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Presence of grandparents and labour market outcomes of mothers: Evidence from Kolkata, India

Mousumi Dutta
Associate Professor, Economics Department
Presidency University, Kolkata, India
Email: dmousumi1970@gmail.com
Zakir Husain
Associate Professor, Population Research Centre
Institute of Economic Growth, Delhi, India
Email: dzhusain@gmail.com

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Abstract

Given increasing participation in labour markets by women, child care has emerged as an important issue in all countries. Literature in developed countries has generally tended to focus on formal child care systems—particularly examining the impact of price changes on labour market outcomes of mothers. In recent years, however, informal child care provided by aged relatives—particularly grand-parents—has been identified as an important determinant of the mother's decision to undertake paid work. Although the impact of informal care services by the elderly has emerged as an important area of research in developed countries this issue has remained unexplored in developing countries like India. However, differences in social attitudes and norms towards female employment and provisioning of care services (particularly child and aged care), and presence of a variety of formal care system is likely to change the relationship observed between presence of grand-parents and decision to work of mothers' in developing countries.

This paper examines whether the presence of grand-parents is likely to increase probability of mothers' working. The first part of the analysis is undertaken using the third wave of the Demographic Health Survey data (2005-06). Analysis reveals that presence of co-residential elderly relatives actually reduced the probability of working of women with children aged below 12 years in rural areas, towns and capital cities—only in metropolitan cities do we observe the expected positive relation between the two variables. This is followed by analysis of data from a primary survey covering 750 households in Kolkata, one of the six metropolitan cities covered under the DHS survey, to check robustness of earlier result. The type of grand-parental care provided is also examined.

Keywords: Gender, labour, grand-parents, family structure, Demographic Health Survey, India.

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1. Introduction

In Western societies, starting as a production unit, the family has evolved over the years (Young and Wilmott, 1973). In the first phase, all family members were engaged within the home—working in agricultural land attached to the home or in home based factories—rearing children and undertaking other activities. In this phase, the home was the centre of all activities, economic or otherwise. In the second phase, the home-centered family broke down. Income earning activities started occurring outside the home. Although women were not debarred from participating in such activities, the gendered segregation of family labour constrained them to remain within the home to take care of children and undertake other household chores. Starting from the end of the nineteenth century women began to understand their body and acquire knowledge about the physical processes, particularly those relating to fertility. Women started to control fertility by refusing to have intercourse during periods of fertility. Along with the emergence of new forms of contraception, legislation restricting child labour and the introduction of compulsory schooling increased the costs of having children and reduced fertility trends. This also reduced the opportunity costs of women working, encouraging them to return to the labour market after children became old enough to take care of themselves. Female work force participation rates started increasing. This, in turn, raised important issues like fertility timing, provisioning of care and household services, and house-work balance. In particular, the unavailability of the working mother from home for long stretches of time raised the question of child care.

In developing countries the emancipation of women and entry into labour markets has occurred at a substantially slower pace, and in a socio-cultural context different from that of developed countries. In India, for instance, women have historically been confined to the domestic space set defined by the *zenana* (Peacock, 2009), and assigned the role of home maker. Only women from low income households entered the labour market. It was only after the Second World War and Partition of the country that economic circumstances forced middle class women into the labour market. However, in the absence of change in attitudes towards women, there was no major

change in their status and role within the family. Women had to sacrifice their leisure hours and bear the dual burden of fulfilling work and household duties. The availability of cheap labour supply from slums and rural areas and presence of female relatives in extended families (that was the common form of the household) solved the problem of child care. Over the years, however, the cheap supply of maidservants and nannies dwindled while the family structure shifted to nuclear households. Occupational choices, too, changed, keeping pace with new aspirations of women. Such changes escalated the conflicts between work and home, with fertility and child care becoming an increasingly important issue for working mothers.

There is a large body of studies in developed countries examining the impact of formal child care provision on fertility decision-making processes (Gauthier, 2007; Rindfuss, Guilkey, Morgan, Kravdal, & Guzzo, 2007) and on participation in labour market (Chevalier and Vittanen, 2002; Powell, 2002; Gelbach, 2002; Simonsen, 2006; Lundin et al., 2007). It is also argued that formal childcare affects female labour force participation due to its cost and uncertainty regarding its quality. Several studies have estimated the price elasticity of non-maternal childcare with respect to mother's employment. Such estimates are predictably negative (Connelly and Kimmel, 2001; Gong, et al., 2010).

In recent years, researchers have acknowledged that elderly relatives, particularly grand-parents, are also important providers of child care. "Grandparent care can take many forms, from occasional babysitting through regular help with child care to being the sole or main provider of childcare while parents work, or living with their grandchildren in multi-generation households" (Statham, 2011: 4). With the prolongation of life cycle, societies not only have more grand-parents but also healthier ones (Aldous, 1997). This has resulted in multi-generational bonds—"relations across more than two generations" (Bengston, 2001)—becoming increasingly important. One important form of such multi-generational bonds is created when the grand-parents provide care services to children of working mothers. This, along with the tendency of grand-parents to hold norms/beliefs opposing employment of mothers (Assve et al., 2011), has stimulated studies examining the impact of grand-parental presence on labour market participation of mothers in developing countries. Such studies find that presence of grand-parents generally does increase the probability of labour market participation of mothers in general by

providing cheap but dependable child care services. The strength and significance of the grand-parental effect, however, has been observed to vary across socio-cultural contexts. This raises the question as to whether the positive relation between presence of grand-parents and labour market participation by mothers observed in developed countries will also hold in developing countries. Given the scarcity of reliable formal child care, reliance of informal child care services provided by siblings, and norms dictating that women should provide personalized care services to elderly relatives, it is quite possible that presence of grand-parents will not affect labour market outcomes of mothers as in developed countries. This paper examines this question in the context of India, one of the major developing countries in Asia with a fast-growing aged population[1] and low female work-force participation rates.[2]

The study uses both primary and secondary data. The preliminary analysis is based on unit level Demographic Health Survey (DHS) data from the third wave (2005-06), while more detailed analysis is undertaken using data collected from a primary survey undertaken in Kolkata. A univariate probit model is used to estimate the effect of grand-parental presence on labour market outcomes of mothers. This is followed by an analysis of reasons for not availing grand-parental services in child care and an examination of the type of services provided by them.

The paper starts with a review of studies examining the relation between labour market outcomes and grand-parental presence in developed countries. This is followed by a discussion of how the family and the status of women evolved in West Bengal, leading to child care becoming a major issue. The subsequent sections present the quantitative findings, using both univariate and multi-variate methods, from the analysis of DHS and survey data. The paper concludes with a summary of results and indications for future research.

2. Empirical studies in developed countries

[1] According to the 2001 Census, the total number of older persons in India was approximately 70.6 million and is expected to cross 173 million by 2026 as the life expectancy at birth is projected to increase for both males and females. As a result, the number of aged is expected to sharply increase to more than 315 million by 2050 (Subaiya and Bansod, 2011).

[2] Work-force participation rate among females have declined from 18 percent (2009-10) to 16 percent (2011-12), according to a recent study by National Sample Survey Organization. In rural areas, 9 million women lost their jobs between 2009-10 and 2011-12. ("Unemployment in India on the rise, women worse hit", Times of India, 21 June 2013, Accessed from http://bit.ly/1cd1PNh on 18 July 2013).

The first attempt to establish a descriptive relationship between labour market outcome of mothers and grandparents' care was made by Liebowitz et al. (1992). Grandparents' childcare was proxied by the variable "grandmother living in the household", to find a marginally significant and positive effect on the probability of working for mothers with children under the age of two years. More recently, Del Boca et al. (2002, 2005) observes that, in Italy, having a grandmother living near the household and in good health increased the probability of being in the labor market of mothers of children under five years.

Gray (2005) examines whether a higher proportion of mothers availing of child care services from grand-parents are employed, compared to mothers who do not avail such services. Using simple tabular analysis of British Time Use Survey (2000), Gray finds that while 40 percent of employed mothers having children less than five years receive help from grand-parents, against 20 percent of unemployed mothers. Corresponding figures are 32 and 16 percent, respectively, for mothers with children under 12 years. Gray also uses data from the British Household Panel Survey data to show that there has been an increase in child care services provided by relatives to working mothers, particularly in families with children below five years.

Posadas and Vidal-Fernández (2012) uses data from the National Longitudinal Youth Survey data (1979) to test the relationship in USA. Results of a linear probability model shows that mothers are significantly more likely to work if grand-parents provide child care services. Extending the basic framework to account for endogeneity (in the form of omitted variable affecting both variables), Posadas and Vidal-Fernández uses an Instrumental Variable model, with maternal grandmother's death as the instrument. Similar results are obtained, with the coefficient of grand-parental care increasing, particularly for socio-economically disadvantaged households.

Another recent work is that of Albuquerque and Passos (2012). The study uses data from the second wave of the European Social Survey (2004/2005). This survey asks the question "What is the main type of childcare that the youngest child receives?", of which a possible response is "child's grandparent(s)". This information allowed Albuquerque and Passos to have a dummy variable that indicates whether the mother's youngest child is taken care of by a grandparent.

They initially estimated a univariate probit model, regressing labour market outcome upon the dummy for grand-parental care and other control variables. Results show that grand-parental care has a positive impact on labour force participation of mothers. Since grandparental care might not be a truly exogenous variable, bivariate probit and switching probit models are also estimated. However, model statistics do not indicate that endogeneity is a serious issue, so that results of the univariate probit model may be accepted.

Some studies point out that the positive relationship between mother's decision to work and grand-parental care may be context dependent. For instance, a study by Zamarro (2011) using the Survey of Health, Aging and Retirement in Europe finds a significant and positive effect only in The Netherlands and Greece (out of Sweden, Denmark, Germany, The Netherlands, France, Austria, Italy, Spain, Greece and Belgium).[3] A similar result is obtained by Aassve et al. (2011). The study regresses labour market outcome of mothers on a dummy indicating whether grand-parents provide child care services (and other co-variates) using data from the Generations and Gender Survey (2005). Results of a univariate probit reveals that the association between mother's labour supply and childcare help received from grandparents is positive and significant in France, Georgia, Germany, Hungary and The Netherlands, but positive and insignificant in Bulgaria and Russia. As the researchers suspect that there may be reverse causality between grand-parental care and labour market outcome of mothers, a bivariate probit is also estimated. In Bulgaria, France, Germany and Hungary, a positive and significant relationship between labour market outcome and grand-parental care is observed, while in Georgia, Netherlands and Russia the coefficient of grand-parental care is insignificant. Aassves et al. (2011) conclude that the impact of grand-parental care and decision to work of mothers varies from country to country, depending upon social norms governing grand-parents attitude towards mother's work force participation.

Studies for developing countries are rare. In the only study that we have been able to identify, Maurer-Fazio et al. (2011) uses a two-step estimation procedure to find that, in China, 25 to 50

[3] A SURE (Seemingly Unrelated Regression) Model was used for estimation purposes.

years old women who co-reside with their parents or in-laws are 12.4 percent more likely to participate in the labor market.

3. The Indian scenario

As mentioned previously, there has been no study of the impact of grand-parental presence on labour market outcomes of working mothers in India. The paper begins with a discussion of the historical emergence of the working mother, followed by an analysis of results from all-India survey of women aged 15-49 years undertaken in 2005-06 (Demographic Health Survey, 3rd Round).

3.1 Emergence of the working mother

As mentioned in the introduction, women in India have historically been accorded a secondary role. In particular, in the pre-colonial era, women from middle class households have been confined to the home, engaged in nurturing and protecting the home environment, making it comfortable for children and other family members. The absence of opportunities for female education and 'outside the home' work (considered by society to be suitable for women) severely curtailed movements of women and restricted their options. Only among the nobility, were some women able to educate themselves and develop their artistic talents; this facilitated the in their efforts to pursue creative activities.

The stalemate was broken by the advent of colonialism. Reaction, in the form of a challenge to British superiority led, inter alia, to social reform and cultural revival. Karlekar (1993) has shown how the emergence of modernity in the colonial era expanded the horizon of women. In Bengal, for instance, the Bengal Renaissance led to a change in the social position of women through the spread of women education. The attempts of the social reformers and educationists to educate middle class Bengali women was not to ensure their autonomy and independence (Mies 1986) but to develop and educate a new breed of women who would be fit companions for their husbands and better mothers to their children— *sakhi*, *sumata* and *sugrihini* as expressed by the contemporary Brahmo reformers (Chakraborty, 2011). Women of the 19th and early 20th century were emancipated, but allowed monitored entry only in selective spheres, like the social and cultural arena. This is referred to as "progressive domestication" by Ghosh (1998).

Although Chakraborty notes that women were aware of what Gail (1998) terms the art of the possible, and covert and muted forms of subversion[4] may be found in contemporary literature, any overt violations of these norms[5] was frowned upon by even social reformers. The threatened Westernization of the Bengali women was ridiculed in the 19th century literature, with such women portrayed as being fond of useless luxury and caring little for the wellbeing of the home (Chatterjee, 1989).[6] Not surprisingly, therefore, education and cultural emancipation did not lead to participation of women in economic activities. It was only in the 1950s that economic pressures—in the form of inflationary pressures and the economic distress amongst refugee families following the partition of Bengal—forced opened the doors of the labour market to women from middle class families.

Such women started working in fixed hour occupations like office clerks and school teachers. The problem of child care and provisioning of other household services was solved trivially. The low pressure of work in fixed hour occupations not demanding much involvement from the women permitted some degree of flexibility to them. There was "no major differences in the domestic lives of employed and non-employed women in relation to household work and child care responsibilities" (Datta, 1999: 174). Working women continue to undertake household chores, sacrificing leisure hours. The responsibility for child care was partially shared with other female relatives in extended (joint) families. This minimised the conflict between the role of housewife and worker, and ensured that women would continue to undertake household chores. Simultaneously, as Lahiri-Dutt and Sil (2004) points out, working women continue to prioritize their family responsibilities over both personal ambitions and work-related responsibilities.[7] The

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[4] For examples, see Tharu and Lalita (1991). Another instance is Rassundari Devi's autobiography (*Amar Jibon*—My life, 1876).

[5] For instance Kadambini Ganguly's visit to Edinburg to study medicine unaccompanied by her spouse was strongly criticised even by social reformers.

[6] As Bhudev Mukhopadhyay writes:

> "… an upheaval is under way within our home. The women … try to become *bibis*. In households which manage an income of hundred rupees, the women no longer cook, sweep or make the bed …; (the women) only read books, sew carpets and play cards. What is the result? The house and furniture get untidy, the meals poor, the health of every member of the family is ruined; children are born weak and rickety, constantly plagued by illness—they die early." (*Pãribãrik prabandha*, Essays on the Family, 1882; cited in Chatterjee, 1989: 625).

[7] The negation of the self for the family is reflected in films like *Meghe Dhaka Tara* (The cloud capped star, 1960) directed by Ritwik Ghatak. The film depicts how a young refugee woman is destroyed by her attempts to nurture her family and allow them to satisfy their individual ambitions.

reluctance to assert themselves, exercise agency in any form or overtly defy behavioural norms (by stopping the wearing of *bindi* or covering the head in public spaces) meant that employment would not challenge the established social order. Nevertheless, the crossing of gender boundaries often raised issues that were difficult to resolve and laid the foundation for change in the years to come.[8]

The next wave of change started in the 1980s. Cultural forces led to a change in social attitudes towards women's education and employment. The depiction of a positive image of the modern woman in popular media—professional and successful, confident and liberated, as opposed to the passive stereotypes sanctioned by patriarchy (Bhattacharya 2005)—posed a challenge to traditional norms constraining agency of women. Simultaneously there was a change in attitude towards women and their individuality, caused by a shift in motives for working. Family-centric motives for working were replaced by individualistic goals. Instead of seeking work to ensure the economic survival of the family, work became a manifestation of the desire for personal space and self-fulfilment outside the family. Not surprisingly, career progression became an important goal of working women.

At the same time, it is not totally true that economic motives were unimportant. Rather, as globalization in the 1990s introduced Indian society to Western life styles and allowed access to luxury goods, the desire to work became less guided by the need to survive and more by the desire to satisfy consumerism. Women's ambition to move up the organisational hierarchy (and earn more) became acceptable to their husbands as the family evolved from a social unit propagating social customs to a consumer partnership. The change in family structures was also important. The movement towards nuclear families minimized resistance when working women attempted to shed the role of care provider and assert their individuality.[9]

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[8] In *Ekdin Pratidin* (And quiet roles the dawn, 1979) Mrinal Sen examines the attitude of neighbours and family members bound to the traditional code when the working woman fails to return home at night. In Satyajit Ray's M*ahanagar* (The Big City, 1963) tensions escalate when the husband loses his job and has to depend upon his wife for survival.

[9] The shift in residential patterns does not lead to a sundering of ties with parents and other elderly relatives. Rather, Gangrade (1999) argues, it leads to the phenomenon of "living apart but together" (Sokolovsky, 2001).

The changes in motives for working, life style and family structure escalated the role conflict between the woman as worker and provider of care services. Women were no longer content to bear a dual burden as a necessary cost of their employment. From the traditional role of women as care giver and sustaining the home, middle class women gradually shifted to a supervisory and planning role within the household (Dutta and Husain, 2013). Child care, however, remained a major issue—an issue on which compromise is difficult. In the absence of a well-developed network of good quality crèches, working mothers had to rely upon the increasingly costly service provided by maidservants and nannies. The costs of relying upon paid care services, along with its unreliability, led to a revival of multi-generational ties.

Dependence on grand-parents for child care support by working mothers, however, has a potential problem. Elderly relatives are often conservative and persist in their belief that women are, by nature, care providers and home builders. Work challenges this belief and is often interpreted as an attempt by modern educated women to evade their natural responsibilities. A conflict emerges, so that grand-parental presence may have an ambiguous effect on labour market outcomes of mothers. This may be seen from an analysis of all-India data in the next section.

3.2 Grand-parental presence—A support, or a hindrance?

The analysis of this section is based upon unit level Demographic Health Survey (DHS) data. This survey is the third in a series of national surveys on reproductive health, conducted under the stewardship of the Ministry of Health and Family Welfare, Government of India, with the International Institute for Population Sciences, Mumbai, serving as the nodal agency. DHS is a household survey which provides estimates of indicators of population, health, and nutrition by background characteristics at the national and state levels. Information was collected based on individual interviews. This data was collected through a national-level survey from November 2005 to August 2006. In all 124,385 women aged 15-49 years and 74,369 men aged 15-54 years from 109,041 households from 29 states were interviewed. The sample was drawn using a multi-stage stratified sampling method (IIPS & Macro International, 2006: 11-13).

This study uses the Individual (IAIR51FL) and Household (IAHR51FL) files. In the Household file two variables—one variable indicating whether any grand-parent co-resides with the respondent (GPP),[10] and the other denoting the presence of a child below 12 years—was created. These two variables were merged with the Individual file (containing data on women respondents). Out of the 124,385 respondents, 66,469 are currently married women with children below the age of 12 years. This forms the relevant sample for our study. The distribution of the sample across socio-economic covariates is given in Appendix Table A1. Finally, using information on occupation of the respondent (v717) we created a binary variable (EMP) representing labour market outcome of the respondent.

Our research hypothesis is that labour market outcome of mother's (EMP) is determined by the presence of co-residential grandparents (GPP). We first examine the relationship between these two variables across socio-economic correlates. Table 1 gives the percentage of mothers who are working in families with co-residential elderly and in families without co-residential elderly, respectively, across socio-economic correlates. We would expect that the percentage of mothers who are working is higher in families with elderly relatives, than in two-generation families. Contrary to this expectation, however, we find that in most cases the opposite holds true—indicating that the presence of co-residential elderly parents restricts work force participation of mothers. Only in metropolitan and capital cities does our hypothesis hold to some extent. In metropolitan cities, for instance, respondents from the first, third and fifth wealth index quintile, illiterate women, women whose partners are illiterate or have below primary education and women from disadvantaged socio-religious groups (Scheduled Castes and Scheduled Tribes) tend to work if they have co-residential elderly family member.

[10] Respondents are women aged 15 to 49 years.

Table 1: Percentage of working mothers and presence of co-residential elderly across correlates—India, by place of residence

Correlates	Group	Metropolitan		Capital		Town		Rural		All	
		Elderly	No elderly	Elderly	No elderly	Elderly	No elderly	Elderly	No elderly	Elderly	No elderly
Geographical Zone	North	23.6	20.5	31.5	27.1	23.2	26.2	40.0	43.3	35.4	35.3
	Central	-	-	23.2	29.9	15.9	20.5	48.6	55.9	38.5	44.1
	East	21.2	26.7	7.1	20.5	32.5	32.9	37.8	45.6	34.8	40.4
	West	32.4	25.1	24.7	30.5	27	29.5	57	60.6	41.5	41.7
	South	31.9	33.8	22.5	26.9	29.2	34.3	42.7	52.5	35.2	41.0
Wealth index (quintiles)	Poorest	50	46.2	58.8	49.4	41.9	44.6	63.1	63.4	62.1	62.2
	Poorer	41.2	41.4	53.8	45	35.6	41.4	54.5	56.1	52.9	53.9
	Middle	51.5	35.1	47.4	38	35.2	35.9	45.8	49.7	44.6	45.4
	Richer	31.2	29.4	29.4	33.6	24.8	27.3	34.4	37.4	31.5	32.9
	Richest	22.2	19.2	19.2	21.6	22.4	23.5	24	26.9	22.1	23.1
Highest educational level	No education	38.3	29.8	38.7	36.5	31.6	35	57.8	59.3	53.5	52.3
	Primary	33.3	29.7	26.7	34.7	27.6	27.2	44.4	47.2	40.2	40.5
	Secondary	21.3	19	16.2	21.4	19.1	23	29.5	35.4	24.6	27.8
	Higher	27.4	33.3	27.4	29.4	36.8	39.3	38.5	45.8	33.1	36.8
Recode of partners education	No education	40.7	34	38.7	40.3	35.7	38.1	57.3	60	53.5	54.1
	Below primary	34.5	35.4	29.2	35.3	27	33.2	51.5	54.6	45.5	47.6
	Middle level	23.9	20.7	20.6	25.3	22.3	24.8	39.3	43.6	32.9	34.2
	Secondary	12.5	25.4	21.7	25.2	18.3	30.1	34.2	42.6	27.8	35.4
	Higher level	25	26.4	24.2	23.3	28.6	28.9	34.5	36.9	29.3	29.7
Socio-religious identity	Muslim	17.7	16	14.9	21.5	16.1	20.5	30.8	31.6	23.6	25.6
	Hindu-SC	37.2	33.7	30.5	40.2	33.6	34.7	44.3	52.2	40.6	45.7
	Hindu-ST	37.5	29	44	34.4	36	36	71.9	72.6	67.6	66.4

Correlates	Group	Metropolitan		Capital		Town		Rural		All	
		Elderly	No elderly	Elderly	No elderly	Elderly	No elderly	Elderly	No elderly	Elderly	No elderly
	Hindu-Gen	25.2	24.7	25.5	27.9	24	26.1	44.3	49.3	36.8	38.7
	All Others	31	33.2	23.3	36.9	36.5	38	44.1	54.9	40.2	48
Marital duration	**0-4 years**	17.6	13.7	15.6	13.6	17.8	16.5	29	33.5	24.4	25.2
	5-9 years	23.8	21.3	22	23.4	23.3	25.2	41.3	43.6	34.1	34.7
	10-14 years	30.2	28.2	26.9	33.1	31	32.6	49.1	54.8	41.3	44.4
	15-19 years	31.1	30.8	29.9	37.2	30	35.6	54.7	58.2	45.9	48.2
	20-24 years	43.8	38.4	37.8	37.9	34.8	35.8	59.4	59.4	52.2	50.6
	25-29 years	16.7	30.7	19.4	35	32	34.9	55.7	59.7	48.3	51
	30 years & above	18.8	23.5	38.2	28.1	16.9	26.6	50.2	58	43.3	46.7

Since bivariate analysis fails to control for socio-economic factors that may determine labour market outcomes we have also undertaken an econometric analysis of the data. We use EMP, a binary variable taking the value of 0 if the mother does not work and the value of 1 if the mother works, to examine the causal relationship between EMP and GPP:

$$EMP = f(GPP, \text{Control Variables})$$

using a probit model. As mentioned earlier, GPP is a dummy variable with value equal to unity if grand-parents reside with the respondent, and equal to zero if they do not. In addition to EMP, we also incorporate covariates reflecting socio-economic and demographic characteristics of the respondent as control factors. These variables include: socio-religious identity, economic status (captured by a wealth index score), place of residence, geographical residence (proxy for culture),[11] age and education level of respondent, education level and occupation of respondent's spouse, and marital duration. Table 2 presents results of the probit model with marginal effects—not coefficients—being reported. The results are similar to that of the findings of the bivariate analysis—the coefficient of GPP is positive and statistically significant at one percent level only for the metropolitan cities.

Table 2: Summary results of univariate probit of EMP on GPP—Across settlement types

Statistic	All India	Metro city	Capital cities	Towns	Rural
dEMP/dGPP*	0.01	0.07	0.003	0.01	-0.01
z	0.92	3.35	0.19	1.03	-0.87
Control variables	Yes	Yes	Yes	Yes	Yes
N	25250	2974	6055	8630	7591
LR-χ^2	1784.2	227.3	459.95	937.89	513.84
R^2	0.0619	0.0738	0.0679	0.992	0.0545

Note: * *dEMP/dGPP is for discrete change of dummy variable from 0 to 1.*

[11] India has been divided into five cultural zones: North (comprising of Jammu and Kashmir, Himachal Pradesh, Punjab, Haryana, Uttaranchal, Delhi, Rajasthan, and Uttar Pradesh), Central (Bihar, Jharkhand, Chhattisgarh and Madhya Pradesh), East (Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya, Assam, West Bengal, and Orissa.), West (Gujarat, Maharashtra and Goa.) and South (Andhra Pradesh, Karnataka, Kerala and Tamil Nadu).

One possible reason why presence of grandparents does not affect labour market outcomes of mothers (except in metro cities) may be reverse causality—a working woman is more likely to retain grand parents within the same roof (Aassve et al., 2011; Albuquerque and Passos, 2012). It is prudent to rule out reverse causality even though the cited studies did not actually find any reverse causality. In our case we have a bi-variate probit model with discrete endogenous regressors underlying decision to keep grand-parents co-residential. Arendt and Holm (2006) suggests that a simple linear probability model may often provide a satisfactory approximation of such models On re-estimating the earlier models using the Instrumental Variable method, however, we get results (not shown) similar to those in the univariate model. In line with earlier studies, therefore, reverse causality does not seem to be an important issue.

What, then, are the other possible explanations for the failure to find a link between co-residential grandparents and labor market outcomes of mothers? Firstly, women working in the informal sector or in primary sector may often work either within the home (in rolling *biris*,[12] making paper bags, etc.), or can take their children with them to work. Secondly, substitutes to grand-parents exist in the form of older daughters (Bhatty, 1998) and non-working female relatives.[13] Thirdly, norms, too, may play a role. The culture in rural areas and in towns, particularly, is often conservative. Women are expected by the elderly to look after in-laws and children and not work. Finally, the most important point is that mere co-residence does not capture the actual role played by grand-parents in providing child care services. For instance, grand-parents may be co-residential because they are too old to take care of themselves or they are in poor health; on the other hand, grand-parents may not co-reside but live at a distance convenient for parents to drop (pick up) children on the way to work. While use of the DHS data has the advantage that it provides a nationally representative large data set, we should keep in mind that its fundamental purpose is to provide information on reproductive health. As a result there are some limitations in data provided in DHS pertaining to our research issue, notably absence of information on health status of grand-parents and distance between grand-parental

[12] *Biri* is an indigenous type of cigarette. *Biri*-making, making paper bags, etc. are activities commonly practiced by women and even children in urban slums. While such activities are not particularly remunerative, they offer a steady flow of income and also have the advantage that they can be undertaken at home.

[13] It may be noted in this context that about 70 percent of households where the respondent works, but there are no grandparents, have more than 4 family members.

home and residence of child. As a result, the impact of grand-parental care on labour market outcomes of mothers is not captured perfectly in this data set.

4. Methodology

4.1 Sample selection and profile

To overcome this deficiency we undertook a primary survey of currently married mothers in Kolkata. This city is the capital of West Bengal, one of the largest states in eastern India, and is also the third largest metropolitan city in India. Kolkata is the cultural, educational and commercial centre of West Bengal. The choice of Kolkata is dictated by the presence of a variety of formal care services, available as a substitute to grand-parental care services. Such substitutes range from crèches (of varying prices and quality) to part- or full-time maid servants and nannies.[14]

The Kolkata metropolitan area, spread over 1,886.67 km^2, comprised of 3 municipal corporations, 39 local municipalities and 24 panchayat samitis, as of 2011. The total population of this urban agglomeration was 4.5 million persons in 2011. The Kolkata Municipality may be divided into three zones. North Kolkata is the oldest part of the city. Characterised by 19^{th}-century architecture and narrow alleyways, the culture of this part of the city is comparatively conservative. Central Kolkata hosts the central business district. South Kolkata developed after India gained independence in 1947; it includes upscale neighbourhoods, with inhabitants commonly believed to be more dynamic, liberal and progressive. Two planned townships in the greater Kolkata region are Bidhannagar and Rajarhat (also called Salt Lake City and New Town, respectively). Like South Kolkata, these areas are also supposed to be modern in their outlook and life style. In addition, Kolkata has extensive suburbs.

Between November 2012 and March 2013 we undertook a survey of currently married women with at least one child aged below 8 years, residing in the Kolkata Metropolitan area. Due to some practical considerations, a stratified sample was taken, with respondents being selected from different educational levels, occupational categories, and residing in different areas of

[14] The difference between maid servants and nannies is that the former may perform a variety of household functions, while the nanny restricts herself to only the child-related activities.

Kolkata. As the objective was to study variations in behaviour across residential, occupational and educational categories the sample selection ensured that each of these groups was adequately represented. However, the non-random nature of sample selection may affect the extent to which the study can be generalized. The survey covered 801 respondents. After editing, 50 questionnaires were discarded as some responses were either missing or inconsistent, and only information on 751 currently married women retained. The sample profile is given in Table 4.

Table 4: Characteristics of Respondent, household and husband

Household characteristics		**Percent**	**Characteristics of Respondent and Husband**		**Percent**
Residential area	South Kolkata	40.7	Grouped age of respondents	20 to 25 years	4.7
	North Kolkata	19.4		26 to 30 years	25.4
	Subarbs	33.8		31 to 35 years	41.3
	Salt Lake	6.0		36 to 40 years	23.3
Living sons aged below 8 years	No children	57.7		More than 40 years	5.3
	One child	41.1	Education of respondent	HS	18.8
	Two, or more, children	1.1		Graduate	49.3
Family structure	Nuclear	32.8		Post Graduate / Doctorate	19.4
	With in-laws	53.5		Others	12.5
	With parents	6.1	Employment status of respondent	No	46.3
	With greater family / Joint	7.6		Part-time (informal)	4.9
Religion	Others	8.0		Part-time (formal)	3.5
	Hindu	92.0		Full-time	45.3
Caste	Others	10.5	Occupation of Respondent	Housewife	46.3
	General	89.5		School or College Teacher	13.6
Language	Else	13.4		Service / Administration	16.4
	Bengali	86.6		Professional Medical	13.2
Asset quintile group	Poorest	19.4		Sales Business Others	10.5
	Poor	17.6	Education of partner	HS	13.0
	Middle	18.5		Graduate	57.4
	Rich	18.4		Post Graduate	7.9
	Richest	26.1		Doctorate	1.9
Expenditure quintile group	Poorest	17.2		PG Diploma/ Certificate	5.2
	Poor	17.8		Professional courses	14.2

Household characteristics	Percent	Characteristics of Respondent and Husband		Percent
Middle	13.7		Others	0.4
Rich	17.8	Occupation of husband	Teacher / Service / Administrative	56.2
Richest	33.4		Professional / Medical	8.3
			Sales Business	34.2
			Others	1.3

4.2 Econometric specification

We elicited information on age, health status and proximity of parents and parents in laws. Responses were combined and recoded to create a binary variable ES (Elderly support), with a value of unity if any of the four grand-parents were alive, healthy and lived close to the respondent (and zero otherwise). The respondent's employment status is regressed on ES and the following control variables:

a) Normalized factor scores for asset holding (NASSET) and expenditure pattern on servants and holidays (NEXP);[15]
b) Age of respondent (AGE);
c) Religion of respondent —HINDU (if respondent was a Hindu), with others as reference category;
d) Caste of respondent—GCASTE (if respondent belonged to upper castes), with others as reference category;
e) Language of respondent, corresponding to cultural pattern —LANG (if respondent's mother vernacular was Bengali), with others as reference category;
f) Family structure—NUCLEAR (if respondent belonged to a nuclear family), WPARENT (if respondent resided with her parents), JOINT (If respondent resided in joint family), with respondents residing with parent-in-laws as reference category;

[15] The questionnaire had detailed questions on expenditure and asset holding of respondents. These responses were analyzed to identify variables exhibiting variation (frequency of one category of response should not exceed 90%). Principal component analysis with orthogonal rotation was performed on the selected variables to separate out the variables into factor scores, such that eigenvalues explained at least 40 percent of the variation. Two factor scores were obtained—asset holding and expenditure pattern on servants and holidays. These were normalized to scores of 0 to 100.

g) Geographical residence, another proxy for culture—NORTH (if respondent resided in North or Central Kolkata), SUBARBS (if respondent resided in subarba areas), SLAKE (if respondent resided in Salt Lake or Rajarhat), and South Kolkata residents (reference category);
h) Education of respondent—HS (if husband has only High School education), PG (If husband is a post graduate or a doctorate) and a residual category of OTHERS (comprising of professional qualification, diploma and certificates). The reference category consists of graduate husbands (GRAD).
i) Occupation of husband—SALES (if husband is engaged in sales or is a businessman), PROF (if he is a professional) and a residual category (OTHERS). The reference category comprises of husbands engaged in teaching, administrative jobs and in services.
j) Attitude of parents-in-laws towards women (NORM, =1 if they objected to women participating in labour market)

Two variants of the dependent variable were taken—any full time work, and employment in the formal sector (full time or part time). Since both were binary, univariate probit models were estimated. In addition, an alternative variety of the models assuming two-way causality between elderly support and labour market participation was also estimated. Results do not change, and the C statistic (also known as a GMM distance or difference-in-Sargan statistic) does not indicate endogenity (Hayashi, 2000: 218-222, 232-234). Hence, we report only the results of the univariate models (Table 6).

5. Findings

5.1 Effect of grand-parental support

Analysis of survey data reveals that 35 percent of respondents without elderly support are employed. In contrast, 49 of respondents who have elderly support work. Bi-variate analysis (Table 5) provides similar results. Interestingly, the proportion of women working despite elderly support is low among respondents married to families with conservative families (who object to women working), residents of the less liberal North Kolkata, non-Hindus (of which Muslims form the majority), Backward castes (who are also likely to be conservative) and non-Bengalis

(comprising mainly of North Indians and Muslims). This indicates the influence of norms and culture mediating the relationship between elderly support and labour market impact of mothers.

Table 5: Percentage of women working by potential elderly support for socio-economic categories

Socio-economic correlate		No potential support	Potential support	Socio-economic correlate		No potential support	Potential support
In-laws object to women working	NA	18.2	12.5				
	No objection	39.2	53.9	Language	Bengali	37.6	53.3
	Objection	0.0	4.5		Else	17.9	17.8
Religion	Hindu	36.3	52.0	Caste	General	36.3	51.8
	Others	17.6	9.3		Others	24.0	20.4
Education of respondent	HS	9.3	16.3	Education of husband	HS	16.0	24.7
	Graduate	30.1	41.5		Graduate	35.5	44.8
	Post Graduate and Doctorate	48.4	67.0		Post Graduate and Doctorate	35.7	67.8
	Others	94.4	89.5		Others	43.6	66.4
Area of residence	South Kolkata	28.3	54.5	Occupation of husband	Teacher / Service / Administration	28.2	50.5
	North Kolkata	31.0	28.2		Professional Medical	40.0	76.2
	Subarbs	36.8	54.5		Sales Business	42.4	38.9
	Salt Lake	66.7	50.0		Others	66.7	85.7
Asset quintile group	Lowest 20%	16.2	29.4	Expenditure quintile group	Lowest 20%	22.6	34.7
	Low 20%	30.3	41.4		Low 20%	42.9	43.4
	Middle 20%	36.4	39.6		Middle 20%	44.0	55.1
	High 20%	44.7	59.0		High 20%	45.7	54.5
	Highest 20%	43.2	67.1		Highest 20%	25.4	53.1

Results of the probit model also show expected results (Table 6). The derivative of ES is positive and significant, indicating that grand-parental presence encourages mothers to work. Another important result is that grand-parental objections to women working reduce probability of mother's participating in the labour market. While the relation between probability of working and asset score is positive, it is statistical significant only for full time employment. The coefficient of expenditure score is insignificant in both models.

Table 5: Results of probit model—Impact of grand-parental support on labour market outcome

Variables	Full time work			Formal work (full/part time)		
	dF/dx	z	Prob.	dF/dx	z	Prob.
ES*	0.27	3.80	0.00	0.27	3.58	0.00
NASSET	0.002	1.90	0.06	0.001	1.41	0.16
NEXP	0.001	0.73	0.46	-0.0002	-0.23	0.82
AGE	0.02	3.74	0.00	0.01	2.27	0.02
HINDU*	0.06	0.46	0.65	0.13	1.04	0.30
GCASTE*	0.03	0.34	0.74	0.02	0.26	0.80
BENGALI*	0.07	0.85	0.40	0.10	1.15	0.25
NUCLEAR*	0.21	2.83	0.01	0.21	2.86	0.00
WPARENT*	0.22	2.50	0.01	0.24	2.69	0.01
JOINT*	0.24	2.93	0.00	0.26	3.16	0.00
NORTH*	-0.14	-2.30	0.02	-0.16	-2.61	0.01
SUBARB*	0.02	0.43	0.67	0.03	0.59	0.56
SLAKE*	-0.06	-0.70	0.49	-0.09	-0.96	0.34
HS*	-0.20	-3.09	0.00	-0.17	-2.61	0.01
PG*	0.21	3.40	0.00	0.20	3.33	0.00
EOTHER*	0.53	7.14	0.00	0.52	7.11	0.00
HHS*	0.06	0.79	0.43	0.04	0.55	0.58
HPG*	0.02	0.27	0.79	0.06	0.71	0.48
HEOTHER*	-0.08	-1.27	0.20	-0.08	-1.24	0.22
HPROF*	0.11	1.32	0.19	0.14	1.67	0.10
HSALES*	0.06	1.15	0.25	0.06	1.29	0.20
CHILDREN	-0.15	-2.67	0.01	-0.16	-2.75	0.01
NORM*	-0.42	-3.55	0.00	-0.47	-3.73	0.00
Model statistics						
obs. P	0.45			0.49		
pred. P.	0.42			0.47		

Variables	Full time work			Formal work (full/part time)		
	dF/dx	z	Prob.	dF/dx	z	Prob.
N	750.00			750.00		
LR 2	288.23		0.00	280.46		0.00
Pseudo R2	0.28			0.27		

Among other results are: older women are more likely to work; Hindu women, those belonging to Upper Castes or from the Bengali community are also more likely to work; respondents residing with parents-in-laws are less likely to be employed than women residing in nuclear families, with their own parents or in joint families; probability of participating in labour market is lower for women residing in North Kolkata; probability of working increases with education; education and occupation of husband does not have any effect on the probability of working; increase in number of children lowers probability of working.

5.2 Services provided by grand-parents

Analysis of the data from the survey yields expected results, possibly because the presence of potential elderly support can be better captured than by the DHS data. We find that grand-parental presence increases probability of mothers' working. This is similar to results reported for studies of European societies. This raises three questions: Who provides greater support—parents (of the mother), or her parents-in-laws? What support services are provided by grand-parents? In cases where working women do not use support services of grand-parents, what are the reasons for not availing such services? In this section we answer these questions.

Analysis of responses from the survey (Figure 1) reveals that majority of respondents working full time avail of care services provided by grandparents. Further, it is parents-in-laws who are more likely to provide care services. The latter is guided by practical considerations, and reflect the dominant family structure—the majority (54 percent of respondents) reside with parents-in-laws.

Figure 1: Percentage of care providers by labour market outcome of respondent

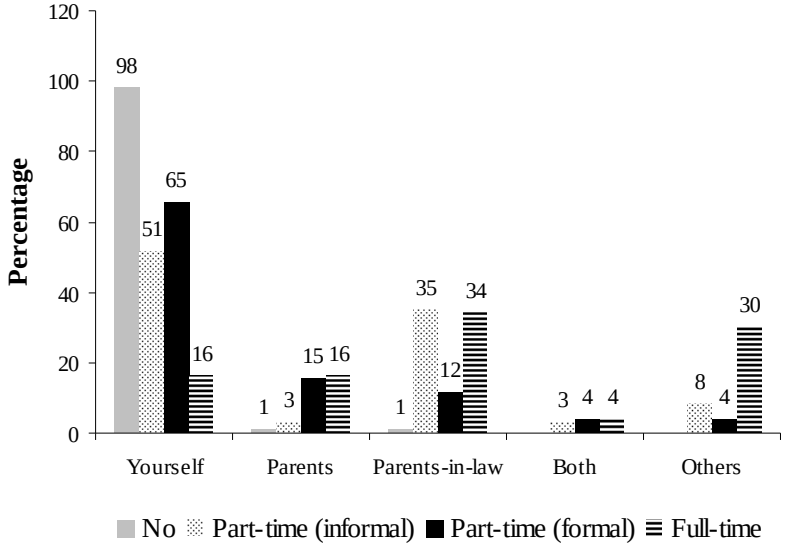


Table 6 reports on the services provided by grand-parents to children. A majority of grand-parents cook/supervise cooking, serve food/feed grand-children and read to/play with grand-children. Most grand-parents do not accompany children to and from schools; nor do they take children to cinema halls.[16] The only 'outside the home' activity performed by grand-parents is taking children out to play in nearby parks or in common space of multi-storied apartments—about 21 percent of paternal grand-parents and 24 percent of maternal grand-parents perform this service on a regular basis, while 42 percent and 51 percent, respectively, irregularly. It was also observed that grand-parents generally do not supervise homework of grand-children.

Table 6: Child care services provided by grand-parents when mother is working full time

Activity	Response	Maternal grand-parents		Paternal grand-parents	
		Frequency	Percent	Frequency	Percent
Does parents take child to school	No	56	73.7	25	69.4
	Irregularly	7	9.2	6	16.7
	In case of emergency	2	2.6	1	2.8
	Generally/Always	11	14.5	4	11.1
Does parents bring back	No	56	65.1	21	51.2
	Irregularly	5	5.8	4	9.8

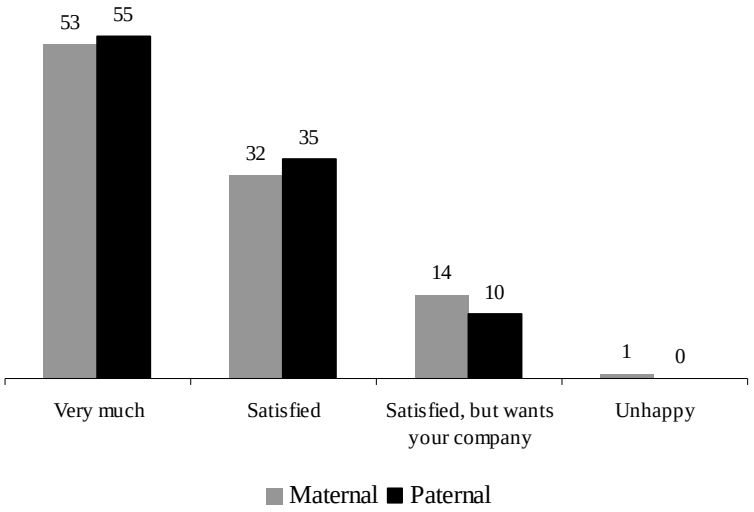
[16] This may be partly because of the age of the grand-parents, and partly because of the reducing popularity of cinema halls due to the increasing number of TV channels.

Activity	Response	Maternal grand-parents		Paternal grand-parents	
		Frequency	Percent	Frequency	Percent
children from school	In case of emergency	4	4.7	4	9.8
	Generally/Always	21	24.4	12	29.3
Do parents cook/supervise cooking	No	17	13.2	4	5.6
	Irregularly	25	19.4	14	19.7
	In case of emergency	6	4.7	5	7.0
	Generally/Always	81	62.8	48	67.6
Do parents serve food/feed child	No	14	10.1	3	4.0
	Irregularly	27	19.4	14	18.7
	In case of emergency	12	8.6	8	10.7
	Generally/Always	86	61.9	50	66.7
Do parents play with/read to child	No	6	4.2	2	2.6
	Irregularly	25	17.4	16	21.1
	In case of emergency	6	4.2	4	5.3
	Generally/Always	107	74.3	54	71.1
Do parents supervise child's homework	No	65	71.4	23	53.5
	Irregularly	14	15.4	10	23.3
	In case of emergency	8	8.8	7	16.3
	Generally/Always	4	4.4	3	7.0
Do parents take child to cinema	No	77	82.8	36	80.0
	Irregularly	12	12.9	5	11.1
	In case of emergency	2	2.2	3	6.7
	Generally/Always	2	2.2	1	2.2
Do parents take child to play outside home	No	44	36.7	15	25.4
	Irregularly	43	35.8	25	42.4
	In case of emergency	8	6.7	5	8.5
	Generally/Always	25	20.8	14	23.7
Do you feel that support of parents is important for working	No	3	2.0	3	3.8
	Yes	146	98.0	76	96.2

Analysis of the responses also revealed that almost all the children were happy with their grand-parents (Figure 2). Of course, this result is based on reports by mothers, and not children. We

cannot rule out the possibility that satisfaction level of children is mis-reported by mothers to justify their participation in labour market.

Figure 2: Mental satisfaction of children with working mothers and provided care services by grand-parents—Percentage



It is not surprising that almost all working mothers feel that support of grand-parents is essential for their labour market participation. We found that 97 percent of respondents felt that the support of the grand-parents was crucial in facilitating their work.

It was also found that parents tended to seek grand-parental services except when such services could not be feasibly sought—when grand-parents are dead, or too old, or unwell, or resides in a distant city or too far from home (Table 7).

Table 7: Reasons for not seeking care service from grand-parents

Reasons	**Parent-in-laws**	**Parents**
Dead	30.2	13.5
Not well/Too old	35.1	25.2
Lives too far	20.7	49.9
Child does not enjoy staying with them	7.8	3.0
Not on good terms	1.9	0.5

Also work	2.5	5.6
Others	0.5	0.8

In this context, one point must be clarified. A study of women workers in Kolkata's Information Technology sector reports that, although women are gradually shifting away from their traditional role as provider of care services within the home, they continue to spend a major proportion of their leisure time with their children (Dutta and Husain, forthcoming). This is also confirmed in this study. Working women spend about 5 hours of their working days with their children; this increases to about 10 hours during non-working days. This is quite high.

6. Conclusion

To sum up, both bi-variate and multi-variate analysis of DHS data do not reveal any positive impact of grand-parental presence on women's participation in the labour market, except in metropolitan cities. This may be explained partly in terms of differences in socio-economic and cultural conditions with developed countries, and partly because of the lack of a suitable proxy to capture the potential of grand-parental support in the DHS data set. In an attempt to remedy this deficiency a primary survey of graduate women was undertaken in Kolkata, a metropolitan city in India. The survey found that the presence of healthy grand-parents living close significantly increased the probability of mothers' working. This finding has some important implications.

Studies on working women report on the difficulties of balancing work and household (COD, 2004; Ramsay and McCorduck, 2005; Upadhyay, 2005). This becomes a major issue in Asian societies as the concept of household sharing of labour is yet to become widespread. In particular, the responsibilities of child care falls almost entirely on mothers. The consequent pressure on working women affects them physically and mentally, and may even lead to their withdrawal from the labour market. For instance, we found that 81 respondents (representing 17 percent of ever working women) had given up work after their first child because of the pressure of looking after the child; the majority (66, representing 82 percent) had never returned to work. The potential of grand-parental supply of child care services becomes crucial in the context of retaining women in employment in developing countries.

The sociologist, E.W. Burgess, had argued that urbanization, increased individualism and secularism, and the emancipation of women had transformed the family from a social institution based on law and custom to one based on companionship and love, laying down the basis of the modern nuclear family (Burgess, 1926). During the transition from families as unit of social evolution to families as supporting individuals' needs, grand-parents seem to have moved out of the picture. Recently, Bengstron (2011) has argued that relations across more than two generations are becoming increasingly important to individuals and families. Considering the dramatic increase in life expectancy over the past half century, this is not surprising. But a corollary to this hypothesis is that multigenerational bonds are becoming more important than nuclear family ties for well-being and support over the course of their lives.

> "Grandparents provide many unacknowledged functions in contemporary families (Szinovacz, 1998). They are important role models in the socialization of grandchildren (Elder, Rudkin, & Conger, 1994; King & Elder 1997). They provide economic resources to younger generation family members (Bengtson & Harootyan, 1994). They contribute to cross-generational solidarity and family continuity over time (King, 1994; Silverstein et al., 1998)… Perhaps most dramatic is the case in which grandparents (or great-grandparents) are raising grandchildren (or great-grandchildren)" (Bengstron, 2011: 7).

Our study provides a confirmation of Burgess's hypothesis, showing that grand-parents need not be dead-weights in the modern society but can provide important services that increase family welfare. Such services are important for another reason in developing countries with poor social security systems. When grand-parents provide child care services, ties between non-co-residential family members strengthens—for instance, the incentive of parents to look after grand-parents and ensure that they remain healthy is greater. Such reciprocal ties are essential in societies characterized by 'living apart but together' (Sokolovsky, 2001).[17]

The impact on the child is, on the whole, beneficial. Many studies have shown that parents have a strong preference for very young children to be cared for by grandparents while they work, believing that this is better for the child's wellbeing (Barnes et al., 2006; Bell et al., 2005; Wheelock and Jones, 2002). In USA grandchildren with stronger ties to grandparents reported

[17] In such families, although co-residential arrangements have disintegrated, the joint family persists as a functional unit with the family drawing closer during crisis (Nayyar, 1999).

fewer depressive symptoms as adolescents or young adults than those with weaker ties, and this was particularly the case for grandchildren of single parent families (Ruiz and Silverstein, 2007). In England, analysis of longitudinal data showed a positive association between grandparental closeness and child adjustment when children were on average nine years old, but by the age of 14 that link had disappeared (Bridges et al., 2007). A UK study funded by the ESRC, reported that grandparental involvement was significantly associated with fewer emotional problems and with more pro-social behaviour, especially when grandparents were involved in the child's hobbies and interests; their schooling and education; and talking about future plans (Griggs, 2010). Lussier et al. (2002) reports that greater closeness to maternal grandparents was significantly associated with fewer adjustment problems after parents had separated. The role of grand-parents in normalising the situation for grand-children and in distracting and reassuring them after divorce of their parents has also been reported by Timonen et al. (2009); grand-parents could be regarded as "anchors of stability at a time of uncertainty" (Timonen et al., 2009: xi).

Negative impact of grand-parental care on children has also been reported. Studies have found that children receiving grand-parental care perform better in vocabulary tests but fare worse in comparison to children receiving formal care in numeracy and literacy tests (Gregg, 2005; Hansen and Hawkes, 2009; Sylva, 2011), are more prone to be over-weight and hyperactive and are more likely to have difficulties in interaction with peers (Fergusson et al., 2008). These effects are more likely to be observed among children from advantaged families.

Before concluding, however, two caveats should be sounded. The first is that respondents in developing countries kept their children with grand-parents because they want to. But, it is also true, that formal child care options are limited, so that respondents have limited options to turn to. For instance, quality crèches are few in Kolkata, and are priced beyond the reach of middle class families. Most of the respondents without elderly (healthy) relatives to turn to are forced to rely on *ayahs* (maid-servants who look after children), or sacrificing their jobs.[18] This neither enables socialization (a benefit of crèches), nor is it as reliable as grand-parental care. It is,

[18] It was noted that 53 percent of respondents working full time and not availing of grand-parental care relied on *ayahs*.

therefore, necessary to increase choice of working mothers by developing a variety of formal child care arrangements.

The second caveat is that the positive impact of grand-parental presence on mothers' participation in labour market was found only in metropolitan cities. It is necessary to examine, with a better definition of elderly support than that used to analyze DHS data, whether the relationship is really non-existent in towns and rural areas; if so, a natural question arises as to why the expected relationship is not found in such areas. This constitutes an area for further research.

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Appendix

Table A1: Sample profile of respondents—Demographic Health Survey data (2005-06)

Socio-economic correlates	Group	Place of residence				
		Metro	**Capital**	**Town**	**Rural**	**Total**
Geographical Zone	North	35.9	8.1	17.8	21.3	20
	Central		44.9	23	30.6	28.4
	East	22.3	1.9	35.9	28.9	26.7
	West	21.7	24.9	11.8	9.2	12.6
	South	20	20.2	11.5	10	12.3
Highest educational level of respondent	No education	24.2	25.8	25.8	51.4	40.7
	Primary	13.3	11.8	12.6	16.5	14.8
	Secondary	45.4	43	47.7	29.3	36.2
	Higher	17.2	19.5	13.9	2.7	8.3
Highest educational level of respondent's partner	No education	12.7	14.6	14.6	30.2	23.6
	Below primary	11.6	12.1	11.5	17.7	15.2
	Middle level	52.9	46.3	49.5	43.1	45.6
	Secondary	1.8	2.4	2.3	1.8	2
	Higher level	20.9	24.7	22.1	7.2	13.6
Socio-religious identity	Muslim	15.6	23.3	15.6	12.1	14.5
	Hindu-Scheduled Castes	16.9	13.3	13.7	16	15.2
	Hindu-Scheduled Tribes	0.9	3	2.5	9.1	6.3
	Hindu-General Castes	59.9	54.6	51.3	49.2	51.1
	All Others	6.8	5.8	17	13.6	13
Wealth index (by quintile)	Poorest	0.4	1.2	3.3	22.6	14.1
	Poorer	2.8	3.6	7.6	24.1	16.4
	Middle	11.6	10.3	15.3	24	19.5
	Richer	30.1	29.4	28.8	18.8	23.1
	Richest	55.1	55.5	45	10.6	26.9
Marital duration (grouped) [excludes: married gauna not performed]	0-4 years	16.8	17.9	18.3	17.1	17.5
	5-9 years	26.9	25.3	25.1	23.5	24.4
	10-14 years	25	23	23.4	21.4	22.3
	15-19 years	17.3	18	17.1	17.4	17.4
	20-24 years	8.1	8.6	9.1	10.5	9.8
	25-29 years	3.9	4.6	4.6	6.7	5.8
	30 years & above	1.9	2.5	2.4	3.3	2.9
Person aged 60 years or more	None	76	74.2	73.7	69.2	71.3
	Only male aged	7.8	9.4	9.3	11.8	10.7

Socio-economic correlates	Group	Place of residence				
		Metro	**Capital**	**Town**	**Rural**	**Total**
	Only female aged	9.7	9.3	10.4	11.1	10.6
	Aged of both sex	6.4	7.1	6.6	8	7.4
Respondent's occupation	Not Employed	74.3	72.4	71.9	51.1	60
	Employed	25.7	27.6	28.1	48.9	40

Source: *Estimated from DHS Individual file.*