



ELSEVIER

Contents lists available at ScienceDirect

Economics and Human Biology

journal homepage: <http://www.elsevier.com/locate/ehb>



Child height and intergenerational transmission of health: Evidence from ethnic Indians in England[☆]

Caterina Alacevich^{a,b}, Alessandro Tarozzi^{a,c,d,*}

^a Universitat Pompeu Fabra, Spain

^b Università Cattolica di Milano, Italy

^c Barcelona GSE

^d Centro de Investigación en Economía y Salud (CRES-UPF), Spain

ARTICLE INFO

Article history:

Received 30 April 2016

Received in revised form 17 October 2016

Accepted 17 October 2016

Available online xxx

JEL classification:

F22

I15

O15

Keywords:

Height

Indians

Intergenerational transmission of health

Immigrants

ABSTRACT

A large literature documents a widespread prevalence of small stature among Indian children as well as adults. We show that a height gap relative to a richer population such as whites in England also exists, although substantially reduced, among adult immigrants of Indian ethnicity in England. This is despite positive height selection into migration, demonstrated by ethnic Indian adults in England being on average 6–7 cm taller than in India. However, the difference between natives and ethnic Indians in England disappears among their younger sons and daughters, although it re-appears among adolescents. We estimate that, conditional on age, gender and parental height, ethnic Indian children of age 2–4 in England are 6–8% taller than in India. Such degree of catch up in one generation is remarkable, also because in England children of ethnic Indians have much smaller birthweight than whites, by about 0.4 kg on average.

© 2016 Elsevier B.V. All rights reserved.

[☆] We are grateful to Macro International Inc., the UK Data Archive and the Inter-university Consortium for Political and Social Research for granting access to the data used in this article. We are also grateful for comments and suggestions from two anonymous reviewers, and to participants in seminars and workshops in Bologna, Center for Economic and International Studies (CEIS, Tor Vergata), Essex, Queen Mary, Oxford (Nuffield College), 3rd PODER Summer School (Namur), Tilburg and Tor Vergata, and in particular to Lucia Corno, Francesco Fasani, Gianna Claudia Giannelli, Veronica Grembi, Chiara Monfardini, Franco Peracchi, Cinzia Rienzo and Zahra Siddique. We gratefully acknowledge financial assistance from the “Policy Design and Evaluation Research in Developing Countries” Initial Training Network (PODER, funded under the Marie Curie Actions of the EU’s Seventh Framework Programme, Contract Number: 608109), and from the Ministerio de Economía y Competitividad of the Spanish Government (grants ECO2015-71536-ERC and ECO2015-69869-R). All errors and omissions are our own.

* Corresponding author.

E-mail addresses: caterina.alacevich@upf.edu (C. Alacevich), alessandro.tarozzi@upf.edu (A. Tarozzi).

<http://dx.doi.org/10.1016/j.ehb.2016.10.004>

1570-677X/© 2016 Elsevier B.V. All rights reserved.

1. Introduction

In many countries, historical data show a strong positive correlation between improvements in living standards over time and increases in average height (Fogel, 1994; Steckel, 1995; Hatton and Bray, 2010).¹ Height, though strongly dependent on genetic factors, is also affected by individual circumstances such as medical history and nutrition. A large body of evidence shows that early-life conditions have a powerful and hard-to-reverse effect on adult height and that taller individuals enjoy on average better health and labor market outcomes

¹ However, a number of researchers have cautioned against the use of average height as an indicator of economic development. For instance, Deaton (2007) shows that there is no clear cross-country correlation between the two indicators in developing countries.

(see [Strauss and Thomas, 1998, 2008](#); [Martorell et al., 1994](#) for reviews).

Despite impressive rates of economic growth in recent decades, India remains one of the worst performing countries worldwide in terms of height, among both children and adults ([Deaton and Drèze, 2009](#)). For instance, according to estimates from the National Family Health Survey (NFHS), in 2005–06 about half of Indian children were stunted (i.e., they had low height given age and gender), and about 40% were underweight. Child stunting and underweight are similarly widespread in Bangladesh and Pakistan, two neighboring countries. Indeed [Ramalingaswami et al. \(1996\)](#) coined the expression ‘South Asian Enigma’ in relation to rates of child malnutrition in these areas that are even higher than in several Sub-Saharan African countries, despite the latter doing worse in terms of child mortality and many other development indicators. The literature has recently proposed a number of likely contributing factors, highlighting the role of sanitation ([Spears, 2012](#)), women’s health and social status ([Coffey et al., 2015](#); [Coffey, 2015a,b](#)), son preference ([Jayachandran and Pande, 2015](#)) and eating habits ([Bhalotra et al., 2010](#); [Atkin, 2013, 2016](#)).

Several studies show that the widespread presence of small stature among Indian children relative to accepted international standards (also observed in well-off families) cannot be plausibly explained by genetic factors ([Habicht et al., 1974](#); [Agarwal et al., 1991](#); [Bhandari et al., 2002](#); [Coffey et al., 2013](#)), although genetic-based explanations remain popular among some, see e.g. [Panagariya \(2013\)](#) who however ignores several of the likely contributing factors highlighted above. This paper contributes to the literature by looking at the inter-generational transmission of height. The extent of intergenerational transmission of health from mothers to children (including of growth performances) is well-documented e.g. in [Bhalotra and Rawlings \(2011, 2013\)](#), [Currie and Moretti \(2007\)](#), [Li and An \(2015\)](#). [Kim et al. \(2015\)](#) use data from Indonesia and show that strong intergenerational correlations also exist between adult health or health changes and the health status and mortality of their parents.

We show that children of Indian ethnicity born and raised in England are substantially taller than children in India, even when we compare children whose parents have similar height. This is in line with the old hypothesis, first put forth by [Boas \(1912\)](#), that migration can play a role in conditioning human body characteristics, as a complement to the genetic and the inter-generational channel, see also [Gravlee et al. \(2003\)](#). This finding is also consistent with the possibility that convergence to international height standards may proceed, under appropriate conditions, much faster than what has been observed across generations in India ([Deaton and Drèze, 2009](#)).

This paper also contributes to the literature that studies selection into migration along health dimensions. We find evidence of strong *positive* selection into migration to England in terms of height with respect to the population of origin. Our result somewhat contrasts with the evidence of positive but weak selection on health among Mexican migrants in the United States, see [Rubalcava et al. \(2008\)](#), and aligns with the hypothesis that economic migration

from geographically distant countries tends to disproportionately favor individuals positively selected from the sending country ([Chiswick, 1978, 1999](#); [Chiquiar and Hanson, 2005](#)). [Feliciano \(2005\)](#) documented strong positive selectivity on education among immigrants in the United States.

We also show that the height of ethnic Indians who migrated to England in adulthood is on average substantially below that of natives in the destination country. This contrasts with what is known as the “healthy immigrant effect” well documented among several first-generation immigrant groups into developed countries such as the US, Canada, and Australia, where they often enjoy *better* health conditions relative to natives, see [Farré \(2016\)](#).

While ethnic Indian adults in England have a lower average height than native whites, we find no statistically significant difference among younger children, although a systematic gap does appear at later ages. This suggests that, at least in the crucial early childhood period, the gap with English natives disappeared within one generation, and is in line with previous findings by [Tarozzi \(2008\)](#) of catch-up with international standards. [Tarozzi \(2008\)](#) used data from the 1999 Health Survey of England and showed that children of Indian ethnicity who lived in England had anthropometric outcomes comparable to those in commonly used growth standards, and that the height of ethnic South Asians in the sample was negatively related to the amount of time spent outside England. Our results complement these findings by using a larger sample and, more importantly, by looking explicitly at the intergenerational link between parents and children’s height. [Proos et al. \(1992\)](#) and [Proos \(2009\)](#) also documented fast catch up growth among Indian children adopted in Sweden, especially among the worst performers at the time of arrival. However, catch up was not complete, consistent with a large literature on the long-term consequences of poor health in early life. More recently, [van den Berg et al. \(2014\)](#) exploited variation among siblings in the age at the time of immigration into Sweden from poorer countries to show that individuals who migrated earlier in life were on average significantly taller. They also showed that adult height was particularly sensitive to the environment experienced around the puberty growth spurt.

The rest of the paper is organized as follows. [Section 2](#) presents the data sources, two waves of the Health Survey for England (1998–99, and 2003–04), the third round of the National Family Health Survey of India (2005–06), and the second wave of the Indian Human Development Survey (2011–2012). [Section 3](#) introduces the evidence on adult self-selection in terms of height and hemoglobin, comparing Indians in England with the general population of India. This section also presents the comparison with respect to the native population at destination, defined as individual of ‘White’ ethnicity in England. The analysis moves then to children, showing in [Section 4](#) that differences in height with respect to natives disappear in one generation among younger children, but not older children. [Section 5](#) moves to the inter-generational framework and presents the results obtained from our main regressions, in which we control for parental height. In [Section 5](#) we also look at birth weight of children born in England, and we show that

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات