation and Business Start-Up***

In Section III, we proposed the adoption of a modified Business Start-Up composite indicator that incorporates a gender-based measure of economic participation and opportunity. The alternate gender-sensitive measures we considered are discussed below.

#### ***Gender Empowerment Measure***

The Gender Empowerment Measure (GEM), computed by UNDP, captures gender inequality in three key areas: political participation and decision-making authority measured using the share of parliamentary seats by gender;

economic power and decision-making power measured by two indicators—share of legislators, senior officials, and managers and share of professional and technical positions by gender; and power over economic resources measured by share of earned income by gender.

The economic participation and opportunity sub-index that we recommend in Section III incorporates two of the three key areas covered by the Gender Empowerment Measure, as well as additional measures of economic participation it does not cover. Our recommended measure does not include the Gender Empowerment Measure of political participation and decision-making. We do not regard this exclusion as problematic, as the political participation and decision-making indicator does not directly measure the disparity in economic participation and opportunity. Additionally, we include a measure of women’s political participation under the proposed Gender-Responsive Budgeting (GRB) indicator.

### *Gender Equity Index*

The Gender Equity Index (GEI), calculated by Social Watch, measures gender inequality in three key areas: education; economic activity, and empowerment. The indicators that comprise economic activity and empowerment are relevant measures of women’s economic activity and opportunity. The economic activity measure comprises rate of economic activity and estimated perceived income. The empowerment measure comprises share of women in technical positions, in management and government positions, in parliament, and in ministerial level positions.

The economic participation and opportunity sub-index that we recommend in Section III incorporates nearly all of the relevant measures covered by the Gender Equity Index. Additionally, our proposed Business Start-Up indicator incorporates additional measures of economic participation the index does not cover.

### ***Childcare Access***

In Section I, we noted that access to affordable child care facilitates gender equality in the labor market, as women are relieved of some of their caretaker duties. We likewise highlighted that access to child care enhances girls’ secondary school enrollment rates, as adolescent girls are not compelled to care for younger siblings at home. Furthermore, when childcare programs provide nutritional supplementation or cognitive stimulation they constitute powerful vehicles for poverty alleviation and economic development.

Economists have confirmed that such early childhood development (ECD) programs represent a highly cost-effective intervention and have argued that the public returns to such programs necessitate government subsidies (Rolnick & Grunewald, 2003; Carneiro & Heckman, 2003). Research from the

United States confirms the long-term benefits associated with participation in an ECD program, in terms of improved educational achievement as well as important social outcomes (i.e., reduced incarceration rates, delayed pregnancy, and enhanced earning potential) (Schwienhart, 2005; Anderson, 2003; Ramey & Ramey, 1998).

The international community has likewise recognized the imperative of investing in ECD programs and frequently frames such investments in ECD as economic development initiatives (Spence Boocock, 1995). Low-income and lower middle-income countries have achieved success in implementing ECD programs. India has successfully enrolled nearly 40 million children in its Integrated Child Development Service program, at a cost of less than \$10 per year per child (Gupta & Sharma, 2006). A large-scale study of the program considers outcomes for 700 centers, which together provide services to nearly 14,000 and 5,000 women, and determines that expectant mothers are more likely to receive maternal healthcare (50 percent as compared to 37 percent of non-enrolled mothers). Participant children are more likely to be of normal weight (35 percent as compared to 37 percent of non-participant children) and less likely to be severely malnourished (11 percent as compared to 13 percent of non-participant children). Preschool education is offered in 56 percent of the Integrated Child Development Service centers in the sample. Preschool participation, in turn, is predictive of primary school enrollment: 89 percent of children who receive the preschool component continue on to primary school, while 52 percent of those who do not attend preschool enter primary school (Rao, 2005).

Since the 1970s, the Colombian government has funded home-based ECD programs. A recent evaluation of this intervention determines that children enrolled in the program are, on average, 2 centimeters taller than non-participants. Children who attend the program before primary school are 20 percent more likely to still be in school at ages 13 to 17. Importantly, the authors conclude that the program has a greater long-term impact on girls than boys. Furthermore, the program has a demonstrated effect on women's workforce participation rates, which increase from 12 percent to 37 percent, and the hours worked per month increase by 75 hours (Attanasio & Vera-Hernandez, 2004). These are but two examples of the many diverse and innovative ECD programs currently funded by low-income and lower middle-income countries.

Through the Dakar Framework for Action, countries have committed to expanding and improving ECD services and have engaged in efforts to monitor ECD programs internationally. Problematically, however, the measures employed by the Education for All (EFA) initiative do not adequately capture government commitment to ECD and are so general

so as to offer very little information about the quality of services provided (The Consultative Group on Early Childhood Care and Development, 2001).<sup>b</sup>

The UIS is exploring possible alternative measures of investment in the health, education, and well-being of young children. As this database is improved, we encourage the MCC to consider adopting an Early Childhood Development indicator.<sup>c</sup> ECD programs represent a powerful investment in people while simultaneously facilitating the goals of gender equality in the labor force and secondary education.

### ***Agriculture: Education and Extension***

Despite the importance of agricultural extension and education and some evidence to suggest that men are disproportionately recipients, there is no adequate measure available for most developing countries. Instead, it is more productive to consider agricultural extension and education as a demonstration of the importance of gender-responsive budgeting. Given data limitations, the most feasible measure of government investment in women's agricultural extension and education would likely be government investment in education, which is covered in other indicators.

### ***Agriculture: Traditional Gender Roles***

There is ample evidence of the limitations imposed by traditional gender roles; however, altering these norms requires dramatic social change. Research suggests that the most effective means of changing gender norms is to encourage women's ownership of assets (Quisumbing & Maluccio, 2000) and to improve women's education (Berkovitch, 1999; Seguino, 2007). As these two mechanisms already are included in other indicators, we do not

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<sup>b</sup> Presently, Education for All (EFA) relies on the following indicators: gross enrollment ratio in early childhood development programs and the percentage of new entrants to primary school who have attended some form of organized early childhood development program. These indicators are not conducive to comparisons across countries and are therefore not appropriate for the MCC. Comparisons of gross enrollment ratio are complicated as the ages eligible for services vary, the days and hours of operation vary, and the definition of what constitutes an ECD program varies. The second indicator, new entrants with ECD experience, is most often merely an estimate as the information is not actually collected in most countries (The Consultative Group on Early Childhood Care and Development, 2001).

<sup>c</sup> Ideally, this indicator would reflect the quality of services offered (by capturing the quality of interaction between the staff and children) or the outcomes of program participation (by measuring child development or school readiness). However, given that these measures cannot be readily defined cross-culturally nor easily monitored at a national level, proxies are required. We recommend one of the following alternative indicators: number of children per caregiver, disaggregated by the age of the children; average expenditure by government per child on ECD programs, as a percentage of gross national product per inhabitant; or the percentage of educational expenditures allocated to ECD programs. For additional information on ECD indicators and measures of quality, see (The Consultative Group on Early Childhood Care and Development, 2001; Myers, 2006).

recommend a new indicator here. Instead, we regard women's economic freedom as an additional justification for these indicators.

## **B. MACROECONOMIC POLICIES AND GENDER EQUALITY**

### ***MCC Indicator: Trade Policy***

The MCC would benefit from a trade indicator that better focuses on the capabilities and needs of low-income and lower middle-income countries to participate in world markets. An ideal indicator would measure levels of gender equality in economic opportunity (such as anti-discrimination laws) as a proxy for the economic efficiencies gained from gender equality in wage and employment.

The United Nations Conference on Trade and Development created a trade indicator that focuses on developing countries: the Trade and Development Index. The index measures trade policy in a way more appropriate for low-income and lower middle-income countries than tariffs and trade barriers alone. It includes one component based on the UN Gender and Development Index, as a proxy for gender equality in economic opportunity. The Trade and Development Index has been published only twice, in 2005 and 2007, and it is unclear whether it will be published regularly in the future. If the Trade and Development Index is published regularly and frequently, we recommend its adoption as a replacement for the MCC's current Trade Policy indicator.

### ***MCC Indicator: Inflation***

Despite the risks of overzealous inflation minimization described in Section II, the MCC's method of awarding grants likely renders this criticism irrelevant. By only measuring whether a country's score is above the median and not its overall ranking, the MCC does not provide an incentive to minimize inflation completely but only up to the median. Therefore, the current indicator only inflicts disproportionate difficulty on women if over half the countries in a peer group limit inflation to a degree that affects women's labor markets. As long as it does not appear that over half the members a peer group exhibit contractionary inflation minimization, the current indicator need not be changed.

## **C. LAND USE AND GENDER EQUALITY**

### ***MCC Indicator: Natural Resource Management***

In Sections I and II, we noted that women's political empowerment and participation, as well as women's education and knowledge sharing opportunities, represent gaps in the MCC's current evaluation of gender-sensitive Natural Resource Management (NRM) policy responses. However, because sex-disaggregated data for this area-specific education are not



presently available and the MCC already measures girls' education, we do not recommend creating an indicator at this time. Furthermore, because our proposed GRB indicator employs women's political empowerment as a proxy, that participation probably should not be double counted under NRM.

### ***Infrastructure Development***

In Section I, we observed that infrastructure development represents an opportunity for improving the gender sensitivity of economic policies. However, we also noted that the MCC already incorporates two infrastructure-related measures, access to improved water and access to improved sanitation, in the NRM indicator. Because data for infrastructure development are sparse, improving the gender sensitivity of existing indicators is not feasible at this time. We therefore recommend that the MCC continue to incorporate these infrastructure elements into the NRM indicator until improved, sex-disaggregated data sources of infrastructure development are identified.

## **D. HEALTH SERVICES AND GENDER EQUALITY**

### ***MCC Indicator: Immunization Rates***

In Section II, we noted that sex-disaggregated data for immunization rates are not currently available for most countries. As a consequence, the gender sensitivity of the Immunization Rates indicator cannot be readily improved.

### ***MCC Indicator: Health Expenditures***

As we outlined in Section II, the existing Health Expenditures indicator does not consider sex-disaggregated data and therefore does not permit a gender-sensitive analysis of government expenditures on healthcare. We indicated that the National Health Accounts data, presently employed to calculate the Health Expenditures indicator, could be supplemented with data from Reproductive Health subaccounts. Problematically, however, too few countries currently submit Reproductive Health subaccounts to the WHO to satisfy the MCC's criteria for data sources. As a consequence, revamping the Health Expenditures indicator to reflect women-specific expenditures is not feasible at this time.

The WHO highlights Reproductive Health subaccounts as a priority for action. We recommend that the MCC consult the WHO's database after a period of time to determine whether sufficient and accurate data on women's health expenditures are available. At that time, the MCC could consider eliminating the Women's Health indicator and instead restructure the Health Expenditures indicator to reflect gender-specific expenditures.

### ***Cervical Cancer Screenings***

Given the lack of high-quality data and the MCC's input that early detection and treatment of cervical cancer ought not to be prioritized over other pressing health concerns, we do not recommend the adoption of a new indicator pertaining to cervical cancer screening coverage.

Nevertheless, it is worth reiterating (see Section I: Health and Gender Equality) that maternal mortality claims 360,000 lives per year, while 300,000 women die from cervical cancer annually. Maternal mortality and deaths from cervical cancer affect economic growth in the same way—namely through the loss of a woman's life during her productive years—and to nearly the same degree. The international community has identified maternal mortality as a priority for joint action not only because maternal death represents a tragic loss of life, but also because these deaths are perceived as easily preventable. Similarly, early detection and treatment strategies for cervical cancer are inexpensive and highly effective.

The WHO is engaged in an effort to collect data on cervical cancer screening coverage (World Health Organization, 2007b). When sufficient data become available, we recommend that the MCC reconsider the Women's Health indicator and perhaps include cervical cancer screenings as an additional measure of women's equitable access to healthcare. Alternatively, were the MCC to incorporate the Reproductive Health subaccounts into its calculation of the Health Expenditures indicator (again, once such data become widely available), it would be appropriate to include government expenditures on cervical cancer screenings in that calculation.

## **APPENDIX D: WORLD ECONOMIC FORUM'S ECONOMIC PARTICIPATION AND OPPORTUNITY SUB-INDEX**

The Global Gender Gap Index is a metric computed by the World Economic Forum to capture the magnitude and scope of gender-based disparities in the world (Dresser, 2010). The index measures gender inequality in four categories: economic participation and opportunity, educational attainment, health and survival, and political empowerment. Each of these four sub-indices is assigned equal weight in the Global Gender Gap Index.

The economic participation and opportunity sub-index aims to capture gender inequality in participation, remuneration, and advancement. The participation gap is calculated as a ratio of female labor force participation over male values using data obtained from the International Labour Organization. The remuneration gap is measured using two data elements: 1) ratio of estimated female earned income over male earned income obtained from UNDP's Human Development Report, and 2) a qualitative variable that captures wage inequality for similar work calculated through the World Economic Forum's Executive Opinion Survey. Finally, the advancement gap is also captured through two data elements: 1) ratio of female legislators, senior officials, and managers over the male value, and 2) ratio of female professional and technical workers over the male value. Both of these variables are obtained from UNDP's Human Development Report.

Once the ratio of each of the five data elements associated with the economic participation and opportunity sub-index is calculated, the ratios are truncated at the equality benchmark such that countries where women have surpassed men receive a score of 1. The five variables are normalized by their standard deviation to assign weights to each variable in order to calculate the composite score for the sub-index. The final score of the sub-index is calculated using the ratio for each variable and the weights.

## **APPENDIX E: CALCULATION OF THE MODIFIED NATURAL RESOURCE MANAGEMENT INDICATOR**

In this appendix, we explain how to calculate the modified Natural Resource Management (NRM) indicator.

### ***Calculation of Equally Distributed Healthy Life Expectancy at Birth***

The United Nations Development Programme provides the following explanation for calculating the Gender-Related Development Index (GDI) for life expectancy:

“The GDI adjusts the average achievement to reflect the inequalities between men and women. The calculation of the GDI for life expectancy involves two steps.

First, female and male life expectancies are calculated according to this general formula:

$$\text{Dimension index} = \frac{\text{actual value} - \text{minimum value}}{\text{maximum value} - \text{minimum value}}$$

“Second, the female and male dimension indices are combined in a way that penalizes differences in achievement between men and women. The resulting index, referred to as the equally distributed index, is calculated according to this general formula:

Equally distributed index = {[female population share (female index<sup>-1</sup>)] + [male population share (male index<sup>-1</sup>)]<sup>-1</sup>} (United Nations Development Programme, 2008).

### ***Explanation of Disability Adjusted Life Year***

The World Health Organization provides the following explanation of the Disability-Adjusted Life Year (DALY) metric:

“Definition: One DALY can be thought of as one lost year of ‘healthy’ life. The sum of these DALYs across the population, or the burden of disease, can be thought of as a measurement of the gap between current health status and an ideal health situation where the entire population lives to an advanced age, free of disease and disability.” (World Health Organization, 2011a).

### ***Reconfiguration of Measures***

The NRM indicator “is computed as a standardized proximity-to-target for each of the measures in a scale of 0-100” (Socioeconomic Data and Applications Center, 2008). We must therefore reconfigure the newly

proposed measures of environmentally related diseases mortality rate and equally distributed healthy life expectancy at birth into the standardized proximity-to-target score, in order to combine these measures with the existing measures of the NRM indicator.

The Socioeconomic Data and Applications Center provides the following explanation for reconfiguring measures, in this case the child mortality measure:

“For child mortality, we compute the ratio of the measured probability of dying to the highest observed probability of dying, which is 0.141, and multiply that by 100 to make it comparable to the 0-100 scale used in the other measures. The proximity-to-target measure is this number, which ranges from 0-100, subtracted from 100.” (Socioeconomic Data and Applications Center, 2008)

#### *Reconfiguration of Equally Distributed Healthy Life Expectancy at Birth Measure*

The equally distributed healthy life expectancy at birth measure can be reconfigured to the proximity-to-target score metric in the following way:

$(\text{country's health life expectancy score} / \text{highest observed probability}) \times 100 = \text{proximity-to-target score}$

As an example: Country A's equally distributed healthy life expectancy at birth measure is 0.38 and the highest value of the equally distributed healthy life expectancy at birth indicator among all countries is 0.78. Country A's proximity-to-target score is:

$(0.38 / 0.78) \times 100 = 48.7$

The difference is that, unlike the environmentally related diseases mortality rate, the proximity-to-target score of equally distributed healthy life expectancy at birth measure should not be subtracted from 100. The reason is that unlike the environmentally related diseases mortality rate, for which the policy target should be the lower the better, the policy target of healthy life expectancy measure should be the higher the better. Therefore, dividing the country's health life expectancy score by the highest observed probability and converting it to the 0-100 scale already conveys the sense of proximity-to-target, thus the subtraction from 100 process should not be repeated for this measure.

#### *Reconfiguration of the Environmentally Related Diseases Mortality Rate*

A proximity-to-target score must be calculated for each component of the environmentally related diseases mortality rate. This can be best illustrated through an example. We will calculate the environmentally related diseases mortality rate for males in Country A:

First, the infectious and parasitic disease component:

Mortality rate for males in Country A: 539.6

Highest observed probability: 2,543.6

Proximity-to-target score:  $\{100 - [(539.6 / 2,543.6) \times 100]\} = 78.79$

Second, the respiratory infections component:

Mortality rate for males in Country A: 321.1

Highest observed probability: 430.0

Proximity-to-target score:  $\{100 - [(321.1 / 430.0) \times 100]\} = 25.33$

Third, the chronic obstructive pulmonary disease component:

Mortality rate for males in Country A: 91.0

Highest observed probability: 140.7

Proximity-to-target score:  $\{100 - [(91.0 / 140.7) \times 100]\} = 35.32$

Finally, the environmentally related diseases mortality rate for males in Country A is:

$[(78.79 + 25.33 + 35.32) / 3] = 46.48$

This process would be repeated to determine the environmentally related diseases mortality rate for women. Below, we assume a score of 42.3 for women.

### ***New Calculation of Natural Resources Management Indicator***

The two new components of the NRM indicator each account for 25 percent of the overall score. Because the environmentally related disease mortality rate measure is reported separately for men and women, each sub-component accounts for 12.5 percent. The three components of the existing indicator that are maintained (i.e., sanitation, water, and eco-region protection) together account for the remaining 50 percent. Thus, the NRM indicator is calculated as:

$\{(\text{equally distributed healthy life expectancy at birth score} \times .25) + (\text{environmentally-related disease mortality rate for males} \times .125) + (\text{environmentally-related disease mortality rate for females} \times .125) + [(\text{sanitation score} + \text{water score} + \text{eco-region protection score}) / 3 \times .5]\} = \text{Natural Resource Management score}$

As an example: For Country A, we have calculated an equally distributed healthy life expectancy at birth score of 48.7. Country A's environmentally related disease mortality rate score is 46.48 for males and 42.3 for females. Country A receives a score of 44.0 for sanitation, 77.0 for water, and 86.6 for eco-region protection. Country A's Natural Resource Management score is:

$\{(48.7 \times .25) + (46.48 \times .125) + (42.3 \times .125) + [(44.0 + 77.0 + 86.6) / 3] \times .5\} = 57.9$

## **APPENDIX F: CALCULATION OF THE WOMEN'S HEALTH INDICATOR**

In this appendix, we describe the unmet need for family planning measure and explain how to calculate the Women's Health indicator.

### ***Definition and Calculation of Unmet Need for Family Planning***

The United Nations Statistics Division provides the following, detailed definition of unmet need for family planning:

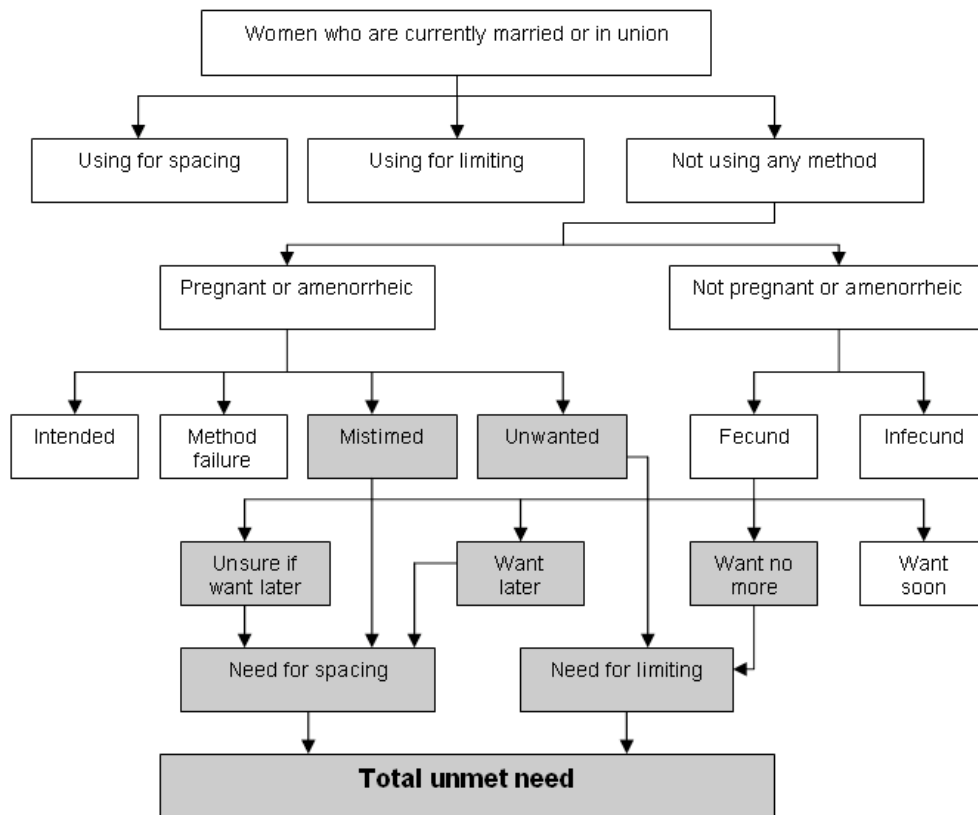
- The standard definition of unmet need for family planning, includes in the numerator:
  - All pregnant women (married or in consensual union) whose pregnancies were unwanted or mistimed at the time of conception.
  - All postpartum amenorrheic<sup>d</sup> women (married or in consensual union) who are not using family planning and whose last birth was unwanted or mistimed.
  - All fecund women (married or in consensual union) who are neither pregnant nor postpartum amenorrheic, and who either do not want any more children (limit), or who wish to postpone the birth of a child for at least two years or do not know when or if they want another child (spacing), but are not using any contraceptive method.
- Excluded from the numerator of the unmet need definition are pregnant and amenorrheic women who became pregnant unintentionally due to contraceptive method failure (these women are assumed to be in need of a better contraceptive method). Infecund women are also excluded from the definition. Women are assumed to be infecund if: They have been married for five or more years and:
  - They have not had a birth in the past five years and
  - They are not currently pregnant and
  - They have not used contraception within the preceding five years (or, if the timing of the last contraceptive use is not known, or if they have never used any kind of contraceptive method) or
  - They self-report that they are infecund, menopausal or have had a hysterectomy, or (for women who are not pregnant or in post-partum amenorrhea) if the last menstrual period occurred more than six months prior to the survey. <sup>e</sup>

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<sup>d</sup> Amenorrheic indicates the absence of a menstrual period in a woman of reproductive age.

<sup>e</sup> The bulleted content is quoted directly without change from: (United Nations Statistics Division, n.d.a).

Additionally, the United Nations Statistics Division provides the following flow diagram for the computation of unmet need for family planning.



Source: (United Nations Statistics Division, n.d.b). Based on C.F Westoff and L. H. Ochoa (1991). *Unmet Need and the Demand for Family Planning*, Comparative Studies No. 5. Demographic and Health Surveys, Institute for Resource Development, Macro International; and C.F Westoff and A. Bankole (1995). *Unmet need: 1990-1994*. DHS Comparative Report No. 16, Macro International.

### **Calculation of Women’s Health Indicator**

Calculation of the Women’s Health indicator is complicated somewhat by the fact that the aim is to maximize the maternal health measure (percentage of births attended by skilled health personnel) while minimizing the reproductive health measure (unmet need for family planning). Thus, the Women’s Health indicator is appropriately calculated as:

$$[\text{percentage of births attended by skilled health personnel} \times .5] + [(1 - \text{unmet need for family planning}) \times .5] = \text{Women’s Health score}$$

As an example: In Country B, skilled health personnel are present at 60 percent of births and 25 percent of women express an unmet need for family planning. Country B’s Women’s Health indicator is:

$$[.60 \times .5] + [(1 - .25) \times .5] = .675$$



## **APPENDIX G: CALCULATION OF THE PRIMARY SCHOOL EXPENDITURES INDICATOR**

In the modified Primary School Expenditures indicator, aggregate expenditures account for 75 percent of the indicator while the two new measures, female teachers and transportation provision, together account for the remaining 25 percent. As in the existing indicator, primary school expenditures are calculated as a percentage of a country's GDP:

$$[(\text{aggregate expenditures on primary school} / \text{GDP}) \times .75] + [\text{percent of teachers that are female} \times .125] + [\text{transportation score} \times .125] = \text{Primary School Expenditures score}$$

As we noted above, the transportation component is scored as: 0 percent = no transportation provision; 33 percent = transportation partially subsidized; 67 percent = transportation fully subsidized; 100 percent = transportation provided.

As an example: Country C spends 3.2 percent of its GDP on primary school expenditures. Fifty-five percent of Country C's teachers are female. Country C receives a score of 67 percent for fully subsidizing transportation for primary school students. Country C's Primary School Expenditures indicator is:

$$[.032 \times .75] + [.55 \times .125] + [.67 \times .125] = .1765$$

If an applicant country does not collect or report data on transportation provision for primary school students, the female teacher component accounts for the entire 25 percent. In this case, the indicator is calculated as:

$$[(\text{aggregate expenditures on primary school} / \text{GDP}) \times .75] + [\text{percent of teachers that are female} \times .25] = \text{Primary School Expenditures score}$$

As an example: Country D spends 3.2 percent of its GDP on primary school expenditures. Twenty-five percent of Country D's teachers are female. Country D does not report on transportation provision. Country D's Primary School Expenditures indicator is:

$$[.032 \times .75] + [.25 \times .25] = .0865$$