HINDRANCE OR DIVIDEND?
CHANGES IN MARRIAGE ON WOMEN'S EMPLOYMENT PROSPECTS IN 21 AFRICAN COUNTRIES

FATOU JAH

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ABSTRACT

The study of how marital transitions relate to employment is central to demography because of the linkages between marriage, employment, and women's social/economic status, and how all of these affect fertility transitions. Yet, no large-scale historical examination of the question using recent African data exists. Employing multiple data sources and a variety of statistical estimations, I decompose the observed change in women's employment in each country into three different components: changes in aggregate marriage, changes in employment returns to marriage, and changes in other contextual factors. Results indicate that in the majority of the 21 sampled countries with historical data, the returns to marriage rather than aggregate marriage or country-specific influences on employment opportunity drive the changes, whether gains or reversals, since 1991. Implications for the fertility transition, women's position, and gender inequality in the region are discussed.

INTRODUCTION

The relationship between marriage and employment is central to demography precisely because marriage proximately affects individual, group, and national fertility and through employment, provides a useful gauge of economic status and inequality within and between genders (Kaufmann and Meekers 1992; Kritz and Gurak 1987), and women's marital leverage (Eloundou-Enyegue and Calves 2006). Yet, in stark contrast with the West, where research on the subject has had a long history (see Espenshade's 1985 review), research using African data is scant in the mainstream literature. This is surprising given the onset of demographic transitions and contemporary progress in female schooling in the region.

Focusing on marriage trends in the developing world, the proportion married in the 15 to19 years age group declined from 27 percent in 1970-1989 to 21 percent in 1990-2000 (National Academy of Sciences 2005). This decline was especially dramatic in the Western/Central African region, where the percentages fell from 53 to 38 percent (National Academy of Sciences 2005). Changes are also evident in non-marriage rates. In

most of the 16 of the 24 African countries with repeat DHS surveys[1] (DHS 2007), the proportion of never-married women among the 45-49 year olds has steadily increased, suggesting substantial retreat from marriage. .

Theoretically, these marriage trends stand to improve employment prospects for women, delay childbearing onset, and reduce gender inequalities at the level of the family, labor market, and society (UNICEF 2003; UN 2005; UNFPA 2003; World Bank 2001). Intergenerational spillover effects are also anticipated. However, the nature and dimensions of changes in these relationships remain unclear in the African demographic literature as existing evidence is cross-sectional and descriptive. But cross-sectional evidence say little about changes over time, whether based on cross-country or individual-level analysis (Thornton 2001).

This study takes advantage of the growing literature collected by the Demographic and Health Surveys (DHS) Program to examine how changes in the relationship between marriage and employment have unfolded in sub-Saharan Africa. I ask three questions: 1) How has women's labor force participation changed in sub-Saharan Africa (SSA) in the last two decades? Specifically, do changes, if any, depend on women's changing marriage behavior? 2) Do changes in the relationship vary across countries? And 3) Does the relationship change over time and depending on economic conditions? This investigation is timely given the limited current progress in African countries toward the Millennium Development Goals (MDGs)[2] and stalling fertility in the developing world (Bongaarts 2006).

The paper is organized as follows. I begin with a discussion of the diversity of African nations in terms of marriage and employment followed by a theoretical discussion of explanations of women's employment and how they relate to the African context and state the study's hypotheses. I then review past research on this topic, drawing from developed and other developing regions given the paucity of the African

[1] Benin, Ethiopia, Ghana, Guinea, Kenya, Madagascar, Malawi, Namibia, Niger, Nigeria, Rwanda, Senegal, Tanzania, Togo, Uganda, and Zimbabwe

[2] The 20th century saw radical shifts in the global fight for gender equality. This global commitment, recently reaffirmed in the United Nations 2000 Millennium Summit, commits member governments to eliminating extreme poverty and to fostering development through eight Millennium Development Goals (MDGs). Two goals considered most imperative for achieving the remaining goals pertain directly to gender equality in schooling and employment. However, the progress report in 2005 showed limited progress in meeting the MDGs.

evidence on the question. Next, I discuss empirical concerns that can influence the effect of marriage on employment and lay out the paper's empirical strategy. This is followed by descriptions of data, measures, and methods. I then present and discuss the findings and conclude by summarizing the study's main insights and drawing implications for theory, policy, and future research.

DIVERSITY IN NATIONAL CONTEXTS

Do the relationships between demographic transitions and women's changing economic role hold across contexts or do they vary according to gender role differentiation, labor market structures, or other contextual conditions? While it is unlikely that the relationships are universal, the issue has received no comparative attention in Africa. Sub-Saharan Africa offers an appropriate ground for investigating these relationships for several reasons. The onset of the marital transition is quite recent relative to the rest of the developing world (World Population Prospects 2006). Further, enormous diversity exists in the region, with countries located at different stages of the transition. Beyond this diversity, Africa's transition contrasts that observed in the rest of the developing world in terms of pace and levels. This marked difference between sub-Saharan Africa and the rest of the developing world is partly explained by the region's greater cultural orientation toward the family and lineage, resulting in a high demand for children (Caldwell and Caldwell 1987).

Yet, there is substantial cross-country variation in the region's demographic transition, including marriage behavior. According to recent data from the PRB database (PRB 2006), while 16 and 26 African nations respectively fall under the top 20 and 40 countries with the highest proportion of married youth, there is wide country variation in the region. The proportion is lowest in Reunion (2 percent) and highest in Niger (62 percent) and infinity in seven countries. Within these ranges, the proportion married falls below 10 percent in 10 countries and between 10 and 25 percent in 9 others. In another 14 countries, the proportion is between 26 and 40 percent while in the remaining seven countries, it lies between 41 and 62 percent.

Beyond this country-level variability, aggregate- and individual-level demographic factors also mediate the marriage-employment link and its subsequent implications for

gender employment equality and women's impact on status. At the aggregate level, marriage markets and urbanization matter. In their study on the family returns to female education in Cameroon, Eloundou-Enyegue and Calves (2006) show that educational homogamy combined with wife's paid employment, more than her education per se affords women greater marital leverage in extending economic assistance to kin. Regarding urbanization, extended family/social networks can become eroded as societies urbanize, making it harder for wives to combine outside work and childcare/family obligations. Furthermore, contemporary social transitions in Africa are occurring under demographic and economic duress. Despite the incipient marriage and fertility transitions, Africa's recent history of high fertility added to delayed and stalling fertility declines (Bongaarts 2006; World Population Prospects 2006) has created a substantial population momentum. This momentum, in turn, jeopardizes government development efforts, including the development of economic structures and likely fuels the much-reported high levels of unemployment and dependency ratios (World Population Prospects 2006). The demographic and labor force situations are complicated by the AIDS epidemic, which is eroding the gains made by the region in life expectancy and the adult work force. Aside from these aggregate demographic factors, other structural and cultural forces interact with each other[3], even as they difficult to investigate, to condition the association between marriage and employment. For instance, growth in the proportion of educated women in communities can enhance or hinder women's labor market prospects.

Macro contextual factors are influential with profound implications for equity across genders and marital groups. One interesting puzzle is how national context might condition the relationship. I examine this puzzle with retrospective event-history data from Cameroon. This setting is interesting because the country has median values on key variables. Further, in the wake of a deep economic recession between the early 1980s and

[3] The acceptance of women's changing reproductive and expanding schooling, operating through social and ideational influences promoted by schooling (Caldwell 1980) can ultimately boost the development of employment opportunities. At the same time, however, expanded schooling can induce tight competition for scarce jobs stemming from an expansion in the sheer numbers of educated women (Siphambe 2000). Equally influential are informal institutions - traditions, customs and social norms- in shaping the relations between education, demographic factors (Isiugo-Abanihe 1994; Westoff 2003), and employment behaviors

mid 1990s, the country implemented a series of economic and public policy reforms that heightened employment privatization and affected employment prospects of the labor force (Eloundou-Enyegue 1997). The tempo and magnitude of Cameroon's economic downturn facilitate investigation of these structural economic adjustments programs on the relationship between changes in marriage and labor market prospects.

This diversity in how marriage transitions unfold across the region affords a unique opportunity to study the evolution in the relationship between marriage and employment in Africa. Precisely, it permits a rigorous assessment of the role specialization thesis in predicting employment changes and importantly, the potential impact of these changes on fertility and women's autonomy in Africa. Individual and group variation in the relationship can lead to inequalities across within and across genders as well as families with inequality likely to be felt first by young married women, especially those from poor households. Therefore, precise understanding of how demographic changes play out in the labor market scene has important theoretical, empirical ramifications.

THEORETICAL BACKGROUND

How does marriage affect labor market participation? In this paper, I discuss seven competing theoretical explanations of the association between marriage and labor force participation. The first two are grounded on economic assumptions: 1) Modernization thesis, 2) Economic specialization thesis, and 3) Occupational segregation thesis; the fourth, fifth, and sixth are based on demographic assumptions: 4) Relative income hypothesis, 5) Sex ratio imbalance, and 6) role conflict between family and work responsibilities; and the seventh on socio-cultural assumptions: 7) the socio-cultural perspective.

The modernization theory expects growth in the labor market and women's employments prospects to accrue from industrialization or development (see Chant 1991)[4]. Ultimately, theorists anticipate this greater economic activity, facilitated by

[4] Additionally, proponents of the theory expect modernization to shift the family from a production to a consumer unit, necessitating women to obtain waged employment (Caldwell 1981). Thus, as consumerism increases, women make further investments in their education to take advantage of the increased demand for labor.

greater human capital accumulation, stemming from economic progress and industrialization to reduce gender inequality in all spheres of society thereby lifting women's social status (Goldin 1990). Extending the predictions of the modernization perspective, the economic role specialization perspective (Gary Becker 1981) equates unmarried women and men with trading individuals, who only get married if the relationship is mutually beneficial to both individuals, with each partner offering gender specific attributes: the provision of economic resources resting entirely on the husband while the provision of household resources and reproduction falling within the wife's domain. Each partner's unique contribution, based on gendered role specialization, provides the glue that binds the union[5]. Thus, by inference, in all contexts where marriage is prevalent, a negative association between marriage and employment should be expected. According to Anker's (1997) review, occupational segregation and institutional segmentation theorists while neoclassical, differ from the above two perspectives. These two theoretical variants propose that women are concentrated in low-skill jobs with limited prospects for advancement because of employer discrimination but also because of their lower human capital and occupational aspirations. Within this framework, training and skills in non-traditional female occupations to narrow the labor market gender gap are advocated. Yet, the propositions by occupational theorists (see (Anker 1997; Anker and Heim 1985) while important in Africa, where labor unions are weak and markets are increasingly privatized or informalized lays inadequate emphasis on demographic and life-course factors.

The demographically oriented hypothesis of relative income proposed by Easterlin (Easterlin 1978) explains changes in marriage behavior by the ability of potential husbands to assume financial responsibilities associated relative to living standards tastes, and aspirations developed in the parental household. The ease with which a man achieves this goal is positively related to his income but inversely associated with his childhood living standards and importantly, the size of his birth cohort. Applying

[5] Proponents of this gendered role specialization perspective, also known as the "gains to marriage" maintain that the uniqueness of each spouse's provides the glue that binds the union. They contend that women's increasing economic independence is a major factor in the observed changes in family formation, specifically, delayed and retreat from marriage, divorce, and reduced fertility (Becker 1981; Dixon 1978), and reduced fertility (Becker 1981; Blossfeld 1995; Espenshade 1985; Goldscheider and Waite 1986).

Easterlin's argument to Africa one should expect the large growth in the region's young population to induce a tighter labor market and greater difficulty for contemporary youth to set up households compared to their parents' generations. While Easterlin emphasizes cyclic periods of tight and favorable demographic and financial constraints in predicting marriage behavior, other theorists (Guttentag and Secord 1983) emphasize yet another demographic constraint: sex ratio imbalances among unmarried individuals. The theory submits two sex ratio scenarios: one of high ratios wherein marriage markets are replete with a supply of marriageable men but deficient in that of women and another of low ratios wherein marriage markets are deficit in the reserve of men but abundant in that of women[6]. Applying the theory to this research, one would expect less marriage to be positively associated with women's employment with married women less likely to work outside the home. Drawing from modernization and demographic transition theories, the family and work roles conflict predicts that women are less likely to continue employment following marriage and childbearing (Collver and Langlois 1962;). Premised on the fact that childrearing and household responsibilities remain the primary responsibility of women, marriage and the presence of young children are associated with less labor market activity for women and vice-versa (Collver and Langlois 1962)[7]. Others have qualified the thesis, suggesting that it holds only in occupations that do not permit mothers to work and care for children simultaneously (Stycos and Weller 1968) or where the structure and organization of work creates a conflict (Mason and Palan 1981). These qualifications are important for this study because the time costs of additional children may not rest squarely on mothers but spread across family members and networks.

Sharply contrasting the economic perspectives and further elaborating the role incompatibility of working and mothering, the socio-cultural perspective attributes women's limited economic participation, especially in the formal sector, to gender bias.

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[6] Under the first scenario, sex ratios are high and local marriage markets become replete with a supply of men but deficient in the supply of women. In the second scenario, sex ratios are low and marriage markets become deficit in the reserve of men but abundant in that of women. Consequently, men attach less significance to marriage and take their time to marry while women lose their value and edge in the marriage negotiation process (Guttentag and Secord 1983).

[7] Yet in Africa, even as women may be penalized indirectly for repeated birth events through lower chances of job promotions, this withdrawal may be shortened by kin child support and not impose economic costs. A shortcoming of the incompatibility thesis as espoused by economic theorists is its unconditionality, especially as it relates to African settings.

This bias stems from patterns of social organization (Collver and Langlois 1962) and based on ingrained socio-cultural norms and values operating at different levels: societal, educational and employment institutions, and family (Birdsall and Sabot 1991; Boserup 1970)[8]. These normative expectations, in turn, condition women's educational and job aspirations which become actualized in poor job choices in the labor market (Assie-Lumumba 2000) reflected in hiring and promotions decisions (Boserup 1970). Finally, families operating within the larger societal gendered norms and in anticipation of lower returns to education will, in turn, invest less in their daughters' schooling relative to sons' (Eloundou-Enyegue and Calves 2006).

In synthesis, the seven theoretical perspectives can be placed in three alternative groups. The first can be said to have "pro-effects" meaning they facilitate employment prospects and include the modernization and economic specialization theses. Both are premised on women's increasing "economic and marital autonomy" as the catalyst for their facilitatory assumptions. The second can be regarded as having "cons-effects" meaning they hinder participation, with assumptions premised on "marriage/family burden", normative values or labor-market bias and include the family/work conflict, socio-cultural, and occupational theses. The third set of perspectives, the relative income and sex ratio theses, on the other hand can have either pro- or cons-effects, depending on the characteristics of the demographic factor in question. Below I state the study hypotheses and then briefly review past literature on the marriage-employment relation, focusing mainly on studies that test the economic specialization thesis, the perspective that has received extensive attention in the literature.

HYPOTHESES

Against the general context of diverse national experiences of socio-demographic and economic duress and limited policy resources, six hypotheses are formulated with respect to:

[8] At the societal level, the perspective contends that society's emphasis on women's private as opposed to public roles determines what public responsibilities women can accede and accept (Birdsall and Sabot 1991). These gendered views then filter through social institutions, especially, educational and employment institutions. Within educational institutions, the perspective maintains that women not only receive differential treatment but they are regarded as possessing inferior educational capabilities and employment potentials (Assie-Lumumba 2000).

Marriage Changes

H1: Changes in marriage has had little influence on changes in women's employment opportunities.

H2: Any impact of marriage will have a stronger influence in countries where the transition has begun and employment opportunities are high, than in countries where the transition has begun but where employment opportunities remain low.

H3: Any impact of marriage should be stronger and negative in the skilled relative to overall sector.

Changes in Gender differentials

H4: The changes in returns to employment are lower for women than for men in terms of skilled employment but higher in the overall sector. I expect the changes in the differential to narrow during periods of economic prosperity and over time.

H5: The source of changes in the differential is driven by changes in normative culture on employment opportunities, marital role conflicts, and to a less extent, differences in human capital.

Contextual variation

H5: I expect countries to differ substantially in the above relationships.

PREVIOUS WORK, EMPIRICAL ISSUES AND CONTRIBUTIONS

Previous Work

The relationship between marriage and employment has received much attention in both developed[9] and developing[10] countries, yielding a vast literature. The micro-level evidence closely related to this study from developed countries, such as the US (Goldscheider and Waite 1986, Lichter et al 1992, Oppenheimer and Lew 1995) has failed to validate the economic specialization thesis. Indeed, recent evidence from the United States have documented a rise in the employment rate of new mothers and married women (Leibowitz and Klerman 1995), particularly those with young children. Thus, the developed country evidence, suggests that marriage may not be as antithetical

[9] (See Blau and Kahn 2006; Cherlin 1980; Goldscheider and Waite 1986; Leibowitz and Klerman 1995; Lichter et al. 1992; Oppenheimer and Lew 1995; Oppenheimer 1994).

[10] (See studies by Malhotra and DEGraff 1997; Raymo 1998; Retherford, Ogawa and Matsukura 2001).

for women as the economic specialization perspective posits. Indeed, several of the above studies have attributed the rise in women's employment mostly to increasing labor market participation of wives, not least those with young children. The developing country evidence, however, is conflicting.

In Africa, however, the surveyed literature in mainstream journals yields no empirical studies that relate marriage to women's employment at the micro-level[11]. To my knowledge, existing evidence is either descriptive or come from the analysis of schooling and employment that include marriage as a control variable (Appleton et al. 1990; Glick and Sahn 1997; Naude and Serumaga-Zake 2001; and Ntuli 2007)[12]. The information gleaned from them is mixed. In some contexts, marriage is reported to increase the likelihood of women's employment in Guinea (Glick and Sahn 1997) and in Cote d'Ivoire (Appleton et al. 1990). Conversely, a negative association between marriage and women's employment is observed in South Africa (Naude and Serumaga-Zake 2001; Ntuli 2007). Similarly, in Ethiopia, Krishnan (1996) finds a large proportion of non-participating housewives and concludes that marriage is negatively associated with women's employment. If these findings hold for the rest of the region, the marriage-employment relationship appears to be conditioned by geography. The relationship tends to be positive in West Africa (Guinea and Cote d'Ivoire) and negative as one moves to the Eastern (Ethiopia) South African sub-regions. This sub-regional effect, in turn, can be tied to cultural differences, especially in family systems (Caldwell 1996).

Even much less large-scale research has been conducted in the region. To gain broader insight into cross-cultural differences in the region, I turn to the review by Lloyd

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[11] One exception perhaps is Shapiro and Tambashe's research (1997) that, importantly, referenced age at marriage although the study emphasized fertility more than marriage.

[12] The economic specialization theory has therefore received little empirical scrutiny in the African context. This is surprising given the importance of marriage in mediating the relationship between schooling, fertility behavior, and employment status as well as women's socio-economic position. It is equally surprising in view of the long suspected association between paid employment and marital instability (Becker 1991) emanating from the re-alignment of marital roles and, subsequently, role strain (Becker 1991). The gap in the African literature partly results from data limitations. Until recently, both comparable marital and employment histories have rarely been collected in the same surveys. Most importantly, the definition of marriage is very variable across settings. Thus, the same concept is measured differently in studies, making results very difficult to interpret and compare (Kauffman and Meekers 1998). Furthermore, rather than discrete, the marriage process is multi-dimensional, sometimes occurring over a long period of time with boundaries between stages very blurred.

(1991) of the United Nations comparative analysis of the World Fertility Surveys (WFS) conducted between the 1970s and early 1980 in developing countries. Lloyd (1991) observes a low mean index of stability is much lower in Latin America, suggesting that marriage is relatively an impediment to work. On the other hand, she finds small differences between Africa and Asia and Oceania with mean indices close to one in both regions. This implies that most women who had worked prior to marriage continue to work. Said differently, marriage does not pose any threat to employment, trivializing any potential international support for the economic specialization thesis.

Empirical Issues and Contributions

The foregoing review of macro-and micro-studies in developed and developing regions has provided valuable insights on the relations between marriage women's work lives, enhancing our understanding of the relationships operating through individual behavior and broad processes. Nonetheless, they reveal as many similarities as dissimilarities whether judged by theoretical, substantive or methodological measures as well as by region, time, and context. These contrasts and resemblances present both strengths and weaknesses. In terms of strengths, the results from studies examining each of the three independent variables provide cues as to what factors matter as well as what to and not look for and expect, thereby providing valuable guide to future analyses in similar situations. Moreover, such heterogeneity in the relationships facilitates examination across several contexts.

Yet, this same heterogeneity, in particular contextual, presents important limitations of small sample, design, causal inference and contextual variation that must be borne in mind in such analyses. Part of the inconsistency in the African evidence can be attributed to past data scarcity restricting previous studies to rural (Naude and Serumaga-Zake 2001) or urban data (Glick and Sahn 1997; Krishnan 1996) or a particular subgroup (Krishnan 1996). Thus, much of the available evidence is based on data, non-representative of the entire population of labor force participants. The inconsistencies in the African literature can also be tied to differences in research design, specifically,

statistical method employed[13], study focus[14], conceptualization of the dependent variable[15], and nature of data analyzed[16]. Quantifying the gains from social interventions has been particularly difficult due to unavailability of data needed to establish causality and the possibility of reverse causation (Greene and Merrick 2005; Schultz 2005). Besides data unavailability, many of the influential factors are not easily measured. And there is a growing literature indicating that failure to account for these confounding unmeasured influences can bias results due to selection issues (Axinn and Thornton 1992; Giroux 2006; Jah 2007, 2009)[17]. Concerning causality, the reviewed literature all utilize cross-sectional as opposed to longitudinal data. Yet, evidence suggests that the short-term relationship between demographic factors and employment can differ from that over the long-term (see Spitze's 1988; Gurak and Kritz 1982). Beyond the above concerns on the association between education, marriage and fertility and employment, the diversity in macro economic context among countries has increasingly complicated employment analyses. Past unavailability of comparable data on many countries had confined most studies to a single country. Failure to consider such contextual diversity through large-scale studies can limit interpretations and policy making.

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[13] Differences in statistical methods can lead to inconsistency in results. For instance, while some researchers (Glick and sahn 1997; Appleton et al. 1990; Shapiro and Tambashe 1997) use more rigorous techniques that control for background variables, others rely on bivariate associations (Ntuli 2007) and run the risk of excluding important effects.

[14] Regarding study focus, some authors have emphasized earning differentials (Glick and Sahn 1997;) while others have focused on differences in employment (Krishnan 1996; Naude and Serumaga-Zake 2001; Siphambe 2000).

[15] Relating to conceptualization, few studies (Glick and Sahn 1997; Shapiro and Tambashe 1997; Siphambe 2000) have distinguished between occupation sectors. Failure to consider the informal sector, where women are highly represented (Greenhalgh 1991) can obscure the reality of African women's labor force behavior.

[16] Schultz (1990) states that the labor force is far from static and changes from primarily informal to largely formal but African economies have not followed this path. A plausible explanation is that contemporary African transitions are occurring under economic duress due to Governments' policy responses to the surge of economic crises of the 1980s and 1990s. Thus, labor markets have become increasingly informalized and privatized (African Labor Research Network 2004). Given that the public more than the private segment of the labor market may be less discriminatory (Appleton et al. 1990; Glick and Sahn 1997) the expansion of the private sector may disadvantage women by channeling them into insecure self-employment and less profitable informal work. Yet, to my knowledge, no studies in sub-Saharan Africa have adequately explored women's employment benefits in a historical perspective.

[17] Un-measured influences can derive from both community (variation in economic opportunities arising from broader national policies; earnings differentials across heterogeneous occupation sectors and employer discrimination; norms, and societies' changing attitude toward women's evolving, household and economic roles) (economic as opposed to family aspirations; circumstances where women balance unpaid care work in the wake of AIDS-related mortalities and paid work and how this may influence career development) are all hard to gauge.

This study improves on the above limitations by using comparable and nationally representative data, controlling for several individual and household characteristics that bear on women's economic activity; focusing on employment, and distinguishing between the overall and skilled sector. Further, it makes three methodological attempts to address the issues of causal inference and concern over selection into employment by the more career-oriented who delay marriage and childbearing through: 1) Data used; 2) Analytical approach; and 3) Level of analyses. Regarding data, multiple sources of quantitative datasets (historical [DHS] and event history) and qualitative data are employed enhance comprehension of issues at play. With respect to analytical approach, multiple techniques are utilized: ordinary logistic regression to estimate the main effects; fixed effects modeling to account for variation in individual, household, and community fixed effects; and regression decomposition. And finally, because, macro-level analyses assume compositional homogeneity across individuals; say in employment aspirations among women, and changes in these over time, a micro-macro approach is adopted. Importantly, this dual approach minimizes concern over ecological fallacy (Kohler and Kohler 2002; Robinson 1950). The issues of contextual variation, comparability, and generalizability is addressed here in four ways: 1) using nationally representative individual level data from the *same source* and collected around the same time on 21 culturally different African countries; 2) by classifying these countries in to employment regimes on the basis of their employment and independent variable profiles; 3) in the event history analyses, by interacting trend and GNP variables with the explanatory variables to determine the sensitivity of the relationships to historical and economic contexts; and 4) marrying the macro with the micro approach by using individual level data to examine the relationships for two different time periods within each country and regime, and collectively, for the African region. This is in recognition that the relationships between schooling, marriage and fertility and women's employment are governed by both individual behavior/characteristics as well as the institutional context. Thus, generalization without loss of contextual processes is achieved.

METHODOLOGY

Data Sources

Three types of data are analyzed in this study: (1) cross-sectional data from the Demographic and Health Surveys (DHS) Program on 21 sub-Saharan countries and spanning nearly two decades; (2) event history data from Cameroon; and qualitative data, including focus group and key informant data[18].

Historical. The study exploits the unique availability of nationally representative and comparative data on developing countries from the DHS Program to construct a large historical data set. The strength of the DHS data derives from replication across multiple countries over several periods thereby facilitating cross-country comparisons permitting the documentation and comparison of the historical experiences of several sub-Saharan countries. The first/earlier survey period spans 1991 to 1997 while the second/final survey periods date from 1997 to 2005[19].

Event history. The second data source was a Cameroon survey conducted in 1998/99 that generated event-history data on a nationally representative sample of households. In contrast to the DHS data where measures are fixed, the generated histories here provide annual life transitions of men and women spanning across four decades (1955 to 1999, the baseline to the survey year). This permits linking explanatory variables with employment outcomes annually over 40 years[20]. Beyond greater precision in interpretation through a process of cumulative validation, the exceptional opportunity of combining these two different datasets provides allows us to establish the extent to which the Cameroon situation can be generalized to rest of the region.

Qualitative data. Two focus groups discussions, each involving a minimum of

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[18] This combination of data sources presents several advantages. First, each source complements the other and this is particularly true with respect to the historical data constructed from cross-sectional surveys and the event history data. The former overcomes the problems of recall plaguing retrospective data while the latter provides the depth for greater precision. Second, the approach permits me to triangulate findings and minimize bias thereby strengthening the study conclusions and its policy implications. The qualitative data permit a richer understanding of the relationships uncovered by statistical analyses.

[19] Given its emphasis on historical changes and data comparability, the 21 sampled countries include only those with repeat surveys conducted from 1991 onwards but nonetheless provide a representative sample of the region[19]. While an inclusion of men would have been interesting, the male information provided is generated from a sub-sample of select men (the husbands/partners of married women only) and therefore not representative of all men. This drawback is however, overcome by the event history data.

[20] The total sample constituted 3,330 female respondents aged 15 years and over, their spouses, as well as their 11,590 children. For each child, detailed information on schooling, marriage, fertility, and employment records, as well as records on other background information relevant to this study were collected with the aid of life history calendars to minimize recall error.

six women of differing backgrounds were conducted in Cameroon. Additionally, two individual interviews were held with two female executives[21]. This makes it possible to explore variation in individual perspectives on historical trends as well as the current employment situation of women in general. The focus groups generally lasted three hours while the two interviews lasted an hour each. Both focus group discussions and interviews were all recorded[22].

Measures

Dependent variable. The study's main dependent variable in all the analyses is labor force participation in (1) overall employment or (2) in the skilled sector[23]. In both the DHS and the event history data, overall employment is measured dichotomously by paid employment in any sector with unemployment or engagement in agricultural activity or unpaid family-work as the reference category. Skilled employment is also measured dichotomously by the proportion of employed individuals (women in the DHS and men and women in the event history data) in professional, technical, and managerial as well as in skilled manual work. Thus, conditional on being employed, this outcome models skilled participation activity against all other non-agricultural paid participation, the reference.

Independent variable. The study focuses on young married women because this is stage in the life course when they transition into both adult roles and the labor market. Thus any conflict between these roles is likely to emerge at this stage. Marriage

[21] The first group consists of young women with different educational backgrounds and work status, to provide a wide range of perspectives on the issues being discussed. The main themes focus on but not limited to current perceptions on women's employment and issues that hinder as well as facilitate current their employment prospects. The second group was more homogeneous in the sense that the women were middle aged and older.

[22] While opportunities different from these themes were pursued, the broad themes include questions such as How hard is it for women to obtain employment? How hard is it for women compared to men to obtain employment? Why is it more difficult OR easier women than men to obtain employment? And how hard is it to get employment now compared to your mother's time? Why?

[23] A finer distinction between occupation sectors is desirable, particularly within formal and informal sectors given women's over-representation in the latter sector, but the occupation classification adopted by the DHS precludes such level of distinction. However, given that overall employment includes all non-agricultural paid work outside the home and makes no distinction between occupation sectors it should have lower human capital requirements for access and success. And since the public compared with the informal sector is dwindling, overall employment should closely resemble informal work. On the other hand skilled participation denotes occupation types with greater human capital prerequisites; it should therefore provide a closer measure of formal work.

is measured dichotomously. It is coded as "1" if married or in a stable union by age 25 and "0" if single, divorced, or widowed with the latter category as the reference[24].

Correlates. The study controls for classic correlates of employment, reflecting four sets of influences: basic, demographic, economic constraints, and cultural attributes. Great effort was made to ensure that all the measures of the correlates used are as comparable as possible between the two data sources[25].

Employment Regimes

Given the large number of countries studied and their diversity, countries are classified into four marriage employment regimes, depending on countries' average level of employment and marriage. The regime groupings are discussed in detail under the findings section.

Methods

The analyses were conducted at both the macro and individual levels. Three main

[24] It is worth mentioning that marriage is an elusive concept in African settings. Rather than being discrete, it is multi-dimensional process, sometimes occurring over a long period of time with boundaries between stages very blurred, made particularly complicated by the growing prevalence of cohabitation (DHS 2007). This can lead to bias in the DHS data. Indeed, the precise reason behind recognizing unions as a marital status is to minimize this error. However, where unions are unstable this inclusion can over-estimate the prevalence of marriage. This limitation can be considered trivial in the event history data, because of its time-varying nature as well as the fact that the interviews differentiated between various forms of marriage (civil, religious, tradition, cohabitation).

[25] In the case of the DHS historical data, the basic correlates include age and its quadratic term which additionally adjust for experience; the demographic ones consider compositional/structural including whether respondent had a recent birth event; is wife of the household head, other adult female are present, and urban residence; economic controls consider husbands work and employment statuses, his co-residence, and socio-economic status; and cultural factors include respondent's ideal number of children and family planning approval.

Like the DHS analyses, four groups of correlates are considered in the event history analyses to capture basic, family compositional influences, economic need, and cultural factors. The basic correlates include the duration of unemployment and age and their quadratic terms, and ability (measured by the mean grade repetition during schooling). Family characteristics cover origin family SES, mother's marital status, co-residence, and urban residence. Correlates of childhood economic constraints are captured by child's number of siblings and whether s/he assisted in the schooling of his/her sibling and his/her birth order rank. Aspirational attributes are controlled for by mother's outside home employment and whether child has at least one sibling working in the formal sector. To estimate the influence of historical changes on the relationships, a trend variable, measured by the number of decades since 1959 (the baseline year) was adjusted for. Next, I consider the influence of economic context on the relationships by incorporating the log of GNP per capita.

analytical approaches were used to estimate the two employment outcomes for each country and time period: 1) Ordinary logistic regression to estimate the gross/main effects of marriage; 2) Fixed effects modeling to estimate the net effects of marriage; and 3) Regression decomposition to estimate the sources of changes in payoffs to women's marriage i.e., the relative contribution of marriage versus other country-specific factors to employment changes. These analyses are carried out on each of the two employment outcomes and time periods within each country. Countries are the unit of analysis even though individual-level data is analyzed at two levels: macro- (across countries) and micro- (within individual countries) levels. Changes over time in the effects are determined by subtracting recent (second study) effects from initial (first study) ones.

The main effect of marriage is estimated in a first model by modeling the odds of being employed as a function of a woman's marital status according to equation 1[26].

$$\text{Log } Y/(1-Y) = \beta_0 + \beta_{hi}H + \beta_{hii}H^2 + \beta_m M + \beta_1 A + \beta_2 A^2 + \varepsilon \qquad \text{Equ. 1}$$

Previous research (Jah 2007, 2009) has demonstrated substantial deviations in the effect of marriage on employment depending on whether one controls for fixed effects of family and communities or not. With this in mind, the net effect of marriage is estimated by fixed effects modeling using the PHREG procedure in SAS (Allison 1995). In addition to the correlates considered, this methodological approach controls for unobserved heterogeneity, thereby partly addressing endogeneity concerns. This fixed effect model (model II) is outlined in equation 2[27]:

$$\text{Log } Y/(1-Y) = \beta_0 + \beta_{hi}H + \beta_{hii}H^2 + \beta_m M + \beta_1 A + \beta_2 A^2 + \beta_3 F + \beta_4 E + \beta_5 C \qquad \text{Equ. 2}$$

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[26] Where Log (Y/(1-Y) is the odds of being employed; H and Hsq are the measures for education and its quadratic term; M measures marriage; A and A^2 measure age and its quadratic term, and ε the error term; and the βs are regression coefficients for these various variables, with β_0 being the intercept. This initial model (model I) estimates the effect of marriage, controlling only for the first basic sets of correlates (i.e., education and education square, age, and age square) for each the four labor force regimes for each study period. It therefore reflects gross marriage effects.

[27] where Log (Y/(1-Y) is the odds of being employed; H and Hsq are the measures for education and its quadratic term; M measures marriage; A and A^2 measure age and its quadratic term; F, E, and C, represents family composition and household structure, economic constraints, and cultural attributes, respectively; and the βs are regression coefficients for these various variables, with β_0 being the intercept.

To estimate the influence of contextual changes on the relationship, a trend variable, measured by the number of decades since 1959 (the baseline year) and its interaction with the dependent variable, was included in the Cameroon analyses. The influence of economic context on the relationships was estimated by incorporating the log of GNP per capita and its interaction with the dependent variable.

While logistic regression (ordinary or fixed effects) estimates the cross-sectional and absolute magnitude of education effects on women's employment, decomposition methods are used to estimate relative effects. The total change in women's labor force participation since 1991, derived from employment logits, is apportioned into three components, the baseline, effects of aggregate education, and effects of returns to education, following equation 3[28]. These components are elaborated in the results discussion.

$$\Delta Y = \Delta\alpha + (\overline{X} * \Delta\beta) + (\overline{B} * \Delta X) \qquad \text{Equ. 3}$$

logistic regression, fixed effects modeling, and regression decomposition. Given the dichotomous nature of the outcome variables, logistic regressions were used to model a

RESULTS

[TABLE 1 HERE]

Changes and Diversity in Marriage Employment Regimes

According to table 1, four regimes were considered to distinguish countries according to their position on the marriage employment transition, as follows: regime 1 (high marriage-low employment); regime 2: (high marriage-high employment); regime 3: (low marriage-low employment); and regime 4: (low marriage-high employment). Countries

[28] Where ΔY is the total change in employment over the two periods of study; $(\overline{X} * \Delta\beta)$ is the component of this change due to changes in the returns to marriage; $(\overline{B} * \Delta X)$ is the component of the change due to changes in the average level of marriage; and $\Delta\alpha$ is the component stemming from changes in the baseline employment opportunities (i.e. country-spoecific influences not included in the analysis). Note that barred variables represent the average for this variable over the two time periods; for instance $\overline{X}$ represents the average schooling levels over the two time periods.

under regime 1 have just initiated their marriage employment transition as opposed to regime 4 where countries are relatively advanced in the transition. On the other hand, regimes 2 and 3 fall between these extremities but on reverse sides of the transition continuum. Unlike the even distribution of countries in the education employment spectrum, the two extreme marriage employment regimes comprise most of the countries, 38 percent under regime 1 and 28 percent under regime 4. The rest of the sample is shared by regimes 2 (19 percent) and 3 (14 percent).

The table also summarizes the levels and trends in marriage (panel 1) and employment (panel 2) by regime. A quick assessment of panel 1 (bottom of the table) confirms that an incipient marital transition is underway in Africa as a whole. The proportion of young adult women who are married is 22.8 percent for the initial study but by the second study, the value dropped annually by 0.24 percent to 22.4 percent. The bottom of the panel also suggests that countries are converging in their marital transitions as indicated by the drop in the coefficient of variation. Yet, an observation at the regime level reveals heterogeneity with respect to the direction of the transition, in addition to marriage levels. As expected, the percentage of this young married cohort is highest under regimes 1 and 2. For the former regime, the respective values for the first and second studies are 26.8 and 24.7 percent and 25.1 and 25.8 percent for the latter regime. Surprisingly, marriage levels are not lowest under regime 4 but under the regime typified by low employment rates, regime 3, with corresponding levels of 17.9 and 17.3 percent for the first and second studies.

A similar heterogeneity is visible in trends in marriage. The pace of the transition is fastest under regime 1 followed by regime 4. Between the two studies, the two regimes registered respective annual declines of 0.9 percent and 0.5 percent. Regime 2, on the other hand, recorded an annual increase of 0.6 percent in marriage levels. This regime-level generalization does not, however, preclude country differences, most evident in Ghana where the largest annual drop of 5.8 percent is observed. Further, several countries, most widespread under regimes 4 (Nigeria, Zimbabwe, Senegal, and Kenya) and 2 (Mali, Benin, and Namibia) deviate from this overall pattern in that marriage has increased in prevalence. Irrespective of the few deviations, the records indicate that marital transitions have been initiated in most of African countries.

I now examine trends in employment of young women within marital regimes (table 3, panel 2). Results for the region show that their employment levels declined during the two study periods within both sectors. In terms of overall employment, levels declined annually by 2.2 percent from 32.5 to 27.2 percent. The skilled sector also shows an annual drop of 2.2 percent, although from relatively lower levels (24.8 percent to 20.7 percent). These declines are, to a large degree, reflected in the regime records where skilled sector levels continue to be lower than those for overall employment. But there are notable differences. Focusing first on overall participation, highest levels are observed under regimes 4 and 2 in both studies while regime 3 shows the lowest levels of overall employment. Differences are greatest within the skilled sector. Contrary to its overall sector trends, regime 3 registered the highest rates of skilled employment followed by regime 2 with rates lowest under regime 1. But this latter regime made the most gains of 0.5 percent annually across all four regimes between the two studies while the remaining regimes experienced declines, particularly intense under regime 4.

To summarize, there is wide variation across regimes in both trends in marriage and employment. In recent years, the declines in marriage have been fastest for countries that are either most behind or most advanced in their transition. Similarly, the observed changes in married women's employment have been greatest in regimes 1 and 4, and this holds for both sectors. The declines have, however, been more dramatic within the skilled than overall sector, which had faced restrictions associated with structural adjustments in most African countries during this time period. These three transitions, schooling, fertility, and marriage are expected to translate into greater labor force participation. These relationships are examined in subsequent chapters.

Macro-level Associations

This section refers to findings on the relationship between marriage and labor force participation (i.e. the returns to marriage) for the first (1991-1997) and second (1997-2005) study periods based on the DHS data.

[FIGURES 1a-b]

Figure 1 shows cross-country correlations between marriage and women's labor force participation. The results are presented for the overall sector (figure 1a) and for the

skilled sector (figure 1b). *The figure shows contrasting associations*: marriage is positively related to total sector participation (beta = 0.33, R2= 0.01) but negatively related to skilled sector work (beta = -.87, R^2 = .15). The effect of marriage in the latter sector is stronger explaining 15 percent of the variability in employment and *can be interpreted as follows: as women delay their transitions into marriage, they are more likely to be engaged in the skilled sector than in any other sector*. These preliminary findings, like the earlier results from the schooling analyses, reveal two things. First, failure to differentiate occupation sectors can be misleading. Second, the low R-square (R^2 = .01) in the total sector implies weak associations implying that other influences, not included in this model, are more important. Below, I examine the same relationship in a more dynamic perspective.

Because cross-country correlations miss historical changes, figure 2a-c shows trends in the relationship between marriage and employment at the level of country, moving the discussion beyond cross-sectional evidence. Again, the results mirror those above, with the association positive in terms of overall employment (figure 2a: beta = .42, R^2 = 0.03) and weakly negative (figure 2b: beta = -.93, R^2 = 0.02) regarding skilled employment. In sum, the historical trends observed within both sectors are consistent with the cross-sectional evidence presented earlier: marriage positively enhances overall participation but is negatively related to skilled economic activities. Similarly, the historical evidence, like the cross sectional results, lends partial credence to the specialization thesis: unsupported within the overall sector where marriage in the transitional years appears not to interfere with women's employment prospects but supported within the more regulated skilled sector where it hinders entry. But note that these results miss the fact that within each country, the changes occurred over different time spans, as well as other contextual differences.

[FIGURES 2a-b]

The foregoing results ignore substantial country variation, signaling changes in the relationship across study duration in each country. The wide spread in the scatter plots and weak associations highlight the problem in using cross country correlations to infer historical change. Analyses will be flawed if one overlooks country specificities, a flaw that amounts to *"reading history sideways"* (*Thornton 2001*). Some of this variation

is partly captured by the micro-level analyses, which I present and discuss below. Because the regime classification provides some context to the observed variation, results below are presented by regime.

Trends in bivariate returns to marriage

As a preliminary assessment of this expectation, I assess the association between marriage and employment at the bivariate level (table 1, panel 3). For Africa as a whole as well as for the regimes, this relationship depends on sector. Beginning with the region, it is negative for overall employment but positive in terms of skilled employment but this holds less within the skilled sector where returns approximate zero in the earlier period of study. At the sub-regional level and regarding the overall sector returns, the picture generally mirrors that at the collective level. For example, in the earlier study, returns are negative in three of the four regimes. While the impact is strongest under regime 3, hardly any variation is discernible across the remaining regimes. However, trends in these returns are positive meaning that the disadvantage to marriage in this sector is abating. Surprisingly, this excludes trends under regime 4, the most progressed in the transition and where high employment opportunities side by side with low marriage in that the disadvantage to being married is growing.

With respect to the skilled sector returns to marriage, the regime picture diverges from that observed for the region in several ways. First, returns in the first study are negative under the first two regimes but positive under the last two. This implies that marriage impedes young women's skilled employment in the former settings but facilitates it in the latter settings. The tables become turned by the second study: returns are now positive in settings where they were initially negative and positive where in settings where they were positive, although where they have grown more positive over time. Thus, large differences in the returns to marriage exist, across regimes and occupation sectors, with changes more intense within the regulated skilled sector.

Thus, judging by trends in the bivariate associations, marriage appears to hinder overall participation (table 1: panel 3), particularly in settings where *employment opportunities are poor* (regimes 1 and 3) but the disadvantage is weakening except under settings most advanced in the transition. The influence of regime is most visible within

the skilled sector (table 1: panel 3). Here, whether marriage hinders or facilitates transition into this more profitable sector depends on regime and within regime on study period. Further, when they do occur, changes in the marriage effect are sharper in the skilled sector and within this sector, sharpest under contexts early in the transition and flat in contexts advanced in the transition. This is expected in light of the dwindling public sector opportunities in the region. Finally, even as the coefficients of variation at the bottom row hint a shift toward homogeneity (CV = -.003 in both sectors), countries are most differentiated in terms of their skilled relative to overall employment returns.

The regime approach has therefore shed more light on the country diversity noted above but does not adequately explain the nature of the differentiation at the level of country. This individual country attention is the focus of the section that follows and all subsequent ones.

Micro-level findings

This section presents results of the marriage analyses of both DHS and event history data and the regression decomposition results. Table 1, panel 3 examines trends in the bivariate relationship between marriage and employment. Table 2 gives the overall sector results while table 3 gives the skilled sector results.

Focusing first on trends in the bivariate relationship between marriage and employment and for Africa as a whole and for individual groups of countries (table 1, panel 3), this relationship depends on sector. It is weakly negative for overall employment but mixed within the skilled sector. This negative association is reflected at the sub-regional level. Looking first at overall employment, returns in both studies are negative under all four regimes, being most negative under regime 3 (low marriage and low employment) and least so under regime 2 where high marriage occurs side by side with high employment. At the country level, they are negative except in all countries, implying that marriage impedes young women's overall employment. This excludes Cameroon (first study) and Ghana (both studies) where they are positive.

With respect to skilled employment, returns are mixed depending on both regime and study period. In the initial study, returns are mostly negative under regime 1 and positive under regimes 3 and 4. Under regime 2, bivariate returns are largely positive but

the regime average is pulled down by the outlier negative effect observed in Namibia. At the level of country, a similar picture prevails although few exceptions exist under regime 1 (Burkina Faso, Malawi, Uganda, Zambia) and as well as under regimes 3 (Madagascar) and 4 (Ghana). Yet, in the course of the 15-year investigation, the association has become largely positive under regimes 1, 2, and 4, where returns were initially negative but increasingly less positive under regime 3.

This bivariate level assessment reveal important variations in the marriage employment relationship, discernible across all four regimes in terms of direction and levels in the bivariate returns in both occupation sectors as well as the scale of the changes over time. Based on these trends, marriage appears to hinder overall participation, particularly in settings where employment opportunities are poor (regimes 1 and 3) but with the exception of regime 4 the disadvantage is becoming less severe. The influence of regime is most marked within the skilled sector, where levels and trends in the returns are varied, turning positive where they were previously negative (regimes 1 and 2) and increasingly negative where they were originally positive (regimes 3 and 4). Finally, even as the coefficients of variation at the bottom row hint a shift toward homogeneity (CV=-0.003 in both sectors), countries are differentiated in terms of their skilled relative to overall employment returns. Further, when they do occur, changes in the returns are sharper within the skilled sector. This is expected in light of the dwindling public sector in the wake of governments' economic adjustment policies.

To explore the influence of individual level differences, I next examine the findings of the multivariate micro-analyses in the following sections concentrating first on the stability of the marriage variable in the presence of correlates.

[TABLE 2 HERE]

Stability of the marriage effect

The stability of the marriage effect within both economic sectors is established by examining how the marriage variable responds to increasing control for key correlates, including the fixed effects of families. The stability of the effect is conditioned by occupation sector and within sector by study period but in different ways. Given the large number of cases, results are averaged for each regime.

Overall employment. Table 2 shows the stability of the marriage effect with respect to the overall sector for the first and second study periods. They reveal interesting findings. Concentrating on the initial study, results indicate that despite small reductions in the final model, the effect of marriage in the overall labor market is, by and large, stable with successive control for key correlates under the successive models. The effect is least stable under the regime 3[29] and most stable under regime 4 and to a lesser degree under regime 2. Note that both regimes are marked by high employment opportunities suggesting that the availability of role of employment opportunities has an enhancing role on the stability of the marriage effect. Conversely, additional scrutiny of the results indicates that across all regimes, marriage effect in this overall sector is very susceptible to the presence of family and structural controls under model 2. The importance of these family factors is manifested in two ways: through large reductions in the marriage impact from the prior model in the early transition regime or through boosting the impact in the other regimes and particularly visible under regime 4.

By the second study and the atypical fluctuations under model 2 aside, the magnitude of the marriage effect has declined considerably. Importantly, it has become less stable. It is now susceptible not only to the influence of measured but also of unmeasured family factors and possibly harder-to-measure structural factors associated with urban and rural labor markets. Both historical time and transition stage play an important part in the influence of these factors in the decline in stability. The effect is both *small* and *unstable* under the regime at the tail end of the transition compared to the other regimes while in the earlier period of study, it was most stable under this regime. The vulnerability to both family and structural factors, measured and unmeasured, of the marriage effect on overall sector can plausibly be explained by two points: first, the sector is becoming the chief employer of women. Second, this overall economic domain is growing in diversity. This stems from previous government economic adjustment policies and the increasing privatization of the sector making the determinants of entry quite varied and complex.

[29] However, since there is only one case (Madagascar) arising from missing cases, one should treat interpretations here and in subsequent discussions of the net returns about regime 3 cautiously.

[TABLE 3 HERE]

Skilled sector. The stability of the marriage effect in the skilled sector is highly differentiated across regimes and study periods (table 3). Looking at the first study, and in contrast to the total sector, the oscillations under model 2 are now absent under all the regimes. However, further examination reveals another occupational sector difference. The marriage effect within this more regulated skilled sector is also stable to gradual controls for other measured characteristics under models 3 through 4 regardless of transition stage. But it is vulnerable to the influence of unmeasured factors and this depends on transition stage. It is stable under the regimes at the two ends of the transition continuum but unstable under the intermediate regimes. How does this dependency operate?

In settings where marriage is high and employment opportunities low as in regime 1, the marriage effect is stable but hinders participation. Mid-way in the transition, two scenarios are discernible. In settings typified by high marriage but with visible progress on employment availability as in regime 2, the effect is very unstable and virtually disappears in the presence of these unmeasured factors. Contrastingly, in settings where declines in marriage supersede the development of employment opportunities, the stability of the effect declines but not as dramatic. This suggests that progress in only one aspect of the transition may be insufficient for marriage to exert any measurable impact, and if anything, progress in employment appears to matter less than marriage declines.

Under advanced on both transitions as in regime 4, the marriage effect is both stable and relatively large. But this holds only in the early 1990s and not in recent times. Beyond distinguishing economic sectors and transition phase, this finding continues to emphasize the importance of a historical perspective in such analyses. Around 1997 onwards, the data show that the effect of marriage is not only robust to the presence of both unmeasured and measured factors. In all settings, whether marriage is prevalent or not, the marriage effect is stable to successive controls and the magnitude larger than observed before in so far as skilled sector access is concerned. Instructively, it also confirms the limited role of employment opportunities initially suspected; the impact is now least stable under regime 2 signaling that progress on the employment front can be

offset by high marriage rates. This, in turn, discounts any counter-arguments that where marriage is prevalent as in the early phases of the transition, most employed women would be married anyways even in the face of limiting employment opportunities, and that the observed stability in the marriage effect is spurious. This argument will be resolved by the decomposition exercise but before that it is important to mention that these findings are based on regime averages. In what follows, I therefore present and discuss how historical changes in the net returns unfolded within regimes highlighting individual country similarities and differences since the early 1990s.

Changes in the net marriage returns

The discussion that follows concentrates on changes in the fixed effects estimates (all model 5). In examining historical changes in the net marriage effect, the difference in the effect between the two periods is calculated. The detailed levels in the net effects for both study periods and changes in these are presented in table 2 for total and table 3 for skilled employment.

Overall sector changes. Trends in the net effect of marriage, calculated as annual changes are reported in the last panel of table 2**.** Broadly, with respect to the overall sector, all regimes register gains in employment returns to marriage, historically. Yet, there are large within-regime differences in the direction and magnitude of the observed changes. Changes are larger in countries in the more advanced stages relative to those in the early stages of the transition. Beginning with regime 4 countries where the changes are most intense, four (Cote d'Ivoire, Ghana, Nigeria, Senegal) out of five countries register gains in the net returns within this total sector. However, in most cases, these gains mean different things in different countries. For instance, Cote d'Ivoire and Nigeria registers the largest annual gains of 11.76 percent and 10.89 percent, respectively, because the changes in both cases reflect a shift from a significantly negative return to a positive one.

On the other hand, the gains in Ghana and Senegal are minute because they involve shifts with the direction remaining unchanged. Zimbabwe registered a decline in the net marriage returns, of 3.9 percent, setting itself apart from the rest of the regime

members. Additionally, in this country, the declines arise from returns that have been historically negative, with the marriage disadvantage becoming more entrenched over time. Thus, within this regime where the transition is most advanced, the importance of marriage for overall employment has generally grown remarkably in substantive terms, impeding participation in Zimbabwe but boosting it in the other countries. While at this point, the finding refutes Becker's specialization thesis, this statement may be premature as final judgment is made against the changes recorded within the more formalized skilled sector.

Turning to regime 2, the historical picture is, like regime 4, equally mixed in terms of direction of the changes between countries and within countries between study periods, with changes being more dramatic when they involve a directional change. Finally, under regime 1, where the changes are smallest, the experience of individual countries is also diverse, which in turn, is reflected in the implications they hold for individual countries. In Burkina Faso and to a much less degree Tanzania where returns have historically declined, the marriage disadvantage is becoming deeply seated; in Cameroon, Chad, and Uganda, as well as Zambia, the effect is shifting toward being nil from either initially negative or positive associations. In Mozambique, the tendency is toward a more positive association.

In brief, the net returns to marriage in the total employment sector have been shown to vary between countries over time, with transition stage emerging critical in these dynamics: changes are largest under regime 4 where the effect is mainly positive, moderate under regimes 3 and 2, and minimal under regime 1. The next sections examine how marriage impacts women's skilled sector work and the changes across times in the association.

Skilled sector changes. As observed for the overall sector, the net skilled sector returns to marriage follows dissimilar historical paths across countries, visually illustrated under (figure 6d). Within regime 1, three scenarios are visible. In the first scenario, the returns involve a directional shift in the effect, from being initially negative to being positive as in Burkina Faso (from HR = 0.52, ns to HR = 2.99***); Tanzania (from HR = 0.08*** to HR = 1.34, ns); and Chad (from HR = 0.27** to HR = 1.29, ns). Consequently, the shift

is enormous in all cases yielding annual gains of 12.8 percent, 16.4 percent, and 14.7 percent in Burkina Faso, Chad, and Tanzania, respectively. The second scenario is illustrated by Cameroon (from HR = 2.63, ns to HR = 1.61**) and Mozambique (from HR = 0.94 to HR = 0.75, ns), where the change involves an annual decline of 3.7 percent and 3.8 percent but the effect remains in the same direction. Thus, in both cases, the magnitude of the shift is small compared with the three earlier countries. In the third scenario, the shift is from a positive to a negative association: Uganda (from HR = 1.19 to HR = 0.72, ns) and Zambia (from HR = 1.24 to 0.56, ns) yielding corresponding net negative outcomes of 8.3 percent and 7.6 percent.

Regarding regime 2, historical trends in the returns to marriage takes a different pattern in each of the three countries: an annual gain of 8.4 percent in Benin and 4.5 percent in Niger. The change is less in size in Mali, again because it is a movement without any change in the sign but interesting in that net returns are increasingly becoming negative (from HR =0.90, ns to HR =0.78, ns). Finally, within the most advanced regime, the historical changes in the net returns can be described as follows: 1) gains that continue to grow stronger by 13.2 percent in Cote d'Ivoire (from HR = 1.23, ns to HR = 2.43**) and by 0.8 percent in Senegal (from HR = 1.48, ns to HR = 1.62**). 2) Historical declines of 14.68 percent that results from no change in the direction of the association in Zimbabwe (from HR = 2.51*** to HR = 1.16, ns) but still substantial or from a directional change in the association in Ghana (from HR = 1.11, ns to HR = 0.90, ns) but nonetheless relatively negligible (2.06 percent).

To summarize, historical changes in the net effect of marriage within the skilled sector show two broad trends: 1) a historical loss (involving 7 countries representing about 44 percent of the sample with data) and 2) a gain (involving 9 countries representing about 56 percent of the sample). Importantly, the path followed by each country is distinct, requiring *individual attention*. Yet, insightful as these results may be, they do not say for certain whether marriage or some other factor is behind these changes, thereby making it difficult to validate or refute any theory. Making both validation even more difficult and individual country attention more imperative, is the observed internal variation in the sign as well as substantive and level of statistical significance in the net returns within and between the two periods. Clearly, the relationship within any one

country is neither simple nor consistent across time. More compelling evidence comes from the decomposition exercise that partitions the observed change in women's paid employment within each country into its constituent parts. The results are presented below.

[TABLE 4 HERE]

Contribution of marriage to employment changes

Tables 4 and 5 give the decomposition results for the contribution of marriage relative to other factors within the total and skilled sector.

Skilled sector gains. I restrict the discussion here to the changes within the skilled sector as they are more pertinent in testing the economic specialization thesis. The results are presented in table 5 separated into countries recording gains (top panel) and countries recording reversals (bottom panel). Results indicate that women's likelihood of employment is predicted to grow in 67 percent of the sampled countries beginning with the country showing the largest gains: Tanzania, Chad, Namibia, Madagascar, Benin, Niger, Burkina Faso, Cote d'Ivoire, Cameroon, Mozambique, Nigeria, Senegal, Ghana, and Malawi. According to the table, the extent of the gains stretched from as low as about 0.40 logits in Malawi to as high as 54.8 logits in Tanzania (top panel). Excluding only Malawi where baseline effects are behind the gains, much of this progress is driven by *changes in the returns to marriage component* as opposed to other factors. It accounts for nearly all of the gains within the sector in all the countries but Malawi, where the baseline is the predominant factor. Said differently, the changing marriage effects, rather than changing prevalence of marriage or country-wide changes in employment opportunity, explain the historical changes in women's participation within this more formal sector relative to the overall economic domain. These findings confirm the earlier stability and robustness of the marriage effect noted above. Novel for Africa, the employment enhancing effect of marriage are at odds with the contextual gender based hypothesis argument forwarded for Japan (Retherford, Ogawa and Matsukura 2001; Ono 2003). Conversely, this growing marital *dividend* in the African labor markets is consistent with evidence from Western countries (Cherlin 1980, Goldscheider and Waite 1986, Lichter et al 1992, Oppenheimer and Lew 1995). This literature indicates that

women's increasing labor force participation stems from growth in married women's labor market activity yet from different factors. The underlying reason behind married women's participation stems from institutional factors and facilitating family policies (Brewster and Rindfuss 2000; Rindfuss and Brewster 1996). Clearly, in Africa where these institutional factors have yet to take a foothold, this is not the case.

[TABLE 5 HERE]

Skilled sector reversals. On the other hand, the bottom panel reveals that only 33 percent of the cases (Rwanda, Zambia, Uganda, Zimbabwe, Kenya, Ethiopia, and Mali) experience declines in employment within the skilled employment (table 4). Again, the employment returns to marriage explain these reversals, except in Kenya, where the change is mainly due to the baseline component.

How does the economic specialization perspective fare in African labor markets? Based on the data analyzed (the entire sample of countries with comparative repeat DHS data), the specialization thesis is supported in countries comprising 29 percent of the sample (Zimbabwe, Zambia, Mali, Ethiopia, Rwanda, and Uganda), where the observed reversals are driven by marriage effects. On the other hand, it is refuted in the majority of the sampled countries - 62 percent (Mozambique, Burkina Faso, Madagascar, Niger, Cote d'Ivoire, Ghana, Nigeria, Tanzania, Benin, Namibia, Chad, Cameroon, and Senegal) where the recorded gains stem from changes in married women's greater propensity to engage in skilled economic activities. That marriage and the more regulated skilled employment move together have implications for the fertility decline, inequality as well as the long-term efforts at enhancing women's position at the family and societal level in the region. With respect to sustaining a decline in fertility to levels that facilitate Africa's development[30] and granted that fertility decline is generally a precondition to development, the implications are grave. In almost all the countries where the recorded gains in women's employment within the skilled sector stem from married women's participation, fertility levels have increased during the study interval. This may well explain the reported stalls in the transition (Bongaarts 2006). To further tease out the

[30] Determining whether and if so what level is most critical to attaining development goals is beyond the purview of this paper. Suffice it to say the task is difficult and will require individual country focus and consideration of the contextual cross- and within-country variation.

nature of these processes, I look to the more comprehensive event history analyses that examine the sources of the gender differentials in labor force participation in the section below.

[TABLE 6 HERE]

Gender, marriage and employment in Cameroon

Table 6 presents the estimates of the event history analyses of the role of marriage in men and women's participation in the Cameroonian labor market, including the influence of contextual variation, specifically historical and broad economic trends. Table 7 reports the regression decomposition results.

Net effect of marriage

This section discusses the net estimates of the effect of marriage on men and women's labor force participation (table 6). If theoretical predictions hold, marriage should be inversely related to women's labor force participation (Becker 1981) but positively related to men's within the skilled labor market. Further, the gender employment gap should be attributed mostly to changes in returns to marriage. Conversely, where the gap is mainly explained by the baseline factors, gender differences in baseline opportunities is implicated, providing validity for the cultural perspective. In examining the results within the overall labor market, the net effect of marriage on women's employment (HR =1.22, ns) is not in the expected direction insofar as it is positive and non-significant. The role of marriage with respect to overall participation is even less apparent for men: the estimates show no relationship (HR = 1.01, ns).

Within the skilled sector, a different picture emerges: the risk of accessing the skilled sector becomes strikingly different between genders. For women, the net effect of marriage (HR = 0.03***) is negative, large, and highly significant, providing strong support for the specialization theory (Becker 1981). Judging by the estimate, married women are 97 percent less likely than their unmarried counterparts to be skilled sector employees. Conversely, married men's prospects for skilled sector work are escalated considerably by 186 percent (HR = 2.86***) relative to their unmarried peers, implying a *disequalizing* effect of marriage within any gender and between men and women. But the results are so far absolute. To assess the relative importance of marriage as opposed to

other factors on individual employment, I evaluate these findings against the decomposition results (table 7).

[TABLE 7 HERE]

Relative contribution of marriage

The contribution of marriage to change in women's employment is presented in table 22. The results confirm the net findings showing that marriage does favor men only partially. While the likelihood of accessing the overall sector is greater for men than for women, the gap stems mostly from the baseline, which explains 86 percent of the differential while returns to marriage explains only 33 percent of it. Average marriage levels have little effect on the difference. The gender differences in participation are even more marked within the formal sector, with employment prospects being positive for men (0.71 logits) and negative for women (-2.20) implying that men's odds of being formally employed by far surpasses that of women. The source of this large employment disparity is mainly tied to the baseline (84 percent) as opposed to the returns to marriage (14 percent). Thus, while women face greater difficulty than men in accessing the labor market, the impediment is attributed more to gender differences in employment opportunities and less to differences in the returns to marriage. The finding that returns to marriage (employer discriminatory practices tied to marriage) explain a smaller portion of the gap (i.e., 14 percent) compared with the baseline validates the specialization thesis only partially.

In attempts to further understand the reasons for or nature of the disequalizing impact of marriage in the Cameroonian labor market, an important question is what constitutes the baseline. To answer the question, I critically examine the influence of the controls, including contextual factors.

Contextual influences on the effect of marriage

A perceptible portion of the gender gap in employment stems from differences in returns to marriage (overall sector: 33 percent; skilled sector: 14 percent), especially in the overall labor market. This differential points to labor market discrimination, a fact that emerged occasionally from the focus group discussions. However, the main source of the gender gap in employment is the baseline effect. Below, I discuss some of the substantive

influences that are included in this baseline effect. These can include family influences, contextual influences, historical trends, and macro-economic changes. These various influences are discussed in turn.

Regarding family influences, husband reluctance and the women's reservation wage are important considerations. Indirect evidence on husband's disinclinations to wife's employment comes from a comparison of the CFS schooling and marriage results. The schooling results without the marriage variable indicate that women's education is unrelated to their labor force participation. However, a strong and positive effect of education emerges in both sectors once marriage is considered in the analyses, even if marriage itself is unrelated or negative. This insinuates that subtle processes within marriage bear on women's labor market behavior. Further indirect evidence can be gleaned from a critical examination of the DHS results. The Cameroon results for both studies show that beyond age and urban residence, husband's work status and co-residence bear on women's employment behavior within the overall sector. The potential influence of women's reservation wages also surfaced from the qualitative analyses. Women are generally family oriented and are more sensitive to structural labor market and macro economic changes. In an economic environment characterized by layoffs and hiring freezes in the country during the recession years of the late 1980s and early 1990s (Eloundou-Enyegue 1997), the retreat of married women from the labor market was to be expected, perhaps because of employer discrimination and poor and unpaid salaries (qualitative evidence) or increasing privatization and job insecurity (Beneria and Feldman 1992).

The historical trend in women's employment is also a potential factor. This was examined by including in the final model, an interaction term for the marriage and trend variables (table 21). Results show that the main effect of marriage is unrelated women's overall employment (main effect: HR = 0.89, ns; interaction between marriage and the trend variable: HR=1.09, ns), with trends in the effect remaining unchanged over time. The same is observed for men (main effect of marriage: HR=2.12, ns; interaction term: HR=0.81, ns). Because the interaction effects are not statistically significant, one can say that women's current labor force status has not changed as a result of passage of time per se. Unless policies or economic conditions change, calendar time does not significantly

affect employment prospects for men or women. In the formal labor market, the effects of marriage on women's employment also remained steady over time (interaction term: HR=2.43, ns). Among men however, the employment premium associated with marriage has declined with time (HR=0.43*). In essence, the gender gap in marital advantage has been narrowing. To understand some of these historical trends, it is useful to examine the influence of changes in national economic condition.

Results for overall employment show that economic conditions have a positive but non-significant impact on the effects of marriage among both women (interaction term: HR=1.39, ns) and men (interaction term: HR=1.52, ns). Results for the formal sector also indicate little influence of economic conditions on the marriage effect among both women (interaction term: HR=15.27, ns) and men (interaction term: HR=0.64, ns). In sum, much as calendar time, changes in macro-economic conditions often have little impact on the relation between marriage and overall employment for either gender.

CONCLUSIONS, RESEARCH AND POLICY DIRECTIONS

Overall, the evidence does not support the economic specialization argument. Whether, gains or reversals, but particularly for employment gains within the skilled sector, the returns to marriage have been the driver of the changes. Such finding highlights the inadequacy of relying on *cross-sectional* evidence to infer how *historical* gains in education may influence gains in women's employment. The impact of marriage on changes in women's labor force status also differ between the overall and skilled labor markets, justifying the continued use of even finer distinctions of occupational categories.

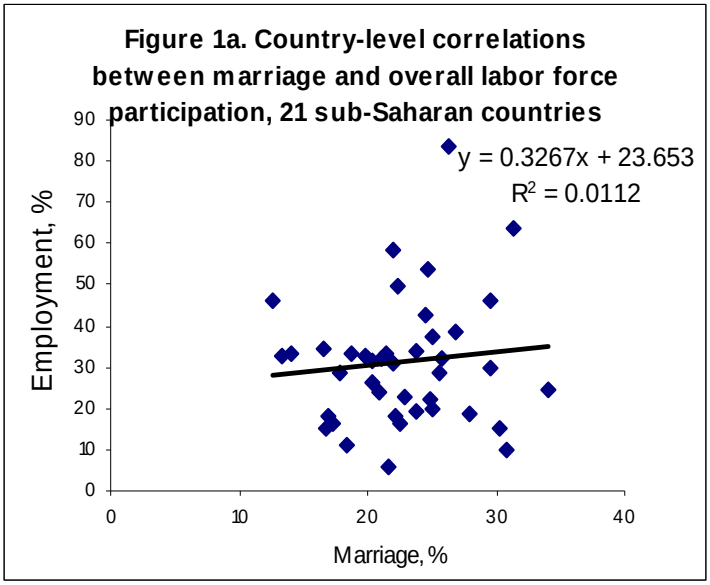
These results were aided by the adoption of an employment regime approach and the large-scale analysis that helps to refine estimates. The paper advocates the continued use of large data from multiple and various estimation techniques in a historical perspective. Further, statistical approaches that fail to account for unmeasured factors in such analyses can yield different outcomes, exaggerating or under-rating the employment premium to women's marriage. Yet, the effect of marriage turns out to be universal across countries, transcending geography. Said differently, marriage has proven quite resilient to country-specific factors, in so far as its contribution to employment changes is concerned. It becomes important therefore to further explore in future analyses the nature

of and the subtleties surrounding marital processes that have emerged so critical and ubiquitous in women's employment changes so as to inform policy-making. Future research efforts will be directed at unraveling the mix and relative influence of the contextual sources changes in women's employment prospects.

Table 1. Summary description of trends in marriage and returns to marriage, DHS countries in sub-Saharan Africa

							Panel 1: Marriage			Panel 2: Employment						Panel 3: Bivariate Returns to Marriage by age 25, Odds ratios					
			Survey Period				Married by age 25			Overall			Skilled			Overall			Skilled		
Countries and types	Year 1_N	Year 2_N		Year 1		Year 2 - Year1	[1]	[2]	Annualized Change, %	[1]	[2]	Annualized Change	[1]	[2]	Annualized Change, %	[1]	[2]	Annualized Change, %	[1]	[2]	Annualized Change(%),Odds
High Marriage - Low Employment Regime																					
Burkina Faso	*6354*	*12477*	9416	1992	2003	11	31.27	24.76	-2.11	83.65	22.10	-10.58	5.11	10.89	6.57	0.84	0.61	-0.03	*1.13*	1.33	0.015
Cameroon	*3871*	*10656*	7264	1991	2004	13	26.27	24.81	-0.44	24.59	29.83	1.48	9.14	15.25	3.86	0.56	1.12	0.05	*0.66*	1.87	0.074
Chad	*7454*	*6085*	6770	1996	2004	8	34.13	29.58	-1.78	32.37	18.53	-6.80	4.31	25.44	17.75	0.69	0.62	-0.01	0.53	*1.26*	0.102
Malawi	*4849*	*13220*	9035	1992	2000	8	25.70	27.87	1.01	19.43	19.71	0.18	13.06	22.76	6.77	0.59	0.66	0.01	*1.00*	0.79	-0.029
Mozambique	*8779*	*12418*	10599	1997	2003	6	26.91	24.44	-1.60	9.79	15.35	7.37	19.93	14.07	-5.75	0.30	0.45	0.06	*0.91*	*1.03*	0.021
Tanzania	*9238*	*10329*	9784	1992	2004	12	20.43	22.50	0.80	15.33	17.84	1.26	16.15	22.48	2.73	0.62	0.55	-0.01	0.08	*1.15*	0.146
Uganda	*7070*	*7246*	7158	1995	2001	6	29.50	22.26	-4.66	16.58	18.26	1.61	37.12	22.77	-7.99	0.55	0.76	0.05	*1.03*	0.74	-0.055
Zambia	*7060*	*7658*	7359	1992	2002	10	21.93	20.33	-0.75	33.07	23.84	-3.24	30.30	20.57	-3.83	0.67	0.71	0.01	1.26	0.59	-0.072
Sub-sample	**54675**	**80089**	**67382**																		
		Average within type					**26.84**	**24.66**	**-0.90**	**28.17**	**20.68**	**-3.25**	**17.63**	**18.52**	**0.52**	**0.60**	**0.68**	**0.01**	**0.79**	**1.11**	**0.036**
High Marriage - High Employment Regime																					
Benin	*5491*	*6219*	5855	1996	2001	5	21.96	22.90	0.83	63.43	53.92	-0.03	9.22	16.93	0.12	0.83	0.86	0.01	*1.03*	1.34	0.053
Mali	*9704*	*12849*	11277	1996	2001	5	23.75	25.05	1.06	34.06	37.26	0.02	25.39	18.09	-0.07	0.78	0.68	-0.03	*1.00*	*0.99*	-0.002
Namibia	*5421*	*6755*	6088	1992	2000	8	23.75	25.05	0.67	32.36	31.94	0.00	19.71	26.37	0.04	0.79	*0.94*	0.02	0.42	0.68	0.059
Niger	*6503*	*7577*	7040	1992	1998	6	30.74	30.26	-0.26	28.38	34.66	0.03	34.58	29.29	-0.03	0.43	0.48	0.02	1.39	1.52	0.015
Sub-sample	**27119**	**33400**	**30260**																		
		Average within type					**25.07**	**25.83**	**0.57**	**38.30**	**38.70**	**0.00**	**23.19**	**22.09**	**-0.01**	**0.71**	**0.72**	**0.00**	**0.98**	**1.11**	**0.023**
Low Marriage - Low Employment Regime																					
Ethiopia	*15367*	*14070*	14719	1992	1997	5	19.95	21.09	1.11	26.09	16.21	-0.09	39.43	20.71	-0.12	0.57	0.59	0.01	1.22	*0.91*	-0.059
Madagascar	*6260*	*7949*	7104.5	1992	2004	12	17.86	16.66	-0.58	30.86	22.88	-0.02	53.59	17.64	-0.08	0.68	0.74	0.01	0.70	*1.21*	0.045
Rwanda	*6551*	*10421*	8486	1992	2000	8	13.27	12.65	-0.60	6.08	10.97	0.07	43.22	35.77	-0.02	0.58	0.64	0.01	*1.44*	0.41	-0.140
Sub-sample	**28178**	**32440**	**30309**																		
		Average within type					**17.93**	**17.29**	**-0.30**	**22.50**	**16.16**	**-0.03**	**43.45**	**24.80**	**-0.05**	**0.59**	**0.64**	**0.01**	**1.15**	**0.82**	**-0.028**
Low Marriage - High Employment Regime																					
Cote d'Ivoire	*8099*	*3040*	5570	1994	1999	5	21.53	18.36	-3.19	38.73	42.67	1.93	7.28	10.80	7.79	0.65	0.78	0.04	1.08	*1.09*	0.001
Ghana	*9405*	*5691*	7548	1993	2003	10	25.58	14.02	-5.84	45.99	49.67	0.77	32.49	30.79	-0.54	1.19	*1.08*	-0.01	*1.08*	*1.16*	0.007
Kenya	*7540*	*8195*	7868	1993	2003	10	16.80	17.02	0.13	58.51	31.71	-5.94	22.90	12.90	-5.58	0.60	0.64	0.01	0.77	0.49	-0.045
Nigeria	*9810*	*7620*	8715	1999	2003	4	17.37	22.20	6.11	32.59	46.26	8.67	19.96	22.10	2.54	0.72	0.78	0.02	*1.07*	1.26	0.039
Senegal	*6310*	*14602*	10456	1993	2005	12	18.75	20.92	0.91	28.82	33.57	1.27	15.99	18.23	1.09	0.37	0.38	0.00	1.72	1.81	0.004
Zimbabwe	*6128*	*5907*	6018	1994	1999	5	19.89	21.48	1.54	32.91	33.49	0.34	40.03	30.15	-5.63	0.56	0.52	-0.02	1.62	0.78	-0.140
Sub-sample	**47292**	**45055**	**46174**																		
		Average within type					**20.14**	**19.46**	**-0.48**	**39.98**	**38.01**	**-0.70**	**22.82**	**20.56**	**-1.44**	**0.72**	**0.63**	**-0.02**	**1.19**	**1.21**	**0.003**
Total Sample	**157264**	**190984**																			
				AVERAGE			**22.81**	**22.38**	**-0.24**	**32.46**	**27.15**	**-2.21**	**24.79**	**20.69**	**-2.24**	**0.64**	**0.67**	**0.00**	**1.01**	**1.09**	**0.01**
				INEQUALITY			**0.05**	**0.04**	**-4.17**	**0.28**	**0.16**	**-6.57**	**0.29**	**0.09**	**-12.68**	**0.08**	**0.08**	**0.00**	**0.14**	**0.14**	**0.00**

Figure 1a-b. Country-level correlations between marriage and labor force participation, 21 sub-Saharan countries



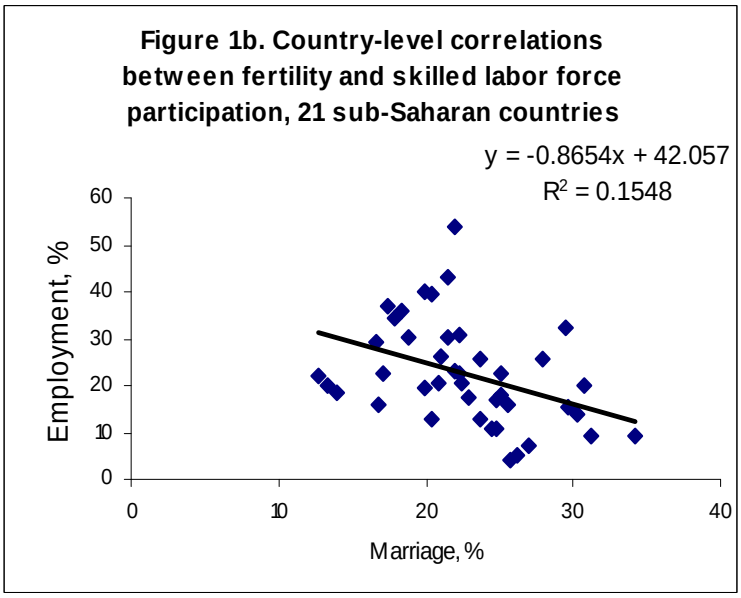
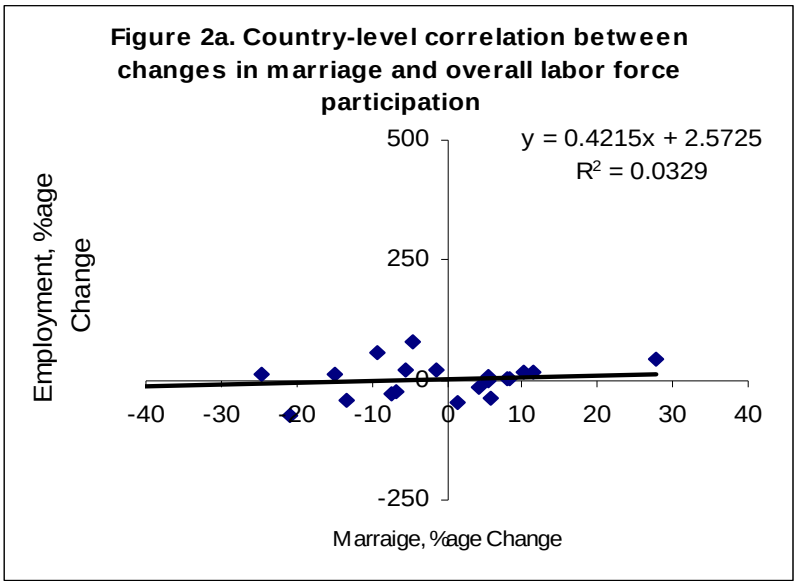


Figure 2a-b. Country-level correlation between changes in marriage and women's labor force participation



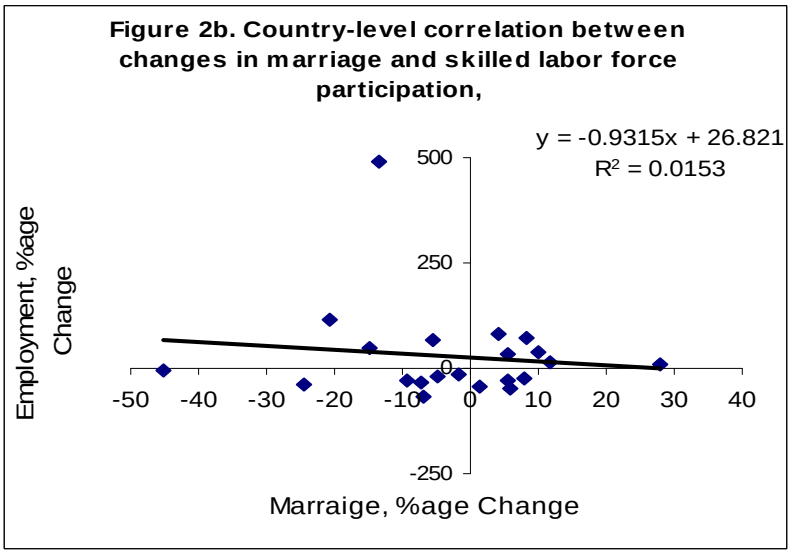


Table 2. Net estimates of the effect of marriage on women's labor force participation, DHS Sub-Saharan countries

			Overall Employment													
			First Period					Second Period					Changes in net effects			
			Logistic regression				Fixed Effects	Logistic regression				Fixed Effects	Fixed Effects Models			
			Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5	Study 1	Study 2		
			Basic Controls	Family composition	Economic constraints	Aspirations	Aspirations	Basic Controls	Family composition	Economic constraints	Aspirations	Aspirations	Aspirations	Aspirations		
Countries an	Sample	Survey y	Odds Ratio	Sig	Odds Ratio	Sig	Odds Ratio	Sig	Odds Ratio	Sig	Hazard Ratio	Sig	Odds Ratio	Sig	Odds Ratio	Sig	Hazard Ratio	Sig	HR	Sig	HR	Sig	Change (percent)
HIGH MARRIAGE - LOW EMPLOYMENT REGIME																							
Burkina Faso	*6354*	1992	0.75	*	0.92		0.81		0.82		0.90		0.70	***	1.00		0.66	***	0.64	***	0.67	***	0.90		0.67	***	-2.60
Cameroon	*3871*	1991	1.01		1.15		0.95		0.93		0.79		1.12		1.36	***	0.93		0.92		0.91		0.79		0.91		1.09
Chad	*7454*	1996	0.78	***	0.80	**	0.68	***	0.65	***	0.75	**	0.85	*	1.04		0.83		0.83		0.83		0.75	**	0.83		1.23
Mozambique	*8779*	1997	0.47	***	0.61	***	0.47	***	0.51	***	0.83		0.69	***	1.06		0.97		0.99		1.13		0.83		1.13		5.03
Tanzania	*9238*	1992	0.80	**	1.07		0.93		0.92		0.84		0.59	***	0.88		0.59	***	0.60	***	0.76	*	0.84		0.76	*	-0.82
Uganda	*7070*	1995	0.58	***	0.89		0.69	***	0.75	*	0.77	*	0.83	*	1.22	*	0.92		0.96		0.94		0.77	*	0.94		3.37
Zambia	*7060*	1992	0.98		1.30	***	1.17		1.18		1.18		0.99		1.35	***	0.91		0.89		0.95		1.18		0.95		-2.18
Sub-sample	**49826**																										
	Average within type		**0.75**		**0.94**		**0.80**		**0.81**		**0.87**		**0.81**		**1.12**		**0.82**		**0.82**		**0.88**		**0.87**		**0.88**		**0.21**
HIGH MARRIAGE - HIGH EMPLOYMENT REGIME																											
Benin	*5491*	1996	0.91		1.05		0.69	***	0.71	***	0.86		1.32	***	1.65	***	1.02		1.01		1.20		0.86		1.20		6.69
Mali	*9704*	1996	0.88	*	1.17	*	0.99		1.10		1.01		0.76	***	0.90		0.76	***	0.76	***	0.85	*	1.01		0.85	*	-3.32
Niger	*6503*	1992	0.62	***	0.72	***	0.69	***	0.69	***	0.62	***	0.65	***	0.79	***	0.68	***	0.71	***	0.68	***	0.62	***	0.68	***	1.60
Sub-sample	**21698**																										
	Average within type		**0.81**		**1.00**		**0.83**		**0.88**		**0.85**		**0.86**		**1.04**		**0.80**		**0.80**		**0.89**		**0.85**		**0.89**		**0.71**
LOW MARRIAGE - LOW EMPLOYMENT REGIME																											
Madagascar	*6260*	1992	0.82	*	1.02		0.91		0.90		1.01		1.12		1.66	***	1.47	***	1.46	***	1.67	***	1.01		1.67	***	4.15
Sub-sample	*6260*																										
	Average within type		**0.82**		**1.02**		**0.91**		**0.90**		**1.01**		**1.12**		**1.66**		**1.47**		**1.46**		**1.67**		**1.01**		**1.67**		**4.15**
LOW MARRIAGE - HIGH EMPLOYMENT REGIME																											
Cote d'Ivoire	*8099*	1994	0.68	***	0.84	*	0.62		0.63	***	0.62	***	0.73	***	0.96		1.16		1.19		1.14		0.62	***	1.14		11.76
Ghana	*9405*	1993	1.36	***	1.71	***	1.01		1.03		1.05		1.28	**	1.83	***	1.20		1.24	*	1.27	*	1.05		1.27	*	1.91
Nigeria	*9810*	1999	1.28	***	1.33	***	0.88		0.86		0.81	*	1.73	***	1.59	***	1.22	*	1.27	**	1.26	*	0.81	*	1.26	*	10.89
Senegal	*6310*	1993	0.53	***	0.59		0.59	***	0.58	***	0.62	***	0.64	***	0.78	***	0.67	***	0.69	***	0.80	***	0.62	***	0.80	***	2.14
Zimbabwe	*6128*	1994	0.64	***	0.85		0.80	*	0.79	*	0.82		0.65	***	0.81	*	0.65	***	0.65	***	0.67	***	0.82		0.67	***	-3.87
Sub-sample	**39752**																										
	Average within type		**0.96**		**1.23**		**0.80**		**0.80**		**0.80**		**0.97**		**1.13**		**0.90**		**0.93**		**0.97**		**0.80**		**0.97**		**2.76**
Overall Sample	**117536**																										
		AVERAGE	**0.82**		**1.01**		**0.81**		**0.82**		**0.85**		**0.87**		**1.12**		**0.89**		**0.89**		**0.96**		**0.85**		**0.96**		**1.56**
		INEQUALI	**0.09**		**0.08**		**0.05**		**0.05**		**0.03**		**0.11**		**0.07**		**0.07**		**0.07**		**0.07**		**0.03**		**0.07**		**8.91**

Table 3. Net estimates of the effect of marriage on women's labor force participation, DHS Sub-Saharan countries

			Skilled Employment												
			First Period					Second Period					Changes in net effects		
			Logistic regression				Fixed Effects	Logistic regression				Fixed Effects	Fixed Effects Models		
			Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5	Study 1	Study 2	
			Basic Controls	Family composition	Economic constraints	Aspirations	Aspirations	Basic Controls	Family composition	Economic constraints	Aspirations	Aspirations	Aspirations	Aspirations	
Countries and types	Period 2		Odds Ratio Sig	Odds Ratio Sig	Odds Ratio Sig	Odds Ratio Sig	Hazard Ratio Sig	Odds Ratio Sig	Odds Ratio Sig	Odds Ratio Sig	Odds Ratio Sig	Hazard Ratio Sig	HR Sig	HR Sig	Annualized Change (%)
High Marriage - Low Employment Regime															
Burkina Faso	*6354*	1992	1.31	1.20	0.99	0.98	0.52	1.95 ***	1.95 ***	2.25 ***	2.48 ***	2.99 ***	0.52	2.99 ***	12.77
Cameroon	*3871*	1991	1.27	1.37	1.21	1.00	2.63	1.53 ***	1.56 ***	1.65 ***	1.62 ***	1.61 **	2.63	1.61 **	-3.70
Chad	*7454*	1996	0.69	0.63	0.67	0.53	0.27 **	1.15	1.23	1.25	1.20	1.29	0.27 **	1.29	16.45
Mozambique	*8779*	1997	1.19	1.13	1.14	1.39	0.94	1.50	1.30	1.10	1.05	0.75	0.94	0.75	-3.84
Tanzania	*9238*	1992	0.12 ***	0.11 ***	0.10 ***	0.10 ***	0.08 ***	1.42 *	1.30	1.38	1.35	1.34	0.08 ***	1.34	14.73
Uganda	*7070*	1995	1.28	1.05	1.10	1.07	1.19	0.91	0.81	0.84	0.87	0.72	1.19	0.72	-8.29
Zambia	*7060*	1992	1.34 **	1.08	1.08	1.10	1.24	0.81	0.67	0.63	0.59 *	0.56	1.24	0.56	-7.64
Sub-sample	**49826**														
	Average within type		**0.97**	**0.87**	**0.85**	**0.85**	**0.84**	**1.40**	**1.33**	**1.38**	**1.40**	**1.42**	**0.84**	**1.42**	**5.47**
High Marriage - High Employment R								#							
Benin	*5491*	1996	0.65 **	0.85	0.80	0.74	0.74	1.07	1.06	1.04	1.03	1.13	0.74	1.13	8.43
Mali	*9704*	1996	1.25	1.07	1.16	1.25	0.90	1.01	1.03	0.93	0.97	0.78	0.90	0.78	-2.92
Niger	*6503*	1992	1.13	1.26	1.34	1.36	1.22	1.58 ***	1.72 ***	2.06 ***	1.96 ***	1.61	1.22	1.61 *	4.53
Sub-sample	**21698**											*			
	Average within type		**1.06**	**1.07**	**1.12**	**1.15**	**0.96**	**1.19**	**1.23**	**1.28**	**1.26**	**1.10**	**0.96**	**1.10**	**2.56**
Low Marriage - Low Employment Regime															
Madagascar	*6260*	1992	0.80	0.69 *	0.65 **	0.63 **	0.86	2.13 ***	2.15 ***	2.48 ***	2.40 ***	2.31 **	0.86	2.31 **	7.66
Sub-sample	*6260*														
	Average within type		**0.80**	**0.69**	**0.65**	**0.63**	**0.86**	**2.13**	**2.15**	**2.48**	**2.40**	**2.31**	**0.86**	**2.31**	**7.66**
Low Marriage - High Employment Regime															
Cote d'Ivoire	*8099*	1994	0.96	0.96	0.97	0.97	1.23	1.44	1.65	1.76	2.01 *	2.43 **	1.23	2.43 **	13.18
Ghana	*9405*	1993	1.00	0.94	1.10	1.11	1.11	1.07	0.97	1.10	1.08	0.90	1.11	0.90	-2.06
Nigeria	*9810*	1999	0.93	0.97	1.03	0.86	0.79	1.09	1.07	0.97	0.97	0.97	0.79	0.97	4.91
Senegal	*6310*	1993	1.42	1.43	1.44	1.54	1.48	1.52 ***	1.49 ***	1.58 ***	1.61 ***	1.62 **	1.48	1.62 **	0.78
Zimbabwe	*6128*	1994	2.77 ***	2.10 ***	1.96 ***	1.98 ***	2.51 ***	1.68 ***	1.30	1.09	1.09	1.16	2.51 ***	1.16	-14.68
Sub-sample	**39752**														
	Average within type		**1.31**	**1.21**	**1.24**	**1.22**	**1.33**	**1.38**	**1.31**	**1.32**	**1.35**	**1.37**	**1.33**	**1.37**	**0.40**
Total Sample	**117536**														
	AVERAGE		**1.09**	**1.01**	**1.01**	**1.01**	**1.03**	**1.40**	**1.37**	**1.43**	**1.45**	**1.46**	**1.03**	**1.46**	**4.31**
	INEQUALITY		**0.22**	**0.16**	**0.15**	**0.18**	**0.33**	**0.06**	**0.08**	**0.13**	**0.15**	**0.24**	**0.33**	**0.24**	**-4.13**

Table 4. Relative contributions of marriage to changes in women's overall labor force participation, DHS countries in sub-Saharan Africa

Countries	1st sample size	2nd sample size	Average sample size	Interval	Predicted Employment, logits: Ist Study	2nd Study	Total change (logits)	% of total change associated with: Baseline	Marriage	Returns to marriage
							Overall employment			
GAINS IN RETURNS										
High Marriage - Low Employment Regime										
Cameroon	*3871*	*10656*	7264	13	-1.08	0.99	2.08	-21%	-5%	126%
Chad	*7454*	*6085*	6770	8	-9.20	-6.41	2.79	-22%	33%	89%
Malawi	*4849*	*13220*	9035	8	-8.94	-7.32	1.61	-5%	-32%	137%
Mozambique	*8779*	*12418*	10599	6	-23.90	-11.93	11.97	5%	12%	83%
Uganda	*7070*	*7246*	7158	6	-18.19	-6.44	11.74	1%	22%	76%
High Marriage - High Employment Regime										
Benin	*5491*	*6219*	5855	5	-1.60	6.15	7.75	-8%	1%	107%
Namibia	*5421*	*6755*	6088	8	2.84	12.75	9.91	-1%	5%	96%
Niger	*6503*	*7577*	7040	6	-15.48	-13.40	2.07	15%	10%	75%
Low Marriage - Low Employment Regime										
Ethiopia	*15367*	*14070*	14719	5	-13.92	-12.99	0.93	-63%	-72%	235%
Madagascar	*6260*	*7949*	7105	12	-4.94	-0.20	4.74	-17%	1%	116%
Rwanda	*6551*	*10421*	8486	8	-11.26	-9.82	1.44	35%	25%	40%
Low Marriage - High Employment Regime										
Cote d'Ivoire	*8099*	*3040*	5570	5	-8.95	-5.72	3.22	16%	35%	50%
Kenya	*7540*	*8195*	7868	10	-10.32	-7.02	3.30	-43%	-3%	146%
Nigeria	*9810*	*7620*	8715	4	2.31	11.52	9.22	15%	21%	65%
Senegal	*6310*	*14602*	10456	12	-12.92	-10.32	2.60	0%	-45%	145%
REVERSALS IN RETURNS										
High Marriage - Low Employment Regime										
Burkina Faso	*6354*	*12477*	9416	11	-7.21	-10.23	-3.03	100%	-69%	69%
Tanzania	*9238*	*10329*	9784	12	-7.11	-14.29	-7.17	-1%	11%	90%
High Marriage - High Employment Regime										
Mali	*9704*	*12849*	11276.5	5	-3.87	-7.33	-3.46	-4%	8%	97%
Low Marriage - High Employment Regime										
Ghana	*9405*	*5691*	7548	10	6.97	2.42	-4.55	3%	70%	27%
Zambia	*7060*	*7658*	7359	10	-1.89	-2.69	-0.79	117%	-3%	-14%
Zimbabwe	*6128*	*5907*	6018	5	-10.62	-11.23	-0.61	1%	114%	-15%

Table 5. Relative contributions of marriage to changes in women's skilled labor force participation, DHS countries in sub-Saharan Africa

Countries	1st sample size	2nd sample size	Average sample size	Interval	Predicted Employment, logits			% of total change associated with		
					1st	2nd	Total change (logits)	Baseline	Marriage	Returns to marriage
					Skilled employment					
GAINS IN RETURNS										
High Marriage - Low Employment Regime										
Burkina Faso	*6354*	*12477*	9416	11	4.57	13.98	9.41	14%	-32%	118%
Cameroon	*3871*	*10656*	7264	13	0.47	8.15	7.68	42%	-6%	64%
Chad	*7454*	*6085*	6770	8	-15.95	3.13	19.08	11%	3%	86%
Malawi	*4849*	*13220*	9035	8	-1.65	-1.26	0.40	351%	13%	-265%
Mozambique	*8779*	*12418*	10599	6	2.16	6.74	4.58	-13%	-16%	128%
Tanzania	*9238*	*10329*	9784	12	-48.67	6.10	54.77	6%	-3%	98%
High Marriage - High Employment Regime										
Benin	*5491*	*6219*	5855	5	-12.77	-0.41	12.36	9%	-1%	92%
Niger	*6503*	*7577*	7040	6	3.25	12.84	9.59	-4%	-1%	105%
Namibia	*5421*	*6755*	6088	8	-12.37	2.10	14.47	14%	0%	87%
Low Marriage - Low Employment Regime										
Madagascar	*6260*	*7949*	7105	12	-3.86	10.51	14.36	-16%	-2%	118%
Low Marriage - High Employment Regime										
Cote d'Ivoire	*8099*	*3040*	5570	5	-4.51	3.70	8.21	7%	-6%	99%
Nigeria	*9810*	*7620*	8715	4	-3.11	0.11	3.22	1%	1%	98%
Senegal	*6310*	*14602*	10456	12	4.61	6.62	2.01	-4%	42%	63%
Ghana	*9405*	*5691*	7548	10	-0.77	0.65	1.42	28%	-26%	98%
REVERSALS IN RETURNS										
High Marriage - Low Employment Regime										
Uganda	*7070*	*7246*	7158	6	6.93	-4.43	-11.36	18%	5%	77%
Zambia	*7060*	*7658*	7359	10	5.67	-5.88	-11.54	9%	1%	91%
High Marriage - High Employment Regime										
Mali	*7070*	*7246*	7158	6	4.31	-1.59	-5.90	13%	-3%	90%
Low Marriage - Low Employment Regime										
Ethiopia	*15367*	*14070*	14719	5	6.77	-1.25	-8.02	20%	-3%	83%
Rwanda	*6551*	*10421*	8486	8	6.28	-9.10	-15.39	18%	0%	82%
Low Marriage - High Employment Regime										
Zimbabwe	*6128*	*5907*	6018	5	19.28	8.98	-10.30	12%	-12%	100%
Kenya	*7540*	*8195*	7868	10	-1.86	-10.52	-8.67	77%	0%	23%

Table 6. Net estimates of the effect of marital status on employment, Cameroon 1959-1999

	Overall Estimates						Historical Context					
	General estimating equations			Fixed effects			Fixed effects			Fixed effects		
	Model 4			Model 5			Model 6			Model 7		
	B	O R	Sig	B	HR	Sig	B	HR	Sig	B	HR	Sig
Outside Home Employment: Women												
Demographic transition												
Marital status	0.10	1.11		0.20	1.22		-0.11	0.89		-2.23	0.11	
Maximun grade	0.17	1.19		0.33	1.40	**	0.32	1.38	**	0.32	1.38	**
Maximun grade, squared	-0.01	0.99		-0.02	0.98	***	-0.02	0.98	***	-0.02	0.98	***
Ability	1.34	3.83		2.40	11.06	**	2.43	11.41	**	2.44	11.51	**
Historical trend												
Log of time							0.18	1.20		0.21	1.23	
Marital status*log of time							0.09	1.09		0.06	1.06	
Economic conditions												
Log of GNP										-0.07	0.93	
Marital status*log of gnp										0.33	1.39	
Outside Home Employment: Men												
Demographic transition												
Marital status	0.31	1.37		0.01	1.01		0.75	2.12		-1.94	0.14	
Maximun grade	0.26	1.30		0.37	1.45	***	0.38	1.46	***	0.36	1.44	***
Maximun grade, squared	-0.01	0.99	*	-0.02	0.98	***	-0.02	0.98	***	-0.02	0.98	***
Ability	2.32	10.22		4.05	57.64	***	3.94	51.55	***	4.00	54.55	***
Historical trend												
Log of time							-0.32	0.72		-0.34	0.71	
Marital status*log of time							-0.21	0.81		-0.22	0.80	
Economic conditions												
Log of GNP										0.12	1.12	
Marital status*log of gnp										0.42	1.52	
Formal Employment: Women												
Demographic transition												
Marital status	-0.96	0.38	**	-3.55	0.03	***	-10.79	2.1E-05	**	-29.41	2.E-13	*
Maximun grade	-0.52	0.59		0.12	1.13		1.06	2.88		1.24	3.45	
Maximun grade, squared	0.03	1.03		0.07	1.08	*	0.17	1.19		1.07	2.92	*
Ability	6.96	1053.84	*	-8.94	0.00		-40.48	0.00	***	-0.01	0.99	**
Historical trend												
Log of time							-22.51	0.00	***	-22.22	0.00	***
Marital status*log of time							0.89	2.43		0.96	2.61	
Economic conditions												
Log of GNP										-2.51	0.08	*
Marital status*log of gnp										2.73	15.27	
Formal Employment: Men												
Demographic transition												
Marital status	0.27	1.31		1.05	2.86	***	4.29	73.22	**	7.44	1700	
Maximun grade	-0.34	0.71		-0.17	0.85		-0.20	0.82		-0.20	0.82	
Maximun grade, squared	0.03	1.03		0.04	1.04	***	0.04	1.04	***	0.21	1.23	**
Ability	-0.18	0.83		-2.81	0.06	*	-2.88	0.06	*	0.00	1.00	
Historical trend												
Log of time							0.39	1.48		0.41	1.51	
Marital status*log of time							-0.84	0.43	*	-0.89	0.41	*
Economic conditions												
log of GNP										0.31	1.36	
Marital status*log of gnp										-0.45	0.64	

[a] All the estimates are net of all the correlates. However, I show only the estimates from the basic and contextual models to be brief.

Table 7. Relative contributions of marriage to differences in men and women's labor force participation (logits), Cameroon

Predicted Employment Logits					
		Total difference (logits)	% of difference associated with		
Men	Women		Baseline	Average Marriage	Returns to Marriage
Total employment					
-2.96	-3.16	0.21	0.18	-0.04	0.07
			86%	-0.19	33%
Formal employment					
0.707	-2.204	2.91	2.45	0.07	0.40
			84%	0.02	14%

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