Does Foreign Aid Improve Gender Performance of Recipient Countries? Results from Structural Equation Analysis

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Abstract

Since the 1990s, one of the explicit goals of foreign aid has been the promotion of female empowerment and gender equality in developing countries. However, measuring the impact of foreign aid on these latent variables at the country level has never been attempted because of various methodological impediments. In this paper we use Structural Equation Models and global data from World Development Indicators (WDI), World Governance Indicators (WGI) and OECD's Credit Reporting System (CRS) to investigate if foreign aid has an impact on gender performance of recipient countries at the country level. Alongside our results, we also present some reflections for good practices in the promotion of gender mainstreaming in aid.

JEL classifications : O11, J16, C13
Keywords: female empowerment, structural equation model, foreign aid.

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1. Introduction

Gender entered the development dialogue over the period 1975-85 which came to be marked as the 'women's decade' In early 1990s, it gained prominence among the donor community, with several multi-lateral organizations, including the Organization for Economic Co-operation and Development (OECD), recognizing gender equality as a goal for development and pushing for increased assistance to be pledged for it (Richey, 2000). A Status Report of the Development Assistance Committee (DAC) in 1998 acknowledged that 'a focus on gender equality and women's empowerment in development cooperation' was 'a means to enhance the total effectiveness of foreign aid'. Although a vital goal on its own, there was a recognition that gender outcomes determined and were determined by economic outcomes. Following this report and an academic interest in the gender dimensions of economic policy, there were calls for gender 'mainstreaming' or the integration of gender sensitivity in all aid projects, programmes and policies (Elgström 2000). In a study commissioned by the OECD, 65% of responding donors indicated that their allocations to gender programs had also increased since 1999 (OECD 2007). Despite these efforts, foreign aid allocated for promotion of gender equality and human rights is only about 1 per cent of the global aid budget. According to the OECD-DAC database, of the total official aid of USD 159 billion, only USD 1.58 billion was allocated to organizations working directly for promotion of human rights and women's equality (sectors 15160 and 15170). Asking the donor community to invest more in these sectors will require a robust evaluation of the overall and relative effectiveness of different gender-targeted interventions. Such an evaluation can also help policy makers and donors allocate aid in the most efficient way to achieve gender equality. The main purpose of this paper is to evaluate the country level impact of foreign aid that targets female empowerment and gender equality.

The country level impact of foreign aid that targets favourable gender outcomes in recipient countries remains as yet an unexplored area. While evaluations at the program (micro) levels have been able to establish causal linkages between aid and gender outcomes through experimental and non-experimental methodologies, these linkages have proven trickier to establish at the country (macro) level for a number of reasons. In some sense, the difficulty in observing effects on country level gender outcomes run into the same difficulty researchers faced in observing consistent effects of aid on economic growth. Weak additionality and diverse timelines of maturity across different types of aid result in the lack of discernible changes in macro outcomes. In particular, aid towards gender equality is spread across multiple dimensions such as health, education and rural development. Furthermore, irrespective of how we define female empowerment and gender equality, both the concepts are themselves complex dynamic processes that are latent in certain observables that may or may not provide accurate representations of the underlying process. Finally, while it is intuitive to understand the empowerment process at the individual level within a household, an aggregated impact at the country level is complicated. The macro level impact is not merely the aggregated impact of all the foreign aid interventions: not only are there interactive effects and synergies of these multiple interventions directed towards various dimensions of female empowerment and gender equality, but different interventions trigger processes and impacts that have different period of maturation. For instance, a direct intervention in improving the economic status of women might show positive impact in a relatively short period. On the other hand, interventions directed towards changing social attitudes might take much longer to show a positive impact. Nevertheless, the estimation of macroeconomic impacts of aid towards gender equality is necessary to establish countrywide general equilibrium effects of development assistance.

This paper contributes to the aid effectiveness and gender equality literature by investigating the relationship between the foreign aid allocation and outcomes for women in recipient countries at the macro level. In order to gain insights into the transferability of aid programs we also conduct a comparative analysis of which factors are more effective in having a significantly positive impact of foreign aid on gender outcomes in the recipient countries. female empowerment and gender equality. This analysis is possible using the structural equation model (SEM) to estimate the impact of the latent factors (including quantity and type of foreign aid) on a latent outcome variable (gender performance of recipient countries) This global cross-country analysis is based on data from the World Development Indicators (WDI), World Governance Indicators (WGI) and the Credit Reporting System (CRS) from OECD for the year 2010.

There are three ways in which this paper contributes to the aid effectiveness and gender equality literature. First, it provides a scientifically robust estimation strategy to estimate the impact of foreign aid on latent variables like gender performance. The SEM analysis lends itself to estimate the effect of foreign aid directed towards gender performance at the macro (country) level, it is also replicable at micro (program, NGOs, community-based organization) and meso (by sector or region) levels and is suited for use by donors and implementing partners. Second, it investigates which of the latent factors (foreign aid, economic investment in women and governance and institutional factors) are most effective in having a positive impact on gender outcomes in recipient countries. We consider these factors to be latent as there are one or more observables that can be associated with each of the factor and that using any one as a proxy is likely to misrepresent its effectiveness in impacting on gender outcomes. Third, it enables us to effectively analyse the ordinal data, especially the information on the degree to which aid was used for gender related activities, as reported in OECD's Creditor Reporting System (CRS). Fourth, empirical results and the factor analysis at the country level, provide the donors and program implementers with easy to interpret results in determining which factors are effective in significantly impacting favourable gender outcomes and which countries have a greater potential to impact these outcomes. In this paper the focus is on global cross-sectional data but in future we hope to extend the SEM investigation to examine the dynamic impact using panel data, since empowerment and equality are processes that take effect over a period of time.

The remaining paper is structured as follows: Section 2 covers a review of earlier attempts to model relationships between aid and development outcomes, as well as empirical literature on gender equality, Section 3 details the empirical strategy and model. In section 4 we discuss the data used in detail. We present the results in Section 5, followed by a summary and brief discussion of the implications of the research in the final section.

2. What do we know about aid effectiveness so far? A brief review of literature

With very large sums being extended towards foreign aid, there is a pressing need for sound evaluation and monitoring of aid in order to justify requirements and identify best practices. Aid in the last 50 years has experienced varying degrees of success in achieving developmental goals. A large body of literature exists on the impact of foreign aid spending on economic growth as well as measures of development indicators such as health, education and gender equality.

The positive effects of aid on economic growth have been theoretically justified from the early 1960s (Rosenstein-Rodan and Narziss 1961) and continue to find support today (Sachs 2005). However, empirical studies since the 1960s relating economic growth to aid inflows at the macro level have famously found contradictory evidence supporting both positive and negative results which have themselves been subject to meta-analysis (Roodman 2007). Doucouliagos and Paldam (2009) identify three families of studies that attempt to evaluate relationships between aid and savings/investment (and indirectly on growth), aid and growth and conditional aid and growth. Using Harrod-Domar growth models, early studies showed that aid had a positive impact on savings and investment and hence indirectly on growth (Papanek 1972, Hansen and Tarp 2000). Studies by Dalgaard, Hansen and Tarp (2004) and Lensink and White (2001) supported the hypothesis that aid had largely positive average effects but diminishing effect on overall economic growth. A related finding that instability and low levels of aid inflows negatively influenced growth (Lensink and Morrissey 2000) contributed to the call for greater development assistance. In an influential study, Burnside and Dollar (2000) reported that aid spurred growth in countries with good policies and developed an optimal allocation of aid between countries based on policy scores. Effects on growth were also shown to be conditional on geographical location and institutions (Dalgaard, Hansen and Tarp 2004, Collier and Dollar 2004). These results however have been disputed by a number of studies that showed no significant relationships and even negative relationships working through the 'Dutch disease' and the weakening of institutions in the recipient country (Boone 1996, Rajan and Subramaniam 2008, Easterly 2006, Mosley 1987). The ineffectiveness of the Burnside-Dollar result was also established by studies that found no significant effect of the policy scores (Easterly, Levine and Roodman 2004).

In contrast, studies that have narrowed the scope to look at sectoral (meso) outcomes in health and education, have found more success in establishing a linkage between education aid and preschool enrolments (Birchler and Michaelowa 2013; Dreher, Nunnenkamp, and Thiele 2008; Michaelowa and Weber 2006) and health aid and infant mortality albeit with modest positive effects (Mishra and Newhouse 2009; Gomanee et al. 2005; Arndt et al. 2014). Micro level studies too have consistently established linkages between aid through development programs and outcomes through the proliferation of program evaluation methodologies such as RCTs (Duflo et al. 2007). It has been found that about 50% of programs work, and cause very little harm even upon failure (Cassen 1986, 1994). Doucouliagos and Paldam (2009) argue that a simple aggregation of these findings implies moderate average aid effectiveness at the macro level. However the absence of concrete evidence in studies using country level data has led to what is widely regarded as a "micro-macro paradox" (Mosley 1987; Clemens, Radelet and Bhavnani 2012; Ndikumana 2012).

Several reasons have been stated for the lack of macro evidence supporting independent program successes at the micro level. Aid levels or quantity do not indicate quality of aid or the implementation of assistance at the last mile in all programs. Aid efforts are often not integrated with one another, nor with facilitating private sector investment and institutions, becoming 'islands' in terms of impact and minimizing macro level effects (Ndikumana 2012, Killick 1998). There are also econometric issues (reverse causality) and publication bias (Bazzi and Clemens 2013; Roodman 2007).[1] Clemens et al. (2012) suggest that varying macro effects can be attributed to the different types of aid and the time lag under consideration. In most cases, aid was studied in relation to contemporary growth, while in reality the effects of aid are not visible immediately, and in the case of health and education, visible only much later. Clemens et al. were also able to reconcile the contradictory findings

[1] See Carter 2014 for a discussion on empirical models used in the study of foreign aid.

of three of the most influential aid-growth studies (Boone 1996; Burnside and Dollar 2000; Rajan and Subramaniam 2008) by conserving the original regression specifications in each study and additionally make relevant assumptions about the timing of the aid effect. They find that in all three studies, under these assumptions, increase in aid was followed on average by increase in investment and growth. This study has been considered as the start of a new "generation" of positive aid effectiveness literature along with studies such as Mekasha and Tarp (2013), Minoiu and Reddy (2010) and Arndt et al. (2014) that have reversed negative findings of previous literature such as Rajan and Subramaniam (2008) and Doucouliagos and Paldam (2009) with the use of better data treatment and assumptions. Following this study in 2012, a UNU-WIDER project (UNU-WIDER 2014) commissioned to combine the results of this new generation of comparable studies found that in all but two of the fourteen chosen studies since Rajan and Subramaniam (2008), aid's impact on growth was in the positive domain.

2.1 What is known about impact of aid on gender outcomes in recipient countries?

Despite the resurgence of support for foreign aid and positive evidence of aid effectiveness on social indicators both at the micro and macro levels, the effectiveness of aid in achieving gender equality and women's empowerment has been relatively understudied. Not only is there a relatively small portion of total aid channelled towards these goals, establishing and evaluating the progress made on gender equality is ridden with several challenges.

The first attempts to evaluate progress in gender equality were associated with gender aware studies on the co-dependence of women's agency and economic growth (World Bank, 2011; Klugman et al., 2014).[2] The theory for this literature developed since the early classical growth models of Solow and Arthur Lewis where inequality of opportunity for women was sparingly mentioned as a source of untapped labour supply (Solow 1956, Lewis 1954). With the New Growth Theory however, studies began to accord more attention towards the role of inequality (in gender and otherwise) in constraining economic growth through misallocations of labour that did not maximize productivity and reduced the incentive to innovate (Aghion, Caroli and Garcia-Penalosa 1999; Alesina and Rodrik 1991). Several empirical macro studies were conducted on the effects of misallocation in employment and education (Klasen 2002; Klasen and Lamanna 2009; Knowles; Lorgelly and Owen 2002; Hill and King 1995, Tzannatos 1999). Micro studies have related women's empowerment to higher growth through reduced child mortality and malnutrition, more socially responsible spending, increased education and "quality over quantity" of children, and higher capital-to-labour ratios (Haddad, Hoddinott and Alderman 1997; Galor and Weill 1993; World Bank 2001). Policies granting women equal property rights were projected as way to reallocate resources efficiently (Duflo 2005).

Important theoretical and empirical contributions have been made by feminist economists in identifying the causes for the persistence of inequality despite the inefficiency of misallocation even in industrial and high-growth economies. Gender inequalities (as well as other within-group inequalities across race and class) continue to persist and even increase around the world due to the uneven distributional consequences of deregulation and liberalization (Ravallion 2001, Milanovic 2005, Elson and Cagatay 2000). Women's lower wages in export sectors have been the major source of foreign exchange earnings for developing countries like those in East Asia that heavily relied on exports to boost balance of

[2] See Braunstein (2008) and Berik, Rodgers and Seguino (2009) for an extensive review of earlier literature.

payments and enter a higher growth regime (Seguino 2000; Berik, Rodgers and Zveglich 2004). Another cited reason is of rent-seeking by men who gain from the perpetration of inequality that yields personal gain despite the social cost (Sen 1990; Braunstein 2008). Inequality has been known to boost macroeconomic indicators in certain cases (Stotsky 2006; Berik and Rodgers 2008). Additionally, studies have shown that policies to stimulate economic investment and employment that have often accompanied development assistance, although gender neutral in intent, tend to in fact have disadvantageous gendered effects. For example, structural adjustment policies, despite increasing employment have tended to foster informal jobs and poorer working conditions among women (Beneria and Feldman 1992; Sparr 1994). CGE models that have been modified to incorporate women's unpaid work and power relations have shown that trade reforms have led to wider gaps between genders of domestic workloads, literacy and infant mortality (Siddiqui 2009). Braunstein and Heintz (2008) showed that inflation-reducing monetary policies have disproportionately larger impacts on men as compared to women. A sound evaluation of aid effects on gender equality and women's empowerment is hence essential to monitor whether programs have generated gender neutral or equality enhancing outcomes towards the attainment of MDG3 and sustained inclusive economic growth.

Researchers evaluating macroeconomic impacts of growth have traditionally measured impacts on types and conditions of labour force participation rates, wage differentials (Seguino 2000), time allocation by gender (Koopmans 2009), political participation, educational and health indicators. In addition, gendered social accounting matrix (SAM), computable general equilibrium models (CGE), overlapping generations models (OLG) and a wide variety of regression and decomposition techniques have been employed to establish causal relationships (Berik, Rodgers and Seguino 2008; Agenor, Canuto and da Silva 2010). Impact evaluations studying the effect of development assistance through specific gender based interventions such as gender-based quotas, training and education, conditional cash transfers have found positive impacts on weakening of stereotypes, intra household gender equality and better social outcomes (Chattopadhyay and Duflo 2004; Beaman et al 2008, Adato and Hoddinnott 2007). However, general equilibrium effects of aid programs on gender equality at a macro level are trickier to estimate for a number of reasons. Firstly, irrespective of how we define favourable gender performance, this concept cannot be directly observed or measured, i.e. it is a latent variable in certain measurable indicators. Secondly, for the very reasons that measuring economic growth outcomes of aid has proven difficult at the macro level, gender effects are also weakly observable due to the weak 'additionality' of aid programs (Ndikumana 2012). In addition to this, aid directed towards gender is multi-dimensional and often intersects with sectors like health, education, maternal and child-care, rural development etc. Not only do these interventions target different dimensions of gender equality, they also trigger different processes and outcomes over different timelines. Direct interventions designed to assist women or provide them with resources may show impacts in the short run, whereas interventions designed to change social attitudes, may have longer periods of maturation.

Some of the main problem in evaluating the foreign aid impact on gender outcomes at the macro-level is the general lack of data. It is also unclear exactly how gender focused foreign aid impacts gender outcomes like women's empowerment and gender inequality. The role of foreign aid in achieving favourable outcomes for women has been to effectively implement and move aid increasingly into national (recipient) government budgets, with the recipient government's undertaking the responsibility to improve outcomes for women (Campbell and Teghtsoonian 2010). Like any typical foreign aid implementation this involves the principal agent problem. Even if the gender-focused foreign aid is implemented in programs for

women's development, it could work through various sectors or through different mechanisms. For instance, if gender focused foreign aid is used in the education (health) sectors they could possibly impact, for instance, the net enrollment rate (child mortality rate). This would impact one aspect of gender performance of the recipient country. Another program could focus on raising income of females through microfinance intervention. This may lead to economic empowerment of females and have impact on female and male children's education and nutrition level. Moreover, the macro level investigation on the perception of empowerment and female inequality is socio-cultural specific and may vary from country to country.[3]

Nevertheless, researchers in both development and policy organizations as well as in academia have attempted to measure macro level responses by using a variety of indicators and empirical models. The Paris Declaration on Aid Effectiveness and Gender Equality (Gaynor 2007) incorporated 12 indicators and targets to monitor a countries' progress in response to development assistance. Most gender empowerment and inequality measures use the index approach where these empowerment indicators are weighted, ratios and/or summed in an aggregate score that represents the a composite basket of empowerment index. The most commonly used measures are indices derived from a composite basket of empowerment indicators such as the Gender Empowerment Measure (GEM), Gender Development Index (GDI) and the Gender Inequality Index (GII). The GEM and GDI indicators were created alongside the UNDP Human Development Report of 1995. The GEM index attempts to represent the extent to which 'women are able to actively participate in economic and political life and take part in decision-making' (UNDP 1995), and measures gender inequality using three basic indicators: proportion of seats held by women in national parliaments, percentage of women in economic decision making positions (including administrative, managerial, professional and technical occupations) and female share of income (earned incomes of males vs. females). GDI negatively corrects for gender inequality in the three dimensions of the HDI: i.e. life expectancy, education and incomes. Although index representations of development in general have been criticised due to concerns over the usefulness of aggregating across indicators, the GEM and GDI have been especially debated based on their narrowness in scope and difficulty of interpretation (Klasen 2006, Bardhan and Klasen 1999, Permanyer 2013, Beneria and Permanyer 2010).[4] For instance, the values of GDI serve as a measure of gender gaps, but do not throw light on their relative importance and consequences in different countries. The GEM's indicators of political participation are not indicative of decision making power or the equality at lower levels of government, or whether representation in parliament indeed leads to more gender equitable policy (Klasen, 2011) Klasen, Schuler and Betata, 2007).

To counter some of these shortcomings the UNDP introduced the GII to measure gender disparity. The GII captures the loss of achievement within a country due to gender inequality. The measures it uses are reproductive health, empowerment, and labor market participation. Two indicators measure the GII's dimension of reproductive health: the Maternal Mortality Ratio (MMR) and the adolescent fertility rate (AFR).[5] The share of parliamentary seats held by each sex and higher education attainment levels are the two empowerment indicators.[6]

[3] ICRW (2005) argues that gender inequality is entrenched in social institutions and market forces that vary from community to community in different countries.

[4] GEM also ignores aspects of female empowerment related to the issue of female control over their bodies and sexuality and deemed to be largely dependent on its income component (Klasen 2011, Klasen and Schuler, Betata 2007).

Due to data limitations, the economic aspects of gender inequality are measured by labor market participation. It is measured by women's participation in the workforce and accounts for paid work, unpaid work, and actively looking for work (UNDP 2010).[7] According to UNDP, these dimensions are not dependent on the country's development and thus a less-developed country can perform well if gender inequality is low. The GII index is also association-sensitive, thus ensuring that high achievement in one dimension does not compensate for low achievement in another dimension (UNDP 2010). Klasen and Schuler (2011) and Permanyer (2011) have argued that GII index is complex, which makes it difficult to interpret. The complexity is further multiplied by use of absolute and relative indicators, lack of transparency and the use of arithmetic means of ratios. The regional relevance of the indicators are also criticised as health indicators are influenced by socio-economic levels, public health policies or social and cultural practices. Finally, the GII has also been criticised for its failure to capture the informal work and unpaid domestic or care work where women are over-represented.

In this study, we propose to use the observable indicators used to compute these indices (GEM, GDI and GII) with factor analysis method to estimate the latent female empowerment/ gender inequality factor. Using these observed indicators allow us to cover the various empowerment dimensions without the disadvantages of the index indicators.

Our main objective is to investigate how and why the gender-related aid empowers women and/or decreases inequality. UNU-WIDER's ReCom effort has seen a few recent studies tackle the estimation of the impacts of foreign aid on gender equality with largely positive results (Dreher, Gehring and Klasen 2013; Pickbourn and Ndikumana 2013). We contribute to this literature of country level aid effectiveness on gender outcomes in recipient countries in two ways. Firstly, we make use of a factor analysis model that does not rely on the imperfect index measurements of gender inequality, but rather on the directly observable dimensions of latent gender performance: adolescent fertility rate, maternal mortality ratio and proportion of seats held by women in national parliament (see Table 1). Secondly, in order to gain insights into the transferability of aid programs, we conduct a comparative analysis of factors (such as foreign aid, economic, investment in women and governance and institutional factors) to identify which of them are most effective in having a significantly positive impact of foreign aid on female empowerment and gender equality. We employ a country level Structural Equation Model (SEM) to model the relationship between latent factors and latent outcomes. The model we use is replicable at the micro (program) and meso (sectoral) levels as well, is easily interpretable and of direct utility to donors and program implementers. This global cross-country analysis is based on data from the World Development Indicators (WDI), World Governance Indicators (WGI) and the Credit Reporting System (CRS) from OECD for the year 2010. These are presented and discussed in greater detail in section 4.

3. Estimation Strategy and Empirical Model

Structural Equation Modelling is a relatively young field compared to regression and factor analysis and is quickly gaining popularity and applicability in a wide variety of disciplines. Structural Equation Models (SEMs) are a group of probabilistic models that attempt to draw

linear cause-effect relationships across multiple specified pathways. SEM uses a variety of statistical techniques to infer these relationships, although mainly involving comparisons of covariance structures. One of the primary advantages of these models is that they enable the investigation of the relationships between two latent constructs that are represented by a multitude of observable measurements (such as the impact of foreign aid directed towards female empowerment, and inequality) (Pui-Wa and Wu 2007). SEM involves the estimation of two models – a measurement model that uses techniques such as factor analysis to establish or confirm the number of observable indicators that explain a latent construct, and a structural model in which the structural relations between the observed variables are modelled.

The impact of the various latent factors on Gender Empowerment as a structural equation model is estimated. A path diagram as shown in Figure 1 can graphically represent the model. The model consists of two component models, a measurement and a structural component. The measurement model measures the latent gender performance variable (*Ys*) and the various latent component factors including foreign aid (*Xs*) using observed indicators. In Figure 1 these measures are observed in the left hand side and right hand side extremes of the diagram. The structural model is indicated by the middle part of the path diagram. The straight single-headed arrows represent the causal relation between the latent foreign aid, economic and non-economic factors and the latent gender performance variable (*We*).

[Figure 1 about here]

The path diagram in Figure 1 corresponds to the following simultaneous equations system (see Jöreskog and Sörbom 1999).

$$\mathbf{x} = \Lambda^{\mathbf{x}}\xi + \delta \qquad (1)$$

$$\mathbf{y} = \Lambda^{\mathbf{y}}\eta + \varepsilon \qquad (2)$$

$$\eta = \Gamma\xi + \zeta \qquad (3)$$

Equation (1) represents the measurement model for the latent components of gender performance of recipient country (ξ), where x is the vector of measures for the latent component of female empowerment, Λx is the vector of factor loadings and δ is the vector of measurement errors associated with the respective indicators. This measurement model corresponds to the left side of the path diagram (Figure 1). The latent female empowerment is denoted by η and is measured by the indicator vector y as given by equation (2), where Λy is the vector of factor loadings and ε is the vector of measurement errors associated with y. This measurement model corresponds to the right side of Figure 1. Equation (3) is the structural equation model that indicates that the latent female empowerment (η) depends on the vector of latent component (ξ), or the factors, where Γ is the vector of latent regression coefficients and ζ is the error term. The statistical significance of the latent regression coefficients thus indicates which latent component has a significant impact on gender performance of recipient countries.

The model is suitable for estimation other units of analysis other than country level impact, such as at the micro or regional level by altering the observable indicators for female

empowerment and the latent component factors. It thus lends itself to analysis of impacts of programs at the government program, NGO or community organisation level.

The estimation method used to analyses women's empowerment data follows the Robust Maximum Likelihood (RML) method. The RML uses the following fit function

$$F(\theta) = \log \| \Sigma \| + tr(S\Sigma^{-1}) - \log(S) - k - (\bar{z} - \mu)' \Sigma^{-1} (\bar{z} - \mu) \qquad (4)$$

where z is the vector of the observed responses (containing both y and x). Σ is the population matrix of polychoric correlation and S is corresponding sample polychoric correlation matrix. Central to the development of the traditional maximum likelihood estimator is the assumption that the observations are derived from a population that follows a multivariate normal distribution. This assumption is not valid when the data is ordinal. Violation of this assumption leads to wrongly estimated standard errors and chi-square. In order to correct for this we adopt RML using asymptotic covariance matrix to estimate the correct standard errors and chi-squares under the non-normality (caused by ordinality).

3.2 Factor Analysis using ordinal variables

In reporting to the Development Assistance Committee (DAC) Creditor Reporting System (CRS), donors of aid are requested to report the targets for their development program activities. An activity is classified as 'gender equality focussed', if it explicitly targets gender equality and women's empowerment as its 'principal objective' or as a 'significant objective'. A 'principal score' of 2 is assigned if gender equality was an explicit objective of the activity and fundamental to its design - i.e. the activity would not have been undertaken without this objective. A 'significant score' of 1 is assigned if gender equality was an important, but secondary, objective of the activity - i.e. it was not the principal reason for undertaking the activity. A 'not targeted score' of 0 is assigned if, after being screened against the gender equality policy marker, an activity is not found to target gender equality. This measure of aid allocation is ordinal in that data represents responses to a set of ordered categories, a specific category is assumed to have more of a 'character' than another category, the variable does not have origins nor units of measurements and its means, variances and covariances have no meaning.

The use of ordinal variables in structural equation models and longitudinal studies requires specific techniques and procedures that differ from those employed for continuous variables. Observed indicators of the latent construct, such as an indicator of whether foreign aid is directed towards female empowerment, are in discrete ordinal form and hence by nature do not lend themselves to standard factor analysis modelling. Moreover, longitudinal data tend to have measurement errors that are correlated over time due to specific factors like memory or other retests effects. It is thus important to consider models that adequately deal with correlated measurement errors. We employ a latent response distribution function to carry out factor analysis of the determinants of foreign aid towards outcomes for women in recipient countries.

A latent response distribution is an unobserved univariate continuous distribution that generates an observed ordinal distribution (Jöreskog 2002). That is, for each ordinal variable say *y*, we assume that there is an underlying continuous variable *y** that represents the same attitude of the ordinal responses to *y* and is assumed to have a range from -∞ to +∞. It is this underlying variable *y** that is used in structural equation modelling, and not the observed ordinal variable *y*. The underlying variable assigns a metric to the ordinal variable. The

relationship between an underlying continuous variable *y** and an observed ordinal variable *y* is formalized as expressed below.

If y has m categories labelled 1, 2, …, m, the relationship between y and y* is

$$y = i \Leftrightarrow \tau_{i-1} < y^* < \tau_i, \qquad i = 1, 2, \ldots, m$$

where $-\infty = \tau_0 < \tau_1 < \tau_2 < \ldots < \tau_{m-1} < \tau_m = +\infty$ are 'threshold values' as parameters defining the categories *i*. With m categories, there are *m-1* threshold parameters $\tau_1, \tau_2, \ldots, \tau_{m-1}$. In order to estimate the threshold parameters, we make an assumption on the distribution of *y**. Since *y* is ordinal, the distribution of *y** is determined only up to a monotonic transformation and a standard normal distribution with density function $\varphi(u)$ and distribution function $\Phi(u)$ is chosen for *y** . The probability of a response in category *i* is given by

$$\pi_i = P(z = i) = P(\tau_{i-1} < z^* < \tau_i) = \int_{\tau_{i-1}}^{\tau_i} \varphi(u)\,du = \Phi(\tau_i) - \Phi(\tau_{i-1}),$$

where $\tau_i = \Phi^{-1}(\pi_1 + \pi_2 + \ldots + \pi_i), \qquad i = 1, \ldots, m-1,$

πi's are unknown population probabilities of a response in category *i* and can be estimated consistently by the corresponding percentage *pi* of observed responses in category *I* such that

$$\hat{\tau}_i = \Phi^{-1}(p_1 + p_2 + \ldots + p_i), \qquad i = 1, 2, \ldots, m-1.$$

where (*p1 + p2 +…+ pi*) is the proportion of cases in the sample responding in a given category *i* or lower. We estimate $\hat{\tau}_i$ as the maximum likelihood estimator of πi based on the univariate marginal sample data.

4. Data and descriptive statistics

The analysis in this paper is based on data from the World Development Indicators that is compiled from officially recognised international sources. This global development data has been merged with the data from the Organisation for Economic Co-operation and Development (OEDC) Creditor reporting system (CRS) in constant USD 2010. Additional data on governance is added from the World Governance Indicators (WGI), a research dataset produced by Daniel Kaufmann (Brookings Institution), Aart Kraay (World Bank Development Research Group) and Massimo Mastruzzi (World Bank Institute). Our cross-sectional SEM analysis is based on disbursement (not commitment) data for the year 2010 in constant USD 2011. A brief description of the observed indicator variables used in the SEM model along with their sources is given in Table 1. Where relevant, this table also touches upon issues of measurement and justification of variables used for construct of latent variables.

The observed indicators used to construct the latent gender performance variable include Adolescent Fertility Rate (AFR), Maternal Mortality Ratio (MMR) and Women in Parliament (WiP: proportion of seats held by women in national parliament). The latent component constructs include Foreign Aid, Economic Factors, Investment for Women and Governance and Institutions. These are represented by observed indicators such as the latent Foreign Aid variable is represented by Net Overseas Development Aid received (% of GNI) and scores of aid directed towards gender aid as explained in Section 3.2; the variable Economy is represented by GDP per capita, total health expenditure and percentage of population with access to an improved water source; the variable Investment for Women is measured by the percentage of population with access to improved sanitary facilities and finally, the latent

variable of Governance and Institutions were constructed using indicators of government efficiency, rule of law and voice and accountability.

<Table 1 somewhere here>

Tables 2 and 3 present the descriptive statistics on the levels and the distribution of Official Development Assistance (ODA) consisting of both bilateral and multi-lateral aid over various gender related activities. The majority of the DAC Aid in 2010 was disbursed to some of the poorest regions of world (Table 2, column 1), more specifically Sub-Saharan Africa (41.6 per cent) and South and Central Asia (21.5 per cent). Other regions received a relatively smaller fraction of DAC foreign aid.

Table 2 also presents the proportion of regional bilateral aid targeting gender related projects. As discussed earlier DAC's CRS disbursement data requests donors to indicate for each activity whether or not it targets gender equality as one of its policy objectives.[8] Scores of 2, 1 and 0 are assigned based on whether the activity targets gender equality as its principal objective[9]; as an important, but secondary, objective of the activity - i.e. it was not the principal reason for undertaking the activity; or does not target gender equality. According to the figures in Table 2 (columns 2 and 3) a relatively large proportion of the total bilateral aid was directed towards activities with *significant* (a score of 1) gender score. For example, about half of the total regional aid in Africa (North of Sahara) had a *significant* gender objective score, whereas, nearly 5 percent of the regional bilateral aid was directed towards activities that were reported to have a *principal* (a score of 2) gender objective score. Africa-South of Sahara, also had more than one-fourth of regional bilateral aid reporting a *significant* gender activity and 6 percent as *principal* gender activity. South American activities also show a substantial gender focus. However, South and Central Asia, North and Central America and the Middle East had relatively smaller proportion of gender related aid activity.

The specific nature of activities to which foreign aid was channeled is presented in Table 3. Education was the main targeted activity for the gender related bilateral aid overall, accounting for 5.46% of total aid allocations. Production sectors were the second most preferred for the gender aid in North and Central America, South America, South and Central Asia and Far East Asia. Sub Saharan Africa's secondary focus was on commodity aid and general program assistance. The Health sector focus was more prominent for Africa (North of Sahara) and Oceania. Humanitarian aid was an important part of gender aid activities for North and Central America and Middle East. Overall however, it is reasonable to conclude that even though gender is an important component of aid it is not a significant proportion of its principle objective and is mostly included as a secondary objective.

<Table 2 somewhere here>

[8] The gender equality marker allows an approximate quantification of aid flows that target gender equality as a policy objective. In marker data presentations the figures for principal and significant objectives should be shown separately and the sum referred to as the "estimate" or "upper bound" of gender equality-focussed aid.
An activity can have more than one principal or significant objective. Therefore, total amounts targeting the different objectives should not be added-up to avoid double counting.

[9] Activities assigned a "principal objective" score should not be considered better than activities assigned a "significant objective" score, as donors that mainstream gender equality - and thus integrate it into their projects across a range of sectors - are more likely to allocate the marker score "significant" to their aid activities.

<Table 3 somewhere here>

5. Results from the Structural Equation Models

This section presents the main results of the SEMs for the impact of foreign aid on gender performance in recipient countries and determines which of the latent factors have a significant impact on gender indicators. We first examine the results from the measurement model, which specifies how the latent variables are measured in terms of the observed variables and describes their reliability and validity. Table 4 provides the estimated parameters of the measurement model for gender performance and factors of gender performance.[10] The coefficients indicate the linear causal relationship between the observed variables and the latent factors. The statistical significance of the coefficient indicates that the observed variables dependably measure the latent variables. All but one of the observable variables used to measure the latent variables are significant at the 1% level, which suggests they are very reliable indicators of the latent constructs. The only exception is the Maternal Mortality Rate, which is significant at the 5% level, which means it is still a fairy good indicator to use in the construct of gender performance.

Table 5 presents the parameter estimates and some of the fit indices for the structural model of gender performance. These coefficients are standardised and may thus be interpreted on both significance and magnitude. The fit of the structural equation model can be assessed by examining the Satorra-Bentler scaled chi-square goodness of fit index, the Root Mean Square Error of Approximation (RMSEA) and the Normed Fit Index (NFI). The RMSEA considers the error of approximation in the population and finds how well the model, with unknown but optimally chosen parameter values, fits the population covariance matrix. The NFI is a measure that rescales chi-square to compare a restricted model with a full model using an arbitrary baseline null model. The fit indices reveal that the model has a good approximate fit, which implies that our estimates are reliable.

The results show that at the macro level foreign aid does not have a significant impact on improving the indicators used to measure gender performance in a country. This result is not surprising given that the scale and quality of foreign aid targeted on women was limited. In spite of best intentions, a very small proportion of gender related intervention was a principal intervention strategy where gender empowerment or related issues were the main objective. For the majority of the aid interventions, gender was relegated to the secondary place. Our evidence further show that none of the latent explanatory variables used in the model have a significantly positive impact on gender indicators of aid recipient countries. In fact, we find that investments in improved sanitation are seen to have a negative impact on gender performance. This is an unexpected results as improved sanitation measures are likely to help

[10] In addition to the observed indicators used for estimating the results presented here, we have also estimated the following other observed indicators to measure the latent factors: Gender Performance: CPIA gender equality, social inclusion, contraceptive prevalence, female legislators local, fertility rate; Foreign Aid: gender aid principal, total sector aid for gender; Economy: labour force participation rate (female), ratio of female to male labour force, public expenditure on education, ratio of female to male primary and secondary education, girls to boys primary education ratio; Investment for Women: improved water source for women; Macro Stability: inflation; Governance and institutional factors: property rights, control corruption, political stability, regulatory quality; and interaction between Governance and foreign aid. These results are available upon request

women (along with the general population) – but this result perhaps suggests that interventions that do not address women's concerns more directly are not only ineffectual in help improve their overall status, but could actually be detrimental to them. It is also plausible that inadequate sanitation facilities (quantity and quality) are generally ineffectual in changing habits or in influencing behaviour, especially with respect to work and education (Dolan et al. 2014; Boudot and Garikipati, 2016). Our results seem to suggest that to successfully change gender status quo, interventions need to more directly target the observable variables that represent women's status in recipient countries – i.e., to be successful interventions may need to directly aim to improve maternal mortality rate or enhance women's participation in government. Data on such specific investments at the country level are difficult to find and it is not evident that any of the reputed data agencies are keen on gathering the relevant information. Unless data availability in this area improves, it is unlikely that the links between aid, investment in women and outcomes for women can be established in a statistically robust manner.

There are other limitations to our analysis. One of the major challenges we faced when estimating our results was that the sample size is relatively small at 100. Secondly, the data is limited for various variables which constraints the number of observed indicators that can be used for estimation in the measurement model. It was nearly impossible to do a panel analysis because even if some of the variables are fairly well reported for a few years, other variables have a large number of missing values, which results in the observation (country) being dropped completely.

<Table 4 somewhere here>

<Table 5 somewhere here>

6. Summary

Women's empowerment and gender equality have gained tremendous momentum in the recent development discourse. The association of women's agency with human development is heralded by the development literature and for many it is the nearest thing there is to a silver-bullet for human development (World Bank, 2011; Klugman et al., 2014). This association between women's agency and human development was the main reason behind the call for gender "mainstreaming" in foreign aid projects and donor commitment to increase aid allocations to gender programs (OECD 2007). Asking the donor community to invest more in gender performance of recipient countries requires a robust evaluation of the overall and relative effectiveness of different gender-targeted interventions. So far such an evaluation at the country level has proven difficult mainly due to the methodological issues involved.

One of the difficulties is that gender performance itself is a latent variable that is not itself observable but requires to be derived from observed indicators of performance. Finding robust indicators that would usefully estimate gender performance of recipient countries is in itself a challenge. In this study, we use Structural Equation Method to measure the impact of foreign aid on gender performance of recipient countries. This is an appropriate method for our analysis because the variable of interest – gender performance – is a latent variable and many of the underlying influences are also unobservable. We use three widely used indicators

that are effective in quantifying women's agency at the country level: Adolescent Fertility Rate, Maternal Mortality Rate and proportion of seats held by Women in Parliament. These three indicators have been used in creation of various gender indices – but we use them directly thus overcoming any shortcomings of index measures. We further use other factors to construct latent determinants of gender performance in recipient countries, which includes Foreign Aid, the state of the Economy, Investment for Women, Governance and Institutions.

Our results are somewhat depressing – in that they suggest that Foreign Aid and indeed all the other factors that we consider do not positively influence gender indicators in the recipient countries. In fact our results seem to suggest that to successfully change gender status quo, interventions need to more directly target the observable variables that represent women's status in recipient countries – i.e., to be successful interventions may need to directly aim to improve maternal mortality rate or enhance women's participation in government. Data on such specific investments at the country level are difficult to find and it is not evident that any of the reputed data agencies are keen on gathering the relevant information. Unless data availability in this area improves, it is unlikely that the links between aid, investment in women and outcomes for women can be established in a statistically robust manner.

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TABLES

TABLE 1

Description of observed indicators to measure latent variables (add mean standard deviation)

(1) *Latent variables and associated observed indicators*	*(2)* *Description of the Variable*	*(3)* *Sources*
1.Gender Performance of Recipient Country		
Adolescent Fertility Rate	Adolescent fertility rate is the number of births per 1,000 women ages 15-19 in the recipient country.	United Nations Population Division, World Population Prospects. Catalogue Sources World Development Indicators
Maternal Mortality Ratio	Maternal mortality ratio is the number of women who die during pregnancy and childbirth, per 100,000 live births. The data are estimated with a regression model using information on fertility, birth attendants, and HIV prevalence.	Trends in Maternal Mortality: 1990-2010. Estimates Developed by WHO, UNICEF, UNFPA and the World Bank.
Women in Parliament	The proportion of seats held by women in national parliament in the single or lower chamber.	Inter-Parliamentary Union (IPU)
2. Foreign Aid		
Net Overseas Development Aid received (% of GNI)	Net official development assistance (ODA) consists of disbursements of loans made on concessional terms (net of repayments of principal) and grants by official agencies of the members of the Development Assistance Committee (DAC), by multilateral institutions, and by non-DAC countries to promote economic development and welfare in countries and territories in the DAC list of ODA recipients. It includes loans with a grant element of at least 25% (calculated at a rate of discount of 10%).	Development Assistance Committee of the Organisation for Economic Co-operation and Development, Geographical Distribution of Financial Flows to Developing Countries, Development Co-operation Report, and International Development Statistics database. Data are available online at: www.oecd.org/dac/stats/idsonline. World Bank GNI estimates are used for the denominator.
Gender Aid	A ‘principal score’ of 2 is assigned if gender equality was an	Development Assistance Committee

	explicit objective of the activity and fundamental to its design - i.e. the activity would not have been undertaken without this objective. A "significant" score 1 is assigned if gender equality was an important, but secondary, objective of the activity - i.e. it was not the principal reason for undertaking the activity. A "not targeted" score (0) is assigned if, after being screened against the gender equality policy marker, an activity is not found to target gender equality. Activities assigned a "principal objective" score should not be considered better than activities assigned a "significant objective" score, as donors that mainstream gender equality - and thus integrate it into their projects across a range of sectors - are more likely to allocate the marker score "significant" to their aid activities.	(DAC) Creditor Reporting System (CRS), disbursement data (since 2009) on aid in support of gender equality.
3. Economy		
GDP per capita Health Expenditure (as % of GDP) Improved Water Source	Access to an improved water source refers to the percentage of the population with reasonable access to an adequate amount of water from an improved source, such as a household connection, public standpipe, borehole, protected well or spring, and rainwater collection. Unimproved sources include vendors, tanker trucks, and unprotected wells and springs. Reasonable access is defined as the availability of at least 20 litres a person a day from a source within one kilometre of the dwelling.	
4. Investment for women		
Access to Sanitation Facilities	Access to improved sanitation facilities refers to the percentage of the population with at least adequate access to excreta disposal facilities that can effectively prevent	World Health Organization and United Nations Children's Fund, Joint Measurement Programme (JMP)

	human, animal, and insect contact with excreta. Improved facilities range from simple but protected pit latrines to flush toilets with a sewerage connection. To be effective, facilities must be correctly constructed and properly maintained. Access to sanitation facilities is a good measure of investment for women as it is associated with their improved participation in education and paid work. Absence of sanitation also has a disproportionately negative impact on women.	(http://www.wssinfo.org/)
5. Governance and institutions		
Government Efficiency	Captures the perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.	The World Governance Indicators are a research dataset produced by Daniel Kaufmann (Brookings Institution), Aart Kraay (World Bank Development Research Group) and Massimo Mastruzzi (World Bank Institute).
Rule of Law	Captures the perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.	World Governance Indicators
Voice and Accountability	Captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.	World Governance Indicators
Aid for Women's Agency	Aid donors are requested to indicate for each activity whether it targets gender equality and women's empowerment as one of its main policy objectives. An activity is included if gender equality and women's empowerment was an explicit objective and fundamental to its design - i.e. the activity would not have been undertaken without this objective. We use this variable here (rather than	Development Assistance Committee (DAC) Creditor Reporting System (CRS), disbursement data (since 2009) on aid in support of gender equality.

	under Foreign Aid) because initiatives that aim to strengthen women's agency work via institutions of governance and accountability. DAC data is presented using target markers thus avoiding any double counting.	
Total Sample Size	100	

TABLE 2

Regional bilateral aid as percentage of total bilateral aid, and regional gender aid as percentage of the regional total bilateral aid (disbursements in USD million in constant USD 2011)

Regions	***Total Aid by DAC in 2010*** *(in constant USD year 2011) disbursements* ***(percentage of total aid)***	***Total Aid to Gender*** *(in constant USD year 2011) disbursements* ***(percentage of total aid to the region)***	
	Column 1	*Promoting Women's Agency* *Column 2*	*Gender is a significant target* *Column 3*
Africa - North of Sahara	1693 (2.49)	74 (4.37)	832 (49.16)
Africa - South of Sahara	28292 (41.59)	1725 (6.10)	7747 (27.38)
North & Central America	5048 (7.42)	207 (4.10)	1080 (21.41)
South America	2309 (3.39)	156 (6.74)	875 (37.88)
Middle East	5113 (7.52)	99 (1.94)	806 (15.77)
South & Central Asia	14589 (21.45)	647 (4.43)	3359 (23.02)
Far East Asia	5771 (8.48)	270 (4.69)	1977 (34.26)
Europe	3223 (4.74)	111 (3.44)	681 (21.12)
Oceania	1986 (2.92)	69 (3.45)	662 (33.31)
Total	**68022 (100)**	**3357 (4.93)**	**18019 (26.49)**

Source: Total aid data accessed from OECD QWIDS database, and total gender aid accessed from OECD StatExtracts database.

TABLE 3

DAC bilateral gender aid by region for different sub-categories for 2010, disbursements in USD million in constant USD 2011 (percentages of total aid)

Regions	***Education***		***Health***		***Production Sectors***		***Commodity aid / Gen. Prog. Ass.***		***Humanitarian Aid***	
	Principal	*Significant*	*Principal*	*Significant*	*Principal*	*Significant*	*Principal*	*Significant*	*Principal*	*Significant*
Africa - North of Sahara	31.6	418.4	0.5	58.8	3.0	42.7	-	3.5	0.4	3.8
	(1.87)	(24.72)	(0.03)	(3.47)	(0.18)	(2.52)	-	(0.21)	(0.02)	(0.22)
Africa - South of Sahara	304.2	1468.7	168.4	851.9	292.0	611.7	321.0	1206.1	24.4	352.8
	(1.08)	(5.19)	(0.60)	(3.01)	(1.03)	(2.16)	(1.13)	(4.26)	(0.09)	(1.25)
North & Central America	20.5	120.1	17.6	37.5	38.5	123.6	0.0	2.3	3.2	242.6
	(0.41)	(2.38)	(0.35)	(0.74)	(0.76)	(2.45)	(0.00)	(0.05)	(0.06)	(4.81)
South America	25.8	204.4	12.3	33.3	17.3	121.1	0.1	1.2	3.6	17.0
	(1.12)	(8.85)	(0.53)	(1.44)	(0.75)	(5.24)	(0.00)	(0.05)	(0.15)	(0.74)
Middle East	12.6	193.7	1.4	33.7	1.3	28.2	0.5	4.4	5.9	91.3
	(0.25)	(3.79)	(0.03)	(0.66)	(0.03)	(0.55)	(0.01)	(0.09)	(0.11)	(1.79)
South & Central Asia	190.2	496.5	25.1	331.3	49.9	342.6	89.4	59.9	64.2	295.7
	(1.30)	(3.40)	(0.17)	(2.27)	(0.34)	(2.35)	(0.61)	(0.41)	(0.44)	(2.03)

Far East Asia	28.0	448.2	12.2	138.9	19.9	248.2	6.4	64.6	5.3	37.7
	(0.49)	(7.77)	(0.21)	(2.41)	(0.34)	(4.30)	(0.11)	(1.12)	(0.09)	(0.65)
Europe	2.3	131.4	0.4	2.7	5.0	29.5	-	0.7	1.7	4.2
	(0.07)	(4.08)	(0.01)	(0.09)	(0.15)	(0.91)	-	(0.02)	(0.05)	(0.13)
Oceania	11.4	229.3	9.0	96.3	0.6	25.9	0.2	14.4	0.4	11.8
	(0.58)	(11.55)	(0.45)	(4.85)	(0.03)	(1.30)	(0.01)	(0.73)	(0.02)	(0.59)
Total	**626.5**	**3710.8**	**246.9**	**1584.4**	**427.5**	**1573.4**	**417.7**	**1357.1**	**109.0**	**1056.8**
	(0.92)	**(5.46)**	**(0.36)**	**(2.33)**	**(0.63)**	**(2.31)**	**(0.61)**	**(2.00)**	**(0.16)**	**(1.55)**

Source: Data collected from OECD StatExtracts database, category: Aid projects targeting gender equality and women's empowerment (CRS).

TABLE 4

Estimated parameters of the measurement model for gender performance and factors of gender performance

Latent Factors / *Observed indicators*	*Gender Performance*	*Foreign Aid*	*Economy*	*Investment for women*	*Governance and Institutions*
Adolescent Fertility Rate	0.54 (???)***	-	-	-	-
Maternal Mortality Ratio	0.17 (0.79) **	-	-	-	-
Women in Parliament	0.42 (0.09)***	-	-	-	-
Net Overseas Development Aid received (% of GNI)	-	0.8 (0.09)***	-	-	-
Gender Aid	-	0.42 (0.09)***	-	-	-
GDP per capita	-	-	0.55 (0.14)***	-	-
Health expenditure (% of GDP)	-	-	0.16 (0.08)***	-	
Improved water source (% of population with access)	-	-	0.27 (0.13)***	-	-
Improved sanitation facilities (% of population with access)	-	-	-	0.83 (0.09)***	-
Government efficiency	-	-	-	-	0.94 (0.07)***
Rule of law	-	-	-	-	-0.22 (0.05)***
Voice and accountability	-	-	-	-	0.96 (0.075)***
Aid for Women's Agency	-	-	-	-	0.69 (0.09)***

Notes: *** Significant at the 1% level, ** at the 5% level. T-statistics in parentheses. Analysis based on 100 countries.

TABLE 5: Estimated parameters for the Structural Model for Latent Factors and Gender Performance

Latent Factors of Gender Performance	*Coefficients (standard errors)*
Foreign Aid	0.44 (0.39)
Economic	-0.14 (0.21)
Investment for women	-0.77 (0.33)**
Governance and institutions	0.28 (0.20)
Model Fit	
Satorra-Bentler scaled Chi-Square	$\chi^2 = 1291$ df= 78
RMSEA	0.062
NFI	0.95

Notes: ** Significant at the 5% level. Standard error in parentheses. Analysis based on 100 countries.

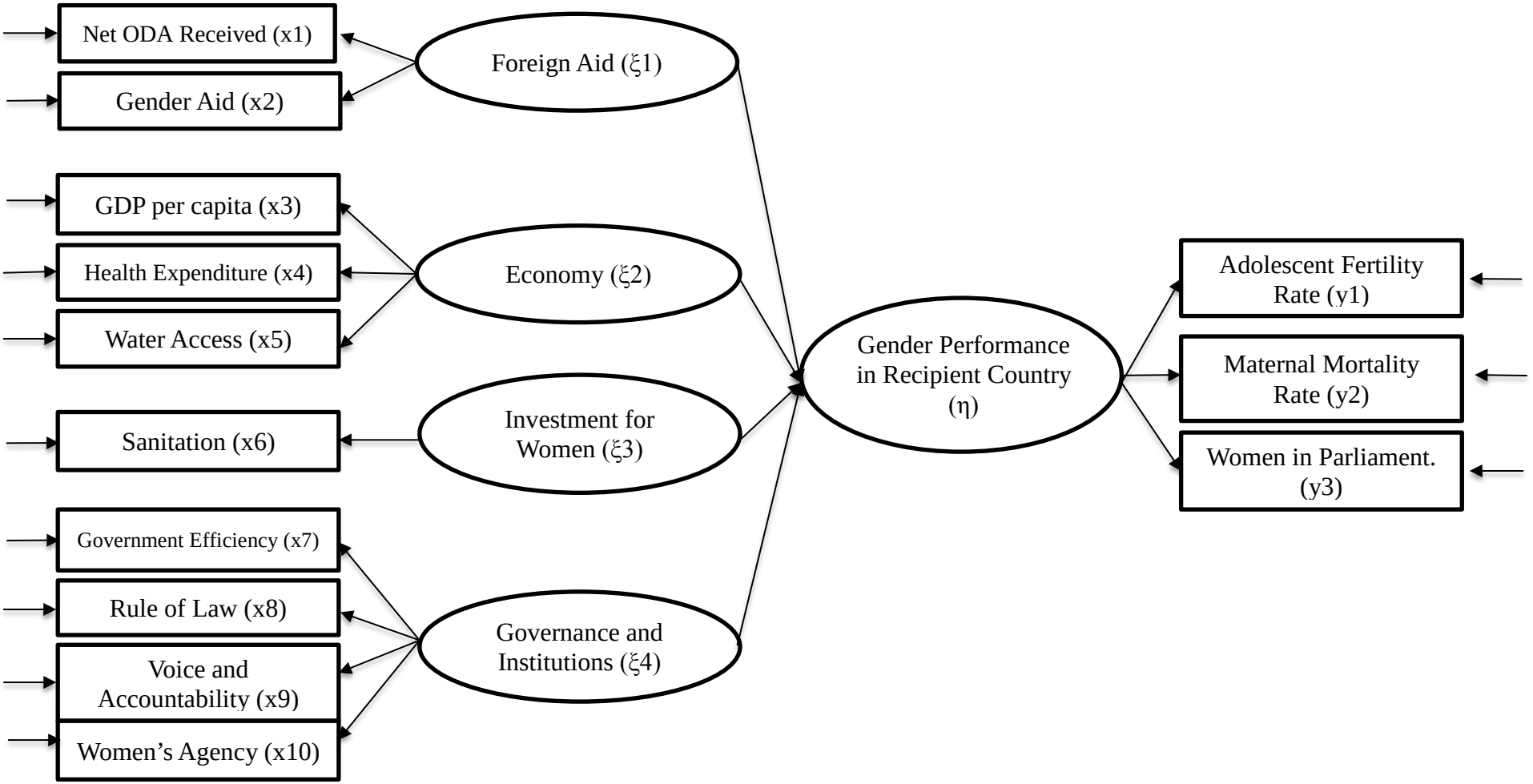

Figure 1: Path diagram for the Impact of Foreign Aid on Gender Performance in Recipient Country. (*This is one possible example of SEM model to be estimated, for demonstrative purpose)*