

Gender, Class and the Cost of Unpaid Care: An Analysis of 25 Countries

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Abstract: This article examines the relationship between gender, class and unpaid care for children and elderly household members across twenty-five countries. Using the microdata files of the 2015–2017 Luxembourg Income Study, we demonstrate that household income quintile shapes the relationship between resident caregiving and a) women’s diminished share of household income and b) the associated “wage penalty” women experience in paid employment, examining dual-headed heterosexual households and grouping countries at varying levels of GDP per capita. Our analyses demonstrate that both eldercare and childcare have a negative impact on women’s economic outcomes, yet the effects of both types of unpaid care vary across class. Overall, childcare has a larger impact for women in lower income households, while eldercare has a larger impact for women in higher income households. However, the wage penalties experienced by wealthier women due to either type of potential care responsibilities are considerably less than those experienced by women in poorer households. Together, these data suggest that unpaid resident caregiving has effects that are both highly gendered and highly classed, leading to intersectional disadvantages for women performing unpaid care within poorer households across countries, and with effects that, in some cases, are further amplified within low-GDP countries.

Keywords: gender; unpaid care work; inequality; cross-national research

Résumé: Cet article examine la relation entre genre, classe sociale et soins non-rémunérés aux enfants et aux personnes âgées au sein des ménages dans 25 pays. À partir des fichiers de microdonnées de 2015-2017 du LIS Centre des données (anciennement *Luxembourg Income Study*), nous démontrons que l’analyse de revenu par quintile rend compte de la relation entre provision de soins et a) la réduction pour les femmes de la part du revenu dans les ménages et b) par conséquent la « pénalité de salaire » pour les femmes occupant des emplois rémunérés hors du foyer. Cette analyse a été effectuée auprès de ménages hétérosexuels à deux revenus dans des pays groupés selon différents niveaux de PIB par habitant. Nos analyses démontrent que les soins assurés auprès des enfants

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aussi bien qu'auprès des aînés ont un impact négatif sur les conditions économiques des femmes et ces effets varient en fonction de la classe sociale. En général, la charge des enfants a un impact plus important pour les femmes dans les ménages à faible revenu, alors que les soins auprès des personnes âgées affecte davantage les femmes dans les ménages à revenu élevé. Cependant la pénalité de salaire pour les femmes plus riches est nettement inférieure à celle des femmes dans les ménages plus pauvres. En somme, ces données suggèrent que les soins non rémunérés dans les familles ont des effets hautement différenciés en fonction du genre et de la classe sociale des prestataires de soins. Ainsi on constate des désavantages intersectionnels pour les femmes donneuses de soins non rémunérés au sein de ménages de faibles revenus pour tous ces pays, et une nette amplification des effets négatifs dans les pays à faible PIB.

Mots-clés: genre; soins personnels non-rémunérés; inégalité économique; comparaisons internationales

Introduction

Existing research demonstrates that women perform a disproportionate share of unpaid care work within families, and that this has a significant impact on their ability to participate in the paid labour market, as well as the type/quality of employment opportunities available to them (Ferrant, Pesando, and Nowacka 2014, Budlender 2010, Folbre 2012). As a result, unpaid work within households, which includes caring for dependent family members, as well as time spent on cooking, cleaning, and other domestic chores, is a key factor explaining gendered disparities in income, occupational prestige, and upward mobility internationally (Wang 2013, Esping-Andersen and Schmitt 2020).

Currently, much of the existing literature on care work, both paid and unpaid, is theoretical, qualitative, or focused on a single country of analysis (e.g., Kolpashnikova and Kan 2019, Guppy, Sakumoto, and Wilkes 2019, Lahaie, Earle, and Heymann 2013). Increasingly, however, research examining gendered disparities in unpaid care work is being conceptualized within a transnational labour market, suggesting a need for international comparative analyses, as well as greater understanding of the role of household income and wealth (alongside race, migration, and gender) in impacting the dynamics between unpaid and paid work within families (Duffy and Armenia 2019, Pailhé, Solaz, and Stanfors 2020, Lightman 2020). In addition, while existing time-use data typically reveals certain trends across countries—namely, a negative correlation between income and gender inequalities in unpaid care work, with the distribution of responsibilities most equal between women and men in higher income countries (Ferrant, Pesando, and Nowacka 2014, Dong and An 2015, Pailhé, Solaz, and Stanfors 2020)—this data typically does not examine inequality in unpaid caregiving tied to economic class, both within households *and* across countries.

The current study aims to address this shortcoming by examining the relationship between class, gender and unpaid care for children and elderly household members in comparative perspective. Using the microdata files of the 2015–2017 Luxembourg Income Study (LIS) we highlight how household income quintile shapes the relationship between resident caregiving and a) women's diminished

share of household income and b) the associated “wage penalty” women experience in paid employment, examining dual-headed heterosexual households across 25 countries. Given the necessity of unpaid care for the well-being of individuals and families, as well as the functioning of national economies, we thus contribute to the growing cannon of cross-national comparative research connecting gender, unpaid care work, and socioeconomic class, and address the following key questions:

1. Do countries display similar (or different) trends in terms of the proportion of household income attributed to women in households with children or elderly individuals (and associated potential unpaid caring responsibilities) across the top and bottom of household income quintiles?
2. Are women in households with potential resident caregiving responsibilities as likely to contribute 30% or more of the household income at the top and bottom of household income quintiles across high, medium and low-GDP countries?
3. Do potential unpaid care burdens associated with children and elderly household residents impose an income penalty for women, in both wealthier and poorer households, even when controlling for human capital, number of dependent household members, and country-level variation?

Ultimately, our descriptive data provide evidence of a reduction in household income share for women with potential resident caregiving responsibilities across countries (and consequently a reduction in their economic bargaining power within families), yet the effect is highly classed: women within the lowest household income quintile are approximately twice as affected as those in the top household income quintile, with this trend further amplified in low-GDP country households with elderly caring responsibilities. Our multivariate analyses provide further evidence that even with the inclusion of relevant controls, women’s chances of contributing at least 30% of their household’s income, on average, decrease in households with children and households with at least one elderly person, and this trend is consistent for families in the bottom and top income quintile across high, middle, and low-GDP countries. Finally, pooled country models demonstrate a cumulative negative impact of number of children on women’s income at the bottom quintile of household income (a substantial wage penalty), even when controlling for country-level variation and human capital, while penalties are considerably lesser for women in the top household income quintile. This suggests that women in wealthier households are relatively protected from the wage penalties that accrue from unpaid childcare. Thus, together, the data suggest that unpaid resident caregiving has effects that are both highly gendered and highly classed internationally, leading to intersectional disadvantages for women performing unpaid care within poorer households across countries, and with effects that, in some cases, are further amplified within low-GDP countries.

Gender, Unpaid Care, and Paid Work

Unpaid care work, long associated with “women’s work,” remains socially and economically undervalued. Notwithstanding variation across and within individual countries, women spend significantly more time than men on unpaid caring activities internationally, with estimates typically ranging from 2 to 4 times greater time investment (Ferrant, Pesando, and Nowacka 2014, Dong and An 2015, Hagqvist 2018). Childcare, eldercare, and other unpaid caring tasks have meaningful implications for women’s involvement in the paid labour market, diminishing the type/quality of employment opportunities available to them, and, in part, explaining continuing gender wage differentials, occupational segregation, and the disproportionate representation of women in insecure, irregular and otherwise precarious jobs worldwide (Budlender 2010, Lightman and Good Gingrich 2018, Qi and Dong 2016). Literature on the “motherhood wage penalty” typically finds a 5-10 percent wage reduction per child for women in the United States (U.S.) and a wage reduction of variable size across other industrialized countries. Scholars attribute this wage penalty to work history, employment conditions and hours worked, but also to unobservable differences between mothers and non-mothers such as productivity, commitment or employer discrimination (Gough and Noonan 2013, Yu and Kuo 2017). Budig et al., (2010) suggest that a country’s cultural support for mothers’ employment also plays a role, impacting both work-family policies as well as womens’ personal views on maternal employment, both of which can alter the motherhood wage penalty.

Antonopoulos (2008) notes that “unpaid care work entails a systemic transfer of hidden subsidies to the rest of the economy that go unrecognized, imposing a systematic time-tax on women throughout their life cycle,” (6). In addition, a lack of consensus remains regarding how to best quantify the time spent (and paid work foregone) on specific activities that are encompassed in unpaid care; tasks may overlap (e.g., an individual may engage in supervisory unpaid childcare at the same time as they are doing laundry or cooking) and feminized domestic activities were historically left out of time-use studies of “work” (Folbre 2012, Lightman 2019).

Yet even within the literature focused specifically on unpaid care work, the concept is operationalized in highly divergent manners, further complicating comparisons across time or locales. Some scholars focus specifically on “non-interactive” or “indirect” care work, such as housework (e.g., cooking, cleaning, washing) or routine errands (see Leopold, Skopek, and Schulz 2018, Altintas and Sullivan 2016, Thébaud, Kornrich, and Ruppner 2019). Others, however, concentrate specifically on “interactive” or “direct” care provided to others—specifically childcare, eldercare, or care for other dependent family members or neighbours, in some cases for individuals who reside in the same household as the respondent, and in other cases for vulnerable persons living elsewhere, e.g., their own homes or institutions (see, for example, Suh 2016, Lahaie, Earle, and Heymann 2013, Yoon 2014). Finally, still other scholars take a broader definition of unpaid care, including both direct and indirect work in their measure of

“care,” so long as the tasks remain unremunerated and socially devalued (Ferrant, Pesando, and Nowacka 2014, Guppy, Sakumoto, and Wilkes 2019, Hagqvist 2018).

Examining trends over time, most research suggests that in recent decades there has been a gender convergence in hours spent on unpaid care (Leopold, Skopek, and Schulz 2018, Guppy, Sakumoto, and Wilkes 2019, Skopek and Leopold 2019, Hook 2006). Yet, parity between women and men is still far from being realized. Rather, some evidence suggests there has been a “stalled [gender] convergence” in recent years (Craig, Churchill, and Wong 2019, Shu and Meagher 2018). For example, Altintas and Sullivan (2016) examine unpaid care in nineteen countries from 1961-2011 and find a slowing of the gender convergence from the late 1980s onwards in countries where there is a more equal gender division in housework. Similarly, Pailhé et al., (2020) find that the changes in care allocation have been “asymmetric,” as there has been a greater decline in the time women spend on unpaid care (due to factors such as atomization, changing standards, or the outsourcing of tasks to the paid labour market) compared to the increase in time that men spend on such tasks.

Finally, literature examining the interplay between unpaid care and paid work for women is instructive. On average, as women’s time spent on unpaid care work increases, their labour force participation decreases (Ferrant, Pesando, and Nowacka 2014, Hagqvist 2018), with the costs associated with unpaid caregiving including taking unpaid time off of paid work, forgoing schooling, retiring early, reducing paid work hours, and in certain cases even quitting a paid job due to caregiving responsibilities (Jacobs et al., 2019). Gupta et al., (2015) find that, on average, as women’s income increases by \$1000 USD, they spend 5 minutes less per week on housework in Germany, and 5.5 fewer minutes in Sweden. Similarly, Skira (2015) finds that both light and intense caregivers are 2% more likely to work part-time than non-caregivers in the US, and that the average hourly wage for intensive caregivers is about \$2 less than those with lesser caregiving responsibilities. Lahaie et al., (2013) also find that in the US, male caregivers for the elderly are more able to adjust their start and end times for work when needed or take a day off without asking permission first, which facilitates their unpaid care provision. Consequently, female caregivers are more likely than male caregivers to report having to reduce their paid work hours or quit their job entirely as a result of unpaid care responsibilities.

Nonetheless, numerous studies suggest that men do increase their share of unpaid care work as women’s paid employment increases. This reinforces a “marital bargaining” model for unpaid care, suggesting that any increase in women’s relative earnings (often measured via the gap between partners’ earnings), results in a decrease in the relative amount of housework she performs in a household (Esping-Andersen and Schmitt 2020, Brodmann, Esping-Andersen, and Güell 2007, England 2017). This suggests that bargaining power is related to relative income in the case of dual earner households, with spillover effects on the breakdown of unpaid care work performed. However, while it is certainly plausible that these gender dynamics manifest differently in poorer and wealthier households,

as well as cross-nationally, to date, there has been far less literature focused on the role of inequality and wealth (within households and across countries) in the interplay between paid and unpaid work for women.

Wealth and Inequality in Unpaid Care Within and Across Countries

Only a limited number of studies examine disparities in the amount of unpaid care work performed, and the gendered division of such tasks, across households at different levels of income. From this extant literature, two key findings emerge. First, data generally show that overall, wealthier households perform less unpaid care work than do poorer ones (Folbre 2012, Vagni 2020). This is not surprising, given the greater ability among wealthier populations to outsource this work to paid care providers. Using Australian data, Nguyen and Connelly (2014) find that higher income individuals are less likely to provide unpaid care for adults requiring assistance due to a long-term health condition, old age or disability; they suggest that these individuals are more able to purchase paid care for family members. Hook and Paek (2020) examine 23 countries and suggest that inequality generates market conditions that encourage the use of paid forms of care by wealthier families as a means of diminishing their own housework burdens.

Second, the literature typically suggests that the gendered division of unpaid care work is more equal within higher income households (Ferrant, Pesando, and Nowacka 2014, Sullivan 2000). Notably, this is most often attributed to reduced hours of unpaid care work performed by higher income women, rather than to greater amounts of unpaid care work performed by higher income men. Vagni (2020), for example, examines time use patterns in Britain between 1983 and 2015 by social class and gender. He finds that time spent on domestic work has reduced for all women during this time period, but at a faster rate for upper-class women. In China, Dong and An (2015) find that higher wages correlate with decreased unpaid care work for women, but have no effect on hours spent on unpaid care work for men. Finally, Gupta et al. (2015) find that in Germany women in the highest earnings decile perform 13.3 more hours of housework per week than their male partners, while women in the lowest decile perform 17.6 hours more. In Sweden, they find a similar class pattern.

Cross-national studies of unpaid care work also often suggest that in addition to individual and household-level characteristics, including household income, macro-level factors, such as levels of economic development, welfare regime type, and cultural norms, also help explain national variation. Thus, greater gender equality in housework and unpaid child and eldercare is often found in countries that have higher levels of provision of publicly funded childcare, more generous paternity leave policies, and more egalitarian gender attitudes (Cooke and Baxter 2010, Cornwell, Gershuny, and Sullivan 2019, Hook 2010). Hook (2006) notes that women's national work hours, the length of available parental leave, and the availability of parental leave for men are all key contextual factors that impact the gendered division of unpaid care. Similarly, it is suggested

that the distribution of unpaid caring responsibilities is most equal between men and women in higher income countries (Dong and An 2015, Pailhé, Solaz, and Stanfors 2020). As a pertinent example, Ferrant et al., (2014) find that the wealth of a country is correlated with the inequality of unpaid care work between women and men: high-income countries have the least inequality, while low-income countries have the highest inequality.

Research Design

The present study attempts to build on the above literature, providing a detailed analysis of the association between household income, gender, potential unpaid care, and paid work for women both within and across 25 countries. To do so, we rely on the most recent microdata files available from the LIS, Wave X (2015–2017). The LIS gathers cross-sectional data from household-based national surveys and harmonizes the data to ensure comparability, providing among the best cross-national data available for comparing incomes within and across countries. All countries in Wave X are included where information is provided on: respondents' gender, the presence and number of children in the household aged 17 and under, the presence and number of persons aged 65+ in the household, individual and household income, level of education, and employment status. Where countries had data from multiple years included in Wave X, the most recent year that included the necessary variables was used. Country-level breakdowns of variables used in the analyses are included in Appendix 1a and Appendix 1b.

To account for the highly feminized nature of unpaid work the sample was limited to employed women within households with both a male and female household head of typical working age (18–64). This includes women with any kind of paid employment, including self-employment, part-time employment, temporary employment, and public and private sector employment. The resultant pooled sample size encompasses 279,802 respondents, with per-country samples ranging from 767 in Georgia to 44,870 in Russia.

The 25 countries were grouped according to their per capita GDP, based on \$2016 USD values provided by the World Bank.¹ This was done in order to investigate whether the impacts of care work might be different for women not only in different countries geographically, but also in countries with different levels of GDP. The 8 countries with the highest GDP per capita were categorized as “High GDP” countries and include (in order from highest to lowest): the United States (2016), Austria (2016), Finland (2016), Canada (2017), Germany (2016), Belgium (2016), the United Kingdom (2016), and Israel (2016). The next 8 countries were categorized as “Middle GDP” countries and include (in order from highest to lowest GDP per capita): Italy (2016), Spain (2016), Taiwan (2016), Czech Republic (2016), Greece (2016), Uruguay (2016), Chile (2017), and Hungary (2015). Finally, the 9 countries with the lowest GDP per capita were categorized as “Low GDP” countries and include (in order from highest to lowest): Poland (2016), Mexico (2016), Brazil (2016), Russia (2016), Peru (2016), Colombia (2016), Serbia (2016), Paraguay (2016), and Georgia (2016).

The selected independent variable is *household income quintile* and the dependent variable is *individual share of household income*. The controls were selected based on both theory and data availability. A control for age is included to account for a relevant demographic characteristic. A control for self-employment is included to capture the effect of working without an employer. The potentially mediating effect of human capital is captured using “years of education.” This variable was recoded into four categories to ensure harmonization across countries, with the following categories measuring the highest level of education the respondent had completed: primary school or less, some or completed secondary schooling, some post-secondary schooling (below a completed Bachelor’s degree), and a completed Bachelor’s degree or higher.² Where available, immigrant status is also controlled for. Notably, there is no variable available in the LIS to capture race in the majority of country datasets. For the within-country multivariate analyses, additional variables capturing urban versus rural residence and the type of paid work performed (e.g., the proportion that is part-time, temporary, and in the private sector) are also included where available. These latter variables encompass various aspects of non-standard or precarious work that is disproportionately performed by women (Lightman and Good Gingrich 2018, Budlender 2010).

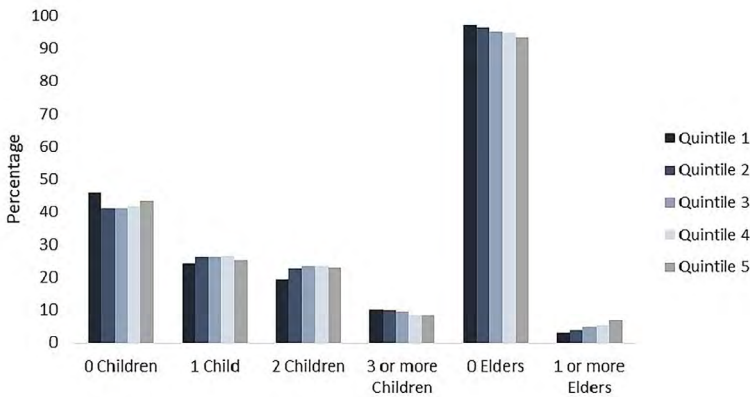
Classifying Unpaid Care Work

The analyses focus on the impacts of potential care burdens that accrue to women in households where children or elderly persons are present. To capture the effect of the presence of children in the household, the variable measuring household members aged 17 or younger was coded into four groupings: 0 children, 1 child, 2 children, and 3 or more children.³ To capture the effect of elderly persons in the household, the variable measuring household members aged 65+ was coded into two groups: 0 elderly persons, and 1 or more elderly persons.⁴

We note upfront that the variables capturing children and elderly persons resident in the household are imperfect measures, as they are unable to account for differences between younger and older children or between younger and older persons categorized as “elders.” The latter scenario is typical within the literature on eldercare, where “elders” are most often treated as a uniform group of individuals aged 65 and older. However, exceptions include Bonsang (2008), who notes that elderly parents are more likely to utilize paid domestic care as they age past 65 years, suggesting that older elders have greater care needs. Shaw (2006), for her part, suggests grouping elders into “young old-age” (those who are between 65 and the mid-70s) and “old old-age” (those who are in their late-70s and older), as these groups may be more different than they are alike. Shaw also suggests that gender is an important factor to consider when looking at elders, as women tend to live longer than men and are therefore more likely to require either homecare or care in a long-term facility once their spouse has passed away. However, the LIS data do not include information on the gender of elderly household members.

In addition, our care work variables can only capture *potential* unpaid care burdens, as there is no LIS variable directly measuring the unpaid care work performed,

Figure 1: Proportion of households with 0, 1, 2, and 3 or more children and 0 and 1 or more elders, averaged across 25 countries, by income quintile and country-level GDP grouping.

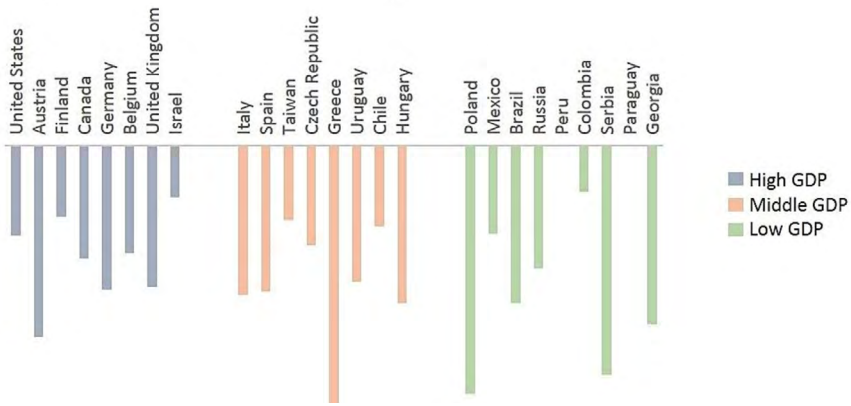


and as the presence of dependents does not necessarily entail unpaid care work (and may even represent the opposite scenario, e.g., in cases where elders contribute to unpaid childcare and housework within households). We also considered the impacts of children and elders separately, rather than looking at the cumulative impacts for households with both children and elders present. Notwithstanding these limitations, however, broad trends attributed to potential household care burdens across and within countries are captured within our analyses. Appendix 2 provides country-level and aggregate breakdowns of the proportion of households with resident children (by number of children) and resident elders, demonstrating that while the wealthiest countries (categorized in the high-GDP grouping) have the highest share of households with 0 children and 0 elders, the middle-GDP grouping has the lowest share of households with 3 or more children. Additionally, Figure 1 provides aggregate results on the proportion of households with resident children and resident elders by household income quintile. Here, the data show that although the top quintile has the largest share of households with 1 or more elders and the bottom quintile has the lowest share, there are no noticeable differences between income quintiles with regard to the share of households with resident children.

Descriptive Results

Initially, a clear difference is found in the share of household income attributed to women at the top and bottom of household income quintiles, regardless of household composition, across countries. On average, women comprise a larger share of household income in the bottom quintile of household income (at a ratio of 0.39 across countries) than in the top quintile (at a ratio of 0.33 across countries). However, this trend is least apparent within low-GDP countries, where

Figure 2: Percentage change in women's mean share of household income, comparing households with 1 or more elderly members to households with no elderly members.



Notes: For all figures: Only employed women aged 18-64 who are the household head or spouse of the household head are included in analyses. Same-sex households and single-head households are excluded. Values are based on weighted data. Countries are divided into 3 groups based on their 2016 GDP per capita (using data from World Bank for 24 countries and from Focus Economics for Taiwan). Within each grouping, countries are listed from largest to smallest GDP per capita (in \$2016 USD).

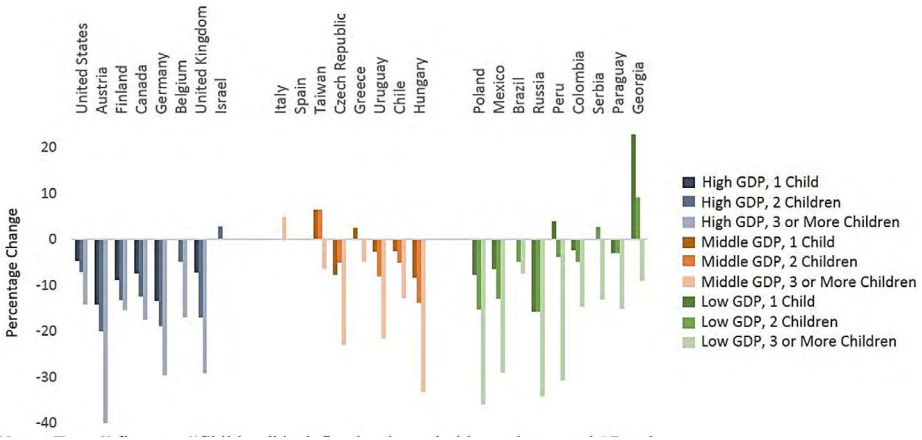
"Elders" is defined as household members aged 65 and older.

exceptions include Mexico, Peru, Paraguay and Georgia. Nonetheless, overall, the data suggest that within higher income households, women have proportionately less bargaining power financially with the household head than in lower income households, and this holds especially true within high-and middle-GDP countries. Appendix 3 provides further detail on the specific share of household income attributed to employed women within each country analysed, both overall and in the top and bottom of household income quintiles.

The ensuing descriptive analyses aim to capture contemporary trends in the relationship between class, unpaid potential resident caregiving, and the associated reduction in women's share of household income, for employed women in dual-headed heterosexual households across 25 countries. Initially, we compare households with at least one elderly person to households with no elderly persons, and households with 1, 2, and 3 or more children to households with no children. The data are presented via a series of figures for ease in interpretation. Here, the goal is to uncover similarities and/or differences across and within the top and bottom household income quintiles across countries in the Global North and South.

Figures 2 and 3 provide evidence of the gendered dynamics of unpaid resident care via the decrease in the share of household income attributed to the female household head in families with either at least one elderly member (aged 65+) or 1, 2, and 3 or more children (aged 17 and under), as compared to

Figure 3: Percentage change in women’s mean share of household income, comparing households with 1, 2, and 3 or more children to households with no children.



Notes: For all figures: “Children” is defined as household members aged 17 and younger.

households with no elderly members or no children, respectively. In both scenarios, women, on average, demonstrate a decrease in their share of household income, with few individual country exceptions. Figure 2 shows that women’s mean share of household income decreases when households have at least one elderly member (with an average decrease of 22% overall), in all countries examined aside from Peru, where women’s mean share of income remains the same, and Paraguay, where women’s mean share of income slightly increases. The largest decrease occurs in Greece, with a 45.2% drop in women’s income share, and the smallest decrease occurs in Colombia, with a 7.5% drop. The same broad trend is seen across high, middle and low-GDP countries.

Figure 3 provides evidence of a similar dynamic, as women’s mean share of household income also decreases, on average, when households have 1, 2 and 3 or more children. However, Figure 3 demonstrates noticeable differences based on how many children live in the household. On average across countries, the smallest decreases occur in households with only 1 child (7.5%). Households with 2 children (9.7%) and 3 or more children (20.7%) have successively larger decreases in women’s income share overall. While this trend is apparent across the majority of countries, there are notable exceptions. Looking at households with 1 child, there is no change in women’s income share in Belgium, Israel, Italy, Spain, Brazil, and Serbia, and a slight increase in income share in Taiwan, Greece, and Peru, with a larger increase in Georgia. In households with 2 children, there is no change in Italy, Spain and Greece, and a small increase in Israel, Taiwan, and Serbia, again with a larger increase in Georgia. Finally, in households with 3 or more children there is the most consistent decrease, with Italy as the only

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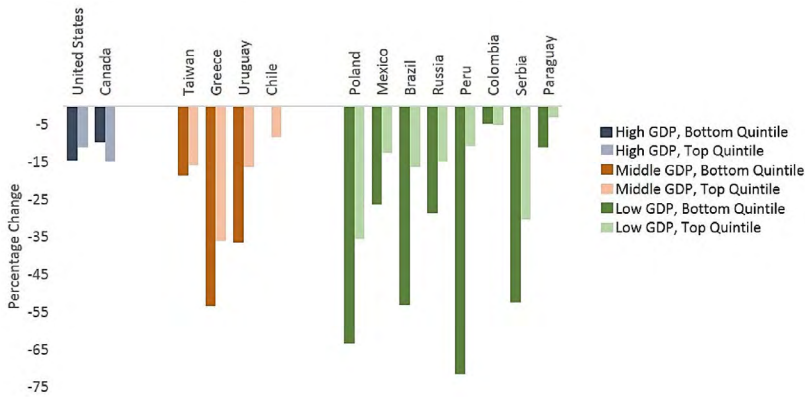
exception with a slight increase and Israel demonstrating no change. Countries which demonstrate large decreases in women's income share when households have 3 or more children include Austria (with a 40% decrease), Poland (with a 35.9% decrease), Russia (with a 34.2% decrease), and Hungary (with a 33% decrease), among others. Across almost all countries, the largest decreases occur in households with 3 or more children. While the same general trend is again apparent across high, middle, and low-GDP countries, the high-GDP grouping most consistently displays a trend of a cumulative decrease in income share for women in households with 1, 2, and 3 or more children, respectively.

For Figures 2 and 3, the variation among countries both within and between GDP groupings suggests that the relative wealth of a country alone cannot fully explain differences in how women's income share is impacted by resident caregiving responsibilities. Factors such as the prevalence of part-time or temporary work for women in a country, for example, likely play a role. However, despite individual country disparities, the overall decreasing trends in income share tied to unpaid care burdens are apparent in both figures.

Next, Figures 4 and 5 extend this analysis to capture disparities across household income quintiles. Here, the data show that the decrease in the share of household income attributed to the female household head in families with potential unpaid resident care responsibilities is generally larger for women in the bottom quintile of household income than the top quintile, with few exceptions. This suggests that the burden of unpaid resident care work is higher for women in poorer households. One potential explanation for this is that lower income women likely have fewer resources to offload resident caregiving responsibilities onto other paid individuals (e.g., via daycare, nannies, or personal support workers). Interestingly, however, while high-GDP countries show smaller decreases in households with 1 or more elders, no apparent trend is observed based on the GDP level of the country when comparing households with 1, 2, or 3 or more children, although the decreases are generally larger in the low-GDP country grouping.

Figure 4 demonstrates that women's mean share of household income decreases when households have at least one elderly member in both the top and bottom of household income quintiles, with only one exception (Chile) which shows no decrease in the bottom quintile. However, the percentage decreases are generally larger for women in the bottom quintile of household income, with a 31.7% decrease in income share on average. Women in the top quintile, on average, experience a decrease about half that size (16.4%). In the bottom quintile, the largest decrease is in Peru, at about 71.4%, while in the top quintile the largest decrease is in Greece at 35.9%. However, while major differences are observed in the gendered outcomes of elderly resident care at the top and bottom of household income quintiles within countries, the same general trend is observed across high, middle, and low-GDP countries. Nonetheless, the decrease in income share is over 20% larger for women in the bottom quintile in low-GDP countries than in high-GDP countries, and over 10% larger than in middle-GDP countries. This suggests that women's unpaid resident care comes at the biggest cost to paid work

Figure 4: Percentage change in women's mean share of household income, comparing households with 1 or more elderly members to households with no elderly members, for households in the top and bottom income quintiles.

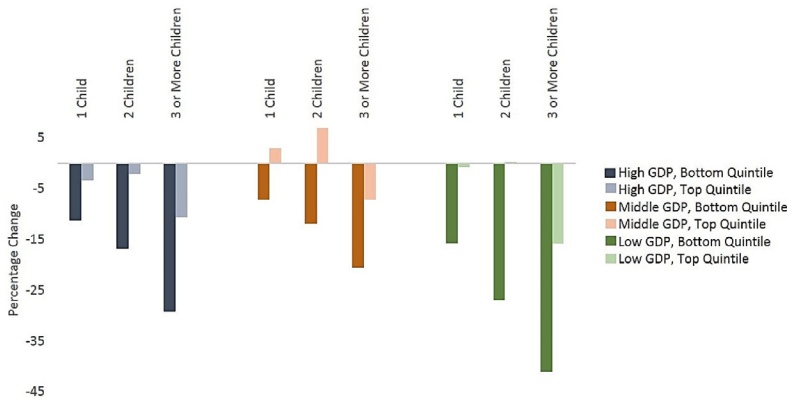


Notes: Only 14 countries had adequate data for both the bottom and top quintile due to sample size constraints.

for women in poorer households within poorer countries. These are countries where there may be less of a developed welfare state which can assist in absorbing some of the eldercare responsibilities otherwise disproportionately borne by the female household head. Kotsadam (2011), for example, suggests that the availability of public eldercare in a country significantly impacts economic outcomes for women with unpaid eldercare responsibilities. Logically, this may lead to highly classed dynamics both within and across countries, as wealthier women who are able to purchase eldercare will be in a better position to work longer hours than lower-income women who are unable to do so, and this disparity will be heightened in countries where public eldercare is very limited or unavailable.

In the interest of parsimony, Figure 5 displays only the mean results for households with 1, 2, and 3 or more children, in the bottom and top quintile in each GDP-grouping (individual country values can be found in Appendix 4). The bottom quintile shows a similar trend to that seen in Figure 4, with larger decreases in women's income share than are seen in the top quintile in 1, 2, and 3 or more-child households. The bottom quintile also displays a clear trend where decreases in income share are larger for women with each successive child. The smallest bottom quintile decrease in income share occurs in the middle-GDP grouping for 1 child, with an average decrease of 7.2%, while the largest decrease occurs in the low-GDP grouping for households with 3 or more children, at 41%. However, there is considerably more variation in the top quintile, with households in the middle-GDP grouping displaying small increases in households with 1 or 2 children, and an increase of less than 0.3% in 2-child households in the low-GDP grouping. This suggests that not only do women in the bottom quintile tend to be more negatively impacted by childcare burdens than women in the top quintile,

Figure 5: Mean percentage change in women's mean share of household income, comparing households with 1, 2, and 3 or more children to households with no children, for households in the top and bottom income quintiles.



Notes: Only 21 countries had adequate data for both the bottom and top quintile due to sample size constraints. Results were averaged for each GDP country grouping. For individual country values, see Appendix 4.

but that the potential burden of childcare has a more variable effect in the top income quintile. The latter finding may be because women in the top quintile have more resources available to them and therefore more choice in determining childcare, with some women opting for paid childcare and others choosing to provide this care themselves (with resultant effects on their paid income). Additionally, the increases in women's share of household income seen in some countries may be the result of men's incomes decreasing due to their role in caregiving, rather than women's incomes increasing. These findings support previous work done by Glauber (2018), who found that in the US, mothers with low wages suffered a significantly larger wage penalty than did the highest-earning mothers. Glauber also found that while low-earning mothers incurred an additional wage penalty for each additional child (categorized into 1, 2, and 3 or more children), high-earning mothers incurred a slight wage premium with 1 and 2 children and no significant premium or penalty with 3 or more children. These findings are nearly replicated in Figure 5 across all 25 countries, as the data demonstrate a clear decreasing trend in income share for women in the bottom quintile, while women in the top quintile experience very slight increases and decreases.

Together, the descriptive analyses demonstrate that women's share of household income (their economic "bargaining power" within their relationship) generally decreases with potential unpaid resident caring responsibilities. On average, across the 25 countries, the data show a reduction of 22% in women's share of household income in households where there is an elderly person present and reductions of 5.5%, 8.4%, and 20.4% when there are 1, 2, and 3 or more children

present, as compared to households with no elderly persons or no children, respectively. When the analysis takes into account within-country income, the data further demonstrate that the reduction in household income share for women is not equal across economic classes: for households with elders, it is nearly twice as high for women within the lowest household income quintile as compared to those in the top household income quintile, and for households with any number of children it is more than 4 times higher for households in the lowest quintile than in the top quintile. This trend is further amplified in the case of households with eldercare and childcare responsibilities in low GDP countries. Thus, the descriptive analyses find that unpaid resident caregiving has disproportionate negative financial impacts for women, and that this effect is highly classed, as those within lower income households (and in some cases lower GDP countries) see their household income share drop most steeply, likely due to an inability to outsource this work to other paid individuals (who themselves are likely to be low income racialized and/or immigrant women).

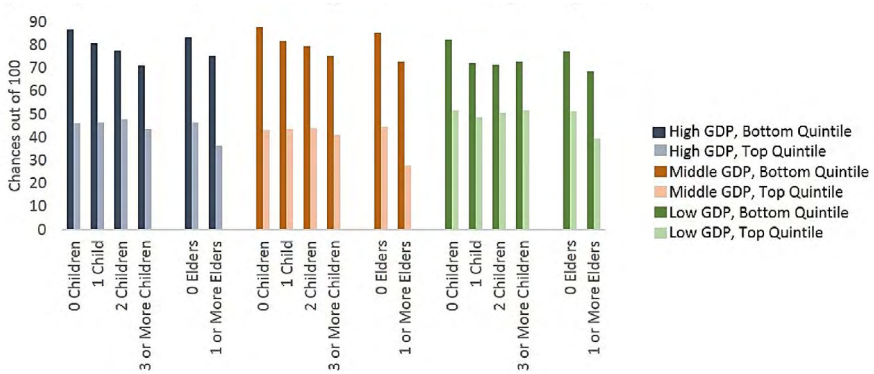
Multivariate Results

Progressing to the multivariate analyses, [Figure 6](#) allows for examination of the effects of resident caring responsibilities on women's share of household income, with all control variables included. Here, binary logistic regressions are run separately for each country, with the dependent variable dichotomously coded as 1 for an income share of at least 0.3 (or 30%) and coded as 0 for an income share of less than 0.3. For convenience in interpreting the results, the mean predicted probabilities are presented for each population group from the mean (e.g., their chances out of 100 of having an income share of 0.3 or higher), averaged for each GDP grouping. The analysis includes controls for age, education, and self-employment in all countries and, where available, capture part-time, temporary, and private sector employment, as well as immigrant status and rural residence. Individual country results can be found in [Appendix 5](#) and [Appendix 6](#), which show the full results from the logistic regressions for households with 1, 2, and 3 or more children and households with 1 or more elders, respectively.

For the models summarized in [Figure 6](#), two interaction terms are included, one measuring the interaction between household income quintile and the number of children aged 17 and under in the household (quintile*children) and one measuring the interaction between household income quintile and the number of elderly persons in the household (quintile*elders). For each interaction, predicted probabilities are calculated for the top and bottom quintile only, with all control variables held at their means.

Here, the data demonstrate consistent evidence that even with the inclusion of all relevant controls, women's chances of contributing at least 30% of their household's income, on average, decrease in households with 1, 2, and 3 or more children and households with at least one elderly person. This trend is generally consistent for households in the bottom household income quintile and across the high, middle, and low-GDP country groupings, while it is less pronounced

Figure 6: Mean chances out of 100 of contributing at least 30% of household income in households with and without children and elderly persons (for women in the top and bottom household income quintiles), by country income level, with controls applied (results from logistic regressions).



Notes: Figure presents mean results from marginal effects from logistic regression models run by country. Results from 25 countries were averaged across 3 country-level income groupings. Three main effects are included in the model: Income quintile, Number of household members aged 17 and under (children), and Number of household members aged 65 and older (elders). Age and Education are included as controls in all analyses. Additional controls for Part-Time or Full-Time Employment, Temporary or Permanent Employment, Self-Employed or Employee, Public or Private Sector Work, Immigrant or Non-Immigrant, and Rural or Non-Rural Area are included where available. All controls are held at their means when measuring the main effects. Individual country values can be found in Appendix 5 and Appendix 6.

in the top household income quintile. However, the size of the decrease varies, both within and between quintiles. Looking first at households with and without children, we see that women in the bottom quintile with 0 children in the household have, on average, an 85.3% chance of contributing 30% or more of their household's income. These chances decrease to 77.9% in households with 1 child, to 75.9% in households with 2 children, and to 72.9% in households with 3 or more children. Turning to the top quintile, we see that although women's overall chances of contributing 30% or more of the household income are lower than in the bottom quintile, there is less variation between household types. Women with no children in the top quintile have a 47% chance, women with 1 child have a 46.3% chance, and women with 3 or more children have a 45.6% chance. Interestingly, women with 2 children have almost the same chance as women with no children, albeit even slightly higher, at 47.5%.

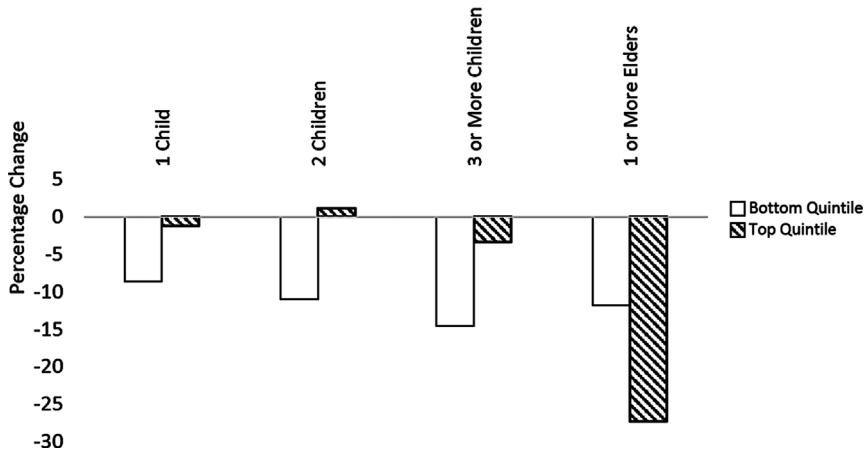
The decreasing trend is quite clear in the bottom income quintile across all three GDP groupings, with each additional child resulting in a successive decrease in women's chances of contributing 30% or more of their household income, although there is less variation in the low-GDP grouping. In the top quintile, there is little variation in women's chances of contributing 30% or more of their household

income between households with 0, 1, 2, and 3 or more children. The largest decrease occurs in the bottom quintile in the high-GDP grouping for women in households with 3 or more children, dropping from 86.6% with no children to 70.9%.

A similar decreasing trend is seen when comparing households with and without elderly persons. In the bottom quintile, women's chances of contributing 30% of their household's income decreases, on average, from 81.6% in households with no elderly members to 71.9% in households with one or more elderly members. This is larger than the decrease seen in the bottom quintile for women in households with 1 child and almost identical to the decrease for women in households with 2 children, and smaller than the decrease seen for women in households with 3 or more children. There is a larger decrease in the top quintile, with women's chances declining from 47.5% in households with no elders to 34.7% in households with at least 1 elder. This decrease is far greater than any of the decreases seen for women in the top quintile with any number of children in the household, suggesting that eldercare poses a greater burden than childcare for women in wealthier households. These trends are visible in [Figure 6](#), as the results for households with at least 1 elder are not drastically different from those for households with children for women in the bottom income quintile but are far greater for women in the top quintile. The largest decrease occurs in the middle-GDP grouping for women in the top income quintile, with chances of contributing 30% or more of the household income decreasing from 44.4% for women with no elders in the household to 27.9% for women with 1 or more elders in the household. The decreasing trend in both the top and bottom quintile is apparent across all three GDP groupings, however the decreases in the top quintile are more than twice as large as those in the bottom quintile. Here, a potential explanation is that high-income households are more able to afford the female household head taking a reduction in pay (e.g., working part-time) in order to provide resident caregiving to an elderly parent or other family member, while lower-income households may be unable to make this sacrifice.

To summarize the key findings presented in [Figure 6](#) (and Appendices 5 and 6), the final figure, [Figure 7](#), presents the mean percentage change in women's chances out of 100 of contributing at least 30% of their household's income, comparing households with and without children and elderly persons in the top and bottom income quintiles, averaged across the three GDP groupings and all 25 countries (with all relevant controls applied). Here, the data show that, on average, women's chances of contributing at least 30% of their household's income decreases in households with 1, 2, and 3 or more children and households with at least one elderly person, in the top and bottom household income quintiles (as an exception, women in households with 2 children in the top quintile see a slight increase in their chances). However, opposite trends within the types of resident care are observed in the top and bottom quintiles. In the bottom quintile of household income, there is a decrease of 8.7% in women's chances of contributing at least 30% of their household's income, for households with 1 child, a decrease of 11% for households with 2, and a decrease of 14.6% for households

Figure 7: Mean percentage change in women's chances out of 100 of contributing at least 30% of their household's income, comparing households with and without children and elderly persons in the top and bottom income quintiles, averaged across 25 countries.



Notes: Full results of analyses from which this figure was created can be found in Appendix 5 and Appendix 6.

with 3 or more children. When looking at households with one or more elders, women's chances decrease by 11.8%, suggesting that in the aggregate eldercare poses a similar burden as does caring for 2 children for women in the bottom quintile of household income.

In contrast, in the top income quintile women's chances of having an income share of at least 30% decrease by only 1.2% in households with 1 child, and slightly increases by 1.1% in households with 2 children. We see a decrease of only 3.4% in households with 3 or more children, far less than any of the decreases in the bottom quintile. However, in the top quintile there is the largest decrease of all for women in households with at least 1 elder, with their chances of having an income share of at least 30% dropping 27.4%. This decrease is considerably larger not only than the decrease for those with any number of children in the top quintile, but than any of the decreases seen for women in the bottom quintile as well. The relatively small changes for women in the top quintile in households with children suggest that women in high-income households who are in the paid labour force may choose to utilize paid childcare to alleviate the burden of unpaid care. However, the large decrease seen in households with one or more elderly persons in the top quintile suggest that wealthier women do not similarly opt for paid eldercare services. Instead, women in the top quintile may be more likely to take on part-time work or otherwise reduce their employment obligations, in order to adjust for the unpaid burden of care for their elderly resident parents or

other family members. It is also possible that for high income households paid childcare is generally more available, while paid eldercare services may be more limited (or discouraged based on social or cultural values) in many countries.

Paid care of any kind may also only be a possibility for women in the top household income quintile. The decreases for women in the bottom quintile were similar for households with elderly persons and households with children, suggesting that paid care of any kind may not be an option for these women. In both scenarios, women in the bottom quintile may take similar steps in terms of limiting their employment obligations, and in turn decreasing their relative share of household income, in order to provide childcare and eldercare within their households.

The final multivariate analyses, presented in [Table 1](#), measure any overall income penalty attributed to the presence of children or elderly persons in the household for employed women. Logged personal income is used, which includes all income from wages, self-employment, fringe benefits, and social benefits based on individual characteristics, with values transformed to standardized \$2016 USD across countries. Robust standard errors are provided in parentheses. These models use the pooled sample of all 25 countries while controlling for country-level variation, using Ordinary Least Squares regression, and are constructed in a step-wise fashion. This is done in order to illustrate that the results are not an artefact of specific modelling choices regarding included controls.⁵ Model 1 examines variation across income quintiles while including fixed effects for country. Model 2 adds in potential unpaid resident care responsibilities, controlling for the number of elderly household members and the number of children (household members aged 17 or younger), as well as additional demographic and human capital controls. Model 3, the final model, adds in two interactions, one between household income quintile and number of elderly household members, and one between household income quintile and the number of children in the household. This allows for quantification of any associated income penalties for unpaid resident care work at the top and bottom of household income quintiles for women, net of country effects.

Initially, Model 1 demonstrates that income varies by household income quintile, as anticipated, independent of country-level variation. The reference category here is the middle quintile. In comparison to the reference category, belonging to the bottom quintile has a significant negative effect on women's income and belonging to the top quintile has a significant positive effect on women's income. Thus, we see a 71% income penalty for women in the bottom quintile and a 67% income bonus for women in the top quintile (relative to the middle quintile).

Next, Model 2 builds on Model 1 by including additional focal variables measuring whether there are elderly persons in a household and whether there are children in a household. Control variables measuring the respondent's age and its square, their education, and whether or not they are self-employed are also included. In this model, the focal effects for bottom and top income quintile decrease but remain significant. In addition, the model measures the negative effects on income of potential resident caring responsibilities (independent of household income quintile and the other controls), which are also significant.

Table 1: Pooled country models predicting logged income among employed women with and without potential household caring responsibilities (with country fixed effects).

	Model 1		Model 2		Model 3	
	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.
Intercept	7.96***	(0.01)	8.08***	(0.04)	8.09***	(0.04)
Quintile (ref=quintile 3)						
Quintile 1 (Bottom)	-0.71***	(0.01)	-0.60***	(0.01)	-0.56***	(0.01)
Quintile 2	-0.27***	(0.01)	-0.21***	(0.01)	-0.19***	(0.01)
Quintile 4	0.25***	(0.01)	0.20***	(0.01)	0.17***	(0.01)
Quintile 5 (Top)	0.67***	(0.01)	0.56***	(0.01)	0.51***	(0.01)
1+ elderly persons in household (ref=0)			-0.18***	(0.02)	-0.20***	(0.03)
Children aged 17 or under in household (ref=0)						
1 child			-0.09***	(0.01)	-0.11***	(0.01)
2 children			-0.13***	(0.01)	-0.14***	(0.02)
3+children			-0.23***	(0.01)	-0.22***	(0.02)
Education level (ref=Bachelor's or more)						
Primary or Less			-0.72***	(0.01)	-0.71***	(0.01)
Secondary			-0.34***	(0.01)	-0.33***	(0.01)
Some Post-Secondary			-0.19***	(0.01)	-0.19***	(0.01)
Age			0.02***	(0.002)	0.02***	(0.002)
Age squared			-0.0003***	(0.00003)	-0.0003***	(0.00003)

(Continued)

Table 1: Continued

	Model 1		Model 2		Model 3	
	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.
Self-employed (ref=employee)			-0.40***	(0.01)	-0.40***	(0.01)
Bottom quintile x elderly persons in household					0.15*	(0.07)
Top quintile x elderly persons in household					-0.005	(0.05)
Bottom quintile x children in household						
1 child					-0.05*	(0.02)
2 children					-0.10***	(0.03)
3+ children					-0.16***	(0.03)
Top quintile x children in household						
1 child					0.09***	(0.02)
2 children					0.11***	(0.02)
3+ children					0.09*	(0.04)
Statistical Fit						
R ²	0.6968		0.7328		0.7337	
n (countries)			25			
N (individuals)			260,880			

Notes: Only employed women aged 18-64 who are the household head or spouse of the household head are included in analyses. Same-sex households and single-head households are excluded. Values are based on weighted data. Robust standard errors are presented. For significance levels: if p<0.05, *; if p<0.01, **; if p<0.001, ***. "Elders" are household members aged 65 and older.

The presence of one or more elderly persons in a household results in women incurring an income penalty of 18%, on average, as compared to women in households with no elderly persons. Having children in the household also results in an income penalty for women, with cumulative results for each additional child. On average, one child results in a 9% income penalty, two children results in a 13% income penalty, and 3 or more children results in a 23% income penalty. These findings demonstrate that unpaid resident care burdens in households result in significant income penalties for employed women, independent of their household income quintile and individual human capital (represented by education).

Finally, Model 3 builds on Model 2 by adding two interactions, one between household income quintile and the presence of elderly household members, and one between household income quintile and the presence of children in the household. The independent effects of household income quintile on women's income again decrease but remain significant. Examining the interactions, the interaction between quintile and presence of elderly persons is positive and significant in the bottom quintile and slightly negative and non-significant in the top quintile. This suggests that the effect of elderly persons in the household on women's income does not significantly differ for women in the top quintile and middle (3rd) quintile, as the coefficient value is just below zero. However, there is a positive moderating effect for women in the bottom quintile of having elderly persons in their household, as the wage penalty experienced by women in the bottom quintile is reduced by 15%. This suggests that in households in the bottom quintile, elderly persons may contribute somewhat to household work or childcare that would otherwise require a greater time investment (and therefore a reduction in paid work) from the female household head. This, again, demonstrates the classed components of unpaid care provision.

Next, examining the interactions between household income quintile and the number of children in a household, there are opposite results for women in the bottom and top quintiles. In the bottom quintile, the coefficient values for the interactions with 1, 2, and 3+ children are all negative and significant. On average, women in the bottom quintile with 1 child incur an additional 5% income penalty, women with 2 children incur an additional 10% income penalty, and women with 3 or more children incur an additional 16% income penalty; thus there is a "double [income] burden" of being both low income and having resident children for the female household head. However, in the top quintile, the opposite effect is apparent: all three interaction terms are positive and significant. This suggests that the negative effect on income that results from caring for children is buffered for women in the top income quintile, as compared to women in the middle income quintile. This may be because women in the top quintile are better able to afford paid childcare services, which in turns protects their paid income from penalties incurred through unpaid childcare responsibilities. The income penalties associated with the presence of children in the household are decreased by 9% for women with 1 and 3 or more children, and 11% for women with 2 children in the top quintile. This almost completely eliminates any penalties associated with 1 or

2 children, however the presence of 3 or more children still results in a penalty of more than 10% for women in high income households. This reinforces [Glauber \(2018\)](#)'s finding, as she uses unconditional quantile regression to demonstrate that the motherhood wage penalty was eliminated for high earning women in the United States beginning in the 2010s, but remained for low earning women.

The models in [Table 1](#) demonstrate that the potential care burdens attributed to unpaid eldercare and childcare both result in wage penalties for women, independent of their class background. However, unpaid eldercare has a more negative impact on income for women in the top household income quintile (or, rather, the presence of elders provides a positive buffering effect in the bottom quintile but not in the top quintile). In contrast, unpaid childcare has a more negative impact for women in the bottom household income quintile, as women in the top quintile experience a positive buffering effect, likely due to their ability to afford paid childcare.

Taken together, the results of the multivariate analyses demonstrate a classed effect of unpaid resident caring responsibilities on women's economic contributions, particularly with regard to unpaid childcare. Women in the top household income quintile are relatively protected from the negative effects of childcare responsibilities, while women in the bottom quintile see both their chances of contributing 30% of their household's income as well as their average wage decrease with each additional child. However, the effects of unpaid eldercare seem to have a greater impact on women from wealthier households. This suggests that both class and the type of unpaid care have important effects on women's economic outcomes and their financial bargaining power within their households.

Conclusion

These findings are necessarily limited by the LIS data used. Characteristics such as race and details of immigrant status were not included due to a limited number of countries in the LIS database that collect this data. These limitations mean that important differences in unpaid care provision may have been obscured between women of different racial backgrounds and/or immigrant statuses. In addition, our decision to only include employed women within our analyses means that women who stepped out of wage-earning entirely to focus on their child and/or eldercare responsibilities are not represented. Unfortunately, there was no way to account for these women without incorporating all unemployed women in the analyses, whether or not this unemployment was related to care responsibilities.⁶

Additionally, we note that the LIS data lacks variables needed to measure unpaid care responsibilities comprehensively. Number of household members aged 65+ and number of household members aged 17 and below are the only available data to capture unpaid care. While this likely captures the majority of childcare burdens, [Duxbury and Higgins \(2015\)](#) suggest that the majority of eldercare occurs outside of the home, to care recipients living both near and far from the caregiver; this effect would not have been captured within our analyses. As well, as previously noted, both eldercare and childcare responsibilities likely differ depending on the

ages of the elders and children in a household and it would be beneficial to capture these differences. While some countries in the LIS include an additional variable measuring the number of household members aged 13 and under, this variable was also excluded from our analyses as this data was not collected by most countries.

In addition, ambiguity regarding the causality of care burdens and income share within households remains. While most of the literature suggests that unpaid care burdens lead to a reduction in women's income share (Ferrant, Pesando, and Nowacka 2014, Hagqvist 2018), marital bargaining theory supports the opposite supposition that a higher income share leads to leverage to reduce unpaid care burdens (Esping-Andersen and Schmitt 2020, Brodmann, Esping-Andersen, and Güell 2007, England 2017). Notably, cross-sectional data such as the LIS cannot address this question. Finally, we note that previous scholarship has divided unpaid care into two main types: personal care (which involves assisting care recipients with tasks like dressing, eating, and bathing) and household care (which involves chores and other household maintenance tasks), thus enabling a more complete picture of unpaid care work to be captured (see Van Houtven et al., 2013). However, no variables related to housework or other forms of indirect care are currently available in the LIS.

Notwithstanding these data limitations, the aim of the present study was to examine how unpaid resident care responsibilities impact women from different class backgrounds across 25 countries. Descriptive analyses addressed the first research question, revealing that the presence 1, 2, and 3 or more children or 1 or more elderly persons in a household decreases the share of household income that women contribute. This was found to be true for almost all included countries and for women in both the top and bottom quintiles of household income, although decreases were less noticeable in households with 1 and 2 children compared to those with 3 or more children. However, a notable trend tied to class was observed, as women in the bottom quintile of household income generally experienced much steeper declines in their income share than women in the top quintile.

Multivariate analyses in the form of binary logistic regressions addressed the second research question. Here, the data demonstrate that the presence 1, 2, and 3 or more children or 1 or more elderly persons significantly reduced the likelihood of women contributing at least 30% of their household's income, with consistency in the bottom quintile of household income for all three GDP groupings. Women in the top quintile of household income, again for all three GDP groupings, demonstrate the same decreasing trend in households with 3 or more children or 1 or more elders, however the trend is less apparent in households with 1 or 2 children. Interestingly, while in the bottom income quintile the presence of at least one elderly resident or the presence of 2 children decrease women's chances of contributing 30% of their household income to a similar extent, with 3 or more children having an even more negative impact, childcare and eldercare impact women differently in the top income quintile. Women's chances of contributing 30% of their household's income only decreased by 3.4% with the presence of 3 or more children (and even less in households with 1 or 2 children)

but decreased substantially more (27.4% on average) with the presence of at least one elderly person. This suggests that the burden of eldercare is far greater than the burden of childcare for employed women in wealthy households and that paid childcare services may be more available (or more socially or culturally acceptable) than paid eldercare services.

In addition, women may feel a personal responsibility to provide care to their parents or other elderly family members. Duxbury and Higgins (2015) suggest that in the Canadian context, 90% of unpaid caregivers for elderly persons believe it is a family responsibility to provide care, while 30% also indicate that paid homecare and health services are unavailable. This may be the case for women in both the top and bottom household income quintiles, however, women in the bottom quintile likely have less options when it comes to paid care provision, whether for children or the elderly. This may help to explain why women's chances of contributing at least 30% of their household's income decrease similarly for women in lower income households with either childcare or eldercare responsibilities.

Finally, addressing the third research question, the findings indicate that childcare and eldercare have different impacts on income for women in the top and bottom household income quintiles. Interactions between income quintile and the presence of elderly persons in the household reveal no significant impact on women's income in the top household income quintile, while women in the bottom quintile experience a buffering effect of elderly persons, as their incomes slightly increase. This suggests that elderly household members may assist with certain household tasks that alleviate unpaid work for women in lower income households, e.g., providing some unpaid childcare and thereby enabling women to maintain steadier employment.

The presence of children in the household has the opposite effect for women in the bottom income quintile, with women's incomes decreasing with each additional child in the household. In contrast, in the top quintile, women are largely protected from the negative impacts of unpaid childcare, suggesting that these women utilize paid childcare services while women in the bottom quintile do not. However, women from wealthy households with 3 or more children still incur a noticeable wage penalty, suggesting that there are cumulative caregiving burdens.

To conclude, we note that these findings have particular relevance during times of health crisis, e.g., the COVID-19 global pandemic. As more people work from home and many social services are suspended or shut down, household unpaid care responsibilities greatly increase, and women's associated wage penalty may increase as well. Parents who are used to having eight uninterrupted hours of work while their children are at school or daycare may now have to manage the same work responsibilities with new, additional, care responsibilities from having children at home. While it is possible that this could lead to a more equal distribution of unpaid care work, as fathers who now work from home may take on more care responsibilities, it is more likely that, in the aggregate, women will disproportionately bare this burden. Thus, the pandemic may lead to greater wage penalties for women going forward, further stalling the gender convergence in unpaid care.

Whether this dynamic plays out differently across socioeconomic classes and countries of varying wealth remains a critical question for future analyses.

Notes

1. Taiwan was the only country not included in data from The World Bank; as such, 2016 data from Focus Economics was used for Taiwan.
2. There is some concern over the accuracy of the categorical education variable in certain countries' datasets (METIS by LIS 2019). Recoding the "years of education" variable was done to ensure greater accuracy. In addition, we note that this variable is used only as a control, rather than a focal effect.
3. Households with more than 3 children were uncommon in most countries. Hence, households with "3 or more children" were grouped together as one category.
4. This coding decision was made because having 2 or more elderly persons in the household was an uncommon scenario in most households in the majority of countries.
5. We confirm our findings are robust by also running a multi-level model for this analysis. As there were no notable differences between the OLS model and the multi-level model we only present the results of the former.
6. Future studies could consider including, or focusing exclusively, on women without paid employment when assessing the impacts of informal caregiving responsibilities.

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APPENDIX

Appendix 1: Descriptive statistics for education, self-employment status, age, individual income, and household income, by country and country-level GDP grouping.

a. Levels of education and rates of self-employment.

Country	Education				Self-Employed	
	Primary School	Secondary School	Some Post-Secondary	Bachelor's Degree or Higher	No	Yes
High GDP Mean	0.9	44.5	14.9	39.8	91.1	8.9
United States	1.6	39.8	13	45.7	92.1	7.9
Austria	0.5	73	8.2	18.2	90.9	9.1
Finland	0	44.8	16.5	38.7	90.5	9.5
Canada	0	23.7	32.5	43.8	88.2	11.9
Germany	0.8	56.3	16.1	26.9	93	7
Belgium	2.43	37.6	2.1	58	92	8
United Kingdom	0	47.4	15.1	37.5	90.9	9.1
Israel	1.5	33.2	16	49.4	91.4	8.6
Middle GDP Mean	7.1	57.7	8.5	26.7	81.8	18.2
Italy	1.5	72.7	3	22.7	86.1	13.9
Spain	8	39.5	13.6	38.9	88	12
Taiwan	5.8	53	15.3	25.9	76	24
Czech Republic	0	74.8	2.2	23	88.1	11.9
Greece	9.2	39.7	10.4	40.8	71.9	28.1
Uruguay	25.2	53.6	6.9	14.3	73.7	26.3
Chile	7.3	56.7	12.3	23.7	76.2	23.8
Hungary	0	71.4	4.3	24.3	94.8	5.2
Low GDP Mean	21.5	43.7	7.4	27.4	64.2	35.8

(Continued)

Appendix 1: Continued

Country	Education				Self-Employed	
	Primary School	Secondary School	Some Post-Secondary	Bachelor's Degree or Higher	No	Yes
Poland	3.6	52	3.7	40.7	82.9	17.1
Mexico	32	50.5	1.6	15.9	61.9	38.1
Brazil	23.1	53.3	2.7	20.9	71	29
Russia	1.2	12.5	33.3	53	95.4	4.6
Peru	46.2	35	0	18.8	34.6	65.4
Colombia	28.1	38.4	15.3	18.2	58.7	41.3
Serbia	14.3	53.8	8.4	23.6	78.8	21.2
Paraguay	44.6	33.6	1.7	20	45.5	54.5
Georgia	0.3	64.2	0	35.5	49.2	50.8
Total Mean	10.3	48.4	10.2	31.1	78.5	21.5

Notes: For all tables, only employed women aged 18-64 who are the household head or spouse of the household head are included in analyses. Same-sex households and single-head households are excluded. Values are based on weighted data. Countries are divided into 3 groups based on their \$2016 GDP per capita (using data from World Bank for 24 countries and from Focus Economics for Taiwan). Within each grouping, countries are listed from largest to smallest GDP per capita (in \$2016 GDP).

b. Age, individual income, and household income.

Country	Age Mean (SD)	Individual Income (2016 US\$) Mean (SD)	Household Income (2016 US\$) Mean (SD)
High GDP Mean	42.3 (10)	33,953.2 (28,600)	94,630.6 (62,853)
United States	42.5 (11)	50,331.9 (61,275)	131,428.2 (114,286)
Austria	43.4 (9)	28,518.2 (21,654)	94,858.6 (58,738)
Finland	42.6 (11)	36,557.6 (21,370)	90,503 (51,344)
Canada	41 (11)	37,695.4 (28,238)	104,658.2 (65,519)
Germany	45.3 (10)	26,296.1 (23,628)	82,459.2 (54,827)
Belgium	42.6 (10)	34,701.4 (19,054)	89,771.1 (40,227)
United Kingdom	41.9 (11)	29,087.4 (30,903)	78,297.7 (61,969)
Israel	39.2 (11)	28,437.6 (22,680)	85,068.4 (55,913)
Middle GDP Mean	43.5 (9)	13,237.6 (11,263)	36,299.8 (26,041)
Italy	45.9 (8)	22,287.8 (18,140)	59,799 (44,602)

(Continued)

Country	Age Mean (SD)	Individual Income (2016 US\$) Mean (SD)	Household Income (2016 US\$) Mean (SD)
Spain	43.7 (9)	20,731.2 (17,408)	51,496.8 (34,934)
Taiwan	45.6 (9)	13,401.6 (10,832)	43,092.7 (23,095)
Czech Republic	43 (9)	10,652.6 (8,710)	29,762.3 (17,904)
Greece	43.9 (8)	14,288.7 (9,950)	35,924.5 (23,040)
Uruguay	40.6 (10)	9,713.2 (8,835)	27,239.8 (19,347)
Chile	42 (11)	9,939.5 (13,202)	27,797.7 (37,363)
Hungary	42.99 (9)	4,886.3 (3,028)	15,285.7 (8,046)
Low GDP Mean	41.8 (10)	4,166.0 (5,248)	12,427.5 (14,471)
Poland	41.9 (10)	5,635.1 (4,042)	16,976.6 (10,080)
Mexico	40.4 (10)	2,858.6 (5,353)	9,866.4 (35,399)
Brazil	39.8 (10)	7,018.9 (10,396)	18,565.8 (22,737)
Russia	42.1 (10)	6,106.3 (4,892)	17,943.1 (11,532)
Peru	42.2 (10)	3,001.7 (5,246)	10,918.8 (12,342)
Colombia	38.7 (10)	4,430.4 (6,629)	11,525.7 (14,157)
Serbia	44.8 (9)	3,253.0 (2,505)	9,187.2 (5,164)
Paraguay	38.9 (10)	3,964.0 (6,315)	12,235.1 (14,620)
Georgia	47.3 (9)	1,225.9 (1,854)	4,628.5 (4,203)
Total Mean	42.5 (10)	16,600.8 (14,645)	46,371.6 (33,656)

Appendix 2: Proportion of households with 0, 1, 2, and 3 or more children and 0 and 1 or more elders, by country and country-level GDP grouping.

Country	0 Children (%)	1 Child (%)	2 Children (%)	3 or More Children (%)	0 Elders (%)	1 or More Elders (%)
High GDP						
Mean	49	20.9	20.2	9.8	98	2.1
United States	49.9	21	20	9.1	97.7	2.3
Austria	53.5	24.1	17	5.4	96.3	3.7
Finland	53.1	17.8	19.9	9.1	99.7	0.3
Canada	52.3	17.4	21.3	9	95.6	4.4

(Continued)

Appendix 2: Continued

Country	0 Children (%)	1 Child (%)	2 Children (%)	3 or More Children (%)	0 Elders (%)	1 or More Elders (%)
Germany	56.4	21.7	18.3	3.7	99.6	0.4
Belgium	46	22.7	21.6	9.7	98.1	1.9
United Kingdom	51.7	22.8	20.3	5.2	99	1
Israel	29.4	20	23.3	27.3	97.7	2.3
Middle GDP						
Mean	45.5	27.3	22	5.2	93.7	6.4
Italy	44.3	30.5	20.8	4.4	97.6	2.4
Spain	44.5	29.1	23.1	3.3	97.7	2.3
Taiwan	47	24.5	24.5	3.9	79.2	20.8
Czech Republic	53.1	23.5	20.1	3.3	97.1	2.9
Greece	41.1	26.3	26.6	6.1	95.8	4.2
Uruguay	36.5	31.1	24.1	8.3	97.1	3
Chile	37.7	31.9	22.4	8.1	95.5	4.5
Hungary	60	21.3	14.5	4.2	89.2	10.9
Low GDP						
Mean	33.6	29.4	24.7	12.4	93.7	6.3
Poland	37.7	30.2	24.6	7.5	90.2	9.8
Mexico	24	27.2	28.3	20.5	96.7	3.4
Brazil	37.1	34.6	20.9	7.4	97.7	2.3
Russia	48.6	28.4	18.1	4.9	94.8	5.2
Peru	20.8	28.9	28.6	21.7	95.8	4.2
Colombia	26.9	34	27.1	12.1	96.2	3.9
Serbia	46.2	24.8	23.5	5.4	85.8	14.3
Paraguay	18.9	32.4	26.9	21.9	95.9	4.1
Georgia	42.4	23.9	23.9	9.8	90.6	9.5
Total						
Mean	42.2	26.1	22.5	9.3	95.2	4.9

Notes: For all tables: "Children" is defined as household members aged 17 and younger. "Elders" is defined as household members aged 65 and older.

Appendix 3: Within-country mean share of household income contributed by women (household head or spouse of household head), overall and in the top and bottom household income quintiles.

Country	N	Mean Share of Household Income (Total Population)	Mean Share of Household Income (Bottom Quintile)	Mean Share of Household Income (Top Quintile)
High GDP Mean		0.38	0.43	0.33
United States	21,202	0.41	0.48	0.36
Austria	1,658	0.32	0.37	0.28
Finland	4,019	0.43	0.48	0.37
Canada	11,919	0.38	0.41	0.34
Germany	5,460	0.34	0.42	0.30
Belgium	1,671	0.40	0.44	0.36
United Kingdom	5,627	0.39	0.42	0.35
Israel	3,562	0.36	0.44	0.31
Middle GDP Mean		0.38	0.42	0.34
Italy	1,100	0.41	0.55	0.32
Spain	3,610	0.42	0.47	0.39
Taiwan	4,777	0.32	0.37	0.31
Czech Republic	2,452	0.37	0.40	0.32
Greece	4,375	0.41	0.44	0.4
Uruguay	12,338	0.35	0.33	0.37
Chile	15,203	0.38	0.44	0.36
Hungary	771	0.34	0.38	0.26
Low GDP Mean		0.33	0.31	0.32
Poland	12,547	0.35	0.40	0.30
Russia	44,870	0.35	0.39	0.33
Mexico	21,066	0.27	0.19	0.32
Brazil	40,240	0.39	0.47	0.37
Peru	12,904	0.24	0.13	0.28
Colombia	42,884	0.40	0.43	0.39
Serbia	1,377	0.38	0.43	0.31

(Continued)

Appendix 3: Continued

Country	N	Mean Share of Household Income (Total Population)	Mean Share of Household Income (Bottom Quintile)	Mean Share of Household Income (Top Quintile)
Paraguay	3,223	0.32	0.27	0.33
Georgia	767	0.24	0.12	0.28
Total Mean		0.36	0.39	0.33

Appendix 4: Percentage change in women's mean share of household income, comparing households with 1, 2, and 3 or more children to households with no children, for households in the top and bottom income quintiles, by country.

Country	1 Child, Bottom Quintile	1 Child, Top Quintile	2 Children, Bottom Quintile	2 Children, Top Quintile	3 or More Children, Bottom Quintile	3 or More Children, Top Quintile
High GDP						
Mean	-11.2	-3.3	-16.8	-2.1	-29.2	-10.6
United States	-13.5	0	-19.2	0	-28.9	-5.6
Austria	-23.8	-13.3	-19.1	-16.7	-42.9	-23.3
Finland	-10	-2.6	-14	-5.3	-20	-10.5
Canada	-19.6	-2.9	-26.1	2.9	-41.3	-2.9
Germany	-13.3	-9.7	-20	-9.7	-31.1	-19.4
Belgium	6.82	8.6	-4.6	8.6	-27.3	-11.4
United Kingdom	-18.8	0	-31.3	-2.9	-37.5	-8.6
Israel	2.3	-6.5	0	6.5	-4.6	-3.2
Middle GDP						
Mean	-7.2	3	-11.9	7	-20.6	-7.2
Spain	-13.7	8.1	-15.7	13.5	-15.7	2.7
Taiwan	5.4	10.3	-5.4	13.8	-13.5	-10.3

Appendix 4: Continued

Country	1 Child, Bottom Quintile	1 Child, Top Quintile	2 Children, Bottom Quintile	2 Children, Top Quintile	3 or More Children, Bottom Quintile	3 or More Children, Top Quintile
Czech Republic	-14	-3.1	-7	9.4	-34.9	-21.9
Greece	4.4	-2.6	-11.1	5.3	-8.9	5.3
Uruguay	-10.8	0	-21.6	0	-29.7	-10.8
Chile	-14.6	5.6	-10.4	0	-20.8	-8.3
Low GDP Mean	-15.8	-0.8	-26.9	0.3	-41	-15.9
Poland	-4.6	-6.3	-25	-9.4	-56.8	-28.1
Mexico	-23.1	3	-34.6	0	-50	-21.2
Brazil	-7.6	0	-18.9	0	-26.4	-8.1
Russia	-25.5	-11.4	-40.4	-8.6	-57.5	-20
Peru	-17.7	11.1	-23.5	3.7	-41.2	-18.5
Colombia	-4.3	-5	-12.8	0	-19.2	-15
Paraguay	-27.8	3.2	-33.3	16.1	-36.1	0
Total Mean	-11.6	-0.6	-18.8	1.3	-30.7	-11.4

Notes: Only 21 countries had adequate data for both the bottom and top quintile due to sample size constraints. Results are summarized in [Figure 5](#).

Appendix 5: Chances out of 100 of contributing at least 30% of household income in households with and without children (for women in the top and bottom household income quintiles), by country and country-level GDP grouping (results from logistic regressions).

Country	Number of Children in Household (results for the bottom quintile are displayed in shaded columns)							
	0	0	1	1	2	2	3 or More	3 or More
High GDP Mean	86.6	46.1	80.6	46.5	77.5	47.7	70.9	43.4
United States	90.9	50	85.2	49.5	82.9	51.8	78.9	48.7

(Continued)

Appendix 5: Continued

Number of Children in Household
(results for the bottom quintile are displayed in shaded columns)

Country	0	0	1	1	2	2	3 or More	3 or More
Austria	78.5	30	74.1	20	76.8	31	30.3	28.1
Finland	91	53.7	83.3	59.7	74.8	59.5	79.9	55.9
Canada	84	49.4	75.4	52.9	64.1	54	68.9	56.7
Germany	86.9	32.5	80.1	31.2	84.7	34.6	68.3	25.4
Belgium	92.5	58.4	95	67.4	84.4	59.9	92.6	43.8
United Kingdom	90.2	48.5	78.1	53.8	71.2	46	79.7	47.2
Israel	78.6	46.2	73.2	37.8	80.9	44.8	68.8	41.7
Middle GDP Mean	87.7	43.1	81.7	43.4	79.5	43.8	75.3	41.1
Italy	97.4	27.5	97.4	26.9	97.2	25.8	98.3	36.9
Spain	88.3	61.7	79	64.5	83.3	61.4	84.2	49.6
Taiwan	77.2	29.8	81.3	40.6	81.1	34.1	76	24.9
Czech Republic	92.9	46.3	80.9	45.7	79.9	52.6	51.5	34.2
Greece	85.8	64.1	77.9	66.9	85.2	69.6	89.7	86.4
Uruguay	80	48.8	70.5	46	61.6	45.3	58.8	36.7
Chile	89.8	43.4	78.7	45.1	81.2	46	79.3	36.5
Hungary	90	23.3	88	11.1	66.6	15.7	64.6	23.7
Low GDP Mean	82.2	51.4	72.1	48.7	71.4	50.5	72.6	51.5
Poland	85.6	43.2	81.9	37.7	72.6	35.2	62.9	33.9
Mexico	95.6	63.8	71.1	69.1	75.8	66.5	72.5	64.1
Brazil	98.5	56	96.8	53.3	96.3	53.2	98.4	51.8
Russia	88.6	56.7	83	48.2	79.3	58.3	67.4	50.4
Peru	92.9	62.5	90.8	55.8	89.3	51.6	88.2	48.8
Colombia	98.3	57.8	97.4	56.2	90.3	58	98.4	57.2
Serbia	84.9	47.1	72.4	37.2	75.1	24.8	91.7	48.2
Paraguay	41.5	61.8	41.2	61.5	53.6	72.5	55	73.6

Appendix 5: Continued

Number of Children in Household
(results for the bottom quintile are displayed in shaded columns)

Country	0	0	1	1	2	2	3 or More	3 or More
Georgia	53.5	13.3	14.1	19	10.2	34.2	19	35.9
Total Mean	85.3	47.0	77.9	46.3	75.9	47.5	72.9	45.6

Notes: Three main effects are included in the logistic regression models: Income quintile, Number of household members aged 17 and under (children), and Number of household members aged 65 and older (elders). Age and Education are included as controls in all analyses. Additional controls of Part-Time or Full-Time Employment, Temporary or Permanent Employment, Self-Employed or Employee, Public or Private Sector Work, Immigrant or Non-Immigrant, and Rural or Non-Rural Area are included where available. All controls are held at their means when measuring the main effects. Results are summarized in [Figure 6](#).

Appendix 6: Chances out of 100 of contributing at least 30% of household income in households with and without elderly persons (for women in the top and bottom household income quintiles), by country and country-level GDP grouping (results from logistic regressions).

Number of Elders in Household
(results for the bottom quintile are displayed in shaded columns)

Country	0	0	1 or More	1 or More
High GDP Mean	83.1	46.4	75.2	36.3
United States	87.6	50.3	85.2	45
Austria	75.6	27.7	62.3	17
Finland	86.5	56.2	67.2	29.1
Canada	78.2	52.5	67.2	38.6
Germany	84.7	32.4	77.9	23.3
Belgium	91.9	59.5	92.6	61.8
United Kingdom	84.6	49.3	77.3	37.6
Israel	75.8	43.1	71.8	38.1
Middle GDP Mean	85.1	44.4	72.5	27.9
Italy	97.5	27.8	92.7	11.2
Spain	84.8	62.4	76	48.6
Taiwan	80.8	35.5	72.2	25.4

(Continued)

Appendix 6: Continued

Number of Elders in Household
(results for the bottom quintile are displayed in shaded columns)

Country	0	0	1 or More	1 or More
Czech Republic	88.2	47.6	77.2	29.1
Greece	84.8	69.1	62.7	40.4
Uruguay	72.1	46.8	49.7	25.2
Chile	84.4	44.3	79.1	35.8
Hungary	88.5	21.3	70.5	7.8
Low GDP Mean	77	51.2	68.5	39.3
Poland	81.7	41	63.4	21.3
Mexico	82.8	66.5	77.5	58.8
Brazil	97.7	54.7	94.3	32.3
Russia	85.9	55.6	70.5	32.8
Peru	90.6	55.1	91.9	59.1
Colombia	96.9	57.4	96.3	53.1
Serbia	82.5	41.9	67.1	23.8
Paraguay	47.5	67.4	40.1	60.5
Georgia	27.6	21.6	15.6	11.8
Total Mean	81.6	47.5	71.9	34.7

Notes: Three main effects are included in the logistic regression models: Income quintile, Number of household members aged 17 and under (children), and Number of household members aged 65 and older (elders). Age and Education are included as controls in all analyses. Additional controls of Part-Time or Full-Time Employment, Temporary or Permanent Employment, Self-Employed or Employee, Public or Private Sector Work, Immigrant or Non-Immigrant, and Rural or Non-Rural Area are included where available. All controls are held at their means when measuring the main effects. Results are summarized in [Figure 6](#).