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Testing the family investment model in Russia: Estimating indirect effects of SES and parental beliefs on the literacy skills of first-graders☆

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ABSTRACT

The family investment model provides a powerful perspective for understanding the processes underlying relations between parents' SES and children's achievement. The extant research on the role of parental investments has largely built on U.S. studies. The present work extended this line of investigation to a novel context by testing family investments as a proximal link between SES and child outcomes in Russia. The study focused on predictors of literacy skills in children entering primary school. It examined the pathways from parental education, income and beliefs to children's literacy skills through family investments: resources available at home, joint parent-child literacy activities and access to outside-home resources and activities. As hypothesized, these investments mediated the relation of parental income and education to child literacy, with education being more strongly related to child outcomes than income. Beliefs about the importance of developing literacy skills prior to school were found to be independent of SES and linked to child outcomes through the same sorts of family investments as SES. The findings show the robustness of the family investment model across diverse contexts and advance our understanding of the model by incorporating parental beliefs in its current framework.

1. Introduction

The nature of the relation between parental socio-economic status (SES) and children's educational outcomes has been the subject of numerous studies. This is not surprising given striking differences in academic performance favoring higher-SES children over their lower-SES peers. These differences emerge before children begin formal schooling and persist – or even increase – throughout their educational careers (Bornstein & Bradley, 2014; Duncan, Yeung, Brooks-Gunn, & Smith, 1998; Morrissey, Hutchison, & Winsler, 2014; Sirin, 2005). While a large number of studies examining SES variability in educational outcomes have been conducted in the U.S., investigating SES effects within different socio-economic structures may help build the cumulative knowledge in novel ways. In particular, understanding commonalities and differences in the relation between SES and child development across contexts can help clarify processes that mediate or moderate this relation.

In the present study, we examined the nature of the relation between SES and literacy skills of children entering primary school in Russia. This country differs from the U.S. in terms of socio-economic structure in a number of ways, as discussed below. It is well established that educational achievement of Russian children varies as a function of family SES (Caro & Mirazchiyski, 2012), but mechanisms underlying this relation have not been systematically examined. To address this gap, our investigation focused on processes through which parental income and education are linked to child outcomes in Russia. By examining these processes we also addressed a broader goal of evaluating and expanding current conceptual models of the relation between family SES and child development.

2. Theoretical framework

It is clear that the link between SES and child outcomes must be mediated by processes that are proximally related to child development. The fact that parents have more money, for example, cannot itself facilitate the growth of the child's literacy skills. Instead, greater financial resources may increase children's access to educational materials and activities that directly affect the growth of these skills. One prominent theoretical perspective on the nature of the relation between SES and child outcomes is offered by the Family Investment Model (Becker & Tomes, 1994; Bradley & Corwyn, 2002; Conger & Donnellan, 2007), which has been supported by empirical research (Linver, Brooks-

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Gunn, & Kohen, 2002; Sohr-Preston et al., 2013; Yeung, Linver, & Brooks-Gunn, 2002). The model posits that SES is positively associated with child outcomes because higher SES affords parents the opportunity to invest in a higher quantity and quality of enriching materials and experiences for their children.

Parental investments take various forms, but research findings converge with regard to the main categories of investments that matter for child development (Bornstein, 2006; Bradley & Corwyn, 2004; Brooks-Gunn & Markman, 2005). These include (a) physical resources available at home, such as books, toys and games; (b) stimulating activities in which parents engage the child, such as reading together or playing board games; (c) access to resources and activities outside of home, such as museum trips or music lessons; and (d) emotional climate, such as providing a warm and responsive environment. The last category is mostly related to behavioral outcomes, whereas resources and learning stimulation captured in categories (a) through (c) have been most strongly associated with academic outcomes (Yeung et al., 2002), and as such are the focus of the present investigation.

It should be noted that family investments made during early childhood are particularly consequential for later development. One reason has to do with the high sensitivity of brain growth to learning stimulation during this period (Shonkoff & Phillips, 2000). Another reason has to do with the fact that parents have more leverage in determining the nature and quality of early learning environments, compared to later developmental stages when children assume a more active role in choosing and shaping their experiences (Scarr & McCartney, 1983). It is during early childhood that parents spend significant amounts of time interacting with children who, in turn, are eager to engage in such interactions. Further, from the economic perspective, it has been argued that early investments in children have particularly large returns as they raise the rate of return from later investments – known as the "skills beget skills" argument (Cunha & Heckman, 2007). In fact, empirical evidence shows that family income matters most during early childhood, compared to later developmental periods (Duncan & Brooks-Gunn, 1997).

One limitation to the cumulative knowledge on the family investment model during early childhood is that the preponderance of evidence has come from Western countries. Yet, the role of family contributions to child development is acknowledged across cultures. There have been several studies in non-Western countries aimed at improving child outcomes through parental interventions targeting various components of the Family Investment Model, for example, by introducing cognitively stimulating activities that can be done at home (Bekman, 1998; Kagitcibasia, Sunarb, & Bekman, 2001; Kotaman, 2008). None of these studies, however, have investigated to what extent parental investments account for SES differences in child outcomes.

2.1. Testing the family investment model in a new socio-economic context

Contemporary Russian society provides a useful context for the study of the relation between family investments and child development due to several features of its educational and economic system. The majority of preschool-aged children in Russia attend municipally funded public preschools that are free to families, regardless of income. These institutions are regulated by federal standards (Ministry of Education and Science of the Russian Federation, 2014) that specify both administrative and pedagogical requirements – educational goals, types of activities, etc. Thus, although preschools may vary, to some extent, in quality, this variability is likely not as large as that in the U.S. Yet, there are substantial SES-related differences in school readiness of Russian children (Ivanova, Kuznetsova, Semenov, & Fedorova, 2016; Park, 2008). Given a relatively even distribution of resources and strict regulation of preschools, differences in family investments may play a key role in the observed variability among preschool children.

Another feature that is important for the present investigation has to do with the socio-economic structure of the Russian society, in which income is not as strongly associated with education as in Western countries. Economic developments in the last decades led to the emergence of a wealthy class, comprised of a mix of highly educated and less educated people, many of whom built their wealth during the post-Soviet transition by taking advantage of privatization of state-owned assets. At the same time, professionals with college education or higher (e.g., doctors, engineers) typically work in state-funded institutions and, unlike their American counterparts, do not earn high incomes. Researchers have documented a steady decline in the educational returns in Russia in the last decades – i.e., in the amount of earnings associated with additional post-secondary education (Lukyanov, 2011). A recent study of families in Moscow showed the correlation between parental income and education as low as $r = 0.25$. In this situation, one may be able to more carefully distinguish the contributions of income and education to family investments and, ultimately, to child outcomes.

The types of investments that Russian parents make in their preschool children are similar to those documented in Western countries (Park, 2008; Tudge et al., 1999). Home resources typically include children's books, games and electronic devices; home activities commonly involve book reading; and some parents engage in more formal literacy practices, such as teaching children how to write or read. Yet, there have been no systematic investigations of the variability among Russian families in the amount of home resources or the frequency of stimulating activities. The present study is the first one to examine this variability as a potential mediator of the SES-differences in children's skills. This investigation was guided by prior research on SES and parental investments in Western countries, as well as by considerations of specific features of the Russian context.

2.2. Relation between parental SES and investments

A nuanced understanding of the relation between SES and parental investments requires identifying unique pathways from specific components of SES (e.g., income and education) to specific types of investments (e.g., physical resources and stimulating activities). At first glance, income appears to be more related to material investments (providing access to resources), whereas education, which tends to increase knowledge of child development and learning, may be more related to psychological investments (engaging children in stimulating activities). Yet, a closer examination suggests that both SES components may influence both types of investments. Specifically, parental education may play a role in material investments by improving parents' ability to select appropriate resources. At the same time, income can be expected to play a role in parent-child home activities, some of which may involve resources that are not available due to financial constraints. Further, economic hardship is associated with family stress that may affect the quantity and quality of parent-child interactions (Conger & Donnellan, 2007).

Matching the complexity of conceptually disentangling the contributions of income and education, empirical evidence also requires further clarification. Many studies examined the two measures as part of an overall SES composite, whereas others focused on one of the measures, while controlling for the other (Englund, Luckner, Whaley, & Egeland, 2004; Yeung et al., 2002). There is a paucity of work simultaneously examining indirect links from income and education to child outcomes through different forms of parental investments. One of the challenges with disambiguating the contributions of income and education has to do with the fact that the two measures tend to be highly correlated in Western countries (Hout, 2012; Reardon, 2011; Tamborini, Kim, & Sakamoto, 2015). For example, data from the most recent nationally representative survey of U. S. kindergartners and their families – Early Childhood Longitudinal Study – show an association between parents' income and education of $r = 0.64$ (Tourangeau et al., 2015). A potential solution for researchers interested in the unique consequences of income and education is to search