Abstract
Despite predictions that development should be accompanied by a decline in intergenerational coresidence in low and middle-income countries, the existing evidence for such a decline is mixed. Using data from IPUMS-International, we evaluate trends in living arrangements in about 40 low and middle-income countries. We also examine the contribution of larger macroeconomic and demographic changes on intergenerational living arrangements. From the perspective of the older generation, we find systematic declines in intergenerational coresidence only in South America. Most other regions contain a substantial number of countries with increases in intergenerational co-residence. In contrast, the younger generation increasingly resides with parents across all regions, except Sub-Saharan Africa. This is due in part to the increased survival of the older generation in most regions. Increased intergenerational co-residence is driven primarily by unmarried adults, rather than young adults forming their own families.

Background
This paper builds on previous research examining trends in intergenerational co-residence. The predominant theoretical literature, based on the experiences of European countries, emphasized
economic development and industrialization as the primary determinants of trends in intergenerational living arrangements. With the shift from agricultural to industrial wage labor, adult children no longer remained on farms to assist older parents, resulting in decreasing intergenerational living arrangements (Goode 1963; Ruggles 2009). More of the elderly should live without adult children, and more adult children should live in nuclear families.

Modernization theory receives mixed empirical support in both historical European and studies of low and middle income countries. Ruggles (2009) using a historical data from the US and Europe as well as more contemporary data from low and middle-income countries finds that percent of the population engaged in agricultural employment strongly predicts intergenerational living arrangements. Economic development has been accompanied by decreased intergenerational coresidence in East Asia (DeVos and Lee 1993; Hirosima 1997; Martin 1990; Raymo and Kaneda 2003). Adult child coresidence with older aging parents is also declining rapidly in Thailand (Knodel, Chayovan, and Prachuabmoh 2013). Finally, among young married and cohabiting couples in low and middle-income countries, that increased GDP is associated with increased nuclear family living arrangements (Spijker and Esteve 2011).

Other studies, however, suggest a more complex story. Confirming earlier research on Latin America (DeVos and Lee 1993), Palloni (2001) found a small decrease in elder co-residence with children in several Asian countries, but little change in Latin America and the Caribbean. Ruggles and Heggeness (2008) looking at adults ages 30-39 and those ages 65 and older, find considerable variation in trends across 15 developing countries in living arrangements; some countries show the expected decline in intergenerational co-residence, other countries show no trend, while still others show an increase intergenerational coresidence. Finally, despite the overall trend in declining intergenerational coresidence, Spijker and Esteve (2011) find that that the transition process is slow and that it did not occur in all countries.

Demographic factors may be important for understanding these inconsistent results. As mortality rates fall among the elderly, there are more opportunities for intergenerational families to form (Raymo and Kaneda 2003; Ruggles 2009; Schoeni 1998). Further, young adults are delaying entry into marriage in most parts of the developing world (Mensch et al. 2006). As young people put off forming their own families, they may remain in their parents’ home for a longer period of time (Raymo and Kaneda 2003). Finally, because many single mothers reside in extended families (Heggeness 2009), increases in union dissolution or unmarried motherhood could also increase extended family living arrangements. This demographic shifts may not only weaken the relationship between economic development and trends in intergenerational living arrangements may be weaker than proposed by modernization theory, but also suggest that trends may vary substantially by the living arrangements of the younger generation.

As the duration of education increases, young adults may also delay entry into the labor market (Nugent 2006). As a result, young adults may remain in the home longer and may do so longer as economic dependents of their parents. Ruggles and Heggeness (2008) find a shift from child-
headed households to household headed by the elderly parent, a trend that is strongly correlated with increased economic development.

Finally, if extended families living arrangements are preferred over nuclear families, growing economic wealth may make it easier for families to fulfill their desire for extended family living arrangements (Ruggles and Heggeness 2008). Thus, economic development may be positively correlated with increased co-residence, at least initially.

**Data and Measures**

Many studies of elder living arrangements are drawn from surveys, such as the DHS, that typically have small very samples of older adults and limited historical coverage. In contrast, censuses provide full coverage of the age spectrum, large sample sizes, and have been regularly collected in most developing countries since the 1970s. As of October, IPUMS-International will provides census data for 82 countries and 277 censuses (Minnesota Population Center 2015). The IPUMS data set is an extremely valuable resource for studying historical trends in the living arrangements of older adults in the developing world (Ruggles and Heggeness 2008).

The current analysis includes data from approximately 40 countries from Africa, Asia, and Latin America and the Caribbean from the 1970s through the 2010s. The final version of this study will be updated to include roughly 10 new countries as well the 2010 round of censuses for some countries already included in our preliminary analysis. Our analysis is limited to countries with at least two censuses between 1970 and 2010.

We will primarily use the measures of intergenerational coresidence implemented in Ruggles and Heggeness (2008): adults ages 65 and above residing with at least one child over age 17, and adults ages 30-39 residing with parents. The advantage of these measures is that they definitively measure coresidence between adult children and elderly parents, and exclude intergenerational co-residence occurring as a result of fertility at older ages.

Family structure and living arrangements are identified using the using the IPUMS pointers. These identify the likely parents and spouses of individuals in the household (Sobek and Kennedy 2009). In addition to determining whether elder-child co-residence, we examine whether the young generation is married/cohabiting and living with own children.

**Analysis**

Our paper will expands upon the existing literature in several ways. First, we will examine trends in living arrangements from 1970-2010 in roughly 40 countries. Most studies, use a much smaller number of countries (for exceptions see: Ruggles and Heggeness 2008; Spijker and Esteve 2011). The IPUMS database more than doubled in size since the Ruggles and Heggeness article, and now provides substantially better coverage of Africa and Asia. Consequently, we are able to assess trends separately in South America, Central American and the Caribbean, Asia, the Middle East and North Africa, and Sub-Saharan Africa. Our preliminary analyses include 100...
samples from 40 countries, and our final country will add in approximately 10 more countries and additional 2010 censuses. Because the decline in intergenerational living arrangements can occur quite rapidly, the extension of our analyses to 2010 is a significant contribution over previous studies.

We will also include an analysis in trends by gender to see whether the increase in elderly parent headship experience by both male and female parents and by male and female children. Ruggles and Heggeness (2008) control for individual gender, but do not examine whether trends vary by gender and whether the changing configurations of parent and child gender are important for understanding trends in living arrangements.

Our final contribution is to consider the family structure of adult children. To what extent do trends in living arrangements vary by the marital and parenthood status of the children and to what extent does changes in the family structure of adult children explain trends in elder child coresidence. Here we build upon Spijker and Esteve’s (2011) study of nuclear and extended family residence for young married and cohabiting couples. Consistent with this study, we expect to find that married and cohabiting couples are less likely to reside with parents. Finally, we expect that single childless children will continue to reside with parents for as long or longer than previously, and that the growing prevalence of these young people contribute to increased levels of intergenerational coresidence. Based on prior research, we expect considerable cross-country variation in the percent and trends in extended family living arrangements for single mothers (Heggeness 2011).

In addition to descriptive analyses, we use multivariate techniques to examine the factors contributing to trends in living arrangements. Our preliminary analyses control for age, gender, educational attainment, GDP (WHO data) and GDP-squared, life expectancy (WHO data), TFR, urbanization and census design. We control for the percent of the population that is 65 and older (calculated within the IPUMS sample). Our final models will include contextual measures of the percent of the population employed in agricultural level (measured at the lowest geographic level) and the mean marriage ages for men and women. These are all important predictors of intergenerational living arrangements (Ruggles 2009, 2010).

**Preliminary results**

*Descriptive trends*

Figure 1 presents the percent of the elderly ages 65+ living with adult children by regions. We find considerable regional and cross-country variation in trends since 1970. In South America, we find the strongest evidence of decline in co-residence in recent decades. In Asia, a large number of countries show signs of initial increases followed by declines (inverted-U shapes) –

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3 Specifically, was the census a de facto or de jure census (or both), and whether the sample had a specific relationship category for parent of the household head.
and thus experience no net change since the 1970s. This finding likely reflects the composition of countries in the IPUMS-I database – predominantly from South Asian and South East Asia.

In most other regions, we find a substantial number of countries with increased co-residence, but often no generalizable trend. In Sub-Saharan Africa, about half of the countries experienced an increased in intergenerational living arrangements, while the remainder experienced a decline or no change. In the Middle East and North Africa, the picture is mixed as well, with a large increase in Morocco and declines in Turkey and Egypt. In Central America and the Caribbean, there are primarily increases or no changes in the percent of elderly living with adult children.

Figure 2 examines trends in co-residence from the perspective of the younger generation. Among persons age 30-39, we find strong evidence in most counties and regions of an increase in co-residence with parents. SSA is perhaps the most notable exception, here, likely reflecting persistently low levels of life expectancy.

**Multivariate results**

Table 1 presents results from logistic regressions predicting elder coresidence with an adult child (age 18+). In Model 1, we look broadly at the historical trends, controlling for individual level and census characteristics. There is a significant decline in intergenerational co-residence between 2010 and 1970, and following an earlier smaller increase in 1990 and 2000. Note, that the number of samples in 2010 was quite small – and will be substantially improved in the final paper. The next model adds in GDP and urbanization. GDP has a strong, but non-linear impact on intergenerational living arrangements – consistent with the inverted U-shape trends observed in the descriptive statistics. Demographic factors are strongly associated with co-residence. As the proportion age 65 and older increases and as birth rates fall, the elderly are less likely to live with their children. As life expectancy increases, so does intergenerational coresidence. Controlling for economic factors, completely explains the initial trend to increased coresidence. Demographic factors have little impact on the time trend.

Region-specific analyses show that the relationship between development and co-residence varies. In Latin America, development is initially positively associated with coresidence, reversing at higher development levels. In African and Asian (predominantly South and South-East Asian) samples, the reverse has occurred.

Table 2 presents results predicting trends in coresidence from the perspective of men and women ages 30-39. These results suggest an increase between 1970 and 1980, followed by a leveling in 1990 and 2000, and acceleration in 2010. Economic factors are less substantively important for understanding this time trend. Increases in GDP are associated with increasing coresidence, while urbanization is associated with declining coresidence. Adding in controls for life expectancy and percent of the population that is elderly and fertility rates explains much (but not all) of the increased extended family living.
Consistent with the descriptive statistics, we found evidence of greater coresidence at higher levels of GDP across all regions. However, we found important differences within countries. We found increases in coresidence only among unmarried adults, especially those without children.

**Preliminary conclusions**

The period 1970-2000 has not been one of widespread declines in intergenerational living arrangements. Rather, we find increases in the persons ages 65 plus living with adult children for a substantial number of countries in most regions of the world. The exceptions are South America, where we see evidence of a decline in intergenerational living arrangements, and Asia, where there is considerable stagnation.

In contrast, from the perspective of the younger generation, we find large increases in intergenerational coresidence in all regions except Sub-Saharan Africa. This is due in large part to the increased life expectancy and the greater proportion of the population that is elderly. Quite simply, more children live with parents because more children have surviving parents. The overall increase in intergenerational coresidence is driven, however, by children who have not married, and in particular, those who are not parents. Thus, future trends in intergenerational living arrangements may depend as much on when and whether children form families at all as on the desire of those who do live in nuclear families.

Our final paper will include additional countries and additional 2010 censuses. We will include additional measure of development, including agricultural labor, as well as measures of marital delay. Further, we will consider gender differences in these trends and consider the economic dependencies of the parent and child generations.

Modernization theory predicts that increases in development should lead to decreased coresidence. Our analysis suggests this is true only at higher levels of GDP; early increases in development increase coresidence. Development brings about important demographic changes that promote coresidence. Increased life expectancy (parental survival) and decreased fertility are critical factors driving increases in child coresidence with parents. Delayed marriage and extended school enrollment likely increases the pool of children who wish to reside with parents into adulthood.
References


Figure 1. Percent of the older generation (ages 65+) living with a child ages 18+

Elderly coresidence with adult children
Figure 2. Percent of the younger generation (ages 30-39+) living with a parent
**Table 1.**

Logistic regression models predicting coresidence among the older generation: 1970-2010

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Note: models control for country, age, sex, marital status, educational attainment, employment status, and sample characteristics.
Table 2.

Logistic regression models predicting coresidence among the younger generation: 1970-2010

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Note: models control for country, age, sex, marital status, educational attainment, employment status, and sample characteristics.