

Time Use and Gender in Africa in Times of Structural Transformation*

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Abstract

Changes in time allocation between home and market work are central to the process of economic development. As economies move through the structural transformation, activities once conducted entirely within the household get outsourced to the market. Women tend to be particularly affected by this process of marketization of home production services. In this paper, we introduce some new facts about how women allocate their time between home and market in Africa, and compare these patterns of time use to patterns from the historical US. We show that home production time in Africa frequently equates to full-time work. In North African countries, very few women allocate any time to the market, while in sub-Saharan African, a high share of women work in the market for a small number of hours each week, with the rest of their work time spent in home production. Gender gaps in home production time are large everywhere. With these facts in hand, we highlight key constraints to and possible opportunities for a different allocation of women's time in Africa, drawing on recent research in micro and macro development. We draw attention to constraints arising from (1) social norms regarding the appropriate allocation of female time to home and market, and (2) a lack of supporting infrastructure for the marketization of home production (e.g. household infrastructure, childcare facilities).

Keywords: Africa, time use, gender, work, structural transformation

JEL Classification:

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1 Introduction

Time allocation is at the heart of many fields in economics, and changes in time allocation are central to the process of economic development. As an economy develops, activities that were once conducted entirely within the household - for example, cooking, producing clothing and household goods, providing child and eldercare - get outsourced to the market. This shift in activity from home to market has implications for how women and men spend their time. When individuals can allocate their time between home and market based on their talents, the economy benefits from reduced labor misallocation (Hsieh et al., 2019), and aggregate welfare improves. When unpaid household work can be outsourced to the paid market sector, this generates more compensated female jobs. Both shifts improve gender equality in labor market outcomes and in the home.

Women's time allocation between market and home depends crucially on the availability of labor market opportunities. The emergence of new types of labor market opportunities for women is linked to the process of structural transformation, in which production shifts across the agricultural, manufacturing, and services sectors. Typically, as the service sector expands, home production can be more easily outsourced to the market via a process of marketization, and two market jobs are often created: one for the woman who is able to reduce her time in home production, and another in the service sector, which itself tends to be intensive in female labor.

Although most of the Western world has already passed through these stages of structural transformation, many African countries are still in the early stages of this process. There is still a large knowledge gap regarding women's time use and time allocation on the continent. Learning more about how women in Africa allocate time between home and market provides an opportunity to deepen our understanding of the process of structural transformation in general, and especially when comparing African experiences with the historical experiences of rich countries.

The goals of this article are two-fold: To introduce some new facts about time use and gender in Africa and to combine these facts with insights from recent research in development micro and macro to highlight key constraints to and possible opportunities for a different

allocation of women's time in Africa.

First, we document key features of unpaid time in home production in a set of African countries, characterize the nature of women's market work for a large range of countries on the continent, and draw out links between home and market work time at early stages of the structural transformation in Africa. Using a combination of time use surveys, labor force surveys, and macroeconomic data on employment patterns by industry we show that in the 2000s, we show that African housewives spent similar amounts of time on home production each week as American housewives, but a much larger share of time in cooking. As in other parts of the world, gender gaps in time spent in home production are large in Africa. We note substantial heterogeneity in women's market work across the continent: for example, although market participation rates are very high in many sub-Saharan African countries, they are very low in North Africa. Where women are working in the market, high female labor force participation rates often coexist with low average market hours per woman and high home production hours. Importantly, over the last three decades, very little of the market work performed by women has been in wage work. The majority of women's market work occurs on family farms and in own-account or family firms.

With these key features in hand, we discuss some of the key constraints to and possible opportunities for moving towards a more efficient and equitable allocation of labor time in low-income country settings. We organize this discussion around two key frictions that may slow down the marketization of home production in Africa: (1) social norms regarding the appropriate allocation of female time across home and market; and (2) the lack of supporting infrastructure to manage necessary household work – including both physical infrastructure for household utilities and child- and family-care services. We also discuss how social norms in combination with a lack of physical infrastructure to facilitate safe market work operate to limit female labor market opportunities outside of the home. We highlight recent empirical evidence on policies that may address these frictions, and discuss areas for future research.

2 Home production and structural transformation

What does home production entail? Reid (1934) provides an early and still-relevant definition:

It consists of those unpaid activities which are carried on, by and for the members, which activities might be replaced by market goods, or paid services, if circumstances such as income, market conditions, and personal inclinations permit the service being delegated to someone outside the household group. (Reid 1934: 11)

Time in home production is defined as the time spent on the production of goods and services for own (not market) use. Typical modern day examples are cooking, cleaning, laundry, and child- and eldercare. In many African countries, time spent in wood and water fetching for use in the household is also part of home production.

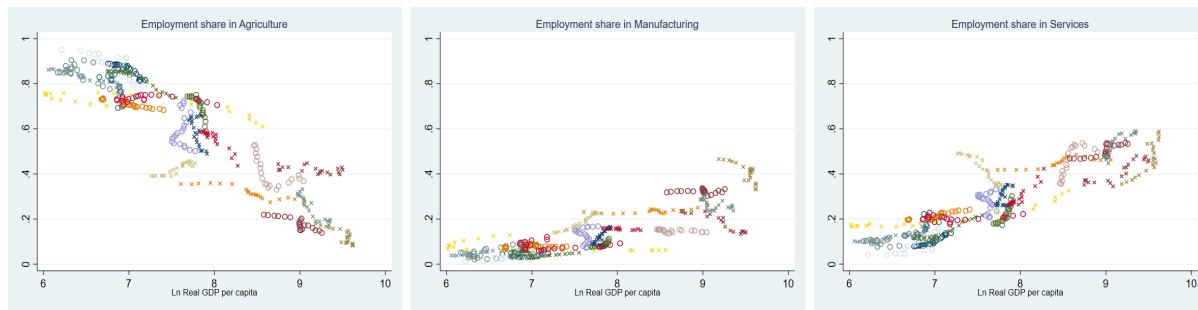
As Reid (1934) observed and Lebergott (1993) documented with consumption expenditure data, historically many home activities in now developed countries have been transferred to the market through the process of marketization:

“As time went on, one form of production after another, spinning, weaving, sewing, tailoring, baking, butchering, soap-making, candle-making, brewing, preserving, laundering, dyeing, gardening, care of poultry, and other tasks have wholly or in part been transferred to commercial production. In addition, child care, education, and the care of the sick are now to a large extent carried on by paid workers.” (Reid 1934: 47)

This marketization process is closely linked to the process of structural transformation, namely the decline in agriculture, hump-shaped manufacturing and rising services along the development path. This process of structural transformation is often measured using employment shares in each sector and is well documented both historically for developed countries and over large cross-sections of advanced countries (Kuznets, 1966; Maddison, 1980; Herrendorf et al., 2013).

In Figure 1 we show that African countries have been experiencing structural transformation since the 1970s. The figures show sectoral employment shares at different levels of

Figure 1: **Employment shares by level of development: SSA countries 1970-2010**



Notes: Employment share data by sector for 18 countries in sub-Saharan Africa from the GDCC ETD database (De Vries et al., 2021). Real GDP per capita (2011 international dollars) from Penn World Tables v9.1.

real GDP per capita for 18 African countries between 1970 and 2020.¹ While there is debate about whether Africa’s structural transformation follows typical patterns or not, it is clear from the figures that as countries grow richer, employment in agriculture falls and employment in manufacturing (to a lesser extent) and in services (to a greater extent) increases.²

What does the shift of employment towards services mean for home production? Historically in rich countries, the expansion of service sectors has allowed households to outsource home production (the process of marketization). Since women were traditionally responsible for most home production activities, this meant that an expanding service sector reduced the time demands in home production for women. Moreover, growth in the service sector historically generated jobs intensive in female labor. As a result, the evolution of home production during the structural transformation has important implications for the economic role of women.³

Bridgman et al. (2018) have shown empirically that growth in market services is associated with a decline in home production hours, especially for women, during a period where

¹The employment share data are collated by the Gronigen Growth and Development Centre. The GDCC dataset (?) includes observations for Botswana, Burkina Faso, Cameroon, Ethiopia, Ghana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Nigeria, Rwanda, Senegal, South Africa, Tanzania, Uganda, and Zambia. Details on data construction are in (De Vries et al., 2021).

²Rodrik (2015) observes that today’s developing countries see their manufacturing sector shrink at lower levels of GDP per capita than happened in developed countries historically, a feature termed premature de-industrialization. This observation implies an earlier movement from agriculture into services and may indicate a faster marketization of home production activities in currently developing countries. cite counterargument for Africa

³See Mincer (1962)’s pioneering work on the role home production for understanding female labor supply.

most home production activities are services.⁴ Yet very few of the lower income countries in their sample have time use data over time, making it harder to study marketization and the shift towards services within the lowest income countries over time.

Understanding how women’s time use changes over the development process is important from both an efficiency and an equity perspective, especially during a time when women’s education is increasing and when fertility is falling in Africa. When women can allocate their time between home and market based on their talents, the economy benefits from reduced labor misallocation, and aggregate welfare improves. When unpaid household work can be outsourced to the paid market sector, this generates more compensated female jobs. Both shifts improve gender equality in labor market outcomes and in the home.

In the next section, we start to document what time in home production looks like for a set of African countries, how women allocate time between home and market work, and what the growth in the service sector within Africa might mean for the ability to allocate time away from home production.

3 Time in home production in Africa

The current standard for measuring time inputs into home or market production is to use a time use survey. Survey respondents are asked to enter activities in specific time increments (e.g. 15 minutes) for each of the 24 hours in a day. Because these surveys are costly to administer, usually only one or two individuals in each household are randomly selected to participate in these surveys.

While multiple waves of time use surveys exist for many developed countries, only a handful of African countries have ever fielded such surveys, and only since the 1990s. We use micro data from four countries covering three broad regions in Africa - Morocco, Sierra Leone, Ghana, and South Africa - to look at the level and composition of time spent in home production in the 2000s. For comparison, we look at how these patterns contrast with historical and recent time use in the US.

⁴Their work is based on 136 time-use surveys from 43 countries over the period 1960–2014.

Table 1: Differences in Weekly Hours in Home Production

	US				South Africa			Morocco		Sierra Leone	
	1920s	1965	2010	2010	2000	2010	2011	2009	2003		
Total weekly hours, housewives	49.6	51.9	43.8	43.8	50.1	43.9	46.0	44.1	62.2		
Cooking	21.5	16.5	8.6	8.6	19.0	17.0	24.4	22.6	13.6		
Collecting firewood, water					2.0	0.9	19.3	1.7	2.8		
Cleaning	9.6	9.5	7.8	7.8	13.6	11.2	6.5	2.6	7.3		
Laundry	11.3	6.9	3.3	3.3	6.8	5.3	4.7	2.2	1.1		
Care of children, adults	3.9	8.5	11.3	11.3	8.2	6.4	7.4	9.6	22.7		
Household management	3.3	10.5	12.8	12.8	2.5	4.0	3.1	7.2	17.6		
Male-female Ratio											
Cooking					0.25	0.30	0.04	1.0	0.23		
Collecting firewood, water					0.44	0.43	0.37	0.42	0.62		
Cleaning					0.56	0.58	0.01	1.83	0.44		
Laundry					0.21	0.32	0.01	0.22	1.25		
Care of children, adults					0.10	0.14	0.18	0.25	0.21		
Household management					0.67	0.97	1.33	1.04	0.73		
n	559	536	1661	1661	1698	3491	3354	1754	816		
HH size	4.3	4.1	3.2	3.2	5.0	4.6	5.0	4.4	7.0		

Notes: Weekly hours are weighted averages calculated for all married women ages 15-59 with zero minutes in education and zero minutes in work. Sierra Leone data are from the Integrated Household Survey (2003). We compute all other columns using national time use survey data. Variable definitions: Cooking (food preparation, clean up, fetching wood and water); cleaning (care of house, gardens); laundry (mending, laundry, making clothes); care (of children and adults in the household); household management (buying food, shopping, home management, travel for home management, other).

Table 1 shows the average weekly hours spent on cooking/food preparation, cleaning/care of household and gardens, laundry and repair of clothing, child and adult care, and general household management (this includes purchasing food, travel related to home production, etc). Data are from time use recorded among American farmer housewives in the 1920s, among American housewives in 1965, and among women who could be called housewives in America, Morocco, Sierra Leone, Ghana, and South Africa in the relevant years.⁵ Comparing more recent data from the USA to the time use averages in Ghana and South Africa allow us to compare home production across high income, upper-middle income (South Africa), lower-middle income (Ghana and Morocco), and low-income (Sierra Leone) countries.

The patterns of time use in Table 1 illustrate the process of marketization of home production in the US, and give us some indication of the extent to which certain activities of home production have yet to be marketized in African countries. The first three columns demonstrate a well-known historical fact about American time use: time spent in home production has fallen by about 7 hours per week, or 15%, between the 1920s and 2010. Cooking and laundry hours have shrunk dramatically, while time spent in care activities and household management have more than doubled. This shift is consistent with many household activities shifting from the realm of home production and into the market.

Yet the composition of home production time in the US and the sample of African countries differs, with housewives in African countries allocating their time much more along the lines of American women in the 1920s and 1960s. In all surveys (except for the 2010 US survey), cooking makes up the lion's share of time spent in home production. In South Africa and Ghana, housewives spend one third to over one-half of their time cooking each week. Sierra Leone and South African housewives spend about the same number of hours cooking as American housewives did in the 1960s; Ghanaian and Moroccan women look more like American housewives of the 1920s, spending upwards of 20 hours per week cooking. Cooking and cleaning together easily represent a part-time job for these African women. The large amount of time spent cooking in the home may be linked to the lack of marketized food

⁵The sample for which we compute weekly hours of work in the time use surveys includes women ages 15 to 59 (before they attain pension age), who report spending zero hours in market work and zero hours in education in the prior weekday. We do not restrict to married women, since households may be inter-generational arrangements of families or may contain multiple wives. The 1920s and 1965 US data are from [Ramey \(2009\)](#); the other data are from national time use surveys.

services - restaurants that can substitute for home production - and we return to this point below.

Time spent in childcare and eldercare is somewhat higher than in the US in the 1960s, while household management time is the highest in more recent years in the US. Yet household management – including shopping, and travel for home production – still accounts for a non-negligible 5-17 hours of work time each week in South African, Ghanaian, and Sierra Leonean households in recent times. And, although African housewives report spending a lot less time in dedicated childcare or eldercare, this low amount of time could be an undercount if women are cooking and doing childcare simultaneously.

One of the most surprising things about Table 1 is that American housewives spend only slightly less total time per week on home production relative to housewives in African countries! Women in South Africa, Ghana, and Morocco spend on average 44-45 hours per week on activities needed to sustain the home, compared with 44 hours per week for American housewives. Regardless of average income in the country, home production is a full-time job for someone.

3.1 Home production time falls with GDP, but gender gaps remain

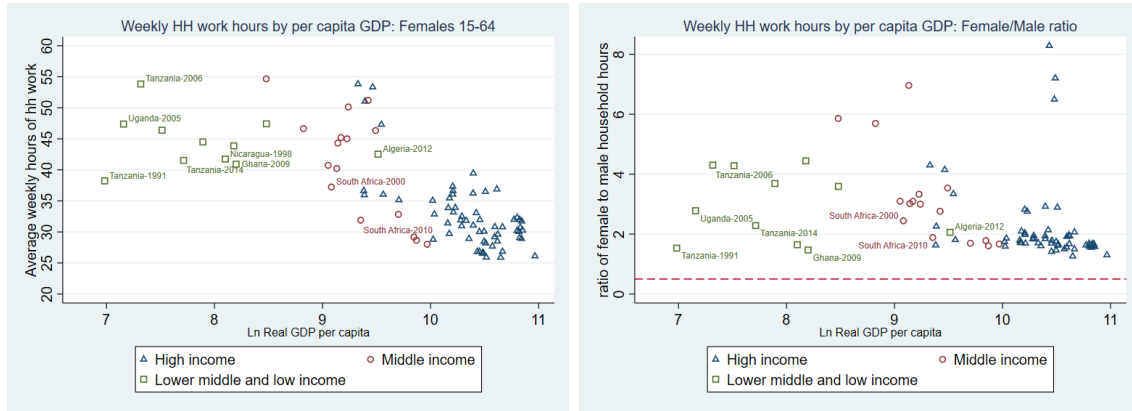
What do gender gaps in home production time look like in African countries? Are we likely to see gender gaps in time allocated to home production shrink as these countries grow richer?

Figure 2(a) shows the total female time in home production for all countries with time use data, against the log of real GDP per capita in 2011.⁶ Following the literature, we compute average weekly hours in home production over all working age women, including those who spend no time in home production.⁷ In Figure 2(b), we show the ratio of female to male average weekly time in home production by real GDP per capita, with the red horizontal line denoting parity in home production hours. African countries for which there are data

⁶Time use data used to construct this figure are from Bridgman et al 2018.

⁷Note the difference in the sample used in Table ?? that excluded all women with any non-zero market hours or education hours, and Figure 2 that includes all women.

Figure 2: Level of development, home production hours and gender gaps in home production



(a) Female hours in home production

(b) Gender gaps in home production

Notes: Weekly hours of work computed for individuals age 15 and older from Bridgman et al. (2018). Real GDP per capita (2011 international dollars) from Penn World Tables v9.1. The red horizontal line represents parity in home production hours.

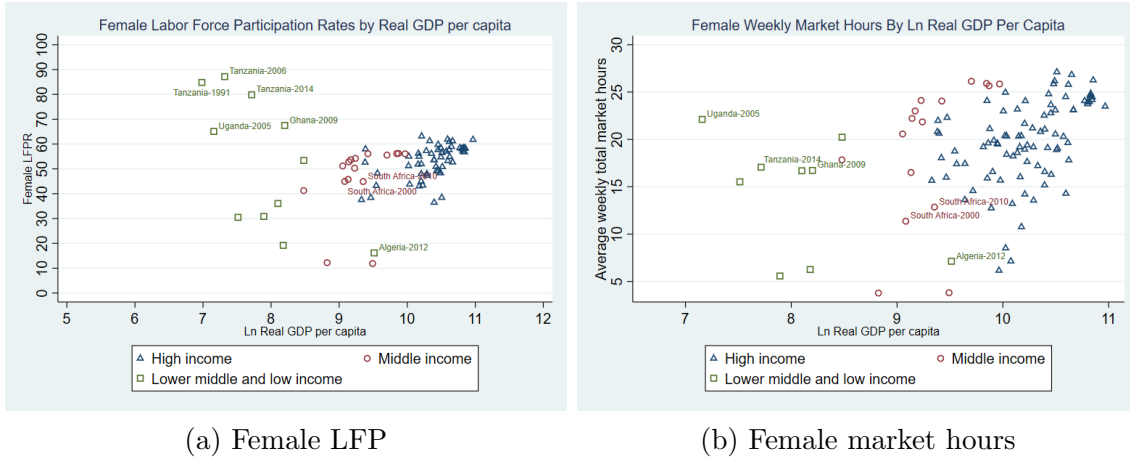
are marked in green.

Consistent with the evidence from the USA in Table 1, female time in home production falls as the level of GDP per capita rises, both across and within countries. In the African country subset, only South Africa has attained a level of income per capita at which home production time among women is below 35 hours per week. Most African countries have a long way to go before income growth leads to meaningful reductions in home production time.

Unfortunately, gender gaps in home production time do not seem to disappear with rising GDP per capita. Figure 2(b) shows that in all countries, women spend more time than men in home production, and in many cases, significantly more time. Gender gaps in home production time are sizeable and heterogeneous across African countries. In some cases (e.g. Ghana), African women spend almost double the amount of male time in home work; in other cases (e.g. Tanzania), women spend more than four times as many hours as men do in home production each week.

Overall, we see that conditional on a similar low level of GDP per capita, there is still a

Figure 3: **Extensive vs intensive margin labor market activity: Females 15-59**



Notes: Female LFP from ILO data YEARXXX. Weekly hours of work in the market computed for individuals age 15 and older from [Bridgman et al. \(2018\)](#). Real GDP per capita (2011 international dollars) from Penn World Tables v9.1.

fair amount of heterogeneity in gender gaps in home production within Africa (e.g. Tanzania vs Uganda). At the same time, there remain large gender gaps in hours worked in the home across African countries at very different levels of GDP per capita (e.g. Algeria vs Uganda). These two patterns suggest that: (1) growth in African countries may not automatically shrink gender gaps in home production hours; and (2) there appear to be country-specific barriers to women moving more of their time out of home production and into the market that exist even at very low levels of income.

4 How women allocate time to home and market in Africa

Although time allocated to home production is the equivalent of a full-time job for African housewives, many women are also involved in market work. In fact, in many African countries, African women have very high extensive margin participation in the labor market.⁸

⁸For a discussion of the challenges of measuring female LFP in sub-Saharan Africa, see [Gaddis et al. \(2020\)](#).

Figure 3(a) illustrates how women allocate time to market work across countries at different levels of GDP per capita, and Figure 3(b) shows how female LFP varies with GDP, for the set of countries that also have time use data. African countries are again shown in green markers. Uganda, Tanzania, and Ghana all have female LFP rates in excess of 65%, yet in none of these countries do women work for many hours in the market. Market work is far from being a full-time job for most of the women who actually participate in the market in these countries.

For countries at higher levels of income per capita, South Africa and Algeria both have lower female LFP rates, and lower market hours per week. South Africa's female LFP rate looks more like other middle and high-income countries, while Algeria's LFP among women is below 20%, the lowest in the world. In Algeria and South Africa, lower female market time on average could be a combination of many more women not engaged in market work (and hence with zero market hours), and average market hours of work among those who spend any time in the market.

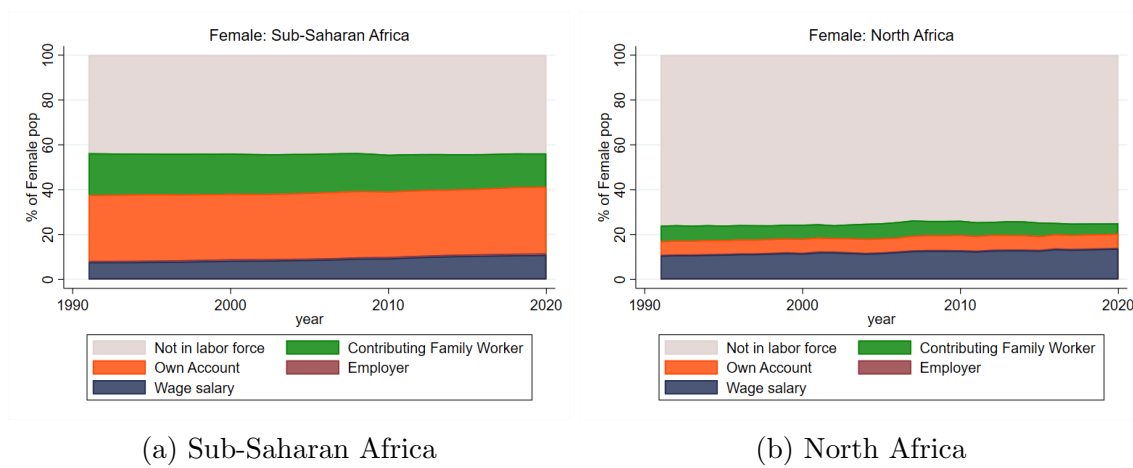
Overall, in many African countries for which we have data, many women work a little in the market (high extensive margin, low intensive margin), and many women work a lot in home production. Relative to men, women work many more total hours across both home and market production.

Two questions arise from these observations. First, is there something about the nature of work in African countries that allows women to combine home and market activities? Second, are constraints to women's market work different across in countries where extensive margin participation is very low (e.g. Algeria), and in countries in which women participate at high rates but with few hours of market work (e.g. Uganda)?

4.1 Combining home and market work: The role of family farms and family firms

In much of Africa, the large majority of women's time in market work is spent in unpaid family labor or own-account work. Most of these types of jobs – for example, growing vegetables in the family garden for market, producing meals for a family food stand, serving

Figure 4: Female employment composition over time



Notes: Data are from World Development Indicators: data series for wage work (SL.EMP.WORK.FE.ZS), employer (SL.EMP.MPYR.FE.ZS), own-account workers (SL.EMP.OWAC.FE.ZS), family workers (SL.FAM.WORK.FE.ZS), and self-employed (SL.EMP.SELF.FE.ZS).

customers in a family business – are not remunerated. Yet these jobs offer two dimensions of flexibility that make it easier for women to combine time in home production and time in the market: location flexibility and hours flexibility. These jobs typically take place in the family home or close to it, or on the family farm, where child care, eldercare, and other types of home production must occur. Moreover, hours of work in these family jobs are often flexible. Both types of flexibility make it possible to shift time between market and home work at low cost, and mean that women do not have to specialize in either the home sector or the market sector.

In Figure 4, we show how female employment is allocated across different categories of employment over time, separately for North African and sub-Saharan African countries. The categories shown in this graph are exhaustive: a woman is either not in the labor force (white area), or she is part of the labor force and working as a contributing family worker (unpaid), an own-account worker (self-employed), a wage worker, or an employer.

The first figure shows high rates of female LFP in sub-Saharan Africa, at around 58%. Most of the women working in the market do so as own-account workers (in orange) or as contributing family workers (in green). Over time, there has a small increase in the share of

women working in wage work, and a small decline in women working as contributing family workers, which is most notable in middle-income countries like X and Y (not shown). Overall though, there has really been little change in the composition of work for the last thirty years. The large majority of women doing any market work in Africa are still own-account workers or contributing family workers.

This employment pattern in low- and middle-income countries in Africa are consistent with what we see historically in developed countries. [Ngai et al. \(2020\)](#) model the role that work on family farms and in family firms plays in accounting for changes in female LFP through the structural transformation in Western countries. As the structural transformation occurred and family farms were consolidated into larger farms, this home-based market work disappeared, and with it, the ability of women to easily combine home and market production. The current types of market work done by women in sub-Saharan Africa suggest any forces that shift workers off of family farms or lead to consolidation of these smaller farms will also likely have large impacts on women's time allocation across market and home.

A second notable aspect of Figure ??(b) is the stark difference in employment patterns across North African countries and the rest of the continent. Female LFPR for North African countries is only around 20%, with the majority of this work being in wage employment. Is this public sector? OR just high-skilled women?. Differences in social norms about market work for women may account for large differences in women's time allocation in North Africa versus other countries, and changing these norms may be especially relevant for affecting extensive margin participation in North Africa.⁹

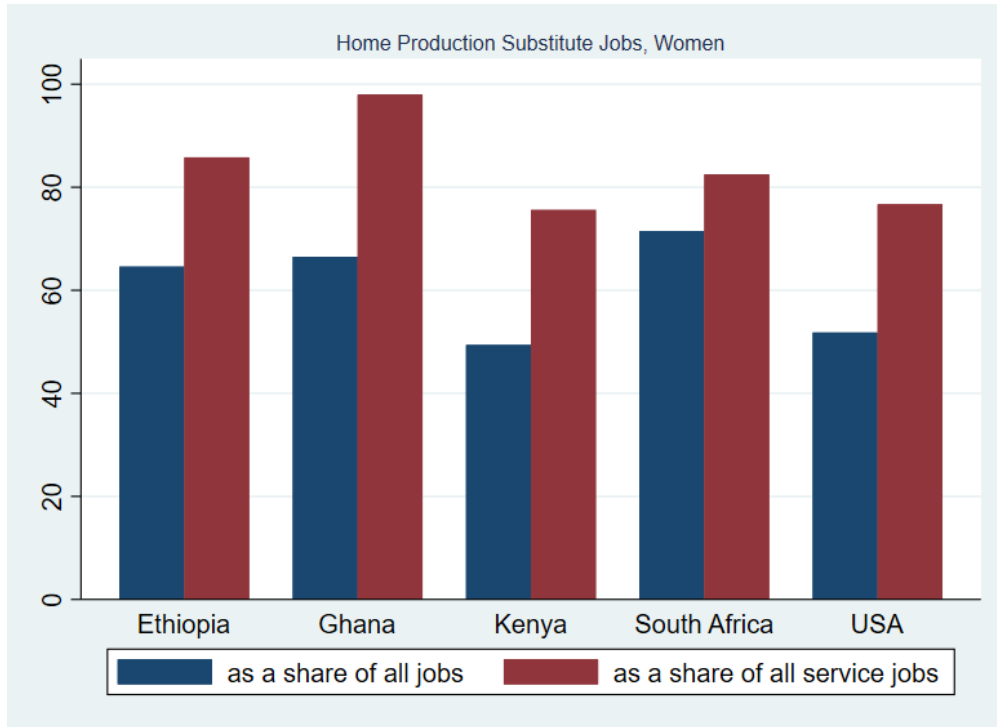
4.2 Service sector jobs and female market work in Africa

In Section 2, we showed that African countries have been undergoing a structural transformation in the labor market. If this structural transformation is to affect the way that women can choose to allocate time across home and market, we need to know whether the service sector jobs produce (a) home production substitutes; and (b) female-intensive jobs. This is largely an open area for research.

We illustrate how one might study the extent of marketization in developing countries by

⁹North African countries include Algeria, Djibouti, Egypt, Libya, Morocco, and Tunisia

Figure 5: **Extent of Marketization of Home Production**



Note: Share of female employment (total, or in services) that can be classified as home production substitutes. See text for definition. Data are from official statistics based on national household or labor force surveys.

comparing data on employment in home substitutable sectors in the US with similar measures from South Africa, Kenya, Ghana, and Ethiopia. Using officially published statistics on market work by sector in each country for the year 2015, Figure 5 graphs the share of all jobs, and the share of all service sector jobs that are in home substitute activities. We define home-substitutable sectors to include jobs in education, health and social work, arts/entertainment, domestic work for private households, and all other services (e.g. personal services including food and accommodation, and miscellaneous repairs) that are not transportation, financial or real estate, professional services, defence, and public or private administration.¹⁰ All service jobs include all home production substitute jobs and all other service sector jobs not

¹⁰We included jobs in wholesale and retail trade as part of the home-substitutable jobs because more aggregate categories in country reports meant we could not separate out these jobs from repair jobs in a few of the countries. A more fine-grained analysis may be possible using industry and occupation codes in Census data.

already counted. Public administration and defence are excluded from both categories.

In all countries, home substitute jobs represent at least 50% of all jobs, and make up the majority of service sector work. In Ethiopia, Ghana, and South Africa, a larger share of all female jobs in the service sector are in home substitute work relative to the US and Kenya.

At least in these handful of countries, it seems like marketization of at least certain types of home production substitutes is well underway. This provides opportunities for women to choose to reallocate time away from home production, and towards market work. A natural and useful extension of this exercise would be to expand the sample to a larger number of African countries, and to consider how the share of marketized home production substitute jobs has changed over time within a set of developing countries for which there are data.

5 (Re)Allocating Time: Constraints and opportunities for African women

Many African countries are growing, some more slowly than others; but structural transformation is happening. At the same time, total fertility rates are falling (cite), female education is rising (Cite), and gender gaps in education are shrinking (cite). These broad changes alter both the demand for home production and possibly the willingness of women to allocate time to home production. What are some of the constraints to, and opportunities for, women shifting unpaid time from their own homes, into paid market work, should they choose to?

5.1 Norms and customs govern female time allocation across home and market in some parts of Africa

TBC

5.2 Physical and care-work infrastructure constrain female time allocation choices in other parts of Africa

TBC

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