# Invited Symposium: Determinants of cognitive skills

**Chair**
Simon Wiederhold (Catholic University Eichstaett–Ingolstadt, Germany)

## Abstract
Analysis of the PIAAC data has shown the crucial importance of cognitive skills for individual success. Thus, there is a profound interest in the determinants of cognitive skills. The literature consistently argues that family background plays a key role in the formation of skills, leading to a strong persistence in educational achievement across generations. However, surprisingly little is known about which family characteristics actually matter for skill formation. The four studies combined in this symposium try to dig deeper into the determinants of cognitive skills. Some of the questions addressed in the symposium are: How strong is the correlation of cognitive skills of parents and their children, and what are the mechanisms that give rise to the intergenerational persistence of skills? How important is the transmission of cultural values from parents to children as a determinant of cognitive skills? Finally, can policies substituting for lacking family support be successful in helping disadvantaged children to improve their skills?

## Presentations
1. **Title:** Can mentoring alleviate family disadvantage in adolescence? A field experiment to improve labor-market prospects.  
   **Authors:** Sven Resnjanskij (ifo Institute, Germany), Jens Ruhose (University of Kiel, Germany), Simon Wiederhold (Catholic University Eichstaett–Ingolstadt, Germany), & Ludger Woessmann (ifo Institute, Germany)
2. **Title:** Culture and student achievement: The intertwined roles of patience and risk-taking.  
   **Authors:** Eric A. Hanushek (Hoover Institution, Stanford University, USA), Lavinia Kinne (ifo Institute, Germany), Philipp Lergetporer (ifo Institute, Germany), & Ludger Woessmann (ifo Institute, Germany)
3. **Title:** Individualism, human capital formation and labor market outcomes.  
   **Authors:** Katharina Hartinger (Catholic University Eichstaett–Ingolstadt, Germany), Sven Resnjanskij (ifo Institute, Germany), Jens Ruhose (University of Kiel, Germany), & Simon Wiederhold (Catholic University Eichstaett–Ingolstadt, Germany)
4. **Title:** The intergenerational transmission of skills.  
   **Authors:** Eric A. Hanushek (Hoover Institution, Stanford University, USA), Babs Jacobs (ROA, Maastricht University, The Netherlands), Guido Schwerdt (University of Konstanz, Germany), Rolf van der Velden (ROA, Maastricht University, The Netherlands), & Simon Wiederhold (Catholic University Eichstaett–Ingolstadt, Germany)
1. Can mentoring alleviate family disadvantages in adolescence? A field experiment to improve labor-market prospects.

**Authors**
Sven Resnjanskij (ifo Institute, Germany), Jens Ruhose (University of Kiel, Germany), Simon Wiederhold (Catholic University Eichstätt-Ingolstadt, Germany) & Ludger Woessmann (ifo Institute, Germany)

**Presenter**
Ludger Woessmann (ifo Institute, Germany)

**Abstract**
We study a mentoring program that aims to improve the labor-market prospects of school-attending adolescents from disadvantaged families by offering them a university-student mentor. Our RCT investigates program effectiveness on three outcome dimensions that are highly predictive of adolescents’ later labor-market success: math grades, patience/social skills, and labor-market orientation. For low-SES adolescents, the one-to-one mentoring increases a combined index of the outcomes by half a standard deviation after one year, with significant increases in each dimension. Part of the treatment effect is mediated by establishing mentors as attachment figures who provide guidance for the future. The mentoring is not effective for higher-SES adolescents. The results show that substituting lacking family support by other adults can help disadvantaged children at adolescent age.

2. Culture and student achievement: The intertwined roles of patience and risk-taking.

**Authors**
Eric A. Hanushek (Hoover Institution, Stanford University, USA), Lavinia Kinne (ifo Institute, Germany), Philipp Lergetporer (ifo Institute, Germany) & Ludger Woessmann (ifo Institute, Germany)

**Presenter**
Eric A. Hanushek (Hoover Institution, Stanford University, USA)

**Abstract**
Patience and risk-taking – two cultural traits that steer intertemporal decision-making – are fundamental to human capital investment decisions. To understand how they contribute to international differences in student achievement, we combine PISA tests with the Global Preference Survey. We find that opposing effects of patience (positive) and risk-taking (negative) together account for two-thirds of the cross-country variation in student achievement. In an identification strategy addressing unobserved residence-country variation, we find similar results when assigning migrant students their country-of-origin cultural traits in models with residence-country fixed effects. Associations of culture with family and school inputs suggest that both may act as channels.
3. Individualism, human capital formation and labor market outcomes.

Authors
Katharina Hartinger (Catholic University Eichstaett-Ingolstadt, Germany), Sven Resnjanskij (ifo Institute, Germany), Jens Ruhose (University of Kiel, Germany), & Simon Wiederhold (Catholic University Eichstaett-Ingolstadt, Germany)

Presenter
Simon Wiederhold (Catholic University Eichstaett-Ingolstadt, Germany)

Abstract
Using data from a large international adult skill test, we establish that individualism is one of the most important cultural traits affecting educational and labor-market outcomes. Exploiting both origin-country level and person-level variation in individualism of migrants and natives, we use different approaches to disentangle culture from cross-country differences in the economic and institutional environment. We find that individualists have higher skills, show larger skill gains over time, invest more in training, receive higher wages, are less likely to be unemployed, and choose more research-oriented and abstract-task-intense occupations. Our results indicate the importance of the family in transmitting cultural traits.

4. The intergenerational transmission of skills.

Authors
Eric A. Hanushek (Hoover Institution, Stanford University, USA), Babs Jacobs (ROA, Maastricht University, The Netherlands), Guido Schwerdt (University of Konstanz, Germany), Rolf van der Velden (ROA, Maastricht University, The Netherlands), & Simon Wiederhold (Catholic University Eichstaett-Ingolstadt, Germany)

Presenter
Guido Schwerdt (University of Konstanz, Germany)

Abstract
The extensive literature on intergenerational mobility highlights the importance of family linkages but fails to provide credible evidence about the underlying family factors that drive the pervasive correlations. We employ a unique combination of Dutch survey and registry data that links math and language skills across generations. We identify a causal connection between cognitive skills of parents and their children by exploiting within-family between-subject variation in these skills. The data also permit novel IV estimation that isolates variation in parental cognitive skills due to school and peer quality. The between-subject and IV estimates of the key intergenerational persistence parameter are strikingly similar and close at about 0.1. Finally, we show the strong influence of family skill transmission on children's choices of STEM fields.