UNIVERSITY OF MANNHEIM

MASTER'S THESIS

The Impact of Transitory Income Shocks on Labor Supply Decisions: A Machine Learning Approach

Supplementary Appendix

A thesis submitted in fulfillment of the requirements
for the degree of Master of Science

at the

Chair of Quantitative Macroeconomics
Department of Economics

July 27, 2020

Supplementary Appendix

In this supplementary appendix, I provide more graphical illustrations of my estimations. I present Pearson and Spearman correlation matrices for the estimation features. Further, since I only show median absolute responses as partial dependence plots in the appendix of the main thesis file , I supplement these plots with median percentage and median marginal responses.
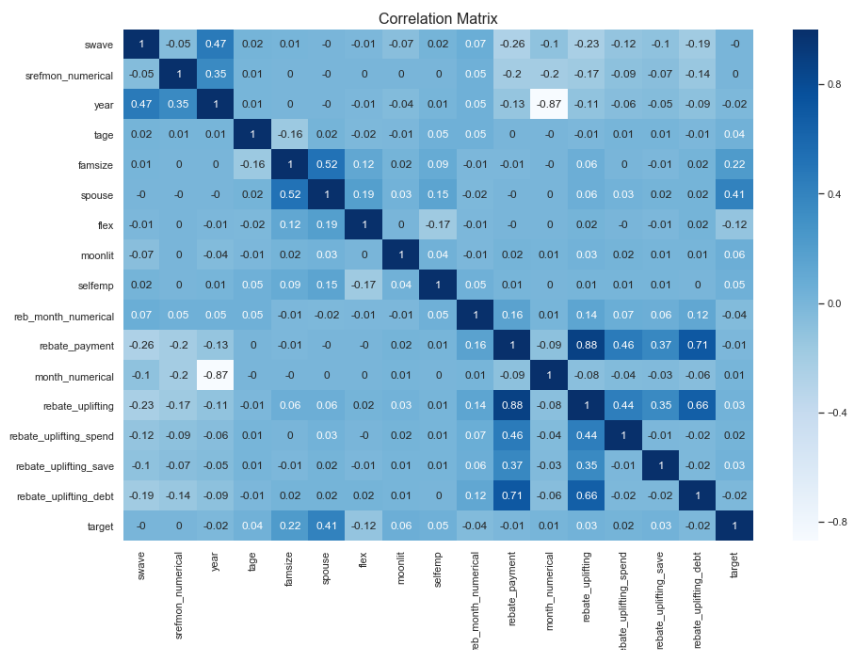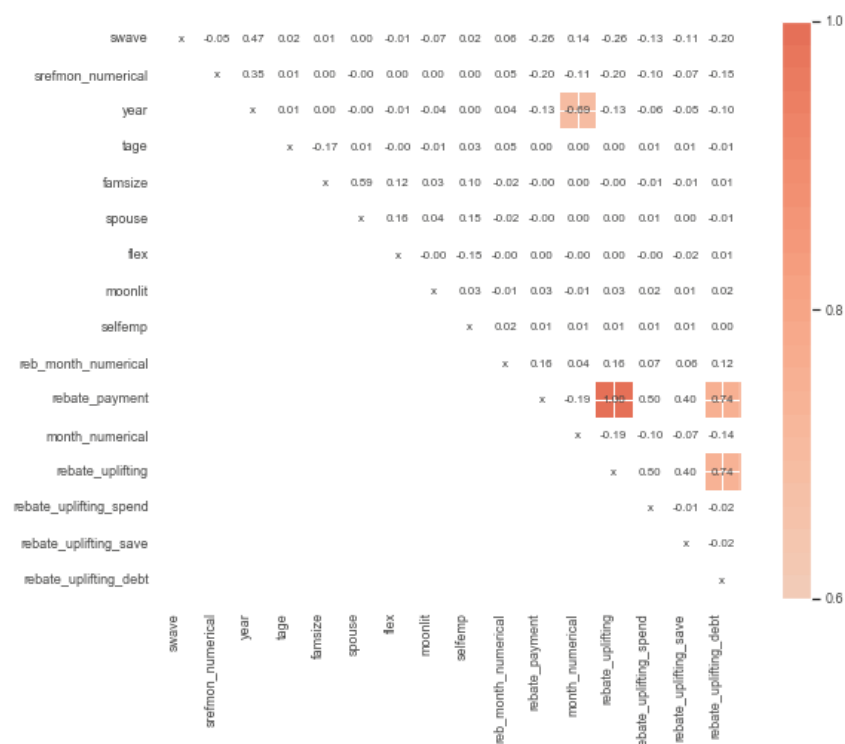
FIGURE 1: Pearson Correlation Matrix

FIGURE 2: Spearman Correlation Matrix

Note: Correlations are transformed into ranks and then measured again. In comparison to the Pearson correlation, the Spearman correlation measures monotonic relationships between features rather than linear relationships.

(A) family size

(B) number of flexible workers

(C) extra income from non regular work
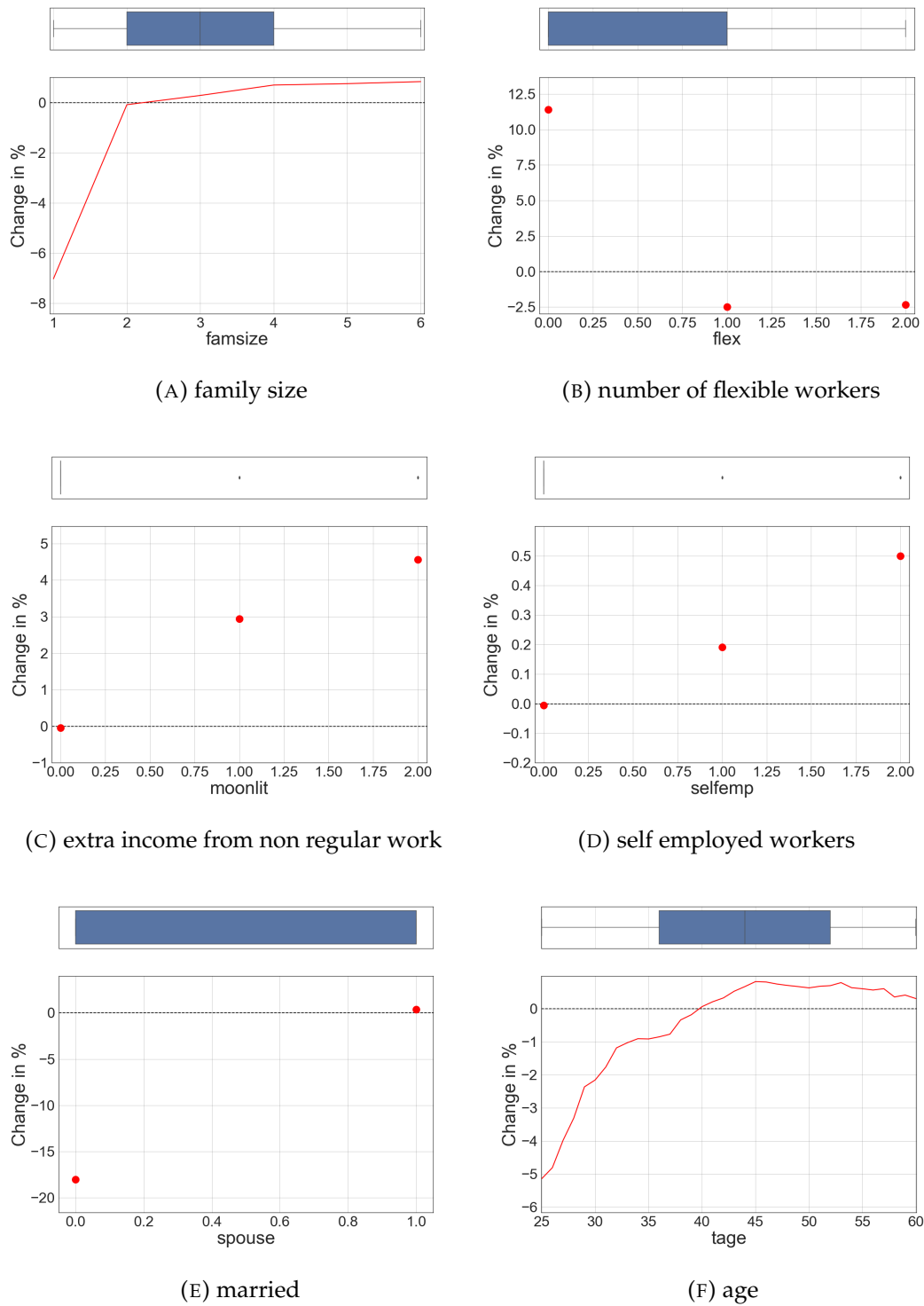
(D) self employed workers

(E) married

(F) age

FIGURE 3: Median Percentage Responses in Rebate Months and Months After

Note: Results based on 87,522 estimations from 11,487 households in rebate months and months after. Changes are measured as percentage points of the reported labor income. The shown boxplots illustrate the distribution of the features in rebate months and months after.
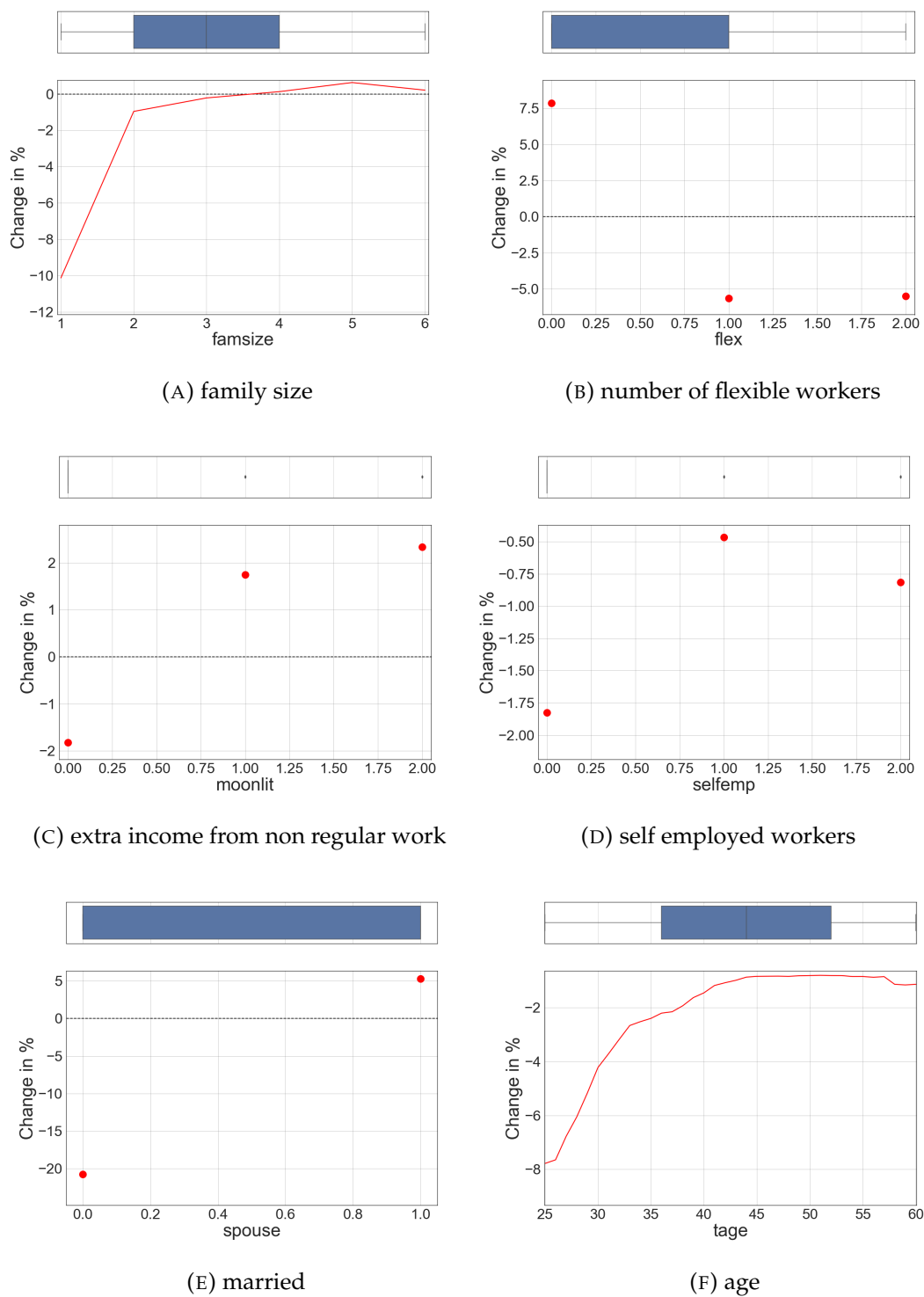
(A) family size

(B) number of flexible workers

(C) extra income from non regular work

(D) self employed workers

(E) married

(F) age

FIGURE 4: Median Percentage Responses in Rebate Months

(G) rebate size

(H) rebate used to pay off debt

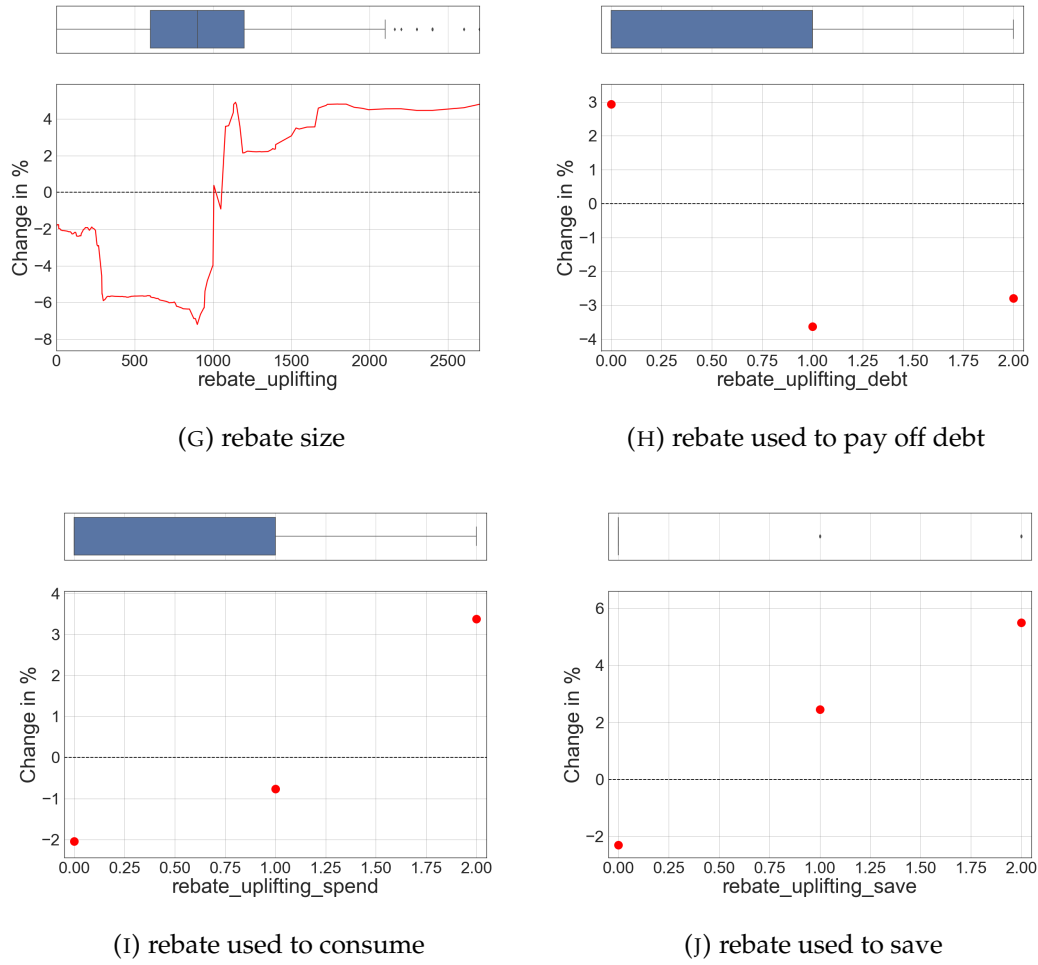(I) rebate used to consume

(J) rebate used to save

FIGURE 4: Median Percentage Responses in Rebate Months (cont.)

Note: Results based on 5,574 estimations from 5,574 households in rebate months. Changes are measured as percentage points of the reported labor income. For rebate months, I include partial dependence plots for features describing rebate characteristics, such as the rebate size and the reported use of the rebate payment. The shown boxplots illustrate the distribution of the features in rebate months.

(A) family size

(B) number of flexible workers

(C) extra income from non regular work
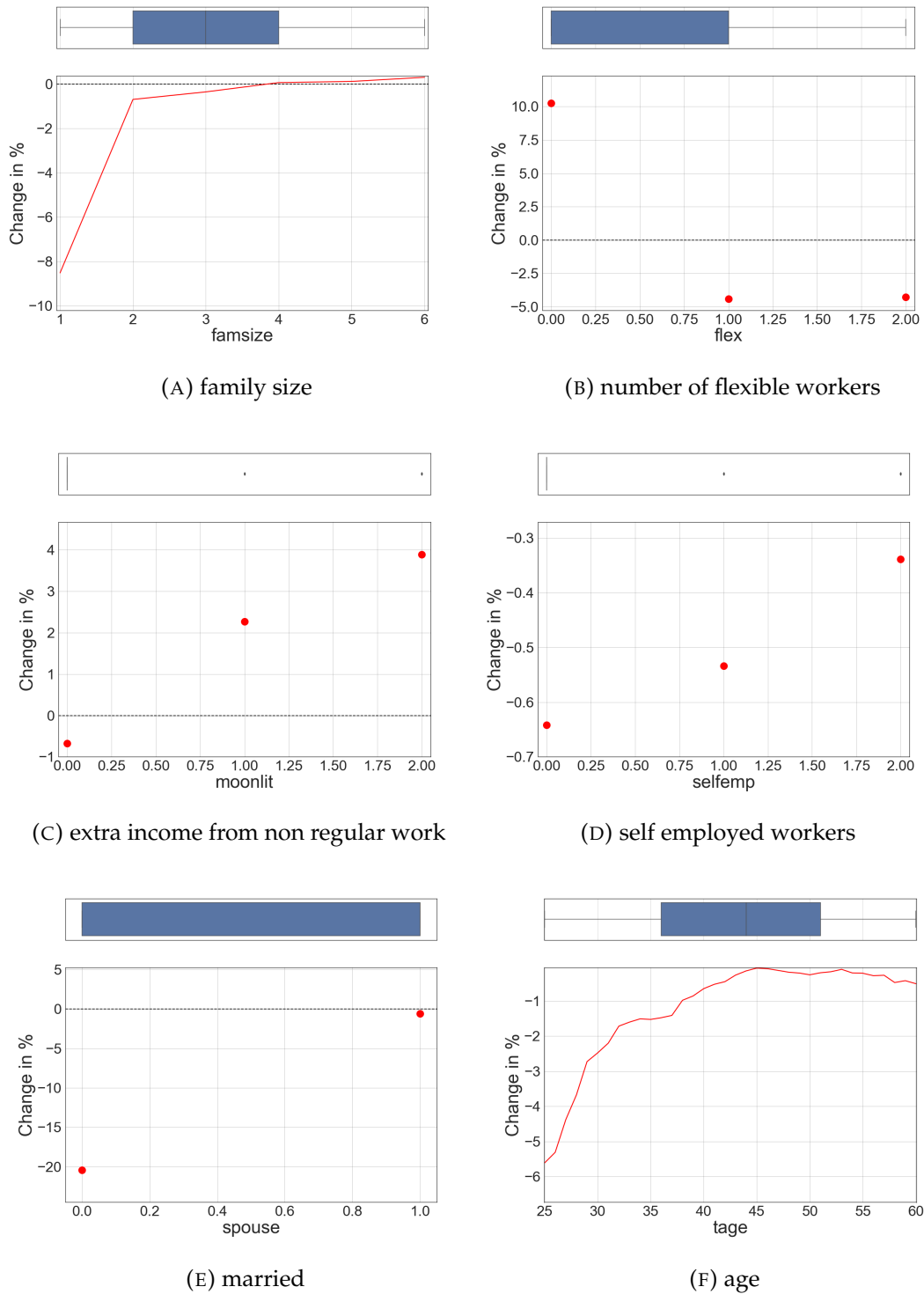
(D) self employed workers

(E) married

(F) age

FIGURE 5: Median Percentage Responses in Lagged Months

Note: Results based on 18,415 estimations from 10,202 households in the first two months following rebate payments. Changes are measured as percentage points of the reported labor income. The shown boxplots illustrate the distribution of the features in the first two months following rebate payments.

(A) family size

(B) number of flexible workers

(C) extra income from non regular work
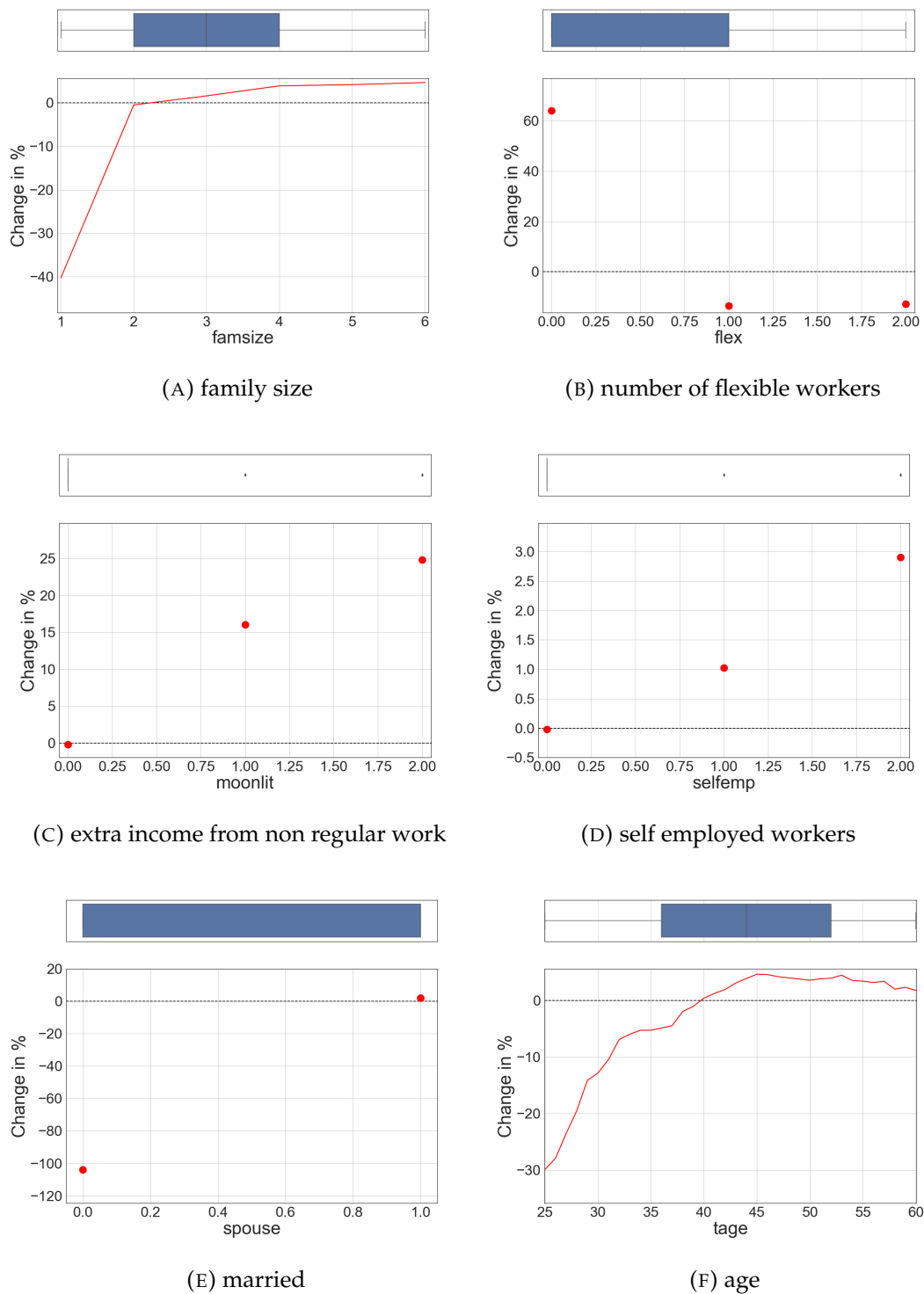
(D) self employed workers

(E) married

(F) age

FIGURE 6: Median Marginal Responses in Rebate Months and Months After

Note: Results based on 87,522 estimations from 11,487 households in rebate months and months after. Changes are measured as percentage points of the reported rebate size. The shown boxplots illustrate the distribution of the features in rebate months and months after.
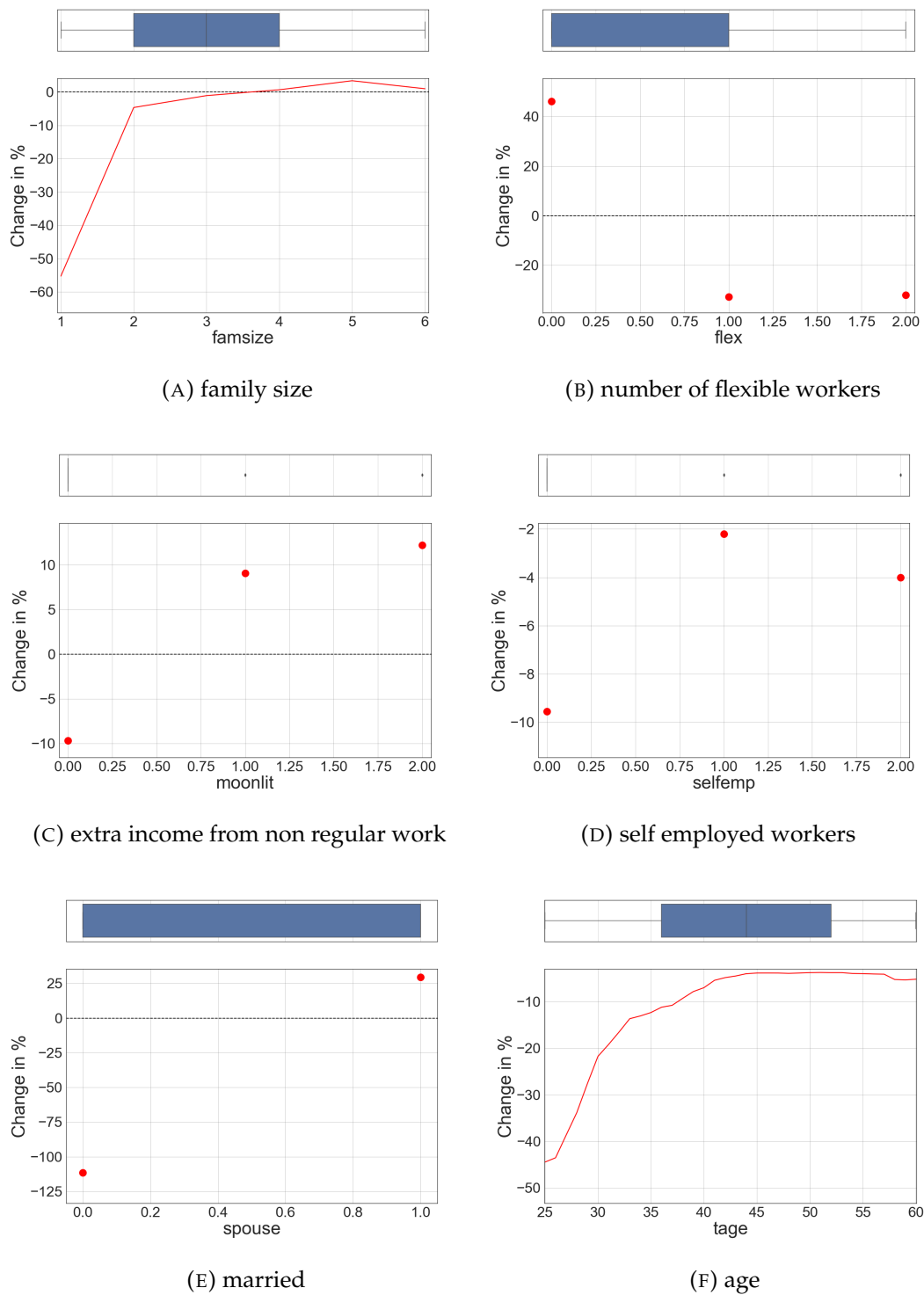
(A) family size

(B) number of flexible workers

(C) extra income from non regular work

(D) self employed workers

(E) married

(F) age

FIGURE 7: Median Marginal Responses in Rebate Months

(G) rebate size

(H) rebate used to pay off debt

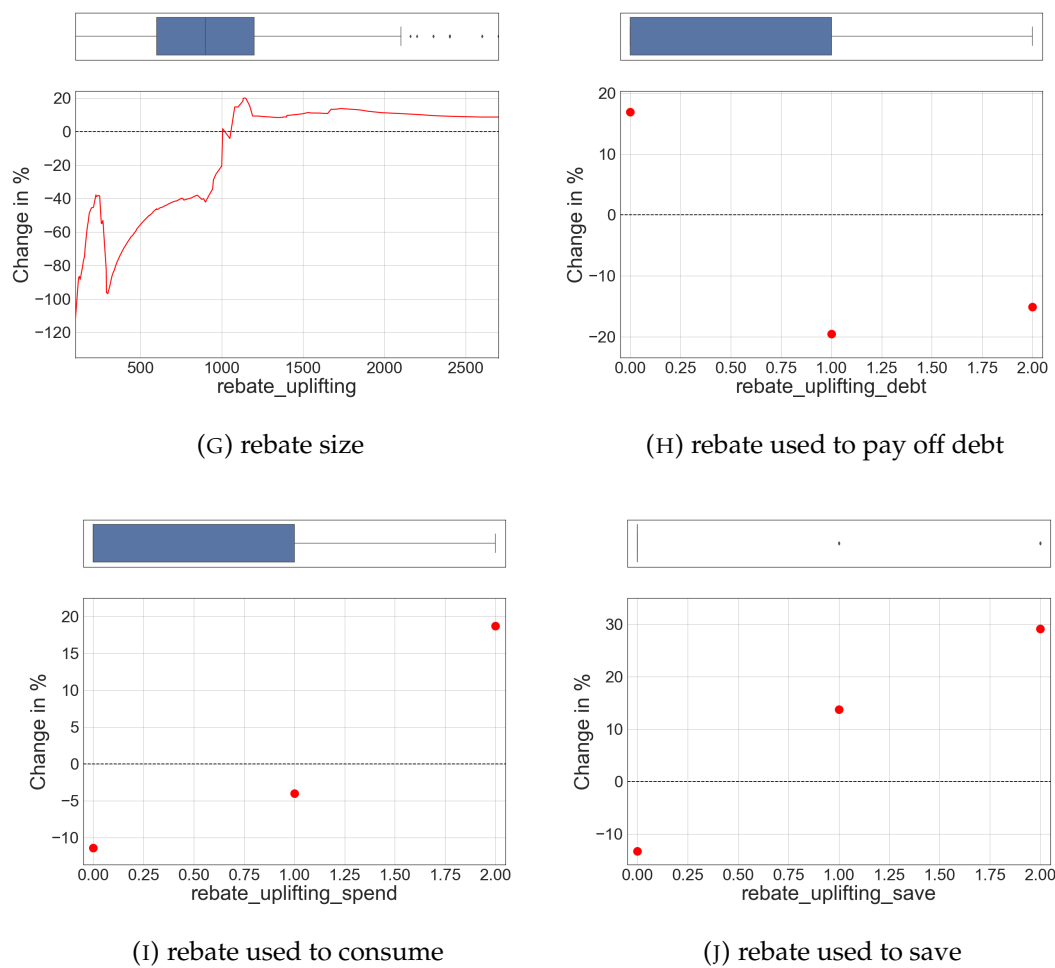(I) rebate used to consume

(J) rebate used to save

FIGURE 7: Median Marginal Responses in Rebate Months (cont.)

Note: Results based on 5,574 estimations from 5,574 households in rebate months. Changes are measured as percentage points of the reported rebate size. For rebate months, I include partial dependence plots for features describing rebate characteristics, such as the rebate size and the reported use of the rebate payment. The shown boxplots illustrate the distribution of the features in rebate months.

(A) family size

(B) number of flexible workers

(C) extra income from non regular work
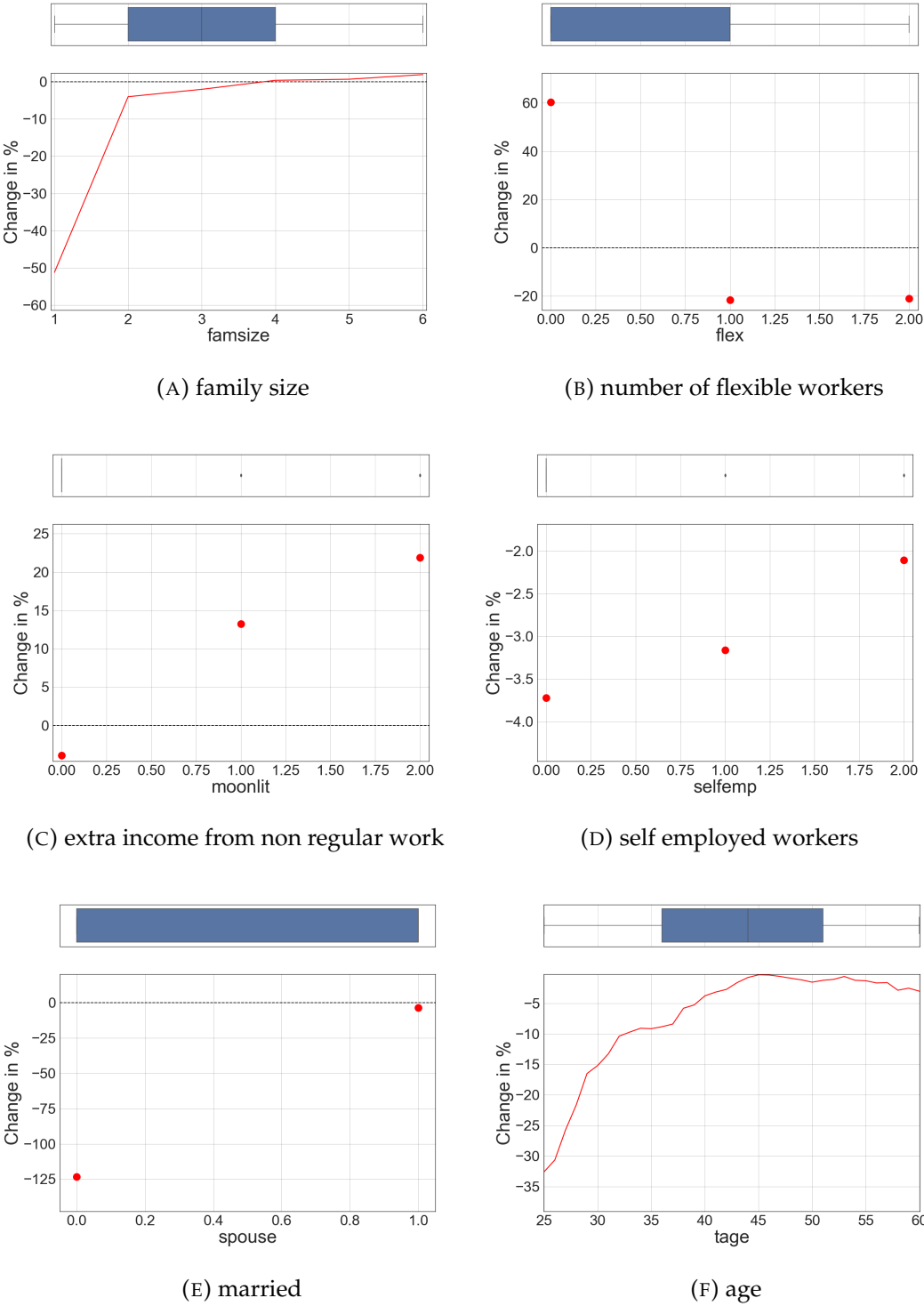
(D) self employed workers

(E) married

(F) age

FIGURE 8: Median Marginal Responses in Lagged Months

Note: Results based on 18,415 estimations from 10,202 households in the first two months following rebate payments. Changes are measured as percentage points of the reported rebate size. The shown boxplots illustrate the distribution of the features in the first two months following rebate payments.