

## **Formation of Other-regarding Preferences, Patience and Cognitive Skills in Childhood**

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Other-regarding preferences have been recognized to be decisive for achieving efficient cooperative outcomes for large groups facing free rider problems (Fehr and Fischbacher 2003). Cognitive skills such as IQ and non-cognitive skills such as patience serve as a good predictor of individual success in life (Cunha and Heckman 2007, Bowles, Gintis, Osborne 2001). However, not much is known how these preferences and skills are formed. Recent experiments started to make some progress in addressing the question whether these preferences are acquired during childhood and adolescence: researchers found older children to become more patient (Bettinger and Slonim 2007) and more other-regarding (Fehr et al 2008, Fehr et al 2011, Eisenberg and Mussen 1998). Several important questions remain.

Do they develop at a similar age? Does acquisition of different kinds of fundamental preferences and skills interact, or are these traits distinct from each other and develop independently? For example, since patience and other-regarding preferences are measured separately, we don't know whether children who were found more patient are also those who would be more other-regarding. In addition, there are intuitive reasons to expect that a greater intelligence may foster development of patience (Cunha and Heckman 2007, Sunde et al 2010). The question whether intelligence affects formation of other-regarding preferences is still unresolved. While intelligence may on one hand promote learning of social norms and recognition of long-term benefits stemming from internalizing cooperative modes of behavior, it may also sharpen awareness that compliance to social norms and associated other-regarding behavior is at the expense of individual self-interest. Understanding whether formation of preferences interacts is important because some of the preferences and skills are more malleable by policies than others.

We study development of preferences on a sample of more than 400 children covering a uniquely wide age range 4-12 years. We use a set of simple experimental tasks to measure prevalence of different other-regarding types (generous, inequality averse and spiteful) and time discounting types (patient, impatient, present-biased) and we also collect measures of individual cognitive abilities and school grades. We find that older children are more generous, less spiteful, more patient and have greater cognitive abilities. Interestingly, these preferences and skills co-develop during a similar critical period, but their formation seems to be independent to each other.