The Economic Impact of Depression Treatment in India: Evidence from Community-Based Provision of Pharmacotherapy

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B Online Appendix

B.1 Depression Prevalence and Correlates in the Community

The global prevalence of major depressive disorder (MDD) is around 5 percent (Ferrari et al. 2013). A much larger fraction of people have minor depression, which also impacts quality of life and is a leading risk factor for developing more severe illness (Cuijpers et al. 2004). Depression is more prevalent among women (Piccinelli and Wilkinson 2000) and people with lower socioeconomic status (Sareen et al. 2011).

Although these general patterns are clear, the prevalence of depression and the association between depression and economic circumstances may vary across settings. To gauge the impact of depression in the study context, we measured depression symptoms in a representative sample of adults in Madhugiri District, Karnataka, which is adjacent to the study area and has similar demographic characteristics.[1] A comparison to the 2011 Census of India shows that our sample is representative of the caste, gender, and religious composition of Madhugiri. Estimates in this section are weighted to match the gender, religion, caste, and literacy composition of Madhugiri, although this step does not alter any results.

Figure B1 illustrates the main findings of the depression prevalence survey. The top panel shows the cumulative distribution function of PHQ-9 scores. 76.3 percent of respondents had scores below 5, indicating no depression, 14.5 percent had scores of 5-9, indicating mild depression, and 9.2 had scores of 10 or more, indicating moderate or severe depression. The PHQ-9 threshold for moderate depression corresponds loosely with an MDD diagnosis, although the PHQ-9 scale is not a diagnostic instrument. These findings suggest that depression is more prevalent in this setting than elsewhere in the world. Madhugiri is a poor area, and the elevated prevalence of depression in our sample suggests that poverty may contribute to depression. To investigate further, we created a socioeconomic status (SES) index by computing the first principal component of caste, literacy, education, savings, and home size. The bottom panel of Figure B1 documents a strong negative correlation between SES and depression severity. The figure shows a monotonic decline in average PHQ-9 scores as SES increases. People in the bottom quartile of the SES distribution have average PHQ-9 scores of 4.50 while those in the top quartile of the SES distribution have scores of 1.99 ($p < 0.001$ for this comparison). Table B2 shows how socioeconomic and demographic variables correlate with depression in the community. Age, female gender, low literacy and

[1] We randomly chose 120 localities and sampled a number of household per locality that was proportional to the locality's population in the 2011 census. Within each household, we attempted to survey up to two adults. Surveyors made up to three attempts over several weeks to reach each respondent and attempted to measure depression consistently with the intervention study.

education, and recent exposure to negative shocks are positively correlated with depression, which aligns with existing evidence (Gilman et al. 2002).

B.2 Ethics and IRB Oversight

This appendix describes the ethical considerations for this study. This study received approval from multiple IRBs in India and the United States. The Institutional Ethical Committee of the Shridevi Institute of Medical Sciences and Research Hospital in Tumkur, Karnataka provided primary oversight of the PC intervention. We also received IRB approval for the full study, including the interventions and data collection, from the University of Chicago, the University of Michigan, the University of Southern California, the University of Texas at Austin, and the Institute for Financial Management and Research (IFMR), which led the data collection.

The PC intervention facilitated the provision of mental health care that was otherwise available in the community. For example, each subdivision operates a public hospital with weekly psychiatric office hours for drop-in treatment. SSRIs are also available for free through these consultations. In practice, access may be difficult for many people because hours are limited and patients must arrange transportation to the hospital.

The IRB protocol for this study delineated practices to ensure the safety and protection of study participants. Subjects gave written informed consent before participating in the initial screening to identify people with depression symptoms who were eligible for the study. Eligible participants provided consent again before joining the study and completing the Round 1 survey. Informed consent scripts were customized to each intervention arm. When seeking consent for screening or intervention participation, surveyors always informed subjects that they could obtain free health care from the local hospital during the weekly clinics.

Staff monitored the wellbeing of all study participants throughout the study. Subjects were ineligible to join the study if they had PHQ-9 scores greater than 20, indicating severe depression. According to the protocol, anyone with a PHQ-9 score of 21 or more would be referred for immediate treatment for free at Shridevi Hospital. In practice, 19 people had a PHQ-9 score greater than 20 during screening. GASS personnel also monitored all study participants on a monthly basis throughout the PC intervention. Anyone whose symptoms worsened into severe depression would be referred for immediate treatment for free at Shridevi Hospital. One individual developed severe depression in Round 4 and three individuals developed severe depression in Round 5.

This study evaluates the socioeconomic impact of pharmacotherapy using SSRIs. A psychiatrist worked with patients to establish individualized courses of treatment. The research team did not play a role in determining courses of treatment. Participants with depression received escitalopram, fluoxetine, paroxetine, or setraline, which are off-patent SSRIs, based on the determinations of psychiatrists. These FDA-approved medications have been widely used since 1988 to treat depression (Hillhouse and Porter 2015). Side effects for these drugs include nausea, nervousness, dizziness, reduced sexual desire, drowsiness, insomnia, weight gain or loss, headache, dry mouth, vomiting, and diarrhea. Reduced sexual desire, weight gain, and sleep disturbance are the most common side effects. However, side effects are generally mild, and can usually be addressed by changing drugs or adjusting the dosage (Ferguson 2001). In practice, 12 percent of PC compliers ($n = 15$) reported experiencing any side effects after the intervention.

B.3 Power Calculations

Our power calculations assume an intraclass correlation of 0.2, a within-respondent autocorrelation of 0.7, and power of 0.8, and consider a 5 percent significance in two-tailed tests. We have 506 clusters (localities), with a median cluster size of 2. We first describe our "ex-ante" MDEs, and then discuss the "ex-post" MDEs.

Starting with the "ex-ante" MDEs, in the "during" period, the study has power to detect an effect of 0.16 SD (PC/LA vs. C, PC vs. C, LA vs. C).[2] For pairwise comparisons of the interventions (PC/LA vs. PC, PC/LA vs. LA, PC vs. LA), the trial has power to detect a difference of 0.185 SD. We also assess the power to test whether PC and LA are complements, so that the impact of PC/LA is greater than the sum of the impacts of PC and LA. For this power calculation, we assume that the sum of the PC and LA effects has a standard deviation of $\sqrt{2}$. The study is powered to detect a complementarity if the PC/LA mean is at least 0.212 SD larger than the sum of the PC and LA means. Attrition slightly reduces the sample size in the "after" period. This change increases the MDEs by 0.005 SD. We can revise our MDEs using information from our sample to also estimate "ex-post" MDEs.[3] Using our data, we estimate: intra-class correlations 0.21 during and 0.19 after; baseline/follow-up serial correlations of 0.17 during and 0.12 after; and follow-up serial correlations of 0.38 during and 0.36 after. Using these revised correlations, in the "during" period, the study has power to detect effects of 0.217 SD (PC/LA vs. C, PC vs. C, LA vs. C), 0.251 SD (PC/LA vs. PC, PC/LA vs. LA, PC vs. LA), and 0.289 SD (PC + LA vs. PC/LA). In the "after" period, the study has power to detect effects of 0.216 SD (PC/LA vs. C, PC vs. C, LA vs. C), 0.25 SD (PC/LA vs. PC, PC/LA vs. LA, PC vs. LA), and 0.288 SD (PC + LA vs. PC/LA). These minimum effects sizes (treatment vs. control) are in line with Gartlehner et al.'s (2017) meta-analysis of the effects of pharmacotherapy, which we describe in Appendix B.6.

In the child sample, which we use to estimate impacts on child human capital investment, the "ex-ante" MDE for the comparison to the control arm is 0.17 SD in the "during" period and 0.24 SD in the "after" period. The MDE for the pairwise comparison of intervention arms is 0.20 SD in the "during" period and 0.264 SD in the "after" period. The MDE for the test of whether PC and LA are complements is 0.30 SD in the "during" period and 0.32 SD in the "after" period. Using our data for the "ex-post" MDEs, we estimate: intra-class correlations 0.22 during and 0.47 after; baseline/follow-up serial correlations of 0.40 during and 0.28 after; and a follow-up serial correlation of 0.44 during. Using these revised correlations, in the "during" period, the study has power to detect effects of 0.218 SD (PC/LA vs. C, PC vs. C, LA vs. C), 0.252 SD (PC/LA vs. PC, PC/LA vs. LA, PC vs. LA), and 0.252 SD (PC + LA vs. PC/LA). In the "after" period, the study has power to detect effects of 0.35 SD (PC/LA vs. C, PC vs. C, LA vs. C), 0.394 SD (PC/LA vs.

[2] The larger sample size in the control group helps to improve power for these comparisons.

[3] Note that the ex-post MDE for a significance level of 0.05 and 80% power is $2.8 \times SE$, while for a significance level of 0.10 it is $2.48 \times SE$, where SE is the standard error of the treatment coefficient (Haushofer and Shapiro 2016).

PC, PC/LA vs. LA, PC vs. LA), and 0.392 SD (PC + LA vs. PC/LA). These effect sizes (treatment vs. control) are in line with Baranov et al.'s (2020) estimates of the effect of treatment for perinatal depression on parental monetary and time investment in children, which range from 0.20 to 0.35 SD.

B.4 Selection and Intervention Compliance

This section investigates which variables may be correlated with intervention compliance. For this exercise, we define compliance with the PC intervention as attending at least one meeting with a psychiatrist; we define compliance with the LA intervention as attending a livelihoods workshop or obtaining a job or other livelihoods opportunity from the NGO. We investigate differences between compliers and non-compliers along five dimensions: age, gender, mental health, SES, and economic circumstances. For mental health, we compute the first principal component of the baseline PHQ-9, the GAD-7 anxiety scale, prior experiences of depression, and health and happiness as a child (which are risk factors for depression). For SES, we compute the first principal component of baseline literacy, education, caste, earnings, savings, and house size. For economic circumstances, we compute the first principal component of recent negative shocks, net worth, and consumption.

In Table B3, Columns 1-3 show the differences between compliers and non-compliers in each intervention arm. Compliers and non-compliers do not differ across most characteristics, with the exception of PC compliers, who are more likely to be female than PC non-compliers, and LA compliers, who have better baseline mental health than LA non-compliers. Columns 4 and 5 test whether these compliance differentials vary significantly across PC/LA, PC, and LA. We find no significant differences in compliance selection across PC/LA and PC. This finding suggests that the stronger mental health impact of PC/LA does not arise through a difference in the types of participants who received the PC intervention. The comparison of PC/LA and LA shows that LA compliance is more strongly associated with mental health than PC/LA compliance.

B.5 Attrition

Survey participation is balanced across arms during Rounds 2-4, but falls differentially for the PC arm in Round 5. In Round 5, participation is 83% for PC/LA, 72% for PC, 87% for LA, and 85% for control. Differential attrition cannot confound estimates for child human capital investment or risk intolerance because these variables are not available in Round 5.

To understand who attrits, we select the correlates of attrition through LASSO (from the list in footnote 24 of the manuscript). The most notable variables in this list are marital status, education, and durable goods ownership. Attriters are 11 percentage points less likely to be married at baseline than non-attriters ($p = 0.002$), they have 0.8 more years of education ($p = 0.02$), and they have 0.15 SD lower durable goods index scores ($p = 0.06$). The baseline PHQ-9 score is not correlated with subsequent attrition ($p = 0.95$).

As an additional robustness test, we use the set of baseline covariates included in the LASSO specification to estimate the propensity score for subsequent attrition. These covariates are jointly significant and explain 18 percent of the variation in attrition. We re-estimate the specifications in the paper using entropy weights (Hainmueller 2012) to impose balance in the attrition propensity across arms. Estimates (available upon request) are very similar to the results in the paper.

B.6 Mental Health Impacts Compared to the Literature

This appendix elaborates on the comparison between our estimates and other studies in the literature. This comparison focuses on our "during" estimates, since most trials in the literature measure impacts over just a few months. Table 2 shows that the effect of PC on depression severity is -0.14 SD (95% CI: -0.30 to 0.03) and the effect of PC/LA on depression severity is -0.26 SD (95% CI: -0.41 to -0.10) during the PC intervention.

Gartlehner et al. (2017) provide a comprehensive review of over 140 studies of depression treatment with SSRIs and cognitive-behavioral therapy (CBT). The authors find that SSRIs reduce depression severity by 0.35 SD and that CBT reduces depression severity by 0.22 SD. A challenge for this exercise is that most studies of depression treatment are conducted in clinical settings with very high patient participation. By contrast, only 45 percent of PC participants and 43 percent of PC/LA participants attend at least one psychiatric visit in our study. Therefore, we multiply Gartlehner et al.'s (2017) estimates by our compliance rate to make a like-to-like comparison.[4] This approach assumes that assignment to treatment does not affect the mental health of non-compliers. After this adjustment, Gartlehner et al.'s (2017) findings imply an intent-to-treat effect of -0.15 SD (95% CI: -0.13 to -0.17) for SSRIs and -0.09 SD (95% CI: -0.01 to -0.17) for CBT, which are comparable to our findings.

Most mental health trials are conducted in developed countries (Patel et al. 2007), and we are not aware of a meta-analysis of pharmacotherapy in poor countries. Our estimates are similar to the average impacts of *psychotherapy* in low-income and middle-income countries in the meta-analysis by Singla et al. (2017). Studies that focus on developing countries and provide long-term impacts are even more scarce.[5]

B.7 Intervention Costs

Table B4 shows the implementation costs for the study interventions. Panel A describes the actual costs, Panel B disaggregates intervention components, and Panel C estimates costs under several hypothetical scenarios. Costs were incurred in Indian rupees from 2017-2019. To convert figures into 2017 US dollars, we adjust for inflation using the Indian consumer price index and convert to dollars using the January 2017 exchange rate of 67.4 rupees per dollar.

Panel A reports that the cost per person for PC is $221 while the cost of PC/LA is $232. These costs are similar because the LA intervention is inexpensive ($11 per person). For

[4]To be conservative, we use the PC compliance rate of 43 percent rather than the rate of joint compliance with PC and LA, which is 31 percent.

[5]While we are not aware of comparable meta-analyses, four individual studies report heterogeneous results. In two studies set in Goa, India, Patel et al. (2003) find no effects of pharmacotherapy or psychotherapy over 12 months and Haushofer et al. (2020) find no effects of psychotherapy over 12 months. However, a third study in Goa finds an ATT effect of psychotherapy of -0.32 SD over 12 months (Weobong et al. 2017), which corresponds to a -0.14 SD effect with 43% compliance. Rahman et al. (2008) find that psychotherapy reduces perinatal depression by 0.82 SD after one year in Pakistan (corresponding to a -0.35 SD AIT with 43% compliance).

a back-of-the-envelope comparison, we compute the cost of reducing PHQ-9 scores by 0.1 SD per month under both PC and PC/LA over the duration of the study. This method accounts for the larger and more durable mental health impacts in the PC/LA intervention. We consider the "during" period, which lasts 8 months, and the "after" period, which lasts 18 months. Over the 26-month time horizon in our data, Table B4 indicates that PC/LA costs $8.90 per month per person while PC costs $8.50 per month per person. According to the PC/LA estimates in Table 2 (-0.26 SD in the "during" period and -0.24 SD in the "after" period), the cost to reduce the PHQ-9 by 0.1 SD per person per month is 8.9/2.6 = $3.4 in the "during" period and 8.9/2.4 = $3.7 in the "after" period. According to Table 2, PC alone reduces depression symptoms by 0.14 SD in the "during" period and by 0.04 SD in the "after" period (an estimate that is not statistically significant). Therefore, the cost to reduce the PHQ-9 by 0.1 SD per person per month is 8.5/1.4 = $6.1 in the "during" period and 8.5/0.4 = $21.3 in the "after" period. In sum, PC/LA is more cost effective in terms of improving mental health because it costs only slightly more than PC, but it has larger and more persistent effects.

The intervention would be cheaper under alternative implementation scenarios. Since recruitment is a substantial cost ($43 per participant), interventions in clinical settings could reduce or eliminate this cost by treating people who have already been diagnosed with depression, reducing the cost of PC/LA by 18 percent ($191 versus $232). Alternatively, an intervention might reduce costs by asking psychiatrists to donate their time. Eliminating psychiatrist salaries would reduce the cost of PC/LA by 17 percent ($192 versus $232). Many pharmacotherapy interventions have shorter durations than the eight-month PC intervention. Reducing the duration of the PC intervention to four months would reduce the cost of PC/LA by 38 percent ($144 versus $232).

B.8 Heterogeneous Treatment Effects

In this appendix, we assess subgroup heterogeneity in the impact of the interventions on mental health and other outcomes. For each of several subgroups, we modify Equation (1) to interact intervention indicators with subgroup indicators in order to obtain subgroup-specific estimates. We examine heterogeneity by gender, age, depression severity, physical health, cognitive performance, and childhood experience of negative shocks, all of which are measured at baseline. SES is the first principal component of education, caste, earnings, savings, and house size. Physical health is the first principal component of five activities of daily living and recent levels of pain. Cognition is the first principal component of scores for the Raven's Progressive Matrices and forward and backward digit spans. Childhood shocks is an index of follows the Holmes and Rahe (1967) index of childhood negative life events.

Figure B5 shows impacts on the standardized PHQ-9 score along these margins. The figure plots the difference in the standardized treatment effect between groups and shows both 95 percent and 90 percent confidence intervals. A negative and significant effect means that the first listed group has a larger reduction in depression symptoms. There are larger mental health benefits of PC for people with worse baseline physical health, and of PC/LA for people who experienced above median childhood shocks in the "after" period. Other differential impacts by subgroup are not statistically significant.

Figures B23 to B31 reproduce Figure B5 for the other study outcomes. We do not find differential impacts that align with the differential effects on depression severity: there is not a differential effect of PC on these outcomes in the "after" period for people with worse baseline physical health, nor is there a differential effect of PC/LA on these outcomes for people with above-median exposure to childhood shocks in the "after" period.

B.9 Impacts on Anxiety and Activities of Daily Living

We measure impacts on the GAD-7 anxiety scale (Spitzer et al. 2006), a common depression comorbidity, and on several activities of daily living (ADL) in all survey rounds. The GAD-7 is a seven-item scale in which respondents indicate how frequently they have experienced anxiety symptoms in the past two weeks. Scores range from 0-21: scores of 4 or less indicate no anxiety, and scores of 9 or less indicate less than moderate anxiety. The ADL outcomes we measure are: the ability to do vigorous and moderate physical activities, to bathe and dress without help, and to carry a 10-kilogram object for 500 meters; the number of kilometers the respondent can walk without getting tired, the amount of physical pain the respondent has experienced in the past month, and whether pain has made it difficult to carry out daily activities. We scale these components so that larger values indicate better health and construct an ADL index from the standardized first principal component of these variables.

Figure B6 shows treatment effects on the standardized GAD-7 score and on the ADL index. Consistent with the depression findings in Table 2, the PC/LA intervention has the largest effect on anxiety symptoms, reducing anxiety by 0.18 SD (95% CI: -0.33 to -0.03) during the PC intervention and by 0.23 SD (95% CI: -0.41 to -0.06) afterward. When offered separately, PC and LA do not significantly affect anxiety.

The figure also shows that PC/LA improves activities of daily living in both the "during" and "after" periods. The ADL index increases by 0.12 SD (95% CI: -0.02 to 0.26) during the PC intervention and by 0.18 SD (95% CI: 0.02 to 0.35) afterward. Conversely, PC alone *reduces* the ADL index by 0.19 SD (95% CI: -0.35 to -0.02) in the "during" period. Patel and Kleinman (2003) find similar effects. This pattern is consistent with the transitory negative effect of PC on consumption and productive time use. The lack of this negative effect for PC/LA suggests that supplementing PC with LA may be protective.

B.10 Impacts on Time Use

In Table 3, Columns 1-2 report impacts on the number of productive hours per week, which is the sum of time spent on primary and secondary jobs, agriculture, child care, cooking, cleaning, laundry, and fetching water. Here, we disaggregate productive time into these categories and also show effects on sleep, leisure, and job search. These variables are based on 24-hour time diaries and are scaled up to represent weekly values.

Figure B7 shows these estimates. In the "during" period, PC reduces time spent on primary and secondary jobs and agriculture by 0.12 SD (95% CI: -0.26 to 0.01), which represents a decline of 3.1 hours per week. It concurrently increases time spent on sleep by 0.11 SD (95% CI: -0.01 to 0.22), which represents an increase of 1.9 hours per week; it increases leisure by 0.14 SD (95% CI: 0.01 to 0.27), which represents an increase of 2.7 hours per week. The PC/LA and LA interventions do not have statistically significant effects on time use in the "during" period. In the "after" period, PC continues to reduce time spent on primary and secondary jobs and agriculture, although the estimate is statistically significant only under the LASSO specification. Rather than shift toward sleep and leisure, PC participants increase time spent on domestic work. These impacts appear to cancel out in Table 3 because "productive time" aggregates across both measures. In addition, LA may reduce sleep time in the "after" period, although the estimate is only statistically significant in the LASSO specification.

B.11 Impacts on the Human Capital Index Components

Figure B8 shows impacts on the components of the child human capital investment index, including enrollment, attendance, homework time, and whether the child works for pay. The negative effect of PC/LA on attendance in the "during" period becomes positive in the "after" period. The figure shows that enrollment and attendance increase, while child labor decreases, although most of the effects are not individually statistically significant.

B.12 Impacts on Components of Consumption, Wealth, and Sanitation/Hygiene

Figures B9 and B10 show estimates for the components of the hygiene/sanitation and durable goods indices, while Figure B11 shows estimates for components of total consumption. Household food and non-food consumption decrease in the PC arm during the intervention. These households also experience a drop in income of similar magnitude in the same time period, which could explain the consumption drop.[6] In Figure B9 most estimates are not statistically significant, which is consistent with the lack of an effect of the interventions on the overall index in Figure 4. Figure B10 also shows few significant estimates, with the exception of large effects of PC and PC/LA on car ownership in the "after" period. However only 12 households in the sample own cars. This effect arises because there are 7 households with cars in PC and 3 households with cars in PC in the "after" period, compared to one household in the control arm.

Our analysis plan identifies durable goods as our primary measure of household wealth. Table B5 also shows estimates for net savings, which includes gross savings, credit (loans by the household to others), and debt. We find a reduction in indebtedness in the during period in the PC and LA arms, and in the "after" period in the LA arm.

This difference is driven by few households in the PC and LA arms who refrain from taking out relatively large loans. For example, in the "during" period, the 75th percentile for per capita loans is 8-9,000 rupees in all arms. However, the 90th percentile is 35,000 rupees in the control group and 19,000-28,000 rupees in the treatment arms.

B.13 Impact on Incidence of Negative Shocks

To measure the incidence of negative shocks, all survey rounds record whether anyone in the household experienced any of eight shocks in the past four months. These shocks are: an

[6]PC reduces per capita household income by Rs. 44 (95% CI: -3 to 90) and reduces per capita household consumption by Rs. 59 (95% CI: 13 to 104) in the "during" period. No other arms have significant effects on this outcome either during or after the PC intervention.

illness lasting at least one month, a death, an unemployment spell of at least one month, the loss of a business, a natural disaster (e.g. a fire or flood), incarceration, a divorce or separation, or another serious loss. We aggregate these shocks according to the Holmes and Rahe (1967) scale, which assigns severity scores to the shocks, and standardize this index.

Figure B15 shows estimates for the negative shock index. The PC and PC/LA interventions reduce the incidence of negative shocks by around 0.1 SD in the "after" period while LA does not have a significant effect on this outcome. This finding is consistent with the reduction in risk intolerance that we observe in Figure 5. Since "an illness lasting at least one month" is an element of the index, the interventions could mechanically improve the index by reducing the incidence of depression. We investigate this possibility by excluding the illness component and find results that are robust and very similar to the estimates in Figure B15. Estimates are available upon request.

One possible concern is that depression could affect the recall of negative events. To investigate, we asked respondents and their family members to recall eight negative shocks in Round 5. Study participants and their family members agree about the occurrence of particular shocks 88 percent of the time. Weighting these responses according to the Holmes and Rahe (1967) scale, we find that study participants recall 8 percent more shocks than their family members ($p = 0.004$). Intervention assignment is uncorrelated with the probability of agreement within the household ($p = 0.98$) and with the gap between the scores of study participants and family members ($p = 0.30$). Baseline depression severity is also uncorrelated with the probability of agreement ($p = 0.60$) and the gap between the scores ($p = 0.15$). These patterns suggest that selective recall by study participants is unlikely to spuriously generate the treatment effects on the negative shock index in Figure B15.

B.14 Impact on the Dispersion in Risk Attitudes

Table B6 shows the standard deviation in the risk intolerance index by treatment arm and round. The index is standardized for the control arm in Round 1 to allow for comparisons across arms and over time. The PC/LA and PC interventions significantly reduce the variance in risk intolerance in Round 4. We initially proposed to measure effects on the variance in risk preferences because Angelucci and Córdova (2018) found that lab-induced stress did not affect average risk preferences but reduced the likelihood of having extreme risk preferences. This pattern is not evident in our current study, since the treatments reduce both average risk tolerance and the variance in risk tolerance.

B.15 Impact on Cognitive Performance

Evidence on the effect of pharmacotherapy (typically involving SSRIs) on cognition is mixed. Meta-analyses by Cowen and Sherwood (2013) and Prado et al. (2018) indicate mild positive effects of SSRIs on cognition. However, Moraros et al. (2017) finds a negative association between prior use of antidepressants and cognitive impairment, and Han et al. (2020) find no relationship.

Figure B12 shows that there are negative treatment effects for each of the index components. We investigate two possible explanations for the negative effect we estimate in our sample. Cognitive performance could appear to decline if participants exert less effort or focus less intensively on the cognition exercises. However, we do not find significant impacts on the mean or the distribution of completion times for cognitive exercises, suggesting that participants do not change their approach to completing these exercises (estimates available from the authors). Secondly, lower cognitive performance could be related to antidepressant discontinuation syndrome (Davies and Read 2019), which may cause symptoms such as lethargy and fatigue. This explanation is unlikely because only 12 percent of PC compliers report any side effects of treatment. The broader question of the causal effects of pharmacotherapy on cognitive performance remains unresolved.

B.16 Impact on Status Within the Household

We examine impacts on proxies for status within the household. In Round 5, we collected data on physical autonomy and participation in communal meals to proxy for status (Palriwala 1993). Physical autonomy measures include whether the respondent has left the house alone in the past seven days and whether the respondent requires permission to leave the house. Communal meal variables include whether the respondent consumes meals at home, at different times than others, alone, or while cooking, and well as whether he or she eats food leftover by other family members. We aggregate these variables into a status index by computing the first principal component of these variables and standardizing this measure.

Estimates for intra-household status appear in Figure B13. Since these data are only available in Round 5, we cannot control for the baseline dependent variable or show estimates for the "during" period. The table shows no statistically significant impacts on status within the household.

Table B1: Deviations from the Pre-Analysis Plan

Pre-Specified Approach	Deviation	Rationale
Use an ANCOVA specification for outcomes with low serial correlation and a differences-in-differences specification for outcomes with high serial correlation.	Use ANCOVA and LASSO specifications for all outcomes.	We do not use differences-in-differences because serial correlation is low for all outcomes and therefore ANCOVA is efficient. Referees suggested incorporating the LASSO specification.
Estimate the impact of PC/LA relative to PC and LA.	Estimate the impact of PC/LA relative to C.	This approach eases the interpretation of our estimates.
Use the Romano and Wolf (2005) stepdown procedure control for the false discovery rate (FDR) across index components.	Use Benjamini et al. (2006) sharpened q-values to control for the FDR.	Benjamini et al. (2006) approach is more straightforward to implement.
Construct the child human capital investment index using enrollment, attendance, and homework components.	Also include (the lack of) child labor as a component.	This item was collected in conjunction with the other child human capital investment items. Omitting it from the pre-specified index was an oversight. Avoiding child labor is an important aspect of human capital investment.
No pre-specified way to assess joint significance and treatment complementarities.	Use the Young (2019) "omnibus" test to test joint significance and estimate a system of seemingly unrelated regressions to jointly test for treatment complementarities.	These methods are appropriate to address these additional inquiries.
Analyze DOSPERT items using the methodology of Blais and Weber (2006).	Directly combine DOSPERT risky behavior variables with other pre-specified risk tolerance measures.	The Blais and Weber (2006) approach requires indicators of the perceived benefit of each risky behavior, which we do not measure.
The follow-up period includes Rounds 2 and 3.	Add Rounds 4 and 5. Delineate between the "during" period (Rounds 2 and 3) and the "after" period (Rounds 4 and 5).	Most mental health studies focus on immediate impacts. Additional funding allowed us to measure treatment effects over a longer horizon.
Elicit earnings in the past month and in the past week.	Only elicit earnings in the past week.	Surveys do not include a monthly earnings question.
Use the Convex Time Budget (CTB) method to elicit time preferences.	Omit from the analysis.	The data are unreliable because the responses are inconsistent with a downward sloping demand for leisure.
Estimate the impact of treatment on the adoption of liquid hand sanitizer.	Omit from the analysis.	We are pursuing this study in another paper.
The PAP is ambiguous about whether child human capital investment is a primary study outcome or a household spillover outcome.	Treat child human capital investment as a primary outcome.	"Child investment" appears in the title of the PAP and child investment is listed as a primary outcome in the Social Science Registry entry.
Estimate the health impact for children under 5.	Omit these estimates.	These estimates lack power because only 85 study participants live with children who provide measurements.
No pre-specified way to deal with outlying monetary values.	Winsorize monetary values at 5 percent.	Winsorizing reduces measurement error without qualitatively changing the results
No proposed analysis of the impact on negative economic shocks.	Include these estimates.	Prevention and risk intolerance results suggest that the interventions may lead people exert more effort to avoid negative shocks, and therefore experience fewer negative shocks. These estimates allow us to test this prediction.
Assess baseline balance on presence of open defecation, presence of garbage, and cleanliness of the cooking area.	Assess balance on the hygiene and sanitation index instead.	These variables are components of the hygiene and sanitation index. We show that this index is balanced in Table 1.

Note: The table lists and provides an explanation for all deviations from our analysis plan. The analysis plan is available through entry AEACTR-0001067 on the AEA RCT Registry.

Table B2: Healthy and Depressed Adults in the Community Compared to the Intervention Sample

	Community Sample		Intervention	P-Value	
	Healthy	Depressed	Sample	(1) vs. (2)	(2) vs. (3)
	(1)	(2)	(3)	(4)	(5)
PHQ-9 depression scale	1.29	11.29	13.99	0.00	0.00
Age	34.5	37.0	35.3	0.00	0.00
Female	0.48	0.61	0.86	0.00	0.00
Scheduled caste/tribe	0.24	0.26	0.64	0.40	0.00
Schooling (years)	7.7	4.7	5.0	0.00	0.42
Literacy (1-3)	2.3	1.8	1.9	0.00	0.27
Any household savings	0.52	0.47	0.30	0.33	0.00
Bedrooms (number)	1.5	1.5	1.5	0.55	0.67
Negative life event scale	39	54	95	0.00	0.00
Observations	1249	256	1000	–	–

Note: the intervention sample includes baseline observations for all trial participants, while the community sample is a representative sample of adults (aged 18-50) from the adjacent taluk (Madhugiri). Estimates in Columns 1 and 2 are weighted to match the available demographic characteristics (percent literate, Hindu, Muslim, and scheduled caste/tribe) of Madhugiri according to the 2011 Census of India. The healthy subsample in Column 1 includes community respondents for whom PHQ-9 < 7, which matches the trial eligibility threshold. The depressed subsample in Column 2 includes community respondents for whom PHQ-9 ≥ 7.

Table B3: Selection into Intervention Compliance

	Compliers − Non-Compliers			P-Value	
	PC/LA	PC	LA	PC/LA − PC	PC/LA − LA
	(1)	(2)	(3)	(4)	(5)
Age	-0.667	-0.499	-1.839	0.92	0.52
	(1.318)	(1.150)	(1.186)		
Female	-0.0338	-0.130	0.0218	0.24	0.51
	(0.0646)	(0.0505)	(0.0552)		
Mental Health Index	-0.262	0.0825	0.385	0.12	0.00
	(0.179)	(0.139)	(0.144)		
SES Index	0.0345	0.224	0.0968	0.41	0.79
	(0.180)	(0.146)	(0.152)		
Economic Circumstances Index	0.224	0.151	-0.127	0.75	0.14
	(0.173)	(0.134)	(0.167)		
Observations	186	202	201	589	589

Note: Columns 1-3 show the differences in characteristics between compliers and non-compliers for each intervention arm. PC compliance is defined as attending at least psychiatric consultation. LA compliance is defined as attending at least one livelihoods workshop or obtaining employment (or another livelihoods opportunity) from the NGO. The mental health index is the standardized first principal component of PHQ-9, GAD-7 anxiety scale, prior experiences of depression, and health and happiness as a child, all of which are measured at baseline. The SES Index is the standardized first principal component of baseline literacy, education, caste, earnings, savings, and house size. The Economic Circumstances Index is the the first principal component of recent negative life events, net worth, and consumption. Standard errors are clustered by locality and p-values are based on univariate regressions of the characteristics on a compliance indicator.

Table B4: Intervention Costs Per Participant Under Alternative Scenarios

	Cost (USD)	Unit
	(1)	(2)
A: Actual Costs		
PC/LA	232	per person
PC	221	per person
LA	11	per person
B: Intervention Components		
Recruitment	43	per person
Home Visits	2	per person-month
Medicine and transportation	15	per person-month
Psychiatrist salaries	5	per person-month
Livelihoods services	11	per person
C: Alternative Hypothetical Scenarios		
PC/LA with psychiatrists working for free	192	per person
PC/LA w/o recruitment costs	191	per person
4-month PC/LA intervention	144	per person
4-month PC/LA intervention w/o recruitment costs	102	per person

Note: Expenses were incurred in 2019 Indian rupees. The table converts these values to 2017 US dollars using the Indian consumer price index and the January 2017 exchange rate of 67.4 rupees per dollar.

Table B5: Impacts on Net Savings and Components

	Net Savings		Savings		Credit		Debt	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A: During the PC Intervention								
PC/LA	1194	1239	-88	-94	-5.5	-32	-1417	-1434
	(1322)	(1262)	(46)	(47)	(91)	(91)	(1283)	(1251)
PC	1986	1967	-29	-50	53	25	-1923	-2034
	(1130)	(1152)	(58)	(58)	(105)	(104)	(1122)	(1148)
LA	2553	2504	-60	-71	-59	-60	-2642	-2686
	(1159)	(1141)	(50)	(49)	(77)	(73)	(1146)	(1128)
H_0: $PC/LA = PC$	0.57	0.60	0.33	0.45	0.60	0.61	0.71	0.66
H_0: $PC/LA = PC + LA$	0.07	0.07	0.98	0.74	0.99	0.98	0.08	0.06
H_0: $PC = LA$	0.65	0.67	0.63	0.73	0.27	0.39	0.56	0.60
H_0: $PC/LA = LA$	0.34	0.35	0.60	0.64	0.54	0.74	0.37	0.35
H_0: $PC/LA = PC = LA$	0.63	0.65	0.61	0.74	0.52	0.69	0.66	0.64
Control mean of outcome	-9640	-9640	400	400	184	184	10,280	10,280
B: After the PC Intervention								
PC/LA	-2222	-2240	-62	-77	-270	-297	1848	1840
	(1540)	(1506)	(55)	(56)	(82)	(88)	(1544)	(1505)
PC	-777	-784	-45	-64	-52	-72	701	560
	(1457)	(1426)	(51)	(51)	(123)	(128)	(1418)	(1390)
LA	3087	3016	13	1.4	-75	-78	-3077	-3102
	(1064)	(1057)	(59)	(57)	(121)	(123)	(1058)	(1049)
H_0: $PC/LA = PC$	0.43	0.41	0.77	0.83	0.03	0.02	0.53	0.47
H_0: $PC/LA = PC + LA$	0.03	0.03	0.72	0.86	0.35	0.35	0.04	0.03
H_0: $PC = LA$	0.01	0.01	0.38	0.29	0.86	0.96	0.01	0.01
H_0: $PC/LA = LA$	0.00	0.00	0.27	0.23	0.04	0.02	0.00	0.00
H_0: $PC/LA = PC = LA$	0.00	0.00	0.52	0.43	0.01	0.01	0.00	0.00
Control mean of outcome	-9610	-9610	411	411	351	351	10,374	10,374
Observations	3455	3455	3465	3465	3466	3466	3462	3462
Specification	ANCOVA	LASSO	ANCOVA	LASSO	ANCOVA	LASSO	ANCOVA	LASSO

Note: The table reports AIT effects following Equation (1). Columns 1, 3, and 5 use an ANCOVA specification that controls for time indicators, strata indicators, and the baseline dependent variable. Columns 2, 4, and 6 use the post-double-selection LASSO method to choose covariates (Belloni et al. 2014). Footnote 24 of the manuscript explains this approach in more detail. Locality-clustered standard errors appear in parentheses. "During" and "after" estimates are based on a common regression. "Savings" in Columns 3-4 is the household's gross monetary savings, "credit" in Columns 5-6 is the value of credit that the household has extended to others, and "debt" in Columns 7-8 is the value of debt that the household owes to others. "Net savings" in Columns 1-2 equals savings plus credit minus debt. All variables are measured in 2017 rupees and winsorized at 5 percent.

Table B6: Variance in Risk Intolerance by Intervention Arm and Round

	Control	PC/LA		PC		LA	
	St. Dev.	St. Dev.	P-value	St. Dev.	P-Value	St. Dev.	P-Value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Round 1	1.00	1.04	0.52	1.07	0.27	1.01	0.92
Round 2	1.13	1.21	0.31	1.13	0.93	1.00	0.04
Round 3	1.02	0.98	0.56	1.00	0.80	0.84	0.004
Round 4	1.32	1.18	0.09	1.17	0.06	1.30	0.79

Note: The figure shows the standard deviation in the risk intolerance index by intervention arm and round. The index is standardized for the control arm in Round 1. Columns 3, 5, and 7 show p-values for the comparison of each treatment arm (Columns 2, 4, and 6) with the control arm (Column 1).

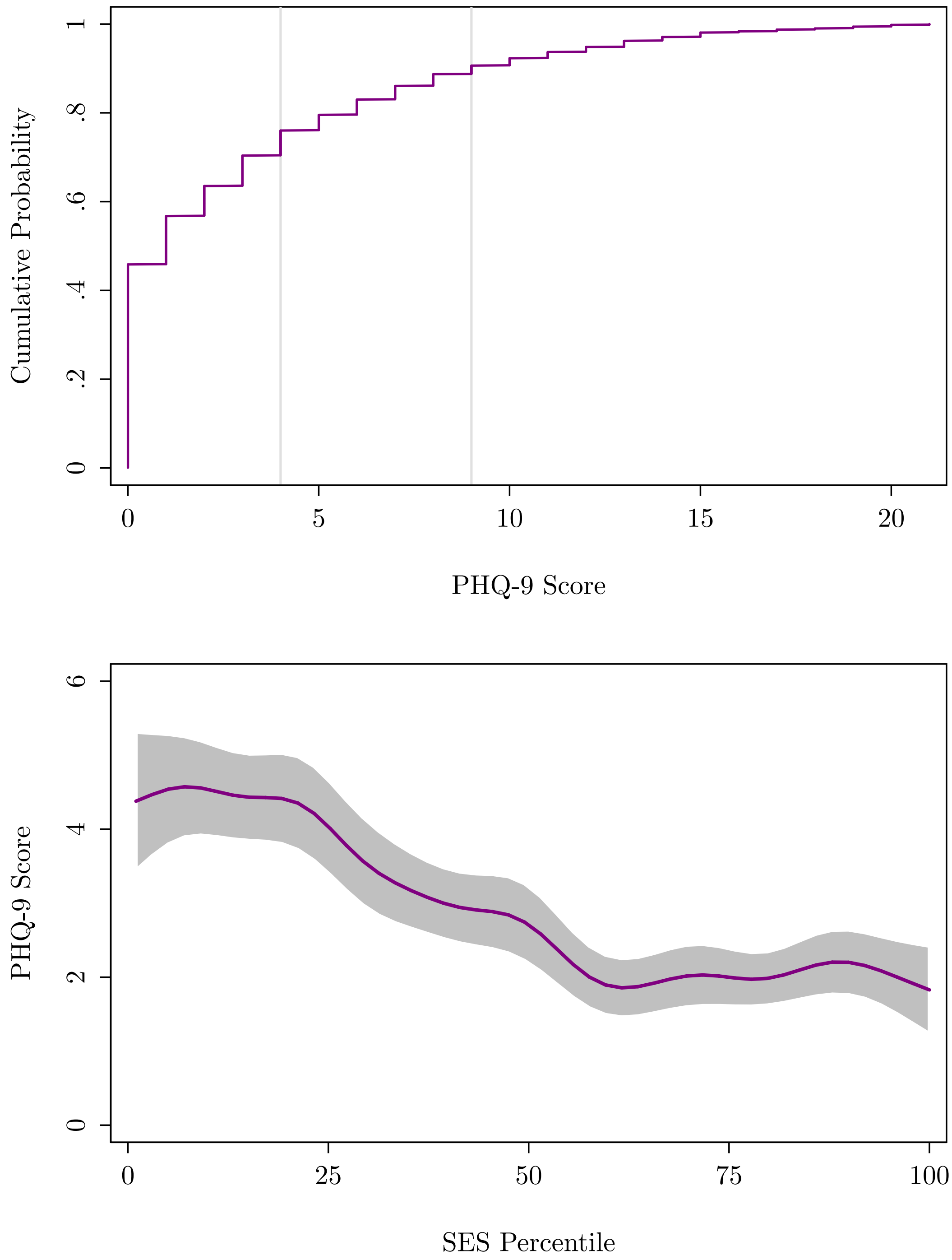

Figure B1: Community Depression Prevalence (Panel A) and Association with SES (Panel B)

Note: Data are from a representative sample of adults from Madhugiri District. Estimates are weighted to match the age, gender, religion, and caste distribution of the district in the 2011 Census of India. Panel A shows the cumulative density of PHQ-9 scores. Gray vertical bars indicate thresholds for mild and moderate depression. In Panel B, we construct an SES index according to the first principal component of caste, education, literacy, savings, and house size, which we convert into percentiles. The figure shows estimates from a locally-weighted polynomial regression of PHQ9 scores on the SES percentile.

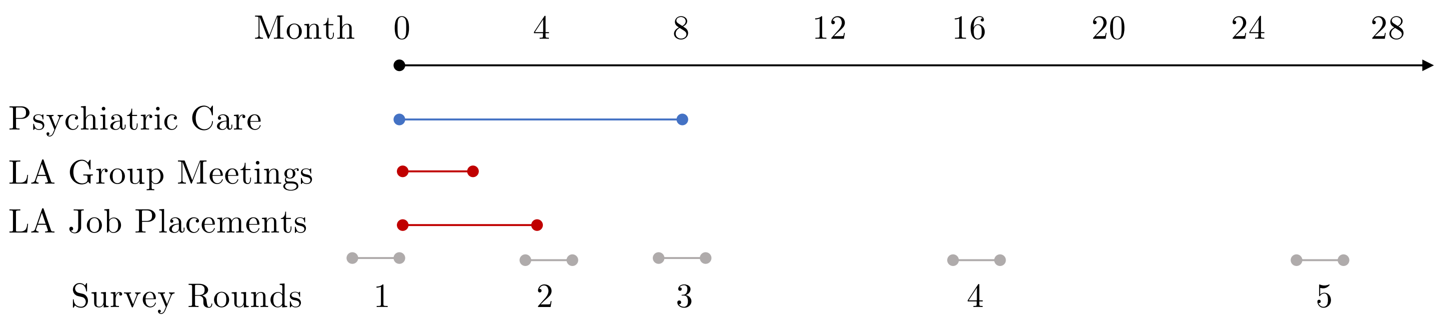

Figure B2: Study Timeline

Note: the figure shows the timing of the study components. PC components appear in red, LA components appear in blue, and survey rounds appear in gray.

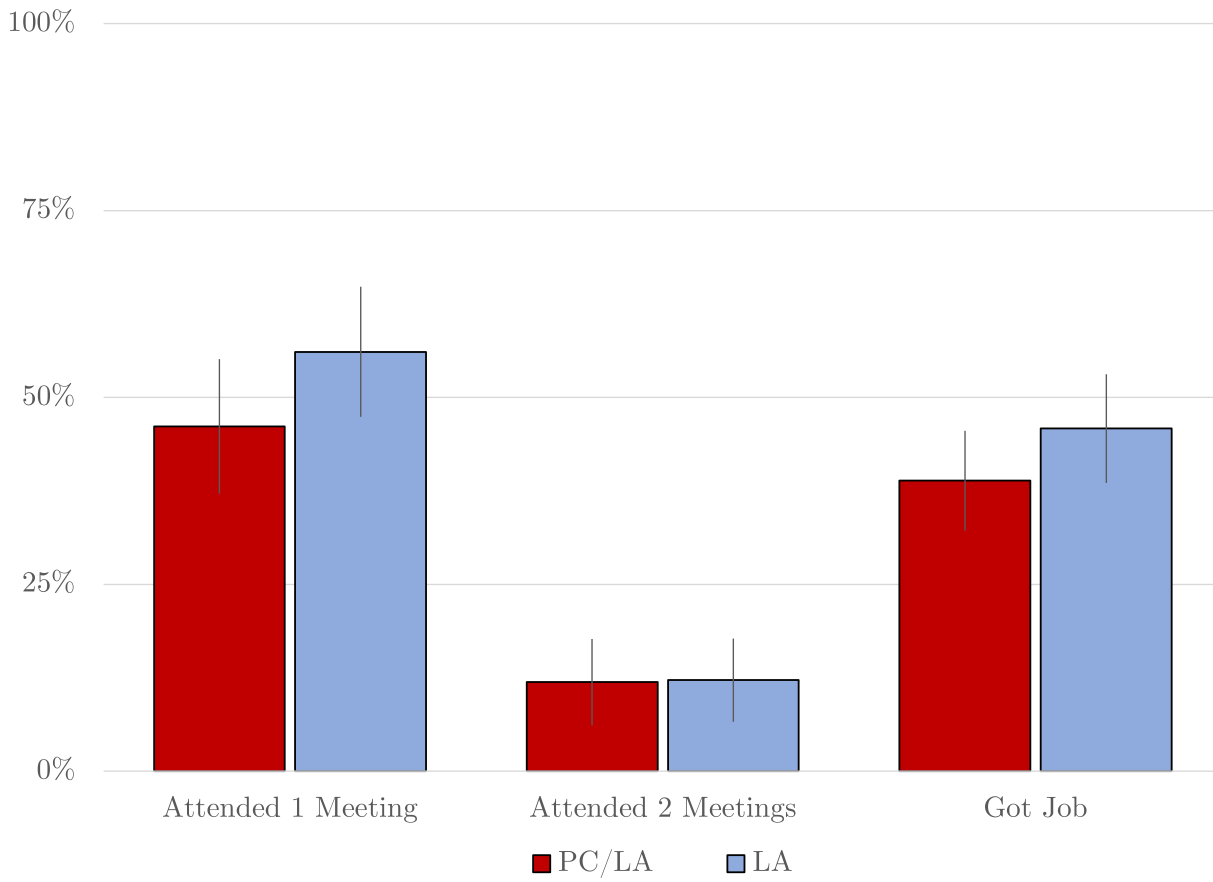

Figure B3: Participation in the LA Intervention

Note: the figure shows the percent of participants in the LA and PC/LA interventions who attended one meeting, attended two meetings, and who received a job placement or other livelihoods activity. Error bars show 95 percent confidence intervals based on locality-clustered standard errors.

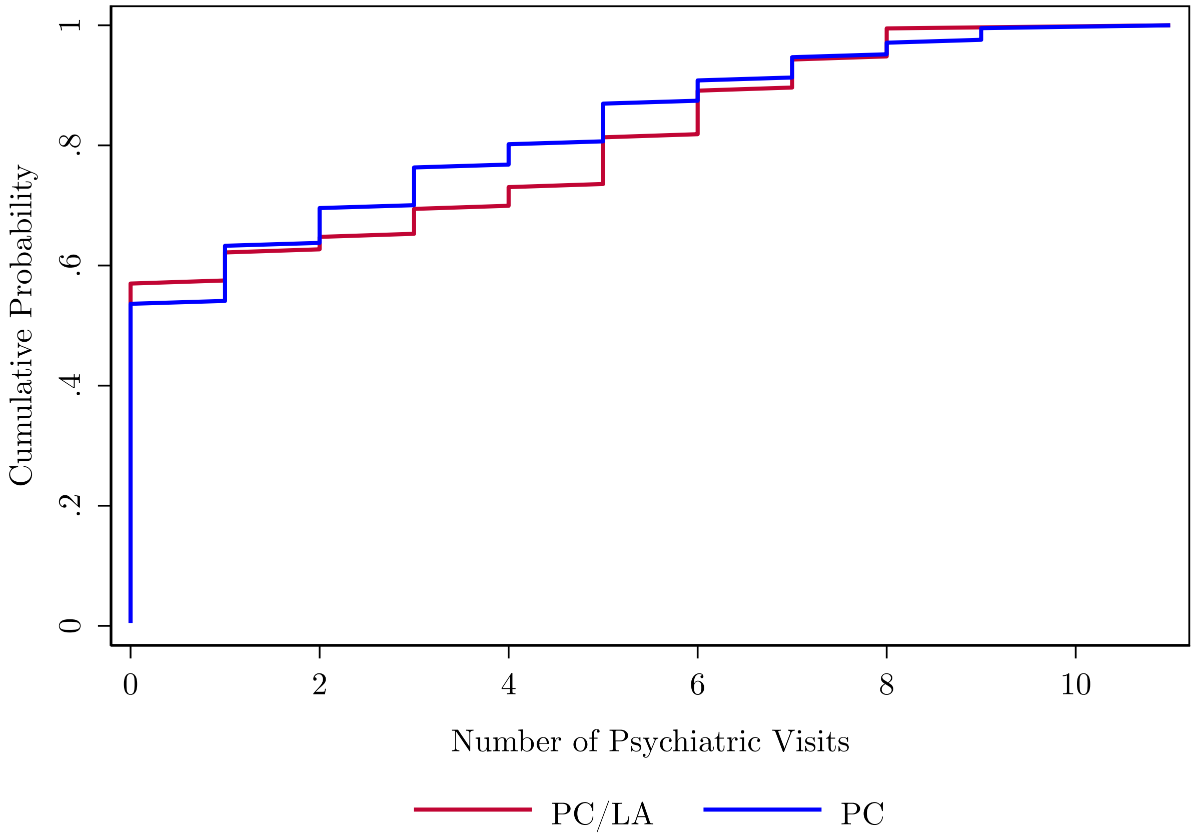

Figure B4: Participation in the PC Intervention

Note: the figure shows the cumulative density function for the number of psychiatric visits received by participants in the PC and PC/LA arms.

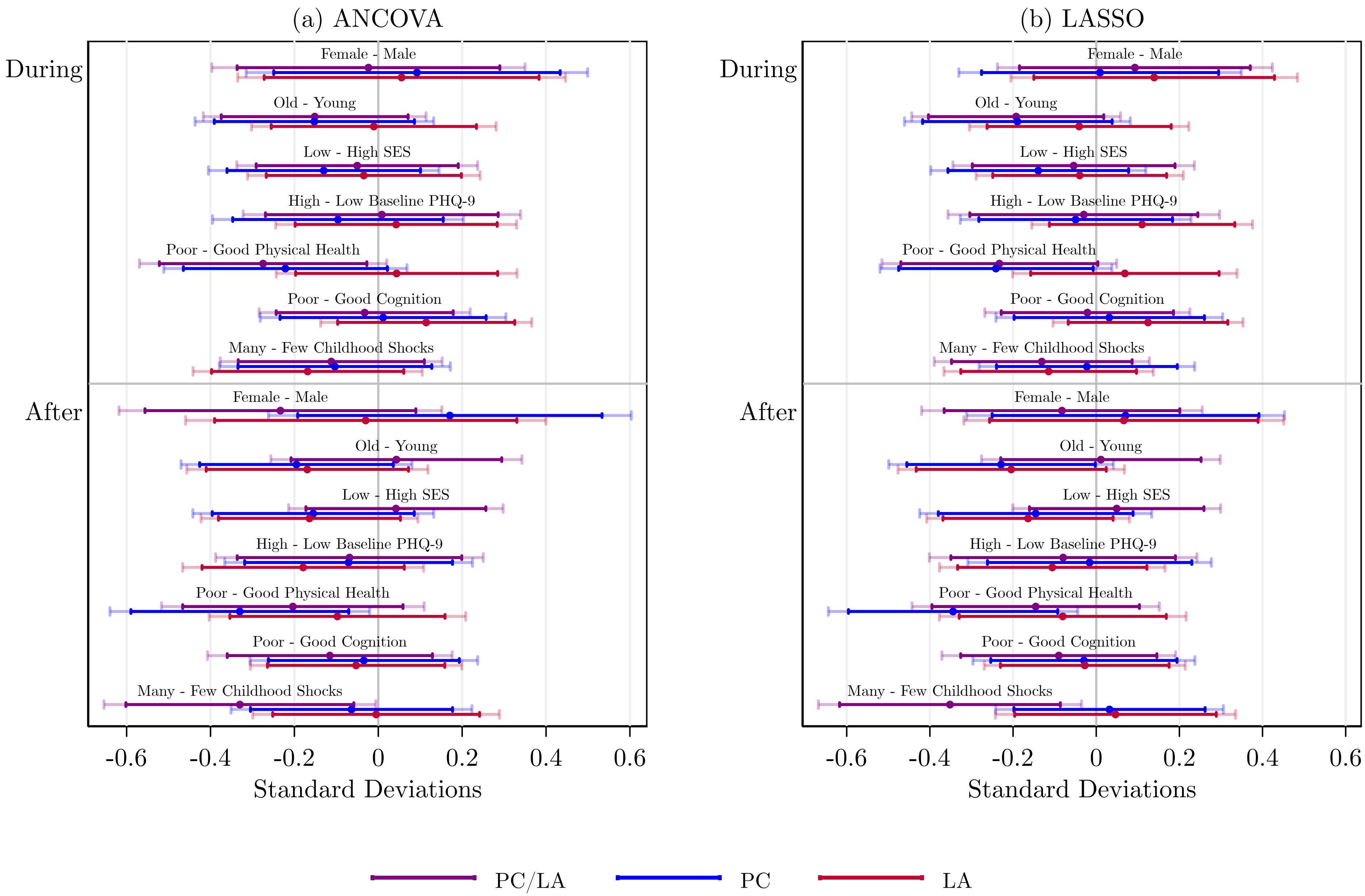

Figure B5: Heterogeneous Impacts on Depression Severity (PHQ-9)

Note: the figure follows Equation (1) and shows the difference in impacts across subgroups. Panel (a) shows estimates under the ANCOVA specification and Panel (b) shows estimates under the LASSO specification. A negative and significant effect means that the first listed group has a larger reduction in depression symptoms. SES is the first principal component of education, caste, earnings, savings, and house size. Physical health is the first principal component of five activities of daily living and recent levels of pain. Cognition is the first principal component of scores for the Raven's Progressive Matrices and forward and backward digit spans. Childhood shocks is an index of follows the Holmes and Rahe (1967) index of childhood negative life events. All variables are measured at baseline. We divide the sample at the median in each case, aside from gender. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors.

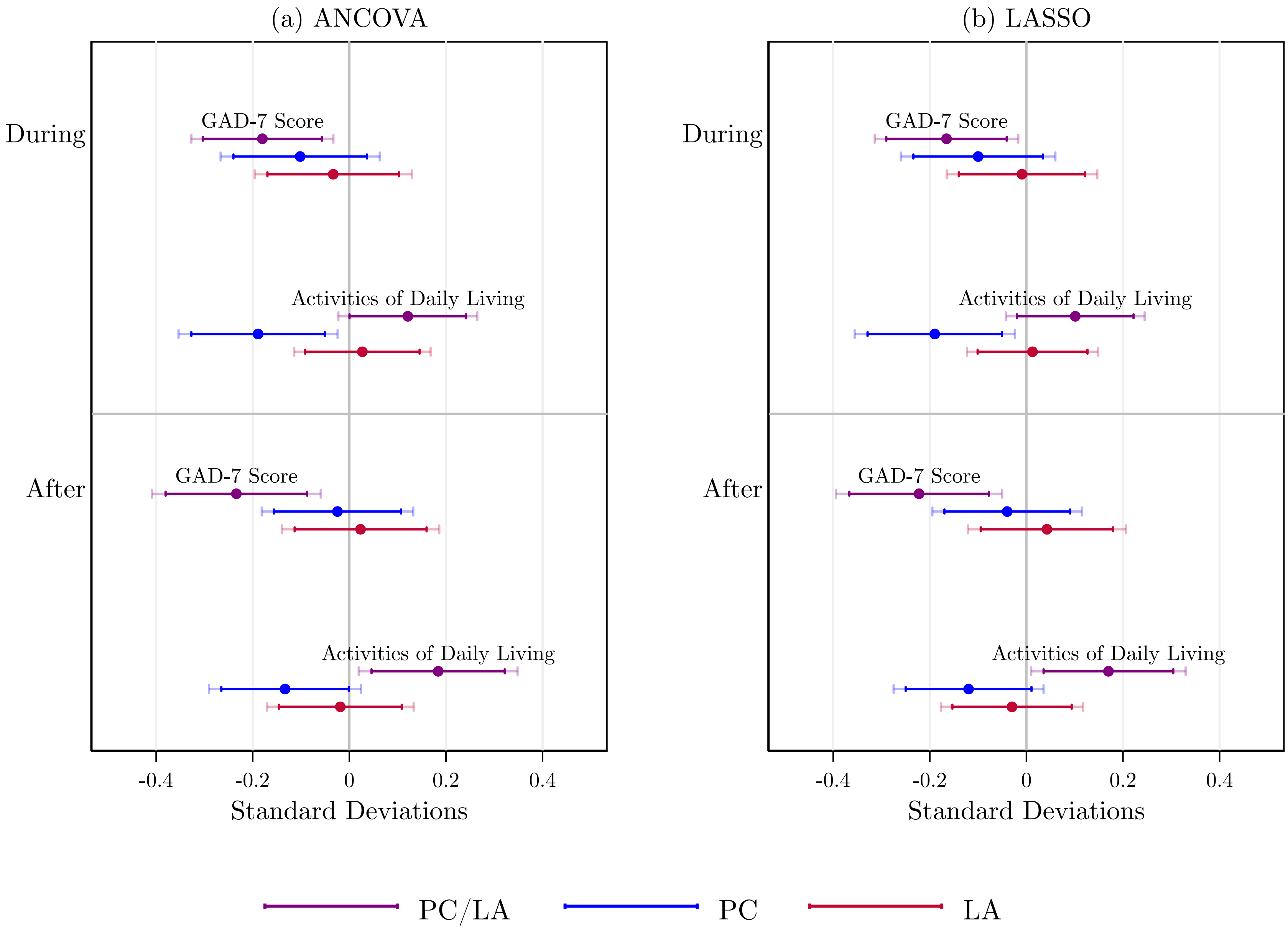

Figure B6: Impacts on Additional Health Outcomes

Note: The figure shows standardized impacts for the GAD-7 anxiety scale and activities of daily living (ADL) index. All estimates follow Equation (1). Results in Panel (a) are based on the ANCOVA specification, which controls for time indicators, strata indicators, and the baseline dependent variable. Results in Panel (b) use the post-double-selection LASSO method to choose covariates (Belloni et al. 2014). Footnote 24 of the manuscript explains this approach in more detail. The top of each panel shows impacts during the PC intervention and the bottom of each panel shows impacts after the PC intervention. Confidence intervals are based on unadjusted p-values. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors. We also adjust for multiple inference across outcomes using Benjamini et al. (2006) sharpened q-values. The following estimates are statistically significant after this adjustment: impact of PC/LA on both outcomes in the "during" period under ANCOVA ($q = 0.04$ for GAD-7 and $q = 0.05$ for ADL) and LASSO ($q = 0.06$ for GAD-7 and $q = 0.09$ for ADL), and in the "after" period under ANCOVA ($q = 0.02$ for GAD-7 and $q = 0.02$ for ADL) and LASSO ($q = 0.02$ for GAD-7 and $q = 0.02$ for ADL). ADL impact of PC in the "during" period ($q = 0.05$ for both ANCOVA and LASSO). All other estimates are statistically insignificant after adjustment.

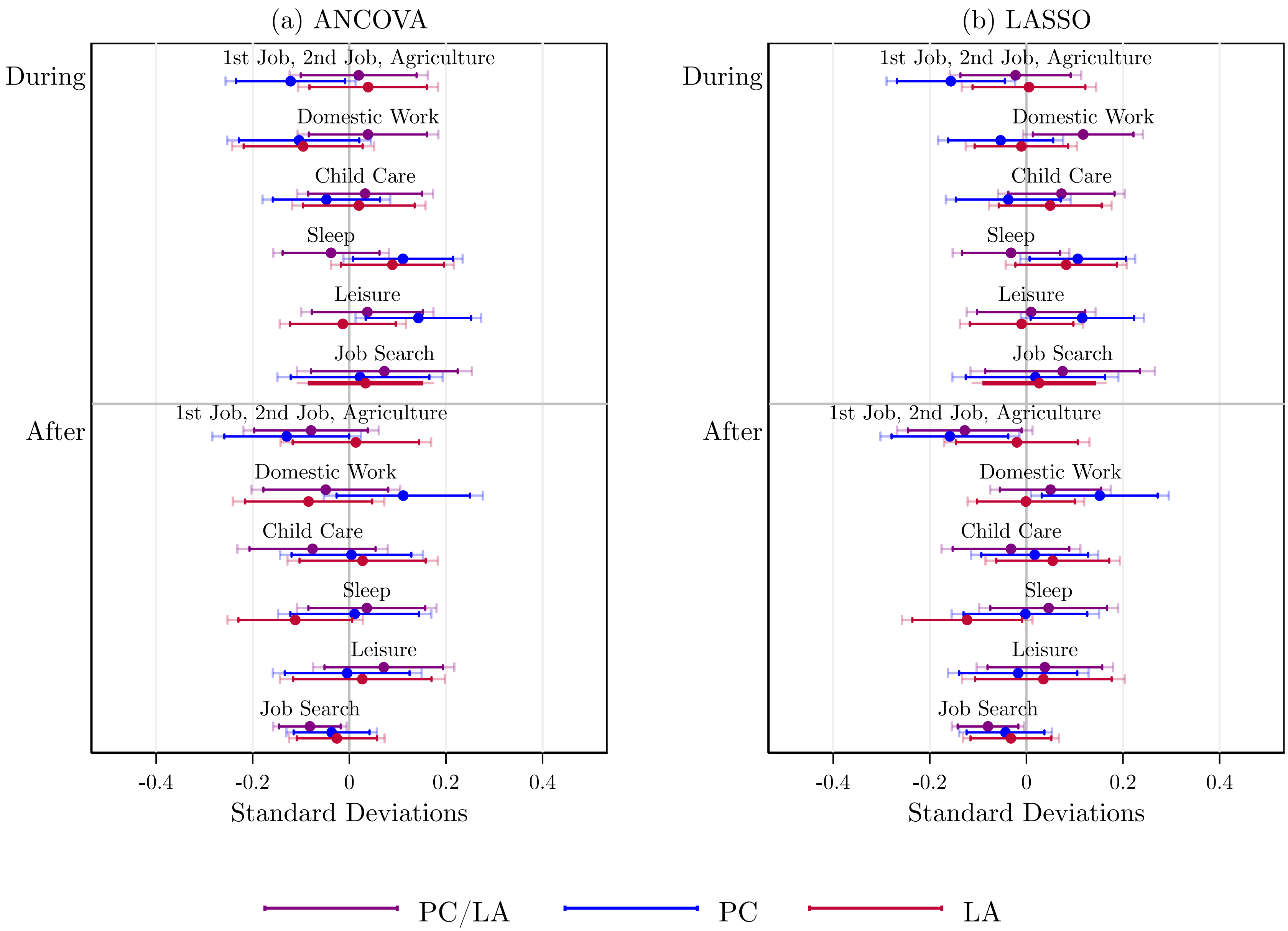

Figure B7: Impacts on Time Use

Note: The figure shows standardized impacts for the components of the subjective wellbeing index. All estimates follow Equation (1). Results in Panel (a) are based on the ANCOVA specification, which controls for time indicators, strata indicators, and the baseline dependent variable. Results in Panel (b) use the post-double-selection LASSO method to choose covariates (Belloni et al. 2014). Footnote 24 of the manuscript explains this approach in more detail. The top of each panel shows impacts during the PC intervention and the bottom of each panel shows impacts after the PC intervention. Confidence intervals are based on unadjusted p-values. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors. We also adjust for multiple inference across outcomes using Benjamini et al. (2006) sharpened q-values. All estimates are statistically insignificant after adjustment.

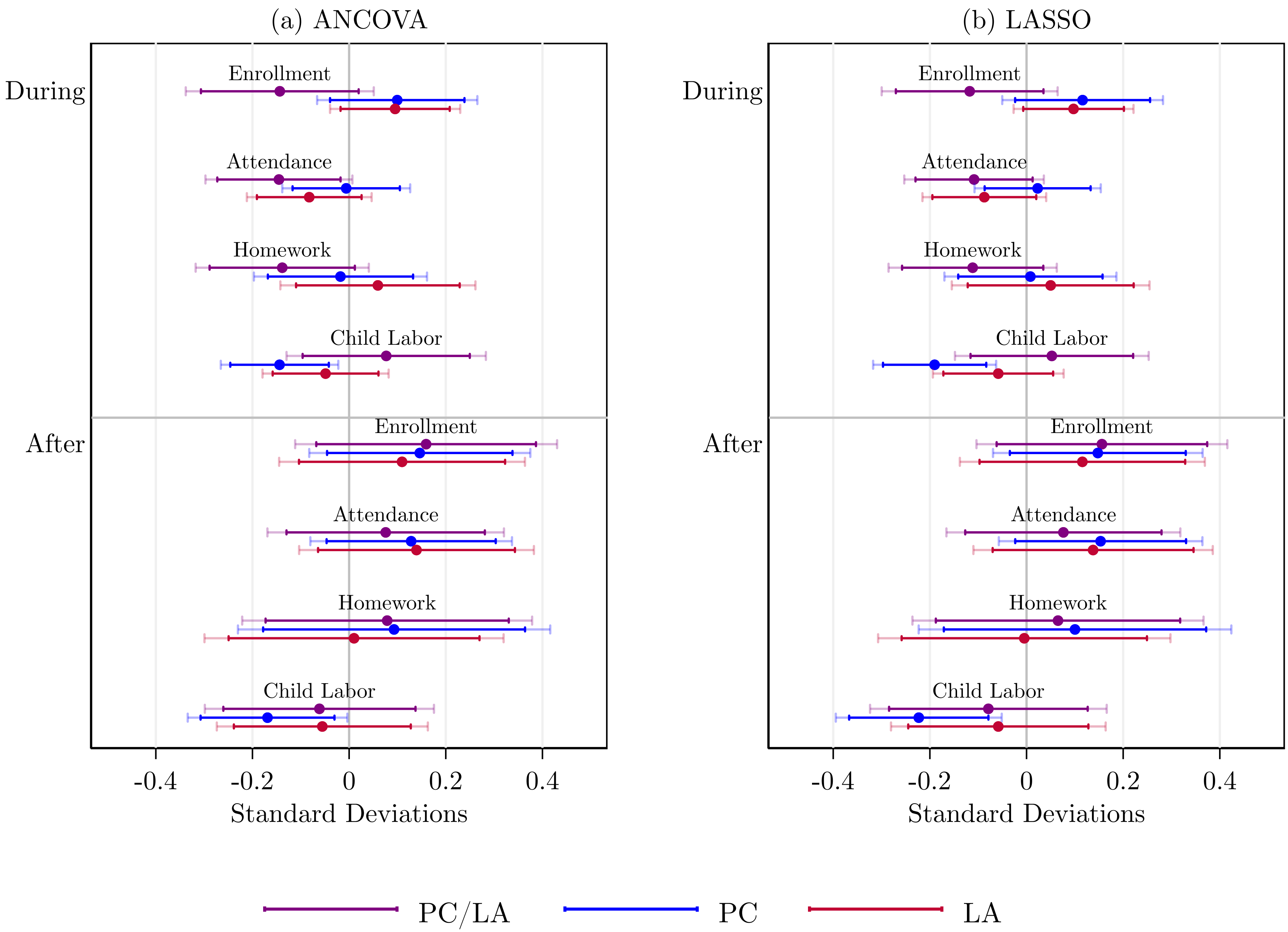

Figure B8: Impacts on Components of the Education Index

Note: The figure shows standardized impacts for the components of the child human capital investment index. All estimates follow Equation (1). Results in Panel (a) are based on the ANCOVA specification, which controls for time indicators, strata indicators, and the baseline dependent variable. Results in Panel (b) use the post-double-selection LASSO method to choose covariates (Belloni et al. 2014). Footnote 24 of the manuscript explains this approach in more detail. The top of each panel shows impacts during the PC intervention and the bottom of each panel shows impacts after the PC intervention. Confidence intervals are based on unadjusted p-values. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors. We also adjust for multiple inference across outcomes using Benjamini et al. (2006) sharpened q-values. The following estimates are statistically significant after this adjustment: "work for pay" impact of PC in the "during" period under ANCOVA ($q = 0.09$) and under LASSO ($q = 0.01$) and in the "after" period under LASSO ($q = 0.05$). All other estimates are not statistically significant after the adjustment.

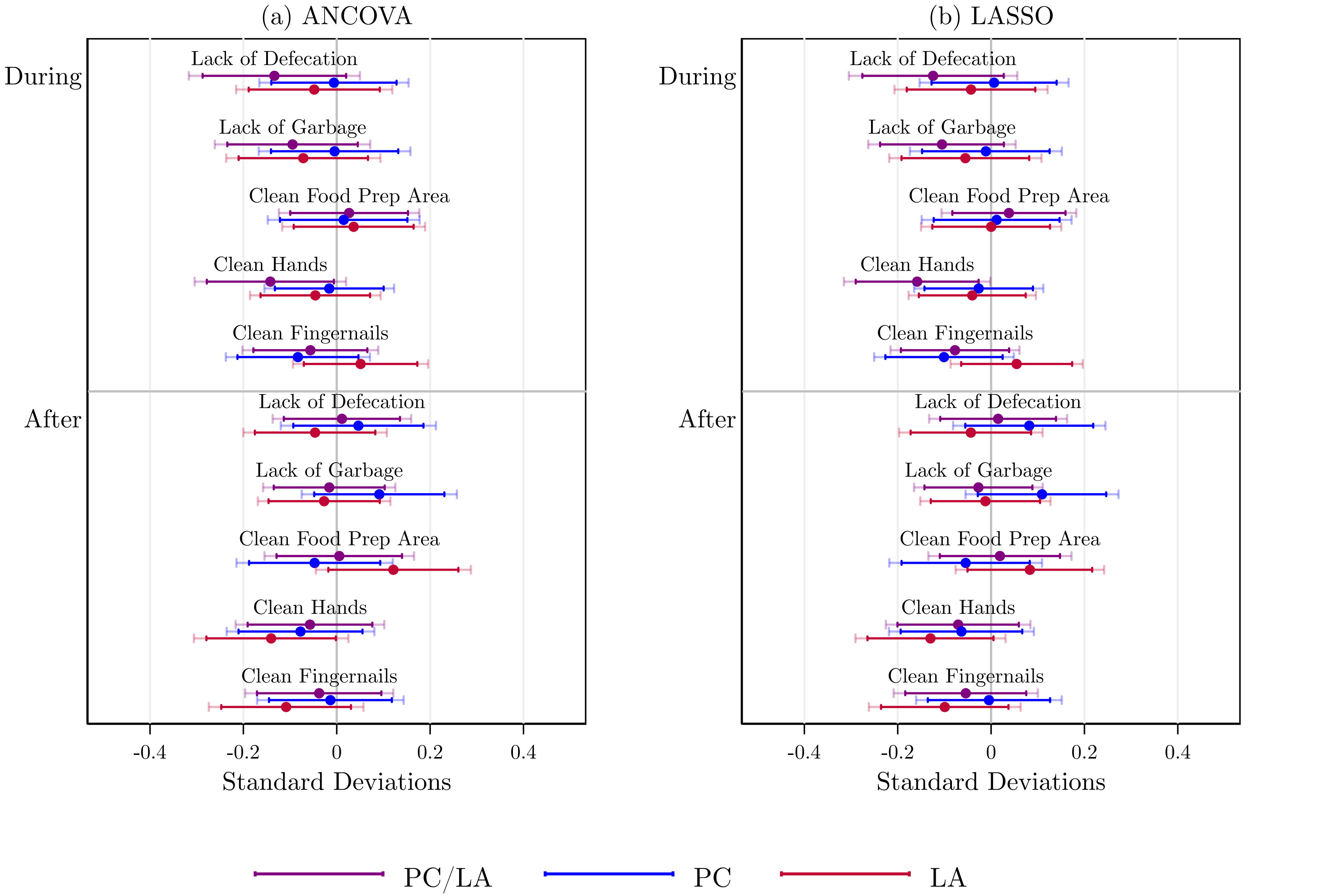

Figure B9: Impacts on the Components of the Sanitation/Hygiene Index

Note: The figure shows standardized impacts for the components of the hygiene/sanitation index. All estimates follow Equation (1). Results in Panel (a) are based on the ANCOVA specification, which controls for time indicators, strata indicators, and the baseline dependent variable. Results in Panel (b) use the post-double-selection LASSO method to choose covariates (Belloni et al. 2014). Footnote 24 of the manuscript explains this approach in more detail. The top of each panel shows impacts during the PC intervention and the bottom of each panel shows impacts after the PC intervention. Confidence intervals are based on unadjusted p-values. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors. We also adjust for multiple inference across outcomes using Benjamini et al. (2006) sharpened q-values. After this adjustment, all estimates are not statistically significant.

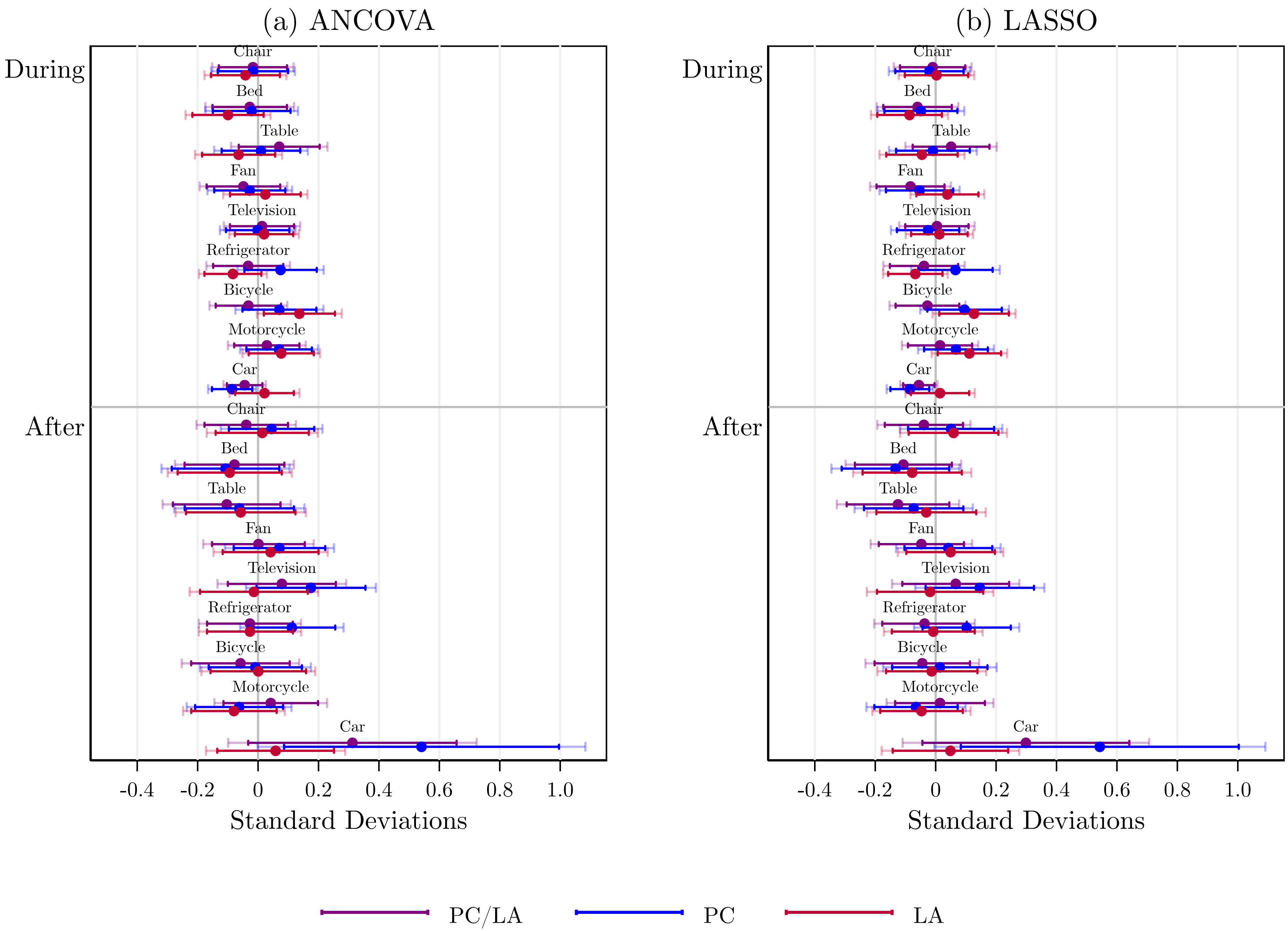

Figure B10: Impacts on Components of the Durable Goods Index

Note: The figure shows standardized impacts for the components of the durable goods index. All estimates follow Equation (1). Results in Panel (a) are based on the ANCOVA specification, which controls for time indicators, strata indicators, and the baseline dependent variable. Results in Panel (b) use the post-double-selection LASSO method to choose covariates (Belloni et al. 2014). Footnote 24 of the manuscript explains this approach in more detail. The top of each panel shows impacts during the PC intervention and the bottom of each panel shows impacts after the PC intervention. Confidence intervals are based on unadjusted p-values. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors. We also adjust for multiple inference across outcomes using Benjamini et al. (2006) sharpened q-values. After this adjustment, all estimates are statistically insignificant.

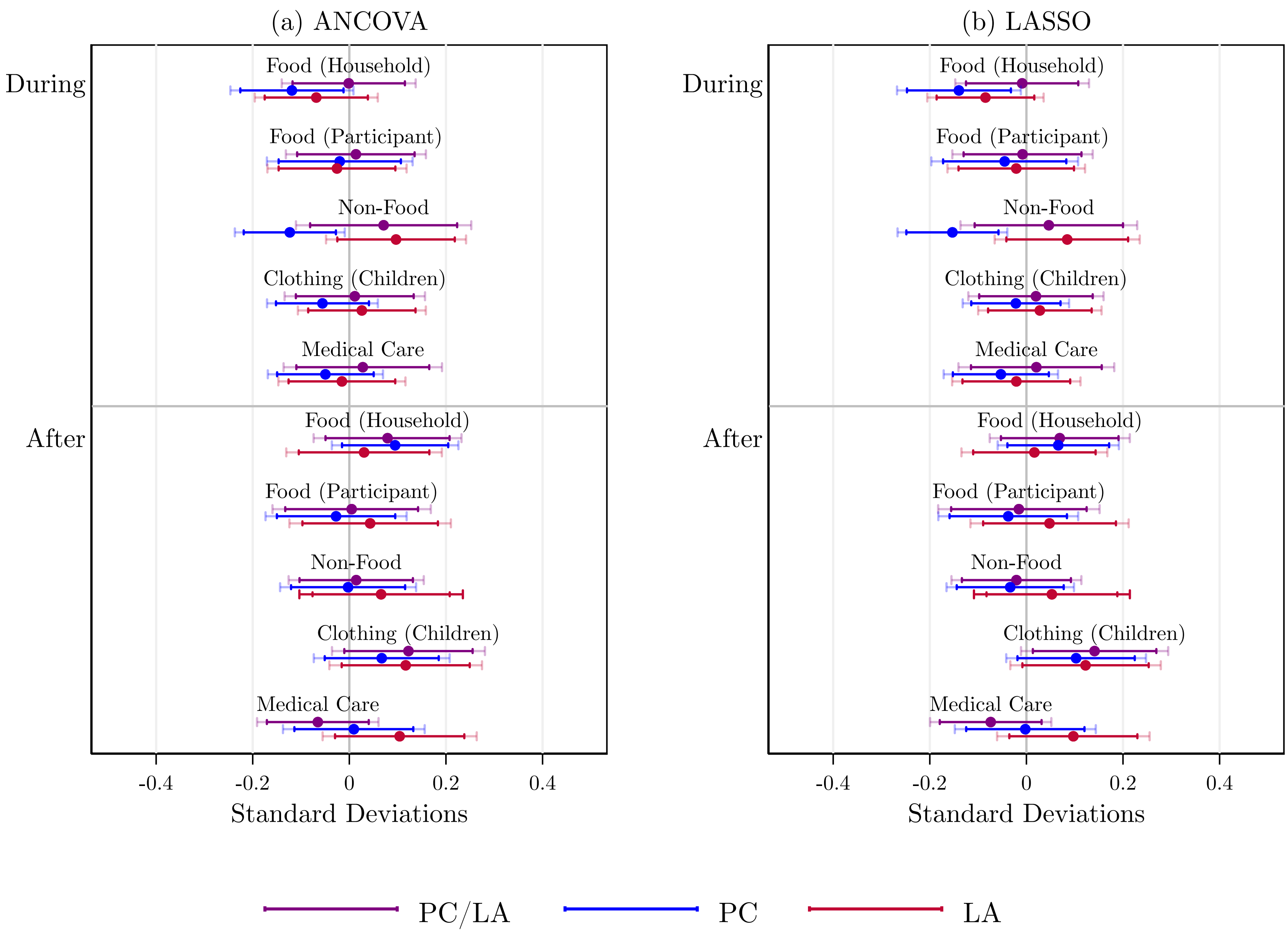

Figure B11: Impacts on Components of Consumption

Note: The figure shows standardized impacts for the components of the durable goods index. All estimates follow Equation (1). Results in Panel (a) are based on the ANCOVA specification, which controls for time indicators, strata indicators, and the baseline dependent variable. Results in Panel (b) use the post-double-selection LASSO method to choose covariates (Belloni et al. 2014). Footnote 24 of the manuscript explains this approach in more detail. The top of each panel shows impacts during the PC intervention and the bottom of each panel shows impacts after the PC intervention. Confidence intervals are based on unadjusted p-values. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors. We also adjust for multiple inference across outcomes using Benjamini et al. (2006) sharpened q-values. The following estimates are statistically significant after this adjustment: “food (household)” impact of PC in the “during” period under LASSO ($q = 0.07$); “non-food” impact of PC in the “during” period under LASSO ($q = 0.04$). All other estimates are not statistically significant after the adjustment.

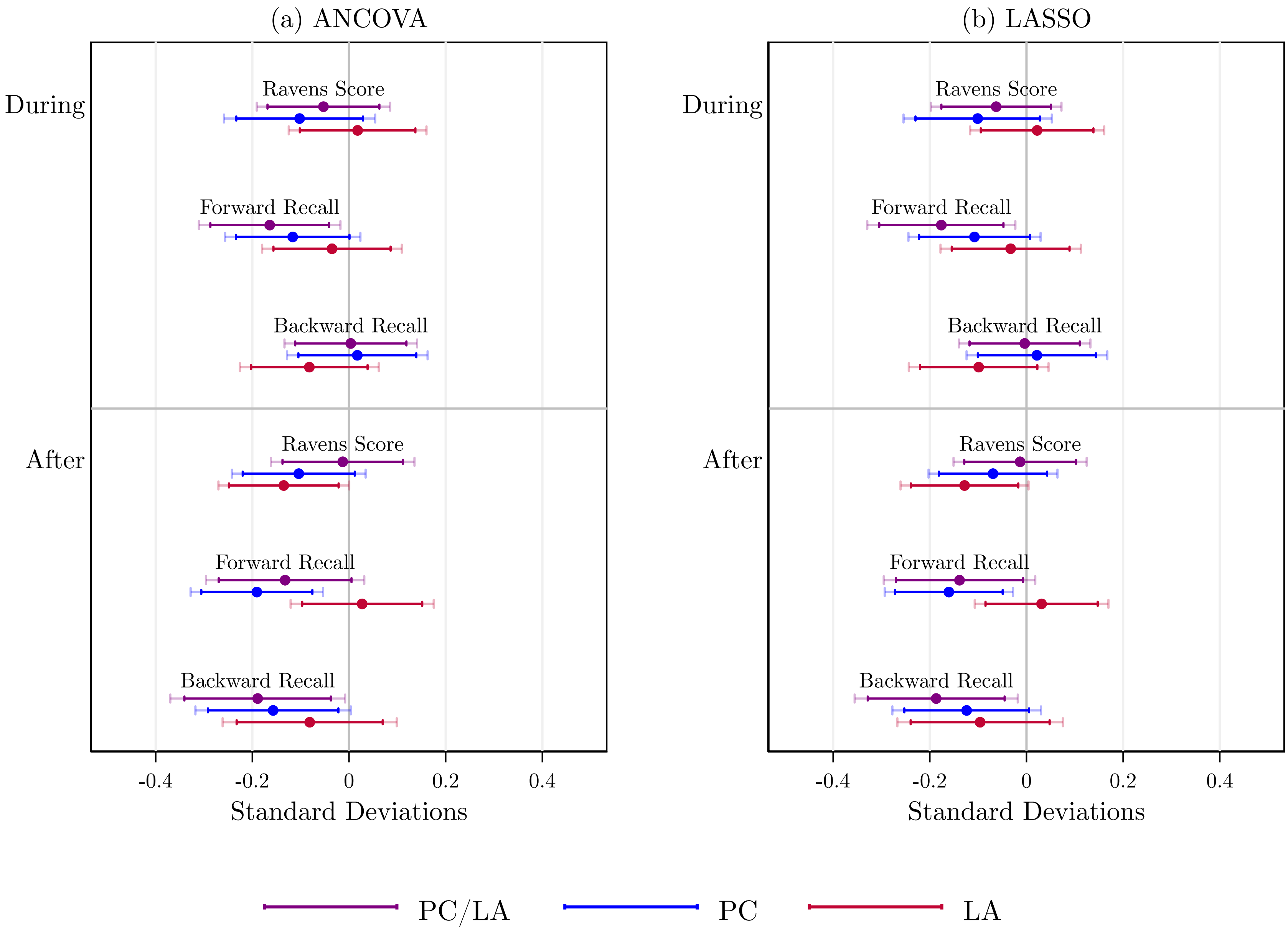

Figure B12: Impacts on Cognitive Performance

Note: The figure shows standardized impacts for the components of the cognitive performance index. All estimates follow Equation (1). Results in Panel (a) are based on the ANCOVA specification, which controls for time indicators, strata indicators, and the baseline dependent variable. Results in Panel (b) use the post-double-selection LASSO method to choose covariates (Belloni et al. 2014). Footnote 24 of the manuscript explains this approach in more detail. The top of each panel shows impacts during the PC intervention and the bottom of each panel shows impacts after the PC intervention. Confidence intervals are based on unadjusted p-values. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors. We also adjust for multiple inference across outcomes using Benjamini et al. (2006) sharpened q-values. The following estimates are statistically significant after this adjustment: "Ravens score" impact of PC in the "after" period under ANCOVA ($q = 0.09$), "forward recall" impact of PC/LA in the "during" period under ANCOVA ($q = 0.09$) and under LASSO ($q = 0.08$), impact of PC in the "after" period under ANCOVA ($q = 0.02$) and under LASSO ($q = 0.06$); "backward recall" impact of PC in the "after" period under ANCOVA ($q = 0.06$). All other estimates are statistically insignificant after adjustment.

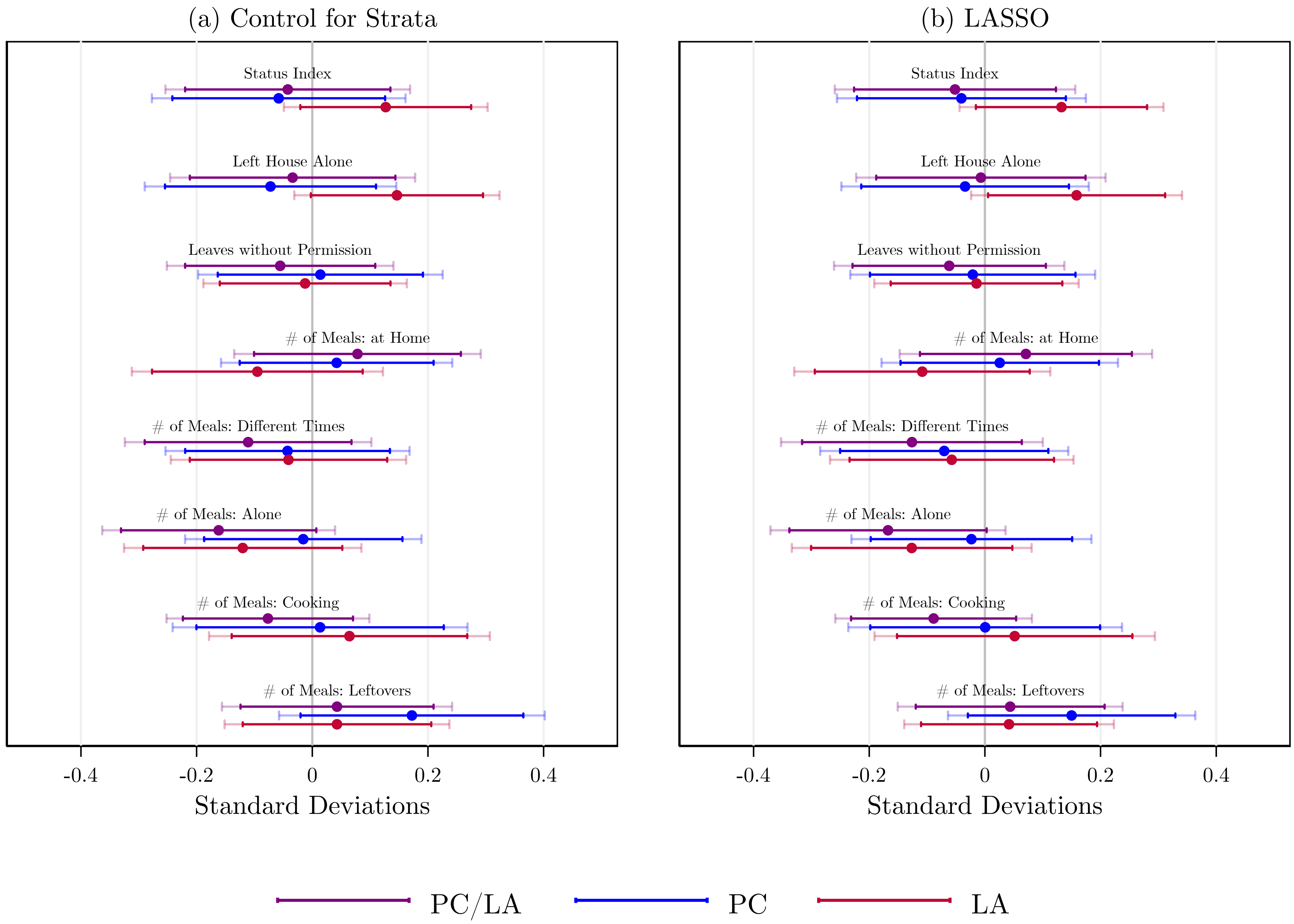

Figure B13: Impacts on Status Within the Household in Round 5

Note: Status variables are only available in Round 5. Panel (a) shows estimates that control for strata indicators. This approach corresponds most closely to our "ANCOVA" specification but does not control for the baseline dependent variable. Results in Panel (b) use the post-double-selection LASSO method to choose covariates (Belloni et al. 2014). Footnote 24 of the manuscript explains this approach in more detail. Confidence intervals are based on unadjusted p-values. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors. We also adjust for multiple inference across outcomes using Benjamini et al. (2006) sharpened q-values. All estimates are statistically insignificant after adjustment.

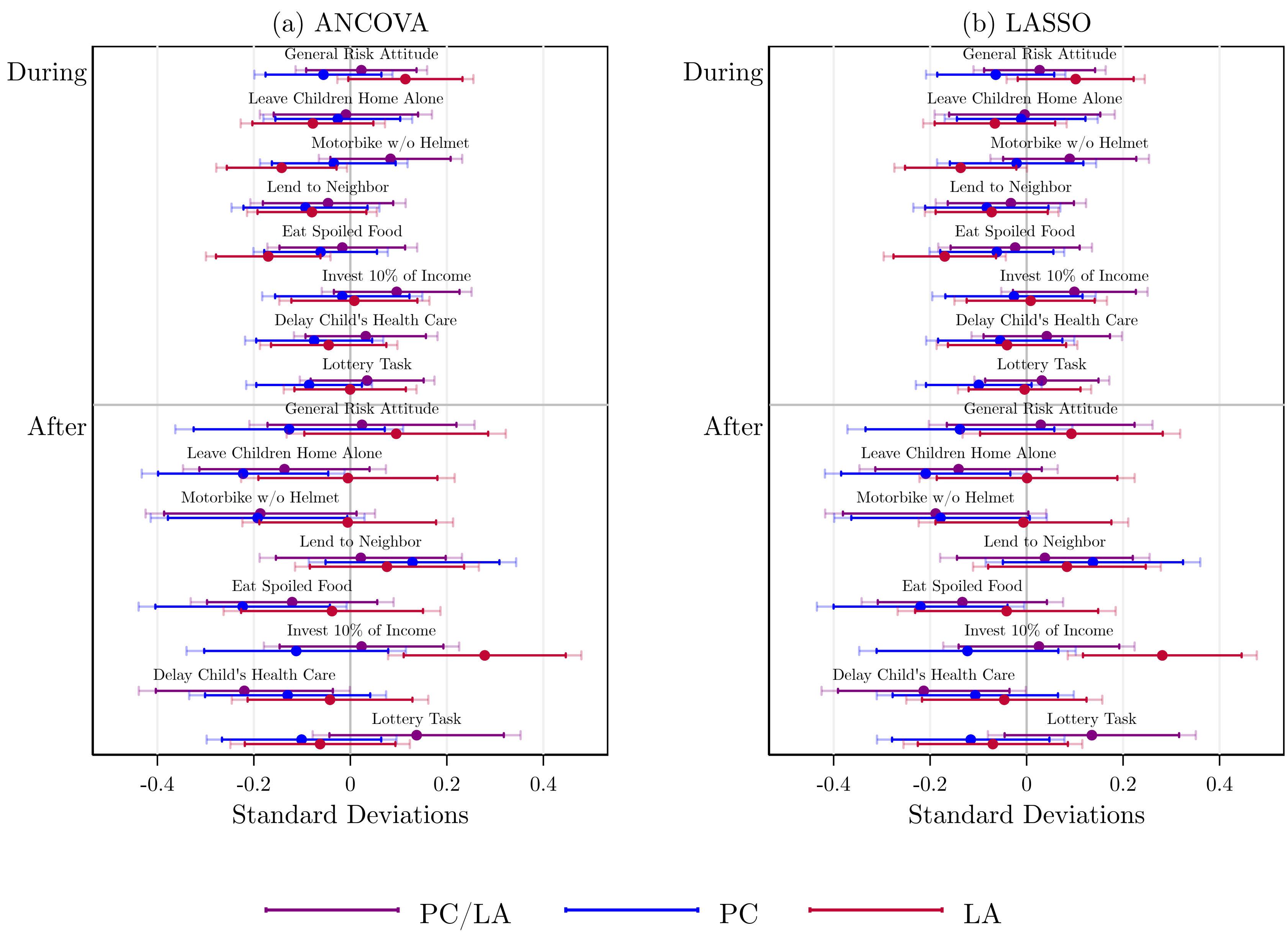

Figure B14: Impacts on Components of the Risk Intolerance Index

Note: The figure shows standardized impacts for the components of the risk intolerance index. All estimates follow Equation (1). Results in Panel (a) are based on the ANCOVA specification, which controls for time indicators, strata indicators, and the baseline dependent variable. Results in Panel (b) use the post-double-selection LASSO method to choose covariates (Belloni et al. 2014). Footnote 24 of the manuscript explains this approach in more detail. The top of each panel shows impacts during the PC intervention and the bottom of each panel shows impacts after the PC intervention. Confidence intervals are based on unadjusted p-values. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors. We also adjust for multiple inference across outcomes using Benjamini et al. (2006) sharpened q-values. The following estimates are statistically significant after this adjustment: "eat spoiled food" impact of LA in the "during" period under ANCOVA ($q = 0.09$) and LASSO ($q = 0.08$); "invest 10% of income" impact of LA in the "after" period under ANCOVA ($q = 0.06$) and LASSO ($q = 0.04$). All other estimates are statistically insignificant after adjustment.

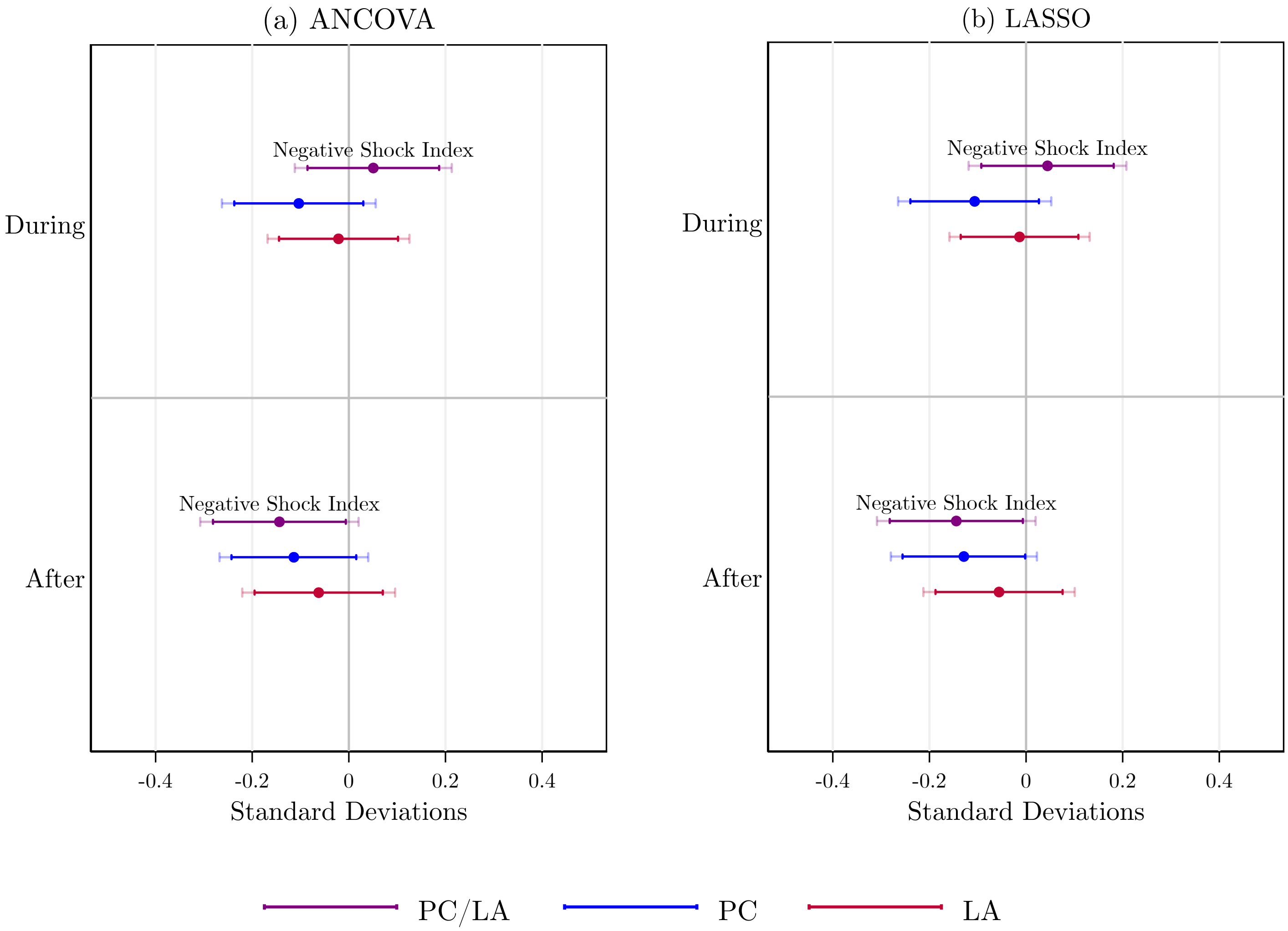

Figure B15: Impacts on Negative Shocks

Note: The figure shows standardized impacts the negative shock index. The index follows the Holmes and Rahe (1967) scale and includes indicators for whether the household has experienced the following shocks in the past four months: an illness lasting at least one month, a death, an unemployment spell, a natural disaster, incarceration, divorce, or another serious loss. All estimates follow Equation (1). Results in Panel (a) are based on the ANCOVA specification, which controls for time indicators, strata indicators, and the baseline dependent variable. Results in Panel (b) use the post-double-selection LASSO method to choose covariates (Belloni et al. 2014). Footnote 24 of the manuscript explains this approach in more detail. The top of each panel shows impacts during the PC intervention and the bottom of each panel shows impacts after the PC intervention. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors.

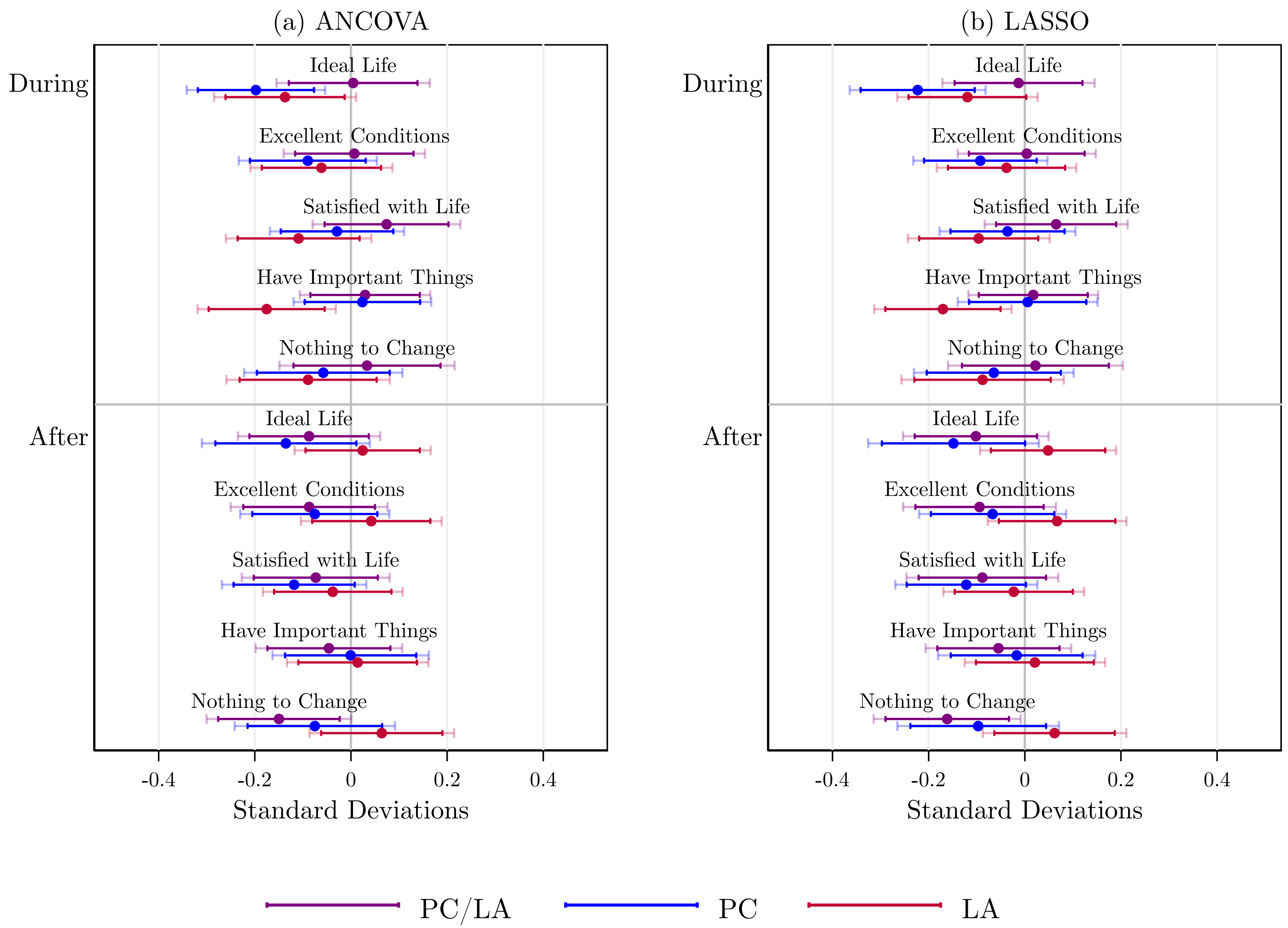

Figure B16: Impacts on Subjective Wellbeing

Note: The figure shows standardized impacts for the components of the subjective wellbeing index. All estimates follow Equation (1). Results in Panel (a) are based on the ANCOVA specification, which controls for time indicators, strata indicators, and the baseline dependent variable. Results in Panel (b) use the post-double-selection LASSO method to choose covariates (Belloni et al. 2014). Footnote 24 of the manuscript explains this approach in more detail. The top of each panel shows impacts during the PC intervention and the bottom of each panel shows impacts after the PC intervention. Confidence intervals are based on unadjusted p-values. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors. We also adjust for multiple inference across outcomes using Benjamini et al. (2006) sharpened q-values. The following estimates are statistically significant after this adjustment: “ideal life” impact of PC in the “during” period under ANCOVA ($q = 0.04$) and under LASSO ($q = 0.01$); “have important things” impact of LA in the “during” period under ANCOVA ($q = 0.09$). All other estimates are statistically insignificant after adjustment.

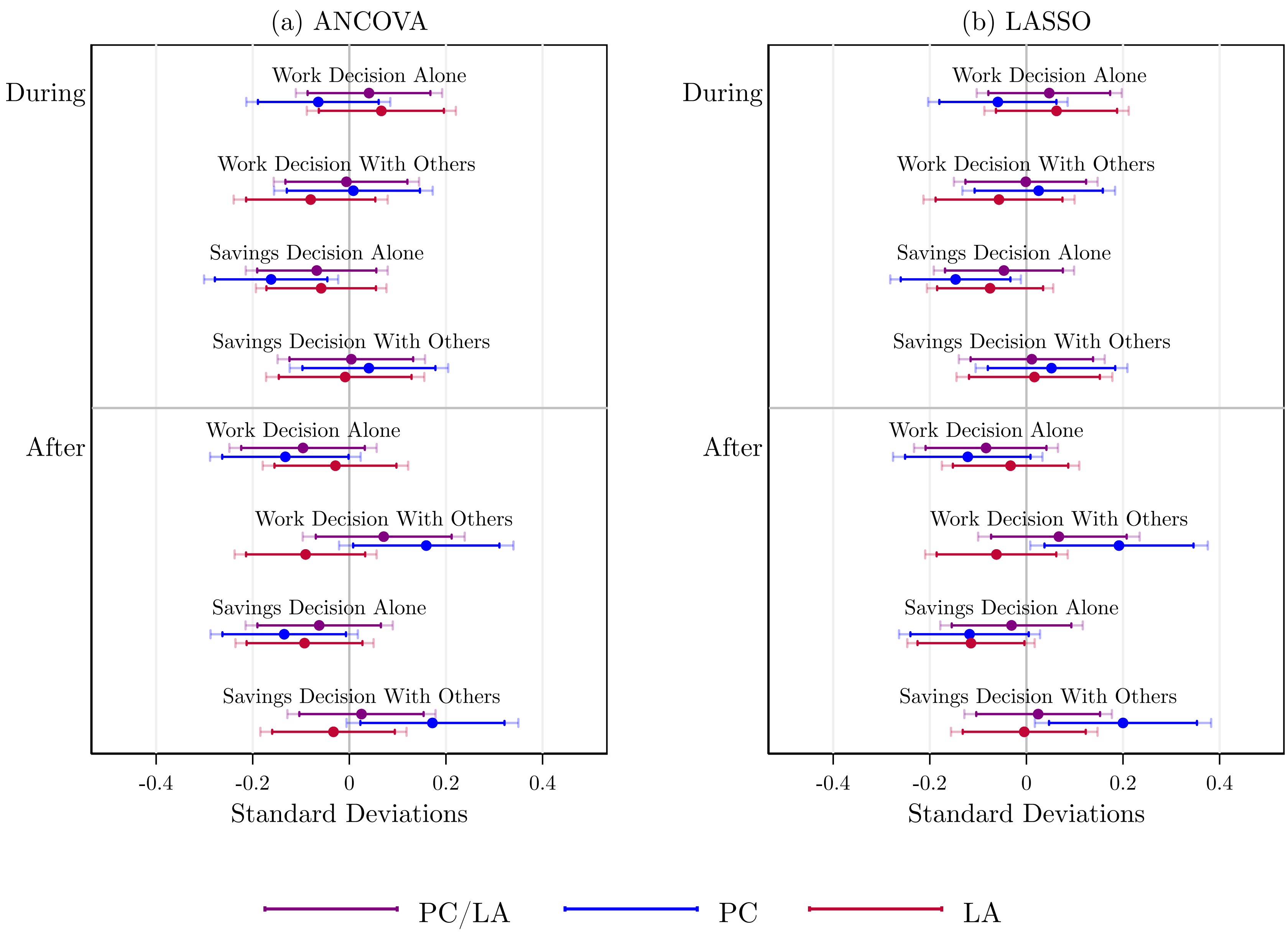

Figure B17: Impacts on Participation in Household Decisions

Note: The figure shows standardized impacts for the components of the subjective wellbeing index. All estimates follow Equation (1). Results in Panel (a) are based on the ANCOVA specification, which controls for time indicators, strata indicators, and the baseline dependent variable. Results in Panel (b) use the post-double-selection LASSO method to choose covariates (Belloni et al. 2014). Footnote 24 of the manuscript explains this approach in more detail. The top of each panel shows impacts during the PC intervention and the bottom of each panel shows impacts after the PC intervention. Confidence intervals are based on unadjusted p-values. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors. We also adjust for multiple inference across outcomes using Benjamini et al. (2006) sharpened q-values. The following estimates are statistically significant after this adjustment: "savings decision alone" impact of PC in the "during" period under ANCOVA ($q = 0.10$); all four components impact of PC in the "after" period under LASSO ($q = 0.09$ for all four outcomes). All other estimates are statistically insignificant after adjustment.

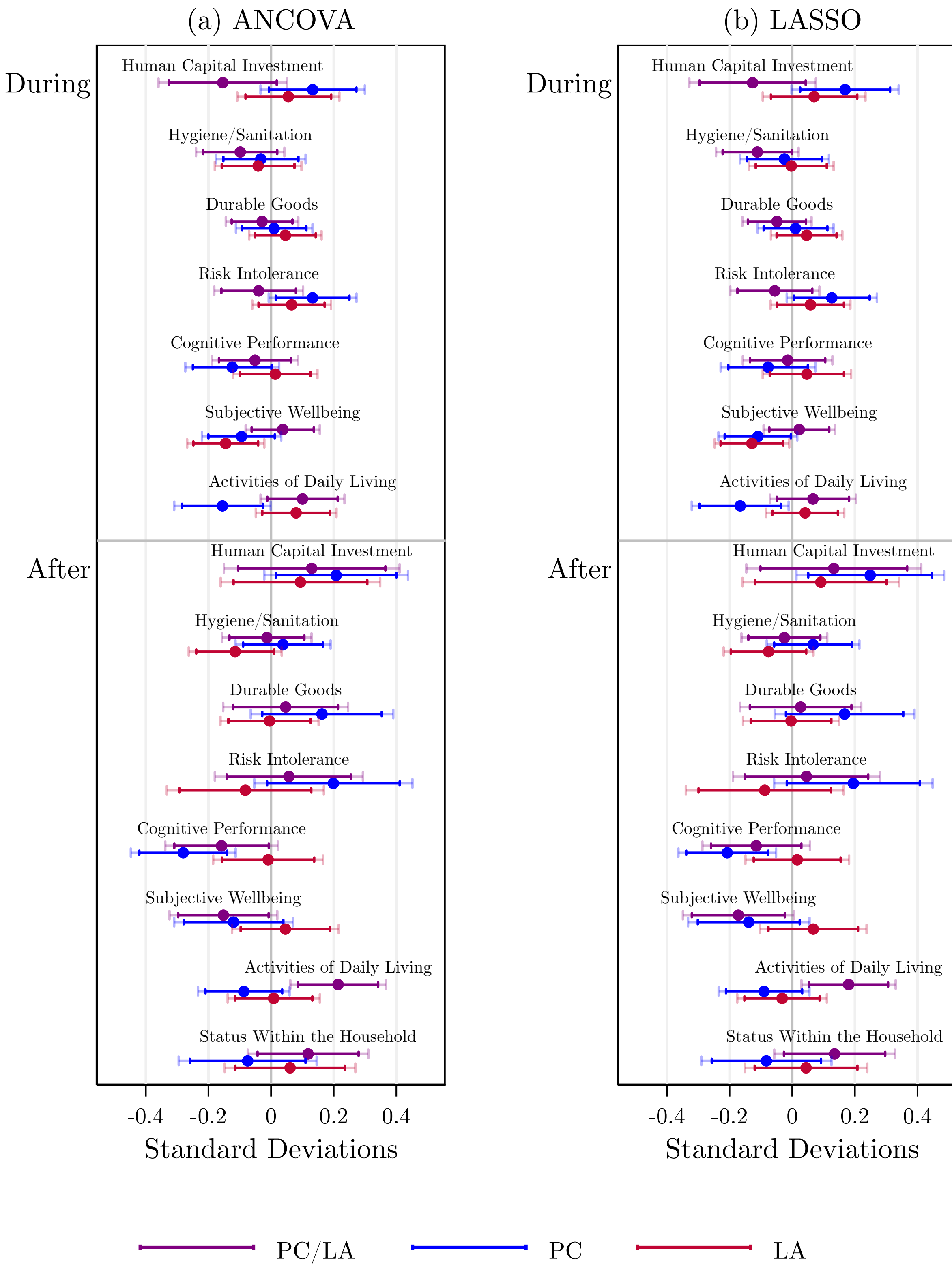

Figure B18: Impacts on Indices Calculated Using the Anderson (2008) Summary Index

Note: The figure shows standardized impacts for all indices, computed following Anderson (2008). All estimates follow Equation (1). Results in Panel (a) are based on the ANCOVA specification, which controls for time indicators, strata indicators, and the baseline dependent variable. Results in Panel (b) use the post-double-selection LASSO method to choose covariates (Belloni et al. 2014). Footnote 24 of the manuscript explains this approach in more detail. The top of each panel shows impacts during the PC intervention and the bottom of each panel shows impacts after the PC intervention. Confidence intervals are based on unadjusted p-values. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors.

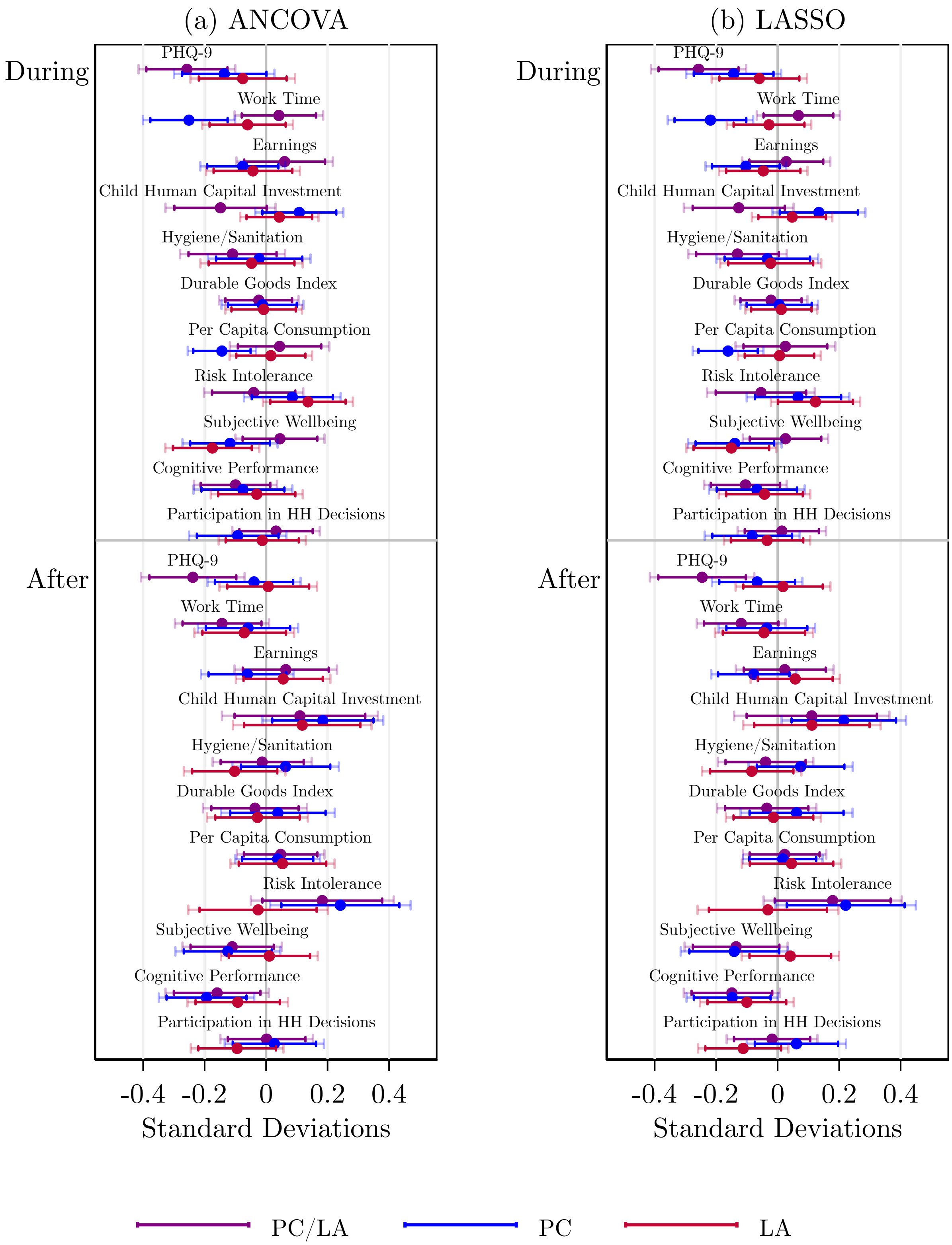

Figure B19: Impacts After Controlling for Free Distribution of Hand Sanitizer

Note: The figure shows standardized impacts for all outcomes. All estimates follow Equation (1) and also include an indicator participation in the intervention to distribute 600 ml of free hand sanitizer in Round 2, which is interacted with "during" and "after" indicators. Results in Panel (a) are based on the ANCOVA specification, which controls for time indicators, strata indicators, and the baseline dependent variable. Results in Panel (b) use the post-double-selection LASSO method to choose covariates (Belloni et al. 2014). Footnote 24 of the manuscript explains this approach in more detail. The top of each panel shows impacts during the PC intervention and the bottom of each panel shows impacts after the PC intervention. Confidence intervals are based on unadjusted p-values. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors.

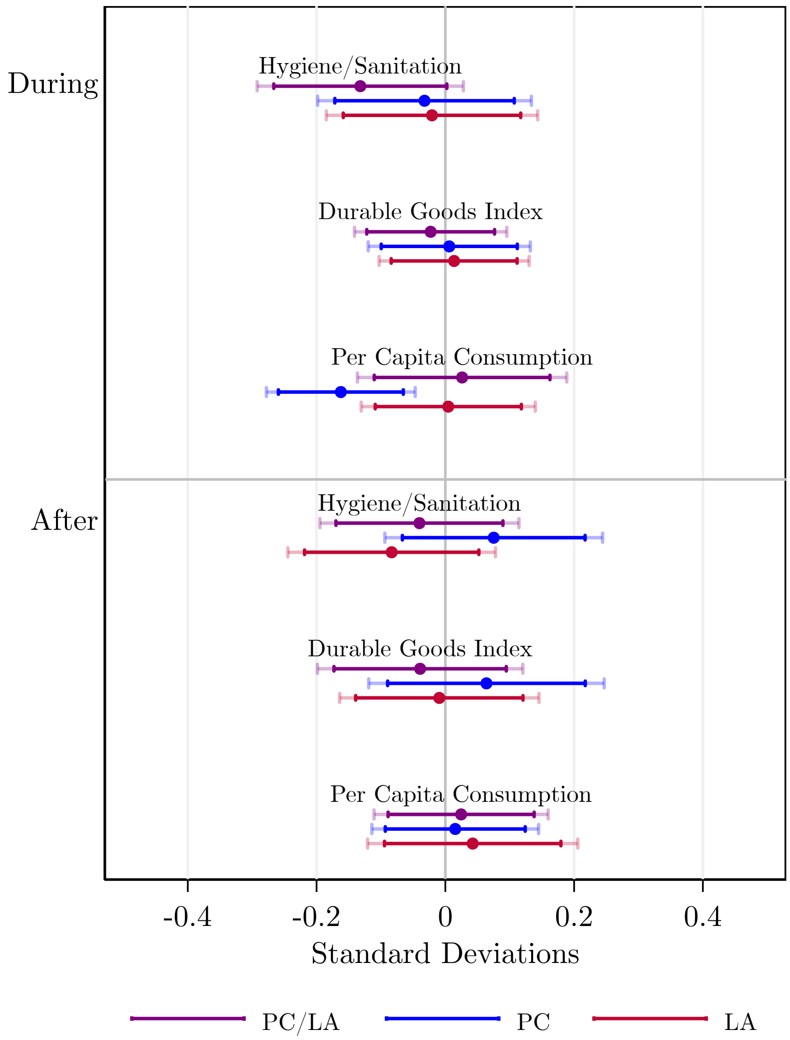

Figure B20: LASSO Estimates of Standardized Impacts on Socioeconomic Outcomes

Note: The figure shows standardized impacts for socioeconomic outcomes, as explained in the text. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors. All estimates follow the Belloni et al.'s (2014) post-double-selection specification of Equation (1). Results using the ANCOVA specification appear in Figure 4. The top of the figure shows impacts during the PC intervention and the bottom of the figure shows impacts after the PC intervention.

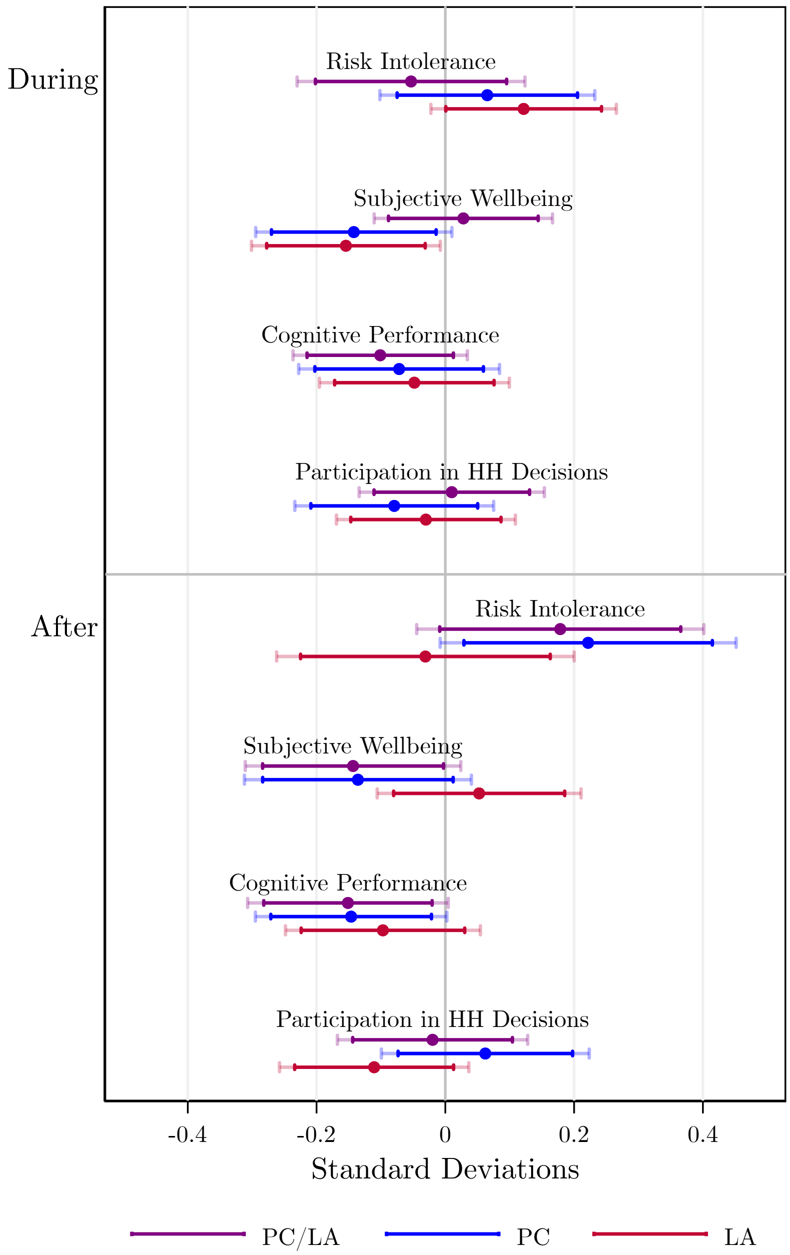

Figure B21: LASSO Estimates of Standardized Impacts on Possible Pathways

Note: The figure shows standardized impacts for possible pathways through which depression treatment may improve socioeconomic outcomes, as explained in the text. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors. All estimates follow the Belloni et al.'s (2014) post-double-selection specification of Equation (1). Results using the ANCOVA specification appear in Figure B20. The top of the figure shows impacts during the PC intervention and the bottom of the figure shows impacts after the PC intervention.

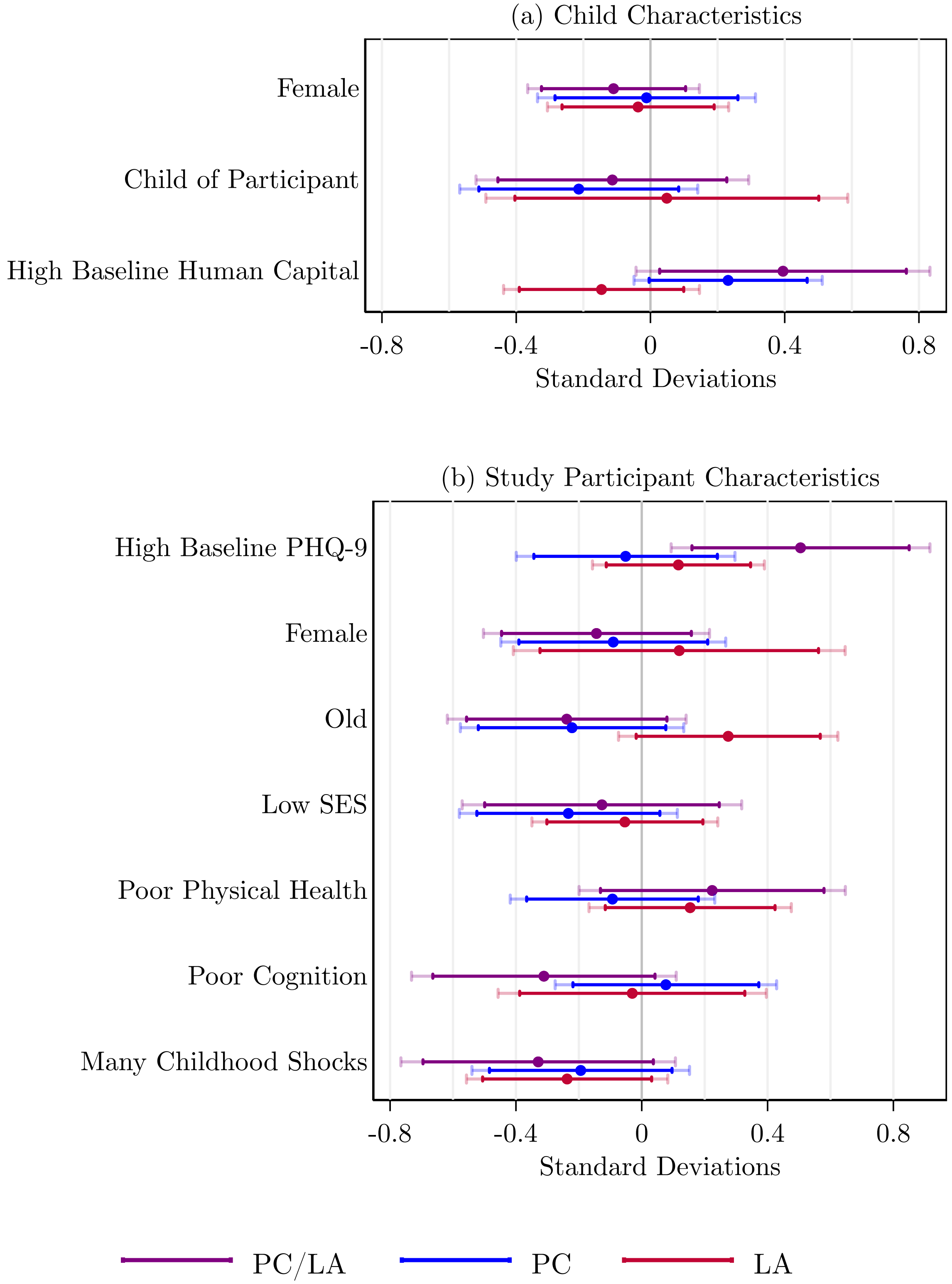

Figure B22: LASSO Estimates of Differential Effects on Child Human Capital Investment by Child and Study Participant Characteristics in Round 4

Note: The figure shows differential impacts on the child human capital index in Round 4 for indicated subgroups. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors. All estimates follow the Belloni et al. (2014) post-double-selection LASSO specification of Equation (1). ANCOVA estimates appear in Figure 3. All estimates are weighted by the inverse number of school-aged children in the household. Panel (a) shows differential effects according to child characteristics and Panel (b) shows differential effects according to study participant characteristics. Physical health is the first principal component of five activities of daily living and recent levels of pain. Cognition is the first principal component of scores for the Raven's Progressive Matrices and forward and backward digit spans. Childhood shocks is an index of follows the Holmes and Rahe (1967) index of childhood negative life events. Other variables are defined in the text. We divide at the median for baseline human capital investment (0.24 SD), PHQ-9 score (15), age (36), SES (-0.13 SD), physical health (-0.04 SD), cognition (-0.55 SD), and exposure to childhood shocks (65).

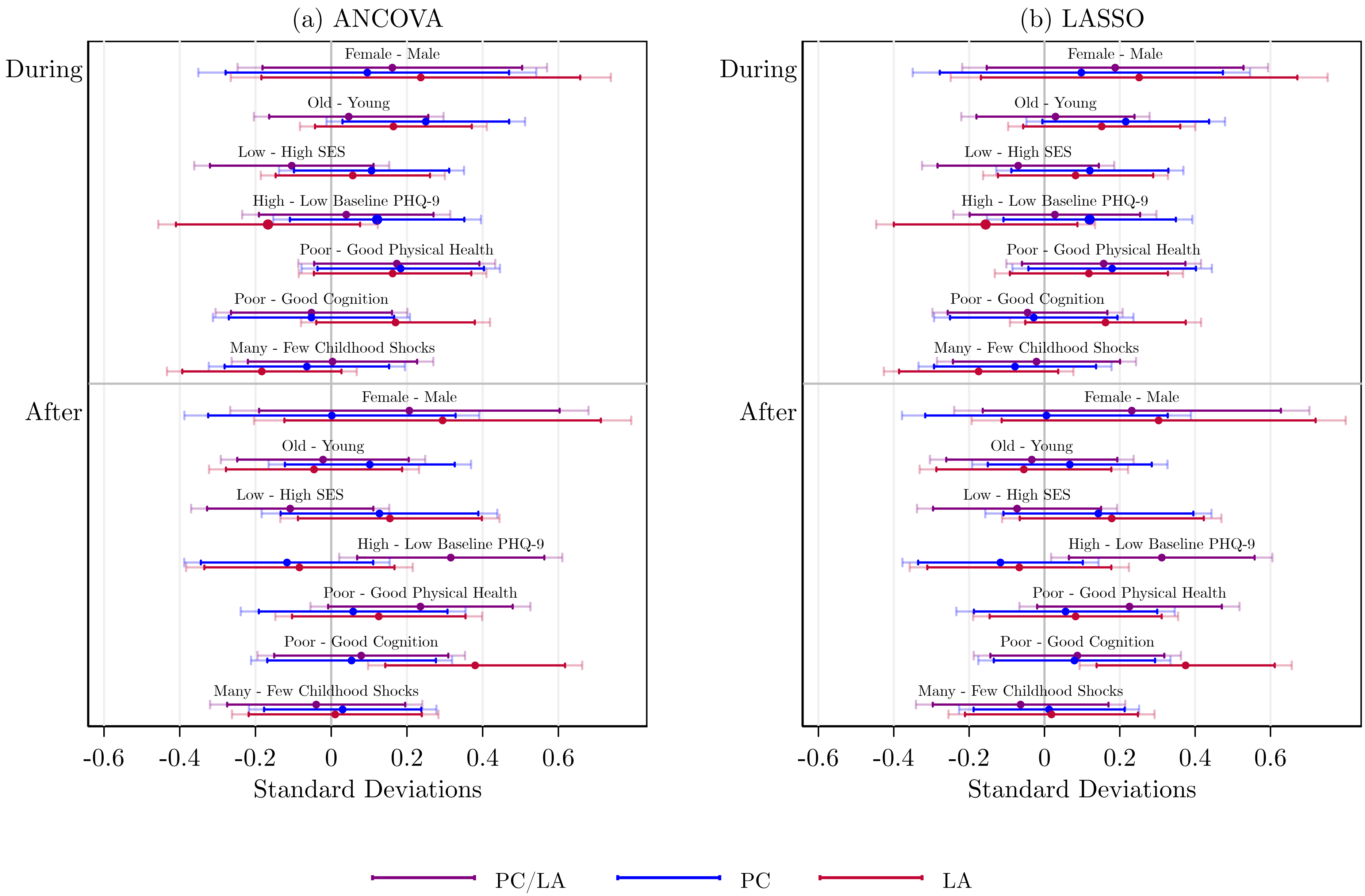

Figure B23: Heterogeneous Impacts on Work Time

Note: the figure follows Equation (1) and shows the difference in impacts across subgroups. Panel (a) shows estimates under the ANCOVA specification and Panel (b) shows estimates under the LASSO specification. A positive and significant effect means that the first listed group has a larger increase in work time. SES is the first principal component of education, caste, earnings, savings, and house size. Physical health is the first principal component of five activities of daily living and recent levels of pain. Cognition is the first principal component of scores for the Raven's Progressive Matrices and forward and backward digit spans. Childhood shocks is an index of follows the Holmes and Rahe (1967) index of childhood negative life events. All variables are measured at baseline. We divide the sample at the median in each case, aside from gender. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors.

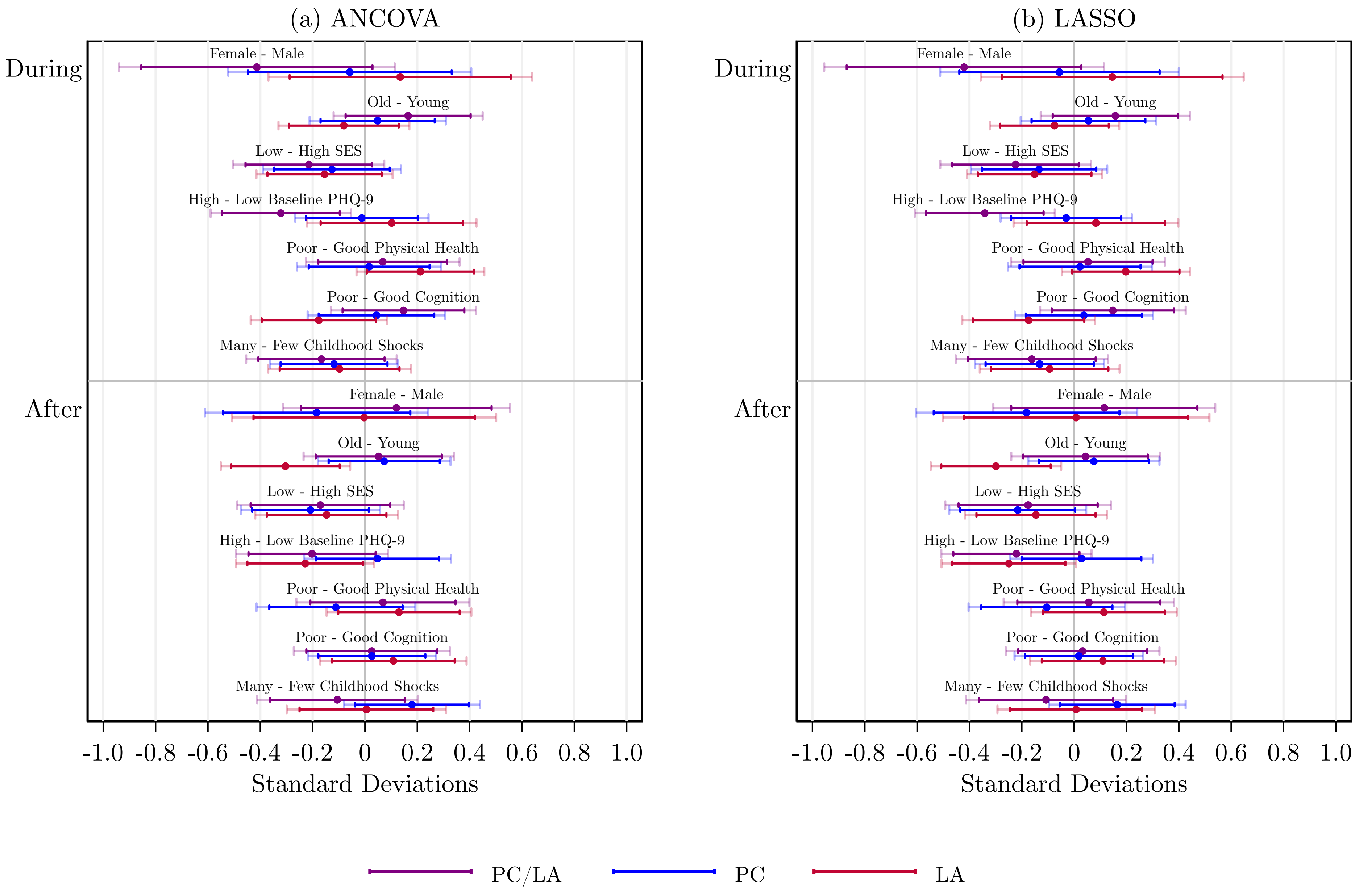

Figure B24: Heterogeneous Impacts on Earnings

Note: the figure follows Equation (1) and shows the difference in impacts across subgroups. Panel (a) shows estimates under the ANCOVA specification and Panel (b) shows estimates under the LASSO specification. A positive and significant effect means that the first listed group has a larger increase in earnings. SES is the first principal component of education, caste, earnings, savings, and house size. Physical health is the first principal component of five activities of daily living and recent levels of pain. Cognition is the first principal component of scores for the Raven's Progressive Matrices and forward and backward digit spans. Childhood shocks is an index of follows the Holmes and Rahe (1967) index of childhood negative life events. All variables are measured at baseline. We divide the sample at the median in each case, aside from gender. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors.

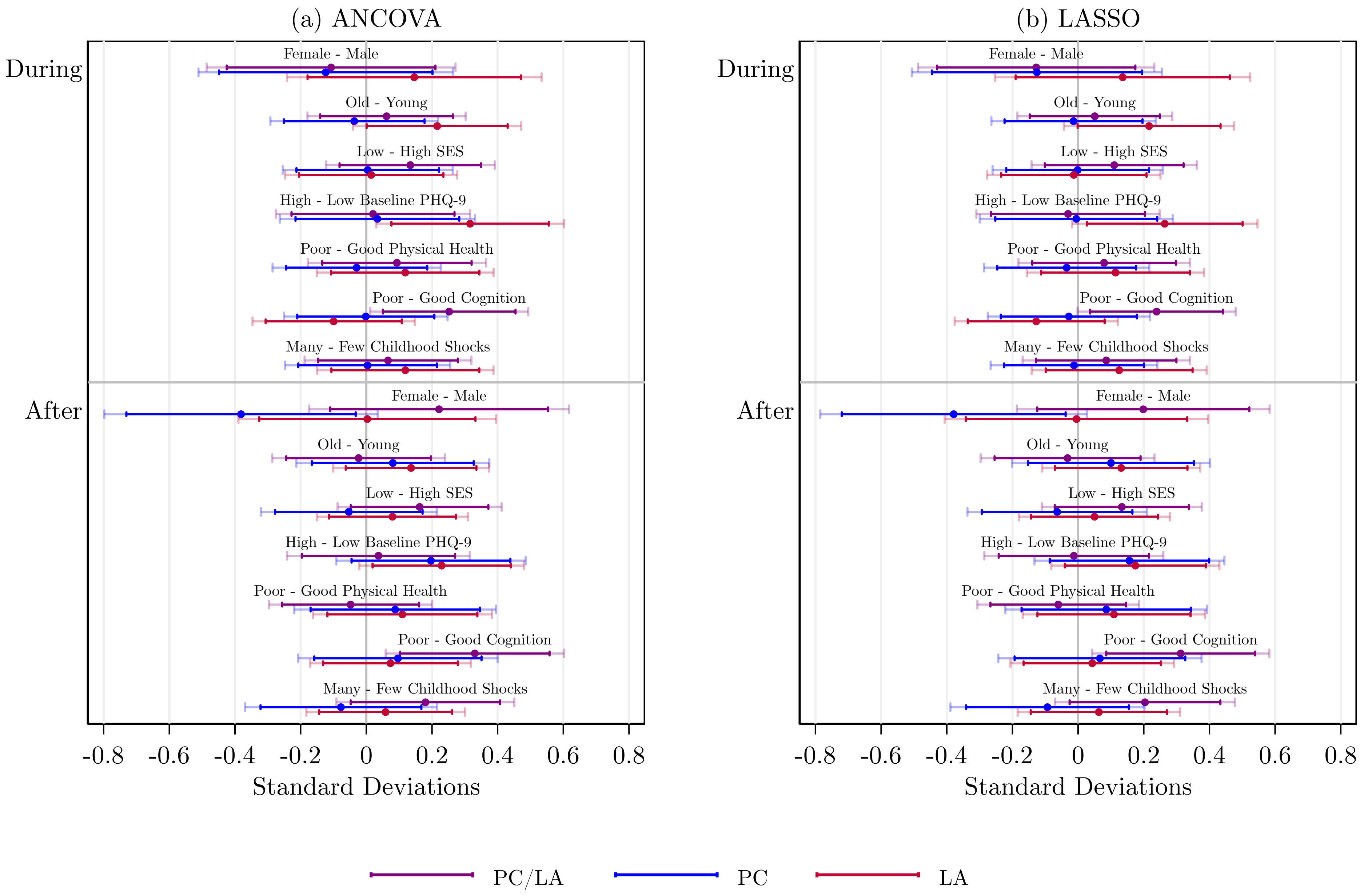

Figure B25: Heterogeneous Impacts on Hygiene/Sanitation

Note: the figure follows Equation (1) and shows the difference in impacts across subgroups. Panel (a) shows estimates under the ANCOVA specification and Panel (b) shows estimates under the LASSO specification. A positive and significant effect means that the first listed group has a larger improvement in the hygiene/sanitation index. SES is the first principal component of education, caste, earnings, savings, and house size. Physical health is the first principal component of five activities of daily living and recent levels of pain. Cognition is the first principal component of scores for the Raven's Progressive Matrices and forward and backward digit spans. Childhood shocks is an index of follows the Holmes and Rahe (1967) index of childhood negative life events. All variables are measured at baseline. We divide the sample at the median in each case, aside from gender. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors.

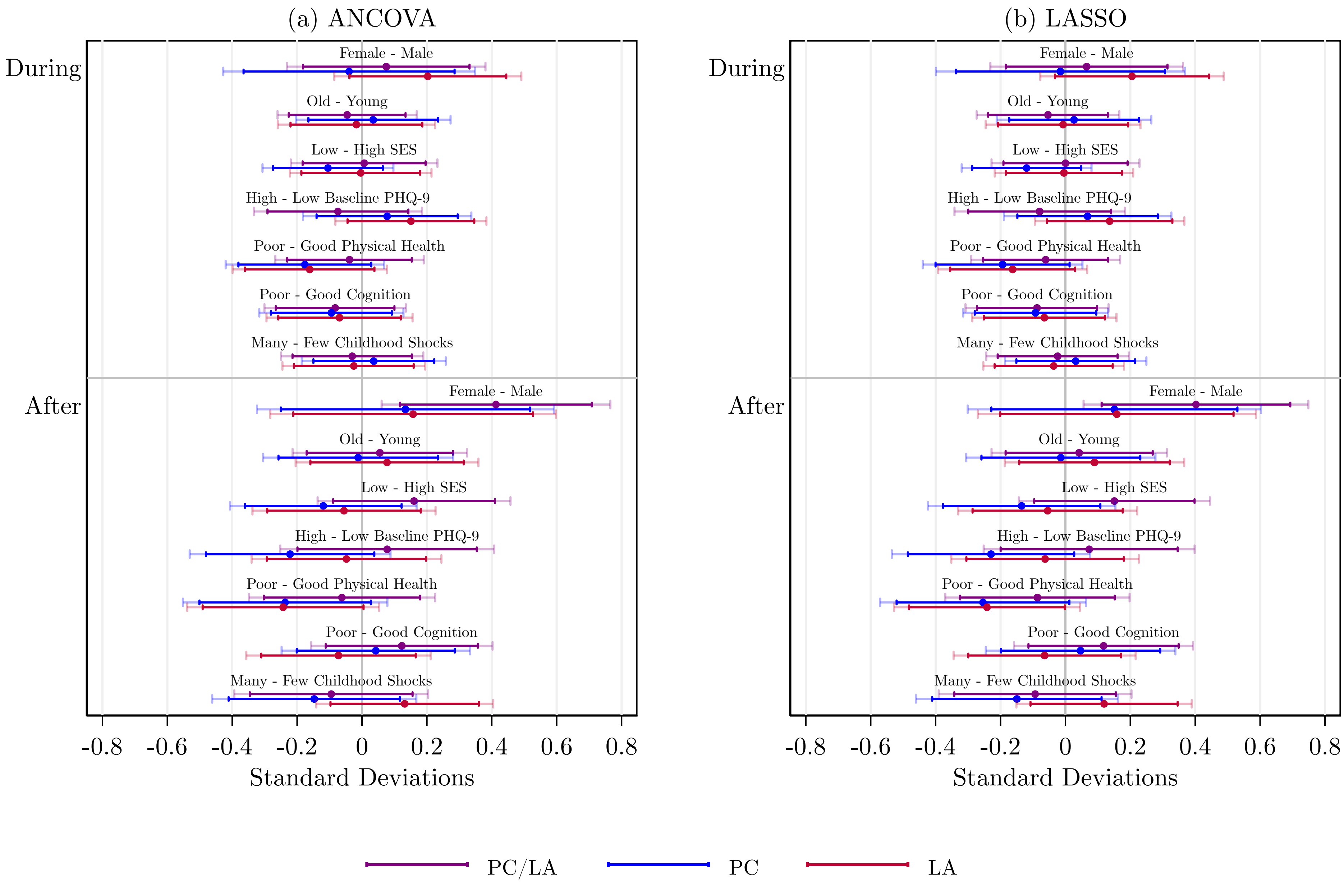

Figure B26: Heterogeneous Impacts on the Durable Goods Index

Note: the figure follows Equation (1) and shows the difference in impacts across subgroups. Panel (a) shows estimates under the ANCOVA specification and Panel (b) shows estimates under the LASSO specification. A positive and significant effect means that the first listed group has a larger increase in durable goods ownership. SES is the first principal component of education, caste, earnings, savings, and house size. Physical health is the first principal component of five activities of daily living and recent levels of pain. Cognition is the first principal component of scores for the Raven's Progressive Matrices and forward and backward digit spans. Childhood shocks is an index of follows the Holmes and Rahe (1967) index of childhood negative life events. All variables are measured at baseline. We divide the sample at the median in each case, aside from gender. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors.

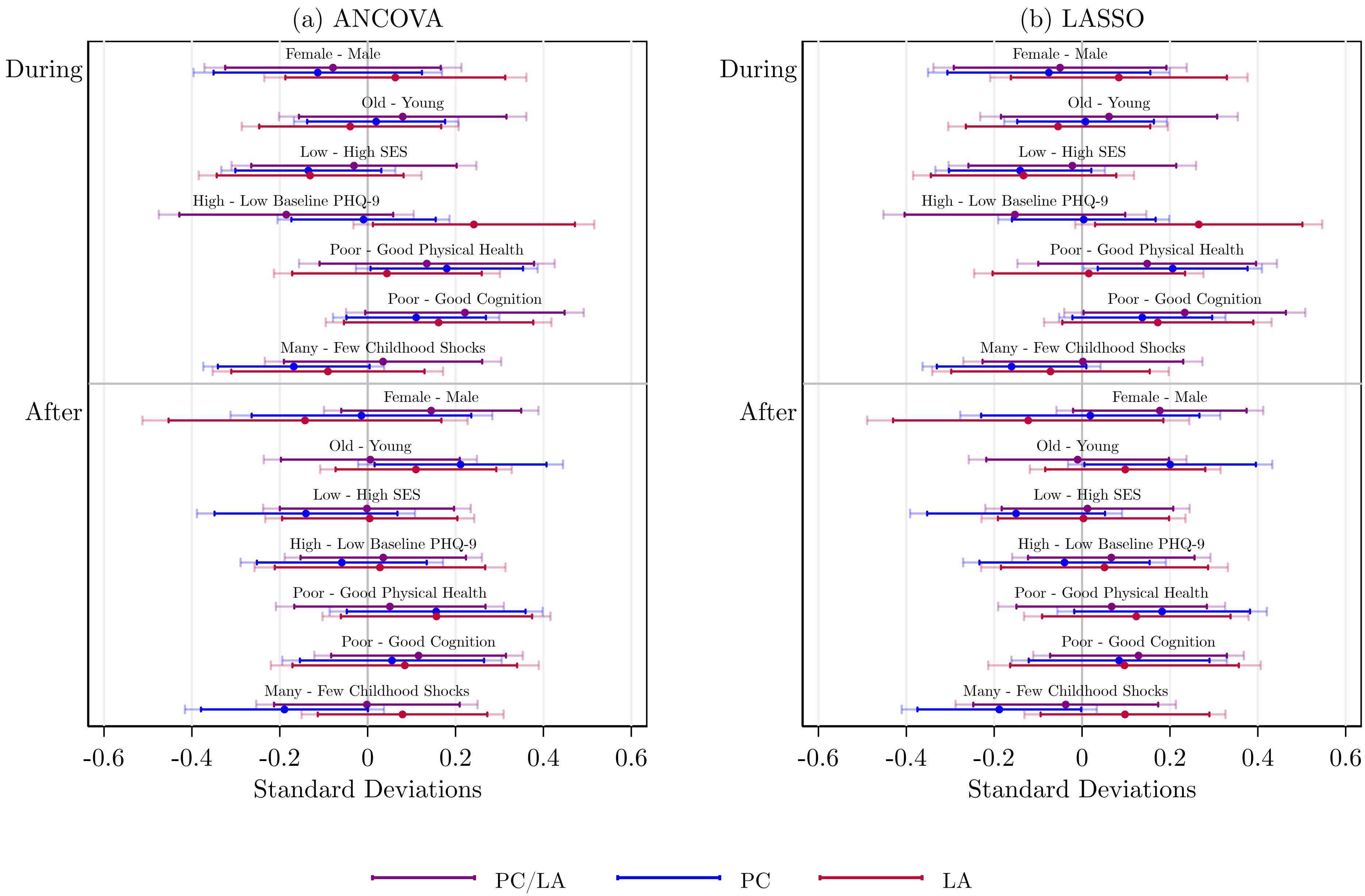

Figure B27: Heterogeneous Impacts on Per Capita Consumption

Note: the figure follows Equation (1) and shows the difference in impacts across subgroups. Panel (a) shows estimates under the ANCOVA specification and Panel (b) shows estimates under the LASSO specification. A positive and significant effect means that the first listed group has a larger increase in per capita consumption. SES is the first principal component of education, caste, earnings, savings, and house size. Physical health is the first principal component of five activities of daily living and recent levels of pain. Cognition is the first principal component of scores for the Raven's Progressive Matrices and forward and backward digit spans. Childhood shocks is an index of follows the Holmes and Rahe (1967) index of childhood negative life events. All variables are measured at baseline. We divide the sample at the median in each case, aside from gender. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors.

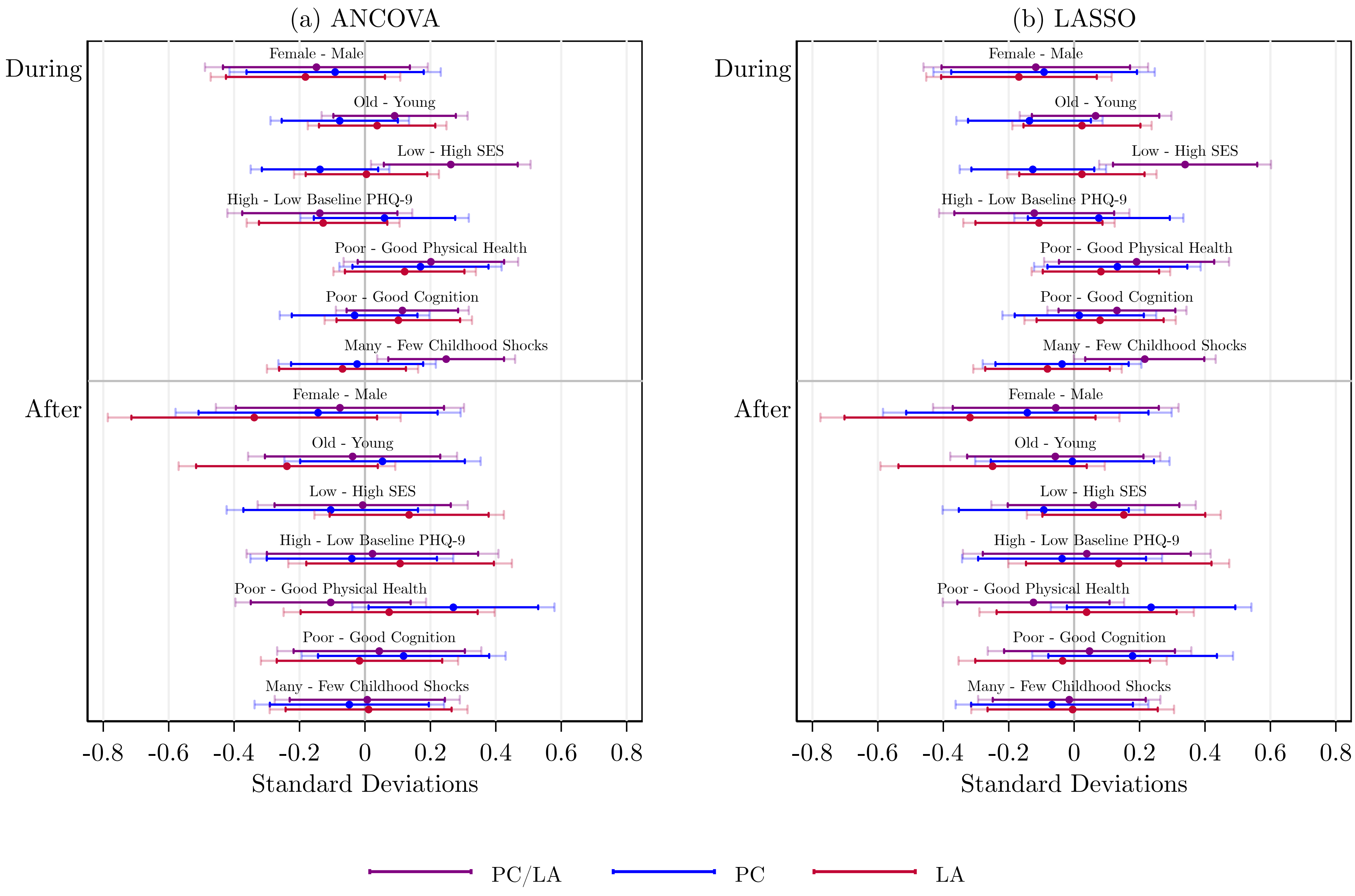

Figure B28: Heterogeneous Impacts on Risk Intolerance

Note: the figure follows Equation (1) and shows the difference in impacts across subgroups. Panel (a) shows estimates under the ANCOVA specification and Panel (b) shows estimates under the LASSO specification. A positive and significant effect means that the first listed group has a larger increase in risk intolerance. SES is the first principal component of education, caste, earnings, savings, and house size. Physical health is the first principal component of five activities of daily living and recent levels of pain. Cognition is the first principal component of scores for the Raven's Progressive Matrices and forward and backward digit spans. Childhood shocks is an index of follows the Holmes and Rahe (1967) index of childhood negative life events. All variables are measured at baseline. We divide the sample at the median in each case, aside from gender. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors.

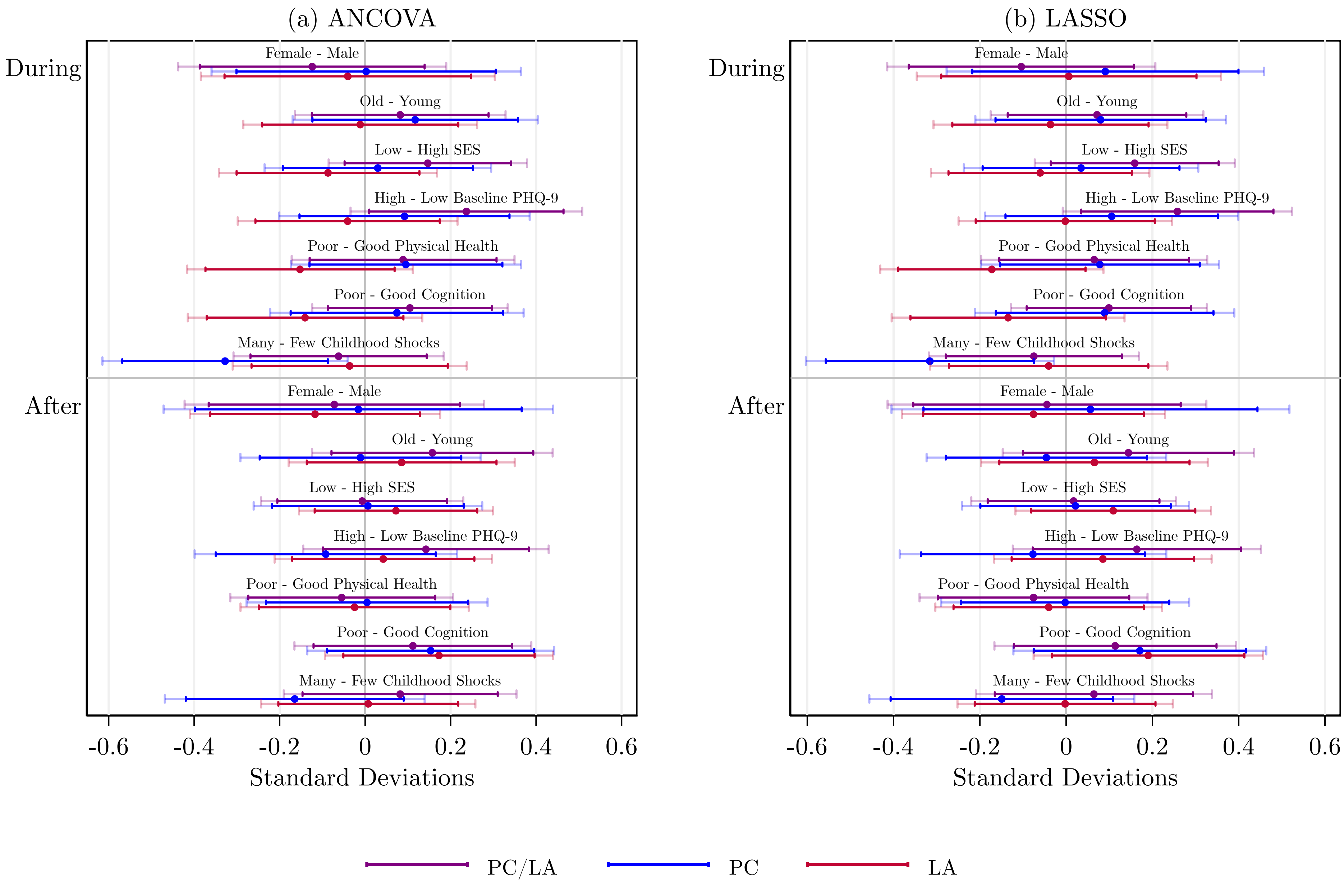

Figure B29: Heterogeneous Impacts on Subjective Wellbeing

Note: the figure follows Equation (1) and shows the difference in impacts across subgroups. Panel (a) shows estimates under the ANCOVA specification and Panel (b) shows estimates under the LASSO specification. A positive and significant effect means that the first listed group has a larger increase in subjective wellbeing. SES is the first principal component of education, caste, earnings, savings, and house size. Physical health is the first principal component of five activities of daily living and recent levels of pain. Cognition is the first principal component of scores for the Raven's Progressive Matrices and forward and backward digit spans. Childhood shocks is an index of follows the Holmes and Rahe (1967) index of childhood negative life events. All variables are measured at baseline. We divide the sample at the median in each case, aside from gender. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors.

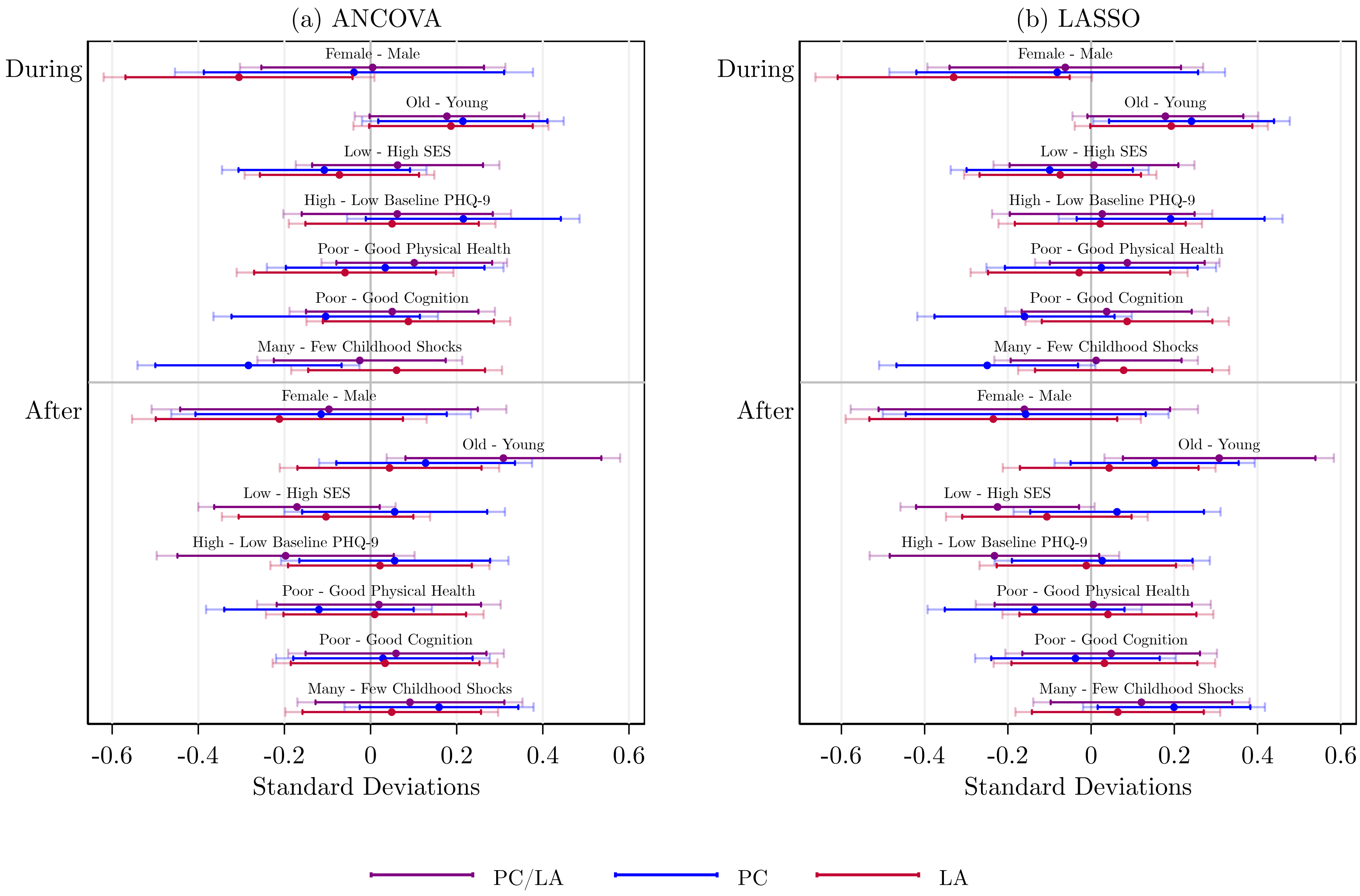

Figure B30: Heterogeneous Impacts on Cognitive Performance

Note: the figure follows Equation (1) and shows the difference in impacts across subgroups. Panel (a) shows estimates under the ANCOVA specification and Panel (b) shows estimates under the LASSO specification. A positive and significant effect means that the first listed group has a larger increase in cognitive performance. SES is the first principal component of education, caste, earnings, savings, and house size. Physical health is the first principal component of five activities of daily living and recent levels of pain. Cognition is the first principal component of scores for the Raven's Progressive Matrices and forward and backward digit spans. Childhood shocks is an index of follows the Holmes and Rahe (1967) index of childhood negative life events. All variables are measured at baseline. We divide the sample at the median in each case, aside from gender. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors.

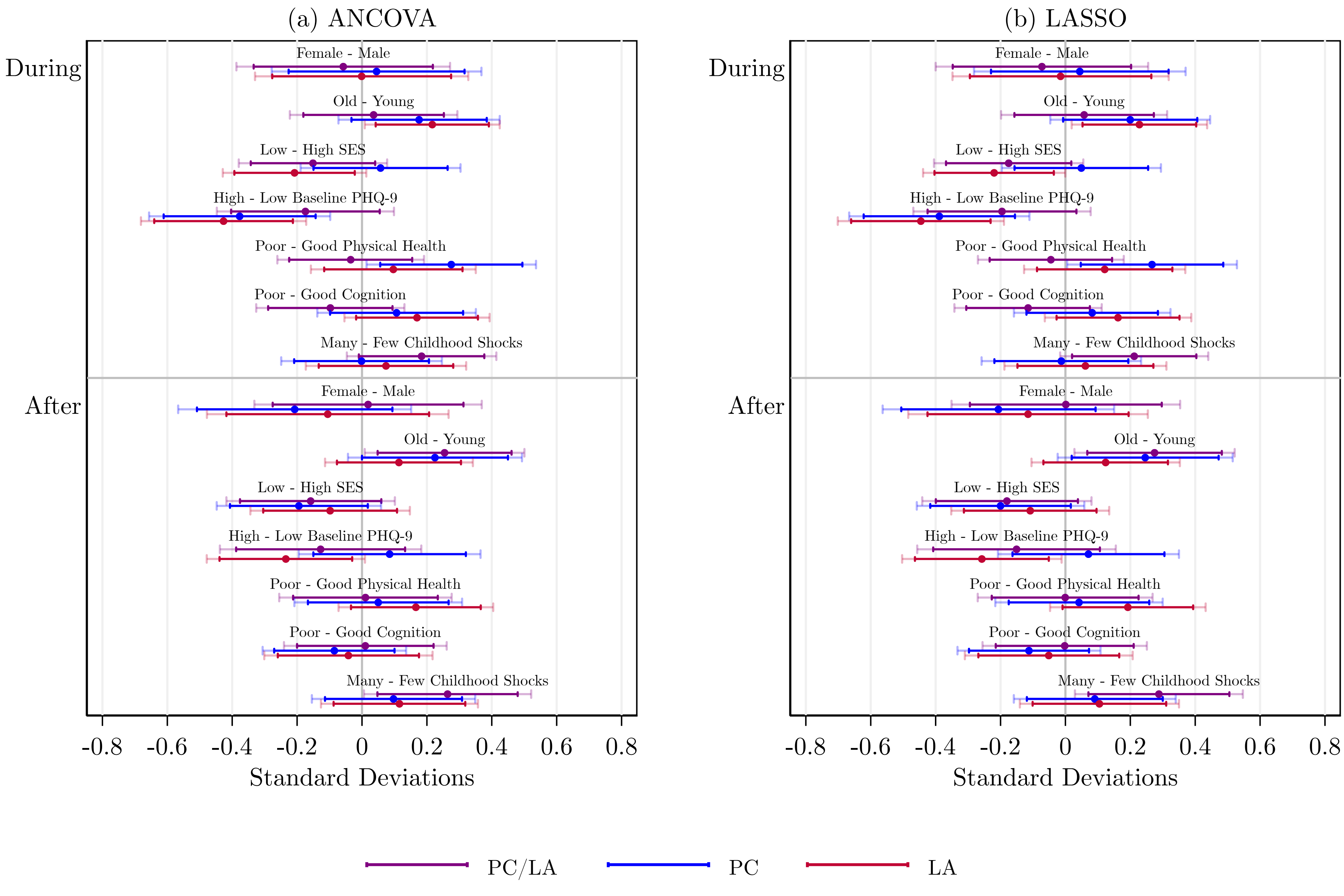

Figure B31: Heterogeneous Impacts on Participation in Household Decisions

Note: the figure follows Equation (1) and shows the difference in impacts across subgroups. Panel (a) shows estimates under the ANCOVA specification and Panel (b) shows estimates under the LASSO specification. A positive and significant effect means that the first listed group has a larger increase in participation in household decisions. SES is the first principal component of education, caste, earnings, savings, and house size. Physical health is the first principal component of five activities of daily living and recent levels of pain. Cognition is the first principal component of scores for the Raven's Progressive Matrices and forward and backward digit spans. Childhood shocks is an index of follows the Holmes and Rahe (1967) index of childhood negative life events. All variables are measured at baseline. We divide the sample at the median in each case, aside from gender. Light bars indicate 95 percent confidence intervals and dark bars indicate 90 percent confidence intervals based on locality-clustered standard errors.

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