

Determinants of Successful Completion of Secondary Education

Evidence from Young Lives, Andhra Pradesh

Renu Singh and Protap Mukherjee



Determinants of Successful Completion of Secondary Education

Evidence from Young Lives, Andhra Pradesh

Renu Singh and Protap Mukherjee

Determinants of Successful Completion of Secondary Education: Evidence from Young Lives, Andhra Pradesh

Renu Singh and Protap Mukherjee

© Young Lives 2015
ISBN 978-1-909403-56-7

A catalogue record for this publication is available from the British Library.
All rights reserved. Reproduction, copy, transmission, or translation of any part
of this publication may be made only under the following conditions:

- with the prior permission of the publisher; or
- with a licence from the Copyright Licensing Agency Ltd.,
90 Tottenham Court Road, London W1P 9HE, UK, or from another national
licensing agency; or
- under the terms set out below.

This publication is copyright, but may be reproduced by any method without
fee for teaching or non-profit purposes, but not for resale. Formal permission
is required for all such uses, but normally will be granted immediately. For
copying in any other circumstances, or for re-use in other publications, or for
translation or adaptation, prior written permission must be obtained from the
publisher and a fee may be payable.

Funded by



Ministry of Foreign Affairs of the
Netherlands



Irish Aid

An Roinn Gnóthaí Eachtracha agus Trádála
Department of Foreign Affairs and Trade

Young Lives, Oxford Department of International Development (ODID), University of Oxford,
Queen Elizabeth House, 3 Mansfield Road, Oxford OX1 3TB, UK
Tel: +44 (0)1865 281751 • E-mail: younglives@younglives.org.uk

Contents

Abstract	2
The Authors	2
Acknowledgements	2
1. Introduction	3
1.1. India – the secondary education context	3
1.2. Existing literature	4
2. Data	6
2.1 Dependent variable	7
2.2 Independent variables	7
3. Methods	9
4. Empirical results	10
4.1. Univariate analysis	10
4.2. Bivariate analysis	10
4.3. Multivariate analysis	16
5. Conclusion	21
References	24
Appendix	27

Abstract

Using unique panel data from the Young Lives study on child poverty in the state of Andhra Pradesh (before its division into Andhra Pradesh and Telangana), this paper seeks to explore the factors affecting the completion of secondary education. Logistic regression analysis reveals that there are a multitude of factors, cutting across the household, individual, educational and socio-demographic domains. The paper highlights the significance of children acquiring reading and writing skills in the early primary grades, having high self-efficacy and not participating in paid work before the age of 12. Gender continues to work as a barrier to secondary school completion for girls, and the findings suggest that educational policy must ensure that children, particularly girls and those living in rural locations, are provided with a good-quality education right from pre-school, and through primary schooling and beyond. It is also important that children in primary school are not drawn into paid work, since this has a detrimental effect on long-term schooling – in this case secondary education completion.

The Authors

Renu Singh has over 25 years' experience in teaching, teacher education, education policy analysis and research, both in India and abroad. Trained as a Montessorian and special educator, her doctoral study was on the inclusion of marginalised children. Her special interests remain early childhood development, teacher education, inclusion and gender. She has held a number of prestigious positions at NGOs, including Save the Children, and in university departments. She has also advised the Indian Government by serving in a variety of working groups, committees and boards. Currently she is the Country Director at Young Lives India and Visiting Professor at Jamia Millia Islamia University, New Delhi.

Protap Mukherjee is a Quantitative Research Associate at Young Lives India. He has an MSc in Geography from Banaras Hindu University, Varanasi and an MPS (Master of Population Studies) from the International Institute for Population Sciences (IIPS), Mumbai. He also has research experience at Jawaharlal Nehru University, New Delhi. Before joining Young Lives, he worked at IIPS, the National Population Stabilisation Fund, Microsoft Corporation India and Jawaharlal Nehru University.

Acknowledgements

We are grateful to Abhijeet Singh and an anonymous reviewer for their valuable comments.

About Young Lives

Young Lives is an international study of childhood poverty, following the lives of 12,000 children in 4 countries (Ethiopia, India, Peru and Vietnam) over 15 years. www.younglives.org.uk

Young Lives is funded from 2001 to 2017 by UK aid from the Department for International Development (DFID), co-funded by the Netherlands Ministry of Foreign Affairs from 2010 to 2014, and by Irish Aid from 2014 to 2015.

The views expressed are those of the author(s). They are not necessarily those of, or endorsed by, Young Lives, the University of Oxford, DFID or other funders.

1. Introduction

As universal primary education comes close to realisation, there are concerns about whether secondary education will withstand the pressure of increasing numbers of children moving up to secondary level. Secondary education is today seen not as a luxury, but as a necessary stepping stone towards a better and brighter future. It has been suggested that secondary education could either serve as a pathway for students' advancement, or appear as the main bottleneck, preventing the equitable expansion of educational opportunities (World Bank 2005). According to the 2013–14 Education For All Global Monitoring Report (UNESCO 2014), only 37 per cent of adolescents in low-income countries completed lower secondary education, and the rate is as low as 14 per cent for the poorest. The report pointed out that an assessment of 82 countries found that by 2011, only 32 per cent of countries had achieved universal lower secondary education, compared to 26 per cent in 1999. The economic and social costs of school failure and drop-out are high, whereas successful completion of secondary education gives individuals the prospects for better employment and a healthier lifestyle, resulting in greater contributions to public budgets and investment (OECD 2012).

1.1. India – the secondary education context

India has an educational structure that consists of eight years of elementary education (Grades 1–8), followed by secondary education (Grades 9–10) and higher secondary education (Grades 11–12). The country has made huge strides towards achieving universal elementary education, after introducing the Right to Free and Compulsory Education Act (RTE Act), 2009, with its gross enrolment ratio (GER) reaching 101.56 per cent in 2013/14 (NUEPA 2014a). While India is among the ten countries that have made the fastest progress in reducing the number of children out of school at elementary level, there continues to exist the challenge of ensuring that access is accompanied by learning, since a large number of children leave elementary education without learning basic skills (ASER 2013). Also, at secondary level, the Programme for International Student Assessment (PISA), 2009, found that India came 73rd out of the 74 participating countries (OECD 2009).

Acknowledging that secondary education is a key link between education and economic development, preparing young adolescents to learn life skills and participate in the growth process, policymakers have in recent years turned their attention towards achieving universal secondary education. The CABE Committee Report (2005) highlighted that 'universal secondary education is a precondition for equitable social development, widening participation in India's democratic functioning, building up of an enlightened secular republic, and be globally competitive' (p. 14). According to the working group document for the 12th Five-Year Plan, the GER for Grades 9 and 10 was 58.2 per cent in 2007/8 and for Grades 11 and 12 it was 33.4 per cent (Planning Commission 2012), while the National Family Health Survey 3 (IIPS and Macro International 2007) claimed that only 54 per cent of all children of secondary school age (11–17 years) were attending school. To meet the challenge of dramatically improving equitable access to secondary education, as well as the quality of the education provided, the Government of India launched a centrally sponsored scheme for secondary education, Rashtriya Madhyamik Shiksha Abhiyan (RMSA, the National Mission for Secondary Education) (MHRD 2009). From a historical perspective, the significance of RMSA lies in the fact that for the first time ever, the Central Government has begun to

support the states to increase access to and improve the quality of secondary education, thereby bestowing on secondary education the attention it deserves (RMSA 2014). The scheme seeks to enhance enrolment in Grades 9 and 10 by providing a secondary school within a reasonable distance of every habitation, to improve the quality of the education imparted at secondary level by ensuring that all secondary schools conform to prescribed/standard norms, to remove gender, socio-economic and disability barriers and to achieve near-universal enrolment at secondary level education with the GER exceeding 90 per cent by 2017, i.e. by the end of the 12th Five-Year Plan. Biswal (2011) highlighted that India lagged far behind the other BRIC countries (Brazil, Russia and China) in providing access to secondary schooling for its population, and that secondary schooling would need to expand substantially, with a doubling of elementary school graduates.

The expansion of secondary schools or school sections has resulted in a considerable increase in enrolment at secondary level. Between 2000/1 and 2013/14, enrolment in secondary and higher secondary education increased by 32 million (from 27.6 million in 2001 to 59.6 million in 2014). The enrolment of boys increased by 14.6 million (from 16.9 million to 31.5 million) while the enrolment of girls increased by 17.4 million (from 10.7 million to 28.1 million) during this period. The percentage increase in enrolment has been much higher for girls (162.6 per cent) than for boys (86.4 per cent) during this period. While the GER for Grades 9 and 10 in 2013/14 had increased to 76.64 and that for Grades 11–12 to 52.21 for (NUEPA 2014b), there is evidence of an increasing Gender Parity Index (GPI) for GER related to secondary education (Grades 9–10), which improved from 0.79 in 2004/5 to 1.0 in 2013–14 (NUEPA 2014b). However, the net enrolment ratio (NER) in 2013/14 at secondary level was still a low 45.63. NUEPA (2014b) highlights that only 66.4 per cent of children aged 14 and above are enrolled in secondary school. The average promotion rate in 2013/14 from Grade 9 to 10 was 82.04, while the transition rate from Grade 10 to Grade 11 remained a low 68.91 in 2013/14 (NUEPA 2014b).

It is evident that despite the above-mentioned expansion and increase in enrolment at secondary level, it continues to be hugely challenging for India to retain children in the school system and ensure that they make a successful transition to secondary education. This is particularly relevant for those belonging to socially and economically marginalised backgrounds. A World Bank report (2009) mentions that access to secondary education in India is highly unequal, with a 40 percentage point gap in secondary enrolment rates between students from the highest and lowest expenditure quintile groups (70 per cent versus 30 per cent enrolment, respectively). The fact that children from the poorest families may become tomorrow's poorest adults must be addressed. Undoubtedly, secondary education can be seen as essential to mitigate and address the inter-generational cycle of poverty that impacts the poorest families.

1.2. Existing literature

Governments have been struggling to find ways to reduce substantially the large number of children who are now completing elementary education, and enrolling into Grade 9, but dropping out before completing even the lower secondary cycle. These children are in effect left with no choice but to take up unskilled jobs, since elementary education does not allow children to even undertake vocational courses.

A large body of evidence exists that highlights that a multitude of factors influence the attitude and behaviour of students in high schools, leading to non-completion of secondary education (for example, Bradley and Renzulli 2013; Sabates et al. 2013; Jimeron et al. 2000).

A synthesis of literature shows that there are a number of 'push' and 'pull' factors that influence adolescent decision to leave schools (Rumburger and Lim 2008). 'Push' factors largely constitute school-related factors such as school size, teaching quality, cost of schooling etc., going beyond personal student attributes. On the other hand 'pull' factors include home- and family-related issues such as family size, poverty, loans taken out by families, home- and care-related responsibilities, etc. In fact there is evidence to show that the process of disengagement may begin even before a child enters formal school at the pre-school level (Hammond et al. 2007; Heckmann 2011). Stearns and Glennie (2006) suggest that amongst a wide variety of factors, the ethnicity and gender of students may affect these push and pull factors. Suryadarma et al. (2006) found consumption expenditure, the father's education and the child's ability and gender to be key factors responsible for low enrolment in secondary schools. The World Bank (2009) pointed out that wealthier children were more than twice as likely to be enrolled in secondary education as poor children. Singh and Bangay (2014), using Young Lives data,¹ found that school choice was largely enabled by wealth and social status, with children from the least-poor wealth quartile five times more likely to be enrolled in private schools at elementary level and ten times more at secondary level. The authors found that the least-poor households sending children to private schools spent 1.7 times more than the poorest households at primary level and twice as much as them at secondary level on fees and tuition after school, thereby highlighting the fee-burden that schooling imposes on poor households.

Besides enrolment, two major concerns at secondary level remain retention and successful completion of Grade 10. In India, a large number of children who join Grade 1 do not successfully complete secondary education and drop out along the way. Reddy and Sinha's (2010) analysis revealed that only 37 per cent of the children who enrolled in Grade 1 in 1993 reached Grade 10 and in half the states less than 30 per cent transitioned to Grade 10. Siddhu (2011), focusing on the transition of students in rural Uttar Pradesh to secondary education, highlighted that household characteristics such as socio-economic status, the educational attainment of parents and the number of children in the family, can affect decisions about schooling. Besides this, gender and the cost of schooling were also significantly related to the transition to secondary education. This was reiterated by Basumatry (2012), who analysed school drop-out rates across Indian states and Union Territories in 2009/10, and also found that state poverty level also had a statistically significant impact on drop-out rates, particularly in rural populations.

Chugh's (2011) analysis of a group of marginalised children living in slums of Delhi revealed that that adolescent drop-out was not merely due to poverty and financial constraints but also occurred because schools did not respond appropriately to the needs of the adolescents, forcing them to drop out. Mukhopadhyay and Sahoo (2012) looked at the effect of the distance of schools from students' homes and found that a 1-kilometre decrease in the distance to the nearest secondary school increased the proportion of children in a household who were enrolled in primary school by 6.5 percentage points. Multi-level regression analysis showed that more than 25 per cent of the variance in secondary school attendance by Grade 8 graduates could be explained by secondary school availability, after controlling for individual and household factors (World Bank 2009). ERU Consultants Pvt Ltd (2014) furthered this by arguing that when dealing with girls' travel to school, particularly from

¹ Section 2 gives more information on Young Lives.

marginalised and excluded communities, it is critical to consider the strong cultural and traditional constraints on girls' mobility and the perceived threat to their safety and security.

This paper attempts to gather research evidence from Young Lives longitudinal data, and analyse how various individual, household and school factors determine secondary school completion. We follow the premise that no one factor alone can influence secondary school progression and that a multitude of factors influence students' successful completion of secondary education, including household, individual and school-related factors. While, on the one hand, schools' capacity to ensure access and provide adequate teaching is vital for students to progress through secondary education, on the other, students' own attributes, such as nutritional status, self-efficacy and acquisition of read skills in the early primary grades, are important factors in secondary school completion. Last but not the least, home-related factors, such as wealth, parental education, the child's place in the birth order, etc., may have an important influence on children's progress through secondary school. It is important to note that while some researchers have highlighted the criticality of certain areas such as school processes, they have also pointed out that the greatest methodological challenge is 'disentangling the effects' of individual and school factors (Rumberger 2004: 140).

The specific objective of this research paper is to explore the determinants of successful completion of secondary education by considering socio-demographic, household, individual and school factors.

The paper is organised as follows. Section 2 presents the data. Section 3 describes the methodology used. Section 4 provides the empirical results, and Section 5 offers a conclusion, which contains policy recommendations.

2. Data

This paper draws upon both quantitative and qualitative panel data from Young Lives, a longitudinal research study on childhood poverty following 3,000 children in former Andhra Pradesh (now bifurcated into Telangana and Andhra Pradesh), India.² New Andhra Pradesh is the eighth-largest state in India, with a total population of 49.3 million inhabitants, while Telangana (the newly formed 29th state of India) has a total population of 35.2 million (Census India 2011). Two cohorts of children, aged 8 years old and 1 year old in 2002, have been followed since 2002 in four districts of Andhra Pradesh and three districts of Telangana, and four rounds of data were collected at child, household and community level in 2002, 2005, 2009 and 2013. For the present study, we have used longitudinal survey data related to the 952 Young Lives Older Cohort children, born in 1994–5. The rationale for choosing the Older Cohort is that these children were 15 years of age in Round 3 (2009), and turned 19 in 2013 (Round 4) and during this period many of them have progressed through secondary education. The qualitative research, conducted in 2007, 2008, 2010 and 2014 in four communities with a nested sample of 50 children, their caregivers (mostly mothers, but occasionally both parents), and other key figures in the community, complements the quantitative data. The quantitative panel data provide household- and child-level data related to educational history and literacy, as well as the children's own views about their well-being, which we examine through psychological constructs such as self-efficacy. Basic socio-

² For detailed information on Young Lives sampling, see Kumra (2008).

demographic information, like gender, caste, place of residence, place in the birth order and parental education, were obtained from Round 1 data (gathered in 2002 when the children were around 8 years old). The information on the household's economic prosperity, for which the wealth index³ is a proxy, and the time spent by children on domestic chores and paid work are drawn from Round 2 data (gathered in 2006 when children were approximately 12 years old). We also draw upon the results of the Young Lives tests in reading and writing at the age of 8. This is because early reading and writing skills are known to be critical for success in education, and the early years up to the age of 8 are thought to be the most important for literacy development (NAEYC/ IRY 1998). The children were given a literacy card to test whether they could read letters, words and sentences, as well as a writing task, in which they were asked to write a sentence that was read aloud to them. We have also taken into account children's early nutritional status, based on whether they were stunted in Round 1, and included enrolment in pre-school (both public and private) to examine the relationship between early childhood education and retention in and completion of secondary education. There is sufficient evidence from neuroscience that brain growth is more rapid in early childhood than at any other time in a person's life (Edie and Schmid 2007; Gilmore et al. 2007).

In the Round 4 survey, conducted in 2013, the Older Cohort children were around 19 years old, and among the 952 children in the sample, 48.8 per cent were still continuing their education – both vocational studies and higher education. It is important to note at the outset that the majority of the Young Lives children live in poor households and the sample is pro-poor; therefore the results cannot be extrapolated to children from middle class and richer categories.

2.1 Dependent variable

Since our dependent variable is the completion of secondary education, i.e. Grade 10, the sampled children could fall into either of two groups: (1) children who left school before completing secondary education or (2) children who progressed through secondary education and completed it successfully. We therefore utilise a binary dependent variable 'completion of secondary education', categorised into 'yes' and 'no'. We used Round 4 data to obtain information on whether children had completed secondary education, based on answers to a question that was put to Older Cohort children in 2013, namely 'What is the highest qualification /certificate you have attained?' Thus only those children who responded that they had completed Grade 10 (coded '1') were considered to have 'successfully progressed through secondary education' (N = 680, 71.4 per cent), while those who gave 'Grade 9 or below' (N=272, 28.6 per cent) as the highest grade completed (coded '0') were considered to have 'dropped out before completing secondary education'.

2.2 Independent variables

Our selection of independent variables is based on the extensive research literature pertaining to secondary education. We have examined the completion of secondary schooling through four sets of independent variables which have been observed to influence children's completion of secondary education, i.e. socio-demographic factors, household

3 The wealth index is a composite index that reflects the welfare of household members in terms of the quality of the dwelling (for example, the materials of the walls, roof etc), use of durable goods (whether the household owns a radio, TV, bicycle etc.), and access to basic services (whether the household has drinking water, electricity, etc.).

factors, pre-school attendance and individual characteristics. Each set of these four sets of variables comprises variables related to the characteristics of the set. The effects of these four sets of independent variables on the dependent variable have been studied individually in bivariate cross-tabulation analysis and the effects are explored collectively in the multivariate analysis. The detailed variable description is given in the Appendix (Table A1).

2.2.1. *Socio-demographic characteristics*

The research literature gives evidence regarding the influence of certain socio-demographic factors on educational outcomes (Hammond et al. 2007). Siddhu (2011) posited that certain household characteristics could affect schooling decisions, such as socio-economic status, the educational attainment of parents and the number of children in the family. He also highlighted that being a girl often put a child at a disadvantage. We have used four socio-demographic variables which are believed to have profound effects on educational outcomes, particularly within the Indian context. These four variables are gender, caste, urban/rural place of residence, and place in the birth order.

2.2.2. *Household characteristics*

Since household conditions such as poverty have been posited to play a central role in hampering children's educational opportunities (Sabates et al. 2013) and parental education has been found to have varying effects on secondary schooling (Traag and van der Velden, 2011), we include variables such as father's education, mother's education and wealth index (as a proxy of household's economic prosperity) in our analysis.

2.2.3. *Pre-schooling*

The influence of the quality of the schools attended by a child prior to entering secondary school has widely been discussed in research literature. There is much research indicating that intensive, high-quality ECC has direct and persistent effects on the cognitive, social and emotional development of children and their success in school (Heckman and Masterov 2007; Engle et al. 2011). Jimerson et al. (2000) highlight that early experiences may affect a child's self-esteem and sense of agency, which may directly influence school performance and therefore the decision to stay in school. We therefore draw upon attendance at pre-school as an important variable.

In the Indian context, children in the age group 3–6 years either attend pre-schools which are within the public domain, i.e. ICDS – Anganwadi Centres (which do not charge any fees), or private pre-schools, which are privately managed and charge a fee. Most private primary schools provide two years of pre-primary classes before a child enters Grade 1. Government pre-schools, i.e. Anganwadi Centres, however, are stand-alone centres managed by the Department of Women and Child Development and cater to children in the age group 3–6 years, though most 5-year-olds in Andhra Pradesh enter Grade 1 in a primary school.

2.2.4. *Individual (child) characteristics*

We have utilised six variables in this category.

(1) *Nutritional status* at the age of 8, as measured by stunting. This was included because it is a well-established fact that many children in India remain undernourished, and a lack of good health facilities results in frequent illness and gaps in schooling, which may result in drop-out (Venkatnarayan 2004). Stunting among children is defined by low height-for-age, i.e. minus 2

standard deviations from the reference category. Stunting is a good indicator of chronic malnourishment and is associated with household poverty and a prevalence of illness.

(2) *Self-efficacy at the age of 8*. This is a composite index based on five variables (see Table A3 in the Appendix) and also used by Dercon and Singh (2012). Bandura (1997) highlighted that beliefs emanating from self-efficacy are not concerned with exercising control over action, but with self-regulation regarding the thought process, motivation and affective and physiological states (p. 36). In short, self-efficacy includes the cognitive, social, behavioural and emotional domains. Being a self-directed process, self-efficacy is known to enable students to proactively engage in their own development and become authors of their academic present and future (Usher and Pajares 2008: 443).

(3 and 4) *Reading and writing ability at the age of 8*. Research evidence exists to show that early foundational skills in reading and writing are very important for later learning (for example, Abadzi 2006) and that early literacy in the primary grades plays an important role in and has lasting long-term effects on the academic development of a child (Antilla 2013). Young Lives did not collect data related to the quality of the primary schools that the Older Cohort children attended; however since Young Lives conducted literacy tests in language and receptive vocabulary in each round, we have drawn upon skills such as reading and writing scores of children at the age of 8 for the analysis.

(5) *Time spent on domestic chores at the age of 12 and*

(6) *Child participation in paid work at the age of 12*. A common family practice in developing countries is the selective education of children – some go to school, while others stay at home to help with household duties or go out to earn money. It is crucial to take into account how decisions about children's schooling are affected by family circumstances and work obligations. Krutikova (2009), using Young Lives survey data from Round 2, documented that child work often increased in response to income shocks, was very sensitive to household gender and age composition, and that in urban areas it also varied according to the bargaining power of women. We add the two variables related to domestic chores and paid work since several researchers (Ravallion and Wodon 2000; Rosati and Rossi 2003) have emphasised the negative effect of children's participation in work on their achievement and school performance.

3. Methods

To fulfil the objectives in this current research, i.e. to identify factors predicting the probability of secondary education being completed successfully, a binary logistic regression model has been used, with the dependent variable being 'whether successfully progressed through secondary education'. All variables presented in the above section have been tested.

Furthermore, before carrying out the multivariate regression, we used a linear probability model (LPM) with the same dependent and independent variables to examine the relationships between them at primary level (see Table A4 in the Appendix). We have also given two separate binary logistic regression analyses for urban and rural areas (Table A5).

Similar to Markussen et al. (2011), our multivariate analysis is sequentially organised in order to examine if children's own characteristics, including their literacy in the early grades of primary school, as measured by reading and writing skills, mediate the effects of their socio-demographic and household backgrounds on their progression through secondary education.

The multivariate analysis used in this paper consists of four models predicting the factors which have a significant impact on the dependent variable. In the Model 1, only the socio-demographic characteristics of children have been included in the analysis, to examine the effects of these variables on the dependent variable and thus we have called the first model the Socio-demographic Model. In Model 2, variables related to household characteristics have been included, and in Model 3, variables concerning pre-school attendance have been added to the regression. Model 4 is the final model, in which seven variables related to individual characteristics have been taken into the equation. All other variables used in Models 1–3 have also been added to the final model.

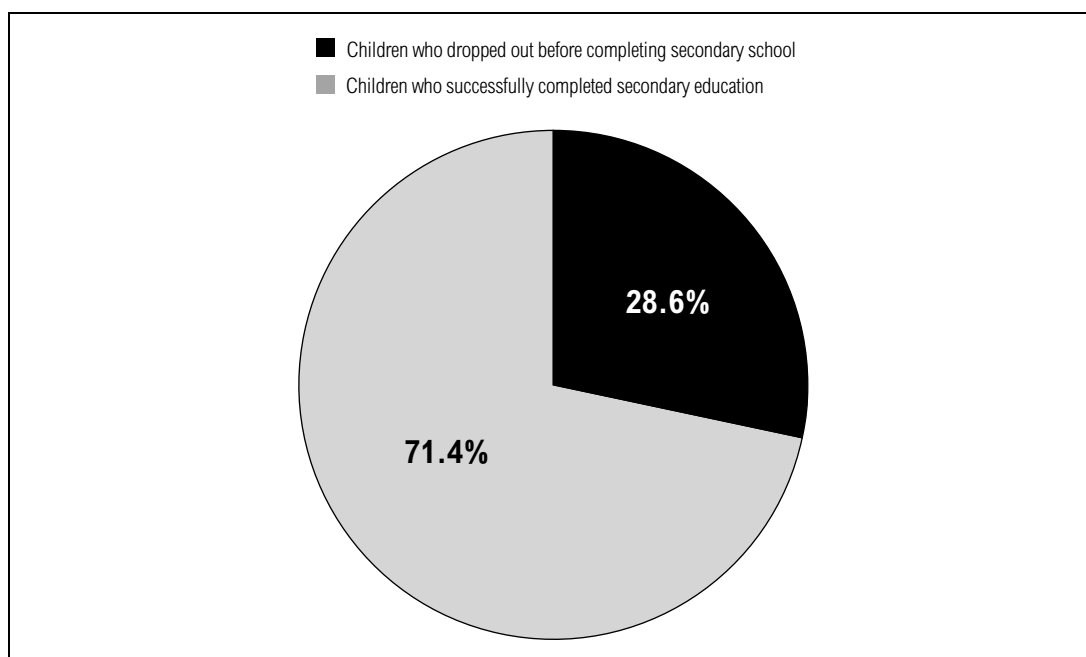
This paper also presents case studies of Older Cohort children drawn from the first, second, third and fourth rounds of the qualitative survey, conducted in 2007, 2008, 2010 and 2014 when the Older Cohort were approximately 13, 14, 16 and 20 years old respectively. The case studies offer deeper insights into the quantitative findings. Group interviews held with community members in 2008 also inform the paper.

4. Empirical results

4.1. Univariate analysis

As mentioned earlier, 28.6 per cent of the Older Cohort children (N = 272) had discontinued their schooling before completing Grade 10 (or had not passed the end-of-year exam), while 71.4 per cent (N = 680) progressed successfully through secondary education (see Figure 1). The characteristics of the 71.4 per cent who progressed successfully through their secondary education are given in the Appendix (Table A2).

Figure 1. *Percentage of sampled children who completed secondary education*



Source: Young Lives Older Cohort data (Round 4, 2013).

4.2. Bivariate analysis

A bivariate analysis is carried out to study the association between the dependent and independent variables. The significance of the associations have been calculated by chi-square tests.

4.2.1. Socio-demographic characteristics

Table 1 represents the bivariate analysis of the relationship between socio-demographic variables and successful completion of secondary education. As mentioned earlier it is very encouraging to note that three-quarters of the Young Lives Older Cohort completed lower secondary education successfully. The gender of the child has been found to be significantly associated with the completion of secondary education, with a significantly higher number of boys finishing secondary school. Only 66 per cent of girls were found to have successfully completed secondary education as against 77 per cent of boys. Children from the Scheduled Castes and Scheduled Tribes are found to be less likely to complete secondary-level education, i.e. 66 and 69 per cent respectively, as against 80 per cent of Other Caste children.⁴ The urban–rural divide in India is evident from the analysis, with 13 per cent more urban children (81 per cent) successfully completing secondary education than the rural children (68 per cent). The relationship between birth order in a family and a child’s progression is interesting, with nearly 79 per cent of first-born children completing secondary education as against 63 per cent of children who are fourth or lower in the birth order.

Table 1. *Completion of secondary education by socio-demographic characteristic*

Socio-demographic characteristic	Dropped out before completing secondary ^a	Successfully progressed through secondary	N.
Gender ***			
Male	23.2	76.8	466
Female	33.7	66.3	486
Caste ***			
Scheduled Caste	33.8	66.2	204
Scheduled Tribe	31.1	68.9	106
Backward Class	29.6	70.4	439
Other Castes	19.7	80.3	203
Place of residence***			
Urban	18.7	81.3	225
Rural	31.6	68.4	727
Birth order***			
First-born	21.4	78.6	266
Second-born	25.9	74.1	313
Third-born	34.5	65.5	194
Fourth or later	37.4	62.6	179
Total sample	28.6	71.4	952

a Includes children who did not pass Grade 10.
Note: Chi-square test of association: *** p<0.01, ** p<0.05, * p<0.1.
Data source: Older Cohort, R1 (2002) and R4 (2013).

4 Caste in India is divided into four official categories. Scheduled Tribes, Scheduled Castes and Backward Classes are recognised in the Constitution of India as historically disadvantaged, while Other Castes are the more privileged and socially and educationally advantaged caste.

4.2.2. Household characteristics

Table 2 shows the bivariate analysis of the relationship between household characteristics and a child's successful completion of secondary education. Findings reveal that large household size is negatively and significantly associated with the successful completion of secondary education. The bigger the household, the lower the percentage of children completing secondary education. Eighty-three per cent of children from households with up to five members are found to have successfully progressed through secondary education whereas only 58 per cent of children from households with more than seven members were able to complete their secondary-level studies. Earlier research suggests that higher levels of parental education are positively linked with children's academic achievement. The bivariate analysis considered both fathers' and mothers' education as important household variables for examining a child's progression through secondary schooling. We find that both fathers' and mothers' education is significantly and positively associated with children's successful completion of secondary-level education. The higher the parent's level of education, the higher the percentage of children completing secondary education. While 65 per cent of children whose mothers had no formal schooling successfully progressed through secondary education, almost 95 per cent of children whose mothers had had secondary education or above completed secondary schooling. As expected, children from the highest wealth tercile had significantly higher completion rates of secondary schooling when compared to children from the bottom tercile.

Table 2. *Completion of secondary education by household characteristic*

Household characteristic	Dropped-out before completing secondary ^a	Successfully progressed through secondary	N.
Household size***			
Up to 5 members	16.9	83.1	391
6 to 7 members	30.0	70.0	260
More than 7 members	42.5	57.5	301
Father's education***			
None/ no formal schooling	36.8	63.2	467
Grade 1–5	33.0	67.0	109
Grade 6–8	24.2	75.8	95
Secondary & above	8.4	91.6	202
Mother's education***			
None/ no formal schooling	35.3	64.7	648
Grade 1–5	16.0	84.0	100
Grade 6–8	13.3	86.8	83
Secondary & above	5.1	94.9	98
Wealth index tercile (R2)***			
Bottom	39.6	60.4	322
Middle	31.9	68.1	317
Top	14.2	85.8	313
Total sample	28.6	71.4	952

a Includes children who did not pass Grade 10.

Note: Chi-square test of association: *** p<0.01, ** p<0.05, * p<0.1.

Data source: Older Cohort, R1 (2002), R2 (2006), R3 (2009) and R4 (2013).

Qualitative interviews conducted with children and their parents also reflect the above trend. Children's family circumstances influence whether they are able to continue in education, as is seen in the case studies drawn from the qualitative survey.

Latha is a rural Backward Caste girl child living in Katur, a rural poor mandal in Rayalseema region.⁵ Her family belongs to the bottom wealth tercile. Her parents are agricultural labourers and she has two elder brothers. Latha dropped out of school just before Grade 7 and continued to help with domestic chores as well as doing paid casual work harvesting peanuts, weeding, etc. Latha explains that she left school because Grade 7 was not available in her village and she would have had to walk a very long distance to the nearest school where Grade 7 was available. She wishes her parents had allowed her to continue at school. Latha's mother explains that she would have liked Latha to study up to Grade 10, but her elder son ran away with a girl without their blessings, therefore "We did not send the girl [to school] fearing that she too may do something similar ... by having friendship with different people."

Latha's case study exemplifies how incidents within families, such as a brother running away with a girl, can lead the parents to decide to make a child discontinue her schooling, because they fear she might bring shame to the family.

4.2.3. *Pre-schooling*

Type of pre-school is another independent variable, and the educational history of the Young Lives Older Cohort in Andhra Pradesh reveals that 40 per cent did not attend any pre-school, 41 per cent went to a public pre-school and 19 per cent attended private pre-schools. Results show that pre-school type is significantly associated with successful completion of secondary education and more children who attended private pre-schools are found to have completed secondary education (see Table 3).

The advantage of pre-school attendance was captured in a group interview with primary school teachers in 2008. The teachers said that pre-school education was important because

"[t]he children who study step by step [i.e. attend pre-school before joining primary school] have good knowledge, rather than those who are directly admitted [to primary school]. These children [who have not attended pre-school] generally lag behind a bit and are not habituated to sit in class."

Another group of teachers said that "children who attended pre-school have better adjustment qualities to [the] new [school] environment than the [ones who have] never attended".

In Round 1 we find that 18.9 per cent of the Older Cohort were enrolled in private pre-schools, and 41.0 per cent in ICDS / public pre-schools, while 40.1 per cent of the children did not attend pre-school.

⁵ All names of children and research sites are pseudonyms, in order to preserve respondents' anonymity.

Table 3. *Completion of secondary education by pre-school attendance*

Pre-school attendance	Dropped out before completing secondary ^a	Successfully progressed through secondary	N.
Did you attend any pre-school?***			
No pre-school	35.1	64.9	382
Public pre-school	31.3	68.7	390
Private pre-school	8.9	91.1	180
Total sample	28.6	71.4	952

a Includes children who did not pass Grade 10.
Note: Chi-square test of association: *** p<0.01, ** p<0.05, * p<0.1.
Data source: Older Cohort, R2 (2006), R3 (2009) and R4 (2013).

Further analysis of secondary school completion by pre-school type, reveals that while 91 per cent of children who were enrolled in private pre-schools have completed secondary education, only 69 per cent of children who attended public pre-school completed it. Amongst the children who did not attend any pre-school, around 65 per cent were able to complete secondary education. This finding implies that mere attendance of pre-school does not emerge as a significant determinant of the completion of secondary education. Rather, there is a need to consider the type of pre-school attended by children, since the progression rate is substantially higher among children who attended private pre-schools than among those who attended public pre-school.

This was echoed in the community focus group discussion conducted in 2007. Community members revealed that that most Anganwadi Centres “did not take proper care for the children and had no proper play material nor proper infrastructure.” Woodhead et al. (2009) also stated that disenchantment with services offered by Anganwadi Centres is confirmed by caregivers reporting low quality.

4.2.4. *Individual characteristics*

With regard to individual characteristics, we have examined variables regarding children’s nutritional status, self–efficacy, literacy skills at the age of 8 and engagement in paid work and domestic chores at the age of 12. Table 4 shows that there is significant association between children’s stunting status and their successful completion of secondary education. The bivariate analysis reveals that self-efficacy does not show any significant association with successful progression through secondary education.

For examining variables related to the effect of literacy in the early primary grades on later completion of secondary education, we have taken two measures as proxies of this literacy: reading and writing ability at the age of 8. The children were asked words and sentences and also given a written task. Bivariate results show that both these measures of literacy in the early primary grades are significantly and positively related with successful completion of secondary schooling. Nearly 80 per cent of the children who were able to read words and sentences successfully at the age of 8 completed secondary education, compared to 57 per cent of the children who were unable to read. This is same with early writing skills. Around 83 per cent of the children who were able to write without difficulties or errors at the age of 8 completed secondary education, compared to 46 per cent of children who were unable to write or wrote with difficulties or errors. This confirms what Heckman (2000) had postulated ‘Early learning begets later learning and early success breeds later success’ (p. 5).

Table 4. *Completion of secondary education by individual characteristics*

Individual characteristic	Dropped out before completing secondary ^a	Successfully progressed through secondary	N.
Nutritional status (R1)**			
Not stunted	26.5	73.5	619
Stunted	32.8	67.2	324
Self-efficacy index (R2)			
Up to 3 positives	29.7	70.3	751
4 or more positives	24.4	75.6	201
Reading ability (R1) ***			
Unable to read words and sentences	42.6	57.4	336
Able to read words and sentences	20.9	79.1	616
Writing ability (R1)***			
Unable to write without errors	54.4	45.6	296
Can write without errors	16.9	83.1	656
Hours spent on domestic chores (R2)***			
0 hours	19.4	80.6	299
1 hour	25.1	74.9	398
2 hours	39.0	61.0	195
3 hours and more	65.5	34.5	58
Paid work in last 12 months (R2)***			
No	22.7	77.3	758
Yes	51.6	48.5	194
Total sample	28.6	71.4	952

a Includes children who did not pass Grade 10.
Note: Chi-square test of association: *** p<0.01, ** p<0.05, * p<0.1.
Data source: Older Cohort, R1 (2002), R2 (2006) and R4 (2013).

Since data on children's time use has been collected in all rounds of the survey, we examine children's work at the age of 12 years and its effect on the completion of secondary schooling. We find that time spent on domestic chores and participation in paid work in the last year before the survey are both significantly associated with the completion of secondary education. Only 35 per cent of children who undertook household chores for three hours or more progressed through secondary schooling as against 81 per cent of children who did not do any household chores. This finding is extremely informative since it proves that long hours spent on domestic work have a negative association with the completion of secondary education. Similarly, engagement in paid work was found to have an adverse effect on the completion of Grade 10, as results exhibit that only 49 of per cent children who participated in paid work completed secondary schooling as compared to 77 per cent of children who did not do any paid work. Findings from Latin America also show that a working child reduced his or her educational attainment by about two years of schooling relative to the control group of non-working children (Psacharopoulos 1997).

Qualitative interviews conducted by Young Lives in 2011 with a sample of children involved in agricultural work highlighted the fact that many of them had to start working on their families' farms at an early age, with girls pulled out of school as they reached puberty or due to financial constraints.

Devi Sri, a Backward Caste girl, started to combine work and schooling in Grade 7. She has an elder brother and sister who are married and a younger brother. Devi Sri got married after

completing Grade 9, and left school soon after that. She said that most of her classmates had also got married, barring the very few who completed Grade 10. She informed the interviewer that her first job was flower harvesting and that she began by only working over weekends and during holidays. Later she began to work in paddy harvesting and washing clothes (the latter is the family's main occupation). She told us that her father believed that the children should not do 'hard work', but her mother felt "that we were poor and used to send us [Devi Sri and her sister] for work to make as much money as we could, even though it was difficult".

Sanjana, a Backward Caste girl, was 17 years old in 2011. Her father grazed sheep and her mother and younger sister worked as agricultural labourers. Sanjana had left school in Grade 7 for a span of two years, but later re-joined, thanks to the encouragement of her grandmother. She said that she had been made to do paid work and sheep grazing since she was 7 years old, and often had to miss school and borrow notes from other children. She used to give the excuse of 'getting fever' to her teacher for missing school and was always scared of getting hit for giving the same excuse repeatedly.

It is clear that attending school without working is a luxury that very few children from the poorest households enjoy and a large number of children have no choice but to take up full-time paid work and leave school, while others who are more fortunate may combine school and work to support their families.

4.3. Multivariate analysis

The previous bivariate analysis of the relationship between our dependent variable representing completion of secondary-level education and various background factors did not allow any possibility of controlling for confounding factors. Therefore, we carry out a binary logistic regression analysis to find the most important factors predicting progression through secondary education.

Table 5 presents the odds ratio for the likelihood of transition through secondary education compared to non-completion of secondary education.⁶

6 In this paper, odds ratio has been used from the binary logistic regression model where coefficients in logistic regression are given in terms of the log odds. Since all the predictors are categorical variables, we have used odds ratio in examining the likelihood of progression through secondary education of a category in comparison to the 'reference' category of the predictor variable. The following three outcomes can be possible from odds ratio.

- OR=1 no difference from reference category
- OR>1 more likely to complete secondary education than reference category
- OR<1 less likely to complete secondary education than reference category

Table 5. Odds ratio for the likelihood of transition through secondary education
(N. = 857)

Background variable	Model 1 Socio-demographic		Model 2 Household		Model 3 Pre-school		Model 4 Individual	
	Odds ratio	z-value	Odds ratio	z-value	Odds ratio	z-value	Odds ratio	z-value
Gender								
Male ^(Ref)								
Female	0.574***	-3.72	0.518***	-3.99	0.507***	-4.07	0.554***	-3.01
Caste								
Scheduled Caste	0.564**	-2.39	1.117	0.39	1.192	0.62	1.186	0.55
Scheduled Tribe	0.708	-1.2	1.063	0.18	1.112	0.31	0.976	-0.06
Backward Class	0.664*	-1.93	1.061	0.24	1.132	0.50	1.213	0.72
Other Castes ^(Ref)								
Place of residence								
Urban ^(Ref)								
Rural	0.565***	-2.89						
Birth order								
First-born ^(Ref)								
Second-born	0.770	-1.3	0.784	-1.08	0.789	-1.05	0.866	-0.59
Third-born	0.519***	-3.02	0.560**	-2.40	0.581**	-2.23	0.645	-1.66
Fourth or later	0.476***	-3.38	0.573**	-2.25	0.578**	-2.21	0.738	-1.13
Father's education								
None/ no formal schooling ^(Ref)								
Grade 1–5			0.891	-0.47	0.916	-0.36	0.725	-1.21
Grade 6–8			1.258	0.78	1.255	0.77	1.000	0.00
Secondary & above			2.790***	3.04	2.750***	3.00	2.101**	2.07
Mother's education								
None/ no formal schooling ^(Ref)								
Grade 1–5			1.860*	1.94	1.787*	1.81	1.606	1.39
Grade 6–8			1.771	1.52	1.656	1.33	1.734	1.39
Secondary & above			3.586**	2.18	2.975*	1.84	2.555	1.52
Wealth index tercile (R2)								
Bottom ^(Ref)								
Middle			1.101	0.50	1.091	0.46	0.928	-0.35
Top			1.794**	2.36	1.562*	1.73	1.123	0.42
Type of pre-school								
No pre-school ^(Ref)								
Public pre-school					1.280	1.43	1.160	0.78
Private pre-school					2.216**	2.37	1.446	1.01
Nutritional status (R1)								
Not-stunted ^(Ref)								
Stunted							0.955	-0.25
Self-efficacy index (R2)								
Up to 3 positives ^(Ref)								
4 or more positives							1.646**	2.18
Reading ability (R1)								
Unable to read words and sentences ^(Ref)								
Able to read words & sentences							1.677***	2.79
Writing ability (R1)								
Unable to write without errors ^(Ref)								
Can write without errors							3.333***	6.21
Hours spent on domestic chores (R2)								
None ^(Ref)								
1 hour							1.021	0.09
2 hours							0.802	-0.82
3 hours or more							0.304***	-3.03
Paid work in last 12 months								
No ^(Ref)								
Yes							0.458***	-3.41
-2 log likelihood	-544.1069		-452.46847		-449.08064		-395.573	

Notes: ^(Ref) = Reference category

Significance levels: *** p<0.01, **p<0.05, *p<0.1.

Dependent variable: Completion of secondary education ('0' No, '1' Yes).

The first three models are specific to the variables and the last model (Model 4) is an inclusive one, which includes all the variables used in the previous models as well as variables related to individual characteristics.

Our Model 1 consists of four socio-demographic independent variables. Gender emerges as a factor significantly associated with completion of secondary education, with bias towards boys. Results reveals that girls are 43 per cent less likely to progress through secondary education than boys. The qualitative research highlights many reasons for girls discontinuing their education after primary level, including distance to school and safety issues, particularly after they attain puberty.

A primary school teacher interviewed in 2007, from Latha's village (mentioned earlier), shared that "in this village we have [school] up to 7th class – after that children will go to the high school for 8th class ... because of the long distance of 5 kilometres, girls are dropping out of the school." The teacher cites the example of Latha who attended their school and says that "Latha studied up to 7th class and secured third rank in public examinations. For [enrolling in] 8th class she had to go another village ... for this reason her parents discontinued her studies." The sarpanch (leader) in the village also emphasised the challenges posed by distance to school during an interview in 2007:

"Because of the long distance to the school, children get tired walking to school. So they are dropping [out] ... from the school. In [the] case of girls, at the time of puberty, parents feel [that] walking such a distance is not safe."

Another village sarpanch, interviewed in 2008, said that poor families believed that both girls and boys needed only basic education. He also repeated that families were keen to send girls to school until they attained puberty or up to Grade 5. After that they were likely to say to the girl: "You will be helpful to me in [house]work.... Close the door and cook the food by the time I come [back from work]." Regarding boys, the sarpanch said that many families were of the opinion that after 7th grade the son could provide a helping hand to the family. Some would think "I have oxen, who will look after them? It's enough that [the boy] can read and write."

Caste is still seen to play a significant role in the completion of secondary education in India, as is obvious from this model. Children from both Scheduled Castes and Backward Classes are found to be 44 and 34 per cent respectively less likely to progress through secondary education than children who belong to Other Caste groups. Place of residence (urban or rural) is known to have an impact on education in India in terms of the quality of the infrastructure and the learning environment in schools. We also find that rural children are 43 per cent less likely to complete their secondary education than are children who live in urban areas. The child's place in the birth order was also found to be significantly related to his/her completion of secondary education. The higher the child's place in the birth order, the greater the likelihood of him/her progressing through secondary education. Results show that children who were born fourth or later in the birth order are 52 per cent less likely to complete secondary-level education than the first-born child.

Bhavana is a Backward Caste girl living in Katur. Her father died in 2004 and she has three elder brothers. She lives with her mother, brothers and sisters-in-law and has to do all the housework as well as working in the fields. Bhavana is the only sibling who attended school. She left in Grade 2 because she used to accompany her family for seasonal migration to Mumbai to do construction work. She wakes up early in the morning and goes to work in the fields. On returning home in the afternoon she does all the household work. She complains

that “[When] I was going to school ... [I was only] sweeping the house premises ... now I have to do all [the] work... the situation is not [the] same now ... it was good when I was going to school.”

In Model 2, we have not included place of residence. Separate regression models for urban and rural undivided Andhra Pradesh (Table A5 in the Appendix) reveal that the predictors of successful progression through secondary education differ between urban and rural settings. In urban areas, the most significant factors determining successful secondary school completion are mother’s educational level (secondary and above), high scores in literacy at the age of 8, place in the birth order, not being stunted and not spending more than two hours a day on domestic chores, whereas gender does not emerge as a significant factor. On the other hand, in rural areas, the most important determinant was gender, with female children 49 per cent less likely to complete secondary education than their male counterparts. The other significant factors were spending less than three hours a day on domestic chores as well as not participating in paid work, father’s educational level (secondary and above), mother’s educational level (upper primary and above), high self-efficacy and literacy at the age of 8.

In Model 2, we have added factors related to household characteristics to examine the net effects of these variables after controlling for socio-demographic variables. Interestingly, after controlling for household variables, there are significant changes in the net effects of socio-demographic variables. In Model 2, girls are found to be 48 per cent less likely to complete secondary education in comparison to boys (it was 43 per cent in Model 1). There are no significant associations found between Caste and completion of secondary education from Model 2 onwards. Place in the birth order is still found to be negatively significantly related to completion of secondary education. Among household variables, parental education (for both father and mother) and wealth index have emerged as significant predictors of progression. Findings reveal that the likelihood of children completing Grade 10 significantly increases with increasing parental education. Children whose mother and fathers have education equivalent to secondary level or above are found to be 2.8 and 3.6 times more likely to progress through secondary education than children whose parents are non-literate. The wealth index has been utilised in this paper as a proxy of households’ economic prosperity. Our findings show that children who belong to top tercile of the wealth index are 1.8 times more likely to complete secondary education than children whose families are in the bottom tercile households.

In Model 3, we have added the pre-school-level variable to the equation to examine its effects on the dependent variable. The odds ratio reveals that children who attended private pre-schools are 2.2 times more likely to successfully complete secondary education than children who did not have pre-school experience. Interestingly, attending public pre-school does not yield any significant association with secondary school completion. We find that, after controlling for this newly added pre-school variable, the net effect of each variable related to socio-demographics and household characteristics has marginally changed, although the direction of impact remains the same.

Model 4 examines the impact of six individual characteristics of children on the dependent variable after controlling for all the variables used in the previous models. After including these variables in Model 4, we find that girls are 45 per cent less likely to complete secondary education than boys. In the final model, as mentioned earlier, caste has not emerged as a significant predictor of progression. Though the relationship between children’s place in the birth order and successful completion of secondary schooling remains same in the final model, the relationship does not appear statistically significant. Interestingly, after

controlling for individual characteristics, the wealth index does not show any significant effect on the likelihood of progression through secondary education. Though prevalence of stunting amongst children shows a significant association with successful progression in the bivariate relationship, stunting does not emerge as a significant predictor of the completion of secondary schooling in the logit model. This requires further analysis, which is beyond the scope of this paper. Interestingly children with a higher self-efficacy index are found to be nearly 1.7 times more likely to successfully progress through secondary education than children with low self-efficacy.

This is qualified by evidence from some of the qualitative case studies. Keerthi, a Scheduled Tribe girl, despite belonging to the poorest wealth quartile, successfully completed her secondary education and went on to pursue higher education because she had a very high sense of self-belief. Keerthi has two brothers and her father works as a home guard while her mother works in a school as a helper. Despite their economic circumstances, the parents moved out of their village in order to ensure the best future for their children. In 2007 Keerthi had told us that she had felt scared of joining the hostel, but agreed to board there “for studies, so I will have good future”. She stayed in a private residential hostel from Grade 5 to Grade 10 and in the Grade 10 Board Exams scored 506/ 600. Keerthi was self-driven even as a young child, when she told us that she wanted to become a doctor and said, “I have to work hard because I know that it’s not easy to get a seat in medicine course.”

In the third round qualitative interview (when she was 16) she said that she had first joined a government residential junior college,⁷ i.e. for Grade 11, but within a month decided to move to a private junior college with financial support from the Integrated Tribal Development Agency (ITDA),⁸ which amounted to expenses of approximately Rs 45,000 per annum. Though she had wanted to take up medicine, she later decided to pursue engineering instead. In 2014 (the fourth qualitative round), Keerthi’s mother proudly said that her daughter had managed to get admission into one of the best engineering private colleges on her own merit, though many people questioned how “such [a] poor and lower-status girl [could] get the seat there. They questioned whether I could educate her in that college ... it is like putting a ladder to the sky.” Despite her socio-economic status, Keerthi managed to complete her BTech exam in the face of challenges such as the change from Telegu-medium to English-medium instruction in college. Keerthi has become the first girl from her village to achieve this level of education. It is commendable to hear Keerthi’s mother share how her daughter refused to accept slips from teachers during her Grade 10 exam. Keerthi is reported to have said “I will achieve everything on my own. I’ll study and score marks on my own hard work alone.” She wrote her exams on her own merit without taking help from the teachers. In 2014 Keerthi was planning to sit for a competitive exam to secure a government job. Her mother says with pride:

“I am now convinced that all is well with her and she will live up to our expectations. I am very much surprised at this, at the same time I am also happy. ... she is capable of realising our dreams. And she too has some commitment – she wants to get a good name for us.”

7 In Andhra Pradesh, upper secondary school is called junior college.

8 Integrated Tribal Development Projects (ITDPs) are ‘contiguous areas of the size of a Tehsil or Block or more, in which the Scheduled Tribe population is 50 per cent or more of the total’. Andhra Pradesh has opted for an agency model under the Registration of Societies Act and so the ITDPs in Andhra Pradesh are known as Integrated Tribal Development Agencies (ITDAs).

Despite being a girl and belonging to a poor family, she seems to have overcome all odds and proved herself, largely due to self-efficacy and drive.

The analysis also demonstrates that children with good literacy skills at the age of 8 were found to be 1.7 times more likely to progress through secondary education than children who had relatively poor reading skills at that age. Similarly, children who demonstrated the ability to write without any difficulty or error were 3.3 times more likely to succeed in progressing through secondary education than children who failed to do so.

We have also included hours spent on domestic chores at the age of 12 in Model 4 and we found that children who spent three or more hours on domestic chores were 70 per cent less likely to progress through secondary education than children who did not spend any time on these activities. A large number of the children spoke during the qualitative interviews about having to support their families not only with household chores but also by farming the fields.

In 2010, Harika recollected that in Grade 8, she used to do work in the fields as well as at home. Her father had been ill for two months and she had missed school since she had had to attend to the cotton crops. However after Grade 9, she only helped a little at home and declined working on the farm. Her mother had said in 2008 that Harika cried if asked to accompany them to work in the fields and that the school demanded a fine of Rs 5 for each day that a student remained absent. Therefore her parents decided that “instead of missing school, bear[ing] the teacher’s beating, clean[ing] the surroundings and pay[ing] the fine, it is better that they [children] go to the school regularly”.

Regarding paid work, the analysis clearly exhibits that children who participated in paid work at the age of 12 were 54 per cent less likely to complete secondary education than children who did not participate in any paid work.

5. Conclusion

This research study throws light on the significant determinants of successful completion of secondary education among a pro-poor sample of children in undivided Andhra Pradesh. Given the above evidence, we have seen that there are a multitude of factors which affect successful progression through secondary education.

As suspected, the analysis confirms that completion of secondary education is biased towards boys, with many more girls discontinuing their education for various reasons, including familial, societal and school-related issues such as distance of secondary schools from their homes in rural areas and the obligation to support the family by doing domestic chores or working to supplement household income. Model 4 reveals that girls are 45 per cent less likely to complete secondary education than boys, even after controlling for variables related to individual characteristics. The place in the birth order of children in poor households has also emerged as an explanatory factor of secondary school completion. First- and second-born children have a higher likelihood of completing secondary schooling than the fourth-born children. The analysis reveals that children born fourth or later in the birth order are 26 per cent less likely to complete Grade 10 than first-born children. Potential determinants can also be found at household level, like parental education, especially the father’s level of schooling, with children whose father had received secondary education or above 2.1 times more likely to complete secondary education than children whose fathers did not have any formal education. It is apparent that parental education is associated with

occupation type, aspirations and most importantly economic stability, which in turn help children to complete secondary schooling.

Another interesting finding related to the diverse determinants of successful completion of secondary education has emerged with regard to rural or urban place of residence. While the positive determinants for secondary school completion in urban areas are the mother's education and children's ability to read and write by the age of 8, in rural areas, along with parental education and early literacy, high self-efficacy and gender have also emerged as significant explanatory factors. We find that boys are nearly twice as likely to complete secondary schooling as girls. This kind of gender bias does not emerge in urban areas and this may well be because of our small sample size in urban areas.

As stated earlier, the current analysis has focused especially on the effect of early childhood education on the completion of secondary education. Pre-school attendance, as shown in the multivariate analysis, is a significant predictor of secondary education completion and therefore requires urgent attention from policymakers who are keen to universalise secondary education. Results show that children who attended private pre-schools are 2.2 times more likely to succeed in completing secondary schooling than those children who did not attend any pre-school. However, no significant association has been found between attendance of public pre-schools and secondary education completion. Given that a large number of children, particularly in India, are growing up in disadvantaged family contexts and are therefore 'at risk' in terms of developing to their full potential, early childhood education needs to be seen as a key intervention to compensate for the environmental deficits and for ensuring the provision of equitable support to all children for their all-round development. Its importance needs to be recognised because of its long-term benefits, and the recent move for the RTE, 2009, to be extended to pre-school should be seriously considered. The fact that attending private pre-schools is linked to a higher likelihood of completing secondary education as against public pre-schools requires careful interpretation. The private sector is extremely heterogeneous, but seems to be better than the public sector in giving children foundations for learning; the implication is that public pre-schools need to improve.

Furthermore the fact that timely literacy skills have emerged as a significant predictor of the successful completion of secondary schooling requires urgent policy attention. Children who were able to read words and sentences fluently by the time they were 8 years old are 1.7 times more likely to complete secondary schooling than those children who failed to do so. Similarly, children who showed better writing skill at that age have also been found to be 3.3 times more likely to progress than children who were not able to write without errors. Therefore, it is critical that the education system focuses on early grades and builds the capacity of teachers to develop and foster literacy skills. This is sadly absent from the pre-service and in-service curricula.

The research finding that children who spent three or more hours on domestic chores were 70 per cent less likely to attain a secondary school leaving certificate than children who did not spend any time in domestic work is significant and must be given attention. Similarly, children who participated in paid work at the age of 12 were 54 per cent less likely to complete secondary education than children who did not participate in any paid work is very revealing since the recent Child Labour Bill being proposed in Parliament is not taking work within the family as child labour for children below the age of 14 years. Given the available findings, it is important that number of hours children spend on domestic work is curtailed, so that their education is not affected negatively.

In a nutshell, this paper highlights that it is not one factor but a multitude of factors, such as literacy skills in the early primary grades, high self-efficacy and non-participation in paid work before the age of 12, that emerge as important determinants of the completion of secondary schooling despite family poverty. The fact that girls remain marginalised and are less likely to progress through secondary schooling, particularly in rural areas, is a reminder of the persisting patriarchy and gender discrimination that abounds in India, with a strong bias in favour of boys, who are seen as the ones who will take care of the parents, while the girl will move into another household upon marrying.

Though this paper has the limitation of not being able to include school-level quality indicators such as teaching–learning processes, we need to highlight that school success at secondary level would undoubtedly be impacted by school quality (Raudenbush 2004). However, early years education must be of good quality, to enable children to develop literacy skills such as reading and writing at the age of 8. It is also critical that we recognise that individual factors such as self-efficacy may affect achievement as well as children’s desire to continue or discontinue schooling, since they reflect their confidence to undertake academic tasks. In short, individual, household and socio-demographic factors, and those related to pre-school, will undoubtedly have a cumulative effect in supporting successful progression through secondary schooling.

It is clear that policymakers need to be encouraging educational institutions to ensure that children do not participate in paid work and domestic chores that extend beyond two hours a day, since these have a detrimental effect on the completion of secondary education. At the same time, girls must be given sufficient incentives, as well as transport facilities that are safe and convenient, to ensure that rural girls in particular are provided with adequate opportunities. Only then will RMSA be able to meet the triple challenge of addressing access, quality and equity and meet the goal of universal secondary education.

References

- Abadzi, H. (2006) *Efficient Learning for the Poor: Insights from the Frontier of Cognitive Neuroscience*, Washington, DC: World Bank.
- ASER (2013) *Annual Status of Education Report (Rural) 2013*, New Delhi: ASER Centre/Pratham Foundation
- Antilla, J.A. (2013) 'The Effects Of Early Literacy Development On Academic Success in the Educational Setting and Implications for Educational Leaders and Teachers', Master's thesis, Northern Michigan University.
- Bandura, A. (1997) *Self-efficacy: The Exercise of Control*, New York: Freeman and Co.
- Basumatry, R. (2012) 'School Dropout Across Indian States and UTs: An Econometric Study', *International Research Journal of Social Sciences* 1.4: 28–35.
- Bradley, C.L. and L.A. Renzulli (2013) 'The Complexity of Non-completion: Being Pushed or Pulled to Drop Out of High School', *Social Forces* 90.2: 521–45.
- Biswal, K. (2011) *Secondary Education in India: Development Policies, Programmes and Challenges*, CREATE Pathways to Access Research Monograph 63, Brighton: CREATE.
- CABE Committee (2005) *Universalization of Secondary Education*, Report of the Central Advisory Board of Education Committee, New Delhi: Ministry of Human Resource Development, Government of India.
- Census India (2013) *Census 2011*, New Delhi: Ministry of Home Affairs, Government of India, <http://censusindia.gov.in/> (accessed 3 Jan 2015).
- Chugh, S. (2011) *Dropout in Secondary Education: A Study of Children Living in Slums of Delhi*, NUEPA Occasional Paper 37, New Delhi: National University of Educational Planning and Administration.
- Dercon, S. and A. Singh (2012) 'From Nutrition to Aspirations and Self-Efficacy: Gender Bias over Time among Children in Four Countries', *World Development* 45: 31–50.
- Edie, D. and D. Schmid (2007) *Brain Development and Early Learning*, Policy Brief on Early Care and Education, Vol. 1, Madison, WI: Wisconsin Council on Children and Families.
- Engle, P.L., L.C.H. Fernald, H. Alderman, J. Behrman, C. O'Gara, A. Yousafzai, M. Cabral de Mello, M. Hidrobo, N. Ulkuer, I. Ertem, S. Iltus and the Global Development Steering Group (2011) 'Strategies for Reducing Inequalities and Improving Developmental Outcomes for Young Children in Low-income and Middle-income Countries', *The Lancet* 37: 1339–53.
- ERU Consultants Pvt Ltd (2014) *Women Teachers and the Achievement of Gender and Equity Goals in Secondary Education: An Exploratory Study in Rajasthan*, New Delhi: ERU Consultants Pvt. Ltd.
- Gilmore, C.K., S.E. McCarthy and E.S. Spelke (2007) 'Symbolic Arithmetic Knowledge Without Instruction', *Nature* 447: 589–91.
- Hammond, C., D. Linton, J. Smink and S. Drew (2007) *Dropout Risk Factors and Exemplary Programs*, Clemson, SC: National Dropout Prevention Center, Communities in Schools, Inc..
- Heckman, J.J. (2011) 'The Economics of Inequality: The Value of Early Childhood Education', *American Educator* 35.1: 31–6.

- Heckman, J.J. (2000) *Invest in the Very Young*, Chicago, IL: Ounce of Prevention Fund and Harris School of Public Policy Studies, University of Chicago, (summary of longer paper, *Fostering Human Capital*, available from Harris School of Public Policy Studies).
- Heckman, J.J. and D.V. Masterov (2007) *The Productivity Argument for Investing in Young Children*, IZA Discussion Paper No. 2725, Bonn: Institute for the Study of Labor.
- IIPS and Macro International (2007) *National Family Health Survey (NFHS-3), 2005–06, India, Volume I*, Mumbai: International Institute for Population Sciences (for the Ministry of Health and Family Welfare, Government of India).
- Jimerson, S., B. Egeland, L.A. Sroufe and B. Carlson (2000) 'A Prospective Longitudinal Study of High School Dropouts Examining Multiple Predictors Across Development', *Journal of School Psychology* 38.6: 525–49.
- Krutikova, S. (2009) *Determinants of Child Labour: The Case of Andhra Pradesh*, Working Paper 48, Oxford: Young Lives.
- Kumra, N. (2008) *An Assessment of the Young Lives Sampling Approach in Andhra Pradesh, India*, Technical Note 2, Oxford: Young Lives.
- Markussen, E., M.W. Frøseth and N. Sandberg (2011) 'Reaching for the Unreachable: Identifying Factors Predicting Early School Leaving and Non-Completion in Norwegian Upper Secondary Education', *Scandinavian Journal of Educational Research* 55.3: 225–53.
- MHRD (2009) *Framework of Implementation of Rashtriya Madhyamik Shiksha Abhiyan*, New Delhi: Ministry of Human Resources Development.
- Mukhopadhyay, A. and S. Sahoo (2012) *Does Access to Secondary Education affect Primary Schooling? Evidence from India*, Institute of Economic Growth, Working Paper 312, New Delhi, Indian Statistical Institute.
- NAEYC/IRA (1998) *Learning to Read and Write: Developmentally Appropriate Practices for Young Children*, Washington, DC: National Association for the Education of Young Children and International Reading Association.
- NUEPA (2014a) *Elementary Education in India: Progress Towards UEE*, District Information System of Education 2013–14, New Delhi: National University of Educational Planning and Administration.
- NUEPA (2014b) *Secondary Education in India: Progress Towards Universalisation*, Unified District Information System of Education 2013–14, New Delhi: National University of Educational Planning and Administration.
- OECD (2012) *Equity and Quality in Education: Supporting Disadvantaged Students and Schools*, Paris: OECD Publishing.
- OECD (2009) *PISA 2009 Results: What Students Know and Can Do – Students' Performance in Reading, Mathematics and Science (Vol 1)*, Paris: OECD Publishing.
- Planning Commission (2012) *Twelfth Five Year Plan (2012–2017), Social Sectors, Vol. III*, New Delhi: Government of India.
- Psacharopoulos, G. (1997) 'Child Labor Versus Educational Attainment: Some Evidence from Latin America', *Journal of Population Economics* 10: 377–86.
- RMSA (2014) *Third Joint Review Mission (13–27 January 2014): Aide Memoire*, New Delhi: Ministry of Human Resource Development.
- Raudenbush, S.W. (2004) *Schooling, Statistics, and Poverty: Can We Measure School Improvement?* Princeton, NJ: Policy Evaluation and Research Center, Educational Testing Service.

Ravallion, Martin and Quentin Wodon (2000) 'Does Child Labour Displace Schooling? Evidence on Behavioral Responses to an Enrollment Subsidy', *Economic Journal* 110: 158–75.

Reddy, A. and S. Sinha (2010) *School Dropouts or Push outs? Overcoming Barriers for the Right to Education* CREATE Pathways To Access Research Monograph No 40, Brighton: CREATE.

Rosati, C.F. and M. Rossi (2003) 'Children Working Hours and School Enrolment: Evidence from Pakistan and Nicaragua', *World Bank Economic Review* 17.2: 283–95.

Rumberger, R.W. (2004) 'Why Students Drop Out of School' in G. Orfield (ed.) *Dropouts in America: Confronting the Graduation Rate Crisis*, Cambridge, MA: Harvard Education Press.

Rumberger, R.W. and S.A. Lim (2008) *Why Students Drop Out of School: A Review of 25 Years of Research*, Policy Brief 15, Santa Barbara, CA: California Dropout Research Project, UC Santa Barbara.

Sabates, R, A. Hossain and K.M. Lewin (2013) 'School Drop-out in Bangladesh: Insights Using Panel Data', *International Journal of Educational Development* 33. 225–32.

Siddhu, G. (2011) 'Who Makes It to Secondary School? Determinants of Transition to Secondary Schools in Rural India', *International Journal of Educational Development* 31: 394–401.

Singh, R. and C. Bangay (2014) 'Low Fee Private Schooling in India – More Questions than Answers? Observations from the Young Lives Longitudinal Research in Andhra Pradesh', *International Journal of Educational Development* 39: 142–50.

Stearns, Elizabeth and Elizabeth J. Glennie (2006) 'When and Why Dropouts Leave High School', *Youth and Society* 38.1: 29–57.

Suryadarma, D, W. Widyanti, A. Suryahadi and S. Sumarto (2006) *From Access to Income: Regional and Ethnic Inequality in Indonesia*, Working Paper, Jakarta: SMERU Research Institute.

Traag, T. and R.K.W. van der Velden (2011) Early School-Leaving in the Netherlands: The Role of Family Resources, School Composition and Background Characteristics in Early School-Leaving in Lower Secondary Education, *Irish Educational Studies* 30.1: 45–62.

UNESCO (2014) *Teaching and Learning: Achieving Quality for All*, Education for All Global Monitoring Report 2013/14, Paris: UNESCO.

Usher, E. and F. Pajares (2008) 'Self-efficacy for Self-regulated Learning: A Validation Study', *Educational and Psychological Measurement* 68.3: 443–63.

Venkantnarayan, M. (2004) 'Out of School Children: Child Labourers or Educationally deprived?', *Economic and Political Weekly* 39.38: 4,219–21.

Woodhead, M., P. Ames, U. Vennam, W. Abebe and N. Streuli (2009) *Equity and Quality? Challenges for Early Childhood and Primary Education in Ethiopia, India and Peru*, Working Paper 55, The Hague: Bernard van Leer Foundation.

World Bank (2009) *Secondary Education in India: Universalizing Opportunity*, New Delhi: Human Development Unit, South Asia Region.

World Bank (2005) *Expanding Opportunities and Building Competencies for Young People: A New Agenda for Secondary Education*. Washington, DC: World Bank.

Appendix

Table A1. *Variable descriptions*

All independent variables

Variable	Description	Round
Socio-demographic		
Gender	Male ^(Ref) = 1, Female = 2	R1
Caste	Scheduled Caste = 1 Scheduled Tribe = 2 Backward Class = 3 Other Castes ^(Ref) = 4	R1
Religion	Hindu ^(Ref) = 1 Non-Hindu = 2	R1
Place of residence	Urban ^(Ref) = 1 Rural = 2	R1
Current marital status	Unmarried ^(Ref) = 0 Married = 1	R4
Birth order	First-born ^(Ref) = 1 Second-born = 2 Third-born = 3 Fourth and later = 4	R1
Household		
Household size	5 and below ^(Ref) = 1 6 to 7 = 2 Above 7 = 3	R2
Father's education	None/ no formal schooling ^(Ref) = 0 Grade 1-5= 1 Grade 6-8= 2 Secondary and above = 3	R1
Mother's education	None/ no formal schooling ^(Ref) = 0 Grade 1-5= 1 Grade 6-8= 2 Secondary and above = 3	R1
Wealth index tercile	Bottom ^(Ref) = 1 Middle = 2 Top = 3	R2
Pre-school		
Type of pre-school	No pre-school ^(Ref) = 0 Public pre-school = 1 Private pre-school = 2	R3 / R2
Individual		
Nutritional status	Not stunted ^(Ref) = 0 Stunted = 1	R1
Self-efficacy index	Up to 3 positives ^(Ref) = 1 4 & more positives = 2	R2
Reading ability	Unable to read words and sentences ^(Ref) Able to read words and sentences	R1
Writing ability	Unable to write without errors ^(Ref) = 1 Can write without errors = 2	R1
Hours spent on domestic chores	None ^(Ref) = 0 1 hour = 1 2 hours = 2 3 hours and more = 3	R2
Paid work in last 12 months	No ^(Ref) = 0 Yes = 1	R2

Table A2. *Univariate analysis*

Percentage distribution of children who progressed successfully through secondary education (N. = 680)

Background variable		%	N.
Socio-demographic	Gender		
	Male	52.65	358
	Female	47.35	322
	Caste		
	Scheduled Caste	19.85	135
	Scheduled Tribe	10.74	73
	Backward Class	45.44	309
	Other Castes	23.97	163
	Place of residence		
	Urban	26.91	183
	Rural	73.09	497
	Current marital status		
	Single (never married)	89.85	611
	Married	10.15	69
	Birth order		
	First-born	30.74	209
	Second-born	34.12	232
Third-born	18.68	127	
Fourth or later	16.47	112	
Household	Household size		
	Upto 5 members	69.56	473
	6 to 7 members	22.5	153
	More than 7 members	7.94	54
	Father's education		
	None/ no formal schooling	47.2	295
	Grade 1–5	11.68	73
	Grade 6–8	11.52	72
	Secondary & above	29.6	185
	Mother's education		
	None/ no formal schooling	62.72	419
	Grade 1–5	12.57	84
	Grade 6–8	10.78	72
	Secondary & above	13.92	93
	Wealth index tercile (R3)		
	Bottom	29.71	202
	Middle	31.18	212
Top	39.12	266	

Table A2. *Univariate analysis (continued)*

Percentage distribution of children who progressed successfully through secondary education (N. = 680)

Background variable		%	N.
Pre-schooling	Type of pre-school		
	No pre-school	36.47	248
	Public pre-school	39.41	268
	Private pre-school	24.12	164
Individual	Nutritional status (R1)		
	Not stunted	68.97	469
	Stunted	31.03	211
	Self-efficacy index (R2)		
	Up to 3 positives	77.65	528
	4 or more positives	22.35	152
	Reading ability (R1)		
	Unable to read words and sentences	28.38	193
	Able to read words and sentences	71.62	487
	Writing ability (R1)		
	Unable to write without errors	19.85	135
	Can write without errors	80.15	545
	Hours spent on domestic chores (R2)		
	None	35.55	241
	1 hour	43.95	298
	2 hours	17.55	119
	3 hours and more	2.95	20
Paid work in last 12 months (R2)			
No	86.18	586	
Yes	13.82	94	
Total sample		100	680

Table A3: *Methodology of constructing Self-efficacy index*

Original variables	Methodology
The variables have been taken from Older Cohort Round 2 survey data.	Variables have been categorised into binary: (1 & 2 = 1), (3 & 4 = 0)
1) If I try hard, I can improve my situation in life (v1)	'0' = Negative trait
2) Other people in my family make all the decisions about how I spend my time (v2)	'1' = Positive trait
3) I like to make plans for my future studies and work (v3)	* Note: The coding is reverse in case of variables v2 and v5, i.e.,
4) If I study hard, I will be rewarded with a better job in future (v4)	(1 & 2 = 0) (3 & 4 = 1)
5) I have no choice about the work I do (v5)	The raw self-efficacy index = raw total (v1 to v5)
Label	Raw scores thus obtained range from 0 to 5
Strongly agree = 1	Based on the frequency distribution (average self-efficacy score), the variable has been coded as below:
Agree = 2	Up to 3 positive traits = 1
Disagree = 3	4 and more positive traits = 2
Strongly disagree = 4	

Table A4. *Linear probability model*

Models	Model 1 Socio-demographic		Model 2 Household		Model 3 Pre-schooling		Model 4 Individual	
	Coefficient	Robust std. error	Coefficient	Robust std. error	Coefficient	Robust std. error	Coefficient	Robust std. error
Gender								
Female	-0.107***	0.029	-0.116***	0.029	-0.119***	0.02974	-0.090***	0.030
Caste								
Scheduled Caste	-0.105**	0.045	0.017	0.048	0.022	0.048	0.021	0.046
Scheduled Tribe	-0.061	0.055	0.007	0.063	0.008	0.063	-0.007	0.061
Backward Class	-0.072**	0.035	0.004	0.037	0.009	0.037	0.017	0.034
Place of residence								
Rural	-0.100***	0.032						
Birth order								
Second-born	-0.044	0.035	-0.035	0.036	-0.031	0.036	-0.012	0.034
Third-born	-0.125***	0.042	-0.097**	0.042	-0.089**	0.043	-0.0592	0.039
Fourth or later	-0.146***	0.044	-0.100**	0.047	-0.096**	0.047	-0.041	0.045
Father's education								
Grade 1–5			-0.015	0.052	-0.010	0.052	-0.047	0.049
Grade 6–8			0.057	0.053	0.057	0.053	0.015	0.051
Secondary & above			0.144***	0.043	0.140***	0.042	0.078**	0.039
Mother's education								
Grade 1–5			0.105**	0.047	0.101**	0.047	0.072*	0.042
Grade 6–8			0.092*	0.050	0.0814	0.050	0.078*	0.047
Secondary & above			0.114**	0.046	0.095**	0.046	0.062	0.044
Wealth index tercile (R2)								
Middle			0.020	0.041	0.020	0.041	-0.009	0.039
Top			0.101**	0.042	0.085**	0.045	0.020	0.043
Type of pre-school								
Public pre-school					0.049	0.035	0.022	0.033
Private pre-school					0.089**	0.039	0.018	0.038
Self-efficacy index (R2)								
4 or more positives							0.083**	0.037
Nutritional status								
Stunting							-0.010	0.031
Reading ability (R1)								
Able to read words and sentences							0.091***	0.033
Writing ability (R1)								
Can write without errors							0.238***	0.040
Hours spent on domestic chores (R2)								
1 hour							0.0116	0.031
2 hours							-0.038	0.044
3 hours or more							-0.245***	0.072
Paid work in last 12 months (R2)								
Yes							-0.153***	0.045
R-squared	0.051		0.110		0.114		0.243	

Significance levels: *** p<0.01, **p<0.05, *p<0.1

Dependent variable: Whether progressed through secondary education ('0' No, '1' Yes)

Table A5. *Predicting the likelihood of progressing through secondary education in urban and rural areas of United Andhra Pradesh*

Factors	Urban		Rural	
	Odds ratio	z-value	Odds ratio	z-value
Gender				
Male ^(Ref)				
Female	0.679	-0.70	0.511***	-3.09
Caste				
Scheduled Caste	4.995*	1.85	1.121	0.31
Scheduled Tribe	1.270	0.15	0.952	-0.12
Backward Class	2.171	1.23	1.084	0.24
Other Castes ^(Ref)				
Birth order				
First-born ^(Ref)				
Second-born	0.556	-0.78	0.867	-0.53
Third-born	0.222**	-2.08	0.739	-1.01
Fourth or later	0.502	-0.78	0.874	-0.45
Father's education				
None/ no formal schooling ^(Ref)				
Grade 1–5	0.172**	-2.13	0.978	-0.07
Grade 6–8	0.327	-1.37	1.379	0.83
Secondary & above	0.945	-0.06	2.074*	1.67
Mother's education				
None/ no formal schooling ^(Ref)				
Grade 1–5	3.019	1.42	1.583	1.11
Grade 6–8	1.567	0.58	2.639*	1.80
Secondary & above	5.224*	1.75	2.888	0.94
Wealth index tercile (R2)				
Bottom ^(Ref)				
Middle	1.007	0.00	0.963	-0.17
Top	2.046	0.52	1.572	1.20
Type of pre-school				
No pre-school ^(Ref)				
Public pre-school	1.308	0.35	1.127	0.58
Private pre-school	0.636	-0.63	2.399	1.42
Nutritional status (R1)**				
Not-stunted ^(Ref)				
Stunted	0.320*	-1.87	1.098	0.45
Self-efficacy index (R2)				
Up to 3 positives ^(Ref)				
4 or more positives	0.536	-0.75	1.794**	2.38
Reading ability (R1)				
Unable to read words and sentences ^(Ref)				
Able to read words and sentences	4.652**	2.46	1.599**	2.32
Writing ability (R1)				
Unable to write without errors ^(Ref)				
Can write without errors	8.094***	3.41	3.162***	5.37
Hours spent on domestic chores (R2)				
None ^(Ref)				
1 hour	0.372	-1.51	1.174	0.62
2 hours	0.166**	-2.15	0.996	-0.01
3 hours or more	0.054*	-1.78	0.361**	-2.40
Paid work in last 12 months (R2)				
No ^(Ref)				
Yes	0.854	-0.13	0.432***	-3.50
-2 log likelihood	-59.063963		-320.73472	

Notes: ^(Ref) = Reference category.
Significance levels: *** p<0.01, **p<0.05, *p<0.1.
Dependent variable: Completion of secondary education ('0' No, '1' Yes).

Determinants of Successful Completion of Secondary Education: Evidence from Young Lives, Andhra Pradesh

As India comes close to realising universal enrolment at primary and upper primary levels, the universalisation of secondary education has become critical if the country is to achieve equitable social development and build a skilled workforce. The Rashtriya Madhyamik Rashtriya Shiksha Abhiyan (the National Mission for Secondary Education) was launched to increase access and improve quality, but in 2013/14 only 46 per cent of children were enrolled in secondary school. This mixed-methods paper uses Young Lives longitudinal data to explore factors affecting completion of secondary education.

We find that a multitude of factors across the household, individual, educational and social demographic domains affect children's secondary school completion.

- Girls remain disadvantaged and are 45 per cent less likely to complete secondary education than boys.
- Children with good reading skills at the age of 8 were found to be 1.7 times more likely and children with good writing skills were 3.3 times more likely to complete secondary education than children who had relatively poor reading or writing skills at age 8.
- Children with a higher self-efficacy index are found to be nearly 1.7 times more likely to successfully progress through secondary education than children with low self-efficacy.
- Children who spent three or more hours per day doing domestic chores at age 12 were 70 per cent less likely to complete secondary education, while those who did paid work at age 12 were 54 per cent less likely to get a secondary school certificate.

The fact that boys are almost twice as likely as girls to complete secondary education requires urgent policy attention, particularly in rural areas. Much more attention needs to be given to pre-school education and literacy skills in the early primary years, since there is a strong co-relation with the completion of secondary education. It is also important that children in primary school are not drawn into paid work, since this has a detrimental effect on their long-term schooling – and lowers the chances that they will complete secondary education.

About Young Lives

Young Lives is an international study of childhood poverty, involving 12,000 children in 4 countries over 15 years. It is led by a team in the Department of International Development at the University of Oxford in association with research and policy partners in the 4 study countries: Ethiopia, India, Peru and Vietnam.

Through researching different aspects of children's lives, we seek to improve policies and programmes for children.

Young Lives Partners

Young Lives is coordinated by a small team based at the University of Oxford, led by Professor Jo Boyden.

- *Ethiopian Development Research Institute, Ethiopia*
- *Pankhurst Development Research and Consulting plc, Ethiopia*
- *Save the Children (Ethiopia)*
- *Centre for Economic and Social Studies, Hyderabad, India*
- *Save the Children India*
- *Sri Padmavathi Mahila Visvavidyalayam (Women's University), Andhra Pradesh, India*
- *Grupo de Análisis para el Desarrollo (GRADE), Peru*
- *Instituto de Investigación Nutricional, Peru*
- *Centre for Analysis and Forecasting, Vietnamese Academy of Social Sciences, Vietnam*
- *General Statistics Office, Vietnam*
- *Oxford Department of International Development, University of Oxford, UK*

Contact:

Young Lives
Oxford Department of
International Development,
University of Oxford,
3 Mansfield Road,
Oxford OX1 3TB, UK
Tel: +44 (0)1865 281751
Email: younglives@younglives.org.uk
Website: www.younglives.org.uk