Resnjanskij, Sven; Ruhose, Jens; Wiederhold, Simon; Woessmann, Ludger

Article

Mentoring Improves the Labor-Market Prospects of Disadvantaged Adolescents

CESifo Forum

Provided in Cooperation with:
Ifo Institute – Leibniz Institute for Economic Research at the University of Munich

Suggested Citation: Resnjanskij, Sven; Ruhose, Jens; Wiederhold, Simon; Woessmann, Ludger (2021) : Mentoring Improves the Labor-Market Prospects of Disadvantaged Adolescents, CESifo Forum, ISSN 2190-717X, ifo Institut - Leibniz-Institut für Wirtschaftsforschung an der Universität München, München, Vol. 22, Iss. 04, pp. 38-43

This Version is available at:
https://hdl.handle.net/10419/250931

Sven Resnjanskij, Jens Ruhose, Simon Wiederhold and *Ludger Woessmann*

Mentoring Improves the Labor-Market Prospects of Disadvantaged Adolescents

ABSTRACT

How can the labor-market prospects of school-attending adolescents from disadvantaged families be improved? One possible approach is the use of mentoring programs that assign adolescents a mentor who can provide them with support that their family environment is not able to provide. But do such programs really help? Testing this empirically is difficult because it is unclear how these adolescents would have developed without participating in the mentoring program, since available datasets generally do not include a convincing control group of similarly disadvantaged youths. To overcome this limitation, we randomized participation in a large German mentoring program, exploiting the fact that the program was oversubscribed, i.e., had more applicants than available slots. Due to the random assignment, the adolescents who did not participate in the program provide a compelling control group for the participants. We find that the mentoring program significantly improves an index of labor-market prospects for eighth- and ninth-graders from severely disadvantaged families one year after program start. The positive effects are present for all three components of the index, which measure cognitive (math grade), non-cognitive (patience and social skills) and motivational (labor-market orientation) aspects. For disadvantaged adolescents, the expected income benefits from program participation greatly exceed program costs. In contrast, the program has no positive effects for adolescents from less disadvantaged families. The results suggest that mentoring works when it compensates for a lack of family support.

Nobel laureate James J. Heckman (2008) called it the "accident of birth": The family background has a strong impact on a child's opportunities later in life. For instance, in Germany it takes six generations for the offspring of a low-income family to reach the average income (OECD 2018). Differences in family support are a key driver of social inequality. Family circumstances are not "self-inflicted" and are beyond the control of the individual. This source of inequality—the lack of equality of opportunity—is generally perceived as unjust (see Roemer 2008). Globally, there is growing concern about the persistence of inequality across generations.[1] Therefore, the question of how to support youths from disadvantaged families, in particular, to improve their labor-market prospects ranks high on the political agenda in many countries.

Because disadvantaged children often lack the strong family support that other children receive, policies aimed at helping them face dire limitations as neither schools nor family-targeted programs can fully substitute for or change parents. Empirical research suggests that policies stand a good chance of succeeding if they compensate for limited family support early in life.[2] Later interventions in schools or the labor market, on the other hand, have proven much less successful in supporting disadvantaged youths (e.g., Cunha et al. 2006). However, little is known about the effectiveness of programs that provide disadvantaged youths with personal support from other adults.

This is the approach followed by numerous mentoring programs that aim to help disadvantaged adolescents by offering them a mentor who can provide support that their family environment is not able to provide. In a project spanning several years, we investigate whether mentoring can help disadvantaged adolescents improve their school performance and skill development to achieve long-term success in the labor market. In our field experiment, we surveyed participants in a large German mentoring program and a corresponding control group at several locations throughout Germany, both before program start and one year later. This article summarizes the main findings of our evaluation study. We report the details of the study and the results in Resnjanskij et al. (2021).

THE MENTORING PROGRAM

We examine the effectiveness of one of the largest one-on-one mentoring programs for disadvantaged adolescents in Germany. The program, *Rock Your Life!* was launched in 2009 by a group of university students. It is offered in 42 cities across Germany and

[1] See, e.g., Alvaredo et al. (2018), Autor (2014), Black and Devereux (2011) and Corak (2013).
[2] See, e.g., Almond, Currie and Duque (2018), Cunha et al. (2006), García et al. (2020) and Kosse et al. (2020).

has established more than 7,000 mentoring relationships since its foundation (*Rock Your Life!* 2020).[3] The program, which lasts up to two years, targets eighth- and ninth-graders in lower-track secondary schools in disadvantaged neighborhoods and provides them with a voluntary university-student mentor.

The program's primary goal is to prepare adolescents for a successful transition into professional life. To reach this goal, the mentoring relationships are supposed to:

- support disadvantaged adolescents in developing their individual potential
- promote their self-esteem and confidence in their own abilities
- improve their situation at school and provide guidance for their professional future

Regular mentor-mentee meetings are the core of the program. These are meant to take place every two weeks. In addition to joint leisure activities such as visits to the cinema and the zoo, mentors help mentees cope with stressful situations at school or in the family, give career guidance and provide support for applications for apprenticeships.[4]

The program is organized as a franchise system of self-governing locations in participating university cities. The local university societies are responsible for operating and organizing the mentoring program and recruit university students who voluntarily act as mentors. An umbrella organization, organized as a non-profit holding company, coordinates the activities of the mentoring sites and makes strategic decisions about future developments of the overall program. The holding company also provides standardized training courses for the mentors, counseling of mentors on how to run the mentoring relationship and training opportunities on how to organize the local university societies. The program relies on funding from foundations and other social investors.

STUDY DESIGN

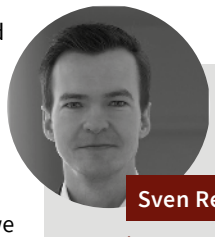
An empirical investigation of whether the mentoring program is effective in improving the labor-market prospects of participating youths faces a major challenge: Since the program targets severely disadvantaged youths, it is very difficult to find a convincing control group of similarly disadvantaged youths who did not participate in the program. But such a control group is necessary for determining how the situation of youths participating in the program would have developed without participation.

We therefore designed and conducted a field experiment to evaluate the effectiveness of the mentoring program. Whenever there were more applicants than available slots at a mentoring site (i.e., oversubscription), we let a lottery decide on participation.[5] In doing so, we obtained a treatment group of (random) program participants and a control group of (random) non-participants. From an ethical perspective, a random allocation of program participation is the fairest way to allocate available program slots to applicants. Since there are more interested adolescents than available slots, it is simply left to chance who is allowed to participate in the program and who is not. The adolescents were already familiar with this kind of procedure from their everyday school life, since student exchange programs and other programs are often oversubscribed.

From a research point of view, the random assignment also offers an important advantage: With a sufficiently large number of cases, the random assignment ensures that participants and non-participants have similar characteristics on average. In fact, we can show that there are indeed no significant differences between either group in the numerous characteristics we collected before random assignment. The non-participants are thus a convincing control group for the participants.

We conducted the study in two consecutive cohorts in ten cities across Germany.[6] A total of 308 adolescents in 19 schools participated in our study. We collected baseline data prior to the start of the mentoring program between October 2016 and May 2017 in the first cohort and one year later in the second cohort.[7] Importantly, our evaluation did not alter any elements of the program or the selection of participating schools, adolescents or mentors.

To evaluate the impact of the mentoring program on la-



Sven Resnjanskij

is Economist at the ifo Center for the Economics of Education and the University of Munich (LMU).

Jens Ruhose

is Assistant Professor of Economics at Kiel University.

Simon Wiederhold

is Professor of Economics, especially Macroeconomics, at KU Eichstätt-Ingolstadt.

Ludger Woessmann

is Director of the ifo Center for the Economics of Education and Professor of Economics, University of Munich (LMU).

[3] The program is also offered in 10 cities in Switzerland and the Netherlands. More information about the mentoring program is available at https://rockyourlife.de and https://de.wikipedia.org/wiki/Rock_Your_Life.

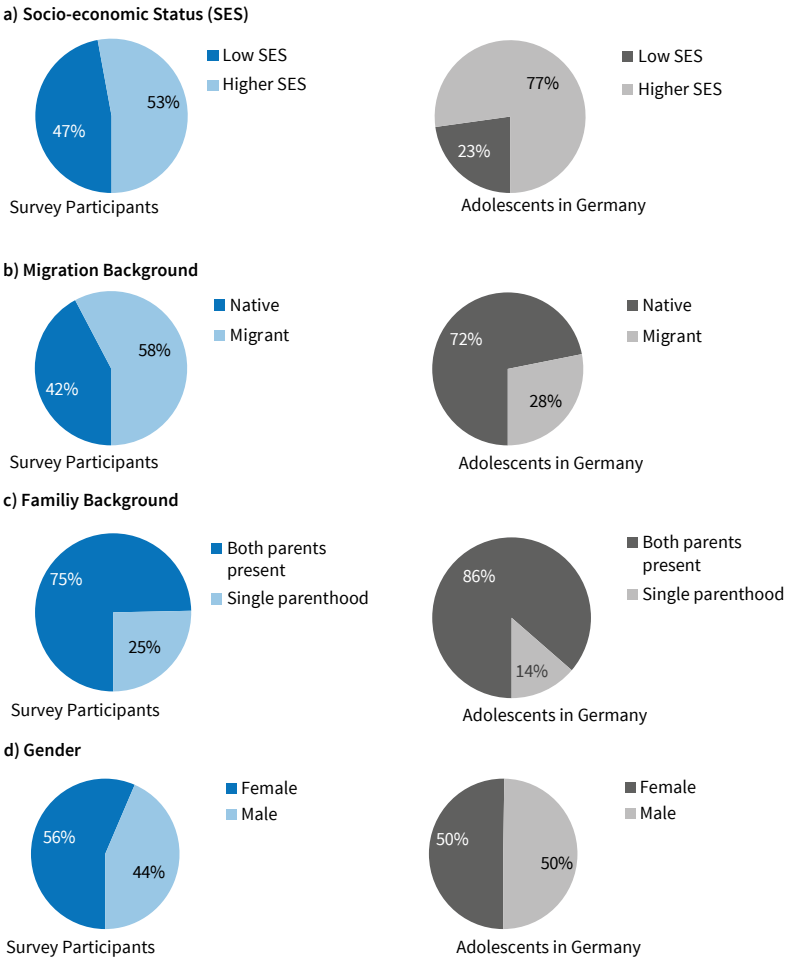
[4] The mentoring relationships between the mentors and the adolescents are formed during a "Kick-off" meeting. "Job Coach" training and "Your Way" training offer further qualification opportunities.

[5] At mentoring sites without oversubscription, all applicants participated in the program. These participants who were non-randomly allocated to the program are not included in the analysis reported here.

[6] The ten cities are Aachen, Berlin, Duisburg, Essen, Hamburg, Cologne, Leipzig, Lübeck, Lüneburg and Mannheim.

[7] The first cohort also includes two pilot studies conducted in November 2015 and June 2016.

Figure 1
Socio-demographic Characteristics of Participants Compared to the Total Adolescent Population



Notes: The figure compares selected socio-demographic characteristics of study participants (left) to the characteristics of a representative sample of the adolescent population in Germany based on PISA 2012 (right). a) Socio-economic status (SES): measured by books at home; adolescents classified as low SES if they indicate that they have at most 25 books at home. b) Migration background: adolescents classified as migrants if they themselves or at least one parent were born abroad. c) Single parenthood: definition of parents includes biological parents and step parents.
Source: Own representation based on Resnjanskij et al. (2021). © ifo Institute

bor-market prospects, we conducted a second survey approximately one year after the baseline survey. We made considerable efforts to reach participants again. For example, our team members made over 100 trips to participating schools to establish a trusting relationship with principals and teachers, to conduct the surveys in the school and to collect administrative data on school grades. We achieved an exceptionally high resurvey rate. Overall, we have information on 98.7 percent of participants (304 of the 308 adolescents) one year after program start. In our own follow-up survey, we achieved a participation rate of 94.5 percent. In addition, we received the school grades of 95.5 percent of the adolescents from official school reports.

MEASURING LABOR-MARKET PROSPECTS AND SOCIO-ECONOMIC STATUS

Because all participants in our evaluation are still enrolled in school one year after program start, we cannot observe actual labor-market outcomes. Therefore, we defined three outcome components that predict long-term labor-market success according to the literature and our own analysis of representative data for Germany. These three components of labor-market prospects are (1) math grades in school as the cognitive component, (2) patience and social skills as the non-cognitive component and (3) labor-market orientation as the motivational component (see Resnjanskij et al. 2021 for details on the specific variables underlying each component). We combine these three components into an overall index of labor-market prospects and also report results for the three sub-indices.

Highly disadvantaged adolescents are the main target group of the mentoring program. These adolescents are likely to lack family support, which the mentoring program can partly make up for. However, when we analyzed the baseline survey data, we found that more advantaged adolescents also participate in the program. Although the program targeted schools in disadvantaged neighborhoods, the program did not discriminate among interested youths within these schools. As a result, participants with a higher socio-economic status were also eligible to participate in the program.

In our analysis, we distinguish between highly disadvantaged (low socio-economic status (SES)) and less disadvantaged (higher socio-economic status (SES)) adolescents. We divide our sample into two roughly equally sized groups using information on the number of books at home (a well-established measure of family social, economic and educational backgrounds, see, e.g., Schuetz, Ursprung and Woessmann 2008): Adolescents with 25 or fewer books at home are classified as low SES and adolescents with more than 25 books at home are classified as higher SES (Figure 1a).[8] 47 percent of the adolescents in our sample are low SES. Across Germany, the percentage of low-SES adolescents is only about half as large (23 percent). This confirms that the mentoring program succeeds in reaching the intended target group. However, it is also apparent that a significant percentage of program participants is not highly disadvantaged.

For further characterization, Figure 1 compares additional socio-demographic characteristics of the adolescents in our sample with a representative sample of adolescents in Germany (PISA study 2012). It is striking that the percentage of adolescents with a migration background among the study participants (58 percent) is more than twice as high as the German average (28 percent). One out of four adolescents in our sample lives in a single-parent household, compared with 14 percent in Germany overall. In addition, female adolescents (56 percent) are slightly overrepresented in our sample.

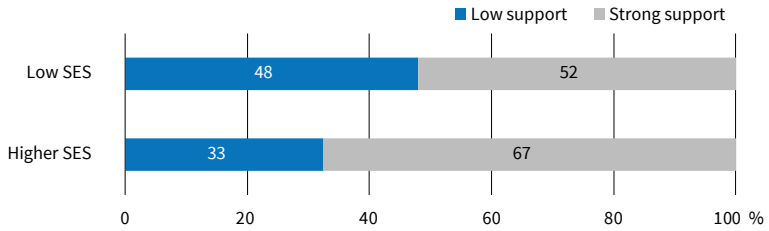
[8] Analyses using a broader index of socio-economic status that combines information on books at home, parent educational attainment and parent labor market status yield very similar results.

The survey data also illustrate that highly disadvantaged adolescents often lack parental support. Figure 2 shows the percentage of adolescents who experience little school support from their parents, separately for low-SES and higher-SES adolescents. Almost half of the highly disadvantaged youths report that they receive little support from their parents in school-related matters. In contrast, this is the case for only one-third of the less disadvantaged adolescents.

Finally, our main outcome measure, labor-market prospects, as well as its components also reveal significant socio-economic gaps (measured in the control group not participating in the program). Overall, low-SES youths have lower labor-market prospects than their higher-SES counterparts (Figure 3). In particular, they perform significantly worse in math and exhibit a lower level of patience and social skills. In what follows, we examine the effectiveness of the mentoring program in increasing the labor-market prospects of disadvantaged adolescents, potentially reducing the existing socio-economic gaps.

Figure 2

Parental Support for Learning



Notes: The figure shows parental support for homework and school-related learning activities for youths with a highly disadvantaged (low SES) and more advantaged socio-economic status (higher SES). Low support refers to adolescents indicating that their parents do not support them at all or provide rather little support. Strong support refers to adolescents indicating that their parents support them rather strongly or very strongly.
Source: Own representation based on Resnjanskij et al. (2021).

MAIN RESULTS

The randomization into treatment and control group makes estimating the causal effect of participating in the mentoring program straightforward. A simple comparison of the mean values of the outcome variables between the two groups one year after program start shows whether the labor-market prospects of the youths have improved as a result of program participation. Our preferred estimation model also includes control variables for the level of the respective outcome before program start and for individual characteristics, both of which are taken from the baseline questionnaire, as well as fixed effects owing to the randomization procedure. However, none of these are crucial for the results.

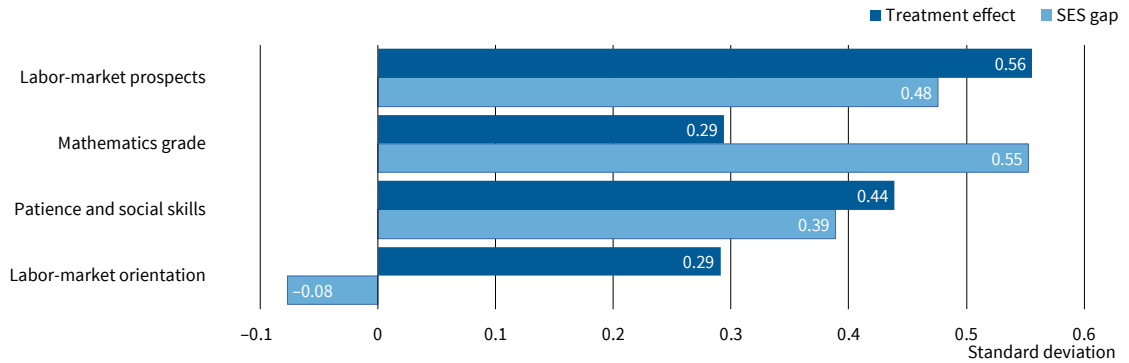
An overall picture of the effectiveness of the mentoring program emerges when we look at the index of labor-market prospects. Low-SES adolescents benefit significantly from participating in the mentoring program: In the sample of low-SES adolescents, the labor-market prospects for those who participated in the program are more than half a standard deviation higher than the labor-market prospects of those who did not participate (Figure 3). Thus, program participation fully closes the SES gap in labor-market prospects for low-SES adolescents. The positive effects are similar for girls and boys. Thus, low-SES adolescents benefit considerably from the program.

For low-SES adolescents, the mentoring program has a significant positive effect on each of the three sub-indices of our index of labor-market prospects—math achievement, patience/social skills and labor-market orientation. For example, the math grade improves by 0.29 standard deviations as a result of program participation. This effect corresponds to an improvement by an average of 0.42 grade points (closing more than half of the gap to adolescents with a more advantaged socio-economic status). More detailed analysis shows that performance increases across the entire grade distribution.

Low-SES adolescents also benefit from the program in the non-cognitive domain. An index summarizing measures of patience and social skills increases by 0.44 standard deviations as a result of program participation. This increase is mainly driven by pa-

Figure 3

Effects of the Mentoring Program on the Labor-market Prospects of Disadvantaged Adolescents



Notes: The figure shows the effect of the mentoring program ("treatment effect") on the index of labor-market prospects and its three components: (1) standardized mathematics grade (German ordering reversed so that higher values indicate better performance); (2) index of patience and social skills; and (3) index of labor-market orientation. The figure also depicts the difference in the respective outcome between more advantaged and highly disadvantaged adolescents in the control group not participating in the program ("SES gap").
Source: Own illustration based on Resnjanskij et al. (2021).

tience as a measure of future orientation and willingness to postpone gratification. Social skills—measured as prosociality, trust and self-efficacy—are also positively affected by the program, but the increase is somewhat smaller and not statistically significant.

Finally, participating in the mentoring program also increases the labor-market orientation of the severely disadvantaged adolescents by 0.29 standard deviations. The effect is driven by the wish to be part of an apprenticeship: Program participation increases the percentage of low-SES adolescents stating that they want to do an apprenticeship after school by 22 percentage points (from 44 percent in the control group to 66 percent in the treatment group). We interpret this evidence as showing that participants in the mentoring program develop more realistic expectations about their future careers, since successfully completing an apprenticeship is the most relevant career track for disadvantaged youths in low-track schools. This interpretation is also consistent with results on various dimensions of satisfaction: Low-SES youths in the treatment group are more satisfied with their lives and their current belongings than their counterparts in the control group, suggesting that the program makes highly disadvantaged adolescents focus on what they can realistically achieve and appreciate what they already possess. In contrast, there is no program effect on whether the adolescents already know exactly what they want to do later in life.

Adolescents with a more favorable socio-economic status do not benefit from program participation. If anything, their labor-market prospects (overall index and each component) tend to decline slightly. However, the effect is small and not statistically significantly different from zero.

Hence, mentoring seems to work primarily for highly disadvantaged adolescents who severely lack family support. This picture also manifests itself in a further analysis in which we test different channels that can potentially explain the effect of the mentoring program. The results of this analysis show that a notable percentage of the positive effect on the labor-market prospects of disadvantaged adolescents can be attributed to the fact that the program offers mentors as attachment figures with whom the adolescents can talk about their future. Mentors also provide important information about future career choices and facilitate the mentees' understanding that learning in school can be helpful for their future career.

One reason why the program does not work for the less disadvantaged adolescents could be that the mentors are unable to provide these adolescents with any significant additional help beyond the family support they already have. In contrast to severely disadvantaged youths, the mentees from less disadvantaged families do not report that mentoring helps them to cope with problems at school or outside of school. In addition, mentor-mentee conversations revolve around leisure activities more often than is the case for highly disadvantaged adolescents. Our results also indicate that for the less disadvantaged youths, participating in the program crowds out potentially beneficial activities, for example, social activities at school.

The mentoring program also reaches a substantial percentage of adolescents with a migration background. For more than half (58 percent) of the participants in the evaluation study, either the adolescents themselves or at least one of their parents was born abroad (Figure 1b). The program effect in the sample of migrants is significantly positive, albeit somewhat smaller than in the low-SES sample. If migration and socio-economic status are taken into account simultaneously, the effects are driven exclusively by the socio-economic status. However, there is a large positive effect of program participation on labor-market prospects of first-generation migrants—i.e., youths who were themselves born abroad.

CONCLUDING REMARKS

Our findings suggest that mentoring programs can substantially improve the future labor-market prospects of highly disadvantaged adolescents. The studied mentoring program, *Rock Your Life!*, significantly increases overall labor-market opportunities of adolescents with a low socio-economic status, completely closing the gap between them and more advantaged adolescents. All three components of the overall index of labor-market prospects—cognitive, non-cognitive and motivational aspects—are positively affected by the program. Therefore, mentoring seems a viable policy for raising the prospects of disadvantaged children even during adolescence. Of course, mentors can never fully substitute for parents and they never aim to. However, by providing guidance for future opportunities, they appear to be able to substitute for some elements of parental support that many disadvantaged youths are lacking.

In contrast, the program is not effective for youths who have a more advantaged socio-economic status, for whom lacking parent support is less of a handicap. Therefore, the sharp differences in program impact by participants' socio-economic status suggest that the program should focus on those adolescents who truly lack family support.

To estimate the magnitude of program benefits relative to the costs, we conducted a rough cost-benefit analysis. We measure the benefits of the program in terms of the lifetime labor-market returns that the severely disadvantaged adolescents can expect as a result of their improved school grades (according to own calculations based on representative data for Germany). Given the large effects and relatively low costs of the program, the benefit-to-cost ratio is 15–to–1 for the current version of the program and 31–to–1 for a program targeted at severely disadvantaged youths. Although such estimates are subject to

a considerable degree of uncertainty, the large magnitude suggests that the costs of the mentoring program are likely more than offset by the labor-market benefits it generates.

REFERENCES

Almond, D., J. Currie und V. Duque (2018), "Childhood Circumstances and Adult Outcomes: Act II", *Journal of Economic Literature* 56 (4), 1360–1446.

Alvaredo, F., L. Chanel, T. Piketty, E. Saez and G. Zucman, eds. (2018), *World Inequality Report* 2018. Paris, World Inequality Lab.

Autor, D. H. (2014), "Skills, Education and the Rise of Earnings Inequality Among the 'Other 99 Percent'", *Science* 344 (843), 843–851.

Black, S. E. und P. J. Devereux (2011), "Recent Developments in Intergenerational Mobility", in O. Ashenfelter and D. Card, eds., *Handbook of Labor Economics*, Vol. 4, Part B, Amsterdam, North Holland, 1487–1541.

Corak, M. (2013), "Income Inequality, Equality of Opportunity and Intergenerational Mobility", *Journal of Economic Perspectives* 27 (3), 79–102.

Cunha, F., J. J. Heckman, L. Lochner and D. V. Masterov (2006), "Interpreting the Evidence on Life Cycle Skill Formation, in E. A. Hanushek and F. Welch, eds., *Handbook of the Economics of Education,* Vol. 1, Amsterdam, North Holland, 697–812.

García, J. L., J. J. Heckman, D. E. Leaf and M. J. Prados (2020), "Quantifying the Life-Cycle Benefits of an Influential Early Childhood Program", *Journal of Political Economy* 128 (7), 2502–2541.

Kosse, F., T. Deckers, P. Pinger, H. Schildberg-Hörisch and A. Falk (2020), "The Formation of Prosociality: Causal Evidence on the Role of Social Environment", *Journal of Political Economy* 128 (2), 434–467.

Heckman, J. J. (2008), "Schools, Skills and Synapses", *Economic Inquiry* 46(3), 289–324.

OECD (2018), *A Broken Social Elevator? How to Promote Social Mobility,* Paris, OECD Publishing.

Resnjanskij, S., J. Ruhose, S. Wiederhold and L. Woessmann (2021), "Can Mentoring Alleviate Family Disadvantage in Adolescence? A Field Experiment to Improve Labor-Market Prospects", *CESifo Working Paper,* No. 8870, Munich, CESifo.

Rock Your Life! (2020), *Jahresbericht* 2019, München, Rock Your Life! gGmbH.

Roemer, J. E. (2008), *Equality of Opportunity,* Cambridge, MA, Harvard University Press.

Schuetz, G., H. W. Ursprung and L. Woessmann (2008), "Education Policy and Equality of Opportunity", *Kyklos* 61 (2), 279–308.