Religion and Human Capital *

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Abstract

In developing economies, where educational participation is often limited and opportunities for early engagement in work are frequent, parents' characteristics fundamentally shape children's human capital outcomes. In this paper, we focus on the influence of parental religiosity, which has not been widely studied. We collect novel parent-child linked survey data in Pakistan to study the influence of parental religiosity on children's human capital outcomes. We find that only a deeper, *intrinsic* form of religiosity improves children's schooling performance and reduces their work activity.

Key words: Religion, Human Capital.
JEL codes: Z12, I25, J13

1 Introduction

Parents play a fundamental role in the human capital accumulation of their children. In so doing, parents influence micro outcomes, such as the long-term economic prospects of their own children, because of the impact of schooling on labor market outcomes. Moreover, parental decision making can also have a significant impact on macro outcomes, such as economic growth, because of the well-documented nexus between growth and levels of human capital. In general, how parents influence their children's human capital can depend on the economic environment and non-economic individual characteristics. The impact of economic factors has been widely studied, but much less is known about non-economic characteristics. For instance, religion is

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a non-economic factor which has been identified as an important determinant of economic behavior and outcomes in general (see, e.g., Iannaccone, 1992; Glaeser and Glendon, 1998; Barro and McCleary, 2003; Guiso et al., 2003; Glaeser and Sacerdote, 2008; Clingingsmith et al., 2009; De la Croix and Delavallade, 2018), but there is little prior research on its impact on parental decision-making and child human capital development.

In this paper, we study how parents' religiosity affects their children's schooling and labor outcomes in a developing country context. We believe that the developing country context is especially relevant because the impact of religion is arguably stronger and there are persistently poor levels of human capital accumulation.[1] To estimate the impact of religion, we conduct a novel parent-child linked survey in Kasur, Pakistan, which includes a set of measures of parent's religiosity and links these characteristics to child's schooling and labor outcomes. In developing countries children are frequently engaged in various types of work, however, any form of child work hindering educational attainment is undesirable since it comes at a cost to human capital development. Parents, therefore, face a decision of investing in human capital development where human capital outcomes are not simply limited to children's schooling but consider their labor market outcomes as well. The labor market outcome data allow us to capture a child's engagement in both paid and informal work (such as domestic chores), the latter being a predominant form of work in developing countries that is often unaccounted for in official data. The context of Pakistan naturally lends itself to our general question because of the poor educational outcomes, potential disinvestment in children's schooling because of employment in business enterprises and domestic chores, and the issue of low intergenerational social mobility, which other developing economies also face.

We find religiosity to be important for human capital development, with our measures of religion playing a role in both children's schooling and labor outcomes. The standardized effects of the measures reveals an important feature: the parent's intrinsic religiosity (which captures the deeper motivation of religion) rather than the mere involvement in religious activities, is what is associated with improved schooling outcomes and reduced child engagement in work.

Our results make three important contributions to the literature of human capital development and religion. First, our work identifies that the non-economic factor of parental religiosity, in addition to economic factors, plays an important role in the human capital accumulation of children in developing countries. Complementing theoretical work by Becker and Tomes (1979) and Doepke and Zilibotti (2017), which show how children's human capital development can depend on the characteristics of their parents, we identify parental religiosity as a potentially important characteristic.

[1]For instance, a Gallup poll from 2008/2009 reported that a majority of respondents in developing economies said that religion was"important in [their] daily life".

Second, our results provide new evidence of the importance of religiosity in influencing economic outcomes. While the literature has found religion to be important for growth Barro and McCleary (2003), economic attitudes Guiso et al. (2003); Clingingsmith et al. (2009), and subjective well-being and earnings Campante and Yanagizawa-Drott (2015), we highlight the influence on human capital development through the impact of religiosity on parental decision making.

Finally, we are the first to document that the religiosity of parents is strongly linked to child labor market outcomes. This contribution is possible because, unlike much of the prior literature, we do not limit our data collection to schooling outcomes. Instead, we take a multifaceted approach to human capital by including outcomes related to child labor participation, which commonly deprive children from acquisition of human capital in developing countries.[2]

In general, a key challenge in studying the impact of non-economic variables on human capital allocation is the limited availability of data that links the religiosity of parents to their child's educational achievements. To overcome this challenge, Figlio et al. (2019) adapt an approach proposed in Fernández and Fogli (2009) where the outcomes of children of immigrants are linked to the predominant culture of their country of origin. This approach while valuable in developed economy context, does not lend itself well to developing countries where immigration is essentially absent.[3] The developing country context also presents other challenges. First, relative to developed economies, non-economic factors, especially traditional measures of religion such as denomination, tend to be less diverse.[4] Second, parents in developing economies face a multifaceted trade-off when deciding investment in children (schooling versus work). Therefore, to successfully understand the role of non-economic factors shaping the dynamics of parents' decisions for human capital investment in developing economies, one must employ appropriate measures of religiosity, and unify the human capital framework with the issue of frequent opportunities to engage children in work.[5]

Our survey overcomes these challenges by directly linking parental characteristics to their own child's human development outcomes. To measure non-economic characteristics, we use Koenig and Büssing (2010)'s DUREL measure for intrinsic religiosity and active engagement in religious activities. For each head of household (who is requested to be the responding parent), the measures of religion are linked to their child's schooling outcomes utilizing administrative

[2]In Pakistan young children are frequently engaged in various forms of paid, unpaid and informal work. International Labor Organization estimated in 2012 that more than 12 million children in Pakistan suffered from this issue.

[3]The UN International Migration Report 2017 shows that low-income countries received less than 5% of international migrants in the past two decades.

[4]The country based Religious Diversity Index (RDI) scores published by Pew Research Center calculates RDI by using the share of each country's 2010 population that belongs to each religious group. With few exceptions (such as Vatican City), the RDI score is less than 1 for low-income countries (mostly in Asia and Africa).

[5]See discussions in Strulik (2004); Posso (2017); Thakurata and D'Souza (2018).

data and a wide range of their child's labor market participation measures using the survey of the parent and children. Moreover, we are able to collect a rich set of controls of household characteristics and cognitive ability of both the responding parent and child. The collected data, therefore, are uniquely suitable for studying the importance of religiosity on human capital development.

While it seems unlikely that our estimates suffer from reverse causation where child's outcomes drive parent's non-economic factors, we further confirm this absence of reverse causation using the instrumental variable approach adapted from Fruehwirth et al. (2019). However, non-economic factors may nonetheless be correlated with other unobservables. We mitigate such concerns by collecting a rich set of controls including parent's age, education and cognitive ability; household family income and size; and child's age, gender and cognitive ability. We also account for omitted variable bias using the methodology proposed by Oster (2019), and show that the effects are robust. Nevertheless, it is important to recognize that it is attractive to establish a causal identification using a quasi-experimental settings, which are hard to construct or rare in natural settings (See, e.g., Gruber, 2005; Clingingsmith et al., 2009; Campante and Yanagizawa-Drott, 2015; Fruehwirth et al., 2019; Guiso et al., 2004; Figlio et al., 2019; Gorodnichenko and Roland, 2017). This inherent difficulty in estimating the causal effects of such factors has inhibited research and our understanding of the implications of religiosity on economic outcomes. We believe that religion, which has already been found to be important for other outcomes, is a potentially important driver of human capital accumulation. Our study, therefore, can be viewed as providing an important evidence shedding light on the significant relationship between religion and human capital accumulation.

The remainder of the paper is organized as follows. In Section 2, we review related literature in more detail. In Section 3, we present our sample, data and the variables that we collect. We discuss our econometric specifications in Section 4. Section 5 presents our results on children's schooling outcomes and engagement in work activities. Section 6 concludes and an appendix provides tables and additional robustness analysis.

2 Related Literature

Our work contributes to two broad strands of literature. In this section, we highlight our contribution in relation to the literature focusing on the effects of religiosity on economic outcomes and the literature on human capital development.

Religion and economic outcomes: A small but important literature on the effects of religion on economic outcomes exists. At a macro level, Barro and McCleary (2003) make a seminal contribution by investigating the effect of religion on economic growth using a cross-country

analysis. This work documents a positive impact on the growth of real gross domestic product (GDP) for the fraction of the population who believe in Hell and Heaven but a negative effect for the fraction of the population that attends church.[6] Work by Guiso et al. (2003) makes a seminal contribution at the micro level. In particular, Guiso et al. (2003) consider the effect of three religious variables – whether the individual i) was raised in a religious home; ii) is currently religious, and iii) is actively religious – on various economic attitudes. This work finds that more religious people are more trusting, likely to obey legal rules, and follow free market ideas but are more likely to be intolerant of other races and immigrants and less progressive on women's issues.

In this paper, we consider the importance of parent's religiosity in the human capital accumulation of their children.[7] As argued by Barro and McCleary (2003), an important distinction in religiosity is the extent of believing versus the form of belonging (engaging in religious activities). Therefore, for our measure of religiosity, we adopt the Duke University Religion (DUREL) Index (adapted from Koenig and Büssing, 2010), which is a five-item measure of religiosity including two items covering the active involvement in religious activities and three items covering intrinsic religiosity (akin to believing measure) developed for use in large cross-sectional and longitudinal observational studies. This index is simple and flexible and allows adaptation of the measure for the underlying religion of the subjects.[8]

In particular, the dimension of intrinsic religiosity (IR) is a measure of subjective religiosity, and assesses the degree of personal religious commitment or motivation. Active participation in religious activities can take the form of organized religious activities (ORA) and non-organized religious activities (NORA). While ORA involves public religious activities, such as attending religious services or participating in other group-related religious activity (prayer groups, Quran study groups, etc.), NORA consists of religious activities performed in the home, such as prayer, Quran study, watching religious TV or listening to religious radio. We view engagement in religious practices (ORA and NORA) as a signaling mechanism modeled in Iannaccone (1992) and construct an index of engagement in "religious activities". By contrast, we view IR religious dimensions to have a subjective component that is intrinsic and clearly reflects a "not for show" component of religiosity. Instead, such religious components imply pursuing religion at a deeper

[6]These variables are obtained mostly from the 1991 World Values Survey (WVS) and, if unavailable, the 1981 WVS.

[7]Some literature explores whether more educated individuals are more or less religious (e.g., Glaeser and Sacerdote, 2008) but not how religiosity of parents and their child's education are related. Additional literature assesses the performance of children in religious schools (e.g., Evans and Schwab, 1995; Neal, 1997 Altonji et al., 2005).

[8]More importantly, the DUREL measure's overall scale has high test-retest reliability (intraclass correlation = 0.91), high internal consistency (Cronbach's alpha = 0.78–0.91), and high convergent validity with other measures of religiosity (r's = 0.71–0.86), and the factor structure of the DUREL has been demonstrated and confirmed in separate samples by other independent investigative teams. The DUREL has been conducted throughout the world and is available in 10 languages.

level. We construct a measure for "intrinsic religiosity" index as a novel contribution to the existing economic modeling of religion, which is generally concerned with why individuals incorporate costly religious practices and, more broadly, the impact of religion practices (primarily for reasons of show) on development (Iannaccone, 1992; Glaeser and Glendon, 1998; Barro and McCleary, 2003; Guiso et al., 2003; Glaeser and Sacerdote, 2008).

Regardless of which form of religiosity one considers, there is a potential issue of endogeneity due to reverse causality between an individual's religiosity and their own outcome variables. This inherent difficulty in identification strategy has hindered progress because it demands quasi-experimental settings which are rare in natural settings. In such a natural setting, Clingingsmith et al. (2009) exploit the lottery system in Pakistan through which individuals intending to perform pilgrimage are randomly chosen. Using this lottery system, this work conducts a survey of both sets of individuals who were randomly chosen by the lottery (pilgrims) and who were not chosen (non-pilgrims). This work shows that relative to non-pilgrims, pilgrims presented favorable views of tolerance, equality and harmony. In a similar spirit, Campante and Yanagizawa-Drott (2015) use the variation in the time of fasting during Ramadan (due to the rotating Islamic calendar) to show that religiosity (as measured by the length of the fast) positively affects individual's subjective well-being (happiness and life satisfaction) and negatively affects a country's economic growth. A concern of reverse causation in our statistical estimation is less likely, which is further confirmed by our results which are based on adapting the instrumental variable approach employed in Fruehwirth et al. (2019). Moreover, potentially biased estimation of the impact of religiosity due to omitted unobserved variables, is also minimized when we adjust for this bias using the method by Oster (2019).

Human capital in developing countries: Economics has a long tradition of considering human capital accumulation of children as driven in large part by their parents. In particular, this notion of children being dependent agents and their parents making decisions is embedded in the theoretical models of Becker and Tomes (1979, 1986) and, in more recent work, Doepke and Zilibotti (2017), who highlight the importance of a parent's style of parenting in terms of their child's human capital and future economic success.

In developing countries, human capital accumulation is often made more complex by parents having a choice between their child's schooling and child labor (see, e.g., Baland and Robinson, 2000; Strulik, 2004; Posso, 2017). While parents placing their children in school allows the children to accumulate human capital, having their children work provides contemporaneous consumption for their household but impedes human capital development (Thakurata and D'Souza, 2018). As a result, to understand the parents' human capital investment decision, one must unify the issue of education with the issue of parents in developing economies routinely engaging their

children in work. Our paper contributes to the literature by considering the importance of the religiosity of parents to the joint schooling and work decision for their children.

The importance of parents as the decision maker for their child's human capital development in this setting has motivated empirical researchers to understand how parental characteristics (such as education and age), the child's own characteristics (such as gender and age) and, more generally, common household factors (such as income, assets and family size) influence the decision about the child's work and schooling. To construct the richest conditioning variables, we invoke the past literature and include characteristics for parents (Strauss and Thomas, 1995; Kurosaki et al., 2006; Emerson and Souza, 2007), children (Levison and Moe, 1998; Cartwright, 1999; Levison et al., 2001; Edmonds and Pavcnik, 2005), cognitive ability (Heckman et al., 2006; Burks et al., 2009; Borghans et al., 2010; Almlund et al., 2011; Malik et al., 2020) and household income (Hanushek, 1992; Patrinos and Psacharopoulos, 1997). The large number of factors illustrates the importance of having a large number of control variables when studying human capital. A key advantage of our survey is that it allows us to gather information and control for these factors when considering the importance of religion on human capital.

3 Sample and Data

Our dataset includes 1416 parent-child pairs and contains detailed information about each child's engagement in work, their time spent working, their schooling performance in a national exam, and a broad range of both conventional and novel characteristics of the child, parent(s) and household. In this section, we describe the sample selection and discuss the sources of the collected data.

3.1 Sample selection

We acquired parents' contact information from school records. We restricted our sample of schools to public schools in which the transition of the currently enrolled students to an upper class (after the central exam) is possible.[9] In particular, we chose schools that are categorized as middle (nursery to 8th grade) and high (nursery to 10th grade) schools. We further concentrated on peri-urban localities (often referred to as rural/urban areas) of the Kasur district in Punjab.[10] This process left a pool of 45 schools from which we selected the sample. We selected 32 schools,

[9] In the Online Appendix, we provide a brief institutional background about the public school system in Pakistan.

[10] We choose the district of Kasur in Punjab because the average level of various development indicators (such as school drop-out rates, monthly income of employed, population involved in agriculture, youth labor market participation and crime rate) in Punjab are closest to those observed in Kasur; therefore, Kasur is representative of Punjab in many important factors.

where the probability of a school being chosen for our sample increased with the number of students in grade 5.[11]

We then took all students at these 32 schools enrolled in grade 5 (in February 2018). Our sampled students were due for transition to the next class (class 6) at the start of April 2018 after taking the national exam. In April, with the school's cooperation, we accessed the school records for the previous academic year, the current academic year and collected addresses for the parents of students enrolled in one of the sampled schools during the previous academic year (i.e., prior to the transition). We then collected information using parent-child pair surveys during the period from April to June 2018. The total number of observations collected is 1506, and 90 of these observations are parental variables collected from non-parental guardians of the child. We exclude such children and base our study on the sample of 1416 parent-child observations.

3.2 Data

The data were obtained from two sources: administrative data collected from school and government records and data from surveys conducted separately for parents and children.

Administrative data from schools and government records: We accessed each school's office records to allowed us to obtain the parents' residential addresses to conduct our study. To provide a measure of schooling outcomes we also collected the central exam score for each child by accessing the administrative data collected by the government of Punjab. This source provides independent data on each child's school performance. Tests that are the same across children are required to assess school performance (see, e.g., Gunnarsson et al., 2006; Baird et al., 2011; Dumas, 2012); thus, accessing scores from a uniform central exam was vital for our study.

Parent-child linked survey data: Our surveys for each parent-child pair include two parts. The first part contains incentivized tests. For parents, this part includes a standard Raven's test to collect information on their cognitive ability and survey questions to elicit the non-economic parental factor: DUREL religiosity. For children, the first part includes only an incentivized colored Raven's test to measure their cognitive ability. The second part involves survey questions. The survey questions for parents aim to collect information on the standard control variables (such as parental education, income, age, household size, child's age and gender) and outcome variables pertaining to their child (such as the status of work, type of work). The survey questions for the children aim to collect information about their allocation of hours to work in a typical day. In the Online Appendix, we further elaborate the protocols and payments made to parents and children for their participation in the study.

[11] The distribution of these schools by grade and gender is provided in Table B1.

4 Econometric Model

For child i who goes to school s, we model outcome variables denoted by Y_{is} in equation 1:

$$Y_{is} = \beta_0 + \beta_1 Z_{is} + \gamma X_{is} + \alpha_s + \mu_{is}, \qquad i = 1 \dots N \tag{1}$$

where α_s is a school-specific error term and μ_{is} is an idiosyncratic error term that may be correlated across students in school s, depending on the sampling scheme.

Our control variables (X_{is}) include a battery of variables for the parents. We start with the binary variable of education status denoted by $Edu(Father)$ and $Edu(Mother)$, both of which take a value of 1 if, respectively, the father and mother of the child are educated.[12] We also include variables for the ages of the father and mother, denoted by $Age(Father)$ and $Age(Mother)$, respectively. To account for differences in innate abilities, we conduct incentivized Raven's standard progressive test for parents and Raven's colored progressive test for children (Raven et al., 1938), and include the cognitive ability of the responding parent denoted by $Raven(parent)$ and child $Raven(child)$. Moreover, for the child, our set of variables also includes age, gender and cognitive ability, denoted respectively by $Age(child)$, $Female$ (coded as 1 if the child is female). Finally, for household variables, we include family size denoted by $Family - size$ and the income of the household denoted as $Income$. Zero family income is reported for one-quarter of the sample, but such responses may not be accurate given that more than 98 percent of the respondents also report their labor status as employed. However, similar to Fruehwirth et al. (2019), we address this issue by replacing non-reported or zero income with zero and including a dummy for missing income to avoid any systematic attrition of the data that could impact the results.

For our explanatory variables of interest, we separately include the two dimensions of the DUREL measure of religiosity adapted from Koenig and Büssing (2010). Both dimensions are constructed using the items based on a Likert scale: the first pertains to the average response from three questions about deeper religiosity $Intrinsic$ and the second captures the average response on two questions about engagement in various outwardly and private religious activities, denoted by $ReligiousAct$.

Our outcomes include binary and continuous variables for schooling and work. The binary variables for schooling performance called $Pass$, which is coded as 1 if the child passed the national exam and 0 otherwise. The continuous schooling performance variable is marks which is the total marks achieved (out of 500) on the national exam denoted by $Marks$. For work

[12] The reason we use binary variables instead of the level of education is that in our sample, 66% of the fathers and 85% of the mothers are uneducated. As a result, most of the variation is captured by this binary version of the variable.

outcomes, the binary variables include $Work$, which is coded 1 if the child worked in any fashion (including economic activity, and household chores) and 0 otherwise. We further disaggregate $Work$ into work categories: $Economic\ Activity$, which is coded 1 if the child worked formally or informally in a family enterprise and 0 otherwise, and $Household\ Chores$, which is coded 1 if the child conducted household chores for free and 0 otherwise.

We further investigate how to treat the school-specific error terms with respect to estimation and calculating standard errors. If going to school s affects outcome Y_{is} and is correlated with the other explanatory variables, then β_1, γ will potentially be biased unless we include school fixed effects. For example, consider the β on the religiosity variables. These variables can be transmitted to the students though their parents or through the relevant institutions, e.g., schools. School dummies allow us to separate the transmission through schools and our main variables of interest. In other words, with the fixed effect specification, we simply compare children within the same school, which removes numerous aforementioned institutional differences across neighborhoods.

In most contexts, using school fixed effects would be the preferred path, as one sacrifices some efficiency/statistical precision but insures against the above biases. However, in our case, the trade-off is different since our schools are segregated by gender, and using school fixed effects precludes measuring gender effects. While we use the fixed effect model as our baseline specification, we also estimate the regression using random effects as part of the robustness exercise, where we include the gender of the child as an additional covariate.

In the random specifications, we must consider whether we need to adjust the standard errors for correlation across students at the same school. If we follow the traditional path suggested by Moulton (1986, 1990), we would allow for this correlation in calculating the standard errors. However, recent work by Abadie et al. (2017) demonstrates that such clustering is not always necessary and that using it unnecessarily leads to overly conservative standard errors and confidence intervals. In Abadie et al.'s setup, one first calculates the fraction f_c of all possible clusters used in the sample; in our scenario, a cluster is a school. Next, one calculates the fraction f_n of micro observations sampled within each cluster out of all possible micro observations in the cluster. The results show that the closer $f_c * f_n$ is to zero, the more appropriate it is to use the Moulton's standard errors, whereas the closer $f_c * f_n$ is to one, the less appropriate it is to use these standard errors. Since we sample 32 of 45 schools in the rural-urban belt of Kasur and then sample all grade 5 students within a school, $f_c = 0.71, f_n = 1$ so $f_c * f_n = 0.71$, indicating that we should not cluster. Nevertheless, in an additional robustness exercise, we cluster the standard errors to show that our results are mostly unaffected with clustered standard errors.

We also use three further specifications for robustness. First, while we us a rich and complete set of background variables in our analysis to limit the extent to which our estimates are affected by omitted variable bias, adding a rich set of controls can itself pose an issue by over-saturating

the statistical model. In an alternative specification, we also show that the limited vector of control variables does not alter our main results.

Second, to mitigate the concern about reverse causation, we adapt the approach of Fruehwirth et al. (2019) of constructing an instrumental variable for the religion of individual i using survey response questions on religion from a close friend. In particular, the authors use the average religiosity of peers (excluding oneself) of the same school, grade, race, gender, and denomination. However, our instrument is simpler as we use the religiosity of all the parents of peers within the school (excluding oneself). This choice is made for two reasons. First, our design aims to construct a homogeneous sample since all our children are from the same grade and school, the schools are gender segregated, and unlike developed economies, race and denomination are not diverse or heterogeneous. Second, because we use parental religiosity instead of a child's own religiosity, we believe that our instrument is akin to the logic of one of the exercises conducted in Fruehwirth et al. (2019), where due to concerns with the endogeneity of denomination, individual i's religious denomination is replaced with the parent's denomination both as a control variable and to define the close peer group for the instrument. Using the adapted version of the instrument for religiosity variables, our estimated first stage regression gives F-statistics, which are the Wald version of Kleibergen and Paap (2006), in the range of 20 to 140, indicating that we do not have a weak instrument problem. Using an IV specification instead, our conclusions stay unchanged.

Finally, it is inherently difficult to construct a quasi-experimental setting or utilize a natural experimental setting to understand the importance of religion for human capital accumulation. Not having a natural experiment may be less favorable but is precisely what has hindered progress on this issue. To ensure that unobserved variables do not bias our results, we tackle this issue by employing the methodology of Oster (2019) and also estimate a bias-adjusted coefficient for each of our variable of interest. This method allows us to study whether the degree of selection on unobservables can fully confound the estimates. In this method, Oster exploits information on both the movements in the R square and the movement of coefficients when additional controls are added. With this, we can estimate the omitted variable bias-adjusted coefficients for religiosity. However, this method is only applicable for linear model specification.

To reiterate as our baseline specification we estimate a fixed effect specification. We then proceed to a number of alternative specifications, where we address these issues one by one and show remarkable similarity of the estimates to the ones presented using our baseline specification.

5 Results

In this section, we present our results on how a child's schooling and work related outcomes are related to parental religiosity. In Table 1 we summarize the point estimates and the stan-

dard errors. We also report the margins for probit regressions (for binary outcomes) to facilitate quantitative interpretation. In appendix Table A1, we provide the full regression table.

As can be seen in Table A1 in the appendix, the effects of our control variables show remarkable consistency with the past literature showing that parental education has a positive influence on child's schooling (Kurosaki et al., 2006; Emerson and Souza, 2007). With respect to the child's age, our results are consistent with those reported in Cartwright (1999), where the child's probability of work increases with age. One novel feature of our control variables is the addition of the cognitive ability of both the child and their responding parent, which accounts for non-observables frequently missing in the literature. Similarly to Heckman et al. (2006), we find that one's own cognitive ability improves schooling outcomes. Moreover, we show that parental cognitive ability is mostly responsible for inhibiting the likelihood that a child engages in work.

To understand whether the parent's religiosity level affects the child's schooling and work related outcomes, we give the βs of intrinsic religiosity in Panel A and parent's engagement in religious activities in Panel B of Table 1.

In panel A the baseline results show that the intrinsic religiosity of parents affects both the schooling and work related outcomes of their child. In particular, there is an approximately 3.3% higher chance that a child passes the central exam if the parent has a one standard deviation higher level of intrinsic religiosity. The effect also translates into 5 additional marks achieved by the child on the central exam (where the standard deviation of intrinsic religiosity is 0.4). Finally, a one standard deviation higher parental religiosity reduces the chance of the child engaging in any type of work by 8%, which is driven by a reduction in the chance of economic activity of 4% and a reduction in the likelihood of household chores of 8.4%. The effect of a one standard deviation increase in this measure also reduces the number of work hours per day by 0.22 hours (13 minutes).

While qualitatively we see similar effects from parent's religiosity measure based on their engagement in religious activities from panel B baseline results, the effects are not as strong and are not always significant. In particular, a one standard deviation increase in the measure for religious activities (where one standard deviation is 0.8) increases the likelihood that a child passes the exam by 3.0%, but no significant effects on the marks achieved by the child are observed. Similarly, while the chance of child's engagement in economic activities decreases by 0.05% and that of household chores reduces by 2.2%, the results are weaker and mostly insignificant, and the same impact is not observed in the allocation of the child's time.

To ensure that our results are robust to the various issues discussed in the last section, we also present the results with alternative specifications (that use either less control variables, employ an instrument variable approach, use a random effect specification, cluster the standard errors by school, and adjust the coefficient for the omitted variable bias). We present the full regression

Table 1: Summary

Panel A	**Baseline: Impact of Intrinsic Religiosity**											
Baseline	**Pass**		**Marks**		**All Work**		**Economic Activity**		**Household Chores**		**Work Hours**	
β	0.50**		12.4**		-0.76***		-0.39***		-0.79***		-0.56***	
$s.e$	(-0.21)		(-5.58)		(-0.12)		(-0.11)		(-0.13)		(-0.10)	
$Margin$	⟨0.083⟩				⟨-0.20⟩		⟨-0.11⟩		⟨-0.21⟩			
$Margin(1\ std)$	⟨0.033⟩				⟨-0.08⟩		⟨-0.04⟩		⟨-0.84⟩			
Panel A1	Robustness											
	Pass		**Marks**		**All Work**		**Economic Activity**		**Household Chores**		**Work Hours**	
Specifications	β	$s.e$	β	$s.e$	β	$s.e$	β	$s.e$	β	$s.e$	β	$s.e$
Baseline	0.50**	(-0.21)	12.4**	(-5.58)	-0.76***	(-0.12)	-0.39***	(-0.11)	-0.79***	(-0.13)	-0.56***	(-0.10)
Less Controls	0.36*	(-0.20)	12.9**	(-5.60)	-0.79***	(-0.12)	-0.39***	(-0.11)	-0.81***	(-0.13)	-0.56***	(-0.10)
IV	0.57*	(-0.31)	9.23	(-6.78)	-0.75***	(-0.20)	-0.54***	(-0.17)	-0.73***	(-0.22)	-0.52***	(-0.13)
RE	0.48**	(-0.20)	12.6**	(-5.59)	-0.78***	(-0.12)	-0.40***	(-0.11)	-0.81***	(-0.12)	-0.62***	(-0.10)
Cluster SE	0.48**	(-0.22)	12.6**	(-6.32)	-0.78***	(-0.20)	-0.40***	(-0.15)	-0.81***	(-0.21)	-0.62***	(-0.14)
Panel A2	Robustness: Omitted Variable Bias Adjusted β (Oster, 2019)											
	Pass		**Marks**		**All Work**		**Economic Activity**		**Household Chores**		**Work Hours**	
	β	Switch	β	Switch	β	Switch	β	Switch	β	Switch	β	Switch
OLS	0.03		12.36		-0.60		-0.12		-0.22		-0.56	
Bias-Adjusted	0.03	No	10.38	No	-0.24	No	-0.14	No	-0.25	No	-0.70	No

Panel B	**Baseline: Impact of Religious Activities**											
Baseline	**Pass**		**Marks**		**All Work**		**Economic Activity**		**Household Chores**		**Work Hours**	
β	0.21*		4.26		-0.07		0.02		-0.10*		-0.03	
$s.e$	(-0.11)		(-2.75)		(-0.06)		(-0.06)		(-0.06)		(-0.05)	
$Margin$	⟨0.036⟩				⟨-0.019⟩		⟨0.0063⟩		⟨-0.028⟩			
$Margin(1\ std)$	⟨0.029⟩				⟨-0.015⟩		⟨0.0005⟩		⟨-0.022⟩			
Panel B1	Robustness											
	Pass		**Marks**		**All Work**		**Economic Activity**		**Household Chores**		**Work Hours**	
Specifications	β	$s.e$	β	$s.e$	β	$s.e$	β	$s.e$	β	$s.e$	β	$s.e$
Baseline	0.21*	(-0.11)	4.26	(-2.75)	-0.07	(-0.06)	0.02	(-0.06)	-0.10*	(-0.06)	-0.03	(-0.05)
Less Controls	0.20*	(-0.11)	4.18	(-2.75)	-0.09	(-0.06)	0.02	(-0.06)	-0.12**	(-0.06)	-0.04	(-0.05)
IV	0.19	(-0.14)	1.61	(-3.03)	-0.01	(-0.11)	0.02	(-0.07)	-0.04	(-0.11)	0.01	(-0.13)
RE	0.17*	(-0.10)	3.60	(-2.74)	-0.06	(-0.06)	0.04	(-0.05)	-0.09	(-0.06)	-0.07	(-0.05)
Cluster SE	0.17*	(-0.10)	3.60	(-3.61)	-0.06	(-0.11)	0.04	(-0.09)	-0.09	(-0.11)	-0.07	(-0.10)
Panel B2	Robustness: Omitted Variable Bias Adjusted β (Oster, 2019)											
	Pass		**Marks**		**All Work**		**Economic Activity**		**Household Chores**		**Work Hours**	
	β	Switch	β	Switch	β	Switch	β	Switch	β	Switch	β	Switch
OLS	0.02		4.26		0.21		0.01		-0.03		-0.03	
Bias-Adjusted	0.02	No	4.50	No	-0.02	Yes	0.01	No	-0.02	No	-0.01	No

tables (Tables A2 - A3) in the appendix and summarize these results in Panel A1 and A2 for intrinsic religiosity and Panel B1 and B2 for religious activities, in Table 1. The main conclusion from these additional exercises is that the results for intrinsic religiosity largely survive all the robustness exercises, while the estimates for the religious activities are, as in the baseline, mostly insignificant.

These results indicate that intrinsic religiosity, rather than parent's engagement in religious activities, plays both a statistically and economically relevant role in determining the child's schooling and work-related outcomes. Numerous studies (Iannaccone, 1992; Glaeser and Glendon, 1998; Benabou, 2000; Barro and McCleary, 2003; Guiso et al., 2003; Glaeser and Sacerdote, 2008; Clingingsmith et al., 2009; Fruehwirth et al., 2019) consider the impact of religious variables

on various outcomes and show the importance of these variables. We use a more disaggregate religiosity index to understand how an index based on intrinsic religious motivations versus an index that quantifies religious activities can illustrate important differences in economic decision making. Since religion is a complex concept, using observable information on religion alone may miss the deeper role religion plays among certain people. The importance of intrinsic religion that we highlight in our work is akin to the findings in Barro and McCleary (2003), who show that while belief in Hell (a dimension called *believing* that is similar to our dimension of religiosity capturing intrinsic meaning of religion) significantly increases growth, but attendance at a place of worship (a dimension quantifying engagement in religious activities akin to our religion activity variable) reduces growth. Focusing on the result for the belief in Hell variable, Barro and McCleary (2003) argue that religiosity is associated with higher economic growth since religious individuals are likely to display traits such as work ethic and honesty (and hence trust). One may view our results as providing micro evidence of Barro and McCleary's findings of positive growth since we find the strongest effects for intrinsic religion on human capital outcomes.

6 Conclusion

In this work, we complement the literature studying the factors influencing children's human capital development (schooling and work outcomes) in developing economies (see references in the excellent reviews by Edmonds, 2007 and Fors, 2012). Though not always in the context of human capital development, numerous studies have documented the impact of religiosity (Iannaccone, 1992; Glaeser and Glendon, 1998; Barro and McCleary, 2003; Guiso et al., 2003; Glaeser and Sacerdote, 2008; Clingingsmith et al., 2009; De la Croix and Delavallade, 2018) on other outcomes such as growth, innovation, tolerance, and gender equality. We unite these strands of literature by studying how parental religiosity influence outcomes that determine human capital development. To do so, we collect data by conducting novel parent-child linked surveys and merge the data with the administrative data obtained from public institutions (schools and central government).

On the basis of this unique data, our results show that a deeper – intrinsic – form of religiosity plays the most significant role by improving children's schooling outcomes and inhibiting their chances of early engagement in various types of work.

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Appendix A: Tables

Table A1: Impact of Religiosity

Panel A:	**Intrinsic Religiosity**					
	Pass (Y/N)	**Marks** (total 500)	**All Work** (Y/N)	**Economic Activity** (Y/N)	**Household Chores** (Y/N)	**Work** (hrs/day)
	(1)	(2)	(3)	(4)	(5)	(6)
Edu(Father)	0.45**	13.6***	-0.12	0.011	-0.11	-0.063
	(0.19)	(4.51)	(0.094)	(0.092)	(0.094)	(0.083)
	⟨0.070⟩		⟨-0.032⟩	⟨0.0031⟩	⟨-0.029⟩	
Edu(Mother)	0.54**	13.6**	0.13	0.22*	0.066	0.032
	(0.27)	(6.08)	(0.13)	(0.12)	(0.12)	(0.11)
	⟨0.076⟩		⟨0.035⟩	⟨0.064⟩	⟨0.017⟩	
Raven(parent)	-0.0092	-0.16	-0.023***	-0.025***	-0.022***	-0.012***
	(0.0093)	(0.24)	(0.0051)	(0.0048)	(0.0051)	(0.0044)
	⟨-0.0015⟩		⟨-0.0061⟩	⟨-0.0070⟩	⟨-0.0060⟩	
Age(Father)	0.016	0.088	-0.014	0.00012	-0.013	-0.0013
	(0.024)	(0.61)	(0.013)	(0.012)	(0.013)	(0.011)
	⟨0.0026⟩		⟨-0.0038⟩	⟨0.000034⟩	⟨-0.0034⟩	
Age(Mother)	-0.026	-0.37	0.034**	0.0085	0.035**	0.017
	(0.026)	(0.63)	(0.014)	(0.013)	(0.014)	(0.012)
	⟨-0.0043⟩		⟨0.0089⟩	⟨0.0024⟩	⟨0.0094⟩	
Age(child)	0.052	-2.29	0.12**	-0.046	0.12**	0.10**
	(0.095)	(2.38)	(0.051)	(0.048)	(0.051)	(0.044)
	⟨0.0087⟩		⟨0.031⟩	⟨-0.013⟩	⟨0.031⟩	
Raven(child)	0.029*	0.73*	-0.013	-0.00025	-0.017**	-0.0069
	(0.016)	(0.40)	(0.0082)	(0.0079)	(0.0082)	(0.0076)
	⟨0.0049⟩		⟨-0.0033⟩	⟨-0.000070⟩	⟨-0.0045⟩	
Family-size	-0.048	-0.83	0.023	-0.0090	0.016	0.0014
	(0.066)	(1.54)	(0.032)	(0.032)	(0.032)	(0.029)
	⟨-0.0079⟩		⟨0.0062⟩	⟨-0.0025⟩	⟨0.0042⟩	
HH Income	-0.38	0.81	-0.010	-0.039	0.033	0.011
	(0.26)	(2.86)	(0.061)	(0.052)	(0.058)	(0.049)
	⟨-0.063⟩		⟨-0.0027⟩	⟨-0.011⟩	⟨0.0087⟩	
HH Income Missing	-3.64	6.21	0.081	-0.35	0.48	0.19
	(2.50)	(27.7)	(0.60)	(0.51)	(0.56)	(0.48)
	⟨-0.70⟩		⟨0.021⟩	⟨-0.092⟩	⟨0.12⟩	
Intrinsic	0.50**	12.4**	-0.76***	-0.39***	-0.79***	-0.56***
	(0.21)	(5.58)	(0.12)	(0.11)	(0.13)	(0.10)
	⟨0.083⟩		⟨-0.20⟩	⟨-0.11⟩	⟨-0.21⟩	
N	546	1173	1284	1311	1270	1142
Panel B:	**Religious Activities**					
	Pass (Y/N)	**Marks** (total 500)	**All Work** (Y/N)	**Economic Activity** (Y/N)	**Household Chores** (Y/N)	**Work** (hrs/day)
	(1)	(2)	(3)	(4)	(5)	(6)
Edu(Father)	0.39**	13.6***	-0.12	0.0069	-0.11	-0.067
	(0.19)	(4.51)	(0.093)	(0.091)	(0.093)	(0.084)
	⟨0.062⟩		⟨-0.034⟩	⟨0.0020⟩	⟨-0.030⟩	
Edu(Mother)	0.48*	13.8**	0.12	0.22*	0.050	0.034
	(0.27)	(6.09)	(0.12)	(0.12)	(0.12)	(0.11)
	⟨0.070⟩		⟨0.032⟩	⟨0.065⟩	⟨0.014⟩	

Continued on next page

Table A1 – Continued from previous page

Raven(parent)	-0.0099	-0.19	-0.021***	-0.023***	-0.021***	-0.010**
	(0.0092)	(0.24)	(0.0050)	(0.0047)	(0.0050)	(0.0044)
	⟨-0.0017⟩		⟨-0.0058⟩	⟨-0.0066⟩	⟨-0.0057⟩	
Age(Father)	0.017	0.086	-0.012	0.0032	-0.010	0.0028
	(0.024)	(0.61)	(0.013)	(0.012)	(0.013)	(0.011)
	⟨0.0028⟩		⟨-0.0031⟩	⟨0.00090⟩	⟨-0.0029⟩	
Age(Mother)	-0.027	-0.33	0.031**	0.0047	0.032**	0.012
	(0.026)	(0.63)	(0.014)	(0.013)	(0.014)	(0.012)
	⟨-0.0045⟩		⟨0.0083⟩	⟨0.0013⟩	⟨0.0089⟩	
Age(child)	0.065	-2.13	0.11**	-0.054	0.11**	0.091**
	(0.095)	(2.38)	(0.050)	(0.048)	(0.050)	(0.045)
	⟨0.011⟩		⟨0.030⟩	⟨-0.015⟩	⟨0.031⟩	
Raven(child)	0.032**	0.81**	-0.013*	-0.00048	-0.017**	-0.0078
	(0.016)	(0.40)	(0.0081)	(0.0079)	(0.0081)	(0.0077)
	⟨0.0054⟩		⟨-0.0036⟩	⟨-0.00014⟩	⟨-0.0046⟩	
Family-size	-0.031	-0.67	0.017	-0.013	0.0087	-0.0047
	(0.065)	(1.54)	(0.032)	(0.031)	(0.032)	(0.030)
	⟨-0.0052⟩		⟨0.0045⟩	⟨-0.0036⟩	⟨0.0024⟩	
HH Income	-0.36	1.27	-0.026	-0.043	0.011	-0.0038
	(0.25)	(2.86)	(0.060)	(0.052)	(0.057)	(0.050)
	⟨-0.060⟩		⟨-0.0071⟩	⟨-0.012⟩	⟨0.0030⟩	
HH Income Missing	-3.39	10.8	-0.016	-0.38	0.32	0.074
	(2.47)	(27.7)	(0.58)	(0.51)	(0.55)	(0.48)
	⟨-0.69⟩		⟨-0.0044⟩	⟨-0.10⟩	⟨0.084⟩	
Religious Activities	0.21*	4.26	-0.069	0.022	-0.10*	-0.033
	(0.11)	(2.75)	(0.057)	(0.055)	(0.058)	(0.052)
	⟨0.036⟩		⟨-0.019⟩	⟨0.0063⟩	⟨-0.028⟩	
N	546	1173	1284	1311	1270	1142

Table A2: Robustness - Impact of Intrinsic Religiosity

	Pass(Y/N)					Marks					All Work(Y/N)				
	(1) Baseline	(2) Less Controls	(3) IV	(4) RE	(5) Cluster	(6) Baseline	(7) Less Controls	(8) IV	(9) RE	(10) Cluster	(11) Baseline	(12) Less Controls	(13) IV	(14) RE	(15) Cluster
Edu(Father)	0.45**		0.45**	0.43**	0.43**	13.6***		13.6***	14.1***	14.1***	-0.12		-0.12	-0.11	-0.11
	(0.19)		(0.21)	(0.18)	(0.21)	(4.51)		(4.22)	(4.52)	(4.42)	(0.094)		(0.098)	(0.092)	(0.094)
Edu(Mother)	0.54**		0.55*	0.51*	0.51*	13.6**		13.6*	13.4**	13.4*	0.13		0.13	0.11	0.11
	(0.27)		(0.29)	(0.27)	(0.29)	(6.08)		(7.58)	(6.11)	(7.74)	(0.13)		(0.14)	(0.12)	(0.13)
Raven(parent)	-0.0092	-0.011	-0.0088	-0.0072	-0.0072	-0.16	-0.11	-0.17	-0.14	-0.14	-0.023***	-0.025***	-0.023***	-0.020***	-0.020***
	(0.0093)	(0.0089)	(0.0081)	(0.0089)	(0.0075)	(0.24)	(0.24)	(0.23)	(0.24)	(0.22)	(0.0051)	(0.0050)	(0.0078)	(0.0049)	(0.0076)
Age(Father)	0.016	0.017	0.016	0.013	0.013	0.088	0.061	0.071	0.093	0.093	-0.014	-0.012	-0.014	-0.016	-0.016
	(0.024)	(0.023)	(0.018)	(0.023)	(0.017)	(0.61)	(0.61)	(0.43)	(0.61)	(0.45)	(0.013)	(0.013)	(0.017)	(0.013)	(0.016)
Age(Mother)	-0.026	-0.026	-0.026	-0.019	-0.019	-0.37	-0.42	-0.35	-0.30	-0.30	0.034**	0.032**	0.034**	0.035**	0.035**
	(0.026)	(0.025)	(0.019)	(0.025)	(0.018)	(0.63)	(0.63)	(0.48)	(0.63)	(0.51)	(0.014)	(0.014)	(0.016)	(0.014)	(0.015)
Age(child)	0.052	0.029	0.051	0.054	0.054	-2.29	-2.66	-2.26	-1.97	-1.97	0.12**	0.12**	0.12**	0.11**	0.11**
	(0.095)	(0.090)	(0.093)	(0.089)	(0.084)	(2.38)	(2.39)	(2.09)	(2.38)	(2.09)	(0.051)	(0.051)	(0.054)	(0.049)	(0.050)
Raven(child)	0.029*	0.031**	0.029	0.025	0.025	0.73*	0.80**	0.75	0.69*	0.69	-0.013	-0.013	-0.013	-0.015*	-0.015
	(0.016)	(0.016)	(0.029)	(0.015)	(0.027)	(0.40)	(0.40)	(0.78)	(0.40)	(0.75)	(0.0082)	(0.0082)	(0.0095)	(0.0080)	(0.0090)
Family-size	-0.048	-0.070	-0.048	-0.048	-0.048	-0.83	-1.11	-0.79	-0.91	-0.91	0.023	0.019	0.023	0.017	0.017
	(0.066)	(0.064)	(0.062)	(0.063)	(0.055)	(1.54)	(1.55)	(1.41)	(1.55)	(1.43)	(0.032)	(0.032)	(0.032)	(0.031)	(0.032)
HH Income	-0.38		-0.38	-0.38	-0.38	0.81		0.89	0.37	0.37	-0.010		-0.010	-0.021	-0.021
	(0.26)		(0.29)	(0.24)	(0.25)	(2.86)		(1.88)	(2.87)	(1.96)	(0.061)		(0.064)	(0.059)	(0.056)
HH Income Missing	-3.64		-3.65	-3.63	-3.63	6.21		6.90	2.83	2.83	0.081		0.084	0.011	0.011
	(2.50)		(2.73)	(2.34)	(2.35)	(27.7)		(16.7)	(27.7)	(17.6)	(0.60)		(0.64)	(0.57)	(0.56)
Intrinsic	0.50**	0.36*	0.57*	0.48**	0.48**	12.4**	12.9**	9.23	12.6**	12.6**	-0.76***	-0.79***	-0.75***	-0.78***	-0.78***
	(0.21)	(0.20)	(0.31)	(0.20)	(0.22)	(5.58)	(5.60)	(6.78)	(5.59)	(6.32)	(0.12)	(0.12)	(0.20)	(0.12)	(0.20)
Female				0.65	0.65				44.1***	44.1**				-0.020	-0.020
				(0.49)	(0.52)				(16.3)	(18.7)				(0.17)	(0.17)
N	546	546	546	1160	1160	1173	1173	1173	1173	1173	1284	1284	1284	1284	1284

	Economic Activity(Y/N)					Household Chores(Y/N)					Work Hours				
	(1) Baseline	(2) Less Controls	(3) IV	(4) RE	(5) Cluster	(6) Baseline	(7) Less Controls	(8) IV	(9) RE	(10) Cluster	(11) Baseline	(12) Less Controls	(13) IV	(14) RE	(15) Cluster
Edu(Father)	0.011		0.011	0.020	0.020	-0.11		-0.11	-0.095	-0.095	-0.063		-0.064	-0.055	-0.055
	(0.092)		(0.11)	(0.090)	(0.11)	(0.094)		(0.10)	(0.092)	(0.095)	(0.083)		(0.092)	(0.084)	(0.086)
Edu(Mother)	0.22*		0.22*	0.21*	0.21*	0.066		0.063	0.049	0.049	0.032		0.033	-0.018	-0.018
	(0.12)		(0.11)	(0.12)	(0.11)	(0.12)		(0.12)	(0.12)	(0.11)	(0.11)		(0.074)	(0.11)	(0.082)
Raven(parent)	-0.025***	-0.025***	-0.025***	-0.025***	-0.025***	-0.022***	-0.024***	-0.022***	-0.019***	-0.019**	-0.012***	-0.012***	-0.012**	-0.012***	-0.012**
	(0.0048)	(0.0047)	(0.0090)	(0.0047)	(0.0087)	(0.0051)	(0.0050)	(0.0083)	(0.0049)	(0.0079)	(0.0044)	(0.0043)	(0.0057)	(0.0043)	(0.0055)
Age(Father)	0.00012	0.00026	-0.0013	-0.00037	-0.00037	-0.013	-0.011	-0.013	-0.014	-0.014	-0.0013	-0.00010	-0.00097	-0.00049	-0.00049
	(0.012)	(0.012)	(0.014)	(0.012)	(0.014)	(0.013)	(0.013)	(0.018)	(0.013)	(0.017)	(0.011)	(0.011)	(0.013)	(0.011)	(0.013)
Age(Mother)	0.0085	0.0077	0.010	0.0082	0.0082	0.035**	0.034**	0.035**	0.037***	0.037**	0.017	0.016	0.016	0.019	0.019*
	(0.013)	(0.013)	(0.016)	(0.013)	(0.015)	(0.014)	(0.014)	(0.018)	(0.014)	(0.017)	(0.012)	(0.012)	(0.011)	(0.012)	(0.011)
Age(child)	-0.046	-0.045	-0.044	-0.044	-0.044	0.12**	0.12**	0.12**	0.11**	0.11**	0.10**	0.10**	0.10*	0.11**	0.11**
	(0.048)	(0.048)	(0.048)	(0.047)	(0.046)	(0.051)	(0.051)	(0.052)	(0.049)	(0.049)	(0.044)	(0.044)	(0.052)	(0.044)	(0.051)
Raven(child)	-0.00025	0.00011	-0.00010	0.00064	0.00064	-0.017**	-0.017**	-0.017*	-0.019**	-0.019**	-0.0069	-0.0071	-0.0069	-0.0057	-0.0057
	(0.0079)	(0.0079)	(0.0091)	(0.0078)	(0.0091)	(0.0082)	(0.0082)	(0.0092)	(0.0080)	(0.0087)	(0.0076)	(0.0076)	(0.0095)	(0.0075)	(0.0098)
Family-size	-0.0090	-0.013	-0.0088	-0.0092	-0.0092	0.016	0.014	0.015	0.0092	0.0092	0.0014	0.0015	0.00095	-0.0065	-0.0065
	(0.032)	(0.031)	(0.020)	(0.031)	(0.019)	(0.032)	(0.032)	(0.033)	(0.032)	(0.033)	(0.029)	(0.029)	(0.030)	(0.030)	(0.032)
HH Income	-0.039		-0.036	-0.032	-0.032	0.033		0.032	0.021	0.021	0.011		0.0099	-0.0065	-0.0065
	(0.052)		(0.070)	(0.050)	(0.061)	(0.058)		(0.046)	(0.054)	(0.048)	(0.049)		(0.046)	(0.049)	(0.040)
HH Income Missing	-0.35		-0.32	-0.30	-0.30	0.48		0.48	0.40	0.40	0.19		0.19	0.12	0.12
	(0.51)		(0.71)	(0.48)	(0.63)	(0.56)		(0.47)	(0.53)	(0.48)	(0.48)		(0.43)	(0.48)	(0.38)
Intrinsic	-0.39***	-0.39***	-0.54***	-0.40***	-0.40***	-0.79***	-0.81***	-0.73***	-0.81***	-0.81***	-0.56***	-0.56***	-0.52***	-0.62***	-0.62***
	(0.11)	(0.11)	(0.17)	(0.11)	(0.15)	(0.13)	(0.13)	(0.22)	(0.12)	(0.21)	(0.10)	(0.10)	(0.13)	(0.10)	(0.14)
Female				-0.37	-0.37*				0.023	0.023				-0.11	-0.11
				(0.23)	(0.22)				(0.18)	(0.18)				(0.13)	(0.19)
N	1311	1311	1311	1325	1325	1270	1270	1270	1270	1270	1142	1142	1142	1142	1142

For each outcome variable, there are five specifications labeled *Baseline, Less Control, IV, RE, and Cluster*. The *Baseline* specification presents estimates via fixed effects; *Less Control* specification removes controls including parental education and income related variables: (1) HH Income: household income, (2) HH Income Missing: dummy for whether the income is reported or not; *IV* specification uses a 2SLS estimator where the instrument we use is akin to the one used in Fruehwirth et al. (2019); *RE* specification uses random effects (which is why variable Female: gender of the child is included in this estimation); *Cluster* specification, cluster the standard errors by school. Standard Errors are in parenthesis. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A3: Robustness - Impact of Religious Activities

	Pass(Y/N)					Marks					All Work(Y/N)				
	(1) Baseline	(2) Less Controls	(3) IV	(4) RE	(5) Cluster	(6) Baseline	(7) Less Controls	(8) IV	(9) RE	(10) Cluster	(11) Baseline	(12) Less Controls	(13) IV	(14) RE	(15) Cluster
Edu(Father)	0.39**		0.39**	0.38**	0.38**	13.6***		13.7***	14.1***	14.1***	-0.12		-0.13	-0.11	-0.11
	(0.19)		(0.19)	(0.18)	(0.19)	(4.51)		(4.13)	(4.52)	(4.31)	(0.093)		(0.11)	(0.091)	(0.10)
Edu(Mother)	0.48*		0.49*	0.46*	0.46	13.8**		13.6*	13.5**	13.5*	0.12		0.13	0.11	0.11
	(0.27)		(0.30)	(0.26)	(0.29)	(6.09)		(7.61)	(6.12)	(7.71)	(0.12)		(0.13)	(0.12)	(0.13)
Raven(parent)	-0.0099	-0.012	-0.0099	-0.0080	-0.0080	-0.19	-0.14	-0.19	-0.17	-0.17	-0.021***	-0.023***	-0.021***	-0.018***	-0.018**
	(0.0092)	(0.0089)	(0.0082)	(0.0089)	(0.0078)	(0.24)	(0.24)	(0.24)	(0.24)	(0.24)	(0.0050)	(0.0049)	(0.0077)	(0.0049)	(0.0077)
Age(Father)	0.017	0.019	0.017	0.013	0.013	0.086	0.055	0.046	0.080	0.080	-0.012	-0.0088	-0.011	-0.012	-0.012
	(0.024)	(0.023)	(0.016)	(0.023)	(0.015)	(0.61)	(0.61)	(0.42)	(0.61)	(0.45)	(0.013)	(0.013)	(0.017)	(0.013)	(0.017)
Age(Mother)	-0.027	-0.028	-0.027	-0.019	-0.019	-0.33	-0.38	-0.30	-0.25	-0.25	0.031**	0.029**	0.030*	0.031**	0.031**
	(0.026)	(0.025)	(0.018)	(0.025)	(0.017)	(0.63)	(0.63)	(0.48)	(0.63)	(0.50)	(0.014)	(0.014)	(0.016)	(0.013)	(0.015)
Age(child)	0.065	0.041	0.065	0.066	0.066	-2.13	-2.49	-2.14	-1.80	-1.80	0.11**	0.11**	0.11**	0.11**	0.11**
	(0.095)	(0.091)	(0.079)	(0.089)	(0.072)	(2.38)	(2.39)	(2.06)	(2.38)	(2.02)	(0.050)	(0.050)	(0.054)	(0.048)	(0.051)
Raven(child)	0.032**	0.032**	0.032	0.027*	0.027	0.81**	0.88**	0.80	0.76*	0.76	-0.013*	-0.014*	-0.013	-0.015*	-0.015
	(0.016)	(0.015)	(0.028)	(0.015)	(0.025)	(0.40)	(0.40)	(0.78)	(0.40)	(0.75)	(0.0081)	(0.0081)	(0.0098)	(0.0079)	(0.0093)
Family-size	-0.031	-0.060	-0.031	-0.032	-0.032	-0.67	-0.94	-0.68	-0.75	-0.75	0.017	0.011	0.017	0.010	0.010
	(0.065)	(0.064)	(0.056)	(0.062)	(0.050)	(1.54)	(1.55)	(1.39)	(1.55)	(1.41)	(0.032)	(0.031)	(0.032)	(0.031)	(0.032)
HH Income	-0.36		-0.36	-0.36	-0.36	1.27		1.20	0.83	0.83	-0.026		-0.025	-0.039	-0.039
	(0.25)		(0.28)	(0.24)	(0.24)	(2.86)		(1.81)	(2.87)	(1.88)	(0.060)		(0.064)	(0.058)	(0.060)
HH Income Missing	-3.39		-3.40	-3.36	-3.36	10.8		9.63	7.22	7.22	-0.016		0.0025	-0.11	-0.11
	(2.47)		(2.59)	(2.32)	(2.27)	(27.7)		(16.0)	(27.8)	(16.6)	(0.58)		(0.63)	(0.56)	(0.58)
Religious Activities	0.21*	0.20*	0.19	0.17*	0.17*	4.26	4.18	1.61	3.60	3.60	-0.069	-0.089	-0.0080	-0.060	-0.060
	(0.11)	(0.11)	(0.14)	(0.099)	(0.10)	(2.75)	(2.75)	(3.03)	(2.74)	(3.61)	(0.057)	(0.057)	(0.11)	(0.055)	(0.11)
Female				0.65	0.65				44.7***	44.7**				-0.053	-0.053
				(0.50)	(0.52)				(16.3)	(18.8)				(0.18)	(0.18)
N	546	546	546	1160	1160	1173	1173	1173	1173	1173	1284	1284	1284	1284	1284
	Economic Activity(Y/N)					**Household Chores(Y/N)**					**Work Hours**				
	(1) Baseline	(2) Less Controls	(3) IV	(4) RE	(5) Cluster	(6) Baseline	(7) Less Controls	(8) IV	(9) RE	(10) Cluster	(11) Baseline	(12) Less Controls	(13) IV	(14) RE	(15) Cluster
Edu(Father)	0.0069		0.0070	0.016	0.016	-0.11		-0.11	-0.10	-0.10	-0.067		-0.068	-0.060	-0.060
	(0.091)		(0.11)	(0.090)	(0.11)	(0.093)		(0.11)	(0.091)	(0.11)	(0.084)		(0.098)	(0.084)	(0.095)
Edu(Mother)	0.22*		0.22**	0.21*	0.21**	0.050		0.055	0.037	0.037	0.034		0.035	-0.0091	-0.0091
	(0.12)		(0.11)	(0.12)	(0.10)	(0.12)		(0.11)	(0.12)	(0.11)	(0.11)		(0.079)	(0.11)	(0.088)
Raven(parent)	-0.023***	-0.023***	-0.023***	-0.023***	-0.023***	-0.021***	-0.022***	-0.021**	-0.018***	-0.018**	-0.010**	-0.011**	-0.010*	-0.010**	-0.010*
	(0.0047)	(0.0047)	(0.0086)	(0.0046)	(0.0085)	(0.0050)	(0.0049)	(0.0080)	(0.0049)	(0.0079)	(0.0044)	(0.0044)	(0.0058)	(0.0044)	(0.0057)
Age(Father)	0.0032	0.0034	0.0031	0.0032	0.0032	-0.010	-0.0081	-0.0099	-0.011	-0.011	0.0028	0.0042	0.0036	0.0031	0.0031
	(0.012)	(0.012)	(0.014)	(0.012)	(0.014)	(0.013)	(0.013)	(0.018)	(0.013)	(0.018)	(0.011)	(0.011)	(0.013)	(0.011)	(0.013)
Age(Mother)	0.0047	0.0038	0.0047	0.0041	0.0041	0.032**	0.031**	0.032*	0.033**	0.033*	0.012	0.011	0.011	0.014	0.014
	(0.013)	(0.013)	(0.016)	(0.013)	(0.015)	(0.014)	(0.014)	(0.018)	(0.014)	(0.017)	(0.012)	(0.012)	(0.010)	(0.012)	(0.011)
Age(child)	-0.054	-0.053	-0.054	-0.052	-0.052	0.11**	0.11**	0.11**	0.11**	0.11**	0.091**	0.092**	0.091*	0.099**	0.099*
	(0.048)	(0.048)	(0.049)	(0.047)	(0.046)	(0.050)	(0.050)	(0.052)	(0.048)	(0.050)	(0.045)	(0.044)	(0.053)	(0.044)	(0.054)
Raven(child)	-0.00048	-0.00019	-0.00050	0.00048	0.00048	-0.017**	-0.017**	-0.016*	-0.019**	-0.019**	-0.0078	-0.0082	-0.0075	-0.0071	-0.0071
	(0.0079)	(0.0079)	(0.0096)	(0.0078)	(0.0094)	(0.0081)	(0.0081)	(0.0096)	(0.0079)	(0.0091)	(0.0077)	(0.0077)	(0.0096)	(0.0077)	(0.0097)
Family-size	-0.013	-0.017	-0.013	-0.014	-0.014	0.0087	0.0057	0.0093	0.0020	0.0020	-0.0047	-0.0051	-0.0049	-0.013	-0.013
	(0.031)	(0.031)	(0.019)	(0.031)	(0.018)	(0.032)	(0.032)	(0.033)	(0.031)	(0.033)	(0.030)	(0.029)	(0.030)	(0.030)	(0.032)
HH Income	-0.043		-0.043	-0.037	-0.037	0.011		0.012	-0.0013	-0.0013	-0.0038		-0.0027	-0.021	-0.021
	(0.052)		(0.073)	(0.050)	(0.064)	(0.057)		(0.048)	(0.054)	(0.051)	(0.050)		(0.047)	(0.050)	(0.043)
HH Income Missing	-0.38		-0.38	-0.34	-0.34	0.32		0.34	0.23	0.23	0.074		0.092	-0.023	-0.023
	(0.51)		(0.73)	(0.49)	(0.65)	(0.55)		(0.47)	(0.52)	(0.49)	(0.48)		(0.44)	(0.48)	(0.40)
Religious Activities	0.022	0.021	0.020	0.041	0.041	-0.10*	-0.12**	-0.035	-0.087	-0.087	-0.033	-0.039	0.013	-0.070	-0.070
	(0.055)	(0.055)	(0.074)	(0.053)	(0.085)	(0.058)	(0.058)	(0.11)	(0.055)	(0.11)	(0.052)	(0.052)	(0.13)	(0.051)	(0.10)
Female				-0.40*	-0.40*				-0.021	-0.021				-0.16	-0.16
				(0.23)	(0.22)				(0.19)	(0.20)				(0.15)	(0.20)
N	1311	1311	1311	1325	1325	1270	1270	1270	1270	1270	1142	1142	1142	1142	1142

For each outcome variable, there are five specifications labeled *Baseline, Less Control, IV, RE, and Cluster*. The *Baseline* specification presents estimates via fixed effects; *Less Control* specification removes controls including parental education and income related variables: (1) HH Income: household income, (2) HH Income Missing: dummy for whether the income is reported or not; *IV* specification uses a 2SLS estimator where the instrument we use is akin to the one used in Fruehwirth et al. (2019); *RE* specification uses random effects (which is why variable Female: gender of the child is included in this estimation); *Cluster* specification, cluster the standard errors by school. Standard Errors are in parenthesis. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix B: Online

Summary Statistics

Below we present three tables. Table B1 include the distribution of schools by levels and gender, Table B2 and B3 give the mean and standard deviation for dependent variables and the independent variables, respectively.

Table B1: School Sample

Gender	Total Schools level			Our Sample level		
	High	**Middle**	**Total**	**High**	**Middle**	**Total**
Female	11	10	21	11	4	15
Male	8	16	24	5	12	17
Total	19	26	45	16	16	32

Note: This table provides the distribution of schools by school levels and gender.

Table B2: Summary Statistics - Dependent Variables

	All Sample	Females	Males
	(1)	(2)	(3)
All Work	0.75	0.73	0.77
	(0.43)	(0.44)	(0.42)
Economic Activity	0.28	0.23	0.32
	(0.45)	(0.42)	(0.47)
Household Chores	0.74	0.72	0.76
	(0.44)	(0.45)	(0.43)
Work Hours	1.89	1.78	1.97
	(1.37)	(1.38)	(1.36)
Pass	0.93	0.97	0.90
	(0.25)	(0.17)	(0.30)
Marks	286.45	318.23	259.22
	(92.45)	(71.55)	(99.43)
N	1416	655	761

Note: This table provides mean and standard errors. Standard errors are in parenthesis. All Labor, Economic Activity, Household Chores and Pass are binary variables while remaining variables are continuous.

Institutional background

A few distinct features define the public school system in Pakistan. Despite the international perception of the prevalence of religious schools in Pakistan – "madrassahs" (religious schools) – public schools define the landscape of Pakistan's education system.[13] All children in the transitioning phase from class 5 (primary school) to 6 (middle school) in these schools are required to take a centrally set exam. In public schools, the academic year runs from April to March, while

[13] In particular, Andrabi et al. (2005) show that enrollment in these schools is less than 1 percent in the entire country, and no supporting evidence exists for a dramatic increase in the religious school system in recent years.

Table B3: Summary Statistics - Independent Variables

Control–Parents	
Edu(Father)	0.34
	(0.47)
Edu(Mother)	0.15
	(0.35)
Age(Father)	43.43
	(6.65)
Age(Mother)	38.92
	(6.20)
Raven(parent)	21.92
	(9.15)
Control–Family	
Family-size	6.97
	(1.39)
HH Income (PKR/month)	12321.96
	(9283.70)
HH Income Missing	0.22
	(0.41)
Control–Child	
Age(child)	12.35
	(0.90)
Female	0.46
	(0.50)
Raven(child)	17.24
	(5.36)
Religiosity Indices	
Intrinsic Religiosity	4.65
	(0.38)
Religious Activities	4.40
	(0.82)
N	1416

Note: This table provides mean and standard errors (in parenthesis) for the control variables, and the religiosity variables.

in private schools, it runs from September to June. Therefore, the central exam occurs in March. Moreover, the majority of these schools are segregated by gender, and most children in these schools pursue primary and middle education at the same public school. All these features guide our access to parent-child pairs by sampling schools, as described in the paper.

Protocol

Since this study involves human subjects (parents and children), the project was reviewed and approved by an institutional review board (IRB). Moreover, we paid special attention to various concerns that could impact the quality of the survey data. First, we hired and trained 25 enumerators from January to March 2018. The enumerators were provided with digitized surveys on iPads. The digitization of the surveys allowed us to add additional checks to minimize mistakes or incoherent answers. Where possible, we added conditional statements and restricted the survey from proceeding to the next question if, for example, an answer was missing or numerals were added by mistake. In addition, digitization enabled direct codification of the data, which fur-

ther helped us to prevent potential human errors (especially those associated with paper-based surveys).

The enumerators were trained to ensure that they could navigate the digital survey and were encouraged to ask questions if there was any confusion during training. Issues pertaining to enumerators self-filling surveys was minimized by employing enumerators who have conducted surveys in the past and highlighting the fact that their future employment for other projects could be hampered. We also required each enumerator to record (using voice recorders) their interactions with subjects, and in each locality, an assigned manager conducted random spot checks.

To minimize potential issues that could arise because of subjects speaking about the survey with any other potential subject (in our sample), we covered all the households in a neighborhood (within walking distance) within one day. Given that the responder could be a woman, we recruited both men and women as enumerators so that the responder would be at ease and to substantially reduce non-response.

Finally, the most important protocol in conducting surveys with children is compliance with the additional requirements of the IRB. We fully complied with those protocols by acquiring a parent's consent to survey the child. Parents were also asked to be present during the Raven's test and when the child was asked additional questions. However, we provided special instructions to the enumerator and parents to minimize interference by the parent during the child survey. We also recorded these interactions.

The survey for parents took no more than an hour (30 minutes for the 60-question Raven's test and the rest for the remaining survey), and the child survey took no more than 40 minutes (30 minutes for the 45-question colored Raven's test and 10 minutes for the remaining questions). Parents were paid on average $\$4.5$ worth of mobile credit, while children were compensated with stickers and pencils worth $\$1$. The payment came in the form of a phone credit designed to be transferred directly to the parents' phone numbers. In Pakistan, phone credit is a valuable gift since the credit can be transferred to other people at no cost. Moreover, almost every person in Pakistan owns and regularly uses the phone service.[14] The payment for parents was similar to the hourly wage ($0.8 per hour) of a laborer in Pakistan.[15] For children, the wage calculation is challenging because many children are employed either in unpaid jobs or within their households, making it difficult to quantify their value addition or value from their engagement in economic activity. However, we tried to select gifts that were age appropriate and appealing to children.

[14]From a survey perspective, this feature also provides the advantage of avoiding potential issues of theft due to enumerators carrying large sums of cash on the road.

[15]Based on the GDP per capita estimate for Pakistan in 2018, the average pay in Pakistan was roughly $1641 per year, which translates to $\approx$ $6 per day.